

ENERGY TAX ACT OF 1977

HEARINGS
BEFORE THE
COMMITTEE ON FINANCE
UNITED STATES SENATE
NINETY-FIFTH CONGRESS
FIRST SESSION
ON
TITLE II of H.R. 8444
THE ENERGY TAX ACT OF 1977

AUGUST 8, 9, 10, 11, AND 12, SEPTEMBER 8, 9, 12, 13, 14, AND 15, 1977

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SEPTEMBER 13 AND 14, 1977

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ENERGY TAX ACT OF 1977

TUESDAY, SEPTEMBER 13, 1977

U.S. SENATE,
COMMITTEE ON FINANCE,
Washington, D.C.

The committee met, pursuant to recess, at 9 a.m., in room 2221, Dirksen Senate Office Building, Hon. Russell B. Long, (chairman of the committee) presiding.

Present: Senators Long, Talmadge, Harry F. Byrd, Jr., Bentsen, Haskell, Moynihan, Curtis, Hansen, Dole, Packwood, and Danforth.

Senator TALMADGE. The committee will please come to order.

Is the Hon. Andrew J. Biemiller, director of the department of legislation, AFL-CIO, accompanied by Mr. Rudolf Oswald, director of research, AFL-CIO, present?

Then we will proceed to a panel consisting of Dr. Richard Leshner, president, Chamber of Commerce of the United States; Dr. Jack Carlson, vice president and chief economics, Chamber of Commerce of the United States; Mr. Chris Farrand, manager, resources and environmental quality, Chamber of Commerce of the United States; Mr. Robert Statham, director of tax and finance, Chamber of Commerce of the United States.

Gentlemen, are you here?

Chamber of Commerce?

Mr. FARRAND. Mr. Chairman, Dr. Leshner was told that he was the fourth witness, sir, and he won't be here.

Senator TALMADGE. He is not here, either?

Mr. FARRAND. No.

Senator TALMADGE. All right. We will proceed to the next group, then. The panel consisting of Mr. W. J. Taylor, president and chief operating officer, Illinois Central Gulf Railroad; Mr. Prime F. Osborn, president and chief executive officer, The Family Lines System; Mr. William H. Demsey, president and chief executive officer, Association of American Railroads.

Gentlemen, are you here?

Senator DOLE. Is anybody here?

Senator MOYNIHAN. Would the chairman like me to make a speech?

Senator TALMADGE. Who is present that can testify now?

Mr. BOSWELL. William Boswell of the Mount Airy Refining Co.

Senator TALMADGE. Mr. Boswell, you may insert your full statement into the record and summarize it in the time allotted to you, please.

Who is accompanying you, Mr. Boswell?

Mr. BOSWELL. On my left is Mr. Lamar Lund, the president of Mount Airy Refining Co. On my right is Mr. William Lane, our Washington counsel.

Senator TALMADGE. Fine. You may proceed, sir. You may insert your full statement in the record and summarize it briefly, please.

**STATEMENT OF WILLIAM P. BOSWELL, CHAIRMAN OF THE BOARD,
MOUNT AIRY REFINING CO., ACCOMPANIED BY LAMAR LUND,
PRESIDENT, AND WILLIAM LANE, COUNSEL**

Mr. BOSWELL. Mr. Chairman and members of this distinguished committee, it is an honor to be here before you today.

I am William Boswell. I am the chairman of the board of Mount Airy Refining Co., Mount Airy, La.

Senator TALMADGE. Incidentally, let me say at this point the reason Chairman Long is not here, he was called to the White House. He asked me to open the hearings and he anticipates he will be here about 9:30. I know he would want to hear your testimony but he had to go down to the White House. I am sure he will read it.

Mr. BOSWELL. I understand.

For 60 years my family's business has been marketing petroleum products in the Ohio Valley. We have evolved a flexible delivery system of barges and terminals which has enabled us to compete with many others. We are 100 percent independent and have never sought any governmental relief of any kind on a hardship basis. Through the years we have competed with integrated major companies on a rough and tumble laissez-faire basis. We have managed to survive and grow. But, in the last 3 years a great change has come over our industry, starting in 1973 at the time of the embargo.

Prior to that time the difference in value of crude oil that we independents could purchase and the finding cost of that crude oil were measured in cents per barrel. Suddenly it has become dollars per barrel. I have prepared a written statement which goes into some detail about the way in which crude oil values can be transferred to market prices. To summarize, we have all known within our industry for years that the integrated companies have used the profits from their crude oil production to subsidize their so-called downstream operations of refining and marketing. Heretofore it has been within a tolerably narrow range, today it is intolerable without some redress.

The regulation of the oil industry which we are experiencing today really began in 1959 under the Eisenhower administration. Strange as it seems, at that time we were concerned about keeping foreign oil out of this country because it was too cheap. An elaborate imports program was set up to accomplish that and immediately many special claimants appeared and were recognized. To recall a few, there were the Venezuelans, the Canadians, the importers of record, the utilities, the jobbers, and so on.

Every one of these parties was accorded certain special preferential treatment in what was intended to be a balanced program. Also among these claimants were the small and independent refiners and marketers. They were singled out because of wide recognition that they

were two things: first of all, the spearhead of competition in the marketplace and second of all, the most vulnerable to predatory pricing.

From that time on through all the ensuing governmental regulatory programs, these parties have retained that recognition and proven its accuracy. The preferences and the incentives and the disincentives which have been incorporated into every Government program have been on an inverse ratio according to size and this includes import tickets, access to crude, taxation to some extent, and finally in the last review of Government policy the Federal Energy Act of 1976, the small refiner bias.

You have copies of my prepared statement. You will hear extensively today from three associations of small refiners. I do not want to waste your time by repeating what they will have to say although I am in full accord with it.

Rather, I would call your attention to our particular situation as a striking one on a major issue which is the issue of the stability of Government policy—I might say the integrity of government policy.

The small refiner bias was made effective on May 8, 1976. It was made effective for a specific period of 3 years until May 8, 1979. It was spelled out in the clearest language to encourage and foster the building of small refineries in the United States by independents. It was initiated by the executive branch, and ratified by the House and Senate, for 3 years certain. We broke ground on our new refinery with that incentive on January 5, 1977, and ran specifications product to our tanks on July 5, 1977, exactly 6 months later. In the meantime, the National Energy Plan of 1977 was first revealed in April of 1977, 3 months after we broke ground. Under the proposed National Energy Plan, the small refiner bias would be progressively wiped out, beginning on January 1, 1978.

Gentlemen, there is a man who makes a living by pulling a tablecloth off a table without breaking any of the glasses. This tablecloth cannot be pulled without breaking a lot of glass. We have invested millions of dollars in this effort in exact and precise response to the wishes of Congress and the Senate only 1 year ago. Less than a year later to change this legislation would be to destroy not only the private investment which has been made to support the intent of Government, but to destroy faith in our Government.

The crude oil equalization tax which is the essence of the energy plan of 1977 specifically does away with the small refiner bias over the remaining period of its initial life.

Senator TALMADGE. I am sorry, your time has expired.

Senator Dole.

Senator DOLE. I have no questions. You have indicated there will be number of witnesses' testimony today on the small refiner bias. It is a matter of concern and interest to many of us on this committee and I appreciate your statement. I have read it while you have been summarizing it.

Thank you very much.

Senator TALMADGE. We have a small refinery in Georgia that is supposed to have the problem to which you have referred. What is your remedy now? What do you propose as a solution to your problem?

Mr. BOSWELL. Mr. Chairman, I feel very strongly that the first and most important modification to the energy plan of 1977 would be to specifically establish that the 3-year period for which the small refiner bias was originally legislated be protected 100 percent. I feel that there are 20 months to go in that period, and in that time a great deal more can be determined about the exact amount of protection that is necessary—

Senator TALMADGE. Exactly what does that do now? Get specific.

Mr. BOSWELL. The small refiner bias grants extra entitlements to refiners of a certain size.

Senator TALMADGE. All right. Now you come in that category.

Mr. BOSWELL. Yes, sir.

Senator TALMADGE. What would you say a small refinery is? What is your ceiling?

Mr. BOSWELL. Under that law the ceiling is 175,000 barrels per day.

Senator TALMADGE. Anything under that is a small refinery?

Mr. BOSWELL. Under that law, Mr. Chairman, but actually within our associations there are 70 refiners in that category and over 60 of them are less than 50,000 barrels per day.

Senator TALMADGE. What does that entitle you to do that you want continued?

Mr. BOSWELL. What we want continued more than anything else is the issuance of entitlements to small refiners worth about \$2 per barrel for the first 10,000 barrels per day.

Senator TALMADGE. Tell me exactly what an entitlement is.

Mr. BOSWELL. An entitlement is a number which is arrived at by subtracting the ceiling price of old oil from the selling price of imported crude oil.

Senator TALMADGE. Where have you been getting your crude petroleum?

Mr. BOSWELL. From Louisiana.

Senator TALMADGE. Who specifically?

Mr. BOSWELL. I would like Mr. Lund, our president, to answer that question.

The CHAIRMAN. All right.

Mr. LUND. We have been buying oil primarily from Coral Petroleum.

Senator TALMADGE. Coral Petroleum.

Mr. LUND. Yes, sir.

Senator TALMADGE. Now is that old oil you have been buying or old, old oil or new oil, which?

Mr. LUND. It is a mixture of upper tier and stripper oil.

Senator TALMADGE. What have you been paying for your petroleum?

Mr. LUND. The average cost has been for the month of August slightly over \$13 per barrel.

Senator TALMADGE. You have been paying the world price, then?

Mr. LUND. It has been \$13 per barrel laid into our refinery.

Senator TALMADGE. What is this \$2 differential you are asking for, then? Would you have to pay it assuming the Congress does not agree with what you want? Could that mean that the cost of your petroleum would go to \$15 plus?

Mr. LUND. No, sir. The \$2 would be deducted from the \$13 price.

Senator TALMADGE. In other words, you have not been paying \$13, you have been paying the \$11 plus.

Mr. LUND. No; we have not received any entitlements yet.

Senator TALMADGE. You have received no entitlements whatsoever?

Mr. LUND. No, sir. We just started up in July. We will not receive our entitlements until late September or October.

Senator TALMADGE. All right. These entitlements then would require whoever sends you petroleum to charge \$2 a barrel less than they could sell it to someone else, is that what the problem is?

Mr. LUND. Well, the equation is a balanced one. We would take our right to sell entitlements and find the company that must buy them. That company would be one that had more than the national average of old oil in its crude slate.

Senator TALMADGE. I still don't quite understand what you are driving at. I see the gentleman in the center nodding his head. Maybe he can throw some light on it and enlighten me and some other members of the committee.

Mr. BOSWELL. Mr. Chairman, the entitlements program is truly a highly complex one.

Senator TALMADGE. I know it is.

Mr. BOSWELL. In simplest terms the entitlements are not a tax, they are a system to equalize the cost of crude oil. They take money from the refiners of the cheapest oil and give the money to the buyers of the most expensive oil. The effort is to average their costs and have them meet in the middle.

Senator TALMADGE. All right. That means you could buy oil at \$2 cheaper than the majors?

Mr. BOSWELL. No, sir. It means that after we get through buying all of our crude oil somebody, a major oil company, will pay us \$2 per barrel on the first 10,000 barrels that we run.

Senator TALMADGE. In other words then, that would be some type of subsidy the major oil companies would make to the smaller refineries, is that it?

Mr. BOSWELL. Exactly.

Senator TALMADGE. I think I understand what the situation is now. I presume those majors are a little bit reluctant to sell you oil cheaper than they can sell it elsewhere, then.

Mr. BOSWELL. Yes, sir.

Senator TALMADGE. I have no further questions.

Senator Moynihan.

Senator MOYNIHAN. Thank you, Mr. Chairman.

Thank you, Mr. Boswell, for calling to our attention that the regulation of the oil prices goes back to 1959, President Eisenhower's administration, and it was invoked in order to prevent the country from the perils of cheap oil imports and this was done in the name of national defense. When Dr. Johnson said that patriotism was the last refuge of a scoundrel he underestimated the potential of national defense.

Thank you, Mr. Chairman.

Senator TALMADGE. Senator Packwood.

Senator PACKWOOD. No questions.

Senator TALMADGE. Senator Haskell.

Senator HASKELL. Thank you, Mr. Chairman.

I would like to try and understand better the \$2. You completed your refinery in July and I gather that you feel that the Government has in effect offered you a \$2 reduction on the first 10,000 barrels run through your refinery. Is that the case?

Mr. BOSWELL. Yes, sir.

Senator HASKELL. Can you tell me how that representation by the Government came about, in what form it came?

Mr. BOSWELL. I would like Mr. Lane to answer that question.

Senator HASKELL. Fine.

Mr. LANE. Senator, the small refiner bias was in the Federal energy program since 1974 and originally it was a substitute for benefits which were given to small refiners under the oil import program. In 1976 the Federal Energy Administration proposed to the Congress in an energy action that the value of the small refiner bias be increased, and it was increased to this level of \$2 per barrel.

Senator HASKELL. When was that?

Mr. LANE. In May of 1976 the value of the small refiner bias was increased for the first 10,000 barrels to \$2 per barrel. At that time the structure of the energy law was, as you know, to keep oil under control through May 8, 1979. That was in the law at that time and it is still in the law, and as long as the oil is under control that small refiner bias would remain.

Now what the crude oil equalization tax will do is to raise the effective price of lower tier domestic oil and by doing so it will reduce incrementally one-third each year the value of all entitlements and particularly the value of small refiner bias entitlements. So what this will do will be to effect an immediate erosion of the bias.

Senator HASKELL. Let me ask one more question. Do you have any written document, be it a letter or anything, in your files which would indicate that you relied on this particular law in constructing your refinery?

Mr. BOSWELL. Senator, I don't believe we have such a document as that.

Mr. LANE. Mr. Lund sitting over here did a great many financial projections of the financial future of the refinery. He did an economic projection as to whether it would be a good investment or not. Those are all dated back in 1976 and all those projections assumed the continuation of the small refiner bias as it had been intended in the law at that time.

Senator HASKELL. Let me ask you two questions. No. 1, Does the committee have access to these memorandums?

No. 2, Mr. Boswell, Was it based on these projections that you built your refinery?

Mr. BOSWELL. Yes, sir, absolutely. We have through the years often dreamed of a refinery of our own. It has not been possible because of nonavailability of capital or nonavailability of crude oil, or nonavailability of a stable climate. In this case it suddenly became possible at the time of the greatest need. I would be very happy to submit to this committee the studies which were made by Mr. Lund with the dates that appear on them showing the financial analysis.

Senator HASKELL. That would be very helpful.

[The following was subsequently supplied for the record. Oral testimony continues on p. 1075.]

[Confidential Data and Attachments Deleted]

LAW OFFICES OF BATZELL NUNN & BODE,
Washington, D.C., September 13, 1977.Senator FLOYD HASKELL,
Dirksen Senate Office Building,
Washington, D.C.

DEAR SENATOR HASKELL: At the hearings of the Senate Finance Committee held September 13, 1977, you asked Mr. William Boswell to furnish to the Committee any documents which he might have which would demonstrate that Mt. Airy Refining Company had relied upon the existence of the small refinery bias in reaching a decision to construct its new refinery. Please find enclosed copies of two memoranda which demonstrate that the small refiner bias was an integral part of Mt. Airy's planning process.

As you can see from the profit and loss projection dated September 22, 1976, for example, Mt. Airy estimated that, on 10,000 barrels per day, it would receive small refiner bias benefits of \$ million, which would enable it to earn an operating profit before interest, taxes or capital costs, of \$ million. In other words, without the bias the firm would have lost over \$ million annually.

The projection also shows that this negative result was not due to any "inefficiency" on the part of Mt. Airy Refining Company. Note that if the estimated value to the company of the regular entitlements program were subtracted from its projected crude oil costs (\$ million less \$ million products which the company manufactures. This is not an unusual situation for refiners today. Many, if not most, refiners face the same situation.

This anomaly clearly reflects the extensive downstream subsidization engaged in by the major, integrated oil companies. By operating their refineries at a loss, or at a marginal profit, they make it impossible for an independent refiner to compete on an equal basis. The existing small refiner bias is a means of redressing this imbalance.

Please find enclosed a memorandum setting forth in greater detail the economic justification for the small refiner bias. While we support the arguments made in this memorandum, I would like to reiterate that our major concern is to retain the existing bias during the period for which it was guaranteed, and thereby to protect the ability of small business to rely on government action.

I have taken the liberty of sending a copy of this letter, together with enclosures, to Chairman Long and Senators Talmadge and Curtis. Thank you for your kind attention to this letter. If you have any questions regarding this matter, please do not hesitate to call. I would request that, to the extent possible, the financial information contained herein be afforded confidential treatment.

Very truly yours,

WILLIAM C. LANE, JR.

Enclosure.

THE NEED TO RETAIN A CRUDE COST OFFSET FOR SMALL, INDEPENDENT REFINERS

I. THE PROBLEM BRIEFLY DESCRIBED

The National Energy Act as passed by the House would impose a "crude oil equalization tax" on domestically produced crude oil which would be paid, directly or indirectly, by refiners. Over a three-year period, that tax would bring the cost of controlled domestic crude oil up to current world market levels.¹ The crude oil equalization tax would replace FEA's crude oil entitlements program (10 CFR § 211.67), which was made necessary to even out the advantages enjoyed by refiners with access to lower cost, domestic price-controlled crude when price controls were imposed in 1973. However, the phase-out of the entitlements program as the crude oil equalization tax replaces it would result in the elimination of the small refiner bias aspect of the entitlements program.

The small refiner bias, which continues similar predecessor programs in effect since the 1950s, recognizes the need to preserve the crude-deficient small and

¹ H.R. 8444, § 2031. The tax is initially on lower tier oil (as defined in the EPAA of 1973) and, during 1978, is one-half the difference between the price of lower tier oil and the price of upper tier oil of the same classification. In 1979, the tax will equal the full difference between lower and upper tier prices. After 1979, the tax is on all price-controlled oil and is the difference between the uncontrolled world market price and the controlled price for any classification of crude oil.

independent refiner, and the vital role those refiners play in injecting competition into the petroleum industry. Such refiners have an inherent disadvantage vis-a-vis the major oil companies which is due primarily to artificialities resulting from current oil industry structure. The majors own most of the domestic crude oil and they have set market prices for it, and for their refined petroleum products, which have provided large profits on their crude oil but little or no profit in their refining and marketing functions. The result has been an artificial cost-price squeeze on the independent refiner. Absent a continuation of the long-standing recognition of the majors' crude cost advantages, the small and independent refiners will be unable to sustain their role as a check on the power of the large integrated refiners and will face strangulation as forces over which they have no control squeeze them from the marketplace. Without some substitute for the current small refiner crude cost offset in the bias provisions of the entitlements program, many small and independent refiners will be forced to drop from the market, some next year and many over the next three years.

II. WHO ARE THE SMALL, INDEPENDENT REFINERS?

a. Crude deficient and relatively small

As distinct from the major integrated oil companies, the typical independent refiner must purchase most of his crude oil supply and pay the full market price for it.³ This lack of control over crude supply and the attendant necessity to purchase crude oil from the majors at prices set by them or the OPEC countries are the most critical characteristics of the independent refiners and distinguish them from the integrated majors. They reflect the most pressing problems of even the larger independent refiners. All independent refiners, regardless of size, share the common characteristic of lacking their own supply of crude oil and share the common disadvantage of competing with the vertically integrated majors who ultimately set the market price.

Another characteristic of the independent refiner is relative size. Most independent refiners are small by oil industry standards. Although many independent refiners are obviously extremely efficient, there are some advantages, such as bulk purchasing power, which come with size. It is important to keep in mind, however, that small refiners are efficient and can compete when true crude oil costs are relatively equal.³ An indication of that fact is that the integrated majors themselves own and operate some 56 refineries with capacities under 100,000 B/D of which 35 are under 53,000 B/D,⁴ either of which size would qualify as a small refiner under the EPAA standard of 175,000 B/D or less.

³ In the Emergency Petroleum Allocation Act of 1973, Congress established two precise classifications (which together constitute the independent refiner class vis-a-vis the integrated majors). The term "independent refiner" was defined to cover each firm which (a) in the calendar quarter July-September 1973 obtained more than 70 per centum of its crude oil from unaffiliated sources and (b) distributed a substantial volume of its gasoline output through independent marketers. The term "small refiner" was defined to cover each refiner with a capacity not in excess of 175,000 barrels per day.

The EPAA definition, which is necessarily arbitrary at the borderlines, has produced only two significant anomalies. Sohio and Amerada Hess are not treated as "majors" under the EPAA definition. Standard Oil of Ohio, by reason of crude deficiency in 1973, is defined to be an "independent refiner" although it is recognized historically as a major; this crude deficiency will be corrected when Alaskan crude, in which Sohio has a substantial interest, begins to flow. Amerada Hess is something of a special situation, not only in classification, but due to several additional factors involving its Virgin Islands refinery.

The definition of "small business" for purposes of federal aid programs administered by the Small Business Administration comprises firms (a) with total refining capacity not exceeding 50,000 barrels per day and (b) having not over 1,500 employees. For the purpose of sale of government royalty oil administered by SBA, small refiners are defined as those with 45,000 barrel-per-day capacities. A refiner and its affiliates (whether or not related to petroleum) are counted for these definitions. The SBA definitions comprise only a portion (substantially less than half) of the capacity in independent refiner hands (using that general term in contradistinction to the majors). A precise figure is not available because the impact of the affiliation and number of employees' rules is not generally assembled and published. Accordingly, it must be recognized that any Federal action limited to SBA "small business" refiners covers substantially less than half of the independent refining industry.

⁴ In its Preliminary Report on gasoline decontrol (August 1977) FEA said (at p. 60): "Although the allocation and price regulations helped to preserve the shares of the independent and small refiners during the embargo-caused national crude oil shortage in 1974, the overall trend since 1971 and since the adoption of the FEA's Entitlements Program indicates that these refiners are able to maintain their market share when they have equal access to a competitively priced crude oil supply." (Emphasis added.)

⁵ NPRA, FEA Capacity List, July 22, 1977.

b. Market importance of majors

According to the Federal Trade Commission's 1973 study, integrated majors, as distinct from independent refiners, include the following 18 firms: Exxon, Gulf, Standard (Ind.), Texaco, Shell, ARCO, Mobil, Soconal, Sun, Union, Phillips, Continental, Cities Service, Getty, Standard (Ohio), Amerada Hess, Skelly and Marathon.⁵ The aggregate capacity of these 18 major companies is now at about 75% of total domestic refining capacity; the remaining 25% is spread among some 110 companies who are generally small and independent refiners. More important for competition, the 1977 FEA gasoline decontrol study⁶ shows that small, independent refiners have only about 21 percent of the total gasoline market.

c. Close relationship of independent refining and marketing activities

In addition to the sale of products at wholesale, many independent refiners also engage directly in marketing products at retail. Independents vary in the extent of such downstream activities, some marketing only through jobbers and others through a combination of jobbers, independent retail outlets and/or company owned retail outlets. But a close interrelationship between refining and marketing exists. While independent marketers are free to buy from the majors, the independent refiners constitute their surest supply source.

d. Major vs. independent price differentials

Another basic characteristic of the independent refiner is that the prices of the independents are, and have been over the years, below those for the major brands. This results in part from cost savings (e.g., absence of extensive brand advertising, lack of credit cards and certain services) effected by the independents. It is also *required* by the marketplace because historically purchasers have expected a lower price from the unbranded independent to persuade them to buy. The import of these facts is two fold: (1) the independents' marketing strategy depends upon price competition, i.e., lower product prices (to the benefit of price-conscious consumers) and (2) if a major (by corporate choice or by government edict) sets its price at the independent's price, it is setting a price which the independent can "meet" only by going lower. Thus, the independent refiner's competition disadvantage is that it has higher crude oil costs than the major which cannot be recovered by raising marketing prices above those set by the majors.

III. THE INDEPENDENT REFINER IS THE MAINSPRING OF COMPETITION IN THE PETROLEUM INDUSTRY

Ominously, from the viewpoint of the public interest, the total number of refining companies has declined dramatically from 223 in 1951 to 129 in 1977. This decline in the total number of refining companies reflects essentially a decline in independent refiner numbers.

The importance of the independent refiner to competition and lower consumer prices has long been recognized. The FTC has concluded that the independent refiners provide an injection of competition into the market disproportionate to their size or market share:

"The record is clear that independent refiners and marketers exert a beneficial influence upon competition that is disproportionate to their actual representation within the petroleum industry: they have long been innovators of marketing methods and have been the primary agents in translating efficiencies at the production and distribution levels into lower prices at the retail level."⁷

The independent refiner affords the only real assurance to marketers of unbranded gasoline of the availability of gasoline supply. While such marketers may buy significant amounts of their gasoline supply from major refiners, the independent refiner is their ultimate guarantee of an assured supply source and competitive prices in the market. Likewise, for the independent oil producers, the independent refiner constitutes a viable alternative to the major oil companies as an outlet for crude oil production. The independent segment of the refining

⁵ FTC, "Investigation of the Petroleum Industry," Committee Print, Senate Permanent Subcommittee on Investigations, 93rd Congress, 1st Sess., July 12, 1973, at p. 5.

⁶ See footnote 3.

⁷ Federal Trade Commission Report on Anticompetitive Practices in Marketing of Gasoline, June 30, 1967.

industry is critically important, therefore, to the maintenance of effective competition throughout the entire petroleum industry.

The Senate Select Committee on Small Business summed it up: "The independent refiner is thus the *mainspring of competition* within the oil industry. His presence not only has economic benefit to individual consumers in their private capacities, but also has indirect public benefit to them as taxpaying citizens, by assuring a competitive market for the Federal Government in its vast annual purchases of petroleum products." (Footnote omitted) (Fourteenth Annual Report, p. 74) (*Italic supplied*).

In 1963, the FTC again noted the importance of the independent refiner in the preservation of competition and in maintaining the welfare of the independent marketing sector. The FTC Staff Report on its Investigation of the Petroleum Industry concludes:

"(1) The eight largest majors have effectively controlled the output of many of the independent crude producers.

"(2) A high degree of control over crude is matched by relatively few crude exchanges with independents, an exclusionary practice which denies a high degree of flexibility to the independent sector while reserving it to the majors.

"(3) Independent refiners are largely dependent on the majors for their crude supply, but independents sell very little of their gasoline output back to major oil companies. Independent refiners sell the largest amount of their output to independent gasoline marketers and to their own stations. *Thus, the welfare of the independent marketing sector is largely dependent on the well-being of independent refiners.*

"(4) *The continued existence and viability of the independent refiner is necessary for the survival of the independent marketer.* This is especially true since the eight largest majors rarely sell gasoline to the independent marketers." (*Italic supplied*.)

IV. THE SMALL REFINER OFFSET TO THE MAJOR'S CRUDE COST ADVANTAGE: AN INTERIM SOLUTION TO THE INDUSTRY'S STRUCTURAL PROBLEM

The basic problem for the independent segment of the industry is that there is not now a free, open and competitive market in the supply of crude oil.⁹ This is due to the fact that a few integrated major oil companies own or control over 70% of domestic crude oil. Accordingly, Congress has recognized for nearly two decades the need for special consideration for small, independent, crude-deficient refiners. This consideration is currently reflected in the crude oil entitlements program¹⁰ with its small refiner bias.¹¹ There are at least four valid reasons for

⁹ See letter to Senator Edward M. Kennedy from Alfred F. Dougherty, Jr., Director, Bureau of Competition, Federal Trade Commission, July 13, 1977, 123 Cong. Rec. at S12771-S12774 (July 25, 1977).

¹⁰ *The Entitlements Program*: Foreign oil is sold at world market prices and is not subject to the price lids imposed on domestic oil. Some types of domestic oil can be sold at higher or uncontrolled prices to encourage development of new U.S. sources of crude. Pursuant to the FEA's "entitlements" program (10 CFR § 211.67), each month the FEA gathers information from U.S. refiners on total crude runs through their refineries and the percentage of those runs made up of price-controlled domestic crude and the percentage made up of uncontrolled domestic or foreign crude. A national ratio between controlled domestic and uncontrolled domestic and foreign crude is determined. "Entitlements" to run barrels of the cheaper price-controlled crude are then issued to refiners by applying the national ratio to each refiner's total runs. Refiners who have run more lower priced domestic crude in a given month than the national average must buy "entitlements" for those additional barrels of domestic crude runs from refiners who have run less such crude than the national average and thus have been issued more entitlements than they need to cover such crude runs. Each entitlement is assigned a dollar value, based on the difference between the national average of controlled prices and uncontrolled prices. The money which changes hands is designed to even out, but only at the refinery level and only in terms of national averages, what would otherwise be an unfair price advantage for those refiners which have greater access to low cost price-controlled domestic crude oil than those refiners which must use higher priced crude.

¹¹ *The small refiner bias*, 10 CFR § 211.67(e), is a short-hand way of describing the system of granting small refiners (both those who are buyers and those who are sellers of entitlements) additional entitlements primarily in recognition of the need for a crude oil cost offset. The bias is calculated on a refiner's runs to stills, the value of the bias declining as the size of the refiner increases. The bias accounts for approximately 5.5% of the total dollars transferred under the FEA's entitlements program. Listed below are the values of the bias for small and independent refiners of various sizes calculated by the FTC in July 1977 based upon an entitlement price of \$8/bbl: 10,000 B/D—183.0¢ per barrel crude; 15,000 B/D—144.2¢ per barrel crude; 30,000 B/D—88.8¢ per barrel crude; 50,000 B/D—41.6¢ per barrel crude; 100,000 B/D—12.6¢ per barrel crude; and 175,000 B/D—1.5¢ per barrel crude.

a continuation of such separate treatment for small refiners.

a. An offset is needed because the majors create an artificial price structure by operating refining and marketing at or below cost

Historically, the majors have used their downstream refining and marketing operations primarily as an outlet for their profitable crude production; profits made in crude production have been used to subsidize refining and marketing operations which have been conducted at or below cost. A combination of this history, the imposition of product price controls and massive investment in a distribution system designed to maximize market share rather than promote price competition has tended to perpetuate the subsidization.

This basic economic fact has been repeatedly recognized in government studies and, indeed, by oil industry leaders. For example, in the FEA hearings in February 1976 on the reevaluation of FEA's price and allocation controls, major oil companies stated that their refining and marketing activities did not earn an acceptable return or, indeed, operated at a loss.¹³

The competitive predicament of the small, independent refiner was recently confirmed in a report prepared on his own time by John H. Phelps, a respected FEA economist. The report concludes, according to Morton Mintz of *The Washington Post*, that "the majors clearly have market power incompatible with classical competition and use it manipulatively by taking 'upstream profits,' made on production to pay for huge outlays that prop up unprofitable operations downstream, particularly refining and marketing."¹⁴ As long as profits made in crude markets, where meaningful competition does not exist, are used to subsidize operations in the refining/marketing segment where the crude refiners face competitive challenge, some recognition, in terms of an offset for independents, must be maintained in order to retain that competition and keep consumer prices down.

This view was persuasively endorsed very recently by the Federal Trade Commission's Bureau of Competition in a letter to Senator Kennedy as Chairman of the Subcommittee on Antitrust & Monopoly of the Senate Judiciary Committee.¹⁴ That letter recognized the inherent disadvantage of the independents vis-a-vis the majors and suggested continuation of the small refiner bias type of relief pending some long-term correction of the problems created by the industry structure.

"If the petroleum industry is and had been historically characterized by workable competition at all its levels, we would not hesitate to say that economic efficiency and public welfare would be enhanced by the elimination of the small refiner bias. But if the ability of independent refiners to enter and become efficient operators is and has been impaired by an existing or historical anticompetitive industry structure, a different public policy toward small refiners may be warranted.

"In our view, which we are pursuing in the *Exxon* litigation, the industry structure is noncompetitive and has been for a long time. Independent refiners, if they have had access to crude oil at all, may have had to pay effectively more (without cost justification) than their larger competitors. Through their control over crude supplies and crude and product prices and because of their propensity to use crude profits to subsidize downstream operations, the majors seemingly have been able to make independent refiners the victims of an artificial refinery margin squeeze and to deter entry or expansion by such independents. *Government assistance to victimized classes of refiners, in the short run, may be required to offset these anticompetitive problems until the antitrust mechanism can make the industry structure competitive.*

"Until a more open crude oil market can be established (by legislation or otherwise) or until the refinery squeeze phenomenon can be eliminated (by vertical divestiture legislation or litigation, publication of major company financial data by functional segments, or some other solution), *an interim legislative measure to encourage efficient, independent refiners may be warranted.*" (Emphasis added.)

b. An offset is needed to make up for independents' lack of access to owned crude oil supplies

Small refiners with no access to owned crude oil supplies are at a definite crude cost disadvantage as compared with those integrated refiners who own their

¹³ E.g., Statement of Sun Oil Company, p. 2; Continental Oil Company, p. 3; Exxon, p. 4.

¹⁴ Mintz, Private Study Says 18 Oil Divestitures Could Cut Gas Cost, *The Washington Post*, July 2, 1977, at A5, Col. 1.

¹⁴ Letter to Senator Edward M. Kennedy, see footnote 7.

own crude oil. For example, in a recent study mandated by Congress dealing with the impact of FEA regulations on independent and small refiners, the FEA said: "*First, major refiners have definite advantages in access to preferred crude supplies, in buying at low cost directly from producers, and in minimizing crude delivery costs. It is our experience that other (non-major) refiners actually incur crude costs of 20-40¢/barrel over producer prices in order to obtain required supplies.*"¹⁵

More important, the majors' ownership of domestic crude, even without advantages such as the depletion allowance and foreign crude ownership, nevertheless provides a source of healthy profits and cost breaks, particularly as a result of pricing set by the OPEC cartel. As an example, one experienced refiner has estimated that production and transportation costs of domestic crude are in the range of \$4/bbl. As can be seen, even today, every barrel of so-called "old" or lower tier crude produced would yield, on a selling price of about \$5.50, a profit of about \$1.50 (about 3.6¢/gallon) and upper tier oil selling at \$10.00 would yield a profit of about \$6+/bbl. (15¢/gallon). And when the crude oil equalization tax is fully implemented, it has been estimated that lower tier oil will yield \$2/bbl. profit and upper tier oil \$7/bbl.¹⁶

Profits earned from the production of crude oil are vitally necessary for the continued exploration for and production of the crude oil which is essential for all refiners. However, it must be recognized that such profits do provide a dramatic *crude cost advantage* for the major integrated company over the small and independent refiner who must purchase crude at the market price. The inherent disadvantage suffered by the independents can be seen when the majors use profits from production not for exploration but as a subsidy for the refining/marketing operation which is not carried on as a separate profit center.¹⁷

c. An offset is needed because the entitlements program alone (or its replacement by the crude oil equalization tax) does not fully equalize prices and leaves many independent refiners with abnormally high costs.

Without the small refiner bias or some similar crude cost offset, the existing entitlements program¹⁸ would leave the small refiner at a disadvantage, notwithstanding the intention of the program to "equalize" prices. First, the entitlements program does not compare the actual crude costs of an integrated refiner (exploration, lifting, etc.) with the actual crude costs of the small and independent refiner (the price paid in the market). Instead, the major's "cost" is deemed to be the price at which it "books" its crude in at the refinery, which already includes its production profit. That artificial "cost" is compared against the independent's real cost which is the price which it must pay to the major or other producer in the market. Secondly, even if the major refiner must go to the market, it is likely to pay less than the small independent. As the recent FEA Report to Congress¹⁹ states: "[M]ajor refiners have definite advantages in . . . buying at low cost directly from producers. . . ." Beyond the advantages described by the FEA Report, there are other disparities which are not equalized by a system based on price averages and which are borne especially by the independent: (1) many independents must buy "sweet" foreign crude oil at higher prices than the average for imported oil, and (2) although many independents use lower quality domestic oil which imposes higher refining costs, they must pay the same entitlement price for each such barrel as a refiner using higher quality domestic oil. The major oil company purchaser gets to keep the benefit of its lower than average costs in such a system. Recognizing these particular problems of the small, independent refiners, the small refiner bias was employed to help offset the advantages enjoyed by the majors. Substitution of the entitlements

¹⁵ FEA, Office of Oil and Gas, Impact of Mandatory Petroleum Allocation, Price and Other Regulations on the Profitability, Competitive Viability and Ease of Entry of Independent Refiners and Small Refiners, Report to Congress, Appendix p. 3 (March 1977).

¹⁶ United Refining Company Study on the effect of the crude oil equalization tax, submitted to Senate Subcommittee on Antitrust & Monopoly, July 15, 1977.

¹⁷ This has been confirmed by Phelps (see footnote 11). His Summary states: "Since cross-subsidization is generally viewed as the covering of financial losses in one area of operations by profits in another, this clearly was taking place by the majors for their downstream operations. A comparison of standard financial ratios indicates that the majors' total domestic operations beyond the lease were not financially viable. . . . As a result, producing earnings were increasingly used to subsidize downstream petroleum operations in the late 1960's and early 1970's."

¹⁸ For a description of the entitlement program, see footnote 9.

¹⁹ See footnote 15.

program and its small refiner bias with a crude oil equalization tax without such an offset provision is not justified and will place the existence of that valuable small refiner segment of the industry in jeopardy.

d. An offset is needed to preserve the small refiner as a competitive catalyst in the petroleum industry

The existing small refiner bias in the entitlements program is designed to offset some of the crude cost advantages mentioned above. This offset also recognizes the value which this country, for years, has placed on the role of small business in our society. Not only is a dispersion of power in numerous units throughout the country a valuable social goal, it serves rural and farm populations which might otherwise be abandoned or served at intolerable expense, and provides a base from which new competition may emerge and grow.

Some have argued that inefficient refineries have come on stream to take advantage of excessive benefits and that existing small refineries have abused the bias by so-called processing agreements under which the refiner gets small refiner bias treatment for oil refined for it by someone else at a larger refinery. Of course, FEA has recently eliminated the bias entitlements for processing agreements and has had the full support in that effort of most small and independent refiners, and their trade associations, who are absolutely opposed to such abuses. As to whether some changes in the current bias may be appropriate, that is a question which the new Department of Energy can consider and its predecessor, the FEA, has indicated it is currently considering. What is absolutely clear, however, is that the small and independent refiner needs some substantial offset against the majors' crude cost advantage.

The small refiner program, in its present form, was put in place in May 1976 after substantial and detailed review of the program by FEA and Congress. At that time, FEA advocated, and Congress approved, an increase in the bias from its original 1975 level because of the small refiners' continuing cost disadvantages. If it is now believed that inefficiency is encouraged by the current levels, adjustments can be made using procedures already in place for just such a purpose. It is not necessary to destroy an entire program essential to viable competition in the marketplace in order to correct what some may perceive to be a problem in a small part of it. Surely, the fine-tuning of the program, which is FEA's responsibility, should not be performed with a meat cleaver as would happen if the crude oil equalization tax is permitted to eliminate the entitlements program without a provision in the new legislation continuing the offset for small refiners to the crude cost advantages of the majors.

CONCLUSION

In its present form, the proposed National Energy Act would abruptly terminate the government's long-standing policy of helping to preserve our nation's approximately 110 small and independent refiners. Yet, because even the Administration concedes that refiners will be forced to absorb a third of the crude oil equalization tax, the need of these refiners for that assistance has never been greater. The public's interest in continuing the competition which small refiners provide in this time of escalating consumer prices is equally compelling.

A crude cost offset for small and independent refiners has taken various forms in the past and just as readily can be adapted to the future. The entitlements program, by its small refiner bias, provides the vehicle presently used to implement that relief. Clearly, the termination of the entitlements program need not, and should not, result in killing an established national policy which has proved its worth over the years, both for consumers and the government. Methods exist, totally harmonious with the purposes and methods of the Act, by which that policy can be maintained. But some form of continued relief from the tremendous cost handicap faced by small and independent refiners must be adopted. America's current energy crisis simply must not be allowed to precipitate the elimination from the market of the critically important segment represented by the nation's small and independent refiners.

Mr. LUND. I will say without the bias we certainly would not have entered into this building program. With the loss of the bias that is pending we will undoubtedly have to shut down the refinery at some period of time. So we relied very heavily on the program and on the bias.

Senator HASKELL. Thank you, Mr. Chairman.

Senator TALMADGE. Senator Danforth?

Senator DANFORTH. No questions.

Senator TALMADGE. Senator Curtis?

Senator CURTIS. I won't take a great deal of time.

I am interested in this proposal, I think it is necessary. We have one refinery in Nebraska which is very much interested.

I will try not to add to the confusion about how bias works but this is one of the factors in it. Considerable oil has to be sold under the fixed price determined for oil, isn't that correct?

Mr. BOSWELL. Yes, sir.

Senator CURTIS. And the bias is intended to make it possible for small refineries who are not producing oil and who are not dominant figures in the marketplace to some of the benefit of the low priced oil.

Mr. BOSWELL. Yes, sir.

Senator CURTIS. In other words, here is a small refinery that is localized, it does not have the vast resources of a major company or even a middle-sized company, it does not have any production of its own, and without the bias it is very likely that it will have to go on the market and buy the oil at the top price, isn't that correct?

Mr. BOSWELL. Yes, sir.

Senator CURTIS. Which would give you a disadvantage over other refineries.

Mr. BOSWELL. Over the integrated refineries.

Senator CURTIS. Yes; the integrated refineries can exercise some control over the oil as it is produced and thus it flows into the refinery some considerable amount of the low priced oil, isn't that right?

Mr. BOSWELL. Exactly, at their discovery instead of the ceiling price.

Senator CURTIS. Yes; so that instead of the small refineries' bias giving the small refiners an advantage, it is an effort to give it equality.

Mr. BOSWELL. Exactly.

Senator CURTIS. That is all.

Senator TALMADGE. Senator Bentsen.

Senator BENTSEN. Thank you, Mr. Chairman.

Mr. Chairman, I would like to ask the gentleman, how do you survive on stripper oil and new oil if you are paying \$13 even with the \$2 bias? How can you compete when you don't have a mixture of old oil with that at the lower price?

Mr. BOSWELL. Sir, I would like Mr. Lund to answer that question. And Lamar, I think you have already indicated our average crude oil cost. Tell him what the return is on our present product slate.

Mr. LUND. Monetary returns?

Mr. BOSWELL. Yes,

Mr. LUND. We are receiving about \$12.50. Our average revenue has been about \$12.50 a barrel for the 2 months we have been in operation.

Senator BENTSEN. That is the gross revenue?

Mr. LUND. Yes, sir.

Senator BENTSEN. Then you could not survive without the bias, is that what you are saying?

Mr. LUND. Yes, sir, you take our \$13 flush through cost and apply the \$2 bias to that and it brings our net cost of crude into the \$11 range.

Senator BENTSEN. That is what I said. You are getting the gross revenue at \$12.50 and you are paying \$13. You cannot survive without the bias.

Mr. LUND. Yes, sir.

Senator BENTSEN. All right; I can understand how a vertically integrated company can take their profits out of their crude and make a very marginal incremental profit on refining for downstream operation, retail outlets and that type of thing. I was concerned about your position. I want to be sure that we avoid rip offs in this kind of thing and we avoid abuses.

Mr. LUND. Yes, sir.

Senator BENTSEN. Now trying to balance this out and protect you from predatory pricing, we had the problem of the mandatory allocations where they used pricing to mitigate against the small refineries in many cases trying to find the solution that lets you survive and that you can compete and still stop the abuses of it is what we are seeking. Do you have any suggestions on what should be done concerning the abuses or do you think that has been largely correct?

Mr. LUND. I think you made the major correction when you did away with outside processing. I think the abuses have been primarily corrected.

Senator BENTSEN. I do understand that since 1950 we have had a material reduction in refineries in this country and only in the last 4 years or 5 have we seen a gradual increase in refineries. We have seen an increase in imported processed oil products coming into this country and we want to work against that if we can and that is another reason why we fought the cheaper refineries in this country and we ought to be building more refineries in this country. So I am sympathetic to your suggestions. Mr. Haskell has some legislation in to try to check on some of the products. I am simply trying to find a way to see if we cannot protect you from predatory pricing and keep you in the business if we can.

Mr. LUND. Well, we certainly hope so. Again, I can be emphatic that without the bias we will not be in business.

Senator BENTSEN. I can see that with your product mix. I just want to be sure we don't have some rip offs in the process.

Mr. LUND. We are not a rip-off company.

Senator BENTSEN. Thank you, Mr. Chairman.

The CHAIRMAN. I would be glad to discuss this matter with you further but I don't think I will at this point. I am aware of the problem, and I hope we can help out. I heard from your people before and I am aware of the situation that the independent refineries are facing. I hope we can work something out.

Mr. BOSWELL. Thank you very much.

The CHAIRMAN. Thank you very much, gentlemen.

[The prepared statement of Mr. Boswell follows:]

STATEMENT OF WILLIAM P. BOSWELL, CHAIRMAN OF THE BOARD,
MT. AIRY REFINING Co.

Mr. Chairman, and members of this distinguished Committee, it is an honor to appear before you to discuss the National Energy Plan.

I am William P. Boswell, Chairman of the Board of Mt. Airy Refining Company. Lamar Lund, its President, is here with me and available for questioning. For 60 years and 3 generations, my family's business has been marketing petroleum products at wholesale, unbranded. We have evolved a flexible delivery system of barges and terminals which has enabled us to compete with any other in the Ohio Valley. We are 100 percent independent. We have never sought governmental relief of any kind on a hardship basis, except for our customers, but only on the basis of equity under national policy. This year, to protect our future, we have built a refinery on deepwater at Mt. Airy, Louisiana.

As an American citizen with some knowledge of the oil industry, I am four-square in favor of a long-range Plan. This is the only climate in which the private sector can make its creative contribution. For the last 18 years, government programs have addressed temporary crises, provided piecemeal remedies, reversed course, even retroactively, and brought to our great industry an atmosphere of uncertainty which discourages even the most intrepid.

With great interest, I have read every word of this Committee's Hearings with Secretaries Schlesinger and Blumenthal.

The Plan before you has the distinct merit of addressing the problem not on a two-year basis, but on a two-decade basis. Only in such climate can the necessary planning be done, contracts consummated, the investments made to move our country down the road to prosperity and security.

The Plan correctly addresses itself to a fundamental problem which faces the American Oil Industry. The disparity of crude oil cost between integrated and independent refiners. Only since 1973 have the awesome economic and social consequences of this phenomenon become fully apparent. In that year, climaxed by the Embargo, all oil companies were requested to allocate supplies to historic channels on a voluntary basis.

Instead, most of those companies with the biggest crude holdings moved perceptibly to improve their market positions. My own company experienced not allocations, but cutoffs from two of our major suppliers of many years. The devastation resulted in a Mandatory Allocation Act.

Even under the Mandatory Allocation Act, and Price control, however, it quickly became apparent that market domination could be accomplished by price. The margin between lowest-cost and highest-cost sellers was as much as 6 cents to 8 cents per gallon! The basis of this differential was the control of the low-cost domestic crude oil by integrated companies. Obviously, the low man was in the best position to expand his market share by foreign crude and product purchase because he ended up with the lowest average cost.

For decades, these companies had been accused of using such a crude position to subsidize predatory pricing in their refining and marketing divisions. They have even publicly admitted that those so-called "downstream" divisions were less than profitable. But the crude cost disparity was within a tolerably narrow range . . . cents per barrel . . . until 1973, when it became dollars per barrel!

At this point, I believe, there first dawned the concept of our crude reserves as a National Trust, to be developed equitably rather than as the finder saw fit. In my view, those who find oil should realize the fullest profit on this treasured "inventory". But they should not be permitted to use such profit to drive out honest competition.

The Entitlement Program of 1974 and its companion, the Small Refiner Bias, undertook to equalize crude costs at the refinery level, by compelling the crude-rich to pay part of the bill incurred by the crude-poor. In the market, its result has been to narrow price spreads to about 2 cents per gallon.

The Energy Plan of 1977 proposes to achieve something like the same equalization of crude cost at the refinery level but by taxing the crude-rich, more than crude-poor. This time, however, what is taken from the oil industry is not to be returned to the oil industry. The amount will be twice as large as now. The consumers' cost will be based on the highest cost of crude instead of the average cost, an increase of about \$4.00 per barrel, or 10 cents per gallon. And it will require an administrative cost of billions of dollars for the government's end, plus matching paperwork for the private sector! What dismays me most is how very little of this huge tax is to be directed to any creative purpose.

But I know you will hear from others more qualified than I on these broad issues. I am here today to concentrate on one particular facet of the Plan only, a facet of which I have more intimate and immediate knowledge: That part of the current Federal Energy Program ineptly named the Small Refiner Bias.

It is worth recalling that today's oil regulation really began under the Eisenhower administration in 1959 as a national defense measure, believe it or not, to keep cheap foreign oil from inundating our domestic exploration!

From the beginning, special interests were claimed, and were recognized, and the list is long. To recall only a few: The East Coast; the Venezuelans; the Canadians; the importers of record; the land-locked refiners; the utilities; the jobbers, and so on.

From the beginning, too, special recognition was given to categories defined as "small" or "independent".

From then on through all the ensuing government programs which have been put forth to meet changing conditions, there has always been special recognition for designated "small" and/or "independents". It has come in the form of extra import tickets, jet-fuel set-asides, reporting relief, royalty crude, and environmental variances, at one time or another. It always has come as an offset to the special provisions accorded the many other claimants, including integrated majors (overseas tax relief, for one).

These "small" and "independent" categories were correctly discerned to be: Firstly, the most valuable spearhead of competition in the industry; and, secondly, the most vulnerable to predatory pricing. To protect them, regulatory incentive began to be awarded inversely according to size, and have been ever since through our Republican and two Democratic administrations.

The last major review of oil regulations, in April 1976, reaffirmed and expanded this view. It was adopted by the Executive Branch, expressly ratified by Congress and fully stated in the Energy Conservation and Product Act. (Section 123, ECPA: "Fostering construction of new refineries by small and independent refiners in the United States"). Thus it bears every evidence of serious and long-lasting national policy.

According to a recent FEA study, 96% of governmental benefits afforded a small refiner such as Mt. Airy today are provided by Small Refiner Bias.

The so-called Small Refiner Bias gives entitlements worth about \$2.00 per barrel for the first 10,000 barrels per day only. Above that level, it gives only 35¢ per barrel to the 30,000 barrel level. It vanishes as it includes refiners up to 175,000 barrels per day.

This \$2.00 per barrel for the first 10,000 barrels is what is so critical to Mt. Airy Refining Company. It is also the mortal enemy and avowed prey of the major companies. Why? Because it fosters competition out of proportion to its volume. The "smalls" affect the price of many more barrels than their own.

This \$2.00 per barrel payment has been maligned as a "ripoff" because it initially applied to processing deals. This provision has now been eliminated.

It has been maligned as a "subsidy for inefficiency" but I tell you that most of these seventy plants operated before the crude squeeze and before the Entitlement Program, and proved their efficiency regardless of size.

In fact, the majors themselves own and operate 35 refineries of less than 50,000 barrels per day!

It has been maligned as "building plants we don't need," but our imports of finished products is 15% and growing, which results in exporting American jobs.

Why, then, is \$2.00 per barrel so necessary for the first 10,000 barrels? Is it enough? Is it too much? The answers can never be precise. Situations vary. Times change. But general observations can be valid.

What we see is that the Entitlement Program equalizes crude prices but only on the basis of ceiling price. We know that much of that crude has been discovered at far lower cost, and is available for predatory pricing in the form of downstream subsidy as never before 1973.

Old oil is controlled at \$5.25 per barrel, but we know that in 1973 it sold on the open market at \$3.25, a difference of \$2.00. New oil is controlled at \$11.76, but we do not know its true cost.

What we see is that \$2 on the first 10,000 barrels per day will enable independent refiners to expand and will deter integrated majors from predatory pricing.

But the most interesting thing we see is that, having reached a 10,000-barrel-per-day threshold, a great many independent refiners are now finding it economic to go on with little further support. Their "incremental" barrels are running up to 137,000 per day!

What this tells us is that a refiner needs about 10,000 barrels per day to "take off." At that level he becomes "airborne," or capable of substantial flight.

This concept is exactly what motivated Mt. Airy Refining Co. to respond as it did to the proclamation of Congress in 1976, wherein the small refiner bias was expanded and extended for 3 years certain.

We responded by building a grassroots refinery with its main units capable of running over 20,000 barrels per day, and capable of running high sulfur crude. We have ample land for further sophistication and expansion. FEA has given its highest rating for quality and longevity.

Ground was broken on January 5, 1977, and specification product was put into tanks on July 5, 1977. We are now running 11,000 to 12,000 barrels per day.

This was an extraordinary effort. Having been in only the marketing end of the oil industry for 60 years, at least we can promise our customers more stability than they have experienced since the embargo. That is why we did it, not for quick, opportunistic profit. As a matter of fact, if the small refiner bias were to be nullified in 3 years, as proposed, we may have only a mothballed plant to show for our huge investment of time and money, with a balance of debt on the books.

Now comes the energy plan of 1977, first published 3 months after we broke ground.

Much as I, and I think all of my colleagues in the oil industry, would like to see a plan which we can plan by, this plan totally destroys previous planning. It "phases out" the small refiner and puts nothing in its place.

You must understand that to "phase out" a long-term policy decision before 1 year has passed is not only to destroy the long-term private commitments which were made in good faith, but is also to destroy everybody's confidence in the U.S. Government.

If this comes to pass, you will find that no matter what programs are proposed, no matter what incentives are offered, few will respond, large or small.

In closing, gentlemen, I want to thank you for this opportunity to be heard. I deeply hope that I have given you something worth remembering, as you sort through all the other complexities of this massive energy plan. I hope you will insist on preserving the vitality of the independents against the mighty forces arrayed before them. They can do their job, as David against Goliath. But don't take away their only slingshot.

The plan, as proposed, would annihilate 75 percent of the small refiners in this country!

Thank you very much, Mr. Lund, and I will be very happy to answer any questions you may have.

The CHAIRMAN. Next we are pleased to have the Honorable Nelson A. Rockefeller, who served us and this Nation in many capacities: As our Vice President, Governor of once our largest State, and many other very important and responsible positions.

Mr. Vice President, we would be pleased to have your views. As you know, for a number of years I have been very interested in suggestions that you have made regarding one way that we might overcome the impasse in which we find ourselves, our inability to meet our energy problems. I appreciate very much that you will give us your thoughts as to how we might improve this bill to bring about the betterment of this problem.

STATEMENT OF HON. NELSON A. ROCKEFELLER, FORMER VICE PRESIDENT OF THE UNITED STATES

Mr. ROCKEFELLER. Mr. Chairman, distinguished members, my name is Nelson Rockefeller, and I appear as a private citizen. I would like to express my appreciation for the invitation, the honor of appearing before you. I responded enthusiastically to the invitation because we are in a serious energy crisis—a crisis such as we have never before faced as a Nation.

President Carter in his dramatic talk to the Nation and in his message to the Congress set forth the energy perils that beset us. He sent up a program for enactment, emphasizing the essentiality of conservation. President Ford before him warned the country of the critical situation confronting us and offered an "energy independence" program calling for both conservation and increased domestic energy production. But a recent public opinion poll finds that the majority of Americans still do not believe there is a crisis.

Nevertheless, the danger is very real. Like so much danger, it is not self-proclaiming. It does not buzz when we drive our car. It does not sound an alarm when we flip the light switch or turn on the television.

But it is there—making us depend on foreign oil for 50 percent of our needs—and thus more vulnerable to another boycott, which under these circumstances would paralyze our economy. It is there in the inadequate supplies of natural gas that stopped factories and chilled homes last winter. It is there feeding inflation, depreciating our dollar, and complicating our return to economic recovery and fuller employment.

My own insights into the energy problem were sharpened by my experience as Governor of the State of New York and by my chairmanship of the Commission on Critical Choices for Americans. The Commission, composed of 42 leading citizens of both parties, and from various walks of life, established its first panel on energy. In the course of the panel's deliberations and the studies it developed, it became clear that America faced an unprecedented and steadily growing vulnerability in energy.

This vulnerability is at the heart of our crisis—a crisis that can alter, indeed even destroy, our way of life and the promise of America for a better life for all its people, unless we meet it wisely and in time.

It has become evident, also, that to deal with the continuing emergency, conservation of energy is vitally important but that conservation alone could not do the job. America must produce far more energy within its own borders if it is to have a growing economy. America must produce far more energy if it is to keep its present employment and generate more job opportunities. America must produce far more energy if it is to provide increased income for thousands who are striving to improve their standard of living for themselves and their families. America must produce far more domestic energy to insure its national security as well as its economic strength.

More energy, rather than less, is essential to clean up our waters, to restore our lands, to purify our air, and to insure the health and well-being of Americans.

To accomplish this, it is essential that encouragement be given to our present energy enterprises to utilize their resources and ingenuity. It is essential to give the energy industry incentives and confidence to put capital into new technology, and to move on a large enough scale to assure results in production, processing, and distribution of energy.

There are more than the usual risks involved. First, new technologies are untried and unproven. Second, advanced processes, developed in

laboratories and pilot projects, must be employed on a mass production basis. Third, costs must be determined and prices established. To do these things requires major risks. Accordingly, for the energy industry to undertake them, some sort of government stimulus and assistance is necessary.

The big questions are these: How do we have Government help and then get the Government out when its help would no longer be needed? We have an excellent model in the Reconstruction Finance Corporation. That agency—under the able direction of Jesse Jones—did a tremendous job for the Nation in the depression and war years. And when its job was done—and done well—it closed up shop.

I am here today to recommend a similar agency to help get the energy production the Nation very much needs. I believe that an Energy Development Corporation should be one of the essential features of the national energy legislative program your committee presents to the Senate.

We have in this country a unique situation: Vast energy resources, and extraordinary scientific, technical, and managerial skills in a multitude of enterprises in the private sector—some corporate and some individual. Because of the uncertainty of Government policy and regulating; because of the high cost of new production of domestic energy; and because of uncertainty as to future prices of energy; we find ourselves in a situation in which this creative talent is not mobilized.

This has put the whole energy industry in a quandary. It cannot tell whether the investment in a new energy project has any reasonable chance of success. So it is simpler just to buy foreign oil at OPEC prices. I, therefore, recommend the creation of an independent, Government-owned RFC-type corporation to share in the risks of financing the essential domestic production, processing and transportation of energy in all its different forms.

The proposed Corporation would have a limited life span of 10 years, and would be overseen by an independent, nonpolitical five-member Board of Directors appointed by the President, none of whom would be Government officials. Management authority would be vested in the Chairman of the Board who would be the Chief Executive Officer of the Corporation.

The Corporation would have resources of \$100 billion to provide loans, loan guarantees, price guarantees, equity investments, or other financial assistance to the private sector for promising energy projects unable to obtain financing in the private market. Such financial assistance would be provided only when private capital is not available to carry a project along, and when a project is vital to achieving our national energy goals from domestic sources. The loans, guarantees, or other commitments would be recovered by the Government, and would be used in conjunction with private sector financing whenever possible.

1. THE NEED FOR ACTION

Since the late 1960's, domestic oil consumption has considerably exceeded domestic production. Since that time we have been importing increasing amounts of oil. Foreign oil now constitutes close to 50 per-

cent of the oil consumed in the United States. As a result, this year we will have approximately a \$25 billion foreign exchange deficit.

U.S. dependence on foreign oil has two major consequences:

1. Vulnerability to oil supply interruptions jeopardizes national security, decreases our freedom of action abroad, and threatens the credibility of our pledge to meet international responsibilities.

2. Our growing dependence on imported foreign oil saps the strength and growth of the American economy.

With sufficient energy from domestic sources, we can meet our international obligations abroad, enhance our economic strength at home, and mitigate the effects of another oil embargo on our national security and economic growth.

By achieving the necessary rate of domestic energy production much of the \$40 billion now going abroad each year for oil could be spent instead in the United States—resulting in 1 million or 2 million more jobs for American workers.

2. HOW TO ACHIEVE THIS INCREASED DOMESTIC PRODUCTION

While our domestic production of oil and natural gas have been declining, the United States has large untapped reserves of gas and oil and huge reserves of coal and oil-bearing shale, with many times the energy potential of all the proven reserves of oil in the Middle East. We also have great potential for increased nuclear power generation.

With appropriate economic incentives, these sources of energy can be developed and utilized to increase our domestic production of energy while protecting our environment and thus achieve energy self-reliance.

3. WHY GOVERNMENT PARTICIPATION IS NECESSARY

It is estimated that well over \$1 trillion of capital investment will be required during the next 10 years in order to meet our energy needs. Private financing for some of the most promising new sources of energy has been extremely difficult if not impossible to obtain. Projects, such as uranium enrichment plants, energy parks, shale oil extraction, or synthetic fuel plants have been too large or technologically risky to secure adequate private financing.

Regulatory and technical uncertainties add to the present risks which deter private investment. Without Government participation, many projects which would produce substantial amounts of energy will not be undertaken.

But the mere fact that a project involves risks which exceed those the private sector can take does not mean that the project is certain or even likely, to lose money. Some investments are too large for the private sector to handle alone. Others, while inherently sound, may involve long leadtimes or regulatory delays which discourage private sector investment.

The proposed Energy Development Corporation would be able to assist in financing projects in all such areas through loans, guarantees, or other forms of long-term financing.

4. HOW THE ENERGY DEVELOPMENT CORPORATION WOULD WORK

I recommend that the proposed Corporation have equity capital of \$25 billion. With the concurrence of the Secretary of the Treasury on timing, method, source, interest rate, and other terms, it would have the authority to issue and have outstanding at any time notes, debentures, bonds, or other obligations of \$75 billion. The Treasury would purchase the equity, and the Corporation would pay it a dividend on the outstanding capital stock. The Corporation's Board could defer such a dividend if it had no earned surplus, or if the funds could be more effectively used to achieve energy goals.

The Corporation's debt could be purchased by the Treasury Department, at the discretion of the Secretary, or channeled through the Federal Financing Bank. The Corporation would have considerable flexibility in using its financial resources. Its support could take the form of loans, as I have said, equity investments, and price guarantees. It could also build projects on a lease-purchase basis with the energy industry, whereby it would build a given facility, then lease it to an operator, who would purchase the facility.

The Energy Development Corporation would be expected to make a profit and be self-liquidating over a period of time, just as in the case of the RFC.

5. THE ENERGY DEVELOPMENT CORPORATION WOULD NOT "SKIM OFF THE CREAM"

The proposed Corporation would be prohibited from financing any project which could be fully financed by the private sector. The Directors of the Energy Development Corporation would seek the advice and assistance of investment experts in making this determination. Thus, the Energy Development Corporation would complement and not displace private sector investment.

In addition, the Energy Development Corporation would be prohibited from providing financing on more favorable terms than those offered to creditworthy borrowers in similar projects financed completely by the private sector. The Energy Development Corporation is not expected to have a significant effect on the capital markets because its borrowings would be spread out over many years and would be but a small part of the trillions of dollars raised for all purposes by private and public sources during the next 10 years.

6. WHAT KINDS OF PROJECTS THE ENERGY DEVELOPMENT CORPORATION COULD HELP FINANCE

It is contemplated that the proposed corporation would concentrate on the following types of new projects:

Commercialization of new technologies, not now in wide-spread domestic commercial use, to produce, transport, or conserve energy—for example, synthetic fuels;

Commercial development of technologies essential to the production of nuclear power—for example, uranium enrichment;

Production and transmission of electric power generated by nonoil and nongas sources—possibly floating nuclear plants, geothermal plants;

Expansion of conventional modes of energy production or transportation, where the undertakings are of such size or scope that they would not otherwise be financed by the private sector, or where the projects involve institutional or regulatory arrangements which are not in widespread use—for example, coal slurry lines; and

Commercial application of environmental protection technologies necessary in connection with the types of activities described above.

7. EDC IS NOT GOVERNMENT TAKEOVER OF THE ENERGY INDUSTRY

Above all, it must be emphasized that the Energy Development Corporation is designed to help increase energy production by the energy industry, not to take it over. The Corporation's activities would be strictly limited to a financing role, and it would not be permitted to own or operate energy facilities for more than a limited period. In addition, EDC would be required to liquidate its investments and so go out of business in 10 years, thus ending the Government's direct role even in financing.

8. CONGRESSIONAL CONTROL OVER THE OPERATIONS OF EDC

Although EDC would be an independent Government corporation, Congress would have the continuing opportunity to review its activities. Since any EDC request for equity capital would be subject to the normal budget authorization and appropriation procedures, Congress would have the chance at the time of such requests to review the operations and policies of EDC. The Corporation would also be required to submit an annual report to Congress, and the General Accounting Office would be specifically authorized to audit the activities of the Corporation.

9. EDC'S POLICIES WOULD BE COORDINATED WITH GOVERNMENT ENERGY POLICIES

Prior to any financial commitment, the EDC would submit approved projects to the Federal Energy Administration for a 30-day review and comment period. This would serve to bring any Energy Development Corporation activity in line with Government policies. The FEA could establish a composite form of license application which would be the only application by all Federal agencies for review and approval of an energy project financed with EDC's help. By this device, and certification by FEA of an energy project as of critical importance to the purposes of the act, multiple Federal agency clearances of the project would be greatly expedited—with the stated goal of clearance in 18 months or less, instead of the 7 to 10 years presently required in many instances.

The President would appoint the Board of Directors of EDC, and they would serve at his discretion. Power of removal would provide a further control over the policies of EDC. No more than three members of the five-member Board should be from the same political party. In addition, although the members of the Board would be appointed

by the President, they would also be subject to confirmation by the Senate.

10. HOW TO PREVENT EDC FROM CONTINUING LONG AFTER THE NEED FOR IT HAS PASSED

The Energy Development Corporation should have a limited greater scarcity. I just think at some point the American people are not going to take a scarcity and the increased regulations which perforce go with Government regulations of our life and the distribution of goods and we will see growing unemployment, inflation because of lack of production, the competing for the scarce goods, not only oil, and then a very serious recession.

Senator DOLE. The point you make on page 5 of the paragraph numbered 7, "EDC is not Government takeover of the energy industry," is the key to anything we might do. I know of your strong feelings to protect the private sector. The EDC is designed to help increase production by the industry, not to take it over in any sense. You made that rather clear.

Mr. ROCKEFELLER. Senator, I stress that because I spent a great deal of time for our former President talking to the principals in industry in various aspects of the industry and the financial community and if there is a feeling on their part that the Government is creating a major financial structure which could end up as a competitor, then I think it would have the very adverse effect of drying up private capital because they are trying to compete with Government and this would be extremely serious because they are the ones that have the technology, the managerial experience and the ability to do it. If they do not use that, then I think we could run into a life of 10 years, and that no new financial commitments should be made after 7 years. After the first 7 years of operation, the Corporation would prepare a plan for liquidation by sale to individual bidders, as in the case of the Rubber Reserve Corporation under the RFC. If possible, this plan would provide for complete liquidation within 3 years. If the President determines that more time is required for the orderly liquidation of EDC's holdings, he may extend the Corporation's life for up to 3 more years, after which any remaining assets, obligations, or required functions would be transferred to the Secretary of the Treasury.

I thank you very much again for the invitation. I would be delighted to try to answer any questions.

The CHAIRMAN. Thank you very much.

Senator Dole.

Senator DOLE. Thank you very much, Mr. Vice President. This is almost identical to the plan you suggested in 1975. Is that correct?

Mr. ROCKEFELLER. Very close and very similar.

Senator DOLE. One question we would ask is are you just suggesting this complement the President's proposal or to replace anything in the Administration proposal?

Mr. ROCKEFELLER. The President's proposal in which he forthrightly recognizes and very forcefully expresses the problem we face as a nation relies primarily, if I understand it correctly, on conservation to achieve our national goals. I think conservation is essential, but I think

increased domestic production is equally essential, if not even more so, if we are to preserve a growth economy with opportunity and more jobs for the people of this country and preserve the strength and vitality of the United States.

Senator DOLE. The basic question is whether for the use, as you suggest, of the kind of projects EDC could help finance. Is the capital there for those projects? That is the basic question and apparently a strong indication that it may not be there.

Second, there are some of us who have very strong feelings about the equalization tax that the administration proposes. I am not certain where the \$25 billion equity capital could come from in this proposal. You are not suggesting that it be taken from an equalization tax? You didn't say where the money would come from.

Mr. ROCKEFELLER. Well, the Treasury would provide it by selling Treasury certificates just as they provide money for the Government in various forms where there is need for additional money beyond the revenue from taxes. The Treasury could provide it from the equalization tax. I have a feeling that the American people accept equalization tax much more readily from the results in producing more energy and not just in very serious situations and that is why I stress this point.

Senator DOLE. As I understand, there is no intent that the money available under this type of program would be used for normal oil and gas operations, it would just be for those areas where there was a scarcity of capital.

Mr. ROCKEFELLER. Where the risks are great or the size is too big and they cannot get private capital and where possible it should be done in combination with private capital where the Government takes a share and private takes a share and that would be ideal.

Senator DOLE. Thank you.

The CHAIRMAN. Mr. Talmadge.

Senator TALMADGE. Thank you, Mr. Chairman.

Mr. Vice President, you have presented a very intriguing proposal here and I agree with you that weakness of the President's proposal is that it does not now or any time in the foreseeable future offer a plan that could make this country independent of imported energy. It is imperative that the Congress do something that points us in that direction. I think we must attack it with the same degree of enthusiasm that we did in building plants with synthetic rubber in World War II; the same enthusiasm that built the atomic bomb; the same enthusiasm when we put a man on the Moon.

Now, could we accomplish the same thing that you have suggested with either tax credits to Government guarantees?

Mr. ROCKEFELLER. Well, the basic factor is confidence and enough certainty if an investment is made, has that got a reasonable chance of success? Now, there are various ways of approaching that. But the situation we face is totally new in this country and the variables and the uncertainties are very great, both in terms of technology, in terms of costs, and in terms of Government pricing policy. Therefore, whatever plan is developed would have to take into consideration all of those and they would have to test that plan to see whether it actually would result in giving the confidence and the incentives necessary to

produce. I have a slight question as to whether either of those proposals which you make alone would actually accomplish that.

Senator TALMADGE. It could be a combination of all of them.

Mr. ROCKEFELLER. Yes; there are various other ways that this could be done. I think that it is important that these questions be discussed with the bankers and the industry to get their reaction. They are careful about Government participation. There is no question about it.

Senator TALMADGE. It has been suggested now that we have got enough shale in the Rocky Mountains to produce, I believe, 1,000,700 million barrels of petroleum. That is more than all of the nations of the OPEC have combined.

Mr. ROCKEFELLER. Yes.

Senator TALMADGE. At the present time it is not economic or feasible to—I believe Mr. Schlesinger has testified that in his Department the cost of producing that petroleum would be \$18 to \$20 per barrel and I think Daniel estimated that they have a process which it would be produced for about \$12 a barrel. If that is true, that is far less than we are paying for the imported energy at the present time. We had a witness yesterday from Atlantic Richfield, as I recall, and he suggested a tax credit of \$3 per barrel. He thought that this in the course of about 10 years time would produce several million barrels of petroleum from shale rock annually.

Now, the interesting part of that is if they didn't produce the petroleum, the Government would not have any cost whatever. If they did produce the petroleum it would be of domestic origin which would save us the vast outlays for imported energy which estimated cost is about \$45 billion this year. Also, the jobs would be in the United States of America instead of overseas. I thought he presented a most intriguing suggestion. In fact, this energy source thus far has not been utilized and offers tremendous potentials for making us self-sufficient.

Mr. ROCKEFELLER. Senator, the illustration you gave is a perfect one, I think, as to the dilemma we find ourselves in in this country. Here you have a Government official testifying 18,000 barrels from the corporations; he is saying \$12 a barrel. Nobody knows because we don't have a commercial scale operation. In my opinion, this corporation could join with private industry in financing a commercial operation and actually finding out what the cost was, and what the ecological problems are, and that would be approximately \$300 million to do that, but I don't see how America, which spends these tremendous sums, can afford not to spend \$300 million to find out what the actual cost of producing oil from shale, and what the ecological problems are. Now, they can be handled because once you find that out, that can be both a major potential and answer to our problem. You will then know the cost, and what is necessary for Government action to permit the use and exploitation of that resource. Until we know the cost, we haven't any way of knowing; we are just speculating. That is the trouble in this field, everybody is doing their own guessing and nobody has the facts because there is not the money there that can take that risk.

Senator TALMADGE. Thank you, Mr. Vice President.

My time has expired.

The CHAIRMAN. Mr. Moynihan.

Senator MOYNIHAN. Thank you, Mr. Chairman.

Mr. Chairman, I had the honor to serve with the Vice President on the Commission on Critical Choices and I am here today to say that if any member of this committee would like a copy of our volume I will provide the copy. [Laughter.]

So, I should say that this is an idea that has been worked out and thought over and it is a good idea and I hope that I would have the honor to join the other members of the committee who wish to introduce legislation creating one point essentially and that is that we emphasize what the Vice President has said. I don't ask you to comment whether you might, but it is surely the case. The crisis that we are living with has been brought about in the first instance by a savage international cartel. The cartel is made of Governments, but it has done what would be regarded as intolerable in private enterprise which carries the weight of sovereignty by virtue of being governmental but it is a cartel of Governments. Do you sometimes feel that the administration pronouncements have somehow transformed their responsible behavior of the oil-producing countries into a morale defect of the American people who like to ride around in stationwagons?

[Laughter.]

Mr. ROCKEFELLER. Well, I understand what you are saying and I think really the frustration of the Government in not being able to deal with the situation but, of course, there were a few who saw this coming, not many, because as we no longer could dominate world prices by exporting when necessary enough to control the world pricing, then when we become the net importers in the sixties it was just a question of time before they would be in a position to do what they did, and from their point of view it is understandable. From the point of view of the U.S. Government it is a tremendously frustrating thing and when anyone is frustrated and can't control the situation they usually look for some other excuse to put the blame on.

Senator MOYNIHAN. Rather than blaming ourselves for liking ice boxes and stationwagons, should we not produce more energy?

Mr. ROCKEFELLER. That is right. It is so simple. The Government has the capacity. As the chairman says, we have a pattern. As Senator Talmadge said, it was very successful. The Reserve Corporation, I was here at that time with Jesse Jones, a very close friend of his, and it was a superb job. The whole thing was when that was very imaginative and under pressure and he contracted with five or six or seven private companies, three of them I think produced synthetic rubber and now we have a major domestic industry which is of tremendous importance and we no longer rely on our foreign imports of crude or raw.

Senator MOYNIHAN. Thank you, Mr. Vice President.

The CHAIRMAN. Senator Packwood?

Senator PACKWOOD. No questions, Mr. Chairman.

The CHAIRMAN. Senator Haskell?

Senator HASKELL. Thank you, Mr. Chairman.

Mr. Vice President, your thought has a great deal of appeal. I am also on the Energy Committee and as you know ERDA has a limited authority to the loan basis called project. What you are talking about is a corporation for the sole mission based with the test commercial viability. Now, since the Senator of Georgia brought up the question, I don't think I am parochial in bringing up shale and the Senator from

Georgia is quite right on the reserves in shale. The amount that you stated, Senator, is really from a high grade and medium grade and does not even take into consideration the lesser grade.

Here is a problem I have and I would like to have your reaction. Earlier this year I introduced a bill to test shale in two processes. I have had the same experience you have had. People come into my office and say \$10, others say \$30, some say environmental disaster, and other people say we have to cure it. I wanted to find out.

Now, immediately after my bill was introduced and hearings take place two companies say, "We are going to do it anyway." Now, one apparently is going to go ahead. If your agency were set up, and I am enthusiastic about your agency, would it be able to pursue this situation and get it passed?

You see, politically when two people say they are going ahead anyway, that pulls the rug out from under you and so the Federal test obviously cannot go ahead. How would you envisage that in light of your energy procedure?

Mr. ROCKEFELLER. I think it would operate very much like an investment bank or a merchant bank. They would negotiate with an initiative if there was a national interest with the companies that said they were interested in studying their financial position and what their plan is worth, their timing, and if they were not ready to go ahead and commit themselves on a scale large enough on the implications they could contract with another corporation which was willing to go ahead and only supplement the financing to the degree that it was necessary that they could not get it from private sources, but they could assure that the country would go ahead, and to me this is the important thing—that you can guarantee that something is done for America and the American people using the technology of the private sector.

Senator HASKELL. As I see it that is one of the great items of your proposal, that their mission was to see that these things go ahead.

Mr. Chairman, I believe that it is an idea that should be very, very carefully considered.

Thank you.

Mr. ROCKEFELLER. Mr. Chairman, could I just comment one moment. The same is true of gasification of coal, the same problem exists there. It is done in Germany, it is done in the Soviet Union; they are way ahead of us on gasification of coal and they have very ingenious methods. Those ought to be tried out in this country. These are things which the scientists know about, laboratory tests other countries are doing. We just are not doing it because they don't take the risks, they don't know.

Senator HASKELL. Thank you, Mr. Chairman.

The CHAIRMAN. Mr. Danforth?

Senator HANSEN. If the gentleman from Missouri would be kind enough to yield to me, I just would like to say one word.

We have a markup going on right now on natural gas deregulation, Mr. Vice President, and I must go down there. I do want to thank you for your appearance here. I commend you for recognizing more clearly than many have that the importance and the way to solve our problem is to do something about increasing domestic supplies. I think you made a very real contribution in calling attention to that fact and

I am certain as we go through the weeks ahead that more and more attention will be given to the emphasis that you place upon greater production.

Thank you very much.

Mr. ROCKEFELLER. May I just say, Senator Hansen, that as Governor I saw when natural gas was in scarce supply and regulated and where intrastate gas was not industries left New York to go to States where they could get gas at a higher price. We lost jobs and we lost industries and I don't think that is the right way to run this country where people move because one part of the country has got more favorable circumstances even at a higher price.

Senator HANSEN. You mention one other thing, Governor, and that is that this could produce 1 to 2 million jobs. Yesterday in the Energy Committee the gentleman from Ohio, Mr. Metzenbaum, stated the way that we will lose jobs in this country is to run out.

Mr. ROCKEFELLER. It is the way we are going.

Senator HANSEN. Thank you very much.

The CHAIRMAN. Mr. Danforth.

Senator DANFORTH. Mr. Vice President, it is great to see you here.

Mr. ROCKEFELLER. Thanks.

Senator DANFORTH. You have long participated in public office and also in generating valuable ideas. I am glad to see that while the first has, I guess, come to an end, the second has not. I appreciate your being here.

Let me ask you, is it absolutely clear in your mind that there is evidence that what is lacking is adequate private financing for new ideas, new approaches for solving the energy problem?

Mr. ROCKEFELLER. Well, one would have to elaborate a little bit. There is money available but the money will go where it can get a return with the least risk and these are high-risk areas. Therefore, while there is money available for investment, that money is not willing to take unacceptable risks and because of the regulatory question, because of the technical question, because of the cost of production questions which are unknown on a commercial basis and because of the pricing policies of the Government, that combination makes the risks unacceptable to private capital in many of these areas plus I should add that the delays drawing out of the ecological suits and so forth. As I say, in part nuclear defense plants now take 9, 10, 11 years to produce and you are not allowed to increase your rates to cover the carrying charges, so therefore why would private capital go in? They just don't think they have a fair chance to make a return.

Senator DANFORTH. Well, I wonder if the way to approach that would be to provide some encouragement for private capital to go in rather than to make public capital available. The reason I say that is the following: That it seems to me that what is involved here is the new directions in energy, the cutting edge, the exciting ideas that will be hopefully of long-term benefit and that there are numerous possible approaches—fusion, gasification, shale, whatever. I am just wondering if a problem in this approach isn't that the decision on which directions to move in, the decision on what the cutting edge should be would under this approach be made by a Government corporation, by a Presidentially appointed board rather than to have the directions

determined not by the leverage power of a Presidentially appointed corporate board but really by the private sector itself.

Mr. ROCKEFELLER. I understand what you are saying. We have had 5 years of experience, I guess about 5 years since the boycott, and the problem has not been met, it is getting worse every year; it is intolerable at the present time in terms of this foreign exchange deficit. It is in the national interest. Therefore the Government has got a tremendous responsibility to the American people to meet their needs, protect their interests. The Government has got to be involved both for regulation and pricing, et cetera. Whatever their phrase, they are already in. Therefore, I don't see how any incentive can be given to private capital that does not involve some Government decision because Government decisions are what is going to create or accentuate or minimize the risks. So I don't really see how you can separate them and accomplish what I think we both know from what you say.

Senator DANFORTH. Thank you.

The CHAIRMAN. Senator Curtis?

Senator CURTIS. Mr. Vice President, you have rendered a distinct service in coming here and using your prestige and knowledge and pointing out we do have a crisis and that attention must be given to the production of energy within the United States. It is important because it has to be viewed in the background of not only the poll you cited where many people do not realize there is a crisis, but you have an administration proposal that is based entirely on conservation and without emphasis on production and we have such things as one instance of a Governor of a very important State as stating that he could buy gasoline every time he drove up to the station, therefore he didn't think there was any crisis. So you have sounded a note that will influence many people in the country.

In your statement you say: "Conservation of energy is vitally important," and we agree, "and it is wrong to waste it, but conservation alone could not do the job. America must produce far more energy within its own borders if it is to have a growing economy."

Mr. ROCKEFELLER. Exactly.

Senator CURTIS. In that statement you have directed the attention of the Nation in the right direction.

Now, the question is this: In addition to your proposal for an RFC type of Government agency, do you believe that all of the energy legislation that a Congress advances should give major consideration or an important consideration to those things that will increase production of energy of all kinds?

Mr. ROCKEFELLER. I absolutely agree with you Senator. I think every piece of legislation that is adopted by the Congress that affects energy conservation or any other aspect should take into consideration before it is passed how does this affect the climate for encouraging the domestic production of energy.

Senator CURTIS. And your proposal should not become an exclusive one but that the Congress should give consideration to all of those reasonable and fair proposals that would assist and encourage the private sector to get along without a Government agency.

Mr. ROCKEFELLER. Absolutely. Absolutely. My only reason for taking the liberty of coming and proposing this is that I think that this

can be the sort of catch-all where those things that aren't done through other forms can be accomplished just as Senator Moynihan was mentioning, can be accomplished through this agency. It has that capacity to pick up where other legislation does not create incentive or the opportunity or the encouragement.

Senator CURTIS. Now, isn't it true that full employment in jobs in this country depends upon the use of energy and not the nonuse of energy?

Mr. ROCKEFELLER. Senator, that is the heart of our whole society. We live on energy as a society. People think of energy conservation as driving less cars or cutting down the temperature in their homes. That is fine and that is a part of it, but it only represents maybe 23 percent of the whole area. The rest is in industry and agriculture. You cannot dry grain from the fields when it is harvested without gas, that is how they dry the grain in order to store it. You cannot plow the fields without energy, you cannot run a factory without energy and some people think of conservation as meaning cutting back in the use in industry and agriculture.

Now, we can stop waste but if you cut back where we create unemployment and don't produce goods and services, then we are going to have a scarcity of economy, then we are going to have inflation building up prices on domestic production or further increases of imports which again will cause inflation through depreciation of the dollar.

Senator CURTIS. Do you believe that if we courageously proceed to use and develop the resources that this country has that we can be optimistic about the energy problem?

Mr. ROCKEFELLER. Absolutely. I think as we have mentioned earlier that we have the resources, we have the technology, we have the managerial skills and ability and we can accomplish this if we make this a national purpose the way the chairman says.

Senator CURTIS. Mr. Chairman, I ask unanimous consent for two more questions.

This Senator visited South Africa about 2 years ago and they were making about 15 to 20 percent of their gasoline from coal and doing it very successfully with the small government subsidy. When the world price went up they were able to operate their making of gasoline from coal without a government subsidy. They are enlarging their facilities and are going to provide half of their needs of gasoline. They produce no oil in the country and if a world crisis comes they can carry on with their essential industry. We have given too much attention about turning out the lights which is important.

Just one other question.

In the specifics that you mentioned, what kinds of projects the EDC could help finance, you would have no objection if the Congress saw fit to enact such legislation in order to include the so-called Gasahol program where we take surplus and other things that cannot be used and are not needed for human consumption to be turned into alcohol and then gasoline?

Mr. ROCKEFELLER. No. I think that anything that will contribute to our national objectives, our national strength and the opportunity of the American people for the future should be the concern of Government. The only reason I suggest that it could be done through the

energy industry is because they have the technology, the know-how and the capacity and that if Government competes with them I think that we will then go through a hiatus of a disastrous period where they will not go forward and the Government won't be able to move rapidly enough and we could have then a total collapse.

Senator CURTIS. Other nations have very successfully used a blend of alcohol, as much as 10 percent or more, in their motor oil and then they just increase the volume 10 percent. Here in the United States we have not scratched the surface when it comes to agricultural production. We can fill all the pipelines and carry food to people and still have ample capacity on a renewable basis to make a distinct contribution to the Nation's energy.

I thank you.

Mr. ROCKEFELLER. Thank you, sir.

The CHAIRMAN. Senator Bentsen.

Senator BENTSEN. Thank you very much, Mr. Chairman.

I am delighted to welcome my part-time constituent, Mr. Vice President; an interesting and able public servant and my friend.

I agree with much of what you have stated, in fact so much that in July of 1975 I attached an amendment for an energy development bank to an energy tax bill before this committee and later that year the same amendment was attached to an ERDA bill and it was defeated in the House by a rather strange coalition. Perhaps its time has come; I hope so.

I understand the problem of trying to do an exotic process and it is a gamble. I can recall down in South Texas a chemical plant that worked just great in the pilot plant and then they built the full-scale model and it never worked and it broke the company. If you are talking about a coal gasification plant today, you are talking about over a billion dollars.

Mr. ROCKEFELLER. Yes.

Senator BENTSEN. If you have a company that has a capital surplus of \$500 million or a billion dollars and management comes to that board of directors and says it wants to build a billion dollar coal gasification plant that has only been proven in pilot form it is not about to approve that because you have gambled the company and all the stockholders' worth goes down the drain if you fail.

Mr. ROCKEFELLER. Yes.

Senator BENTSEN. I can understand the reason for this. Now, there was one difference in the amendment I proposed from what you are talking about, and that is that I think that you need the discipline of a private sector. Therefore, I am not sure that I go along with the equity provision. The private sector had to determine whether this was a feasible, economically viable project and they are willing to risk the front money, 15, 20 percent, betting that it would work but that the Government would come in if they also agreed that it would work and guarantee that other 85 percent. Only the plant process is collateral for that loan. Now, I really prefer that approach which goes a long way toward what you are talking about, at least 80 percent in that direction, and I think with that we would get some of these plants built and we are going to have to do it.

The coal gasification which you stated the Germans did so much in that regard during World War II, there have been some innovative,

creative advances on that, but they have not really proven themselves in full-scale models.

Mr. ROCKEFELLER. Might I just comment one thing on that. One of the problems of using coal extensively is going to be the roadbeds. Some of the railroads are not in shape to carry coal in the volume which would have to be moved to supply oil or gas for making electricity or heating homes. It may be that a railroad's present financial condition is so weak that it cannot take on a great deal more debt, that the debt-to-equity ratio should be improved, and that the Government would want to invest part of that money in its equity in order to get a better balance for financial structure of the company.

Senator BENTSEN. Yes, but on the plant side we are talking about the processes. If you look only to the asset itself for collateral and that is what is in your statement, that should not bother you.

Mr. ROCKEFELLER. If the company is strong, there is no problem. If you have a weak company but it is an essential service—

Senator BENTSEN. You had a coalition, as I recall, in the House. Some that felt this was doing too much for business and then I understand that you had some of the very large companies who were busy with other things and felt this brought new competitors in for them.

Mr. ROCKEFELLER. Yes.

Senator BENTSEN. So those two things got together and defeated what I felt was a great idea and we lost a couple of years in trying to resolve the means of financing alternative energy sources.

The CHAIRMAN. Senator Byrd.

Senator BYRD. Thank you, Mr. Chairman.

Mr. Vice President, I think this is a very interesting and intriguing proposal that you have presented. I remember a year or so ago talking with you about something very similar, maybe identical.

Senator Dole touched on this point. I am not clear, however, from your answer. Do you envision that this would take the place of the Carter proposal or would it be in addition to the Carter proposal?

Mr. ROCKEFELLER. It would supplement the conservation effort by putting the emphasis into this corporation on production, but this corporation would have the right to finance ecological participation in the financing of necessary ecological developments processes to prevent pollution, et cetera, and to that extent to be a conversation but primarily production as against conservation.

Senator BYRD. Well, I was thinking mostly in regard to the Carter tax proposals which would take for the Treasury about \$100 billion in taxes. Now, would you plan be in place of that or would it be in addition to that?

Mr. ROCKEFELLER. No, it really was not involved with that frankly. I didn't presume to get into the question of tax. However, Senator Dole did raise the question as to whether the money to finance this corporation might come from the tax. I happen to think that the American people would rather see money taken from them by the Federal Government in connection with the purchase of energy used to increase domestic production rather than for other expenditures. I just have a feeling that if there is no more energy and prices keep going up and the Government is adding to that in tax, I don't think there is going to be tremendous enthusiasm.

Senator BYRD. The Carter plan would place a tax upon the American people, which would raise approximately \$100 billion in revenues. Do you favor or oppose that proposal?

Mr. ROCKEFELLER. Well, I really don't feel qualified, to tell you the truth, Senator Byrd, to comment on this proposal because I have not studied it in detail and I have not read the testimony that was conducted before the bill was enacted in the House so that I would prefer to just say that I support his deep concern with the crisis we face. I support the necessity of conservation.

Senator BYRD. This does not have to do with conservation.

Mr. ROCKEFELLER. Well, I assume that the tax was to increase the price in order to cut down on consumption.

Senator BYRD. That may not be the only reason for the tax, nor is it necessarily a valid assumption.

Mr. ROCKEFELLER. You could, as I think the previous administration did, put a tax on that, make a provision for a flow back by the company so that money is in the production. That is another way of doing it. All the tax would have to be used for increased production. There are a great many ways of dealing with this thing and I would not presume to express an opinion on this.

Senator BYRD. I have a concern about Government spending and everincreasing taxes being placed upon the American people.

What I am trying to get clear in my mind, Mr. Vice President, if the committee were to approve your proposal, then would it be necessary or desirable to also approve the President's proposal because your proposal deals with \$100 billion.

Mr. ROCKEFELLER. Of course, you could say you would use the tax money to finance this program and, therefore, the tax on consumption would go to increased production and I think that would be more acceptable to the American people than a straight tax with no increase in production.

Senator BYRD. So am I correct then that as you visualize it the money could be obtained to operate your program by the enactment of the Carter program and using the revenues from that to operate your program?

Mr. ROCKEFELLER. Yes.

Senator BYRD. Just one other question which Senator Danforth touched on. You mentioned through various places in your statement this would be a nonpolitical board.

Mr. ROCKEFELLER. Yes.

Senator BYRD. And then you say that the directors would serve at the discretion of the President: "His power of removal would provide a further control over the policies of EDC."

How does that remove the board from politics?

Mr. ROCKEFELLER. Well, this is the very delicate problem of the Government, how to be responsive to the people through their respective political leaders and at the same time undertake a technical operation in which this really is in the sense of financing increased production. I think Mr. Jesse Jones combined these two pretty ably. I have not had the pleasure of knowing him very well. He worked directly with the President and he only presented the proposals to the President which he felt were in the national interest rather than any

particular political group's interest and the President then approved them. They had a very close working relationship and I think that that should be the case. I do feel that it could be separated from the regulatory body. If you put all of the power both in regulation, price, and financing in one spot, I think then you have got a very serious potential area for abuse.

Senator BYRD. Thank you, sir.

The CHAIRMAN. Mr. Rockefeller, I asked that the borrowings of the RFC be converted to 1977 dollars. That figure turns out to be \$257 billion that the RFC borrowed and used to help this country in pressure and in wartime and post-wartime years, so what you are talking about is only about 40 percent of what this Government did in previous years just through the Reconstruction Finance Corp.

Mr. ROCKEFELLER. Yes.

The CHAIRMAN. With regard to the tax aspect of the bill, it would seem to me that we ought to be willing to pay for some of this financing rather than just borrow the whole thing out of the banking system. I would think that the wellhead tax could relate on the basis that we would hope to pay for the losses at least partly with that tax so that we don't claim to do the whole thing with printing press money. Obviously I believe that we ought to start channeling this new credit into the areas where it is needed rather than just into second homes and things of that sort.

Mr. ROCKEFELLER. Yes.

The CHAIRMAN. Now, is it possible that in the long run, all things considered, that this proposal might not really cost us anything or put a burden on the taxpayers?

Mr. ROCKEFELLER. I think it is. I think that with proper planning there will be some high risks undertaken where we—well, I don't know what the cost of production from a certain source will be. However, there will be and it may be too high to be commercially productive. On the other hand, there will be others where we may have some very pleasant surprises that we can produce from sources we didn't expect, cheaper than we thought, and be competitive and even lower than OPEC's prices. Therefore, the profits could be made by this corporation if they sell. Let's say they did like the Federal Reserve where they financed on a lease.

This was on a strict financing basis contracting corporations to produce, then they sold the processes and they made money on it. I think that this can balance out. I think it should be run that way.

The CHAIRMAN. We should crank into the cost calculation the cost of 1 million workers being unemployed. We are talking about putting those people to work with good wages, good jobs paying perhaps \$20,000 or more per year. Look at what it costs to pay those people unemployment benefits or support their families on welfare. If you crank those secondary benefits into it, there are tremendous assets here that don't entirely meet the eye.

Now, to me it boiled down to the question: How can we get a job done, take the kinds of risks which the Congress was not willing to with President Nixon's proposals. He wanted to try anything. He didn't suggest any other major program to try to get the country moving. He felt we could achieve energy independence again in 7 years.

Well, I don't know whether it is politics or what, but the Congress would not buy very much of it, practically none of it, so those plans have been turned down. We might just as well forget about it. Congress was reluctant to let the price go up. At the Summit Conference on Inflation, the feeling was that if oil companies make enough money that they will put more back in. Congress was not willing to let the price go for that much. All we are talking about is simply putting on emphasis on making money available to do this job and to help people to take risks they otherwise would not take.

Mr. ROCKEFELLER. Yes.

The CHAIRMAN. You explained to me your thought about this when you were Vice President of the United States, and I was thoroughly convinced that we ought to have this not as a substitute for the various programs that others were trying to accomplish. There are proposals that are in the President's program that have passed the House, votes that I am willing to go along with, but it reminds me of that passage in the New Testament where the Master said, "Do you these things but leave not the others undone." [Laughter.]

Here is a great big void in this program. Companies want to go into shale, they want to develop coal, they want to develop geothermal heat, they want to develop solar energy, but it involves a great risk and we just don't have the time to wait for 20 years for something to happen. We ought to go beyond the scope of this program with it.

I think that your suggestion has a tremendous amount of merit. I will try to see that something along those lines should be done. I appreciate your testimony here.

Now, if anyone wants to interrogate the Vice President further, I would be glad to call him.

Senator Dole.

Senator DOLE. No; I just would appreciate very much your willingness to serve as the chairman of the board of directors if this proposal is enacted. [Laughter.]

The CHAIRMAN. Providing you are through running for office, Mr. Vice President. [Laughter.]

Senator DOLE. That would give it considerable prestige. I understand that would be another call to duty that you might not want to harness up for right now, but that would make it easier to sell.

Mr. ROCKEFELLER. Mr. Chairman, may I just say what a pleasure it is to be back with my former colleagues in these very pleasant surroundings.

The CHAIRMAN. Thank you very much, Mr. Vice President. You made, in my judgment, a very important contribution for our consideration.

Mr. ROCKEFELLER. It is my pleasure. Thanks.

The CHAIRMAN. Thank you very much for coming down here.

Next we will hear Mr. Andrew J. Biemiller, director, department of legislation, AFL-CIO, accompanied by Mr. Randolph Oswald, director of research, AFL-CIO.

Mr. Biemiller, we will be very happy to have your views on this measure. You are an old friend who has been available down through the years and we appreciate your contribution.

STATEMENT OF ANDREW J. BIEMILLER, DIRECTOR, DEPARTMENT OF LEGISLATION, AFL-CIO, ACCOMPANIED BY RUDOLPH OSWALD, DIRECTOR OF RESEARCH

Mr. BIEMILLER. Thank you, Mr. Chairman. I am accompanied by Mr. Rudolph Oswald, director of research, AFL-CIO.

Mr. Chairman, we are pleased to have this opportunity to present the AFL-CIO's views on the tax aspects of the proposed National Energy Act. The AFL-CIO Executive Council on August 29, 1977, in a unanimously adopted resolution on energy stated:

The AFL-CIO supports the major thrust of the energy bill, H.R. 8444, adopted by the House. While many elements of the bill, particularly those dealing with conservation, are commendable, we cannot agree with the energy pricing and taxing provisions which, in effect, delegate to the OPEC nations the power to determine domestic energy prices. We, therefore, urge the Senate to modify these features of the bill so that the American consumer will not be saddled with inordinately high energy costs.

The bill also lacks any significant provisions to stimulate the development of alternative energy sources. While conservation is essential to a comprehensive program, it alone will not resolve the nation's energy crisis. Private industry will not undertake the massive development of alternative energy sources which is necessary. Therefore, we urge support for public programs to help establish energy independence through direct loans, loan guarantees, price guarantees and other financial assistance to private industry and public bodies unable to secure private capital.

Specifically, we endorse provisions that:

- (1) Encourage conversion from oil or natural gas to coal.
- (2) Provide tax credits up to \$400 for homeowners who install insulation and other energy saving equipment.
- (3) Establish national standards for determining utility rates, including a provision that would make it possible for state agencies to provide discount rates for basic energy needs for residential consumers.
- (4) Provide a tax credit, up to \$2,150, for home owners installing solar equipment or windmills.
- (5) Repeal all federal taxes on bus operators, including the 10 percent excise tax on the bus, the 8 percent tax on bus parts and accessories, the 4¢ tax on fuel, the 6¢ a gallon tax on lubricating oil and the excise tax on tires, innertubes and tread rubber.
- (6) Establish mandatory minimum efficiency standards for 13 major appliances.
- (7) Authorize the President to establish energy conservation plans for all federal buildings with special emphasis on experiments with solar energy.

We cannot endorse:

(A) The crude oil tax which would allow domestically produced oil to rise to the world level in three steps. That tax would show up in retail prices for most refined petroleum products, raise gasoline prices alone by about 7¢ a gallon and drastically affect consumer purchasing power. While there is a provision for rebating some of this tax, it is unlikely that the money will be returned in an equitable manner.

(B) The tax on big family cars. As the legislation now reads the tax contemplated by this provision would to a large extent be borne by middle and low income families who need a large car. It is our belief that the fleet standards are much more critical in reducing automobile gas consumption. If necessary, those standards could be tightened and minimum standards established that would not be burdensome on moderate income families.

(C) The investment tax credit provided to business for the purchase of energy saving equipment and the installation of insulation. It is our view that these credits are not necessary and simply reward larger and more prosperous firms for doing what they would do anyway.

(D) The repeal of the existing deduction on federal income tax returns for state and local gasoline taxes.

(E) The provision that would undo a significant tax reform measure enacted in 1976 which requires oilmen to pay at least the 15 percent minimum tax on income sheltered through "intangible drilling costs."

(F) The proposals to deregulate natural gas prices which have already risen to an extraordinarily high rate in recent years, going from 52¢ to \$1.45 MCF for new gas in the past year.

To better cope with continuing price rises being forced on the U.S. by the oil cartel, we reiterate our proposal that oil imports be taken out of private hands and placed in the hands of government. A free market does not exist in the sale and price of the oil that the nation imports. It is controlled by foreign nations. Private companies have no power to deal with the oil-producing and exporting countries. As long as this situation exists, the federal government should determine the amount of oil imported, negotiate its price and provide for its allocation.

The facts are quite clear, Mr. Chairman, that inflating the price of energy to induce conservation just doesn't work. The October 1973 embargo and the subsequent massive increase in energy costs and prices contributed substantially to a worldwide recession, generated massive unemployment, skyrocketing inflation, and heightened international tensions but the use of energy is today higher than ever.

Despite the enormous increase in prices for imported oil, the Nation has imported more and become even more dependent upon foreign sources. In 1971 oil imports cost the Nation \$3.7 billion; in 1976, according to the administration, the cost was \$36.4 billion. In the 6 months prior to the embargo and the subsequent price rises imports averaged 6 million barrels per day and accounted for 37 percent of consumption. In 1976 imports rose to an average of 7.3 million barrels per day and accounted for 42 percent of U.S. oil consumption.

Moreover, the studies and estimates that we have seen—such as those by the General Accounting Office and the Congressional Budget Office—regarding the impact of proposed taxes indicate that energy savings would be quite small and overshadowed by cost burdens to consumers.

Thus, though we agree with and can support many of the proposals contained in the energy plan, including some of the tax measures, we urge the Senate to reject those proposals which would unfairly place the burdens of energy conservation and development on low- and middle-income consumers, workers, and taxpayers.

First, we wish to comment on the specific measures before this committee which we support:

1. We support the proposal for tax credits—available through 1984—of 20 percent of the first \$2,000 (maximum \$400) spent by individuals on home insulation and other energy conservation measures. We also support the temporary credit of up to \$2,150 for taxpayers who invest in solar and wind energy equipment. We agree with Treasury Secretary Blumenthal's justification for this measure as a means to "encourage more Americans to turn to these inexhaustible energy sources and will help these industries develop to the point where government incentives are no longer necessary." (Statement before Finance Committee, August 9, 1977.)

We also support the provision for federally insured below market interest rate loans for approved conservation measures so that financially pressed families would also be able to make energy conserving home improvements.

2. We agree with the House proposals to repeal the variety of Federal excise taxes which apply to buses—including the 10-percent excise tax on the bus, the 8-percent tax on bus parts and accessories, the 4 cents tax on bus fuel, the 6 cents a gallon tax on lubricating oil, and the excise tax on bus tires, innertubes, and tread rubber.

3. We support the House measure which would impose a tax on industrial and utility users of oil and natural gas in order to encourage conservation and conversion to coal or other energy sources. The House measure is in our view an improvement over the administration proposal in that the bill tailors the levy more directly to the feasibility of conservation and conversion to other fuels and provides for more flexibility in case of adverse economic or environmental consequences. However, we believe the proposal should go further and actually mandate conversion over a reasonable period of time.

4. We support the President's proposal to raise the excise tax on fuel used for noncommercial aviation from 7 to 11 cents per gallon. We feel those who wish to travel in private jets instead of commercial airlines should pay for the privilege. The present excise tax exemptions for farm and other selected uses should be allowed to continue, as proposed.

5. We support the House-passed measure removing the 2 cents per gallon refund on fuel for motorboats.

In view of the Senate's action yesterday, I think we can skip the next two or three paragraphs, Mr. Chairman, pertaining to the "gas guzzler" tax.

The measures we oppose are:

1. We oppose the "oil equalization tax." This proposal combines a substantial increase in current price ceilings on "old" oil with an excise tax that would bring the "controlled price" up to the "world price."

This proposal amounts to at least 5 cents per gallon increase and would, in effect, delegate to OPEC the power to determine domestic energy prices and U.S. energy taxes. At the same time, the profits of oil companies would increase further and faster and prices of alternative energy sources, including coal and uranium, would also increase as oil prices rise.

We recognize that the House bill like the administration's proposal does attempt to meet some of the adverse effects of this tax through a variety of rebates, credits, and special payments. We do not feel such measures would effectively counter the inequities, nor be administratively feasible. The proposed refund of the "crude oil equalization tax," for example, is supposed to protect homeowners, churches, schools, and hospitals heating with oil from the tax, but the refund would go to the oil distributor with no guarantee that it would be equitably passed through to the user.

We are adamantly opposed to any attempts to "plowback" such taxes to the oil companies.

We reject the idea that oil companies need added financial incentives and tax giveaways. According to the White House Office of Energy Policy and Planning Analysis, profits on domestic oil are higher than on oil produced outside the United States. Domestic

drilling for oil and natural gas has increased significantly in the last few years and is still going up. A record number of gas wells were drilled in 1976 and oil well drilling was up 72 percent over the 1973 level.

2. We oppose the proposal to permanently eliminate the 15-percent minimum tax on income sheltered through the immediate writeoff of "intangibles," as well as the proposal to enact a comparable loophole for intangible costs associated with geothermal wells.

Recognition of such writeoffs as a tax preference subject to the 15-percent minimum tax represented one of the more significant steps toward tax justice enacted by the Congress in 1976. This reform was postponed in the 1977 Tax Reduction and Simplification Act. If the House measure is enacted, this shelter for independent oil producers could go on indefinitely.

3. We oppose the 10-percent business energy investment tax credit. Under the bill a broad range of business investment related to energy would qualify for both the existing 10-percent investment credit as well as the added 10 percent. And some other types of investment that are not now eligible for the 10-percent credit, also receive a 20-percent credit. The bill would also eliminate, in the case of alternative energy property, the limitation on the investment credit which prevents the credit from wiping out more than 50 percent of the taxpayer's tax liability.

We maintain our view that investment credits waste huge amounts of tax dollars by rewarding larger and more prosperous firms for doing what they would do anyway.

4. We are also opposed to the repeal of the present individual income tax deduction allowed for State gasoline taxes.

Repeal of this provision will do nothing to help meet the goal of energy conservation. It will, however, increase the tax burden of a particular group of Americans who, because of extraordinarily high tax deductible expenses such as mortgage interest, State and local income, sales and property taxes, high medical bills, and the like must itemize their deductions and cannot benefit from the standard deduction.

We would also point out that this same group was singled out in the just-enacted Tax Reduction and Simplification Act in the name of simplification and now the Congress and the administration proposes to hit this group again in the name of energy conservation.

According to the Treasury and the staff of the Joint Committee on Taxation, this action amounts to a tax increase of \$700 million. About one-third of the increase will be paid by taxpayers with incomes of \$20,000 a year and under who itemize their deductions and some 70 percent of the tax increase will be borne by taxpayers with incomes under \$30,000.

We believe that such a measure is much more appropriately considered within the context of a total tax reform—not energy—program in which other deductions are also reviewed and the Congress has an opportunity to enact a total program which is balanced and fair and does not arbitrarily increase the taxes of a particular group.

5. We are opposed to any further attempts to levy additional excise taxes on consumer purchases of gasoline.

We were pleased that the Ways and Means Committee rejected the administration's 5 cents to 50 cents per gallon standby gasoline tax and the full House rejected other measures to add such excises.

If consumption must be substantially curtailed, we would prefer enactment of a rationing program. The tax system should not be the basic means for resolving the energy problem. A more direct approach to the development, allocation, and conservation of energy must be undertaken by the Federal Government.

May I just make one additional comment, Mr. Chairman. I listened to most of my friend Nelson Rockefeller's program. It is a program we have been on record for ever since he first brought it out in the light of day. We have testified for it in front of the Senate Committee on Banking, Housing, and Urban Affairs quite recently and the basic idea that he has we think makes a lot of sense.

The CHAIRMAN. Thank you very much, Mr. Biemiller.

Senator DOLE. I don't want to prejudice your views, but I find myself in agreement with much of what you have said.

I oppose the equalization tax and I notice that you oppose the equalization tax, the gas guzzler tax, the added gasoline tax and repeal of the gasoline tax deduction. In those areas there is some agreement in this committee. I am further pleased to have your comments on the proposal by Nelson Rockefeller.

In addition to opposing the equalization tax, you also are opposed to any incentives to increase production of oil and gas. In your opinion, how do we cope with the present oil and gas shortage? Do we just rely on decisions by OPEC countries to meet the present day realities?

Mr. BIEMILLER. Mr. Oswald?

Mr. OSWALD. Mr. Dole, we feel that there are certain incentives for encouraging production of oil and gas. In the normal sense we feel that you need the sort of program that Vice President Rockefeller recommended for developing new sources of energy alternative sources—solar, wind, gasification of coal, shale oil, the other things that are not yet onstream. Things that are onstream have been increased as a result of the very rapid increase in the last few years already in the price of both oil and gas and that is sufficient incentive for the increased production.

Senator DOLE. Of course, there is sharp disagreement and there may have been some excessive claims made, but it has not happened yet and we are now importing a great deal of oil. It seems that we cannot keep the prices down in an attempt to insulate the American people from what is happening outside the country.

On the other hand, we are talking about increased jobs which I believe, is your primary concern. There have been many indications that with some production incentives—we would, in addition, to increasing our energy potential and self-sufficiency, there would be a vast impact on job creation.

Mr. OSWALD. We have made substantial incentives already available for the last 4 years. Additional drilling has increased substantially with additional offshore lands available for exploration. We will have coming in new natural gas in a few years hopefully from Alaska and we support the Alaska pipeline arrangement, but if you just look at the change in the last 4 years in terms of the incentive

for oil to add exploration from a world price of less than \$3 a gallon on to new oil now selling at over \$13 a barrel, you have a substantial incentive. The natural gas was being sold at around 40 cents, it is now \$10.75 for natural gas. These are fourfold, fivefold, sixfold increases are substantial incentives.

Part of the incentives show up in record profits over the last few years for the oil companies. They invested some of their money in alternative energy sources buying coal companies, some uranium and also in nonenergy related areas as they use some of their funds, not for exploration but for other uses of their excess funds. We feel that there is sufficient incentive.

Senator DOLE. Do you feel that this will help reduce our dependence on foreign oil without any additional incentives? If we eliminate the equalization tax, do you have any alternate proposals? I agree with you on elimination of the tax, but—

Mr. OSWALD. Mr. Dole, we don't think that having that equalization tax will provide any additional supplies. It will just provide a higher price to consumers and not bring about any additional supplies. We think that there are sufficient incentives for bringing about the increased supply. It just takes some time and I think that we have the beginnings on the new offshore oil leases. The Alaska oil has just begun to flow, it will reach its peak within the next year and will help offset some of that shortage as well as other sources that will be coming onstream from new drilling that took place in the past year.

Senator DOLE. It has been suggested that the well head tax could be used to fund the suggestion proposed by former Vice President Rockefeller. Have you given that any thought?

Mr. OSWALD. Well, we are very fearful that the impact of the well head tax will be a drag on the economy, that if we do take that much money out of the economy at this time it will have a serious impact on jobs, further expansion of the economy, et cetera, and we would rather see the gradual use of tax funds from tax reform that will be coming up next year for financing some of the sorts of programs that are in the Rockefeller recommendations.

Senator DOLE. Thank you.

The CHAIRMAN. Mr. Packwood.

Senator PACKWOOD. You mentioned the increase in drilling rates over the last 4 years. Isn't it true that the percentage of those used for exploration have gone from 28 to 23 percent and that the bulk of the increase is in already developed fields?

Mr. OSWALD. Mr. Packwood, part of that increase is that for developing old resources, part of that is because of how we define old oil versus new oil, part of it is as a result that the higher price makes it attractive to try to take the oil out of what was once considered uneconomic oil wells and the result of both of these programs led to some of the new rates being for extraction from old oil areas. But we also have the continued expansion for new exploration and I think that we are getting new sources of oil which will be beneficial in years to come.

Senator PACKWOOD. Well, we are finding an increasing amount of new oil. We are using up our reserves at the moment faster than we are discovering new oil.

Mr. OSWALD. Mr. Packwood, one of the real problems has been the failure to have good detail on the amount of existing reserves. We have been dependent upon some of the information that has been provided by the companies, much of which has been questioned by many of the experts in the field and there has been some real question of whether additional subpoena power may not be required in order to get detailed information in this regard.

Senator PACKWOOD. I am not talking here about the oil companies, I am talking about the U.S. Geological Survey. You have heard for almost an hour and a half the other day—and you correct me if I am wrong, Mr. Chairman—but I believe you indicate that at the moment we are discovering fewer new reserves than they are currently using.

Mr. OSWALD. And yet that is the short-term situation. We feel that we do have a need for the long-term solution by trying to develop new alternative energy sources. That is part of the reason that we support the Vice President's recommendation in terms of trying to develop alternative energy sources.

Senator PACKWOOD. The GAO report on the President's program criticized the President's plan as being so weak that instead of oil imports going down, oil imports would go up. Under the President's program as introduced, what is there between now and 1985 that will reduce oil imports?

Mr. OSWALD. Mr. Packwood, there are a number of programs that may be reducing that issue. The additional conservation in the President's program will hopefully bring about reduced demand.

Senator PACKWOOD. You lost me there. What is there in the President's program as proposed that include the equalization tax and the user tax which were designed to discourage consumption?

Mr. OSWALD. The equalization tax has very little impact in terms of the dollar costs involved while much of the conservation comes from the conservation point of individual homeowners and by business in terms of transferring its use to other sources.

Senator PACKWOOD. I don't see in your proposal where the dramatically increased conservation is over the President's program. You have gotten rid of the gasoline guzzler tax and equalization tax and I just don't see why you have anything else increased in it that is going to sufficiently not only equal the President's program but which now turns out is not sufficient in terms of conservation but has such a dramatic increase that we are going to increase our imports.

Mr. OSWALD. Mr. Packwood, part of the difference is that there are many differences between experts in terms of the amount of demand and the amount of supply over the next few years. Others have come up with substantially different figures than the GAO anticipation of the amount that we will be dependent upon foreign imports. There are also questions of changes in terms of our sources. Over the last 5 years our sources changed considerably from dependence on Middle East oil. There is a question of the amount of oil that will be forthcoming shortly from Mexico and other Western Hemisphere sources from offshore oil leases and we have not even begun to tap the leases that have been allowed for exploration in the Atlantic, the Baltimore Canyon, and the other sources. I think that we are writing off before

we even know the amount of oil that will be forthcoming from some of those sources.

Senator PACKWOOD. Apart from what may be coming from new sources offshore, onshore, or otherwise; how many barrels of oil a day will be imported with your proposal?

Mr. OSWALD. Approximately the same as the President's proposal in terms of the conservation. That includes some of the Senate's action on the prohibition of gas-guzzling cars in the near future.

Senator PACKWOOD. But you are opposed to the gas-guzzling tax.

Mr. OSWALD. We support the provision that the Senate passed yesterday.

Senator PACKWOOD. Tell me how much each one loses and how much each one gains in barrels of oil a day because I don't see where you get any increase.

Mr. OSWALD. The residential insulation and so on are tax credits. According to the report by the Joint Committee on Taxation staff you will have between 270,000 and 330,000 barrels of oil per day.

Senator PACKWOOD. I am going on the presumption that if we passed this bill as we got it from the House our imports of oil and our conservation is not going to be sufficient to make much of a difference and we have to dramatically increase the conservation. I don't know. If you disagree with that, let me know now. Are you satisfied with the conservation efforts in the bill as we have it?

Mr. OSWALD. We are satisfied with the conservation efforts in the bill as they are to extent that there could be additional conservation to help particularly our city residents who we feel have particular problems of weatherization, some of which is being taken care of by other bills as the use of the Youth Employment Act which would provide for help in the inner city for weatherization of old homes which will have some impact. Some of the earlier policies hopefully will also have a conservation impact. We supported and continue to support, for example, the 55-mile-an-hour speed limit as a conservation measure and it has had some conservation impact.

There are a number of other policies and programs that we think we can depend upon as we look toward 1985. Additional development particularly in the solar energy area may provide substantial conservation as an alternative source of energy particularly for home hot water heating and hopefully for general heating purposes.

Senator PACKWOOD. I have no other questions, Mr. Chairman.

The CHAIRMAN. Senator Danforth.

Senator DANFORTH. No questions.

The CHAIRMAN. Senator Byrd.

Senator BYRD. Thank you, Mr. Chairman.

I might say that I am surprised to find myself in agreement with so much of this testimony today. I have a strong rapport with the working men and women in the factories of Virginia but not the same rapport with the leadership in Washington. However, I find myself in considerable agreement today with your statement, Mr. Biemiller. I agree that increasing the price of energy to encourage conservation may not work.

On page 2 you urge the Senate to reject the proposals which would unfairly place the burdens of energy conservation and development

on low- and middle-income consumers, workers and taxpayers. I agree with that.

You oppose the oil equalization tax as amounting to at least a 5 cents a gallon price increase which would in effect delegate to OPEC the power to determine the domestic energy prices and U.S. energy taxes. I am in general agreement with that.

You oppose repeal of individual income tax deductions for the State gasoline taxes. I am in general agreement with you on that.

I am glad to see that we are in more general agreement today than we usually are.

I do not have any questions.

Mr. BIEMILLER. Senator, I just would like to observe that we are always happy to be in agreement with you and if you will remember just a couple of years ago we collaborated rather successfully on the bill affecting the Export-Import Bank at that time.

Senator BYRD. We certainly did, and I was pleased to work closely with you in that regard. As a result of everyone working together, I think we got a very good bill. I think I anticipate we may have another fight on that the next time in the next Export-Import Bank and I look forward to working with you along the same lines.

Mr. BIEMILLER. We will be very happy to, Senator. While I say many times we do disagree, we respect your views and we recognize that you have a good influence on many, many issues.

Senator BYRD. Thank you, sir.

Thank you, Mr. Chairman.

The CHAIRMAN. I just would like to touch on one item, and that is the unemployment. Recently I met with a lot of people who were producing sugar, and those people are very distressed. Imports are wiping them out. I met with people in the steel industry who felt the same way. I know that you are concerned about the fact that we are losing jobs to some of these trades. We try to provide opportunities and, in fact, the Government has paid for it through the CETA program or something else. The Government is trying to put people to work because we are lacking jobs in so many cases either because of trade policies or because of a surplus of product we don't have the market for.

In the area of energy, we have a ready market for all we can produce. It seems to me that we ought to take whatever steps are necessary to put all the unemployed workers that can be used into producing energy. We have an enormous demand for it. Our national security requires it as well as our economy and I am just pleased to see that your group of support to the approach that we ought to make the credit available to go into these new sources of energy and to produce more of the conventional sources also if need be. Most countries don't have as much resources as we have so they have to limit their credit to the areas where they claim the highest priority.

It seems to me in this case, the production of energy, and particularly developing these fantastic deposits of shale, coal and geothermal and sources of that nature claim a priority that deserves us getting on with the job rather than just sitting forever and talking about it. We have done that kind of thing before, and I am very pleased to see that this is one proposal that we have considerable

Republican support for. A lot of Democrats are for it. We won't get anywhere until we get a lot more production and solve this problem. We ought to coalesce. We don't have the White House with us, but maybe if we have labor for it and we have enough support from the business community, maybe we can get the White House to go along with it.

Thank you very much for your statement.

Mr. BIEMILLER. Thank you very much.

The CHAIRMAN. Next we call the panel of Dr. Richard Leshner, president of the Chamber of Commerce; Dr. Jack Carlson, vice president and chief economist, Chamber of Commerce of the United States; Mr. Chris Farrand, manager, Resources and Environmental Quality; and Mr. Robert Statham, director, Tax and Finance, Chamber of Commerce of the United States.

We are very pleased to have you gentlemen here with us today and we are pleased to have your views.

STATEMENT OF DR. JACK CARLSON, VICE PRESIDENT AND CHIEF ECONOMIST, CHAMBER OF COMMERCE OF THE UNITED STATES; ACCOMPANIED BY CHRIS FARRAND, MANAGER, RESOURCES AND ENVIRONMENTAL QUALITY; AND ROBERT STATHAM, DIRECTOR, TAX AND FINANCE

Mr. CARLSON. Thank you very much, Mr. Chairman.

Mr. Leshner is very sorry that he is unable to be here. I am Jack Carlson and I will be giving the testimony. He is ill this morning.

We would like to insert in the record, Mr. Chairman, his statement and just provide some summary comments.

Mr. CARLSON. I would like to refer to some tables that we have already shared with you.¹ They have the energy and economic impact of the administration's energy proposals, the House of Representatives energy bill H.R. 8444 and an alternative energy plan that relies more upon the free pricing system. If you have that particular document, I would like to refer to a few tables in there to carry our argument.

In particular I would like to refer to table 9. So many people have indicated this morning that the proposals coming from the House of Representatives and certainly the proposals coming from the administration are essentially tax revenue proposals. You will see on table 9 that we are talking about a collection of taxes assuming the laws are extended through 1990 as proposed by H.R. 8444, a collection of direct taxes \$340.4 billion and with the inflationary implications causing even higher tax collections to be made that rises up to \$436.4 billion, or \$7,300 higher taxes for the average American family of four.

The bill H.R. 8444 has very little allocation of this going back to the economy so one has to presume that it must be going for general Government purposes. I refer to table 15 and that is based on my reading of H.R. 8444, what the allocations are. Also I have had the benefit of the Joint Committee on Taxation's estimates. The estimates in table 15 are an extension through 1990 as opposed to stopping with

¹ See page 1120 et seq. of prepared statement for tables and graphs.

the sunset provisions as they are written in H.R. 8444. Even in 1980, H.R. 8444 would allocate only \$3.4 billion back to individuals and to businesses and leave \$18.9 billion to be allocated for any Government purpose. Consequently H.R. 8444 is essentially a revenue-raising activity and must be looked upon as the largest increase in taxes in the history of the United States.

Now I would like to draw your attention to the results of his huge increases in taxes by the House and by the administration and I would like to refer you to table 17 to show a comparison of these two proposals and also another simple proposal that as far as law is concerned may require two sentences—to allow crude oil prices to increase 6 percent in real terms each year, until 1985 no other provisions whatsoever would be required. You notice the three lines at the bottom of the page talk about the balanced approach which is the 6 percent increase in real crude oil prices per year. We have the administration conservation plan and we have the House of Representatives plan.

You notice in 1985 by just allowing prices of crude oil to go up a mere 6 percent in real terms that is equal to the benefits that you would expect from the administration's proposal fully implemented, including the gasoline tax fully implemented and triggered every year. The House of Representatives plan would be 3.4 million barrels a day improvement. The one thing I would like to draw to the attention of this committee is that the House of Representatives plan and the administration's proposal goes sour from 1985 on in relationship to existing policy and by 1990 you will see that the House of Representatives plan is inferior to doing nothing, or by maintaining existing policies. The United States would actually import one-half million barrels a day more than with existing policies. The administration plan also turns sour so that it becomes negative by 1991. It has no advantage whatsoever by 1990-91 even though Americans could be paying well over \$100 billion in new taxes by 1991. A mere 6 percent increase in the real price of crude oil until it reaches free market prices by 1985 will produce conservation and production improvements to reduce crude oil imports by 5.2 million barrels per day.

People do not realize that even if the House plan were free, even if the administration's plan were free, neither would be desirable after 1990 in comparison with existing policies. It is not free, you have the largest tax increase in either one of them in the history of the United States.

If I may turn your attention to the last part of the materials that were circulated, graph 1 through graph 7, they portray the economic impact of the administration plan shown by the blurred dash line and the House plan shown by the dotted line and the balanced plan shown by a solid line.

Senator PACKWOOD. Can you specify a little more specifically what lines and dots you mean? I have got these charts and they are complicated to follow.

Senator DANFORTH. What is the graph?

Mr. CARLSON. The graphs are located on the last pages of the data we circulated to you, the last four pages. Graph 1 displays the impact of the energy plans on family income. The line that does not deviate much from zero, in fact, turns positive near the end of this time period,

is a mere 6 percent increase in the real price of crude oil, the balanced plan. The dotted line is the House bill and as you see on an annual basis the average family in this country will be losing \$800 per year.

The administration proposal, including the full implementation of the gas—

The CHAIRMAN. Where are you looking now?

Senator PACKWOOD. I am confused. You have two solid lines and one says administration.

Mr. CARLSON. One is supposed to be dashed. The top one is the dashed one and that is the administration line.

Senator BYRD. Which table are you on?

Mr. CARLSON. I am on graph 1. That is the third page from the end. The numbers are in the tables to back up each year so you can see the estimates and how these were arrived at.

The message here is that the disruptive effect of taxes and the funneling of those taxes back through the Government causes a loss in family income in comparison with a very modest increase in the real price of crude oil. I am talking about a very sizable loss, \$1,300 per family per year in the case of the administration proposal and about \$800 per family per year loss in the case of the House proposal.

The CHAIRMAN. Let me try to understand this. There is supposed to be a dotted line on the chart, but the way your chart came out the code that breaks it down you have a solid line where it says administration, a solid line where it says House.

Mr. CARLSON. It is supposed to be dashed for administration. That was caused by the blurring of Xeroxing.

The CHAIRMAN. Dashes.

Mr. CARLSON. Yes, the administration.

The CHAIRMAN. So the bottom line would be the administration.

Mr. CARLSON. That is correct. The increase in the crude oil price of 6 percent is the top line in graph 1.

Now graph 2 shows you the loss in terms of jobs. I join very much with the AFL-CIO in their great concern that the proposal of the administration could cause up to 1.8 million jobs fewer by the middle part of the 1980s.

The CHAIRMAN. It looks like the administration is succeeding in getting the chamber of commerce together very well.

Mr. CARLSON. In the case of the House provision the job loss approaches about 1 million per year.

Going to graph 3 on consumer prices, the administration proposals could cause the consumer price level to be 4.5 percent higher by mid 1980. The House plan would cause 3-percent higher inflation. Now the balanced approach does also have some increase in price but not nearly so much and would cause only an increase of 1 percent.

At the bottom of graph 4 you can see what happens to automobiles. Automobiles are clobbered by the administration proposal and semi-clobbered by the House plan. The balanced plan will not hurt the automobile industry.

You have the example of housing starts and you can see the negative impact there.

What is very telling and something, Mr. Chairman, you have been concerned about is the impact on real business fixed investment which is one of the reasons why the economy is growing at a sluggish rate

at the present time. An increase in the real price of crude oil of 6 percent provides increased investment. The House and the administration plans will cause a marked decrease in investment of up to \$18 billion. The point has been made by many people here that the energy plan provided by the administration and also by the House, even though it attempts to serve other objectives, are anti-investment. Further discouragement of investment can be harmful. It occurs because both plans create disincentives for producing additional oil and gas. They focus almost exclusively on conservation.

Graph 7 does summarize what I mentioned earlier, the energy plans impact on improving the Nations energy situation. The balanced plan as shown by the solid line is far superior to any of the other proposals, particularly in the longer run.

Senator PACKWOOD. We don't seem to have a graph 7 either, Senator Danforth or I.

Mr. CARLSON. In summary, on graph 6 that shows the effect of the energy plans on investment. Let me summarize—it is a very negative impact, both the House and administration proposals.

In graph 7 it shows graphically what the net energy improvement will be by each of the plans. Note that a mere 6-percent increase in the real price of crude oil becomes far superior after the mid 1980's and that the administration and House plan go down past zero at 1990 and beyond. So even if they were free, it would not be wise policy after 1990 because you actually import more crude oil than with existing policy. Current policy allows intrastate natural gas to be set by market forces and allows crude oil to adjust more than just the amount of inflation up to a total of 10 percent. The administration and House plans would restrain even this small amount of free market discretion.

If you are interested in particular States, I draw your attention to tables 20 and 21. Table 20 refers to the 1985 condition and table 21 refers to the 1990 condition. Let me illustrate with the State of Virginia. The annual increase in taxes because of the administration proposal by 1985 could be \$1,319 for a family of four in Virginia. Under the House plan it would be \$622. Under a balanced approach you could expect producers' receipts to be up \$556 for each family. The energy improvement would be considerably higher with a balanced plan than with the House plan. The inflation in Virginia would be about one-fourth as high with a balanced approach. Instead of 22,000 to 40,000 lost jobs with the House and administration plans, jobs could increase by 8,000 jobs with a balanced plan. Family incomes in Virginia could decline by \$782 to \$1,294 each year by 1985 and even more by 1990 under the House and administration plans, but would turn from a small decline of \$300 in 1985 to an increase of \$136 by 1990.

Now in reference to the particular tax provisions that the Finance Committee is considering, the national chamber supports the proposed tax credits for insulation and other energy effective equipment. We feel the urgent need to accelerate the retrofitting of existing homes and buildings warrants these special short-term credits.

We also support credit on intercity buses and aviation and motorboat fuel. However, we are strenuously opposed to the equalization tax. We must have a program which uses both conservation and increased production.

Mr. Chairman, my colleagues Mr. Farrand and Mr. Statham and I would be pleased to answer any comments you might have.

The CHAIRMAN. Senator Dole.

Senator DOLE. Thank you.

I am sorry I missed part of your statement, Jack, but I am impressed with all these numbers. I don't know where they all came from now or what they mean, but they are very impressive.

If there is a typographical error in there, how will we know it?

Mr. CARLSON. Normally I find out very quickly after putting these numbers out.

Senator DOLE. As I understand you are firmly opposed to the well-head tax.

Mr. CARLSON. Yes.

Senator DOLE. You have made that clear. In addition to testifying here today, are you attempting to get some votes to try to reject the tax? Are you going to testify and go home or is the chamber really against this?

Mr. CARLSON. We will be willing to accept any recommendations that you have in mind but first we are trying to recommend to the policy body what we think is wise policy and then obviously we will want to share the analysis we have with our constituency.

Senator DOLE. That is a good statement. I am not certain there are any votes in that, but it might get you elected.

The point I am making is that I don't want to fuss with the chamber of commerce because they may still do something someday.

We are considering a massive tax program aimed at business and we should be realistic enough to realize that the forces at work on the other side have the upper hand. I just encourage the witnesses and I am certain of their dedication but, testifying may not be enough. It may mean a lot of work to get back to the home States to insure proper communication to the Members of Congress who may be voting on these very provisions.

The point I am making is that you may have the wrong people in church this morning. I believe most of those here are sympathetic to many of the ideas you raise just as we know that most people in business are similarly interested. I have no quarrel with what you suggest. I hope there will be attractive pursuit now of the policy and an effort properly presented to the people all over the country because we are getting down to the wire. They say we are going to have an energy bill before we leave this year. There are some who say we are going to be leaving in about a month. It may not be a month so I guess we are down to the wire. I certainly share the views you express.

Do you see anything in the administration's program that is going to reduce our dependence on foreign oil? Are there any measures in the national energy plan that would reduce our dependence on foreign oil?

Mr. CARLSON. First let me comment on your designation of the chamber as a paper tiger—

Senator DOLE. There are a lot of papers here. There are a lot of paper tigers.

Mr. CARLSON. I do think it is fundamentally important to realize that energy plans are properly focused for the long run, 1985, 1990,

and thereafter. Consequently when we estimate that the administration and House plans, even after American families have paid \$7,300 to \$15,000 more taxes, will actually cause crude oil imports to be higher than existing policies, we are surprised that no one listens or seemingly cares, and we have been saying that for 6 months. We are not getting your attention, which is really unfortunate because the plans are harmful over the longer run. Then you come to the point that has been brought out so well by the AFL-CIO that this is a heavy tax program and the tax is heaviest on lower-income people. It is one of the most regressive tax-proposed by any government in the history of the United States.

Senator DOLE. Chairman Long was considering the union of the AFL-CIO and the chamber of commerce united. I don't see how anything could withstand that pressure.

Mr. CARLSON. I think there is considerable ignorance, and I use that in a descriptive sense, as to what the legislation means and to the problem we face. I think the Vice President is quite correct in commending the President and others for noting that this is a real problem and that the people across the country don't feel that way. It is hard to mobilize them as well as to propose solutions and understand the problem.

Yes; there are particular provisions supportive in this particular bill, and we indicated those in our statement. They tend to be minor compared to the heavy tax increase provisions.

Senator DOLE. However, the tax is the centerpiece of the administration's program. Without it, I think we could probably develop a pretty good energy package. Perhaps, including the suggestions made by the former Vice President, Mr. Rockefeller.

Mr. CARLSON. Let me just comment on that inasmuch as there is considerable interest in that. I have been involved in that proposal over a number of years. I do think one has to be very careful about a mechanism for Federal credit allocation. This could greatly accelerate Government intervention in the private sector. One should only use that for really pinpointed and unique technology where the risk may be exceptionally high and the scale may be large. However, a \$100 billion program has gone beyond that limit and is akin to firing at the energy problem with a shotgun instead of a high-powered rifle.

Also, the problem is not so much the—

Senator DOLE. I think the chairman pointed out in RFC costs, \$257 billion in 1977 dollars.

Mr. CARLSON. Quite frankly speaking, the RFC was a very big risk to the market system in this country and it is to the credit of the people following World War II that it was dissolved. I am not at all sure the conditions or forces would exist for this kind of an organization to do anything but expand. So I do think that one has to approach this cautiously and limit it as with a rifleshot to particular areas of high risk and large scale, as opposed to across the board.

Also, the problem is not so much the availability of financial funds for energy investment because, if the prices are right and if the Government reduces energy price controls, the available savings will be automatically allocated to energy. The long-run problem is adequate savings and reduction in unnecessary Government-caused uncertainty and

that has not been addressed here. Perhaps the tax reform, when it comes before the committee, will provide an opportunity for considering this problem further.

Senator DOLF. I would like to repeat in all seriousness this may affect the oil industry and business all across this country whether you are Democrat, Republican, or independent businessmen or women. I hope there will be every effort made, as I am certain there will be, by every group representing business to make their voices not only heard but felt.

Mr. CARLSON. Agreed.

The CHAIRMAN. Senator Packwood.

Senator PACKWOOD. Explain to me one of your graphs, graph 7. If we follow the balanced plan by 1985, we are at the same place the administration is which is 4.2 million barrels a day over what? Less than what? What does that 4.2 million mean on your chart?

Mr. CARLSON. All the figures indicated on these charts are in relationship to existing policy so you will have an improvement over what existing policy would give you of 4.2 million if you had the full administration program including the gasoline tax.

Senator PACKWOOD. So the full administration program which was hoping to not really cut our consumption but to see it reach only 20 million barrels a day in 1985, what you were saying is that in both the administration in your program without going over the existing program you would be up to 24.2 million barrels a day.

Mr. CARLSON. I have provided an estimate in table 6 of the consumption of energy that I believe may occur with existing policy.

Senator PACKWOOD. Stick with the million barrels a day because I don't understand that chart. If we do nothing, what do you project? How many barrels a day will we use in 1985?

Mr. CARLSON. I have 22.7.

Senator PACKWOOD. 22.7.

Mr. CARLSON. Million barrels a day.

Senator PACKWOOD. And 22.7 under your plan, we would be using 18.3.

Mr. CARLSON. Yes.

Senator PACKWOOD. About a half million barrels.

Mr. CARLSON. Yes; roughly where we are today. However, the composition changes. We will have far more imported and less domestically produced, given the policies that are being recommended here—which discourage production.

Senator PACKWOOD. Now, under your plan which is nothing but the 6-percent increase—

Mr. CARLSON. Real increase.

Senator PACKWOOD. What?

Mr. CARLSON. Real increase.

Senator PACKWOOD. Yes, 3-percent inflation, real increase.

Mr. CARLSON. Yes; 6 percent real increase.

Senator PACKWOOD. Under your plan, how much of that will be imported in your projections?

Mr. CARLSON. 18.5. On both the administration and balanced approach, you are backing out imported oil. That is not entirely correct because there will be some impact upon other sources within the United States roughly.

Senator PACKWOOD. So the GAO study says, cross every "t" and dot every "i" and it will be over half a million barrels of imports. I understand where your plan is different, but I am curious why the administration thought it would be 6 million barrels a day. What is there about your plan that guarantees that we get to a dramatic reduction in imports? How do you prove it? Where do your facts show it?

Mr. CARLSON. We have 200 years of experience with the impact of price increases on production and on conservation people change their behavior because of a price increase of oil and this is measured. There is more evidence in this area than in estimating the likely results of many provisions of administration and House plans.

Senator PACKWOOD. I am not necessarily defending it, but I just don't find 200 years of history as an adequate answer from a statistical standpoint.

Mr. CARLSON. This analysis is based upon the sensitivities that people have shown to price increase both to increase production and reduce consumption. The sensitivities are all summarized in table 5 and this data is based upon the data of the Federal Energy Administration. However, some of FEA estimates appear high, so I modified some of them so as to be on the conservative side.

Senator PACKWOOD. We are probably producing around 9 million barrels a day.

Mr. CARLSON. Yes.

Senator PACKWOOD. Are you shooting at 6 million barrels a day?

Mr. CARLSON. We won't get there by 1985.

Senator PACKWOOD. What are you projecting for 1985 imports?

Mr. CARLSON. I don't have that figure with me but we are working for imports otherwise of 12 plus.

Senator PACKWOOD. Will you say that?

Mr. CARLSON. Twelve to fifteen by 1985.

Senator PACKWOOD. You mean under your plan?

Mr. CARLSON. No; you must deduct from that the 4.2 million barrels per day that you would expect in savings by 1985 and 5 million barrels per day by 1990 and if without the balanced plan expect 13 million barrels per day imported, then imports would decline to 8 million barrels per day by 1990, which is much better than the administration and House plans. Of if you are 15 million barrels per day, you would come down to 10 million barrels per day.

Senator PACKWOOD. But your savings are not coming in this case from increased productions, your savings are coming from—

Mr. CARLSON. Both increased production and conservation. If you will notice, and I don't have a summary of it here, the production side provides a tremendous incentive. In fact, I do have it here in table 5.

Senator PACKWOOD. We are using roughly 18 million barrels a day today. You are presuming that in 1985 we will be using about 19.5 million barrels a day so there is no dramatic increase in consumption under your plan.

Mr. CARLSON. The increase in the real price will affect both conservation and production.

Senator PACKWOOD. OK.

Mr. CARLSON. The profile that I have used for comparing the changes brought about by the administration program in the House and the balanced approach is the same profile.

Senator PACKWOOD. I understand that.

Mr. CARLSON. No risk of apples and oranges.

Senator PACKWOOD. How much are you presuming comes from increased production?

Mr. CARLSON. I estimate that a little less than half from the production side, a little more than half from the conservation side. However, the potential for improvement in energy on the production side is truly large. Up to now, we have withdrawn only 30 percent of the crude oil from known reservoirs. With an increase in crude oil prices, we may be able to extract up to 40 percent of known reservoirs. This could mean a one-third increase in crude oil used throughout the entire history of the United States—and that is a very sizable potential increase in supply and production. The administration and House plans would actually discourage production of this crude oil. Only the balanced plan, which would allow crude oil prices to move slowly toward market prices, would encourage this production.

Senator PACKWOOD. My time is up.

Senator BYRD. Senator Danforth.

Senator DANFORTH. Mr. Carlson, I would like to ask you about table 3. Now presently Federal taxes as a percentage of GNP is what?

Mr. CARLSON. Well, at the present time it is beyond the objective that the President has in mind. It is closer to 22 than it is to 21.

Senator DANFORTH. Do you know precisely what it is now?

Mr. CARLSON. It is 22.3 percent.

Senator DANFORTH. Do you know what historically it has been over the last, say, two or three decades? Has there been a sort of historic percentage of GNP?

Mr. CARLSON. As far as the Federal Government is concerned, roughly 21 percent; 19 to 22 has been the fluctuation zone. The most rapid growth in government has been primarily at the State-local government level during the last two decades.

Senator DANFORTH. But historically it has been somewhere between 19 and 21?

Mr. CARLSON. Yes.

Senator DANFORTH. Over the last two decades?

Mr. CARLSON. Yes. So this is a very marked ratchet up.

Senator DANFORTH. The President's objective is 21 percent, correct?

Mr. CARLSON. His objective at the end of his term or during it is 21 percent.

Senator DANFORTH. Now presently it is 22.3 percent of GNP; is that correct?

Mr. CARLSON. Yes.

Senator DANFORTH. And then these figures in the middle line with the underlinings are how much of GNP that would be accounted for by the taxes in the President's program, right?

Mr. CARLSON. Yes, assuming that the gasoline tax is triggered.

Senator DANFORTH. But this assumes the gasoline tax. Do you have it without the gasoline tax?

Mr. CARLSON. Yes. Table II really shows the House bill which is essentially the administration bill without the gas tax. This is the

Federal Government racing ahead of the growth in people's income. The Federal Government has normally stayed even with the growth in people's income. A very marked ratchet up in the size of the Federal Government is required by the House and administration plans.

Senator DANFORTH. Of course, the argument that would be made. I suppose, by the administration is, well, a lot of this is going to be redistributed or rebated.

Mr. CARLSON. All tax receipts are funneled back to somebody depending on the size of the deficit so, yes, that is the nature of government to take the money from the one group and distribute it to another. In terms of specification the House has specified a very, very small proportion of the House receipts so I have to think that this is primarily a receipt-raising measure for any programs the administration might have in mind or the House or any of the decisionmakers may have in mind.

Senator DANFORTH. Thank you.

Senator BYRD. Senator Curtis.

Senator CURTIS. I agree with the main thrust of your position and I have no questions at this point.

Senator BYRD. This is certainly an unusual day today. [Laughter.]

The oil-producing States have been strongly opposed to the administration proposal. I represent a consumer State and certainly every evidence is that the consumers will be adversely affected by the administration proposal. The U.S. Chamber of Commerce is strongly opposed to it and the AFL-CIO is strongly opposed to it. It seems to me the Congress will have a very difficult time passing the legislation that has been sent to this committee.

Could I ask you this. Could you briefly summarize what you call a balanced plan?

Mr. CARLSON. We have two aspects. We have talked about the provisions in the administration proposal on the House bill that we support and we have also indicated what another given approach could be and it might be two sentences in a bill and that is to allow essentially the market system that we have relied upon for 200 years to serve us well at this time of energy crisis. The only thing that we have shown here is an anemic change in the price of crude oil. Six percent real increase in crude oil per year gives you far more with no tax increases and less loss in the American pocketbook.

In comparison, with the huge \$15,000 per family increase in Federal taxes through 1990 proposed by the Administration and \$7,300 per family in the case of the House bill, the balanced plan is superior. The balanced plan is a market alternative that will both encourage conservation by small price increases each year.

Senator BYRD. You say your figures indicate that the increase per family under the House-passed bill would be \$15,000?

Mr. CARLSON. No. Under the administration proposal with the gasoline tax, it is \$15,000. The House provision would require \$7,300 per family through 1990.

Senator BYRD. But the administration proposal provides an increase of \$15,000 per family.

Mr. CARLSON. Accumulative through 1990, that is correct, when in fact it turns sour and you would be better with existing policy. You see, existing policy actually provides more price adjustments to bring forth conservation and increased production than the policies that are proposed. The primary element is that intrastate natural gas remains free from Federal price controls. It only changes with changes in market conditions.

Second, the energy bill of 1975 allows for crude oil prices to go up a total of 10 percent—more than just the amount of inflation. Those existing policies are clearly better than the Administration and House plans in the long run.

Senator BYRD. The increased cost per family of \$15,000 through 1990, that is cumulative, of course.

Mr. CARLSON. Yes, sir. I do have the figures per each year in the documentation here and I did read the example of your State in 1985. Each State is affected somewhat differently.

Senator BYRD. I am looking at table 20 now. It is a very interesting table that you have presented.

Are there any further questions of this panel?

Senator DANFORTH. Yes; just one other.

Senator BYRD. Senator Danforth.

Senator DANFORTH. Just to add into your list of woes. There is also going to be in one form or another an increase in social security taxes; isn't that right?

Mr. CARLSON. That is correct.

Senator DANFORTH. So when you talk about the historic figure of 19 to 21 percent of GNP which is taxed, that will be increased by any energy taxes and also it will be increased by any increase in social security taxes.

Mr. CARLSON. That is correct. The social security is not properly funded. It will have to be a tax increase. It also turns out to be true that the Federal retirement fund is not properly funded and there will have to be a tax increase for that also. The administration's tax reform bill may call for removal of the favorable capital gains tax and may thereby discourage investment. In fact, I don't know of one policy, even though they may achieve other desirable objectives, that has been passed by the Congress or proposed by the administration that has encouraged investment this year. It has all been to discourage investment and our sluggish growth in our economy is reflecting that now.

Senator DANFORTH. Do you think that the percentage of GNP which is taken up by taxes or by Federal Government or by State government as well, is that a relevant figure?

Mr. CARLSON. Well, it is assuming you are willing to say that Government has an implicit right to grow as fast as your income grows. Then you say looking at it being a constant percentage is a benchmark, but if you should say that the Government does not have that right to grow as fast as your income, you would want that percentage to shrink over time. It depends on your philosophy of the role of Government.

Senator DANFORTH. In testing your philosophy of the role of Government and what is happening to the economy, in your opinion, is that a relevant statistic?

Mr. CARLSON. It is a value judgment. The health of the economy can be maintained at lower percentages or higher percentages. There is greater risk in the policy process. Federal policies tend to be anti-investment and, to the extent the Government plays a bigger and bigger role in our economy, we will have less and less growth because we will have less and less investment.

Senator DANFORTH. When we talk about jobs, when we talk about inflation, is this a relevant consideration and should we be concentrating on the percent of gross in the product which is consumed by taxes?

Mr. CARLSON. Yes; I think so. There is no magic to 21 percent in GNP or 15 or 25 percent. There is really a view on how much you want to socialize the economy and have the Government provide that role versus individual choice and individuals making those decisions.

Senator DANFORTH. Is this a relevant consideration in thinking about the fact that we have now got about 7 million people out of work?

Mr. CARLSON. Yes; to the extent that the Government's policies being a larger part of the economy tend to discourage investment, and I think the political environment tends to do that, yes. Clearly the anti-investment stance of Government is one of the reasons that unemployment will not be going down much the rest of this year or next year and the economy's inflation rate will be higher because productivity will be higher.

Senator BYRD. Just one final question. You said that one of the real problems the country faces today is the lack of confidence on the part of the business community and on the part of the consumers in Washington. What programs and policies might be developed in Washington to develop this confidence?

Mr. CARLSON. I find the business administration wants to be very supportive but they have a responsibility over stockholders' funds and when they see in the mill a proposal such as the administration's proposal for energy which by 1985 is a tax increase of \$83 billion, that can greatly affect the profitability of any investment they make, whether they can recover their funds, because \$83 billion is more than one-half of the after-tax profits now. Consequently, this uncertainty has caused businessmen to be hesitant. The Government can reduce some of this uncertainty and also should pass policies that tend to be proinvestment. I am afraid the business community is starting to feel that no policies, including tax reform, are going to be proinvestment so this hesitancy may be in the marketplace for many months, especially for long life investments such as new rolling mills, and create inadequate tools for the larger work force in the future.

Senator BYRD. Thank you.

The CHAIRMAN. Thank you very much.

[The material of Dr. Carlson and the prepared statement of Mr. Leshar follow. Oral testimony continues on p. 1145.]

MATERIAL SUBMITTED BY DR. JACK CARLSON, VICE PRESIDENT AND CHIEF
ECONOMIST, CHAMBER OF COMMERCE OF THE UNITED STATES

TABLE 1.—ADMINISTRATION'S PROPOSED ENERGY TAX INCREASES

[Billions of 1977 dollars]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1978-90 total
Crude oil.....	1.9	6.3	11.3	14.6	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	205.1
Industrial and utility.....	0	0	1.7	2.8	3.6	4.7	5.6	6.6	7.5	8.4	9.3	10.1	11.0	71.3
Gasoline.....	0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	50.0	50.0	375.0
Extension of Federal tax (2½%).....	0	0	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	41.9
Elimination of deduction of State and local tax.....	.1	.8	.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	16.3
Gas guzzler.....	0	.1	.1	.2	.2	.3	.4	.5	.6	.7	.8	.9	1.0	5.8
Total, direct taxes.....	2.0	12.2	27.3	37.0	43.4	50.8	58.0	65.3	72.5	79.7	86.9	89.0	91.2	715.4
Additional Federal taxes from inflation caused by energy taxes (e.g. Federal personal income tax receipts increase 1.4 percent for each 1 percent of inflation).....	-1.0	3.0	9.0	15.0	18.0	21.0	20.0	18.0	18.0	18.0	18.0	18.0	18.0	195.0
Total, direct and indirect taxes.....	3.0	15.2	36.3	52.0	61.4	71.8	78.0	83.3	90.5	97.7	104.9	107.0	109.2	910.4

Source: National Chamber Forecasting Center models and computations, DRI and Chase Econometric modeling and data, based upon administration's energy proposals as outlined in the national energy plan and National Energy Act.

TABLE 2.—CHANGES IN FUNDS FLOWING TO PRODUCERS CAUSED BY ADMINISTRATION'S NATIONAL ENERGY PLAN

[Billions of 1977 dollars]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1978-90 total
Coal and uranium producers.....		2	3	4	5	6	8	11	13	14	15	16	17	114
Oil and gas producers.....	-2	-4	-6	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-82
Total producer receipts.....	-2	-2	-3	-3	-2	-1	1	4	6	7	8	9	10	32

Source: National Chamber Forecasting Center models and computations, DRI and Chase Econometric modeling and data, based upon administration's energy proposals as outlined in the national energy plan and National Energy Act.

TABLE 3.—ADMINISTRATION'S ENERGY PLAN AND INCREASE IN TAXES FASTER THAN THE GROWTH OF THE ECONOMY

[Percent of GNP]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
President Carter's objective—Federal taxes as a percentage of GNP.....	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Additional Federal taxes in the energy plan as a percentage of GNP.....	.2	1.3	2.4	2.9	3.9	4.2	4.4	4.6	4.8	5.1	5.3	5.5	5.7
Resulting Federal taxes as a percentage of GNP.....	21.2	22.3	23.4	23.9	24.9	25.2	25.4	25.6	25.8	26.1	26.3	26.5	26.7

Source: National Chamber Forecasting Center models and computations, DRI and Chase Econometric modeling and data, based upon administration's energy proposals as outlined in the national energy plan and National Energy Act.

TABLE 4.—REAL PRICE CHANGES PROPOSED IN THE ADMINISTRATION'S ENERGY PLAN AND HOUSE OF REPRESENTATIVES' ENERGY BILL COMPARED TO EXISTING POLICY

	[Percent]													
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	
DEMAND														
Crude oil: ¹														
Annual.....	15	11	6	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
Total.....	15	30	45	40	35	30	25	20	15	10	5	0	-5	
Industrial oil:														
Annual.....	0	0	5	4	4	4	3	3	2	2	1	0	0	
Total.....	0	0	5	9	13	17	20	23	25	27	28	28	28	
Industrial natural gas:														
Annual.....	0	20	5	5	5	5	5	5	0	0	0	0	0	
Total.....	0	20	25	30	35	40	45	50	50	50	50	50	50	
Utility oil and gas:														
Annual.....	0	0	0	0	0	11	0	0	0	0	0	0	0	
Total.....	0	0	0	0	0	11	11	11	11	11	11	11	11	
Gasoline:														
Annual.....	8	8	7	7	6	6	6	5	5	5	0	0	0	
Total.....	8	17	25	33	42	50	58	67	75	83	83	83	83	
Gasoline (2½% State and local tax deduction and gas guzzler):														
Annual.....	0	1	2	1	0	0	0	1	0	0	0	0	0	
Total.....	0	1	3	4	4	4	4	5	5	5	5	5	5	
Coal: ¹														
Annual.....	5	5	10	10	5	-5	-5	-5	-5	-5	-5	-5	-5	
Total.....	5	10	20	30	35	30	25	20	15	10	5	0	-5	
SUPPLY														
Crude oil: ¹														
Annual.....	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	
Total.....	-5	-20	-15	-25	-25	-30	-35	-40	-45	-50	-55	-60	-60	
Natural gas: ²														
Annual.....	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	0	
Total.....	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-60	
Coal: ¹														
Annual.....	5	5	10	10	5	-5	-5	-5	-5	-5	-5	-5	-5	
Total.....	5	10	20	30	35	30	25	20	15	10	5	0	-5	

¹ Reflects the fact that the administration's energy plan would disallow 10 percent increase in crude oil prices now allowed under existing law; 5 percentage points of the adjustment was assumed for inflation and 5 percent for real price increases.

² Reflects the fact that the Federal Power Commission would not be allowed to set rates according to traditional cost of production techniques under the administration's energy plan.

Source: National Chamber Forecasting Center models and computations, DRI and Chase Econometric modeling and data, based upon administration's energy proposals as outlined in the national energy plan and National Energy Act.

TABLE 5.—IMPACT OF A 1-PERCENT CHANGE IN PRICE ON THE QUANTITY CONSERVED OR PRODUCED IN PERCENT

	[Demand and supply elasticities]													
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	
DEMAND ELASTICITIES														
Crude oil ¹	-0.20	-0.20	-0.24	-0.27	-0.30	-0.33	-0.37	-0.40	-0.41	-0.42	-0.43	-0.44	-0.45	
Industrial oil and gas ¹	-0.20	-0.20	-0.20	-0.24	-0.28	-0.32	-0.36	-0.40	-0.41	-0.42	-0.43	-0.44	-0.45	
Utility oil and gas ¹						-0.15	-0.20	-0.25	-0.30	-0.35	-0.40	-0.43	-0.45	
Gasoline ²	-0.10	-0.10	-0.11	-0.12	-0.14	-0.16	-0.18	-0.20	-0.22	-0.24	-0.26	-0.28	-0.30	
Coal ¹	-0.20	-0.22	-0.24	-0.26	-0.28	-0.30	-0.32	-0.34	-0.36	-0.38	-0.40	-0.42	-0.44	
Natural gas.....	-0.20	-0.22	-0.24	-0.26	-0.28	-0.30	-0.32	-0.34	-0.36	-0.38	-0.40	-0.42	-0.44	
SUPPLY ELASTICITIES														
Crude oil.....	0.10	0.12	0.14	0.16	0.18	0.20	0.22	0.24	0.26	0.28	0.30	0.31	0.32	
Natural gas ³	0.10	0.12	0.14	0.16	0.18	0.20	0.22	0.24	0.26	0.28	0.30	0.31	0.32	
Coal ³	0.30	0.33	0.36	0.39	0.42	0.45	0.48	0.51	0.54	0.57	0.60	0.60	0.60	

¹ Calculated from Federal Energy Administration, "1977 National Energy Outlook (Draft: Jan. 15, 1977)," app. D, tables D-3, D-4, D-5.

² Calculated from Dale W. Jorganson, ed., "Econometric Studies of U.S. Energy Policy," data resources series, vol. 1, 1976, ch. 4.

³ Calculated from various FEA publications.

⁴ Assume current proved reserves of natural gas. If new reserves are discovered and developed, elasticity could be as high as 3.5 in 1985.

⁵ Assumes environmental laws will not impede production.

Source: National Chamber Forecasting Center.

TABLE 6.—CONSUMPTION OF ENERGY BY TYPE

[Millions of barrels of crude oil equivalents]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Crude oil.....	19.0	19.8	20.6	21.1	21.6	22.2	22.7	23.3	23.6	24.1	24.6	25.0	25.4
Coal.....	8.0	8.4	8.7	9.1	9.4	9.8	10.2	10.5	10.8	11.2	11.5	11.8	12.0
Natural gas.....	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.4	9.2	9.1	9.0	9.0	9.0
Uranium.....	1.5	2.0	2.5	3.2	3.9	4.7	5.5	6.2	6.7	7.4	8.1	8.6	9.1
Total in million barrels per day.....	39.0	40.0	42.0	43.0	45.0	46.0	48.0	50.0	51.0	52.0	53.0	54.0	55.0
Total in quadrillion Btu's.....	79	81	84	86	90	93	95	100	102	104	107	109	111
Addendum:													
Industrial oil and natural gas.....	8.4	8.8	9.2	9.6	9.9	10.3	10.7	11.0	11.3	11.6	11.9	12.2	12.5
Utility oil and gas.....	4.0	3.9	3.8	3.7	3.6	3.4	3.3	3.2	3.1	3.0	2.8	2.7	2.6
Gasoline.....	6.7	6.8	6.9	6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Source: National Chamber Forecasting Center; calculations based upon data from Federal Energy Administration, U.S. Bureau of Mines, and the national energy plan.

TABLE 7.—GAINS AND LOSSES IN CONSERVATION (DEMAND) AND PRODUCTION (SUPPLY) FROM ADMINISTRATION'S ENERGY TAXES

[Millions of barrels of crude oil per day]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
DIRECT CONSERVATION														
Crude oil tax.....	0.3	0.5	0.8	0.9	0.7	0.7	0.6	0.5	0.4	0.3	0.1	0	-0.2	-0.4
Industrial oil and natural gas tax.....	0	.2	.3	.4	.7	.9	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Utility oil and natural gas tax.....	0	0	0	0	0	.1	.1	.1	.1	.1	1.	.1	.1	.1
Gasoline taxes and deductions.....	0	0	0	.1	.1	.1	.1	.1	.2	.2	.2	.2	.2	.2
Gas guzzler.....	0	0	.1	.1	.1	.2	.2	.3	.3	.3	.3	.3	.3	.3
Gasoline tax.....	.1	.2	.2	.3	.4	.6	.7	.9	1.0	1.1	1.2	1.3	1.3	1.3
Residential insulation.....	0	0	.1	.1	.2	.2	.3	.3	.3	.3	.3	.3	.3	.3
Solar heating.....	0	0	0	0	0	0	0	0	0	0	.1	.1	.1	.1
Total gains.....	.4	.9	1.5	1.9	2.2	2.8	3.2	3.7	3.8	3.8	3.8	3.8	3.6	3.4
Losses from lower natural gas prices:														
Conservation.....	-.1	-.2	-.2	-.2	-.2	-.2	-.3	-.3	-.3	-.3	-.4	-.4	-.5	-.6
Production.....	-.1	-.1	-.2	-.3	-.4	-.6	-.9	-.9	-1.1	-1.3	-1.5	-1.7	-2.0	-2.3
Net direct gain in Conservation.....	.2	.6	1.1	1.4	1.6	2.0	2.3	2.5	2.4	2.2	1.9	1.7	1.1	.5
Indirect energy improvements from higher coal and uranium prices:														
Conservation.....	.1	.2	.4	.7	.9	.9	.8	.7	.6	.4	.2	0	-.2	-.4
Production.....	.1	.3	.5	1.2	1.4	1.3	1.2	1.0	.9	.6	.3	0	-.3	-.6
Total, indirect.....	.2	.5	.9	1.9	2.3	2.2	2.0	1.7	1.5	1.0	.5	0	-.5	-1.0
Total, direct and indirect.....	.4	1.1	2.0	3.3	3.9	4.2	4.3	4.2	3.9	3.2	2.4	1.7	.8	-.5

Source: National Chamber Forecasting Center; calculations based upon data from Federal Energy Administration, U.S. Bureau of Mines, and the national energy plan.

TABLE 8.—IMPACT OF THE ADMINISTRATION'S ENERGY CONSERVATION PLAN ON THE U.S. ECONOMY

[Change in levels of economic activity]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real GNP (percent).....	-0.1	-0.8	-1.3	-1.9	-2.2	-2.6	-3.0	-3.0	-3.0	-2.8	-2.6	-2.4	-2.2
Billions of 1977 dollars.....	-2	-16	-28	-42	-51	-62	-74	-77	-79	-76	-73	-69	-65
Real disposable income (percent).....	-0.1	-1.0	-1.5	-2.1	-2.6	-3.2	-3.8	-4.3	-4.4	-4.7	-4.6	-4.4	-4.2
Billions of 1977 dollars.....	-1	-7	-12	-20	-25	-29	-33	-40	-46	-47	-50	-50	-49
Average loss per family in 1977 dollars.....	-17	-233	-366	-532	-683	-850	-1,050	-1,287	-1,317	-1,433	-1,467	-1,415	-1,351
Lost jobs (thousands).....	-100	-500	-700	-900	-1,100	-1,400	-1,700	-1,800	-1,700	-1,700	-1,600	-1,500	-1,400
Consumer prices (percent).....	0.4	1.6	2.8	3.5	4.0	4.3	4.5	4.5	4.4	4.3	4.2	4.1	4.0
GNP deflator (percent).....	0.3	1.3	2.2	3.0	3.3	3.5	3.8	4.0	4.0	3.8	3.7	3.6	3.5
Real business fixed investment (percent).....	-0.3	-1.8	-2.7	-3.5	-4.0	-4.5	-5.0	-5.5	-5.8	-6.0	-5.7	-5.4	-5.0
Billions of 1977 dollars.....	-1	-3	-6	-8	-10	-11	-12	-15	-17	-18	-17	-15	-14
Industrial production (percent).....	-0.3	-2.0	-3.0	-3.1	-3.2	-3.6	-3.9	-4.0	-3.9	-3.8	-3.7	-3.6	-3.5
Auto sales (percent).....	-2	-10	-15	-18	-20	-21	-21	-22	-22	-20	-18	-16	-14
Thousands of cars.....	-200	-1,100	-1,700	-2,000	-2,200	-2,300	-2,400	-2,600	-2,600	-2,500	-2,400	-2,300	-2,100
Housing starts (percent).....	-2	-5	-8	-10	-10	-10	-10	-9	-7	-6	-5	-4	-3
Thousands of units.....	40	120	160	220	230	240	240	210	160	90	80	60	50
Imports (billions of 1977 dollars).....	-1	-3	-6	-10	-12	-13	-16	-20	-17	-13	-9	-5	-2
Net exports (billions of 1977 dollars).....	0	2	6	11	13	14	17	20	17	12	8	4	0

Source: National Chamber Forecasting Center models and computations, Federal Energy Administration and U.S. Bureau of Mines data, the national energy plan, DRI and Chase Econometrics modeling and data.

TABLE 9.—PROPOSED ENERGY TAX INCREASES BY THE U.S. HOUSE OF REPRESENTATIVES (H.R. 8444)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1978-90 total
Crude oil	1.9	6.3	11.3	14.6	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	205.1
Industry and utility.....	0	0	1.7	2.8	3.6	4.7	5.6	6.6	7.5	8.4	9.3	10.1	11.0	71.3
Extension of Federal tax (2½%).....	0	0	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	41.9
Elimination of deduction of State and local tax....	.1	.8	.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	16.3
Gas guzzler.....	0	.1	.1	.2	.2	.3	.4	.5	.6	.7	.8	.9	1.0	5.8
Total direct taxes.....	2.0	7.2	17.3	22.1	23.4	25.8	28.0	30.3	32.5	34.7	36.9	39.0	41.2	340.4
Additional Federal taxes from inflation caused by energy taxes (e.g. Federal personal income tax receipts increase 1.4 percent for each 1 percent of inflation).....	1.0	2.0	5.0	9.0	10.0	11.0	10.0	9.0	8.0	8.0	8.0	8.0	7.0	96.0
Total direct and indirect taxes.....	3.0	9.2	22.3	31.1	33.4	36.8	38.0	39.3	40.5	42.7	45.2	49.0	48.2	436.4

Source: National Chamber Forecasting Center models and computations, DRI and Chase Econometric modeling and data based upon administration's energy proposals as outlined in the national energy plan and National Energy Act.

TABLE 10.—CHANGES IN FUNDS FLOWING TO PRODUCERS CAUSED BY THE HOUSE OF REPRESENTATIVES PROPOSED ENERGY BILL (H.R. 8444)

[Billions of 1977 dollars]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1978- 90 total
Coal and uranium pro- ducers.....	2	3	4	5	6	8	11	13	14	15	16	17	17	114
Oil and gas producers.....	-2	-4	-6	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-82
Total producer receipts.....	-2	-2	-3	-3	-2	-1	1	4	6	7	8	9	10	32

Source: National Chamber Forecasting Center models and computations, DRI and Chase Econometric modeling and data, based upon administration's energy proposals as outlined in the national energy plan and national energy act.

TABLE 11.—HOUSE OF REPRESENTATIVES' ENERGY BILL (H.R. 8444) AND INCREASE IN TAXES FASTER THAN THE GROWTH OF THE ECONOMY

[Percent of GNP]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
President Carter's objective— Federal taxes as a percentage of GNP.....	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Additional Federal taxes in the energy plan as a percentage of GNP.....	.2	.9	1.5	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.5
Resulting Federal taxes as a percentage of GNP....	21.2	21.9	22.5	23.0	23.1	23.2	23.2	23.2	23.2	23.2	23.3	23.4	23.5

Source: National Chamber Forecasting Center models and computations, DRI and Chase Econometric modeling and data, based upon administration's energy proposals as outlined in the national energy plan and National Energy Act.

TABLE 11a.—REAL PRICE CHANGES PROPOSED IN THE ADMINISTRATION'S ENERGY PLAN AND HOUSE OF REPRESENTATIVES' ENERGY BILL COMPARED TO EXISTING POLICY

[Percent]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
DEMAND													
Crude oil: ¹													
Annual.....	15	11	6	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
Total.....	15	30	45	40	35	30	25	20	15	10	5	0	-5
Industrial oil:													
Annual.....	0	0	5	4	4	4	3	3	2	2	1	0	0
Total.....	0	0	5	9	13	17	20	23	25	27	28	28	28
Industrial natural gas:													
Annual.....	0	20	5	5	5	5	5	5	0	0	0	0	0
Total.....	0	20	25	30	35	40	45	50	50	50	50	50	50
Utility oil and gas:													
Annual.....	0	0	0	0	0	11	0	0	0	0	0	0	0
Total.....	0	0	0	0	0	11	11	11	11	11	11	11	11
Gasoline:													
Annual.....	8	8	7	7	6	6	6	5	5	5	0	0	0
Total.....	8	17	25	33	42	50	58	67	75	83	83	83	83
Gasoline (2½% State and local tax deduction and gas guz- zler):													
Annual.....	0	1	2	1	0	0	0	1	0	0	0	0	0
Total.....	0	1	3	4	4	4	4	5	5	5	5	5	5
Coal: ¹													
Annual.....	5	5	10	10	5	-5	-5	-5	-5	-5	-5	-5	-5
Total.....	5	10	20	30	35	30	25	20	15	10	5	0	-5
SUPPLY													
Crude oil: ¹													
Annual.....	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	0
Total.....	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-60
Natural gas: ²													
Annual.....	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	0
Total.....	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-60
Coal: ¹													
Annual.....	5	5	10	10	5	-5	-5	-5	-5	-5	-5	-5	-5
Total.....	5	10	20	30	35	30	25	20	15	10	5	0	-5

¹ Reflects the fact that the administration's energy plan would disallow 10-percent increase in crude oil prices now allowed under existing law; 5 percentage points of the adjustment was assumed for inflation and 5 percent for real price increases.

² Reflects the fact that the Federal Power Commission would not be allowed to set rates according to traditional cost of production techniques under the administration's energy plan.

Source: National Chamber Forecasting Center models and computations, DRI and Chase Econometric modeling and data, based upon administration's energy proposals as outlined in the national energy plan and National Energy Act.

TABLE 12.—IMPACT OF 1-PERCENT CHANGE IN PRICE ON THE QUANTITY CONSERVED OR PRODUCED IN PERCENT

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
[Demand and supply elasticities]													
DEMAND ELASTICITIES													
Crude oil ¹	-0.20	-0.20	-0.24	-0.27	-0.30	-0.33	-0.37	-0.40	-0.41	-0.42	-0.43	-0.44	-0.45
Industrial oil and gas ¹	-.20	-.20	-.20	-.24	-.28	-.32	-.36	-.40	-.41	-.42	-.43	-.44	-.45
Utility oil and Gas ¹						-.15	-.20	-.25	-.30	-.35	-.40	-.43	-.45
Gasoline ²	-.10	-.10	-.11	-.12	-.14	-.16	-.18	-.20	-.22	-.24	-.26	-.28	-.30
Coal ³	-.20	-.22	-.24	-.26	-.28	-.30	-.32	-.34	-.36	-.38	-.40	-.42	-.44
Natural gas.....	-.20	-.22	-.24	-.26	-.28	-.30	-.32	-.34	-.36	-.38	-.40	-.42	-.44
SUPPLY ELASTICITIES													
Crude oil.....	.10	.12	.14	.16	.18	.20	.22	.24	.26	.28	.30	.31	.32
Natural gas ⁴.....	.10	.12	.14	.16	.18	.20	.22	.24	.26	.28	.30	.31	.30
Coal ⁵.....	.30	.33	.36	.39	.42	.45	.48	.51	.54	.57	.60	.60	.62

¹ Calculated from: Federal Energy Administration, "1977 National Energy Outlook (Draft: Jan. 15, 1977)," app. D, tables D-3, D-4, D-5.

² Calculated from: Dale W. Jorgenson, ed., "Econometric Studies of U.S. Energy Policy," data resources series, vol. 1, 1976, Ch. 4.

³ Calculated from various FEA publications.

⁴ Assume current proved reserves of natural gas. If new reserves are discovered and developed, elasticity could be as high as 3.5 in 1985.

⁵ Assumes environmental laws will not impede production.

Source: National Chamber Forecasting Center.

TABLE 13.—CONSUMPTION OF ENERGY BY TYPE

[Millions of barrels of crude oil equivalents]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Crude oil.....	19.0	19.8	20.6	21.1	21.6	22.2	22.7	23.3	23.6	24.1	24.6	25.0	55.4
Coal.....	8.0	8.4	8.7	9.1	9.4	9.8	10.2	10.5	10.8	11.2	11.5	11.8	12.0
Natural gas.....	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.4	9.2	9.1	9.0	9.0	9.0
Uranium.....	1.5	2.0	2.5	3.2	3.9	4.7	5.5	6.2	6.7	7.4	8.1	8.6	9.1
Total in million barrels per day.....	39.0	40.0	42.0	43.0	45.0	46.0	48.0	50.0	51.0	52.0	53.0	54.0	55.0
Total in quadrillion Btu's.....	79	81	84	86	90	93	95	100	102	104	107	109	111
Addendum:													
Industrial oil and natural gas.....	8.4	8.8	9.2	9.6	9.9	10.3	10.7	11.0	11.3	11.6	11.9	12.2	12.5
Utility oil and gas.....	4.0	3.9	3.8	3.7	3.6	3.4	3.3	3.2	3.1	3.0	2.8	2.7	2.6
Gasoline.....	6.7	6.8	6.9	6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

Source: National Chamber Forecasting Center; calculations based upon data from Federal Energy Administration, U.S. Bureau of Mines, and the national energy plan.

TABLE 14.—GAINS AND LOSSES IN CONSERVATION (DEMAND) AND PRODUCTION (SUPPLY) FROM HOUSE OF REPRESENTATIVES' ENERGY BILL (H.R. 8444)

[Millions of barrels of crude oil per day]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
DIRECT CONSERVATION														
Crude oil tax.....	0.3	0.5	0.8	0.9	0.7	0.7	0.6	0.5	0.4	0.3	0.1	0	-0.2	-0.4
Industrial oil and natural gas tax.....	0	.2	.3	.4	.7	.9	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Utility oil and natural gas tax.....	0	0	0	0	0	.1	.1	.1	.1	.1	.1	.1	.1	.1
Gasoline taxes and deductions.....	0	0	0	.1	.1	.1	.1	.1	.2	.2	.2	.2	.2	.2
Gas guzzler.....	0	0	.1	.1	.1	.2	.2	.3	.3	.3	.3	.3	.3	.3
Residential insulation.....	0	0	.1	.1	.2	.2	.3	.3	.3	.3	.3	.3	.3	.3
Solar heating.....	0	0	0	0	0	0	0	0	0	0	.1	.1	.1	.1
Total gains.....	.3	.7	1.3	1.6	1.8	2.2	2.5	2.8	2.8	2.7	2.6	2.5	2.3	2.1
Losses from lower natural gas prices:														
Conservation.....	-.1	-.2	-.2	-.2	-.2	-.2	-.3	-.3	-.3	-.3	-.4	-.4	-.5	-.6
Production.....	-.1	-.1	-.2	-.3	-.4	-.6	-.9	-.9	-1.1	-1.3	-1.5	-1.7	-2.0	-2.3
Net direct gain in conservation.....	.1	.4	.9	1.1	1.2	1.4	1.3	1.6	1.4	1.1	.7	.4	-.2	-.8
Indirect energy improvements from higher coal and uranium prices:														
Conservation.....	.1	.2	.4	.7	.9	.9	.8	.7	.6	.4	.2	0	-.2	-.4
Production.....	.1	.3	.5	1.2	1.4	1.3	1.2	1.1	.9	.6	.3	0	-.3	-.6
Total, indirect.....	.2	.5	.9	1.9	2.3	2.2	2.0	1.8	1.5	1.0	.5	0	-.5	-1.0
Total, direct and indirect.....	.3	.9	1.8	3.0	3.5	3.6	3.3	3.4	2.9	2.2	1.2	.4	-.5	-1.8

Source: National Chamber Forecasting Center; calculations based upon data from Federal Energy Administration, U.S. Bureau of Mines, and the national energy plan.

TABLE 15.—DISTRIBUTION OF TAXES AND RECEIPTS BASED ON HOUSE OF REPRESENTATIVES' BILL (H.R. 8444)

[Billions of 1977 dollars]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1978-90 total	Percent distrib- ution
ALLOCATED TO INDIVIDUALS															
Credit for home insulation.....	0.4	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	7.2	-----
Credit for solar and wind.....	0	.1	.1	.1	.1	.1	.1	.2	.2	.2	.3	.3	.4	2.2	-----
Refund for home oil heating.....	.1	.5	.7	.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	14.8	-----
Taxpayer credit.....	1.8	.8	0	0	0	0	0	+0	0	0	0	0	0	2.6	-----
Total.....	2.3	1.9	1.3	1.5	1.6	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8	26.8	6
ALLOCATED TO BUSINESS															
Rebate of excise tax on oil and gas.....	0	0	1.3	2.7	3.4	4.0	4.8	5.7	6.0	6.5	6.8	7.0	7.1	55.3	-----
Credits and miscellaneous.....	.4	.4	.5	.7	.8	.9	1.0	1.0	1.0	1.1	1.1	1.1	1.2	11.2	-----
Business investment credits.....	.3	.2	.2	.3	.5	.5	.5	.5	.5	.5	.6	.6	.6	5.8	-----
Total.....	.7	.6	2.1	3.7	4.7	5.4	6.3	7.2	7.5	8.1	8.5	8.7	8.8	72.3	15
Total unallocated—Assumed for Federal and State government programs.....	0	6.7	18.9	25.9	27.1	29.6	29.8	30.0	30.8	32.3	34.2	37.7	36.6	339.6	73
Total tax rebates and Federal ex- penditures.....	3.0	9.2	22.3	31.1	33.4	36.8	38.0	39.3	40.5	42.7	44.9	47.0	48.2	436.4	93
Producers of coal, uranium, and other.....		2.0	3.0	4.0	5.0	6.0	8.0	11.0	13.0	14.0	15.0	16.0	17.0	114.0	24
Producers of oil and natural gas.....	-2.0	-4.0	-6.0	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0	-7.0	-82.0	-18
Total, producers receipts.....	-2.0	-2.0	-3.0	-3.0	-2.0	-1.0	-1.0	4.0	6.0	7.0	8.0	9.0	10.0	32.0	5
Total tax rebates and producers receipts.....	-1.0	7.2	19.3	28.1	31.4	35.8	39.0	43.3	46.5	49.7	52.9	56.0	58.2	468.4	100

Source: National Chamber Forecasting Center models and computations, DRI and Chase Econometric modeling and data, based upon administration's energy proposals as outlined in the national energy plan and National Energy Act.

TABLE 16.—IMPACT OF THE HOUSE OF REPRESENTATIVES' ENERGY BILL ON THE U.S. ECONOMY
(Change in levels of economic activity)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real GNP (percent).....	-0.1	-0.5	-0.9	-1.2	-1.4	-1.6	-1.8	-2.0	-2.0	-1.9	-1.8	-1.7	-1.5
Billions of 1977 dollars.....	-2	-10	-19	-27	-32	-38	-45	-51	-53	-52	-51	-49	-44
Real disposable income (percent).....	-0.1	-0.5	-0.8	-1.3	-1.5	-1.8	-2.0	-2.3	-2.6	-2.6	-2.6	-2.5	-2.4
Billions of 1977 dollars.....	-1	-14	-22	-32	-41	-51	-63	-75	-79	-86	-88	-89	-86
Average loss per family in 1977 dollars.....	-17	-117	-200	-333	-417	-500	-625	-778	-785	-805	-820	-815	-811
Lost jobs (thousands).....	0	-300	-500	-600	-700	-800	-900	-1,000	-1,000	-1,000	-900	-900	-800
Consumer prices (percent).....	0.2	1.0	2.0	2.5	2.7	2.9	3.0	3.0	3.0	2.8	2.6	2.4	2.2
GNP deflator (percent).....	0.2	1.0	2.1	2.7	2.9	3.1	3.2	3.2	3.1	2.9	2.7	2.5	2.2
Real business fixed investment (percent).....	-0.1	-1.1	-2.1	-3.2	-3.5	-3.8	-3.9	-4.0	-4.0	-4.0	-3.9	-3.7	-3.5
Billions of 1977 dollars.....	-1	-2	-4	-7	-8	-9	-9	-12	-12	-12	-11	-10	-10
Industrial production (percent).....	-0.3	-1.4	-2.0	-2.1	-2.2	-2.3	-2.4	-2.5	-2.7	-2.8	-2.7	-2.6	-2.5
Auto sales (percent).....	-1	-5	-8	-9	-10	-9	-10	-11	-12	-11	-10	-9	-8
Thousands of cars.....	-100	-500	-1,000	-1,000	-1,000	-1,100	-1,200	-1,300	-1,400	-1,400	-1,400	-1,300	-1,200
Housing starts (percent).....	-1	-4	-5	-7	-6	-6	-6	-6	-5	-4	-3	-2	-2
Thousands of units.....	20	80	120	160	150	140	140	130	100	60	50	30	30
Imports (billions of 1977 dollars).....	0	-1	-4	-7	-9	-11	-12	-11	-9	-6	-3	+1	-1
Net exports (billions of 1977 dollars).....	0	1	4	9	11	13	12	10	8	6	4	2	-1

Source: National Chamber Forecasting Center models and computations, Federal Energy Administration and U.S. Bureau of Mines data, the national energy plan, DRI and Chase Econometrics modeling and data.

TABLE 17.—BALANCED PROGRAM TO ENCOURAGE BOTH CONSERVATION AND PRODUCTION¹

[Allow crude oil price to increase to real market price by 1985]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Price change for crude oil:													
Annual.....	6	6	6	6	6	6	6	6	0	0	0	0	0
Total.....	6	12	19	26	34	42	50	59	59	59	59	59	59
Demand elasticity.....	-0.20	-0.20	-0.24	-0.27	-0.30	-0.33	-0.37	-0.40	-0.41	-0.42	-0.43	-0.44	-0.45
Supply elasticity.....	0.10	0.12	0.14	0.16	0.18	0.20	0.22	0.24	0.26	0.28	0.30	0.30	0.30
U.S. consumption of crude oil under existing policy (million barrels per day).....	19.0	19.8	20.6	21.1	21.6	22.2	22.7	23.3	23.6	24.1	24.6	25.0	25.4
Conservation from domestic oil.....	0.1	0.3	0.5	0.8	1.1	1.5	2.0	2.6	2.7	2.8	2.9	3.0	3.1
Additional domestic production.....	0.1	0.2	0.3	0.5	0.7	0.9	1.2	1.6	1.7	1.8	1.9	2.0	2.1
Total improvement from balanced approach.....	0.2	0.5	0.8	1.3	1.8	2.4	3.2	4.2	4.4	4.6	4.8	5.0	5.2
In comparison with—													
Administration's conservation plan.....	0.4	1.1	2.0	3.3	3.9	4.2	4.3	4.2	3.9	3.2	2.4	1.7	0.8
House of Representatives' plan.....	0.3	0.9	1.8	3.0	3.5	3.6	3.3	3.4	2.9	2.2	1.2	0.4	-0.5

¹ Although the analysis is done for crude oil, a similar result would occur with only natural gas (see table 6). Also if corporate profit taxes are not adjusted to allow depreciation allowances to be more closely tied to replacement costs and corporate profit taxes withdraw some of the gross receipts and investment, then a 6-percent increase in real natural gas prices would offset the tax withdrawal and provide comparable results. If both real crude oil and natural gas prices are allowed to increase by 6 percent and corporate profit taxes draw off only a small proportion, then the improvement in energy could be faster than shown in this table.

Source: National Chamber Forecasting Center; calculations based upon data from Federal Energy Administration, U.S. Bureau of Mines, and the national energy plan.

TABLE 18.—IMPACT OF A BALANCED ENERGY CONSERVATION AND PRODUCTION PLAN ON THE U.S. ECONOMY

[Change in levels of economic activity]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Real GNP (percent).....	-0.1	-0.2	-0.3	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3	0.3	0.4	0.4
Billions of 1977 dollars.....	-1	-2	-4	-4	-3	-2	0	1	2	4	4	5	6
Real disposable income (percent).....	-0.2	-0.5	-0.7	-0.9	-1.0	-1.0	-0.9	-0.6	-0.4	-0.2	0	0.2	0.4
Billions of 1977 dollars.....	-2	-4	-5	-6	-7	-7	-6	-4	-2	-1	0	0.1	0.3
Average loss per family in 1977 dollars.....	-33	-67	-83	-100	-117	-117	-100	-72	-33	-17	0	50	135
Lost jobs (thousands).....	-10	-60	-100	-110	-60	40	200	430	550	600	710	825	940
Consumer prices (percent).....	0.1	0.3	0.5	0.7	0.8	0.9	1.0	1.0	0.9	0.9	0.8	0.7	0.5
GNP deflator (percent).....	0.1	0.2	0.3	0.5	0.6	0.7	0.8	0.8	0.8	0.7	0.7	0.7	0.5
Real business fixed investment (percent).....	0.6	1.2	1.7	3.0	4.2	5.7	7.6	10.0	9.8	9.6	9.4	9.2	9.0
Billions of 1977 dollars.....	1	2	3	4	6	8	10	12	12	12	13	13	14
Industrial production (percent).....	0	0.1	0.2	0.3	0.4	0.6	1.0	2.0	2.0	1.8	1.7	1.6	1.5
Auto sales (percent).....	-1.2	-1.6	-2.0	-1.8	-1.6	-1.3	-1.0	-0.8	-0.6	-0.4	-0.3	-0.2	0
Thousands of cars.....	-130	-180	-240	-220	-200	-170	-150	-130	-110	-100	80	50	0
Housing starts (percent).....	0	-1.2	-1.6	-1.8	-2.0	-2.2	-2.2	-2.2	-2.0	-1.8	-1.6	-1.4	-1.0
Thousands of units.....	0	-20	-30	-34	-39	-42	-44	-46	-45	-43	-38	-32	-22
Imports (billions of 1977 dollars).....	-0.9	-1.6	-2.9	-4.4	-6.3	-12.0	-20.0	-24.0	-25.0	-25.5	-25.9	-26.4	-27.0
Net exports (billions of 1977 dollars).....	0.8	1.2	2.1	3.3	4.9	10.3	18.1	21.7	22.2	22.3	22.4	22.5	22.8

Source: National Chamber Forecasting Center models and computations, Federal Energy Administration and U.S. Bureau of Mines data, the national energy plan, DRI and Chase Econometrics modeling and data.

TABLE 19.—COMPARISON OF THE ADMINISTRATION'S ENERGY CONSERVATION PLAN, HOUSE OF REPRESENTATIVES ENERGY CONSERVATION PLAN (H.R. 8444) AND A BALANCED CONSERVATION AND PRODUCTION APPROACH FOR EACH STATE IN 1985¹ :

States	Real payments for a family of 4			Energy improvement (thousand barrels per day)			Inflation (percent change in level of prices)			Employment (-) losses, (+) gains (thousands of jobs)			Real per family of 4 disposable income ² (-) losses, (+) gains		
	Higher taxes		Producers' receipts: Bal	Adm	House	Bal	Adm	House	Bal	Adm	House	Bal	Adm	House	Bal
	Adm	House													
United States.....	1,431	675	420	4,200	3,400	4,200	4.5	3.0	1.0	-1,800	-1,000	430	-1,287	-778	-72
Alabama.....	1,303	615	380	65	52	65	5.6	3.8	1.2	-28	-16	5	-1,094	-661	-212
Alaska.....	1,955	1,040	693	17	13	17	6.0	4.0	1.3	-5	-3	8	-1,674	-905	402
Arizona.....	1,316	621	416	40	32	43	4.5	3.0	1.0	-16	-9	3	-1,355	-819	-352
Arkansas.....	1,842	869	476	51	42	46	6.3	4.2	1.3	-16	-9	3	-1,078	-652	-316
California.....	1,294	585	384	233	188	398	3.9	2.6	.8	-186	-103	64	-1,444	-873	180
Colorado.....	1,598	749	372	55	44	44	4.1	2.8	.9	-24	-13	5	-1,446	-874	0
Connecticut.....	1,194	563	300	53	43	80	5.1	3.4	1.1	-28	-15	5	-1,428	-863	-356
Delaware.....	1,746	824	756	15	12	22	7.5	5.0	1.6	-5	-3	1	-1,390	-840	0
District of Columbia.....	1,004	474	368	9	8	12	3.4	2.3	.8	-14	-8	2	-1,824	-1,102	-284
Florida.....	1,098	518	416	144	117	202	5.8	3.9	1.2	-66	-37	9	-1,194	-722	-136
Georgia.....	1,189	561	368	81	65	87	4.7	3.1	1.0	-41	-23	7	-1,169	-706	-282
Hawaii.....	1,554	733	768	18	15	31	4.5	3.0	1.0	-8	-4	1	-1,480	-895	0
Idaho.....	1,424	672	452	16	13	17	6.0	4.0	1.3	-7	-4	1	-1,185	-716	0
Illinois.....	1,384	653	360	221	179	199	3.6	2.4	.8	-97	-54	19	-1,397	-844	-132
Indiana.....	1,393	657	392	106	86	103	4.7	3.1	1.0	-45	-25	8	-1,186	-717	-208
Iowa.....	1,635	772	376	63	51	50	3.9	2.6	.8	-24	-13	5	-1,297	-784	-276
Kansas.....	1,510	795	432	72	58	45	4.5	3.0	1.0	-21	-11	7	-1,405	-850	172
Kentucky.....	1,035	488	300	49	40	50	4.1	2.8	.9	-25	-14	6	-1,106	-669	-220
Louisiana.....	1,765	850	520	197	160	91	6.6	4.4	1.4	-28	-16	32	-1,182	-715	699
Maine.....	1,388	655	680	20	16	33	6.0	4.5	1.2	-8	-5	2	-1,125	-680	0
Maryland.....	1,063	301	408	63	51	84	4.3	2.9	.9	-33	-19	7	-1,371	-829	-180
Massachusetts.....	1,391	656	696	115	93	171	6.6	4.4	1.4	-51	-29	8	-1,195	-723	-192
Michigan.....	1,352	638	348	174	141	154	3.6	2.4	.8	-73	-41	12	-1,350	-816	-124
Minnesota.....	1,393	657	396	76	61	75	4.5	3.0	1.0	-35	-20	6	-1,288	-779	-196

Mississippi.....	1,598	754	448	50	40	48	6.8	4.5	1.5	-16	-9	3	-983	-594	0
Missouri.....	1,242	586	348	83	67	81	4.1	2.8	.9	-40	-22	8	-1,176	-711	-156
Montana.....	1,795	847	516	18	14	18	6.0	4.0	1.3	-6	-3	3	-1,251	-732	489
Nebraska.....	1,856	858	408	38	31	29	4.5	3.0	1.0	-13	-7	2	-1,339	-809	-256
Nevada.....	1,818	875	544	15	12	15	5.8	3.9	1.2	-7	-4	2	-1,639	-991	-128
New Hampshire.....	1,172	553	552	13	11	21	5.6	3.8	1.2	-7	-4	1	-1,281	-774	120
New Jersey.....	1,157	546	464	124	100	171	4.7	3.1	1.0	-59	-33	10	-1,320	-798	-148
New Mexico.....	1,585	810	460	34	28	25	6.8	4.5	1.4	-10	-5	4	-1,187	-717	425
New York.....	1,100	519	444	281	228	391	4.5	3.0	1.0	-142	-79	20	-1,273	-770	-332
North Carolina.....	831	392	340	63	51	89	4.3	2.9	.9	-47	-26	9	-1,131	-684	-140
North Dakota.....	1,343	634	480	11	9	16	6.0	4.0	1.3	-5	-3	3	-1,276	-772	0
Ohio.....	1,170	552	280	180	146	151	3.4	2.3	.7	-92	-51	16	-1,191	-720	-68
Oklahoma.....	1,610	825	380	85	68	49	4.9	3.2	1.1	-22	-12	9	-1,274	-770	390
Oregon.....	1,101	519	360	34	28	40	4.1	2.8	.9	-21	-12	4	-1,405	-850	-512
Pennsylvania.....	1,055	498	320	176	143	194	6.0	4.0	1.3	-97	-54	20	-1,214	-734	-188
Rhode Island.....	991	467	388	13	11	20	5.6	3.8	1.2	-8	-4	2	-1,186	-717	-60
South Carolina.....	1,054	497	356	40	32	47	4.5	3.0	1.0	-24	-13	4	-1,112	-672	-420
South Dakota.....	1,289	608	484	12	9	16	6.0	4.0	1.3	-5	-3	1	-1,090	-659	-60
Tennessee.....	963	454	304	58	47	64	4.3	2.9	.9	-36	-20	7	-1,104	-667	-176
Texas.....	1,760	826	464	464	376	268	5.3	3.5	1.1	-111	-62	45	-1,409	-852	320
Utah.....	1,632	770	436	26	21	26	5.4	3.6	1.2	-11	-6	5	-1,248	-754	421
Vermont.....	971	458	440	6	5	10	4.5	3.0	1.0	-4	-2	1	-1,178	-712	-120
Virginia.....	1,319	622	556	92	75	137	6.4	4.3	1.4	-40	-22	8	-1,294	-782	-300
Washington.....	1,158	547	408	55	45	67	4.0	2.6	.9	-30	-16	5	-1,469	-888	-224
West Virginia.....	1,166	550	268	28	23	23	3.2	2.1	.7	-13	-7	3	-1,116	-674	0
Wisconsin.....	1,251	590	332	78	63	73	3.6	2.4	.8	-39	-22	7	-1,277	-772	-168
Wyoming.....	1,790	868	630	16	13	14	3.0	2.0	.7	-4	-2	2	-1,637	-989	605

¹ "Adm" refers to administration's energy program. "House" refers to House of Representatives plan as outlined in H.R. 8444. "Bal" refers to a balanced approach that encourages both conservation and production by allowing real crude oil and natural gas prices to increase by only 6 percent each year.

² Assures a balanced budget for the Federal Government by 1981. Distribution of tax receipts follows the plan outlined in H.R. 8444.

³ Losses due to policies causing slower growth in the economy.

Note: Estimates for individual States made by George Tresnak.

TABLE 20.—COMPARISON OF THE ADMINISTRATION'S ENERGY CONSERVATION PLAN, HOUSE OF REPRESENTATIVES ENERGY CONSERVATION PLAN (H.R. 8444) AND A BALANCED CONSERVATION AND PRODUCTION APPROACH FOR EACH STATE IN 1990¹²

States	Real payments for a family of 4			Energy improvement (thousand barrels per day)			Inflation (percent change in level of prices)			Employment (-) losses, (+) gains (thousands of jobs)			Real per family of 4 disposable income ³ (-) losses, (+) gains		
	Higher taxes		Producers' receipts: Bal	Adm	House	Bal	Adm	House	Bal	Adm	House	Bal	Adm	House	Bal
	Adm	House													
United States.....	1,794	792	481	800	-500	5,200	4.0	2.2	0.5	-1,400	-800	940	-1,351	-811	135
Alabama.....	1,633	721	438	12	-0	80	5.0	2.8	.6	-22	-12	15	-1,149	-690	115
Alaska.....	2,350	1,210	730	3	-2	21	5.4	2.9	.7	-4	-2	2	-1,808	-1,220	281
Arizona.....	1,650	728	443	8	-5	49	4.0	2.2	.5	-15	-8	10	-1,423	-854	142
Arkansas.....	2,309	1,019	619	10	-6	64	5.6	3.1	.7	-12	-7	8	-1,132	-679	113
California.....	1,650	905	330	44	-28	288	3.5	1.9	.4	-145	-83	97	-1,517	-910	152
Colorado.....	1,991	879	534	10	-7	68	3.7	2.0	.5	-18	-11	12	-1,519	-912	152
Connecticut.....	1,497	661	402	10	-6	66	4.5	2.5	.6	-21	-12	14	-1,500	-900	150
Delaware.....	2,189	966	587	3	-2	18	6.7	3.7	.8	-4	-2	3	-1,460	-876	146
District of Columbia.....	1,259	556	338	2	-1	11	3.0	1.6	.4	-11	-6	7	-1,916	-1,149	192
Florida.....	1,376	608	369	27	-17	178	5.2	2.8	.6	-51	-29	34	-1,254	-752	125
Georgia.....	1,491	658	400	15	-10	100	4.2	2.3	.5	-32	-18	21	-1,228	-737	123
Hawaii.....	1,948	860	523	3	-2	23	4.0	2.2	.5	-6	-4	4	-1,555	-933	155
Idaho.....	1,786	788	479	3	-2	19	5.4	2.9	.7	-6	-3	4	-1,245	-747	124
Illinois.....	1,734	766	465	42	-26	274	3.2	1.7	.4	-76	-43	51	-1,467	-880	147
Indiana.....	1,747	771	469	20	-13	132	4.2	2.3	.5	-35	-20	24	-1,246	-748	125
Iowa.....	2,050	905	550	12	-7	78	3.5	1.9	.4	-18	-11	12	-1,363	-818	136
Kansas.....	1,825	1,085	794	14	-9	89	4.0	2.2	.5	-16	-9	11	-1,476	-886	148
Kentucky.....	1,298	573	348	9	-6	61	3.7	2.0	.5	-20	-11	13	-1,162	-697	116
Louisiana.....	1,995	1,180	690	38	-23	244	5.8	3.2	.7	-22	-13	15	-1,242	-745	124
Maine.....	1,740	768	467	4	-2	24	5.5	3.7	.9	-7	-4	4	-1,182	-709	118

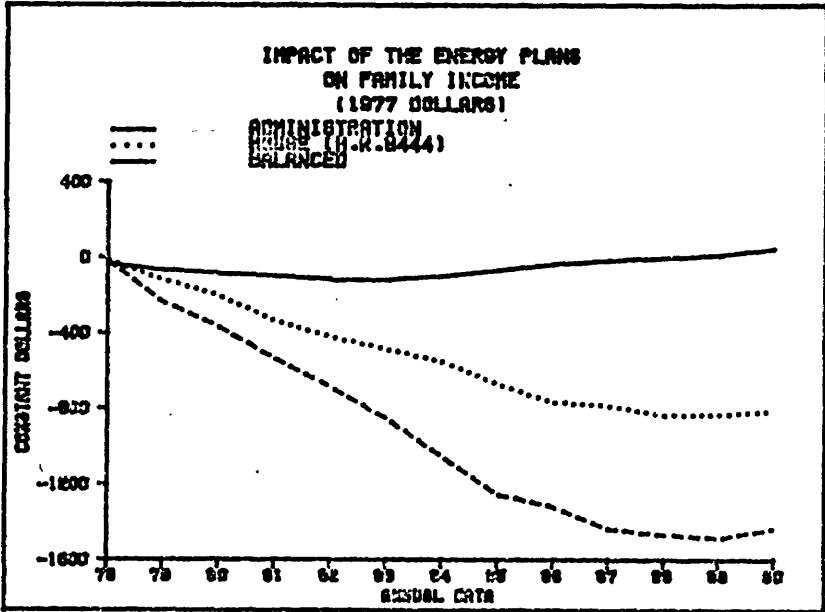
Maryland.....	1,332	588	357	12	-7	78	3.8	2.1	.5	-26	-15	17	-1,440	-864	144
Massachusetts.....	1,744	770	468	22	-14	143	5.8	3.2	.7	-40	-23	27	-1,256	-753	126
Michigan.....	1,695	748	455	33	-21	215	3.2	1.7	.4	-57	-32	38	-1,418	-851	142
Minnesota.....	1,746	771	468	14	-9	94	4.0	2.2	.5	-28	-16	18	-1,353	-812	135
Mississippi.....	2,004	885	538	9	-6	62	6.0	3.3	.8	-13	-7	9	-1,033	-620	103
Missouri.....	1,557	687	418	16	-10	103	3.7	2.0	.5	-31	-18	21	-1,236	-741	124
Montana.....	2,250	993	604	3	-2	22	5.4	2.9	.7	-5	-3	3	-1,272	-763	127
Nebraska.....	2,326	1,027	624	7	-5	47	4.0	2.2	.5	-10	-6	7	-1,406	-844	141
Nevada.....	2,280	1,006	612	3	-2	19	5.2	2.8	.6	-6	-3	4	-1,722	-1,033	172
New Hampshire.....	1,469	648	394	2	-2	16	5.0	2.8	.6	-6	-3	4	-1,346	-807	135
New Jersey.....	1,450	640	389	24	-15	153	4.2	2.3	.5	-46	-26	31	-1,387	-832	139
New Mexico.....	1,950	1,100	644	6	-4	42	6.0	3.3	.8	-7	-4	5	-1,247	-748	125
New York.....	1,379	609	370	54	-33	348	4.0	2.2	.5	-110	-63	74	-1,338	-803	134
North Carolina.....	1,042	460	280	12	-8	78	3.8	2.1	.5	-37	-21	25	-1,188	-713	119
North Dakota.....	1,684	743	452	2	-1	14	5.4	2.9	.7	-4	-2	3	-1,341	-804	134
Ohio.....	1,477	648	394	34	-21	223	3.0	1.6	.4	-72	-41	48	-1,251	-751	125
Oklahoma.....	1,929	1,110	675	16	-10	105	4.3	2.4	.5	-17	-10	11	-1,338	-803	134
Oregon.....	1,380	609	370	7	-4	42	3.7	2.0	.5	-16	-9	11	-1,476	-886	148
Pennsylvania.....	1,322	584	355	34	-21	218	5.4	2.9	.7	-76	-43	51	-1,275	-765	127
Rhode Island.....	1,242	548	333	3	-2	17	5.0	2.8	.6	-6	-4	4	-1,246	-748	125
South Carolina.....	1,322	583	355	8	-5	49	4.0	2.2	.5	-19	-11	13	-1,168	-701	117
South Dakota.....	1,615	713	433	2	-1	14	5.4	2.9	.7	-4	-2	3	-1,145	-687	114
Tennessee.....	1,207	533	324	11	-7	72	3.8	2.1	.5	-28	-16	19	-1,160	-696	116
Texas.....	2,210	1,556	946	88	-55	575	4.7	2.6	.6	-86	-49	58	-1,480	-888	148
Utah.....	2,046	903	549	5	-3	33	4.8	2.7	.6	-9	-5	6	-1,310	-786	131
Vermont.....	1,218	538	327	1	-1	8	4.0	2.2	.5	-3	-2	2	-1,237	-742	124
Virginia.....	1,653	730	444	18	-11	114	5.7	3.1	.7	-31	-18	21	-1,359	-815	136
Washington.....	1,452	641	390	11	-7	68	3.5	1.9	.4	-23	-13	15	-1,543	-926	154
West Virginia.....	1,461	645	392	5	-3	35	2.8	1.6	.4	-10	-6	7	-1,172	-703	117
Wisconsin.....	1,569	692	421	15	-9	97	3.2	1.7	.4	-30	-17	20	-1,342	-805	134
Wyoming.....	2,130	1,150	750	3	-2	20	2.7	1.5	.3	-3	-2	2	-1,719	-1,032	172

¹ "Adm" refers to administration's energy program. "House" refers to House of Representatives plan as outlined in H.R. 8444. "Bal" refers to a balanced approach that encourages both conservation and production by allowing real crude oil and natural gas prices to increase by only 6 percent each year.

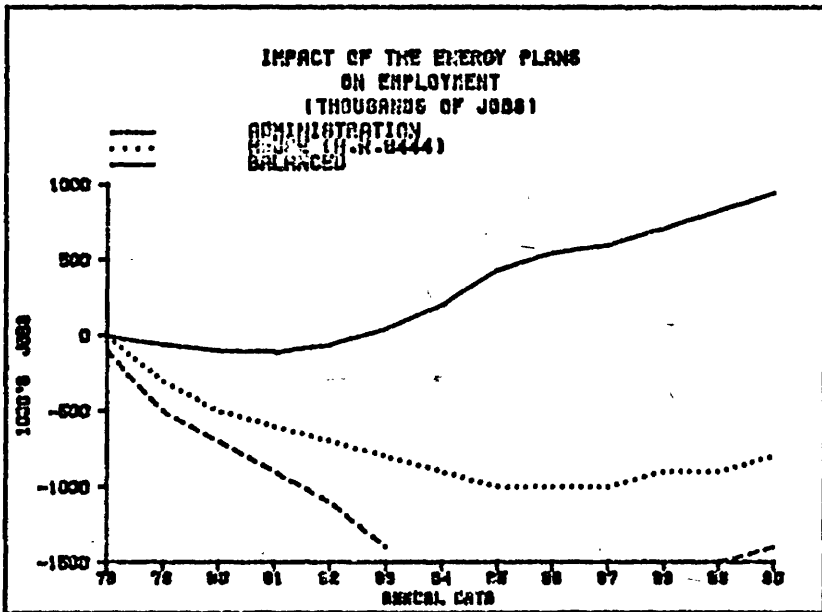
² Assures a balanced budget for the Federal Government by 1981. Distribution of tax receipts follows the plan outlined in H.R. 8444.

³ Losses due to policies causing slower growth in the economy.

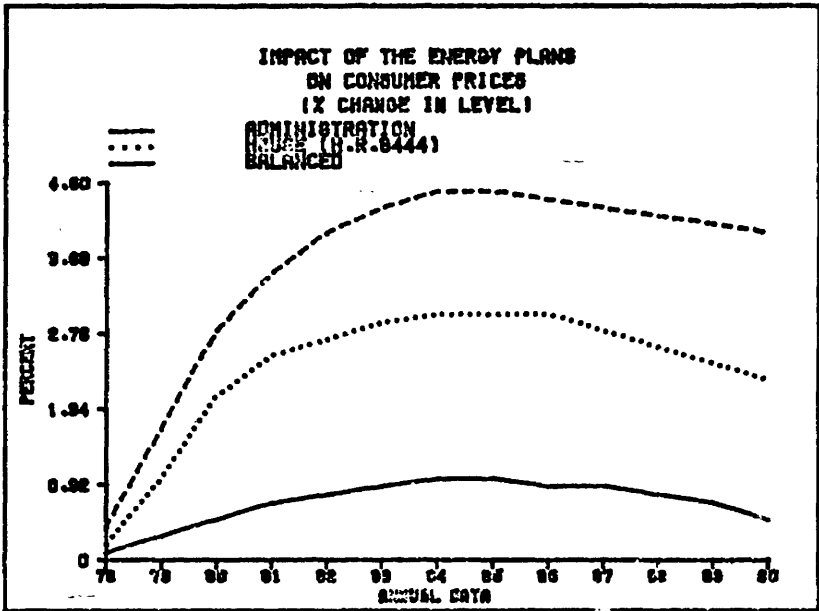
Note: Estimates for individual States made by George Tresnak.



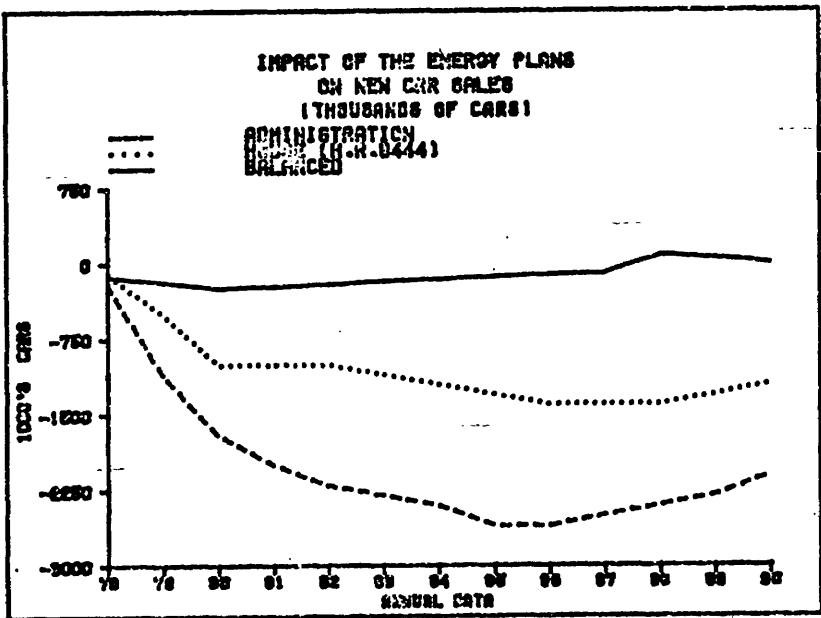
GRAPH 1



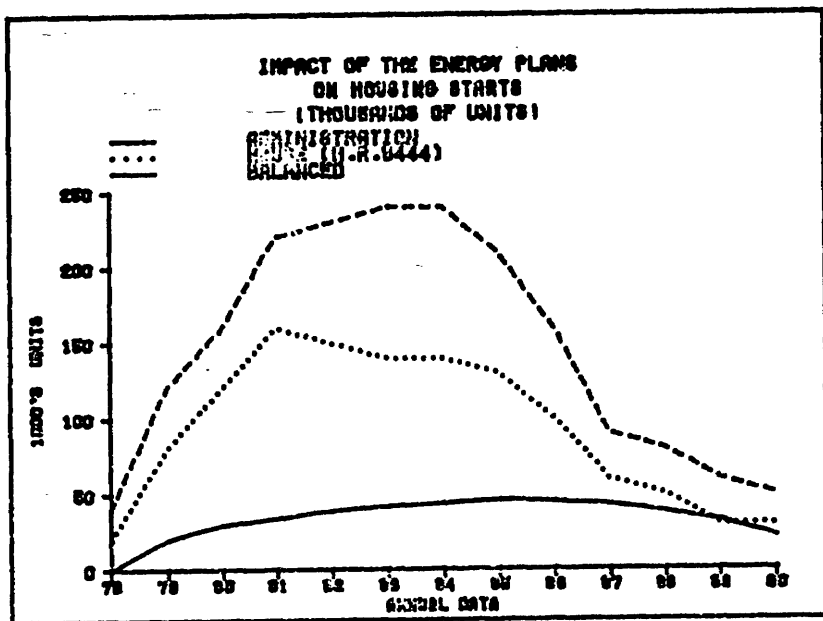
GRAPH 2



GRAPH 3



GRAPH 4



GRAPH 5

STATEMENT OF RICHARD L. LESHER, PRESIDENT, CHAMBER OF COMMERCE
OF THE UNITED STATES

I am Richard L. Leshner, President of the Chamber of Commerce of the United States. I am accompanied by Vice President and Chief Economist Jack Carlson, Resources and Environmental Quality Division Manager Chris Farland, and Tax and Finance Director Robert R. Statham.

Mr. Chairman, we applaud the efforts of the Administration and the Congress to place the energy issue at the top of our national agenda. We concur in the need—the urgent need—to eliminate the waste of oil and natural gas. And we agree with the President's objective of increasing the use of coal, our most abundant fossil fuel.

However, we have serious differences with the National Energy Plan, both as it was originally conceived by the Administration and as it was legislatively expressed by the House of Representatives in H.R. 8444.

First, while the program provides strong incentives for conservation, there are no corresponding incentives for increasing domestic production.

Second, with its reliance on taxation, the Plan would cause serious dislocation of the economy, and it could place the government inextricably in the energy business.

Third, because of its emphasis on conservation alone, and its reliance on new taxes, we fear the Plan will be more harmful to the consumer and to the nation's economy than a more balanced plan emphasizing both conservation and development.

Fourth, besides inflicting unnecessary pain, perhaps the most serious indictment of the Plan is that it will not accomplish the goals it has set for itself. Organizations such as the General Accounting Office, the Congressional Budget Office, the Office of Technology Assessment, and the Congressional Research Service have all concluded that the Administration's proposed energy goals cannot be met by the Plan as it is now constituted. Our own analysis leads us to concur in the judgments rendered by these Congressional organizations.

IMPACT ON THE ECONOMY

While the House version of the National Energy Plan eliminates the adverse effects on the economy, primarily because of the absence of a very high gaso-

line tax, we still view the heavy reliance on taxation, and the economic disruption those taxes will cause, as a most serious problem to be addressed by the Finance Committee. We do not believe that the tax implications of the Plan have been adequately addressed, either by the Administration or by the House of Representatives. We would, therefore, like to provide the Committee with our own estimates of the effects of H.R. 8444.

We have estimated that as a result of H.R. 8444 and its probable extensions the cumulative amount of new taxes, both direct and indirect, which could be imposed from 1978 through 1990 will total \$436 billion. Our estimate for the Administration's original plan, including gasoline taxes, is \$910 billion. This is the equivalent of about \$7,000 for every American family of four, or \$15,000 for every family under the Administration's version.

Our analysis also shows that output, personal income, prices and investments would be adversely affected by H.R. 8444. By 1985, total output will be 2.0 percent lower than would be the case without the bill. This would result in a loss of disposable income of about \$51 billion, or about \$667 per family.

The bill would also have a deleterious effect on employment. Under the Administration's Plan, there would be up to 1.1 million fewer jobs available in 1981. Even H.R. 8444 would result in one million fewer jobs being created by 1981.

We estimate that consumer prices will rise 3 percent above the expected level for 1981, creating additional losses in purchasing power, especially for those on fixed incomes. Higher taxes, more inflation, and a slower pace in the economy will all affect the average worker. The rebates incorporated in H.R. 8444 will soften the impact in 1978 and to some degree in 1979, but thereafter, the taxpayer/worker will feel the full force of these new taxes and the economic consequences that will follow.

In fact, during the period 1978-1990, assuming continuation of tax policies in the bill, only a total of \$26.8 billion of the \$436.4 billion would be returned in the form of business tax credits and rebates. Of the total taxes collected as a result of H.R. 8444, only 22.5 percent would be returned directly to the economy. The remainder, some \$339.6 billion, would presumably be used for other federal programs, though no indication of the use of these extra receipts is contained in the bill.

In addition to the severity of the economic impacts of the National Energy Plan, we find an almost total absence of incentives for domestic production of oil and gas. This "no-growth" element of the Plan is folly, for even if the Administration's goals for conservation are met, and we do not believe they will be, the United States' consumption of energy would still increase by 25 percent over current levels. Without a major effort to stimulate production at home, we see no possibility for reducing imports from abroad. Moreover, the lack of production incentives will exacerbate petroleum and natural gas shortages which can be expected in the coming years. Last winter's natural gas curtailments, in which more than one million workers were idled at one point or another, should serve as a preview of coming events, unless a balanced program of conservation and production is put into effect at once.

The Administration's concept of pricing energy at its replacement value is one which the business community has advocated for many years. It is totally inconsistent, however, to price a commodity at its replacement value, and then capture for the government the extra revenues which otherwise could be invested in locating and developing new supplies.

For this reason, the Chamber advocates either a market approach—in which petroleum prices are allowed to rise gradually to a level commensurate with their replacement value—or a plowback system in which investors in new exploration are given credit for this investment. We believe this approach would reduce the economic hardships which the Administration's program would create, but it would also substantially improve—by as much as 75 percent—our supply-demand imbalance.

The Administration has also pointed to the number of active drilling rigs—currently near an historic high—as a sign that exploration has not lagged. Yet, of the 39,767 drill rigs now on "active" status, only 23 percent are actually engaged in exploratory drilling.¹ In 1973, 28 percent of all active rigs were engaged in exploratory work.² It is clear that new exploration is not rising as

¹ American Petroleum Institute, May, 1977.

² *Ibid.*

rapidly as it should, and that existing oil and gas fields are receiving most of the drillers' attention and investment.

If the trend toward development drilling, rather than exploratory drilling, continues there will be a more rapid depletion of existing fields, with fewer new fields explored and available for production when current fields start to run dry. Simply put, we may be living off inventory, when we should be "stocking up" new reserves, not only to meet demand, but to reduce a dangerous dependence on foreign supplies.

Without a vigorous exploration program, financed with reinvested returns from current production, and encouraged by price expectations restrained only by the free market, the U.S. may soon suffer a precipitous decline in domestic production. If that decline arrives before our conservation efforts take full effect, and before the nation could convert more of its energy matrix to coal, solar, and other non-petroleum sources, severe shortages of oil and gas are inevitable. Such shortages would further disrupt the economy and create additional dependency on foreign sources.

If steps are taken to rely on market prices rather than price controls, production can be increased significantly. Or, if temporary excise taxes are imposed, with a plowback provision for investments in new exploration and production, this, too, will greatly enhance domestic production of oil and gas.

In summary, we urge the Committee to weigh carefully the cumulative tax burden which both H.R. 8444 and the Administration's program would impose on every American. We are not proposing that there should be a national energy program without sacrifices, for, indeed, we will all have to do our part to overcome the impending energy crisis. We are only saying that the burdens should be no greater than is necessary to accomplish the goal.

We also urge the Committee to consider the almost total absence of incentives for increased domestic energy exploration and development. We cannot hope to succeed in redressing our energy supply-demand imbalances with a one-sided program offering only conservation and more government involvement. We must have a program which uses both conservation and increased production.

TAX PROVISIONS

Some people have called the National Energy Act a tax bill rather than an energy bill. There may be some truth to that, since there are some 150 pages of new tax provisions in H.R. 8444. In fact, the House of Representatives managed to turn the 283-page draft bill submitted by the Administration into a 485-page version, one of the largest single pieces of legislation ever considered by Congress. I do not envy the Senate its task of reviewing the bill, especially under the deadlines which have been imposed by the Administration and the Congressional leadership.

This new body of tax law—accompanied by the innumerable pages of regulations, rulings, and interpretations that are certain to follow—will add new complexities for individuals and businessmen already struggling to cope with present tax provisions.

We do not favor the use of the tax system as a principal mechanism for solving the energy crisis. The tax code is already subjected to criticism; the tax laws are accused of being riddled with "loopholes" and so-called "tax-expenditure" provisions. Yet, it is now being suggested, even by some of its worst critics, that the tax system be used as the primary tool to provide a solution to our energy problems.

Set forth below are the views of the National Chamber with regard to the specific tax proposals incorporated in H.R. 8444, as well as those proposals in the Administration's energy package.

FAMILY CAR TAX

Under the Administration proposal, a graduated excise tax would be imposed on new automobiles and light duty trucks whose fuel economy fails to meet the applicable fuel economy standards under existing law. Graduated rebates would be given for automobiles and light duty trucks whose fuel economy is better than the standard.

H.R. 8444, as adopted by the House, imposes a graduated excise tax on sales by manufacturers of automobiles which do not meet specific fuel efficiency standards. The tax applies to 1979 and later model years. The tax falls on

automobiles in model year 1979 with fuel economies of less than 15 miles per gallon. The tax escalates until model year 1985, when a tax of \$3,856 would be imposed on any automobile rated at less than 12.5 miles per gallon. For model years 1985 and thereafter, the tax applies to automobiles whose fuel efficiency is less than 23.5 miles per gallon. The tax does not apply to trucks with a cargo capacity of at least 1,000 pounds. The House version imposes the tax upon imported as well as domestic cars. Further, the amount of the tax cannot be included in a car's cost basis for purposes of depreciation or the investment tax credit. Finally, in place of a rebate, the House-passed bill substitutes a Public Debt Retirement Trust Fund into which all the excise taxes collected under this provision will be deposited.

The tax would discriminate against larger families using larger cars. The tax may actually encourage present owners of less efficient, large automobiles to hold on to their present cars, rather than buy new cars that are subject to the penalty tax.

Clearly, the excise tax on automobiles could have an adverse effect on auto sales and employment in the auto industry. Because the manufacture of automobiles affects so many related industries, the ripple effect on the economy, employment, and inflation could be significant.

We believe that a penalty tax on automobiles is of doubtful benefit and could seriously impact on the economy.

DEDUCTION FOR STATE AND LOCAL TAXES

The Chamber opposes the elimination of the federal tax deduction for state and local taxes paid with respect to gasoline and other motor fuels. The House bill repeals the deduction for state and local taxes paid by a taxpayer for the purchase of gasoline, diesel fuel, and other motor fuels for nonbusiness use.

State, like federal, taxes on gasoline are used to finance roads and highways. If resistance to these taxes develops as a result of the loss of the federal tax deduction, states may be forced to seek other means to finance road construction and maintenance, including increases in sales or income taxes. As a result, taxpayers other than those who use the roads and highways will bear an inordinate share of the costs.

Present law recognizes that payment of state and local taxes reduces a taxpayer's ability to pay federal taxes. Retaining the deduction helps reduce the possibility that federal state and local taxes combined could exceed a taxpayer's gross income.

EXCISE TAX ON INTERCITY BUSES, AVIATION AND MOTORBOAT FUEL

We support the removal of the 10 percent manufacturer's excise tax on intercity buses as proposed by the Administration. The 10 percent excise tax on buses and the 8 percent excise tax on bus parts and accessories would be repealed under H.R. 8444.

Under current law, there is a 10 percent manufacturer's excise tax on the sale of buses having a gross vehicle weight of more than 10,000 pounds. On or after October 1, 1979, this tax is scheduled to drop to five percent. Present law also provides for an exemption from this tax for "local transit buses." The exemption applies to those buses which are to be used predominantly by the purchaser in mass transportation service in urban areas.

Repeal of the excise tax on intercity buses would encourage more use of intercity bus transportation, and it would remove the tax distinction between local transit buses and intercity buses. It would encourage conservation by the use of a fuel-efficient form of transportation. The 10 percent excise tax on buses and the 8 percent excise tax on bus parts and accessories would be repealed under the House bill.

Under the House bill, the retailers excise tax on special motor fuels (other than diesel) is raised to the full four cents per gallon by elimination of the current two cent rebate for motorboat fuel taxes. The Chamber opposes an increase in the excise tax on motorboat fuel.

The Administration has proposed that the present tax on aviation fuel used in noncommercial aviation be increased to 11 cents per gallon. The House-passed bill contains no provision relating to the tax on aviation fuel. The Chamber supports the deletion of this provision from H.R. 8444.

INSULATION, WIND, AND SOLAR TAX CREDITS FOR INDIVIDUALS

The Administration proposes that homeowners be entitled to a tax credit of 25 percent of the first \$800 and 15 percent of the next \$1,400 spent on a number of approved conservation measures, including insulation, a replacement furnace burner designed to reduce fuel consumption through increased combustion efficiency, a device to modify flue openings, an electrical or mechanical furnace ignition system replacing a standing gas pilot light, a storm or thermal window, a clock thermostat, and caulking or weatherstripping on exterior doors and windows performed along with insulation or one other energy conserving component.

The House bill provides a credit of 20 percent on the first \$2,000 of expenditures for home insulation and other energy efficient equipment for a maximum credit of \$400. The credit would be available for qualified installations made from April 20, 1977 through December 31, 1984.

BUSINESS ENERGY TAX CREDITS

The Administration proposed that business energy property currently eligible for the investment tax credit be allowed a 10 percent tax credit in addition to the present 10 percent investment tax credit. Certain business energy property, including structural components, such as building insulation and heating and cooling equipment, and solar energy equipment, that would not be eligible for the investment tax credit under current law would receive a 10 percent tax credit. Other business energy equipment, such as cogeneration equipment, would be eligible for a 20 percent investment tax credit. The new or additional credits would generally apply for qualifying energy equipment acquired on or after April 20, 1977 and placed in service before January 1, 1983.

H.R. 8444 allows a business energy investment credit for all eligible property through December 31, 1982. This credit is in addition to the regular investment tax credit which is presently at 10 percent but scheduled to decline after 1980 to 7 percent generally. Under the House bill, property presently eligible for the regular investment credit, including alternative energy property and cogeneration equipment, would receive a 20 percent credit through December 31, 1980 and 17 percent in 1981 and 1982. Credits generated by investments in alternative energy property may be applied against 100 percent of the taxpayer's income tax liability, rather than the 50 percent limitation available under present law. A taxpayer may elect either the business energy credit for investments in alternative energy property, or the dollar for dollar credit of the oil and natural gas use tax.

Just as with the residential tax credits, the National Chamber believes that the need to invest funds in energy-saving devices and components, such as insulation, cogeneration, and alternative energy systems, requires a short-term stimulus. While we maintain that energy supply/demand imbalances can be best addressed by market pricing mechanisms, the urgent effort to retrofit existing facilities in order to reduce energy consumption should be aided by the positive incentive tax credits can provide.

CRUDE OIL EQUALIZATION TAX

Under the Administration plan, all domestic oil would become subject to a crude oil equalization tax applied in three equal stages beginning January 1, 1978. When fully phased in, the tax per barrel would equal the difference between the controlled domestic price and the world price. The second tax installment in 1979 would bring all domestic crude oil prices up to the \$11.64 tier, and the third increment would bring it up to the world price in 1980. Once the tax is fully in place, it would rise with world oil prices, except that authority would exist to discontinue an increase if the world price increased significantly faster than the general level of inflation.

H.R. 8444 follows the concept and the schedules prescribed in the Administration's bill. However, the House version would terminate the equalization tax on September 30, 1981.

The House bill also imposes an equalization tax on natural gas liquids. H.R. 8444 grants the President the authority to suspend any or all of an equalization tax increase which would have a substantial adverse economic effect, subject to veto by either House of Congress within 15 days of submission of a suspension plan. The net receipts from the equalization taxes will be returned to the public,

on a per capita basis, in the form of tax credits to taxpayers and special payments to persons who do not pay tax.

As stated earlier, the equalization tax is designed to raise crude oil prices to a level assumed to reflect its replacement value, thereby bringing about greater conservation. Yet, in contriving to impose controls on crude oil prices and adding new taxes, the provision will seriously hamper domestic exploration for new supplies. In effect, the equalization tax is an anti-investment tax. Those who develop and produce oil would receive none of the difference between the controlled price and the world market price. It would discourage the kind of risk-taking that made America a major producer in the first place. Also, there would be little incentive to increase production from existing fields by more advanced and more expensive means.

We therefore oppose the crude oil equalization tax as a one-sided approach not useful in helping to redress energy supply/demand imbalances. Should this tax be imposed, however, a plowback should be provided for exploration and development.

OIL AND NATURAL GAS USER TAX

The National Chamber opposes the provision of the Administration's energy plan which provide for a tax on the industrial use of oil and natural gas. The Chamber also opposes changes in the tax laws which would rebate such taxes to industrial users of oil and natural gas based on their investment in certain energy property. The Administration proposed that a tax be imposed on industrial and utility use of oil and natural gas. Industrial users of oil would be subject to a tax of \$.90 per barrel beginning in 1979. The tax rises to a level of \$3.00 per barrel in 1985 in later years. Electric utilities would be subject to a flat tax of \$1.50 per barrel beginning in 1983.

The natural gas tax, when fully implemented, would have the effect of making the cost of natural gas equivalent on a Btu basis to the cost of No. 2 distillate oil, not including the oil users tax. For industrial users the tax would first be imposed in 1979. By 1985, oil and natural gas would be cost equivalent for industrial users.

Electric utilities would be subject to a similar tax beginning in 1983. The initial tax would bring the utilities' cost to a level of \$.50 per MCF below the Btu equivalent price of oil.

H.R. 8444 imposes an oil and gas use tax at different rates on three levels or tiers of use, according to the relative feasibility of conservation or conversion to other fuels. The House bill provides an annual exemption for the Btu content of 50,000 barrels of oil and also exempts oil and gas used for certain residential, transportation, commercial and agricultural uses, including use precluded by federal or state air pollution regulations.

The House-passed version provides for the tax on oil to start in 1979. For taxable years 1985 and thereafter, industrial users of oil would be subject to a maximum tax of \$1 per barrel for users of oil in which conservation is deemed most feasible and \$3 per barrel for the case of the use of oil in a boiler or internal combustion engine. Electric utilities, etc., would be subject to a flat tax of \$1.50 per barrel of oil beginning in 1983.

While the bill recognizes that some uses of oil and gas, such as large boilers, may be more susceptible to conversion, the provision will be cumbersome to administer and, in some cases, purely punitive. Efforts to gain general or specific exemptions would burden the administering agency, while those unable to obtain exemptions would be forced to pass along the extra taxes to their customers unless or until conversion to other fuels was achieved.

We do not believe the user tax proposal is well-conceived. If the tax is designed to encourage industrial conservation of oil and natural gas, higher prices, more reflective of the market circumstances will accomplish that goal more efficiently and without the need for special exemptions and the inequities they create. If the tax is designed to encourage industrial conversion to coal, then market prices will achieve that goal as well, without inflicting unnecessary penalties where conversion may not be possible. Those industries which desire to convert to coal could be assisted through a prompt capital cost recovery system, rather than by prodding through penalty taxation.

STANDBY GASOLINE TAX

Under current law, gasoline is subject to a four cents per gallon excise tax. The Administration has sought a standby gasoline tax to be imposed, beginning

in 1979, if nationwide gasoline consumption exceeds a predetermined target. Revenue from this tax would be rebated generally through the tax system and by direct payments to those people who do not pay taxes.

The House eliminated the standby gasoline tax from H.R. 8444.

The proposal for a standby gasoline tax could be a major factor in increasing consumer prices and the cost of living. Gasoline purchases represent a substantial portion of the average person's budget, and an overall increase in the price of this commodity would increase the cost of living for most American families. It would also increase operating expenses for businesses using gasoline powered motor vehicles, and those higher business expenses could be expected to be passed on to consumers in the form of higher prices.

It is questionable whether a penalty tax would result in less gasoline consumption. The Consumer Price Index for gasoline and motor oils has risen 65 percent since 1973,³ yet there has been no significant drop in consumption.⁴

The proposed rebate on per capita basis would not necessarily go to those who paid the tax originally. The program is not only inequitable, it is little more than a new means of redistributing wealth. We urge this Committee to follow the example of the House on the question of the standby gasoline tax.

MINIMUM TAX TREATMENT OF INTANGIBLE DRILLING COSTS RELATING TO OIL AND GAS WELLS AND TAX TREATMENT OF GEOTHERMAL EXPENSES

The tax laws must recognize that rising energy needs in this Nation require the constant development and maintenance of a healthy petroleum industry. Exploration and development of petroleum resources grow more difficult, more costly, and financially more hazardous. Venture capital will continue to be attracted in this field only if the reward for success is commensurate with the risks involved.

Added taxes on oil and gas operations through the elimination of, or a limitation on, the deduction for intangible drilling and development costs would not be consistent with the need to expand our domestic petroleum and natural gas reserves. Under the Administration's proposal and the House bill, intangible drilling costs for oil and gas wells would be included in the minimum tax base of individuals only to the extent such deductions exceeded the taxpayer's income from oil and gas properties.

In general, the effect would be to remove intangible drilling cost deductions from the minimum tax base of independent oil and gas producers, but not from the minimum tax base of investors who are not actively engaged in oil and gas production.

The deduction for intangible drilling and development costs is essential to encourage the development of the United States petroleum resources. This deduction has attracted capital into high-risk petroleum exploration that would not otherwise have been available.

We, therefore, support removing intangible drilling costs entirely from the minimum tax base, consistent with the need to expand our domestic petroleum resources.

The Administration has also proposed an intangible drilling cost deduction for geothermal energy resources comparable to that allowed for oil and natural gas drilling.

The House bill allows a current deduction for intangible drilling costs related to the exploration and development of geothermal resources, but these costs would be subject to the minimum tax to the extent they exceed the taxpayer's income from the production of geothermal resources. The bill provides that the amount of any loss which may be deducted cannot exceed the aggregate amount with respect to which the taxpayer is at risk at the close of the taxable year. Finally, the House bill provides percentage depletion at a 10 percent rate for all geothermal resources, limited to an amount not to exceed the taxpayer's adjusted cost bases in the property.

³ Bureau of Labor Statistics—183.4 vs. 118.8 (1967=100).

⁴ U.S. Department of Transportation.

The Chamber supports allowing intangible drilling cost deductions for geothermal steam and geothermal resources. This deduction is essential to encourage the development of our geothermal resources.

CONCLUSION AND AN ALTERNATIVE APPROACH

Mr. Chairman, we have not addressed *all* the tax provisions of H.R. 8444 or the other bills before this Committee. However, we stand in awe of the tax changes proposed in the National Energy Plan. More than half of the Administration's program involves more taxes; the remainder creates more regulation and more bureaucracy. It is apparent that the Administration has decided that government, and government alone, is the answer to the energy crisis.

We believe there is an alternative approach to the energy crisis. It involves less government and less taxes. It would have less impact on the economy—and it would provide greater incentives for production as well as conservation. It would reduce our dependency on foreign sources of energy.

Let me suggest some steps we believe should be taken by the Congress.

First, we should remove well-head price controls on new natural gas. Phased deregulation would eliminate sudden impacts on consumers. Most important, it would lead to the exploration and "proving up" of more reserves and help eliminate the kind of shortages we felt last February.

Second, rather than impose a new excise tax to raise consumer prices why not lift controls on crude oil as a means of stimulating exploration and encouraging conservation? Independent drillers are dismayed and discouraged by the Administration's approach. Rather than improve the drilling climate, it has only added to the confusion and red tape that has surrounded the crude oil price control program. A gradual lifting of the price controls would be the single most effective means of increasing domestic exploration.

Third, we need to enact environmental laws, which, while protecting the health of our people, will work to increase supplies and conserve more precious fuels such as natural gas.

Fourth, we need to simplify the regulatory process to streamline the siting of energy facilities—including nuclear power plants, refineries, and energy transportation systems.

Finally, we need to provide for the orderly and timely leasing of oil and gas from the Outer Continental Shelf, coal, geothermal, and oil shale from federal lands.

Together, these elements will help achieve the goals the President has set—but they will do so with less disruption, less uncertainty, and less government.

Mr. Chairman, we are grateful for the efforts of the Administration and this Committee in addressing the energy issue urgently and diligently. We want to see an energy policy enacted into law. The energy crisis belong to us all. Business has as much at stake as any segment of our society.

We simply do not believe the answer to our energy dilemma lies in more taxation and more regulation. Moreover, since governmental controls and regulations contributed to getting us in the energy crisis, in the first place, it is folly to think they will get us out of the crisis. The imposition of price controls and new taxes are contrary to the basic market prices which have been—and will continue to be—the most effective and efficient means of correcting supply-demand imbalances.

The CHAIRMAN. Senator Dole will have to leave shortly so he asks that I call out of order the panel consisting of Mr. Frank Wood, Jr., chairman of the board, American Petroleum Refiners Association, accompanied by Mr. Robert E. Plett, executive director, American Petroleum Refiners Association; Mr. Elmer L. Winkler, president, Rock Island Refining Corp., on behalf of the Independent Refiners Association of America, accompanied by Mr. Edwin Jason Dyer, executive secretary and general counsel, Independent Refiners Association of America; and Richard W. Matson, senior vice president, MacMillan Ring-Free Oil Co., Inc., accompanied by Mr. Joseph A. Helyer, vice president and general counsel, Independent Refiners Association.

**STATEMENT OF FRANK WOOD, JR., CHAIRMAN OF THE BOARD,
AMERICAN PETROLEUM REFINERS ASSOCIATION, ACCOMPANIED
BY ROBERT E. PLETT, EXECUTIVE DIRECTOR**

Mr. Wood. Mr. Chairman, while it is not part of our prepared statement, let me add at the beginning of our presentation that the Small Refinery Association totally supports the position of those who have testified before us as being opposed to the crude oil equalization tax. Our purpose in being here today is to endeavor to find a way in which we can live under that tax.

I am Frank Wood, Jr., chairman of the board of the American Petroleum Refiners Association and president of Pride Refining, Inc. Our association represents small refiners where small means having a capacity of 50,000 barrels per day or less. We currently have 61 members with a total capacity of 762,480 barrels per day and an average capacity of 12,500 barrels per day.

As the committee well knows, the crude oil equalization tax (COET) impacts more adversely on small refiners than on their crude sufficient large refiner competitors. The COET phases out the entitlements program and the small refiner bias, thereby eliminating the crude cost offset so vital to the economic viability of the small refiner.

It is imperative that the crude cost offset be provided under the COET so as to insure the survival of the small refiner and thereby provide for the continuation of a competitive refining industry—such competition is clearly in the national interest of the consumer himself who will benefit from the lower product prices at both the wholesale and retail levels.

In the interest of time, I shall highlight as briefly as possible some of the critical reasons why the continuation of current crude cost offsets is vital; additional reasons will be presented by the representatives of the other two refining associations.

Further, the exhibits furnished with our testimonies provide a more detailed rationale for the continuation of a crude cost offset program.

First, let me point out that:

1. A viable small, independent refining industry benefits consumers and serves national interests. Continuation of essential crude cost offsets such as the small refiner bias would benefit consumers and serve the Nation as follows:

a. Lower product prices. According to the Senate Select Committee on Small Business 14th Annual Report, p. 74:

The independent refiner is thus the mainspring of competition within the oil industry. His presence not only has economic benefit to individual consumers in their private capacities, but also has indirect public benefit to them as tax-paying citizens, by assuring a competitive market for the Federal Government in its vast annual purchases of petroleum products.

Thus, in providing the catalyst for a competitive market, small refiners have traditionally sold at prices ranging from 1 cent to 3 cents lower than the majors.

The current small refiner bias is treated as a reduction in crude costs and serves directly to reduce the lawful ceiling price of gasoline.

b. The configuration of most small refineries is such that the products they produce are the products that will best serve our national in-

terest in the future. The recent FEA report to Congress comparing refineries of 15,000, 150,000 and 250,000 barrels per day capacity chose the same basic configuration as most small refineries for its study and noted on page 39:

The facilities are all designed to produce relatively large yields of distillate and residual fuels and relatively smaller yields of gasoline, corresponding to most forecasters' predictions of the future petroleum products demand growth.

A small refiner can thus serve his market more effectively by serving the same markets through the same products.

Based on FEA's June entitlement data the present entitlement does little more than equalize the small refiner's crude cost with the major. It does not offset the disadvantages of the small refiner compared to the major integrated oil company.

According to the FEA report to the Congress previously mentioned, a 15,000 barrel a day small refinery is at a \$2.04 per barrel disadvantage to a major of the same configuration and processing the same crude oil. FEA also states in its report that 96 percent of the 15,000 barrel a day refiner's benefits under all Federal programs is derived from the small refiner bias.

When comparing crude costs it should be remembered that for the major, cost as viewed by FEA is actually a transfer price and includes profits on crude oil production and transportation. Small refiners must purchase their crude oil from producers and their purchase price is a true measure of cost. Historically major oil companies have not treated their refineries as profit centers, but rather as channels of distribution for petroleum products. These companies have looked to their crude production for the profits necessary to effect the overall desired return on their investment.

In summary, let me say we do not advocate that any segment of the refining industry, including our own, receive excessive or unwarranted benefits. We do not advocate legislation or regulation so written as to provide any refiner with a sufficient economic incentive to enter or operate his business in a manner contrary to the intent of the legislation or regulation or contrary to the national interest. The program of crude cost offsets provided by the small refiner bias today does not provide excessive benefits to most small refiners. In fact, for many small refiners it does not even provide the offset to crude oil cost originally intended.

I thank you and I will be happy to respond to questions.

**STATEMENT OF RICHARD W. MATSON, SENIOR VICE PRESIDENT,
MacMILLAN RING-FREE OIL CO., INC., ACCOMPANIED BY JOSEPH
A. HELYER, VICE PRESIDENT AND GENERAL COUNSEL INDE-
PENDENT REFINERS ASSOCIATION**

Mr. MATSON. I am Richard Matson, and I am accompanied here today by Mr. Joseph A. Helyer, who is vice president and general counsel of the Independent Refiners Association of California.

Mr. Chairman, the Independent Refiners Association of California (IRAC) is comprised of virtually all small and independent refiners operating on the west coast of the United States, principally in Cali-

fornia. Most range in capacity from approximately 2,500 barrels per day to 50,000 barrels per day.

Some of these refiners process foreign crude oil, while others process domestic crude or a mixture of the two. The product yield of the refiners includes a full range of refined petroleum products for some companies, while others are principally fuel oil or asphalt refiners.

All IRAC member companies are considered small or independent refiners under the definitions contained in the EPAA (Public Law 93-159). Many are small business refiners as defined by regulations. Our members are an important factor in providing petroleum products to the independent marketers, agricultural, and other rural consumers, the Department of Defense, and the consumers throughout the Western States. We are greatly concerned about the crude oil equalization tax provisions in the National Energy Act legislation now pending before your committee, and appreciate the opportunity to express our views today.

THE CRUDE OIL EQUALIZATION AND SMALL REFINERS

The Crude Oil Equalization Tax (COET) provision of H.R. 8444 presents an extremely serious threat to the competitive viability of small refiners throughout the country. The COET, as passed by the House of Representatives, virtually ignores the competitive position of small refiners in the structure of the petroleum industry and actually would, if enacted, hasten the demise of many of these small companies.

The COET impacts much more severely on small refiners than their competitors, the major oil companies. The tax phases out the entitlements program, and thus phases out the crude offset of that program known as the small refiner bias, with no replacement provision. The loss of the small refiner crude cost offset provided by the bias will rapidly diminish the competitive position of small refiners by more swiftly increasing their crude oil costs compared to the majors. This larger increase will occur since the offset provided by the bias will diminish by one-third next year, and will be phased out by the third year or the tax.

The reduction of the bias protection occurs not as a result of a reduction of the number of entitlements, but rather, results from the substantial lessening of the value of an entitlement. Whereas the current value of an entitlement is about \$8.77 [July entitlements list], the COET will next year reduce this value to about \$6.21, a 30-percent reduction.

Thus, while all refiners would be affected by the tax, only small refiners will face an additional crude cost increase. During the first year of the phase-in of the COET, the small refining industry will be faced with a staggering additional crude oil acquisition cost of approximately \$318 million. Compounding this extra burden and hitting the small companies even harder is the concept of the administration that the refining industry will not be able to pass through all of the increases brought about by the COET, but will have to absorb about one-third of the increase. While the majors, with their dominant market position, may well be able to absorb these costs, the small refiner will not be able to stand this double punch and will find their ability to remain competitive seriously eroded.

LOSS OF BIAS ESPECIALLY CRITICAL FOR WESTERN SMALL REFINERS

Obviously, such a substantial increase in the crude acquisition costs for small refiners will cripple our competitiveness. But the adverse impact is even greater for western small refiners because the west coast refiner is faced with rapidly changing crude oil sources and nature of supply with the movement of Alaskan North Slope (ANS) crude oil. The administration has clearly recognized the need for substantial refinery modifications to "retrofit" existing refineries to allow them to process high sulfur heavy crude oils into environmentally acceptable petroleum products. Most small refiners on the west coast cannot now process ANS crude oils and must make extensive modifications to be able to do so.

If the small refiners are legislated into an economic straitjacket wherein their current operations are rendered uneconomic, there is little likelihood of obtaining the necessary capital from lending institutions to retrofit their facilities to process the ANS crude.

This problem is clearly illustrated by a small western company, Sound Refining, in Washington State. Sound Refining informed its Senator that if the COET is not modified to provide a crude oil cost offset similar to the current bias, this refiner will be unable to proceed with the planned modification of its facilities to process North Slope crude oil. (See appendix I)

A similar situation faced most small refiners on the west coast. Any plans for expansion or modification hinge on a continued economic operation sufficient to gain the confidence of lending institutions to provide the needed capital. The unwarranted and hasty removal of the crude cost offset now provided in the entitlements program would be a blow that many of these companies could not withstand.

THE ABUSES OF THE BIAS AND THE LEVELS OF THE BIAS

The small refiner bias provision of the entitlements program has been strongly attacked by the major oil companies and others as providing excessive levels of benefits to small companies, as well as being a program frequently abused.

LEVEL OF BIAS

At this point, it should be clearly noted that the levels of the bias are established by the Federal Energy Administration, not small refiners, after considerable study, proposed rulemaking, public hearings, and public comments. The levels currently in effect were put into place just last year when the FEA modified its original program.

On May 18, 1976, the date of the most recent bias level proposed adjustment, the FEA made the following comments about the necessary level of the small refiner bias:

FEA's analysis of this issue indicates that an increase in the small refiner bias in conjunction with the revocation of Special Rule No. 6 has greater merit than any other alternative course of action available to the Agency as to the overall status of small refiners under the entitlements program. This approach both eliminates any special treatment afforded to small refiner entitlement purchasers and comports more fully with the general concern as to the competitive viability of small refiners expressed throughout the EPAA and EPCA.

FEA initially adopted the small refiner bias after a significant amount of analysis and public comment on the issue when the entitlements program was instituted

in late 1974. At that time FEA determined that the historical preference granted to small refiners under the oil import program as in effect in 1972 was sufficient to preserve the competitive viability of this class. However, over the first year in which the program was in effect FEA received substantial evidence that the amount of the bias may in fact not be adequate for its intended purpose.

For example, a large number of small refiners have been forced to seek exception relief since, for these firms, bias amounts were not sufficient to enable them to compete effectively or even in certain cases to maintain their financial viability. Due to the more restrictive exception standards for entitlement sellers as opposed to entitlement purchasers, FEA has received numerous indications that many small refiner entitlement sellers are also in need of additional bias amounts to remain competitive and financially viable. Many operating and other costs for these firms have increased since 1972, and thus the bias amounts may not be representative of the current competitive disadvantages of this class and the industry may have generally become more competitive due to increased consumer sensitivity to the higher prices.

In addition, FEA is basing its determination to increase the small refiner bias to a significant extent on the Congressional concern for small refiners expressed generally, both in sections 403 and 455 of the EPCA and in the legislative history connected with the passage of the EPCA.

Quite clearly, FEA believed the levels of the bias were equitable. These are the levels now in effect. We believe any allegations of excessive levels are unfounded major oil company rhetoric, playing games with numbers, graphs, and charts, in their attempt to weaken the competitive position of small refiners.

The FEA had the authority to modify the bias if any excessive levels existed, and they now have the authority to propose a change if such change is warranted. However, rather than proposing such a change, the FEA has only recently contracted for a study to be done of the small refiner bias. Quite clearly, the FEA is not convinced that the levels are excessive, otherwise a proposed rulemaking suggesting such a change would have been long since published.

ABUSES OF THE PROGRAM

Over the last few years, the FEA has administered one of the most complex set of regulations in the Federal bureaucracy. This complexity has often allowed gray areas in the regulation to exist. One of these gray areas was a provision which allowed a refiner to have crude oil processed by another refinery, usually a larger company, with crude runs accruing to the smaller company for entitlements purposes.

Crude oil processing agreements have long been a normal aspect of doing business in the petroleum industry for various reasons. The entitlements program, however, brought about an abnormal result. A small company could utilize the facilities of a larger refiner and have crude oil processed which generated small refiner bias entitlements. The FEA analyzed the results of these arrangements and determined that they were contrary to the intent and purposes of the bias and proposed modification of the regulations to eliminate the abnormality.

The small refining industry supported the FEA in its proposed modification. In comments filed on March 11, 1977, the Independent Refiners Association of California made the following statement:

The IRAC wishes to emphasize the following points:

1. The small refiner bias program, at the minimum of its current levels, is critical to small refiners.
2. The IRAC supports the FEA's proposal to eliminate bias entitlements for processing agreements which are clearly abuses of and distortions of the principles and purposes of the small refiner bias program

Similar sentiments were voiced by other small and independent refiners and their associations and the program was modified by the FEA.

The so-called "abuses" therefore, grew out of the complexity of the regulations which allowed companies to legally follow a course of action which was later determined to be contrary to the intent and purposes of the program.

Thus, the concern with abuses and bias levels must be seen in this perspective. The bottom line is simply that the levels of the bias were established by the FEA after considerable study and the so-called "abuses" which grew out of the complex regulations have been eliminated, with the support of the small refining industry. Clearly, these matters should not be allowed to distort the issues pending before the Congress in the Crude Oil Equalization Tax.

NEED FOR CRUDE OIL COST OFFSET IN THE CRUDE OIL EQUALIZATION TAX

The Crude Oil Equalization Tax of the proposed National Energy Act legislation poses a serious threat to the small refining industry because it omits a provision recognizing the differing competitive abilities existing between the fully integrated major oil companies and their competitors, the small refining industry. The omission is shown by the COET failure to include a crude oil cost offset provision for the smaller companies.

Since the 1950's the Federal Government has recognized the need for and provided programs which established such offsets. The oil import program for many years included a sliding scale provision in the allocation of oil import licenses which had the desired effect for smaller refiners.

Today's entitlements program, with its small refiner bias provision, is merely an extension of the Federal Government's recognition of the need to protect the smaller refiners' competitive viability. These programs have been designed to offset the inherent advantage possessed by major refiners, with their own crude oil production, which refiners can use those production profits to subsidize its refining and marketing operations. On the other hand, small refiners do not have the integrated operations that would allow this type of subsidization, and therefore without the balancing effect of the various Federal programs during the past 20 years, the small refiner would be a creature of the past.

A complete analysis of the need for crude oil cost offsets and the competitive aspects involved is attached as appendix II.

The very question of the need for a crude cost offset provision in the COET has been reviewed from a competitive point of view by Federal Trade Commission, Bureau of Competition, in response to an inquiry from Senator Edward M. Kennedy, chairman of the Judiciary Subcommittee on Antitrust and Monopolies.

The Federal Trade Commission response clearly stated the need for appropriate treatment for small refiners under the COET. At page 13 of the response it was noted:

If the petroleum industry is and had been historically characterized by workable competition at all its levels, we would not hesitate to say that economic

efficiency and public welfare would be enhanced by the elimination of the small refiner bias. But if the ability of independent refiners to enter and become efficient operators is and has been impaired by an existing or historical anticompetitive industry structure, a different public policy toward small refiners may be warranted.

In our view, which we are pursuing in the Exxon litigation, the industry structure is non-competitive and has been for a long time. Independent refiners, if they have had access to crude oil at all, may have had to pay effectively more (without cost justification) than their larger competitors. Through their control over crude supplies and crude and product prices and because of their propensity to use crude profits to subsidize downstream operations, the majors seemingly have been able to make independent refiners the victims of an artificial refinery margin squeeze and to deter entry or expansion by such independents. Government assistance to victimize classes of refiners, in the short run, may be required to offset these anti-competitive problems until the antitrust mechanism can make the industry structure competitive.

Until a more open crude oil market can be established (by legislation or otherwise) or until the refinery squeeze phenomenon can be eliminated (by vertical divestiture legislation or litigation, publication of major company financial data by functional segments, or some other solution), and interim legislative measures to encourage efficient, and independent refineries may be warranted. The legislation should be drafted in such a way that grossly inefficient refineries are encouraged to enter at or to grow toward optimum scale. The entitlements bias has been deficient in these respects.

[The complete response of the Federal Trade Commission, Bureau of Competition, is attached as appendix III.]

UNITED SUPPORT FOR SMALL REFINERS RELIEF

Mr. MATSON. Significantly, the position we present to this committee represents not only the small refiners' perspective, but, indeed, we have the support of most segments of the Independent Producers Association and the Oil, Chemical and Atomic Workers Union urge the committee to adopt a small refiner crude cost offset, if there is to be a crude oil equalization tax.

The reason for such united support from normally diverse groups underscores our problem. Without the crude cost offset, the producer knows the small refiners will not have the economic strength to modernize their facilities to process lower grade domestic crude. And without the crude cost offset, the union knows that jobs in the small refiner industry will become jeopardized. See appendix IV and V from CIPA and OCAW.

RELIEF SOUGHT BY SMALL REFINERS

The most compelling reason small refiners are seeking a crude oil cost offset provision in the COET is the fact that this legislation contemplates the abandonment of the entitlements program with a shift to a tax system.

If no crude cost offset provision is provided within this new system, the small refinery industry will take a giant step toward its extinction while the consumer will lose the competitive pressures of these companies in the marketplace.

In the regard, the IRAC and other small independent refiner associations strongly urge that the COET be amended to provide appropriate tax treatment for small refiners consistent with the current small refiner bias provisions of the crude oil entitlements program.

The COET should be amended to include a system of tax credits, refunds, or rebates that would provide offsets to the crude oil cost of small refiners equivalent to the current programs. Details of these amendments are included in the presentation of the panel members of the three associations representing the vast majority of the small and independent refiners throughout the country.

We seek in this amendment only an extension of 20 years of Governmental policy which has balanced the awesome power of the integrated major oil companies with programs which assist smaller companies to remain competitive in this unbalanced marketplace.

STATEMENT OF ELMER L. WINKLER, PRESIDENT, ROCK ISLAND REFINING CORP., ON BEHALF OF THE INDEPENDENT REFINERS ASSOCIATION OF AMERICA, ACCOMPANIED BY EDWIN JASON DRYER, EXECUTIVE SECRETARY AND GENERAL COUNSEL, INDEPENDENT REFINERS ASSOCIATION OF AMERICA

Mr. WINKLER. I am Elmer Winkler, president of Rock Island Refining Corp. of Indianapolis, Ind. I am also speaking on behalf of the members of the Independent Refiners Association of America, an association which consists of 32 independent refiners in 21 States.

I have with me today also Mr. Jason Dryer of the association who is going to help me present the solution, we hope, to our problem.

I have just a few comments in addition to what the other two gentlemen presented. One is that the major oil companies today are not making any money.

The vice president of Exxon Corp. said that out of a \$2.5 billion downstream investment Exxon is barely breaking even. The same admissions have been made by Shell and Gulf. We think that part of the problem has been that the major oil companies are integrated, that they consider their crude oil costs to be the cost of finding, exploring for oil and lifting that oil out of the ground whereas to the independents the actual cost of crude oil is what they pay in the marketplace. We think that the long-term solution would be financial accounting with the major oil companies so that we can try and so Government can try and get the major companies to look at refining and marketing as profit centers and try and make a profit in these areas.

Now, we think that the sharp transformation is a continuation of the small refiner bias along the order that it currently exists except as it might be modified by the FEA to take care of certain matters that perhaps should be changed.

I now would like to present Mr. Jason Dryer who would like to give you his thoughts on an amendment that we might want to propose.

Mr. DRYER. Well, the essentials of an amendment to the present tax proposal would continue through a tax credit or refund at the same level of benefits that go to the small refiners as now exist subject to the same kind of evolutionary chain over a period of time that might take place as a result of review and study as to the reasonableness of the amounts. This would just move forward as the crude oil equalization tax replaces the existing entitlements program.

The Secretary of Energy would continue to apply the same standards that he must now follow in the Allocation Act with respect to

determining what is needed to preserve the viability of these small refineries, but I would like to emphasize that the entire process is one in which we are not trying to keep alive and certainly not to foster the entrance of inefficient refining companies into this business.

We are merely trying to offset certain artificial price relationships which now exist in the oil industry and which hopefully in due course will be solved as we move out of price control and as the integrated majors adopt a more statesmanlike attitude to the conduct of their refining and marketing so that that function could be conducted with a reasonable return on the investment.

Mr. HELYER. Mr. Chairman, that concludes our presentation. We would be very pleased to answer any questions you might have.

The CHAIRMAN. Mr. Dole.

Senator DOLE. As I understand the explanation you have just given, it touches on the amendment that you think is necessary if we retain the equalization tax; is that correct?

Mr. DRYER. That is correct, but at the present time as the crude oil equalization tax replaces the entitlements program the entitlements program won't be there to provide this particular kind of benefit. The Secretary of Energy may have enough room within the first period of time, but certainly by the second year of the program there is not enough left in the entitlements program to permit these benefits to be conveyed.

Senator DOLE. But you would maintain the value that is through the tax credit for the refund?

Mr. DRYER. Yes.

Senator DOLE. Is it fair to assume, as you indicated initially, that you are not supporting the equalization tax.

Mr. DRYER. That is correct.

Senator DOLE. That may be true of everybody on the panel.

Mr. WINKLER. That is correct.

Senator DOLE. Now, how does the continuation of either the small refiner bias to or tax credit or refund, benefit the American consumer?

Mr. WOOD. Well, it benefits the American consumer because it lowers the cost of crude oil to the small refiner and this lower cost is passed to the public in the form of lower product prices both at wholesale and retail.

Mr. WINKLER. Could I answer that also? We feel that the independent refining segment has been a major factor in holding down prices to the consumer and the fact that this would in the beginning be a tax we feel that it is not a large enough amount, it would be somewhere in the area which, of course, would be supplemented by the entitlements program, it would be somewhere in the area of \$220 million. We think in the long run the consumer will benefit by keeping the small refiner in business until long-term solutions can be worked out.

Senator DOLE. Mr. Chairman, at this point I think I would like to have information be put into the record. It is a letter addressed to Senator Kennedy, dated July 13, 1977, from the Bureau of Competition, Federal Trade Commission. The letter is not from any of the Commissioners but from the Bureau of Competition. It refers to the

small refiner bias and the termination of the entitlements program: specifically, what effect the equalization tax might have on the bias. It is a rather exhaustive study. It might be helpful to the staff and committee to have the letter made a part of the record.

The CHAIRMAN. Without objection, it is agreed to.

[The Kennedy letter follows. Oral testimony continues on p. 1165.]

FEDERAL TRADE COMMISSION,
BUREAU OF COMPETITION,
Washington, D.C., July 13, 1977.

HON. EDWARD M. KENNEDY,
*Chairman, Subcommittee on Antitrust and Monopoly, Committee on the Judiciary,
Russell Building, Washington, D.C.*

DEAR MR. CHAIRMAN: I have been able to examine more completely the question of the effect of the President's National Energy Plan ("the Plan") on competition in the domestic refining industry and particularly on barriers facing independent entry into this industry. As I promised you June 23 in my testimony before the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, this letter sets forth the thoughts of the Bureau of Competition on this important question.

Our analysis indicates that the Plan may have the following general effects, discussed in detail below:

(1) The termination of the entitlements and related regulatory programs as part of the plan will cause difficulty for some small refiners.

(2) The crude oil equalization tax may continue or worsen certain distortions in the prices of certain grades of crude oil. Without allocation programs, this situation probably will redound to the benefit of vertically integrated major refiners.

(3) The relative makeup of the composite demand for petroleum products may change, to the advantage of large, complex refineries.

(4) New domestic refining entry will continue to be difficult.

(5) The Plan's drastic reduction in the overall rate of product demand will restrict the demand for grass roots capacity.

(6) Product imports may rise to satisfy any increases in demand, or to satisfy current demand, thus deterring domestic de novo refining entry, and creating a relative advantage to foreign refineries.

(7) Working capital requirements for refinery inventory will rise.

(8) Because the tax-imposed crude oil price rise may not be immediately translatable into product price rises of equivalent magnitude, the already existing margin squeeze that has deterred major entry for a number of years may worsen in the short run.

(9) Any adverse effects from the Plan upon new entry would occur in the context of existing entry barriers.

Whether these effects on competition can be considered adverse or beneficial to economic welfare is a difficult question, the answer to which ultimately depends upon one's views concerning the competitiveness of the domestic petroleum industry. Decontrol of product prices and theoretical equalization of raw material costs for all manufacturers bode well for competition in an industry with no underlying structural problems or competitive constraints. However, the FTC's Bureau of Competition is now litigating an antitrust case against the eight largest domestic petroleum companies in which we contend that the industry is not competitively structured. *Exxon Corp., et al.*, Docket No. 8934. If, as Exxon alleges, there are underlying competitive problems with the petroleum industry as now structured, one must look closely at the Plan to determine whether the noncompetitive structure of the industry will be reinforced or weakened by the Plan.

The discussion below is generally organized around two topics: the Plan's effects on competition among existing refinery firms and its effects on entry by potential refinery firms. Unfortunately, the Plan's lack of detailed provisions in certain areas and the difficulties of tracing the complex economic effects of changed regulations makes definitive answers on the Plan's effects impossible at this time.

I. EFFECTS OF THE PLAN ON EXISTING COMPETITION AMONG REFINING FIRMS

A. The crude oil equalization tax

Under section 1401(a) of the National Energy Act (proposed amended Subtitle D, Chapter 46, Section 4996(c)), by 1980 a tax will be imposed on each "classification" of domestic crude oil in an amount which is the difference between the weighted average cost of all foreign crude to domestic refiners and the weighted average cost of that "classification" of domestic crude oil. "Classification" is based not on grade, quality, etc., but on whether the oil is subject to the "first tier" or "second tier" ceiling for price-controlled oil. The intention is to equalize approximately the price of domestic crude oil with the world price for crude oil. Distortionary effects would be inevitable in such a system. It is possible, moreover, that independent refiners would bear the brunt of the effects. It is not clear, however, whether such distortionary effects would be greater or less than those caused by the present regulatory system.

The present ceiling prices on crude oil reflect differences in the prices of various grades of crude (e.g., location, specific gravity, sulfur content).¹ These differences are based on the differentials in domestic demand in effect on May 15, 1973. Unfortunately, 1973 differentials do not necessarily represent 1977 economic reality. Today, some types of domestic crude oil simply cannot be sold at their asking prices. This is because there is no demand for the oil at the ceiling price and because royalty agreements (and perhaps oligopolistic rigidities) prohibit sale at anything less than the ceiling price.

As the composition of crude oil demand changes over time, one grade of oil may diminish in value relative to another grade. This may result in the seller of crude taking one or the other of two possible courses of action, the second of which may adversely affect its independent refiner buyers:

- (1) the crude oil seller may lower its price below the ceiling price for the lesser valued crude oil, and the refiner will purchase at this lower price, or
- (2) the seller may refuse to lower its price and the refiner will have to either (a) buy at the artificial ceiling price, or (b) refuse to buy at the ceiling price and be forced to either (i) run the refinery at a lower utilization rate, or (ii) find other sources of crude oil, foreign or domestic.

The 1980 equalization tax may accentuate this distortion in normal seller responses to changing demand. The tax will be based on a weighted average for foreign crude as a whole, with some world prices being higher and some lower depending primarily on grade. The tax imposed on a given grade of domestic crude will be that average amount necessary (when added to the sale price) to attain the same level as the average price for all foreign crude, regardless of whether the market price for the comparable grade of foreign crude would be greater or lesser than that average. Consequently the domestic price (including the tax) for a particular grade may be different from world prices for that grade. The pace at which these price differences will disappear will depend upon market rigidities and the method employed to determine the equalization tax.

It is not clear from the materials we have seen whether the tax will be determined 1) at the beginning of the monthly period (in which case the buyer will know its crude costs in advance) or 2) after all the figures are in for the period (much in the same manner entitlements are now determined). If the first method is utilized, a problem will arise whenever the price differential among domestic grades is not comparable to the price differential among foreign grades. If, for instance, the domestic price for a particular grade were lower than the world price, the demand for the domestic portion of that grade would be greater than the supply. Absent an allocation system, vertically integrated producers and gatherers of that grade of crude oil would favor their own refineries. Independents would be forced to buy higher-priced foreign crude and would be competitively disadvantaged, if integrated gatherers had proportionately greater access to undervalued domestic crude oil. This disadvantage to independents becomes even greater if they are forced to pay higher prices for foreign crude oil than do major integrated firms.

¹ 10 C.F.R. § 212.73—77 (1977).

An example may help illustrate the problem. Assume that world crude oil comes in two grades purchased in equal proportions by U.S. refiners: low sulfur North Sea crude at \$14/bbl, and high sulfur Arabian crude at \$12/bbl. Assume further that domestic crude is 50% low sulfur with a \$5.50/bbl ceiling price, and 50% high sulfur with a \$4.50/bbl ceiling price. (Note that the difference between the two foreign grades is \$2/bbl, while the difference between the two domestic grades is \$1/bbl.) Thus, the average world price is \$13/bbl, i.e., $(\$12 + \$14)/2$; the average domestic price is \$5.00/bbl. Thus, the tax is \$8/bbl, i.e., $\$13 - \5.00 . High sulfur crude oil from domestic producers will be available at \$12.50/bbl, i.e., $\$4.50 + \8.00 ; low sulfur crude at \$13.50/bbl, i.e., $\$5.50 + \8.00 .

In theory, market forces should quickly diminish and eventually eliminate the \$.50/bbl advantage of domestic low sulfur crude hypothesized in the foregoing example, as well as the \$.50/bbl disadvantage of domestic high sulfur crude. The domestic high sulfur crude would be offered initially at \$12.50/bbl, i.e., \$4.50 plus an \$8.00 tax. If domestic sellers were to refuse to sell at less than the ceiling price, then—at least in theory—refiners could turn to foreign suppliers. To forestall that, the rational domestic seller presumably would offer its high sulfur crude at a price below the ceiling price. This discount should enlarge the spread between average foreign and average domestic prices of the combined grades of crude. The equalization tax would automatically increase as the spread enlarges. This, in turn, will raise the after-tax price for domestic low sulfur crude and reduce the advantage of domestic over foreign low sulfur crude. Eventually the advantage should disappear entirely.³

The trouble with this market adjustment theory is that royalty agreements and oligopolistic rigidities (as price ceilings become price floors) may prevent the offering of high sulfur crude at less than the ceiling price. Moreover, long-term contracts and the difficulty of obtaining dependable access to foreign supply may inhibit high sulfur crude buyers from putting sufficient pressure on domestic suppliers to lower their price. These practical problems may be substantial enough to cause a misallocation of resources as undervalued crude oil is shifted to integrated systems and overvalued crude oil is forced upon independents.

One possible way to minimize the contribution of the Equalization Tax to this distortionary effect is to require that the tax be calculated in such a way as to equalize the after-tax price of each major grade of domestic crude with the price of the same or nearest equivalent grade of foreign crude. This would require the addition of the following underlined language to Section 4996(c):

"(c) Imposition of Permanent Tax.—A tax is hereby imposed on the delivery to the refinery or other place of first use in each calendar month beginning after December 31, 1979, of controlled crude oil of each classification (other than crude oil classified as uncontrolled (refinery) crude oil) in an amount per barrel equal to the difference for such month (if any) between the national weighted average cost of all *domestic* crude oil of the same classification *and grade* and the national weighted average cost to domestic refineries of *foreign* crude oil of the *same or nearest equivalent grade* exclusive of any tariffs or import fees."

In addition, Section 4996(g) would have to be amended to require FEA (or its successor) to create classifications of foreign and domestic crude oil by grade. A major disadvantage of the suggested amendments would be the additional burden of collecting monthly data by foreign and domestic grades and of developing a regulation identifying foreign equivalents of domestic grades.

Another possible solution is to authorize FEA (or its successor) to institute a mini-entitlements program to even out the distortionary effects described above. Like any complicated regulatory scheme, however, such a program would entail substantial costs both to government and industry.

If the equalization tax is determined retroactively, using the actual sales data for the period, the system should theoretically adjust quickly to world

³ The scenario goes like this: In the first month, the price of domestic high sulfur crude falls from \$4.50 to \$4.00 causing the average price of domestic crude to fall to \$4.75, i.e., $(\$4.00 + \$5.50)/2$. The tax then becomes \$8.25, i.e., $(\$12 + \$14)/2$ minus $(\$4.00 + \$5.50)/2$. The after-tax price of domestic low sulfur crude would rise by \$.25 to \$13.75, i.e., $\$5.50 + \8.25 . In succeeding months, the phenomenon would continue, although each upward adjustment would be less than the previous month's.

prices. Buyers might purchase based on assumed adjustments. Thus, in the above example, the buyer of high sulfur crude might refuse to purchase high sulfur domestic crude except at an effective price of \$12 after estimating the assumed tax.

The possibility of instantaneous adjustment may be more hypothetical than real. First buyers must necessarily predict the market in advance. They must estimate the tax, assuming everyone else is doing likewise, and then refuse to buy unless the price falls to the point at which the price plus the predicted tax equals the available price for foreign crude oil. It should be pointed out this is more than a mere competitive assumption. It assumes that buyers not only believe that competition will drive down the price of domestic crude oil, but that the buyers believe the market is competitive, that they all will determine the future tax based on competitive assumptions, and that they will all determine the tax correctly!

We do not believe that the domestic crude oil market is competitively structured. Assuming domestic crude oil prices are sluggish, the adjustment process will take considerable time. During each period of adjustment to new world prices vertically integrated concerns will be favored.

This second method of determining the oil equalization tax would also increase the buyer's uncertainty. A buyer can only guess at the tax when purchasing crude oil. This would disadvantage the independent vis-a-vis the integrated company. The integrated concern simply passes the crude oil from one stage of production to the next. The independent needs to know the total price (with the tax) of crude in order to time its purchases to minimize cost and to set the price of its refined product. The independent refiner may find its margin squeezed if it purchases crude oil based on an assumed tax at a price which turns out months later to be too high. The vertically integrated producer, on the other hand, is often in a position of delaying the valuation of its crude oil until more information is available.

The entitlement system demonstrates some of the uncertainty of an after-the-fact method of setting the tax. Entitlements have shown significant variations from month to month. The entitlement value was, for instance, equal to \$8.31/bbl in September 1975, \$8.62 October, \$8.94 November, \$8.55 December and \$8.00 in January 1976.

The problems posed in this section result not from the equalization tax as such, but from its interaction with sluggish crude oil markets. We have not analyzed the somewhat analogous situation of the interaction of the entitlements program with the crude oil price control program to determine the magnitude, if any, of the posed problems.

B. Increase in Foreign Product Imports

By increasing the effective price of domestic crude oil the Plan makes foreign-produced petroleum products more competitive in domestic markets. After 1979, domestic refiners will no longer have a raw materials cost advantage over their foreign competitors. Disregarding tariffs and import fees, relative transportation costs and non-material-related refinery costs alone will determine how much foreign product imports into the United States increase. If, because of its freedom to ship on less expensive non-U.S. vessels, less severe or nonexistent environmental restrictions, special tax situations, or lower costs, the foreign refinery has an advantage over domestic refineries, and if that advantage is not eliminated either by higher transportation costs attributable to the foreign refinery's distance from the U.S. or by import fees and tariffs, the foreign refinery's U.S. sales will increase relative to domestic refineries.

Without substantial product import tariffs or fees, the share of the market captured by imported products would be a large one, especially in the Eastern United States. In the short run, the market pressure of these foreign imports could severely depress domestic refinery margins.

The primary reason for these effects is the significant cost advantages that certain foreign refineries have over domestic refineries. The following chart summarizes the cost advantage which variously located foreign refineries could have by 1980 in their delivered cost of products to the East Coast relative to the costs for East Coast refineries:

**COST DIFFERENTIAL BETWEEN A NEW EAST COAST REFINERY USING EXISTING WATER TRANSPORTATION MODES
FOR CRUDE OIL DELIVERY AND A NEW REFINERY IN SELECTED OTHER PLACES**

[In dollars per barrel]

Location	Total cost advantage over east coast refineries	Cost advantage due to transportation of crude and products	Cost advantage due to refining costs
Bahamas.....	1.86	1.12	0.74
Curacao.....	1.82	1.01	.81
Virgin Islands.....	1.70	1.05	.65
Morocco.....	1.57	.78	.79
Algeria.....	1.46	.67	.79
Nigeria.....	1.39	.60	.79
East coast (VLCC Lightering).....	1.32	1.30	.02
Puerto Rico.....	1.34	.60	.74
East coast (Superport).....	1.28	1.26	.02
Angola.....	1.31	.52	.79
Rotterdam.....	1.06	.63	.43
Offshore Canada.....	1.02	1.05	-.03
East coast (Caribbean Transhipment).....	.76	.74	.02
Mideast.....	.74	.01	.73
Gulf coast (VLCC Lightering).....	.46	.07	.39
Gulf coast (Superport).....	.42	.03	.39
East coast.....	1.0	0	0
Gulf coast (Caribbean Transhipment).....	-.09	-.46	.37
Gulf coast.....	-.92	-1.29	.37
Hawaii.....	-1.20	-1.17	-.03

Source: Pace Engineering, Determination of Refined Petroleum Product Import Fees (study prepared for FEA, July 1 1976, based on 1980 dollars.)

If import tariffs and fees on petroleum products are low or nonexistent, domestic refinery margins would be narrowed as refiners meet the lower prices offered by imports. Independent refiners, relying for their well-being primarily upon refinery profits, would be hard hit. Smaller refineries, disproportionately owned by independents, would be the first to shut down because of their greater inefficiencies if these are not balanced by locational advantages. To the extent import fees are set in such a way that some domestic refineries remain in business and some shut down, domestic refinery concentration could increase. To the extent product imports would come from foreign refineries of the very same major firms which now dominate domestic refining capacity, concentration could further increase.

The impact of a larger relative volume of foreign product imports upon refining competition is uncertain. We have made no study delineating the top firm concentration for foreign refining capacity capable of supplying the United States. To ascertain the exact increase, if any, in top firm concentration in U.S.-supplying refinery capacity which may result from the Plan, one must determine the projected share of the market for imports generally and the precise location and ownership of supplying refineries. The former will depend on the level of import fees and duties, on production and transportation costs, and on demand characteristics. The latter will depend on cost differentials among refineries.

C. Differential Impact of the Plan on the Demand for Major Petroleum Products

The President's Plan contains numerous provisions designed to lower the demand for petroleum products as compared with projected demand without the constraints imposed by these provisions. The Crude Oil Equalization Tax has the effect of reducing the demand for petroleum products by raising their price. Additional provisions are designed to lower the demand for only selected products, leaving untouched or to other provisions the consumption patterns for other petroleum products. Thus, for example, taxes are proposed on less-efficient automobiles³ and on gasoline⁴ to reduce gasoline consumption while no individualized disincentives are placed on the use of commercial jet fuel. Rebates on the sale of home heating oil will have the effect of maintaining or increasing the relative demand for this product.⁵

³ National Energy Act, Title II, Part B, Subpart 1, §§ 1201-1204.

⁴ *Id.*, Subpart 2, §§ 1221-1223.

⁵ *Id.*, Subpart 4, § 1402

The effect and intent of the Plan is to decrease the demand for some petroleum products at a greater rate than the decrease for other petroleum products. As a result the total slate of products demanded by the U.S. consumer will be altered by the Plan. In the short run, at least, certain domestic refineries, most likely those of the large integrated companies, will be advantaged by this change in the demand slate.

The demand pattern for petroleum products in the United States was as follows for 1976:^a

Percentage of total petroleum product demand

	<i>Percent</i>
Motor gasoline.....	40.0
Aviation gasoline.....	.2
Total gasoline.....	<u>40.2</u>
Jet fuel-naphtha.....	1.1
Jet fuel-kerosene.....	4.5
Total jet fuel.....	<u>5.7</u>
Distillate oils.....	17.9
Residual oils.....	16.0
Petrochemical feedstocks.....	¹ 2.4

¹ Plus.

The refiner source for domestic demand varies by product type. The following table summarizes the market share of domestic refinery production for designated products held by the eight largest domestic refiners combined:

	<i>Percent</i>
1973:	
Motor gasoline.....	58.7
Aviation gasoline.....	79.4
Total gasoline.....	<u>58.8</u>
Jet fuel naphtha.....	43.8
Jet fuel kerosene.....	82.4
Total jet fuel.....	<u>74.4</u>
Distillate oils.....	57.4
Residual oils.....	61.5
Petrochemical feedstocks.....	64.8
Distillation capacity.....	<u>57.5</u>
1972:	
Motor gasoline.....	55.4
Aviation gasoline.....	81.0
Total gasoline.....	<u>55.6</u>
Jet fuel naphtha.....	46.6
Jet fuel kerosene.....	81.2
Total jet fuel.....	<u>72.6</u>
Distillate oils.....	56.2
Residual oils.....	59.8
Petrochemical feedstocks.....	60.0
Distillation capacity.....	<u>57.9</u>

Source: Special compilation of Bureau of Mines for FTC, 1975.

Until the parameters of the change in the demand slate brought about by the Plan are known, it cannot be determined with certainty which specific refiners will be benefitted. In general, plants with product slates approximating the changed demand will reap the greatest benefits. More complex refineries, which

^a Bureau of Mines, *Mineral Industry Surveys, Crude Petroleum Products, and Natural Gas Liquids*, December 1976, Table 1.

are disproportionately owned by the majors, should require less investment per barrel capacity to alter their product slates than less complex plants should require. One would expect more complex plants to adapt rapidly to changes in demand. Less complex plants would adapt more slowly, if at all. These simpler plants, to the extent they produce products whose demand has been most restrained by the Plan, would find their profitability severely impaired.

D. Elimination of the entitlements and other regulatory programs

"Once the [crude oil equalization] tax is fully in effect [in 1980] all domestic oil would have approximately the same price (after tax) as the world price, the entitlements program would be terminated, and certain related regulatory activities could be phased out."⁷ The termination of these regulatory programs would adversely affect the viability of some smaller independent refiners, especially those who came into existence as a result of the incentive created by the Entitlements Program.

The advantage given to smaller refiners by federal programs is quite substantial. A March 1977 FEA Report to Congress⁸ expressed the overall monetary impact of Federal regulations as follows:

RELATIVE PROFITABILITY OF A REPRESENTATIVE NONMAJOR REFINER COMPARED TO A MAJOR REFINER
[Dollars per barrel of crude oil charged]

Refiner category	Without regulations, districts I-IV	With regulations	
		I-IV	V
Major (250,000 bbl/d).....			
Large independents (150,000 bbl/d).....	-0.27	-0.23	-0.23
Small business (15,000 bbl/d):			
Producing gasoline.....	-1.06	+ .44	+ .42
Producing naphtha.....	-.63	+ .87	+ .85

Two major areas of advantage to small and independent refiners require more detailed discussion: the Entitlements Program and programs guaranteeing crude oil supply.

1. Entitlements Program and Small Refiner Bias

The Entitlements Program was conceived as an attempt to equalize controlled and uncontrolled crude oil costs for domestic refiners. Without more, this program would have favored no class of refiner. However, the program is overlaid with a bias towards small refiners.

The FEA has calculated the value of this entitlements bias to refining companies of various capacities. The table below⁹ indicates that the value is substantial for small refiners of 15,000 b/d or less and inconsequential for refiners of 100,000 b/d or more:

Value of small refiner bias/entitlements

Refinery capacity ¹	[Cents/per barrel, PAD Districts I-IV]	Value ²
1,000.....		183.0
2,000.....		183.0
5,000.....		183.0
10,000.....		183.0
15,000.....		144.2
30,000.....		88.8
45,000.....		50.9
50,000.....		41.6
100,000.....		12.6
150,000.....		4.0
175,000.....		1.5
250,000.....		

¹ Throughputs assumed to be 90 percent of capacities.

² Crude oil entitlements price, \$8/bbl.

⁷ Executive Office of the President, Energy Policy and Planning, *The National Energy Plan*, Apr. 29, 1977, at 52.

⁸ FEA, Office of Oil and Gas, *Impact of Mandatory Petroleum Allocation, Price and Other Regulations on the Profitability, Competitive Viability, and Ease of Entry of Independent Refiners and Small Refiners*, Mar. 1, 1977 (FEA Report to Congress).

⁹ FEA Report to Congress, *supra*, at 45.

If the petroleum industry is and had been historically characterized by workable competition at all its levels, we would not hesitate to say that economic efficiency and public welfare would be enhanced by the elimination of the small refiner bias. But if the ability of independent refiners to enter and become efficient operators is and has been impaired by an existing or historical anticompetitive industry structure, a different public policy toward small refiners may be warranted.

In our view, which we are pursuing in the *Exxon* litigation, the industry structure is noncompetitive and has been for a long time. Independent refiners, if they have had access to crude oil at all, may have had to pay effectively more (without cost justification) than their larger competitors. Through their control over crude supplies and crude and product prices and because of their propensity to use crude profits to subsidize downstream operations, the majors seemingly have been able to make independent refiners the victims of an artificial refinery margin squeeze and to deter entry or expansion by such independents. Government assistance to victimized classes of refiners, in the short run, may be required to offset these anticompetitive problems until the antitrust mechanism can make the industry structure competitive.

Until a more open crude oil market can be established (by legislation or otherwise) or until the refinery squeeze phenomenon can be eliminated (by vertical divestiture legislation or litigation, publication of major company financial data by functional segments, or some other solution), an interim legislative measure to encourage efficient, independent refineries may be warranted. The legislation should be drafted in such a way that grossly inefficient refineries are discouraged and that efficient refineries are encouraged to enter at or to grow toward optimum scale. The entitlements bias has been deficient in these respects.

2. Programs guaranteeing crude oil supply

Four government programs provide security of crude oil supply: the Mandatory Allocation Program (Buy/Sell Program);¹⁰ the December 1 Rule, Supplier/Purchaser Regulation;¹¹ the Small Refiner Set Aside of Naval Petroleum Reserves;¹² and Royalty Oil for Small Business Refiners.¹³ These programs are designed to ensure that small and independent refiners receive sufficient crude oil for their operations. If these programs are considered to be the "certain related regulatory activities [to the Entitlements Program which] could be phased out,"¹⁴ and if, as we believe, the crude oil market is not competitively organized, small refiners would be adversely affected by the elimination of the programs. We are not prepared to say whether or not these programs are the most efficient short-run methods of overcoming non-competitive industry structures.

The following is a summary of the four programs:

a. Mandatory Allocation Program

This program now provides that the 15 major oil companies ("the refiner-sellers") are required to offer FEA-specified volumes of crude oil to the small and independent refiners (qualified "refiner-buyers"). Generally speaking, the refiner-buyer is guaranteed access to sufficient crude oil to operate his refinery at the national utilization rate (the national average supply/capacity ratio).

According to FEA, "a number of larger independents have ceased to use their purchase eligibility under the program. However, many small refiners continue to use the program and it provides them with assured supplies of the types of crude they need for their operations."¹⁵ Elimination of this program, therefore, would disadvantage small refiners who depend on the program to overcome competitive imperfections in the crude supply market.

In addition if the Equalization Tax may contribute to distortions in the crude market, as discussed earlier, then some form of crude oil allocation may be required to equalize crude oil costs for independent refiners disadvantaged by those distortions.

¹⁰ 10 C.F.R. § 211.65 (1977).

¹¹ 10 C.F.R. § 211.63 (1977).

¹² Public Law 94-258, Title 2, § 7430(d) (3) and (4).

¹³ 43 U.S.C. § 1334 (1974).

¹⁴ *Energy Plan Report, supra*, at 52.

¹⁵ *FEA Report to Congress, March 1977, supra*, at 80.

b. December 1 Rule

This program at its inception required that all crude oil deliveries based on agreements for the sale or exchange of crude oil in effect on December 1, 1973, or entered into thereafter, are to be continued as long as the allocation program exists. Although liberalized since January 1974, the regulations continue to protect the flow of crude oil to independent and small refiners according to the FEA Report.¹⁶

c. Set-Aside from Naval Reserves

The Secretary of the Navy may set aside up to 25 percent of the production of naval reserves for small refiners under 50,000 b/d capacity. These refiners may submit bids for a portion of set-aside naval reserves. The program provides no price advantage to small refiners, but according to FEA "would be very helpful to small refiners if crude oil should become difficult to obtain in the future."¹⁷ It is unclear whether this program is to be altered by the National Energy Plan.

d. Royalty Oil for Small Business Refiners

This program gives preference in the disposal of royalty oil from Federal leases to small business refiners of less than 45,000 b/d throughput capacity. FEA's Report notes that the allocation of royalty oil is a significant advantage to the small refiner by lowering his crude oil acquisition costs.¹⁸ Here, too, it is not clear what the future prospects are for this program.

II. EFFECTS OF THE PLAN ON NEW REFINING CONSTRUCTION BY INDEPENDENTS

Any barriers to new refining entry created by the Plan would be in addition to very high entry barriers existing today to the independent construction of grass-roots refining capacity. The President's Plan probably will not result in new refinery entry.

A. Reduction in the demand for refining capacity

The reduction in the growth rate of petroleum product consumption, if achieved as anticipated by the Plan, could do away with the need for any new grass-roots refining capacity. Thus, the present structure of the refining industry, solidified over time by the exit of inefficient firms, would be virtually immune from penetration by *de novo* domestic entry. Foreign product would provide the only *de novo* competition.

Present domestic capacity, coupled with imported foreign product, may well be adequate to meet projected 1985 demand. Under the proposed National Energy Plan, consumption of petroleum products is projected to grow from 17.4 million barrels a day in 1976 to only 18.2 million barrels a day in 1985.¹⁹ 1.9 million barrels a day of the 1976 demand was satisfied by imported product, with 15.5 million barrels coming from domestic refinery production.²⁰ As of January 1, 1977 domestic refining capacity was rated at 16.2 million barrels per day.²¹ If one assumes that product imports will, at the very least, remain constant, the shortfall in domestic refining capacity from the 1976 total to 1985 demand could be as low as 100,000 barrels per day, the equivalent of at most one new refinery built to scale economies.²²

It is extremely unlikely that one grass-roots refinery would be built to satisfy this need. First, for the most part recent domestic capacity additions have been expansions of existing plants, not grass-roots entry. Second, with the effective price after tax of domestic crude oil rising to the world market price, imported product will be more competitive vis-a-vis domestic product. Thus, product from offshore areas may move into the United States in significant quantities at com-

¹⁶ *Id.*, at 30.

¹⁷ *Id.*, at 32.

¹⁸ *Id.*, at 27.

¹⁹ Executive Office of the President, Energy Policy and Planning, *Report on the National Energy Plan*, April 29, 1977, at 96 ("Energy Plan Report").

²⁰ Bureau of Mines, Mineral Industry Surveys, *Crude Petroleum, Petroleum Products, and Natural Gas Liquids*, December 1976, Table 2.

²¹ Oil and Gas Journal, "Annual Refining Survey," Mar. 28, 1977, at 98.

²² The elimination of domestic product price controls, as contemplated by the Plan, will not lead to entry or expansion of domestic capacity because (as we understand it) present price ceilings are too high to be an effective constraint on actual market prices and because, under the Plan, total product demand is not likely to grow.

petitive prices making financially risky additional domestic capacity construction. Third, as of January 1, 1977 approximately 590,000 additional barrels a day of distillation capacity was already under construction.

B. Increase in refining entry barriers

If one assumes that the projected 1985 petroleum consumption goals²³ will not be met, then a more complex analysis of the Plan's effect on independent entry must be made. Three aspects must be considered: 1) the indirect effects upon entry of the Plan's provisions; 2) the indirect effects upon entry from the repeal or replacement of existing provisions, primarily FEA programs; and 3) the barriers to entry existing independent of any government program. The first two are discussed in more detail below. The barriers to entry into refining independent of this Plan have been frequently discussed in Congressional hearings over the last several years and will not be further discussed here.

1. Direct Effects

a. Working Capital Increase

With the rise in crude oil and product prices, the amount of working capital required for inventory increases. For a refinery of efficient size (200,000 b/d) using foreign crude oil, a minimum 14 day crude oil inventory and a minimum 7 day product supply are constant volumes permanently requiring working capital. A hypothetical crude oil and product price rise of \$2.75 envisioned by the program will increase the working capital required by a minimum of \$11.5 million. Thus, the capital requirements are increased for new entry.

b. Margin Squeeze

A second direct effect of the program, whose magnitude is speculative at this time, is the short-run decline in refining margins which would probably result from the imposition of the Crude Oil Equalization Tax. The imposition of the tax will raise the refiner's effective cost of crude oil. Yet the refiner may not be able to pass through completely that price rise to the ultimate consumer.

A margin squeeze, discouraging additional entry, would then develop. Such a margin squeeze for grass-roots refinery entrants is said to exist today under the present regulations, despite large refining margins. FEA has estimated that a major oil company refinery would fall \$0.74/bbl short of achieving a 15 percent DCF rate of return based on near-term refinery economics²⁴. Whether or not the effect of the present government regulations is included. If the present set of government regulations were presumed to be inapplicable, a large independent's margin would show a net operating loss of \$1.01/bbl and a small refiner a loss of \$2.78/bbl. If the advantage of the present set of government regulations is included, a large independent continues to show a loss of \$0.97/bbl and the small refiner shows a loss of \$0.30/bbl if he produces gasoline and a net operating gain of \$0.13/bbl if he produces naphtha for petrochemical feedstocks.

An FEA contractor, noting that no major oil company or large independent refineries have started construction over the past two years, concluded that until refinery margins increased significant expansion of domestic refining capacity seemed unlikely.²⁵ It seems probably that a further depression in refinery margins will take place if a substantial crude oil price increase as proposed in the Plan is implemented. Thus this aspect of the Plan will discourage the construction of new capacity for some undefined term.

2. Indirect Effects

The indirect effects of the Plan in making more difficult new entry occur because of the Plan's superseding of existing Federal programs. The primary program encouraging refinery construction is the small refiner bias of the Entitlements Program.

The small refiner bias may have the effect of lowering the barriers to entry for refiners, allowing these entrants to build at suboptimal capacities and expand

²³ *Energy Plan Report, supra*, at 95.

²⁴ *FEA Report to Congress, supra*, at 40. FEA's contractor who prepared the study felt that 15 percent discounted cash flow rate of return would be the minimum required by companies considering facilities of this type.

²⁵ *Id.*, Appendix at 8.

to optimal sizes. We have not studied the entitlements bias to verify this impact but feel that if it is present its loss may make less likely future industry deconcentration. In any event, programs to encourage efficient-sized independent entry should be explored.

A second indirect effect of the Plan could be a tendency on the part of entrants to discount the longevity of any government program designed to encourage entry. For example, elimination of the entitlements bias could lead to the demise of refiners who entered in reliance upon its continuation. If government programs change frequently, future entrants could be deterred by the resulting uncertainty.

I hope that the foregoing comments will enable you and your subcommittee to explore in greater depth the complex but important question of the impact of the President's Plan on the domestic refining industry. Because of the limited amount of time which we have had to analyze the Plan and because some aspects of the Plan are unclear or ambiguous, I may wish to supplement the views expressed herein with further comments.

Very truly yours,

ALFRED F. DOUGHERTY, JR.,
Director, Bureau of Competition.

Senator DOLE. Now, I think you have touched on one area that has caused some concern about some abuses of the program. There have been stories in reference to a refiner in Montana and possibly Hawaii, where there was a great deal of profit made. Has that been corrected by the FEA?

Mr. HELYER. Senator, I would like to comment on that. We did mention in there the two things that had occurred and the two most common attacks against the small refiner are the level of the bias and the abuses. The principal abuse that we see reference to most times occurred as a result of a gray area in the FEA regulations. We covered this in depth in our statement, but just to make it short there was a gray area in the regulations which did allow processing agreements from a small refiner to a larger refiner where the entitlements credits went to the smaller refiner. The FEA looked at this matter, reviewed it, studied it, suggested a proposed change and every one of the associations at this table suggested and supported the FEA in removing that abuse. Those abuses have been removed from the program.

Senator DOLE. Are you satisfied that there are no abuses in the program now?

Mr. HELYER. As far as the processing type of arrangements, we are satisfied that those have been removed. Now, as far as other abuses, we don't really see that there are other abuses in the program.

Mr. WINKLER. Senator, they may come out of the study that is to be conducted by the FEA a different idea on the amount of entitlements to various refineries between zero and 10 and 10 and 30 and so forth. I don't believe as the Association that we could comment on that one way or the other, but we feel that it is.

Senator DOLE. You have touched on one of the big criticisms and objections of extending the program. Hopefully the gross abuses have been taken care of. Considering the fact that everybody wants to take advantage of the bias program, is it going to bring about a proliferation of small refineries springing up all over the country?

Mr. HELYER. Senator, I would like to comment on that as far as whether the bias actually brings about a proliferation and increased small refineries. There has been a lot of comment on this, there were a number of companies that popped up to take advantage of the processing-type agreements, but I would say that the level of the

bias is a thing that is constantly subject to change by the FEA and any company which would come into existence based on any particular level of bias knows that the level could be changed at any time.

Senator DOLE. Do you continue that authority in your proposed amendment?

Mr. HELYER. We would certainly continue that so I would think it would be very risky on the part of someone to start a new refinery strictly on the basis of the bias levels and knows that those bias levels could be totally removed and they could be changed at any time.

Mr. WINKLER. I would say the abuses so far on this level have been primarily ones, if you can call them abuses, of refiners that have been shut down, that have been purchased and started up again based primarily on the bias level. However, to build a refinery, say, along the size of 40,000 barrels a day where you are going to go out and risk \$120 million in capital, certainly you are not going to make that investment today based on Government programs such as the bias.

Senator DOLE. For the record, what protection is included in the bill passed by the House?

Mr. HELYER. Senator, we have absolutely no protection in the bill passed by the House. All we have from the House of Representatives is a study of the problem. They have set up in the bill that there would be a study conducted to be completed within 90 days with recommendations back to the Congress and this is what totally scares us because, after the law is passed, if it is passed, with the crude oil equalization tax in it, they could study it and then recommend changes to the Congress, but in the meantime if we are starting next year we lose 30 percent of the protection we get from the bias right now and we would not get any further protection through the law until the Congress acts next year, and that could take quite a while.

Senator DOLE. In what position would you be in the meantime?

Mr. HELYER. We would lose 30 percent approximately of the small refiner bias that we have right now starting January 1.

Senator DOLE. I understand your strong support and the amendment. The point is that unless something is done by the Senate and then you have nothing to negotiate in the conference except the 1-year study and without either the bias or the offset or some tax credit, you would suggest that it would be difficult for you to compete. Is that correct?

Mr. Wood. Senator, could I make a comment. Behind the APRA's testimony as filed is a financial analysis of some 18 small refineries, that were members of the association at the time. While 11 of those 18 refineries are under 10,000 barrels a day, in every case all of these small refiners were in a loss position without the small refiner bias. The most profitable group had a rate of return slightly less than that for all U.S. manufacturing with the bias and all benefits provided under Federal programs, and it is very obvious that if the bias was removed without something to take its place that all of these small refiners would go out of business. I think they are generally typical of small refiners across the country ranging in capacity from 2,000 to 36,500 barrels a day.

Senator DOLE. The first witness this morning Mr. Boswell testified that he started his project based on what he thought the law would be for the next 3 years. I assume there are others in that category.

Mr. MATSON. That is one of the problems we receive, Mr. Dole, is that the lessening of the bias of any other form of entitlements program would probably seriously diminish efforts to provide what some people believe to be very much needed in refinery expansion. I think I mentioned earlier that it is a matter of sound finding in my own company and there are others in the California area that have plans, but these plans could be seriously affected by a lessening of the entitlements program.

Mr. HELYER. Senator, even more important along those lines with the Alaskan North Slope coming on, most of the small refiners cannot protest this. Many of these companies have expansion plans underway in the planning stages and some in the permit stages to modify, as President Carter mentioned, to retrofit those refineries to process the North Slope crudes and, as indicated in the letter from Sound Refinery, they would have to abandon their plans in the State of Washington to modify the refinery if they either lost the bias or were put into a period of uncertainty as a result of this study which could drag on for a year or more.

Mr. WOOD. Senator, could I make one comment relative to your remarks a while ago on the proliferation of small refineries which ties into the Alaskan problem and sour crude problem. I think you will find that the circumstances in which we are moving into in the future in a way of domestic crude supply is going to just by natural forces inhibit the construction of these small sweet crude type refineries. The FEA's programs that are not in place and have just been made effective recently pretty well limit access to any sort of Federal help as far as gaining access to the domestic crude supplies to new refiners.

Consequently, if these new refiners are going to go into the marketplace to buy crude oil, chances are they are going to have to turn to sour crude in order to get a supply. If they do turn to sour crude, you will find very few—5,000 or 10,000 barrels a day refineries constructed. The cost of handling the sour crude and the cost of desulfurization facilities in order to make marketable products to meet the environmental requirements simply prohibits the construction of refineries in those lower capacity ranges. I think the natural market forces that are now at work will largely tend to redirect the emphasis toward sour crude processing and toward larger economies.

The CHAIRMAN. Thank you very much, gentlemen.

Senator PACKWOOD. No questions.

The CHAIRMAN. Thank you very much, gentlemen.

[The prepared statements of the preceding panel follow. Oral testimony continues on p. 1202.]

STATEMENT OF FRANK WOOD, JR., CHAIRMAN OF THE BOARD, AMERICAN PETROLEUM REFINERS ASSOCIATION

I am Frank Wood, Jr., Chairman of the Board of the American Petroleum Refiners Association and President of Pride Refining, Inc. Our Association represents small refiners where small means having a capacity of 50,000 barrels per day (b/d) or less. We currently have 61 members with a total capacity of 762,480 b/d and an average capacity of 12,500 b/d.

As the Committee well knows, the crude oil equalization tax (COET) impacts more adversely on small refiners than on their crude sufficient large refiner competitors. The COET phases out the entitlements program and the small refiner bias, thereby eliminating the crude cost offset so vital to the economic viability of the small refiner.

It is imperative that a crude cost offset be provided under the COET so as to insure the survival of the small refiner and thereby provide for the continuation of a competitive refining industry—such competition is clearly in the national interest and in the interest of the consumer himself who will benefit from lower product prices at both the wholesale and retail levels.

In the interest of time, I shall highlight as briefly as possible some of the critical reasons why the continuation of current crude cost offsets is vital; additional reasons will be presented by the representatives of the other two refining Associations. Further, the exhibits furnished with our testimonies provide a more detailed rationale for the continuation of a crude cost offset program.

1. *A viable small, independent refining industry benefits consumers and serves national interests.* Continuation of essential crude cost offsets such as the small refiner bias would benefit consumers and serve the nation as follows:

a. *Lower product prices.*—According to the Senate Select Committee on Small Business (Fourteenth Annual Report, p. 74, underlining supplied): "The independent refiner is thus the mainspring of competition within the oil industry. His presence not only has economic benefit to individual consumers in their private capacities, but also has indirect public benefit to them as taxpaying citizens, by assuring a competitive market for the Federal Government in its vast annual purchases of petroleum products."

Thus, in providing the catalyst for a competitive market, small refiners have traditionally sold at prices ranging from 1 cent to 3 cents lower than the majors.

The current small refiner bias is treated as a reduction in crude costs and serves directly to reduce the lawful ceiling price of gasoline.

b. *The configuration of most small refiners is such that the products they produce are the products that will best serve our national interest in the future.*—The recent FEA report to Congress¹ comparing refineries of 15,000, 150,000 and 250,000 barrels per day capacity chose the same basic configuration as most small refineries for its study and noted on page 39: "The facilities are all designed to produce relatively large yields of distillate and residual fuels and relatively smaller yields of gasoline, corresponding to most forecasters' predictions of the future petroleum products demand growth."

The same report notes on pages 11 and 12 that: "U.S. refineries are unique when compared with other refineries of the world by virtue of their complexity and high gasoline yield, having the capability of converting almost half of the crude oil barrel into motor gasoline. This compares with *historic averages in Europe of only a 15 percent gasoline yield and in the case of the Caribbean of only a 10 percent yield.* Such high yields result not only from the large number of motor vehicles, but an emphasis on imports of residual fuel oil into the high demand U.S. East Coast area. U.S. refiners, unable to compete with residual fuel oil made from cheap foreign crude, designed their refineries to "destroy" the residual fraction of the barrel and to crack it into more valuable light products, primarily gasoline. To illustrate the effect of this situation, the yield of residual fuel oil in U.S. refineries dropped to as low as 6.6 per cent in 1971. Now that foreign crude oil is more expensive than domestic crude, this situation is gradually reversing itself. *In 1976, for the first time in 12 years, U.S. refiners manufactured more residual fuel oil than was imported.*" (Emphasis added.)

Small refiners generally process sweet crude oil and produce a range of low sulphur fuel products. While there are additional economics to be derived by larger refineries of the same configuration, the larger refineries generally have additional processing units and therefore additional costs. The large refineries are typically located on water to facilitate both the receipt of crude oil and movement of products. The small refiner, who is typically located inland, can thus serve his market more efficiently and at lower cost than most large refiners could serve the same markets with the same products. It makes more sense to process sweet crude in a small inland refinery and produce low sulphur fuels for area industry than to transport the sweet crude to an integrated refinery producing

¹ Impact of Mandatory Petroleum Allocation, Price and Other Regulations of the Profitability, Competitive Viability, and Ease of Entry of Independent Refiners and Small Refiners, March 1977, Federal Energy Administration.

predominantly gasoline and transporting low sulphur fuels back to the small refiner's area.

Small refiners will be required to furnish low sulphur fuels to their area industry as gas supplies decline or are diverted to higher priority use. As this occurs, the small refiner will be supplying a greater national need than if he were oriented toward the production of gasoline, the use of which we are trying to discourage.

The crude cost offset provided by the small refiner bias is necessary to equalize the small refiner's crude cost with the majors and to permit him to remain a viable supplier of products in his area.

c. *Small refiners provide a proportionately high volume of military jet fuel.*—According to FEA ("Preliminary Findings and Views Concerning the Exemption of Naphtha Jet Fuel the Mandatory Allocation and Price Regulations," August 13, 1976), small refiners provided to the Department of Defense a proportionately much greater volume of military jet fuel. Small refiners as a whole provided 37.9% of the total supply in 1975, despite the fact that they represent only 18% of U.S. refining capacity. Further, refiners of 50,000 b/d and less provided 21% of the total supply in 1974 although they represent only about 8% of total U.S. capacity.

2. *Continuation of a crude cost offset is a matter of economic life or death.* Exhibit I shows the effect of the small refiner bias on a total of eighteen small refiners with capacities from 2,000 to 36,500 b/d, summarized in five different groupings. In each case, there was a profit with the small refiner bias; without it there would have been a loss. Even with the small refiner bias, the group with the best profits is still below the profitability of the U.S. manufacturing industry as a whole.

3. *The benefits of the entitlement program and the small refiner bias were intended to equalize the small refiner's crude cost with other refiners and to compensate for the majors' advantages due to their size and integrated structure.* Based on June entitlement data, the present entitlement and small refiner bias benefits do little more than equalize the small refiner's crude cost with the major.

It does not offset the disadvantages of the small refiner compared to the major. According to the FEA report to Congress previously referenced, a 15,000 b/d small refiner is at a \$2.04 per barrel disadvantage to a major of the same configuration and processing the same crude oil. Since the major generally has a different configuration from a small refiner and processes sour crude, the major's advantage is reduced to \$1.06 over the small refiner processing sweet crude and making gasoline. FEA also states that 96% (\$1.44 out of \$1.50) of the 15,000 b/d refiner's benefits under *all* Federal programs is derived from the small refiner bias. It is obvious that a crude cost offset similar to the small refiner bias must be provided under the COET if small refiners are to survive.

Data from FEA Form P-102-M-1 (Exhibit II) for the months of May and June, 1977, show the following:

Refiner and month.....	Entitlements (barrels)		Pre- and post-entitlement crude costs	
	Small refiner bias	Exceptions and appeals	Pre-	Post-
Small, May.....	8,522,712	2,687,590	\$12.31	\$11.47
Small, June.....	5,964,176	3,291,219	12.28	11.24
Major, May.....	NA	NA	11.52	11.98
Major, June.....	NA	NA	11.37	11.89

The months of May and June are used for comparison because May is the last month in which processing agreements earned entitlements and June is the most recent month for which data are available.

A first glance at the data would indicate that in June small refiners enjoyed a crude cost advantage over the majors of 65 cents per barrel (11.89-11.24), or approximately 1.5 cents per gallon. However, this number includes as a deduction against crude cost the entitlements received by some small refiners (26) for exceptions and appeals relief. This exceptions and appeals relief is equal to 55% of the total small refiner bias entitlements or the equivalent of a 27 cent per barrel deduction from the small refiner crude cost. This relief, provided to specific small

refiners for specific reasons, should not be considered a deduction against the crude cost of all small refiners. Thus, adding back the 27 cents reduces the small refiner advantage to only 38 cents per barrel, or less than one cent per gallon.

There is a further correction in the small refiner June crude cost which must be made to avoid an erroneous conclusion:

a. With the elimination of processing agreements under the entitlements program effective June 1, 1977, small refiner bias entitlements dropped by 2,558,536 barrels, or by approximately one-third of the May small refiner bias.

b. Pre-entitlement crude cost in June was only 3 cents per barrel less than in May, and total small refiner crude oil receipts were almost the same for both months (106,042,457 in May and 106,352,962 in June).

c. Since the decrease in the small refiner bias benefit in June is equivalent to approximately 21 cents per barrel ($2,558,536 \times 8.65$ divided by 106,352,962) and since total crude oil receipts and preentitlement crude costs for the two months are approximately the same, it would be expected that small refiners would have a higher post entitlements crude cost in June than in May because of the loss of benefit in small refiner bias entitlements.

d. To the contrary, FEA data show that the small refiner post-entitlement crude cost has declined from 11.47 in May to 11.24 in June.

e. Since entitlements for old oil are based on receipts while entitlements earned are based on runs to stills, there must have been a change in small refiner crude oil inventories between May and June. Although small refiner inventories data are not available, separation of the entitlement benefits into its various components permits the inventory effect to be calculated. As expected, the adjustment to June crude cost as a result of small refiners processing more crude oil than purchased in June is approximately 21 cents per barrel. The crude oil purchased in prior months and processed in June earned entitlements that made the June cost appear lower than actual. We are not implying that the FEA data are in error, but that the presentation of the data leads to an erroneous conception of the small refiner's crude cost. The inventory fluctuations will average out over a period of months but must be taken into consideration when looking at a specific period.

f. In the past, most small refiners did not benefit from Special Rule No. 6 nor did they benefit from receipt of entitlements earned by processing crude oil in larger refineries.

g. Today most small refiners do not benefit from extra entitlements granted under exceptions and appeals relief.

h. We believe, therefore, that the elimination of these special circumstances from small refiner crude cost calculations will present a truer picture of our crude costs—the crude costs we actually see at our refineries. Thus, while FEA shows the small refiner class to have an average post-entitlement crude oil cost in June of \$11.24 per barrel, the cost was actually \$11.72 (11.24+.27+.21) or only 5 cents below the average cost for all refiners and 17 cents less than the cost of the majors.

i. While I refer to the major "cost" as used by FEA, it should be remembered that their cost is actually a transfer "price" and includes profits on crude oil production and transportation. Small refiners must purchase their crude from producers and the purchase price is a true measure of cost.

j. Thus, the small refiner actual entitlement adjusted crude cost does not begin to compensate the small refiner for his disadvantages relative to a major, as was intended by the small refiner bias.

4. *The current offset is needed because majors create an artificial price structure by operating refining and marketing at or below cost.* Historically, major oil companies have not treated their refineries as profit centers but rather as channels of distribution for petroleum products. These companies have looked to their crude production for the necessary profits to affect the overall desired return on their profits. The subsidization of refining by production, and the operation of refineries at marginal or break-even levels have been adequately demonstrated in testimony by the majors themselves² and in the findings of the Federal Trade Commission's Bureau of Competition (letter to Senator Kennedy, June 30, 1977).

² Testimony of Sun Oil Company, Continental Oil Company, and Exxon in the FEA hearings in February, 1976, on the reevaluation of FEA's price and allocation controls.

SUMMARY

We do not advocate that any segment of the refining industry, including our own, receive excessive or unwarranted benefits. We do not advocate legislation or regulation so written as to provide any refiner with a sufficient economic incentive to enter or operate his business in a manner contrary to the intent of the legislation or regulation or contrary to the national interest. The program of crude cost offsets provided by the small refiner bias today does not provide excessive benefits to most small refiners. In fact, for many small refiners it does not even provide the offset to crude oil cost originally intended. Therefore, we strongly urge that the Congress:

1. Maintain the value of an entitlement in the small refiner program by providing a tax credit or refund to the extent that the value would be reduced by COET;
2. Continue the existing DOE authority to propose changes in the number of entitlements small refiners of various sizes receive; and
3. Mandate a one-year DOE study and legislative recommendations for insuring the continued competitive viability of small refiners.

EXHIBIT I

EFFECT OF SMALL REFINER BIAS—SUMMARY OF 12 CALENDAR MONTHS¹

[In thousands]

	With small refiner bias	Without small refiner bias
11 refiners processing 10,000 bbl/d and under:		
Sales.....	284,234	284,234
Cost of sales.....	245,400	279,024
Gross profit.....	38,834	5,210
Other operating expenses.....	17,911	17,911
Net income (loss) from operations.....	20,923	(12,701)
Other income.....	820	820
Net income (loss) before Federal income tax.....	21,743	(11,881)
Federal income tax.....	10,437	
Net income (loss).....	11,306	(11,881)
Related statistics:		
Total stockholders' equity or partners' capital employed in refining operations.....		46,585
Total assets employed in refining operations.....		110,517
Working capital employed in refining operations.....		38,262
Total small refiner's bias received.....		33,624
Total runs to still for period covered.....		21,145
Average runs to still (barrels per day per company).....		5,267
Small refiner's bias received per barrel run to still.....		\$1.59
Return (loss) on assets employed:		
With small refiner's bias (percent).....		10
Without small refiner's bias (percent).....		(11)
7 refiners processing over 10,000 bbl/d:		
Sales.....	618,636	618,636
Cost of sales.....	558,995	597,948
Gross profit.....	59,641	20,688
Other operating expenses.....	18,180	18,180
Net income (loss) from operations.....	41,461	2,508
Other income (expense).....	(3,032)	(3,032)
Net income (loss) before Federal income tax.....	38,429	(524)
Federal income tax.....	18,446	
Net income (loss).....	19,983	(524)
Related statistics:		
Total stockholders' equity or partners' capital employed in refining operations (in 1,000).....		130,603
Total assets employed in refining operations (in 1,000).....		263,975
Working capital employed in refining operations (in 1,000).....		20,788
Total small refiner's bias received (in 1,000).....		38,953
Total runs to still for period covered (in 1,000).....		52,908
Average runs to still (barrels per day per company).....		20,708
Small refiner's bias received per barrel run to still.....		\$0.74
Return (loss) on assets employed:		
With small refiner's bias (percent).....		8
Without small refiner's bias (percent).....		(0.2)

EXHIBIT I—Continued

EFFECT OF SMALL REFINER BIAS—SUMMARY OF 12 CALENDAR MONTHS¹

[In thousands]

	With small refiner bias	Without small refiner bias
15 refiners processing 20,000 bbl/d and under:		
Sales.....	541, 264	541, 264
Cost of sales.....	471, 191	526, 541
Gross profit.....	70, 073	14, 723
Other operating expenses.....	27, 455	27, 455
Net income (loss) from operations.....	42, 618	(12, 732)
Other income.....	763	763
Net income (loss) before Federal income tax.....	43, 381	(11, 969)
Federal income tax.....	20, 823	
Net income (loss).....	22, 558	(11, 969)
Related statistics:		
Total stockholders' equity or partners' capital employed in refining operations (in 1,000).....		89, 418
Total assets employed in refining operations (in 1,000).....		206, 344
Working capital employed in refining operations (in 1,000).....		47, 568
Total small refiner's bias received (in 1,000).....		55, 350
Total runs to still for period covered (in 1,000).....		48, 163
Average runs to still (barrels per day per company).....		8, 797
Small refiner's bias received per barrel run to still.....		\$1. 15
Return (loss) on assets employed:		
With small refiner's bias (percent).....		11
Without small refiner's bias (percent).....		(6)
3 refiners processing over 20,000 bbl/d:		
Sales.....	361, 606	361, 606
Cost of sales.....	333, 204	350, 431
Gross profit.....	28, 402	11, 175
Other operating expenses.....	8, 636	8, 636
Net income (loss) from operations.....	19, 766	2, 539
Other income (expense).....	(2, 975)	(2, 975)
Net income (loss) before Federal income tax.....	16, 791	(436)
Federal income tax.....	8, 060	
Net income (loss).....	8, 731	(436)
Related statistics:		
Total stockholders' equity or partners' capital employed in refining operations.....		87, 770
Total assets employed in refining operations.....		168, 148
Working capital employed in refining operations.....		11, 482
Total small refiner's bias received.....		17, 227
Total runs to still for period covered.....		25, 890
Average runs to still (barrels per day per company).....		23, 644
Small refiner's bias received per barrel run to still.....		\$0. 67
Return (loss) on assets employed:		
With small refiner's bias.....		5
Without small refiner's bias.....		0
18 refiners processing from 2,000 to 36,500 bbl/d:		
Sales.....	902, 870	902, 870
Cost of sales.....	804, 395	876, 972
Gross profit.....	98, 475	25, 898
Other operating expenses.....	36, 091	36, 091
Net income (loss) from operations.....	63, 284	(10, 193)
Other income (expense).....	(2, 212)	(2, 212)
Net income (loss) before Federal income tax.....	60, 172	(12, 405)
Federal income tax.....	28, 883	
Net income (loss).....	31, 289	(12, 405)
Related statistics:		
Total stockholders' equity or partners' capital employed in refining operations.....		177, 188
Total assets employed in refining operations.....		374, 492
Working capital employed in refining operations.....		59, 050
Total small refiner's bias received.....		72, 577
Total runs to still for period covered.....		74, 053
Average runs to still (barrels per day per company).....		11, 071
Small refiner's bias received per barrel run to still.....		\$0. 98
Return (loss) on assets employed:		
With small refiner's bias.....		8
Without small refiner's bias.....		(3)

¹ 1976 or the nearest 12 mo., depending on individual company fiscal year, for which data were available.

STATEMENT OF RICHARD W. MATSON, SENIOR VICE PRESIDENT, MACMILLAN RING-FREE OIL CO., AND JOSEPH A. HELYER, VICE PRESIDENT, GENERAL COUNSEL, INDEPENDENT REFINERS ASSOCIATION OF CALIFORNIA

Mr. Chairman, the Independent Refiners Association of California, (IRAC) is comprised of virtually all small and independent refiners operating on the West Coast of the United States, principally in California. Most range in capacity from approximately 2,500 barrels per day to 50,000 barrels per day. Some of these refiners process foreign crude oil, while other process domestic crude or a mixture of the two. The product yield of the refiners includes a full range of refined petroleum products for some companies, while others are principally fuel oil or asphalt refiners. All IRAC member companies are considered small or independent refiners under the definitions contained in the EPAA (P.L. 93-159). Many are small business refiners as defined under SBA regulations. Our members are an important factor in providing petroleum products to the independent marketers, agricultural and other rural consumers, the Department of Defense, and the consumers throughout the western states. We are greatly concerned about the Crude Oil Equalization Tax provisions in the National Energy Act legislation now pending before your committee, and appreciate the opportunity to express our views today.

THE CRUDE OIL EQUALIZATION TAX AND SMALL REFINERIES

The Crude Oil Equalization Tax (COET) provision of HR-8444 presents an extremely serious threat to the competitive viability of small refiners throughout the country. The COET, as passed by the House of Representatives, virtually ignores the competitive position of small refiners in the structure of the petroleum industry and actually would, if enacted, hasten the demise of many of these small companies.

The COET impacts much more severely on small refiners than their competitors, the major oil companies. The tax phases out the entitlements program, and thus phases out the crude offset of that program known as the small refiner bias, with no replacement provision. The loss of the small refiner crude oil offset provided by the bias will rapidly diminish the competitive position of small refiners by more swiftly increasing their crude oil costs compared to the majors. This larger increase will occur since the offset provided by the bias will diminish by one-third next year, and will be phased out by the third year of the tax.

The reduction of the bias protection occurs not as a result of a reduction of the number of entitlements, but rather, results from the substantial lessening of the value of an entitlement. Whereas the current value of an entitlement is about \$8.77 (July entitlements list), the COET will next year reduce this value to about \$6.21, a 30% reduction.

Thus, while all refiners would be affected by the tax, only small refiners will face an additional crude cost increase. During the first year of the phase-in of the COET, the small refining industry will be faced with a staggering additional crude oil acquisition cost of approximately \$318 million. Compounding this extra burden and hitting the small companies even harder is the concept of the Administration that the refining industry will not be able to pass through all of the increases brought about the COET, but will have to absorb about one-third of the increase. While the majors, with their dominant market position, may well be able to absorb these costs, the small refiner will not be able to stand this double punch and will find their ability to remain competitive seriously eroded.

LOSS OF BIAS ESPECIALLY CRITICAL FOR WESTERN SMALL REFINERS

Obviously, such a substantial increase in the crude acquisition costs for small refiners will cripple our competitiveness. But the adverse impact is even greater for western small refiners because the West Coast refiner is faced with rapidly changing crude oil sources and nature of supply with the movement of Alaskan North Slope (ANS) crude oil. The Administration has clearly recognized the need for substantial refinery modifications to "retrofit" existing refineries to allow them to process high sulfur heavy crude oils into environmentally acceptable petroleum products. Most small refiners on the West Coast cannot now process ANS crude oils and must make extensive modifications to be able to do so.

If the small refiners are legislated into an economic straight jacket wherein their current operations are rendered uneconomic, there is little likelihood of obtaining the necessary capital from lending institutions to retrofit their facilities to process the ANS crude.

This problem is clearly illustrated by a small western company, Sound Refining in Washington State. Sound Refining informed its Senator that if the COET is not modified to provide a crude oil cost offset similar to the current bias, this refiner will be unable to proceed with the planned modification of its facilities to process North Slope crude oil. (See Appendix I)

A similar situation faces most small refiners on the West Coast. Any plans for expansion or modification hinge on a continued economic operation sufficient to gain the confidence of lending institutions to provide the needed capital. The unwarranted and hasty removal of the crude cost offset now provided in the entitlements program would be a blow that many of these companies could not withstand.

THE ABUSES OF THE BIAS AND THE LEVELS OF THE BIAS

The small refiner bias provision of the entitlements program has been strongly attacked by the major oil companies and others as providing excessive levels of benefits to small companies, as well as being a program frequently abused.

Level of bias

At this point, it should be clearly noted that the levels of the bias are established by the Federal Energy Administration, not small refiners, after considerable study, proposed rule-making, public hearings and public comments. The levels currently in effect were put into place just last year when the FEA modified its original program.

On May 18, 1976, the date of the most recent bias level proposed adjustment, the FEA made the following comments about the necessary level of the small refiner bias:

"FEA's analysis of this issue indicates that an increase in the small refiner bias in conjunction with the revocation of Special Rule No. 6 has greater merit than any other alternative course of action available to the Agency as to the overall status of small refiners under the entitlements program. This approach both eliminates any special treatment afforded to small refiner entitlement purchasers and comports more fully with the general concern as to the competitive viability of small refiners expressed throughout the EPAA and EPCA.

"FEA initially adopted the small refiner bias after a significant amount of analysis and public comment on the issue when the entitlements program was instituted in late 1974. At that time FEA determined that the historical preference granted to small refiners under the oil import program as in effect in 1972 was sufficient to preserve the competitive viability of this class. However, over the first year in which the program was in effect FEA received substantial evidence that the amount of the bias may in fact not be adequate for its intended purpose. For example, a large number of small refiners have been forced to seek exception relief since, for these firms, bias amounts were not sufficient to enable them to compete effectively or even in certain cases to maintain their financial viability. Due to the more restrictive exception standards for entitlement sellers as opposed to entitlement purchasers, FEA has received numerous indications that many small refiner entitlement sellers are also in need of additional bias amounts to remain competitive and financially viable. Many operating and other costs for these firms have increased since 1972, and thus the bias amounts may not be representative of the current competitive disadvantages of this class and the industry may have generally become more competitive due to increased consumer sensitivity to the higher prices.

In addition, FEA is basing its determination to increase the small refiner bias to a significant extent on the Congressional concern for small refiners expressed generally, both in sections 403 and 455 of the EPCA and in the legislative history connected with the passage of the EPCA." (Emphasis supplied)

Quite clearly, FEA believed the levels of the bias were equitable. These are the levels now in effect. We believe any allegations of excessive levels are unfounded major oil company rhetoric, playing games with numbers, graphs and charts, in their attempt to weaken the competitive position of small refiners.

The FEA had the authority to modify the bias if any excessive levels existed, and they now have the authority to propose a change if such change is warranted. However, rather than proposing such a change, the FEA has only recently con-

tracted for a study to be done of the small refiner bias. Quite clearly, the FEA is not convinced that the levels are excessive, otherwise a proposed rule-making suggesting such a change would have been long since published.

Abuses of the program

Over the last few years, the FEA has administered one of the most complex set of regulations in the Federal bureaucracy. This complexity has often allowed grey areas in the regulation to exist. One of these grey areas was a provision which allowed a refiner to have crude oil processed by another refinery, usually a larger company, with crude runs accruing to the smaller company for entitlements purposes.

Crude oil processing agreements have long been a normal aspect of doing business in the petroleum industry for various reasons. The entitlements program, however, brought about an abnormal result. A small company could utilize the facilities of a larger refiner and have crude oil processed which generated small refiner bias entitlements. The FEA analyzed the results of these arrangements and determined that they were contrary to the intent and purposes of the bias and proposed a modification of the regulations to eliminate the abnormality.

The small refining industry supported the FEA in its proposed modification. In comments filed on March 11, 1977, the Independent Refiners Association of California made the following statement:

"The IRAC wishes to emphasize the following points:

"(1) The small refiner bias program, at the minimum of its current levels, is critical to small refiners.

"(2) The IRAC supports the FEA's proposal to eliminate bias entitlements for processing agreements which are clearly abuses of and distortions of the principles and purposes of the small refiner bias program . . ."

Similar sentiments were voiced by other small and independent refiners and their associations and the program was modified by the FEA.

The so-called "abuses" therefore, grew out of the complexity of the regulations which allowed companies to legally follow a course of action which was later determined to be contrary to the intent and purposes of the program.

Thus, the concern with abuses and bias levels must be seen in this perspective. The bottom line is simply that the levels of the bias were established by the FEA after considerable study and the so-called "abuses" which grew out of the complex regulations have been eliminated, with the support of the small refining industry. Clearly, these matters should not be allowed to distort the issues pending before the Congress in the Crude Oil Equalization Tax.

NEED FOR CRUDE OIL COST OFFSET IN THE CRUDE OIL EQUALIZATION TAX

The Crude Oil Equalization Tax of the proposed National Energy Act legislation poses a serious threat to the small refining industry because it omits a provision recognizing the differing competitive abilities existing between the fully integrated major oil companies and their competitors, the small refining industry. The omission is shown by the COET failure to include a crude oil cost offset provision for the smaller companies.

Since the 1950's the Federal Government has recognized the need for and provided programs which established such offsets. The oil import program for many years included a sliding scale provision in the allocation of oil import licenses which had the desired effect for smaller refiners.

Today's entitlements program, with its small refiner bias provision, is merely an extension of the Federal Government's recognition of the need to protect the smaller refiners' competitive viability. These programs have been designed to offset the inherent advantage possessed by major refiners, with their own crude oil production, which refiners can use those production profits to subsidize its refining and marketing operations. On the other hand, small refiners do not have the integrated operations that would allow this type of subsidization, and therefore without the balancing effect of the various Federal programs during the past 20 years, the small refiner would be a creature of the past.

A complete analysis of the need for crude oil cost offsets and the competitive aspects involved is attached as Appendix II.

The very question of the need for a crude cost offset provision in the COET has been reviewed from a competitive point of view by Federal Trade Commission, Bureau of Competition, in response to an inquiry from Senator Edward M. Kennedy, Chairman of the Judiciary Subcommittee on Antitrust and Monopolies.

The Federal Trade Commission response clearly stated the need for appropriate treatment for small refiners under the COET. At page 13 of the response it was noted:

"If the petroleum industry is and had been historically characterized by workable competition at all its levels, we would not hesitate to say that economic efficiency and public welfare would be enhanced by the elimination of the small refiner bias. But if the ability of independent refiners to enter and become efficient operators is and has been impaired by an existing or historical anticompetitive industry structure, a different public policy toward small refiners may be warranted.

"In our view, which we are pursuing in the *Exxon* litigation, the industry structure is non-competitive and has been for a long time. Independent refiners, if they have had access to crude oil at all, may have had to pay effectively more (without cost justification) than their larger competitors. Through their control over crude supplies and crude and product prices and because of their propensity to use crude profits to subsidize downstream operations, the majors seemingly have been able to make independent refiners the victims of an artificial refinery margin squeeze and to deter entry or expansion by such independents. Government assistance to victimized classes of refiners, in the short run, may be required to offset these anti-competitive problems until the antitrust mechanism can make the industry structure competitive.

"Until a more open crude oil market can be established (by legislation or otherwise) or until the refinery squeeze phenomenon can be eliminated (by vertical divestiture legislation or litigation, publication of major company financial data by functional segments, or some other solution), interim legislative measures to encourage efficient and independent refineries may be warranted. The legislation should be drafted in such a way that grossly inefficient refineries are encouraged to enter at or to grow toward optimum scale. The entitlements bias has been deficient in these respects."

(The complete response of the Federal Trade Commission, Bureau of Competition, is attached as Appendix III.)

UNITED SUPPORT FOR SMALL REFINERS RELIEF

Significantly, the position we present to this committee represents not only the small refiners perspective, but indeed, we have the support of most segments of the Independent Petroleum industry. Both the California Independent Producers Association and the Oil, Chemical, and Atomic Workers Union urge the committee to adopt a small refiner crude cost offset, if there is to be a crude oil equalization tax.

The reason for such united support from normally diverse groups underscores our problem. Without the crude cost offset, the producer knows the small refiners will not have the economic strength to modernize their facilities to process lower grade domestic crude. And without the crude cost offset, the union knows that jobs in the small refiner industry will become jeopardized. (See Appendix IV and V from CIPA and OCAW).

RELIEF SOUGHT BY SMALL REFINERS

The most compelling reason small refiners are seeking a crude oil cost offset provision in the COET is the fact that this legislation contemplates the abandonment of the entitlements program with a shift to a tax system.

If no crude cost offset provision is provided within this new system, the small refining industry will take a giant step towards its extinction while the consumer will lose the competitive pressures of these companies in the marketplace.

In this regard, the IRAC and other small independent refiner associations strongly urge that the COET be amended to provide appropriate tax treatment for small refiners consistent with the current small refiner bias provisions of the crude oil entitlements program. The COET should be amended to include a system of tax credits, refunds, or rebates that would provide offsets to the crude oil cost of small refiners equivalent to the the current programs. Details of these amendments are included in the presentation of the panel members of the three associations representing the vast majority of the small and independent refiners throughout the country.

We seek in this amendment only an extension of 20 years of governmental policy which has balanced the awesome power of the integrated major oil companies with programs which assist smaller companies to remain competitive in this unbalanced marketplace.

THE EFFECT OF THE CRUDE OIL EQUALIZATION TAX ON SOUND REFINING INC., SEATTLE, WASH.

Sound Refining operates a small oil refinery at Tacoma, Washington. The company was acquired in July, 1976, by Kalama Chemical Inc. of Seattle, Washington. Kalama Chemical operates a petrochemical plant at Kalma, Washington, and other chemicals operations elsewhere in the United States, but Sound Refining is Kalama's only oil refining operation.

Sound, together with about 110 other companies, is classified a "small and independent" refiner. As such, Sound operates under various legislative and regulatory programs which serve to offset somewhat the competitive advantages enjoyed by the major, integrated oil companies.

At present, the principle source of this offset is the "small refiner bias" under the entitlements program. The crude oil equalization tax (COET) under consideration in the Congress calls for a phasing out of the entitlements program and with it the small refiner bias.

The effect of such an action on Sound Refining is devastating! The company would be forced to cancel the multi-million dollar expansion project for Alaska North Slope crude oil now being considered. In fact, without the small refiner bias, Sound Refining would be forced to go out of business.

From its inception in 1967 until its acquisition by Kalama in 1976, Sound concentrated on the production of paving asphalt for use within the State of Washington. During this period Sound supplied up to 20% of the paving asphalt consumed in the state. Asphalt from Sound is used by private contractors and by state and county highway agencies.

Since the acquisition by Kalama, Sound has begun a capital-spending program to modify the refinery to allow production of fuel oil. To date the program has been successful and fuel oil now represents over half of Sound's business. Sound markets its fuel oil to local industries, including U.S. flag ships based in the Puget Sound area, and to various foreign flag vessels calling here. Demand for heavy fuel in the state is strong and, as the supply of natural gas from British Columbia becomes more tight and as the price charged by the Canadians increases, we project further increases in demand.

The National Energy Act, as passed by the House and currently being considered by the Senate Finance Committee, contains a provision for a study the Secretary of Energy of the effect of the COET on the competitive viability of the small refiners and requires the Secretary to report his findings together with recommendations for legislation to the Congress within 90 days. We cannot, of course, be certain of the outcome of the study by the Secretary nor can we be certain how quickly the Congress will act on those recommendations.

Unless stronger protection for small refiners is added to the legislation, Sound Refining will suffer severe consequences in two ways. First, the "bias" would be reduced by about 30% at January 1, 1978, and our projection is that this action alone would cause Sound's margin to fall well below levels satisfactory for continued operations. Second, the expansion to accommodate North Slope crude oil will be indefinitely postponed because of the uncertainty of when and how the Congress might act on future recommendations. Such a postponement, in light of rising costs for capital equipment, may well force complete cancellation of the project.

Sound Refining strongly favors modification of the COET provisions by the Senate Finance Committee to provide tax relief for small refiners as a substitute for the small refiner bias as the COET is phased in.

SEPTEMBER 1977.

THE NEED FOR A SMALL REFINER OFFSET AMENDMENT TO REMEDY ANTICOMPETITIVE FEATURES OF THE NATIONAL ENERGY ACT

This memorandum supports the creation of an offset for small refiners against the crude oil equalization tax. Since at least the 1950's, small refiners have received benefits from Federal programs to offset what the Congress has consist-

ently recognized to be anticompetitive structures and practices in the petroleum industry favoring the major integrated oil companies. In 1973, as shortages in domestic oil production developed, these anticompetitive effects intensified, and the enactment of legislation by the Congress became necessary to preserve a degree of competition in the petroleum industry. As Senator Mondale stated during the floor debate on the Emergency Petroleum Allocation Act, "the majors are doing everything in their power to continue the squeeze on independent refiners, wholesalers, and dealers . . . [T]he situation we find ourselves in is one in which the independent segment of the industry is being choked . . . and the major oil companies are reporting record profits." (119 Cong. Rec. 17754-5.)

The small refiner bias, implemented pursuant to this legislation, has permitted efficient small refiners to compete effectively against the integrated majors. This competition has benefited consumers, providing the only force in the marketplace working to prevent oligopoly pricing at the refining level.

Surprisingly, the National Energy Act would deprive small refiners of their benefits under the existing program and, in the words of the Director of the Bureau of Competition of the Federal Trade Commission, would "probably . . . redound to the benefit of vertically integrated majors, . . . [create] advantages [for] large, complex refiners, . . . [deter] domestic *de novo* refining entry and [create] a relative advantage to foreign refiners." (Letter to Senator Kennedy by Alfred F. Dougherty, Director of the Bureau of Competition of the Federal Trade Commission, July 13, 1977, pp. 1-2.)

Creation of a small refiner offset to the crude oil equalization tax is necessary to preserve competition and provide the benefits of competition to consumers. Failure to provide such an offset would alter the existing competitive balance even farther in favor of the integrated majors; as the balance shifts, consumers will increasingly be subjected to oligopoly control of the refining sector.

1. *Vertical integration of the major oil companies unfairly disadvantages small refiners and consumers and benefits the integrated majors*

Because the same major integrated companies dominate both production and refining, small refiners are forced to buy the bulk of their crude oil supplies from the very companies which are their major competitors as refiners.¹ The major integrated oil companies, on the other hand, obtain most of their crude oil supplies from themselves. This distinction severely disadvantages small refiners. For a small refiner, the full purchase price of crude oil is a real, out of pocket cost; for an integrated major, the "purchase" of crude oil by its refining arm from its producing arm is only a bookkeeping entry, and it keeps for itself the difference between the price paid and the cost of production. As the price of crude oil rises, the integrated majors gain ballooning profits at the production level; but for the small refiner, the only thing that increases is his costs. Earning substantial profits at the production level, the integrated majors subsidize refining operations with production profits: they can afford to earn little or nothing at the refining level with no overall reduction in corporate profits. The small refiner—who has no production and hence earns no production profits—is subjected to a severe price squeeze. The FTC Bureau of Competition aptly summarizes the competitive problem and states why small refiners need legislative relief:

"If the petroleum industry is and had been historically characterized by workable competition at all its levels, we would not hesitate to say that economic efficiency and public welfare would be enhanced by the elimination of the small refiner bias. But if the ability of independent refiners to enter and become efficient operators is and has been impaired by an existing or historical anticompetitive industry structure, a different public policy toward small refiners may be warranted.

"In our view, which we are pursuing in the *Exxon* litigation, the industry structure is noncompetitive and has been for a long time. Independent refiners, if they have had access to crude oil at all, may have had to pay effectively more (without cost justification) than their larger competitors. Through their control over crude supplies and crude and product prices and because of their propensity to use crude profits to subsidize downstream operations, the majors seemingly have been able to make independent refiners the victims of an artificial refinery

¹ Report of the Senate Judiciary Committee on S. 2387, the Petroleum Industry Competition Act of 1976, S. Rep. 94-1005, p. 16 (1976).

margin squeeze and to deter entry or expansion by such independents. Government assistance to victimized classes of refiners, in the short run, may be required to offset these anticompetitive problems until the antitrust mechanism can make the industry structure competitive." (Letter to Senator Kennedy by Alfred Dougherty, Director of the Bureau of Competition of the Federal Trade Commission, July 13, 1977, pp.13-14.)

Competitive problems in the refining sector were examined in depth in the 94th Congress by the Senate Judiciary Committee's Subcommittee on Antitrust and Monopoly, then chaired by Senator Phillip Hart. The Committee Report on the Petroleum Industry Competition Act of 1976, the vertical divestiture bill reported by the Committee but never voted on by the Senate, states: ". . . in an industry where only some firms are integrated, security of supply for the integrated firms is had only at the expense of nonintegrated firms. . . . To the extent the risks are reduced for the integrated firm, they are proportionately increased for nonintegrated firms. In time of shortage, for example, the major integrated firm is able to shift the whole burden of the shortage onto the independent sector. This, of course, is exactly what happened during the shortage that began in the summer of 1973 and continued during the period following the Arab embargo. Then it was necessary for the Congress to intervene with the Emergency Petroleum Allocation Act to save the independent sector from annihilation." (pp. 19-20).

The Report concluded not only that there were serious competitive problems at the refining level as a result of the majors' dominance in production, but that "the most serious problems in the petroleum industry are related to the absence of a vigorous and reliable market for crude oil between the producing and refining market for crude oil between the producing and refining levels in the industry . . . To a great extent, the control over crude supply is control over refining." (Emphasis added.)

The majors also enjoy advantages over independent refiners as a result of their control over crude oil transportation facilities. The Judiciary Committee Report continues:

"The majors' control of crude and the corresponding absence of a crude market equips the majors with powerful competitive leverage vis-a-vis independent refiners and potential refining entrants. The independent refiner must depend upon the majors for a large part of its crude oil. The nonintegrated refiner typically does not transact business directly with the producer, since oil is sold to a crude gatherer—usually a major owning transportation facilities—at the wellhead. Since crude remains in the hands of the firm which controls the pipeline system through which it moves, the independent refiner is in the difficult position of buying crude from major production companies which also are his principal rivals to obtain crude oil.

"Through their ownership of production, transportation facilities and through the exchange system the major companies are able to keep the bulk of crude oil moving through their integrated channels. This has afforded the majors the security of supply which they regard as the principal benefit of vertical integration. But as was discussed earlier, advantages of this kind can be had only at the expense of other firms. By preventing the development of any extensive free market for crude oil, the major companies have placed the independent refiner at a significant competitive disadvantage."

Furthermore, the majors enjoy competitive advantages as a result of their control over product pipelines utilized to connect refineries with marketing centers. As the Judiciary Committee found,

"Nonintegrated refiners and marketers encounter the same difficulties in trying to ship product on a major-owned line as those encountered by nonintegrated refiners, seeking to use the majors' crude trunklines. High minimum tender requirements imposed by the major controlled pipelines and their refusal to build common carrier terminal facilities and spur lines make it expedient for the nonintegrated refiner to sell his product to the pipeline company and for the independent marketers to purchase product at the desired point of distribution. . . .

"The majors' control of product pipelines has the obvious anticompetitive effect of controlling the conditions under which independent refiners sell their output and independent marketers obtain product."

2. *The Congress and the Executive Branch have historically recognized the competitive imbalance and sought to compensate for it*

Since at least 1959, federal programs have recognized the existence of this artificially maintained competitive imbalance and sought to compensate for it

by governmental actions to assist small refiners. During the period from 1959 until 1973, when foreign crude oil was less expensive than domestic crude oil, small refiners were assisted through benefits under the oil import program. However, this program proved inadequate when the price of foreign crude oil was suddenly increased after the Arab boycott in 1973. When the Congress enacted the Emergency Petroleum Allocation Act of 1973 in response to the Arab oil boycott, it recognized the need for a new form of relief to small refiners. It defined the term "small refiner" to include refiners with capacity of 175,000 barrels per day or less and directed FEA "to restore and foster competition" in all sectors of the petroleum industry, including refining, and to "preserve the competitive viability" of independent refiners and marketers. The Conference Report stated that "the Conference Committee intends to offer a mantle of protection to those refiners who by reason of their relatively small size may be disadvantaged in competing with larger refiners in bidding for and obtaining adequate crude supplies." This legislative purpose was elaborated at greater length in statements by Senators Kennedy,² Mondale,³ Humphrey,⁴ and Bayh.⁵

Pursuant to this legislation, in 1974 FEA created the small refiner bias as a separate part of the entitlements program.⁶ Under the small refiner bias, small refiners were given the right to receive additional entitlements to compensate for advantages enjoyed by the integrated majors and to replace the benefits they had traditionally received under the oil import program.

The small refiner bias has been absolutely essential to maintain the competitive vitality of small refiners during a period in which the advantages enjoyed by the integrated oil companies with access to a secure supply of domestic crude oil would otherwise have increased vastly. As the production profits of the majors have risen with the increases in the price of crude oil, the small refiner bias has become crucial in maintaining competition in the refining sector.

The crude oil equalization tax would reduce the entitlement program substantially by January 1, 1978 and eliminate the entitlements program altogether by January 1, 1980. Since the value of the small refiner bias is geared to the value of an entitlement, the reduction in the value of an entitlement on January 1, 1978 would sharply reduce the amount of the small refiner bias, and the elimination of the entitlements program on January 1, 1980 would eliminate the small refiner bias.

While the entitlements program itself may not be necessary once the crude oil equalization tax is in place, the reasons underlying aid to small refiners remain valid whether or not the entitlements program is retained and whether or not the crude oil equalization tax is enacted.

² "When independent refiners and marketers are threatened with extinction . . . it seems clear that a voluntary system of correction is doomed to inadequacy." 117 Cong. Rec. 18063.

³ . . . [T]he major oil companies have continued to use shortage situations which they themselves helped to create to force the independent segment of the industry to its knees. As the Federal Trade Commission recently stated, there is the strong possibility that major oil company control of refinery capacity and pipelines has contributed in a major way to the shortages of gasoline we are now experiencing." 119 Cong. Rec. 11754.

⁴ "The squeeze on the independents is documented all over the country . . . [T]he problem of the independents is not that of just a few marginal gasoline stations. We are talking about the viability of the whole system of importers, refiners, distributors, and retailers . . ." 119 Cong. Rec. 17937.

⁵ "Another sector of the economy—Independent oil refineries, jobbers and service station operators—has also been made to bear an unfair burden during the current shortage." 119 Cong. Rec. 18048.

⁶ *The Entitlements Program*: Foreign oil is sold at world market prices and is not subject to the price lids imposed on domestic oil. Some types of domestic oil can be sold at higher or uncontrolled prices to encourage development of new U.S. sources of crude. Pursuant to the FEA's "entitlements" program (10 CFR § 211.67), each month the FEA gathers information from U.S. refiners on total crude runs through their refineries and the percentage of those runs made up of price-controlled domestic crude and the percentage made up of uncontrolled domestic or foreign crude. A national ratio between controlled domestic and uncontrolled domestic and foreign crude is determined. "Entitlements" to run barrels of the cheaper price-controlled crude are then issued to refiners by applying the national ratio to each refiner's total runs. Refiners who have run more lower priced domestic crude in a given month than the national average must buy "entitlements" for those additional barrels of domestic crude runs from refiners who have run less such crude than the national average and thus have been issued more entitlements than they need to cover such crude runs. Each entitlement is assigned a dollar value, based on the difference between the national average of controlled prices and uncontrolled prices. The money which changes hands is designed to even out, but only at the refinery level and only in terms of national averages, what would otherwise be an unfair price advantage for those refiners which have greater access to low cost price-controlled domestic crude oil than those refiners which must use higher priced crude.

3. *Preservation of efficient small refiners benefits consumers by increasing competition*

Major oil companies control about 75 percent of the nation's refining capacity. Their only competition at the refining level comes from the small and independent refiners. The vast majority of the gasoline produced by small and independent refiners is sold to independent marketers who are heavily reliant on small and independent refiners for their supply. The Federal Trade Commission has found that

"[I]ndependent refiners sell the largest amount of their output to independent gasoline marketers and to their own stations. Thus, the welfare of the independent marketing sector is largely dependent on the well-being of independent refiners.

"The continued existence and viability of the independent refiner is necessary for the survival of the independent marketer." (1973 Staff Report on Investigation of Petroleum Industry.)

The loss of effective competition from small refiners would place non-branded gasoline stations at a further competitive disadvantage to the majors' marketing outlets: they would be forced to purchase their refined products from the refining arms of the same companies that are their major competitors as marketers. This result would solidify the oligopoly power of the integrated majors and narrow the opportunities for effective price competition at the retail level. It would obviously not be beneficial to competition or the interests of consumers.

The Senate Judiciary Committee Report on the Petroleum Industry Divestiture Act underscores this point: "The improvement of competition at the refining level will substantially improve competition at the retail level. The amount of competition at the marketing level historically has been determined by the ability of the nonbranded independent marketer to obtain product on reasonable terms. The ability of the major refiner to treat the branded marketer in a highhanded fashion and impose on him an inefficient style of business is largely due to the absence of serious competition at the refining level. The branded marketer is under the thumb of the major refiner because he has no alternative supply source. There is no open market in which he can purchase product if he chooses to sever his relationship with his refiner." (p. 67)

4. *Although most small refiners are already efficient, the small refiner offset should be tailored to encourage competition by efficient competitors and eliminate incentives for inefficient operations*

Most small refiners are efficient firms that could compete effectively against the integrated majors but for the distortions created by the integration of the majors. The Judiciary Committee, in its report on the Petroleum Industry Competition Act of 1976, found that there was: ". . . strong evidence that the independent refining companies have been at least as efficient in their operations as the major refiners. Indeed, given the inherent disadvantages faced by nonintegrated firms in a period when the integrated majors were increasing their control over the domestic crude market, a good case can be made that refiners outside the 20 largest must have operated at superior efficiency." (p. 49)

It may be true, however, that the specific level of the small refiner bias in certain situations has brought about unwarranted benefits to inefficient firms. The allegation that this has been the case is the principal argument of those, such as the major oil companies, opposing the small refiner offset. Yet this program has benefited competition and consumers in the large majority of cases. It makes no more sense to abolish it because of arguably anomalous results in a few cases than it does to abolish the food stamp program or aid for dependent children because some people may have benefitted more than was intended. The correct response is to continue the program and work to improve it. As the FTC's Bureau of Competition suggests:

"Until a more open crude oil market can be established (by legislation or otherwise) or until the refinery squeeze phenomenon can be eliminated (by vertical divestiture legislation or litigation, publication of major company financial data by functional segments, or some other solution), an interim legislative measure to encourage efficient, independent refineries may be warranted. The legislation should be drafted in such a way that grossly inefficient refineries are discouraged and that efficient refineries are encouraged to enter at or to grow toward optimum scale. The entitlements bias has been deficient in these respects." (Letter to Senator Kennedy, July 13, 1977, p. 14.)

The small refiner offset should be structured to give the administrator of the program general legislative guidance, establishing criteria for eligibility for benefits. It should also allow sufficient flexibility for the adjustment of levels of benefits to assure that the program enhances competition and serves the interests of consumers without rewarding inefficient firms.

5. Conclusion

Federal programs to offset anticompetitive structure and practices in the petroleum industry will continue to be necessary to protect competition and consumers. This is so whether or not the crude oil equalization tax is enacted. Regardless of one's views of the merits of the crude oil equalization tax, it would be a serious mistake to believe that its enactment will solve all the longstanding competitive problems in the petroleum industry. Enactment of the small refiner offset is a necessary improvement to the National Energy Act that will strengthen competition by allowing efficient small organizations to overcome the artificial and anticompetitive advantages enjoyed by the major oil companies because they are vertically integrated.

APPENDIX III

[From the Congressional Record, Vol. 123, No. 126, July 25, 1977]

IMPACT OF ENERGY PLAN ON INDEPENDENT REFINERS

Mr. KENNEDY. Mr. President, at hearings before the Antitrust and Monopoly Subcommittee earlier this month, independent oil refiners testified that the President's energy plan seriously threatens the viability of efficient independent refiners. It does so by proposing to eliminate programs in existing law designed by Congress to maintain independents as competitors with major integrated companies. Mr. Harry A. Logan, Jr., president of United Refining Co., told the subcommittee, for example:

"If the entitlements program were eliminated tomorrow, I would say that the independent refiners would begin to close their doors. They simply cannot survive to the extent that they were paying for high cost imports or high cost domestic oil in competing with the majors."

Following the hearings, I proposed an amendment to the Other Continental Shelf Lands Act bill (S. 9) to guarantee to independent refiners 20 percent of the oil produced from the OCS. The amendment was adopted by a vote of 54 to 33. This may help independent refiners obtain crude, but it may not help them with the cost disadvantage they face.

In a letter I recently received from Mr. Alfred F. Dougherty, Jr., head of the Federal Trade Commission's Bureau of Competition, the Bureau sets forth its examination of the effect of the President's plan on the domestic refining industry. This letter is extremely detailed and provides a penetrating analysis of many of the issues addressed.

The FTC and the independent refiners have identified a disturbing defect in the President's energy program. I intend to work with both the industry and the administration to develop legislative alternatives which will insure the survival of efficient independent refiners, thereby protecting competition in the petroleum industry. I ask unanimous consent that the FTC letter be printed in the Record.

There being no objection, the letter was ordered to be printed in the Record, as follows:

FEDERAL TRADE COMMISSION,
BUREAU OF COMPETITION,
Washington, D.C., July 13, 1977.

HON. EDWARD M. KENNEDY,
Chairman, Subcommittee on Antitrust and Monopoly, Committee on the Judiciary,
Russell Building, Washington, D.C.

DEAR MR. CHAIRMAN: I have been able to examine more completely the question of the effect of the President's National Energy Plan ("the Plan") on competition in the domestic refining industry and particularly on barriers facing independent entry into this industry. As I promised you June 23 in my testimony before the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, this letter sets forth the thoughts of the Bureau of Competition on this important question.

Our analysis indicates that the Plan may have the following general effects, discussed in detail below:

(1) The termination of the entitlements and related regulatory programs as part of the Plan will cause difficulty for some small refiners.

(2) The crude oil equalization tax may continue or worsen certain distortions in the prices of certain grades of crude oil. Without allocation programs this situation probably will redound to the benefit of vertically integrated major refiners.

(3) The relative makeup of the composite demand for petroleum products may change, to the advantage of large, complex refineries.

(4) New domestic refining entry will continue to be difficult.

(5) The Plan's drastic reduction in the overall rate of product demand will restrict the demand for grass roots capacity.

(6) Product imports may rise to satisfy any increases in demand, or to satisfy current demand, thus deterring domestic de novo refining entry, and creating a relative advantage to foreign refineries.

(7) Working capital requirements for refinery inventory will rise.

(8) Because the tax-imposed crude oil price rise may not be immediately translatable into product price rises of equivalent magnitude, the already existing margin squeeze that has deterred major entry for a number of years may worsen in the short run.

(9) Any adverse effects from the Plan upon new entry would occur in the context of existing entry barriers.

Whether these effects on competition can be considered adverse or beneficial to economic welfare is a difficult question, the answer to which ultimately depends upon one's views concerning the competitiveness of the domestic petroleum industry. Decontrol of product prices and theoretical equalization of raw materials costs for all manufacturers bode well for competition in an industry with no underlying structural problems or competitive constraints. However, the FTC's Bureau of Competition is now litigating an antitrust case against the eight largest petroleum companies in which we contend that the industry is not competitively structured. Exxon Corp., et al., Docket No. 8934. If, as Exxon alleges, there are underlying competitive problems with the petroleum industry as now structured, one must look closely at the Plan to determine whether the noncompetitive structure of the industry will be reinforced or weakened by the Plan.

The discussion below is generally organized around two topics: the Plan's effects on competition among existing refinery firms and its effects on entry by potential refinery firms. Unfortunately, the Plan's lack of detailed provisions in certain areas and the difficulties of tracing the complex economic effects of changed regulations makes definitive answers on the Plan's effects impossible at this time.

I. Effects of the Plan on Existing Competition among Refining Firms:

A. The Crude Oil Equalization Tax—

Under section 1401(a) of the National Energy Act (proposed amended Subtitle D, Chapter 46, Section 4906(c)), by 1980 a tax will be imposed on each "classification" of domestic crude oil in an amount which is the difference between the weighted average cost of all foreign crude to domestic refiners and the weighted average cost of that "classification" of domestic crude oil. "Classification" is based not on grade, quality, etc., but on whether the oil is subject to the "first tier" or "second tier" ceiling for price-controlled oil. The intention is to equalize approximately the price of domestic crude oil with the world price for crude oil. Distortionary effects would be inevitable in such a system. It is possible, moreover, that independent refiners would bear the brunt of the distortionary effects would be greater or less than those caused by the present regulatory system.

The present ceiling prices on crude oil reflect differences in the prices of various grades of crude (e.g., location, specific gravity, sulfur).¹ These differences are based on the differentials in domestic demand in effect on May 15, 1973. Unfortunately, 1973 differentials do not necessarily represent 1977 economic reality. Today, some types of domestic crude oil simply cannot be sold at their asking price. This is because there is no demand for the oil at the ceiling price

¹ 10 C.F.R. § 212.73—.77 (1977).

and because royalty agreements (and perhaps oligopolistic rigidities) prohibit sale at anything less than the ceiling price.

As the composition of crude oil demand changes over time, one grade of crude oil may diminish in value relative to another grade. This may result in the seller of crude taking one or the other of two possible courses of action, the second of which may adversely affect its independent refiner buyers: (1) the crude oil seller may lower its price below the ceiling price for the lesser valued crude oil, and the refiner will purchase at this lower price, or (2) the seller may refuse to lower its price and the refiner will have to either (a) buy at the artificial ceiling price, or (b) refuse to buy at the ceiling price and be forced to either (i) run the refinery at a lower utilization rate, or (ii) find other sources of crude oil, foreign or domestic.

The 1980 equalization tax may accentuate this distortion in normal seller responses to changing demand. The tax will be based on a weighted average for foreign crude as a whole, with some world prices being higher and some lower depending primarily on grade. The tax imposed on a given grade of domestic crude will be that average amount necessary (when added to the sale price) to attain the same level as the average price for all foreign crude, regardless of whether the market price for the comparable grade of foreign crude would be greater or lesser than that average. Consequently the domestic price (including the tax) for a particular grade may be different from world prices for that grade. The pace at which these price differences will disappear will depend upon market rigidities and the method employed to determine the equalization tax.

It is not clear from the materials we have seen whether the tax will be determined (1) at the beginning of the monthly period (in which case the buyer will know its crude costs in advance) or (2) after all the figures are in for the period (much in the same manner entitlements are now determined). If the first method is utilized, a problem will arise whenever the price differential among domestic grades is not comparable to the price differential among foreign grades. If, for instance, the domestic price for a particular grade were lower than the world price, the demand for the domestic portion of that grade would be greater than the supply. Absent an allocation system, vertically integrated producers and gatherers of that grade of crude oil would favor their own refineries. Independents would be forced to buy higher-priced foreign crude and would be competitively disadvantaged, if integrated gatherers had proportionately greater access to undervalued domestic crude oil. This disadvantage to independents becomes even greater if they are forced to pay higher prices for foreign crude oil than do major integrated firms.

An example may help illustrate the problem. Assume that world crude oil comes in two grades purchased in equal proportions by U.S. refiners: low sulfur North Sea crude at \$14/bbl, and high sulfur Arabian crude at \$12/bbl. Assume further that domestic crude is 50% low sulfur with a \$5.50/bbl ceiling price, and 50% high sulfur with a \$4.50/bbl ceiling price. (Note that the difference between the two foreign grades is \$2/bbl, while the difference between the two domestic grades is \$1/bbl.) Thus, the average world price is \$13/bbl, i.e., $(\$12 + \$14)/2$; the average domestic price is \$5.00/bbl. Thus, the tax is \$8/bbl, i.e., $\$13 - \5.00 . High sulfur crude oil domestic producers will be available at \$12.50/bbl, i.e., $\$4.50 + \8.00 ; low sulfur crude at \$13.50/bbl, i.e., $\$5.50 + \8.00 .

In theory, market forces should quickly diminish and eventually eliminate the \$.50/bbl advantage of domestic low sulfur crude hypothesized in the foregoing example, as well as the \$.50/bbl disadvantage of domestic high sulfur crude. The domestic high sulfur crude would be offered initially at \$12.50/bbl, i.e., \$4.50 plus an \$8.00 tax. If domestic sellers were to refuse to sell at less than the ceiling price, then—at least in theory—refiners could turn to foreign suppliers. To forestall that, the rational domestic seller presumably would offer its high sulfur crude at a price below the ceiling price. This discount should enlarge the spread between average foreign and average domestic prices of the combined grades of crude. The equalization tax would automatically increase as the spread enlarges. This, in turn, will raise the after-tax price for domestic low sulfur crude and reduce the advantage of domestic over foreign low sulfur crude. Eventually the advantage should disappear entirely.²

² The scenario goes like this: In the first month, the price of domestic high sulfur crude falls from \$4.50 to \$4.00 causing the average price of domestic crude to fall to \$4.75, i.e., $(\$4.00 + \$5.50)/2$. The tax then becomes \$8.25, i.e., $(\$12 + \$14)/2$ minus $(\$4.00 + \$5.50)/2$. The after-tax price of domestic low sulfur crude would rise by \$.25 to \$13.75, i.e., $\$5.50 + \8.25 . In succeeding months, the phenomenon would continue, although each upward adjustment would be less than the previous month's.

The trouble with this market adjustment theory is that royalty agreements and oligopolistic rigidities (as price ceilings become price floors) may prevent the offering of high sulfur crude at less than the ceiling price. Moreover, long-term contracts and the difficulty of obtaining dependable access to foreign supply may inhibit high sulfur crude buyers from putting sufficient pressure on domestic suppliers to lower their price. These practical problems may be substantial enough to cause a misallocation of resources as undervalued crude oil is shifted to integrated systems and overvalued crude oil is forced upon independents.

One possible way to minimize the contribution of the Equalization Tax to this distortionary effect is to require that the tax be calculated in such a way as to equalize the after-tax price of each major grade of the refineries of foreign crude oil of the same or nearest equivalent grade of foreign crude. This would require the addition of the following underlined language to Section 4996(c) :

"(c) Imposition of Permanent Tax.—A tax is hereby imposed on the delivery to the refinery or other place of first use in each calendar month beginning after December 31, 1979, of controlled crude oil of each classification (other than crude oil classified as uncontrolled (refinery) crude oil) in an amount per barrel equal to the difference for such month (if any) between the national weighted average cost of all domestic crude oil of the same classification and grade and the national weighted average cost to domestic refineries of foreign crude oil of the same or nearest equivalent grade exclusive of any tariffs or import fees."

In addition, Section 4996(g) would have to be amended to require FEA (or its successor) to create classifications of foreign and domestic crude oil by grade. A major disadvantage of the suggested amendments would be the additional burden of collecting monthly data by foreign and domestic grades and of developing a regulation identifying foreign equivalents of domestic grades.

Another possible solution is to authorize FEA (or its successor) to institute a minientitlements program to even out the distortionary effects described above. Like any complicated regulatory scheme, however, such a program would entail substantial costs both to government and industry.

If the equalization tax is determined retroactively, using the actual sales data for the period, the system should theoretically adjust quickly to world prices. Buyers might purchase based on assumed adjustments. Thus, in the above example, the buyer of high sulfur crude might refuse to purchase high sulfur domestic crude except at an effective price of \$12 after estimating the assumed tax.

The possibility of instantaneous adjustment may be more hypothetical than real. First buyers must necessarily predict the market in advance. They must estimate the tax, assuming everyone else is doing likewise, and then refuse to buy unless the price falls to the point at which the price plus the predicted tax equals the available price for foreign crude oil. It should be pointed out this is more than a mere competitive assumption. It assumes that buyers not only believe that competition will drive down the price of domestic crude oil, but that the buyers believe the market is competitive, that they will determine the future tax based on competitive assumptions, and that they will all determine the tax correctly.

We do not believe that the domestic crude oil market is competitively structured. Assuming domestic crude oil prices are sluggish, the adjustment process will take considerable time. During each period of adjustment to new world prices vertically integrated concerns will be favored.

This second method of determining the oil equalization tax would also increase the buyer's uncertainty. A buyer can only guess at the tax when purchasing crude oil. This would disadvantage the independent vis-a-vis the integrated company. The integrated concern simply passes the crude oil from one stage of production to the next. The independent needs to know the total price (with the tax) of crude in order to time its purchases to minimize cost and to set the price of its refined product. The independent refiner may find its margin squeezed if it purchases crude oil based on an assumed tax at a price which turns out months later to be too high. The vertically integrated producer, on the other hand, is often in a position of delaying the valuation of its crude oil until more information is available.

The entitlement system demonstrates some of the uncertainty of an after-the-fact method of setting the tax. Entitlements have shown significant variations from month to month. The entitlement value was, for instance, equal to \$8.31/bbl in September 1975, \$8.62 October, \$8.94 November, \$8.55 December and \$8.09 in January 1976.

The problems posed in this section result not from the equalization tax as such, but from its interaction with sluggish crude oil markets. We have not analyzed the somewhat analogous situation of the interaction of the entitlements program with the crude oil price control program to determine the magnitude, if any, of the posed problems.

B. Increase in Foreign Product Imports—

By increasing the effective price of domestic crude oil the Plan makes foreign-produced petroleum products more competitive in domestic markets. After 1979, domestic refiners will no longer have a raw materials cost advantage over their foreign competitors. Disregarding tariffs and import fees, relative transportation costs and on-material-related refinery costs alone will determine how much foreign product imports into the United States increase. If, because of its freedom to ship on less expensive non-U.S. vessels, less severe or nonexistent environmental restrictions, special tax situations, or lower costs, the foreign refinery has an advantage over domestic refineries, and if that advantage is not eliminated either by higher transportation costs attributable to the foreign refinery's distance from the U.S. or by import fees and tariffs, the foreign refinery's U.S. sales will increase relative to domestic refineries.

Without substantial product import tariffs or fees, the share of the market captured by imported products would be a large one, especially in the Eastern United States. In the short run, the market pressure of these foreign imports could severely depress domestic refinery margins.

The primary reason for these effects is the significant cost advantages that certain foreign refineries have over domestic refineries. The following chart summarizes the cost advantage which various located foreign refineries could have by 1980 in their delivered cost of products to the East Coast relative to the costs for East Coast refineries:

COST DIFFERENTIAL BETWEEN A NEW EAST COAST REFINERY USING EXISTING WATER TRANSPORTATION MODES FOR CRUDE OIL DELIVERY AND A NEW REFINERY IN SELECTED OTHER PLACES

[In dollars per barrel]

Location	Total cost ¹	Cost advantage ²	Cost advantage ³
Bahamas.....	1.86	1.12	0.74
Curacao.....	1.82	1.01	.81
Virgin Islands.....	1.70	1.05	.65
Morocco.....	1.57	.78	.79
Algeria.....	1.46	.67	.79
Nigeria.....	1.39	.60	.79
East coast (VLCC lightering).....	1.32	1.30	.02
Puerto Rico.....	1.34	.60	.74
East coast (superport).....	1.28	1.26	.02
Angola.....	1.31	.52	.79
Rotterdam.....	1.06	.63	.43
Offshore Canada.....	1.02	1.05	-.03
East coast (Caribbean transshipment).....	.76	.74	.02
Mideast.....	.74	.01	.73
Gulf coast (VLCC lightering).....	.45	.07	.39
Gulf coast (superport).....	.42	.03	.39
East coast.....	0	0	0
Gulf coast (Caribbean transshipment).....	-.09	-.46	.37
Gulf coast.....	-.92	-1.29	.37
Hawaii.....	-1.20	-1.17	-.03

¹ Advantage over east coast refineries.

² Due to transportation of crude and products.

³ Due to refining costs.

⁴ Base.

Source: Pace Engineering. Determination of Refined Petroleum Product Import Fees. (Study prepared for FEA, July 1, 1976, based on 1980 dollars.)

If import tariffs and fees on petroleum products are low or nonexistent, domestic refinery margins would be narrowed as refiners meet the lower prices offered by imports. Independent refiners, relying for their well-being primarily upon refinery profits, would be hard hit. Smaller refineries, disproportionately owned by independents, would be the first to shut down because of their greater inefficiencies if these are not balanced by locational advantages. To the extent import fees are set in such a way that some domestic refineries remain in business

and some shut down, domestic refinery concentration could increase. To the extent product imports would come from foreign refineries of the very same major firms which now dominate domestic refining capacity, concentration could further increase.

The impact of a larger relative volume of foreign product imports upon refining competition is uncertain. We have made no study delineating the top firm concentration for foreign refining capacity capable of supplying the United States. To ascertain the exact increase, if any, in top firm concentration in U.S.-supplying refinery capacity which may result from the Plan, one must determine the projected share of the market for imports generally and the precise location and ownership of supplying refineries. The former will depend on the level of import fees and duties, on production and transportation costs, and on demand characteristics. The latter will depend on cost differentials among refineries.

C. Differential Impact of the Plan on the Demand for Major Petroleum Products—

The President's Plan contains numerous provisions designed to lower the demand for petroleum products as compared with projected demand without the constraints imposed by these provisions. The Crude Oil Equalization Tax has the effect of reducing the demand for petroleum products by raising their price. Additional provisions are designed to lower the demand for only selected products, leaving untouched or to other provisions the consumption patterns for other petroleum products. Thus, for example, taxes are proposed on less-efficient automobiles³ and on gasoline⁴ to reduce gasoline consumption while no individualized disincentives are placed on the use of commercial jet fuel. Rebates on the sale of home heating oil will have the effect of maintaining or increasing the relative demand for this product.⁵

The effect and intent of the Plan is to decrease the demand for some petroleum products at a greater rate than the decrease for other petroleum products. As a result the total slate of products demanded by the U.S. consumer will be altered by the Plan. In the short run, at least, certain domestic refineries, most likely those of the large integrated companies, will be advantaged by this change in the demand slate.

The demand pattern for petroleum products in the United States was as follows for 1976.⁶

Percentage of total petroleum product demand

Motor gasoline.....	40.0
Aviation gasoline.....	0.2
	<hr/>
Total gasoline.....	40.2
	<hr/>
Jet fuel-naptha.....	1.1
Jet fuel-kerosene.....	4.5
	<hr/>
Total jet fuel.....	5.7
Distillate oils.....	17.9
Residual oils.....	16.0
Petrochemical feedstocks.....	+2.4

The refiner source for domestic demand varies by product type. The following table summarizes the market share of domestic refinery production for designated products held by the eight largest domestic refiners combined:

1973:	<i>Percent</i>
Motor gasoline.....	56.7
Aviation gasoline.....	79.4
	<hr/>
Total gasoline.....	56.8

³ National Energy Act, Title II, Part B, Subpart 1, §§ 1201-1204.

⁴ *Id.*, Subpart 2, §§ 1221-1223.

⁵ *Id.*, Subpart 4, § 1402.

⁶ Bureau of Mines, *Mineral Industrial Surveys, Crude Petroleum, Petroleum Products, and Natural Gas Liquids*. December 1976, Table 1.

The refiner source for domestic demand varies by product type. The following table summarizes the market share of domestic refinery production for designated products held by the eight largest domestic refiners combined:

	Percent
1973—Continued	
Jet fuel-naptha.....	43.8
Jet fuel-kerosene.....	82.4
	<hr/>
Total jet fuel.....	74.4
	<hr/>
Distillate oils.....	57.4
Residual oils.....	61.5
Petrochemical feedstocks.....	64.8
Distillation capacity.....	57.5
	<hr/>
1972:	
Motor gasoline.....	55.4
Aviation gasoline.....	81.0
	<hr/>
Total gasoline.....	55.6
	<hr/>
Jet fuel naphtha.....	46.6
Jet fuel kerosene.....	81.2
	<hr/>
Total jet fuel.....	72.6
	<hr/>
Distillate oils.....	56.2
Residual oils.....	59.8
Petrochemical feedstocks.....	60.0
Distillation capacity.....	57.9

Source: Special compilation of Bureau of Mines for FTC, 1975.

Until the parameters of the change in the demand slate brought about by the Plan are known, it cannot be determined with certainty which specific refiners will be benefitted. In general, plants with product slates approximating the changed demand will reap the greatest benefits. More complex refineries, which are disproportionately owned by the majors, should require less investment per barrel capacity to alter their product slates than less complex plants should require. One would expect more complex plants to adapt rapidly to changes in demand. Less complex plants would adapt more slowly, if at all. These simpler plants, to the extent they produce products whose demand has been most restrained by the Plan, would find their profitability severely impaired.

D. Elimination of the Entitlements and Other Regulatory Programs—

"Once the [crude oil equalization] tax is fully in effect [in 1980] all domestic oil would have approximately the same price (after tax) as the world price, the entitlements program would be terminated, and certain related regulatory activities could be phased out."⁷ The termination of these regulatory programs would adversely affect the viability of some smaller independent refiners, especially those who came into existence as a result of the incentive created by the Entitlements Program.

The advantage given to smaller refiners by federal programs is quite substantial. A March 1977 FEA Report to Congress⁸ expressed the overall monetary impact of Federal regulations as follows:

RELATIVE PROFITABILITY OF A REPRESENTATIVE NON-MAJOR REFINER COMPARED TO A MAJOR REFINER
[Dollars per barrel of crude oil charged]

Refiner category	Without regulations districts	With regulations	
	I-IV	I-IV	V
Major (250,000 barrels per day).....			
Large independents (150,000 barrels per day).....	-0.27	-0.23	-0.23
Small business (150,000 barrels per day):			
Producing gasoline.....	-1.06	+.44	+.42
Producing naphtha.....	-.63	+.87	+.85

⁷ Executive Office of the President, Energy Policy and Planning, *The National Energy Plan*, April 29, 1977, at 52.

⁸ FEA, Office of Oil and Gas, *Impact of Mandatory Petroleum Allocation, Price and Other Regulations on the Profitability, Competitive Viability, and Base of Entry of Independent Refiners and Small Refiners*, March 1, 1977 (FEA Report to Congress).

Two major areas of advantage to small and independent refiners require more detailed discussion: the Entitlements Program and programs guaranteeing crude oil supply.

1. Entitlements Program and Small Refiner Bias—

The Entitlements Program was conceived as an attempt to equalize controlled and uncontrolled crude oil costs for domestic refiners. Without more, this program would have favored no class of refiner. However, the program is overlaid with a bias towards small refiners.

The FEA has calculated the value of this entitlements bias to refining companies of various capacities. The table below⁹ indicates that the value is substantial for small refiners of 15,000 b/d or less and inconsequential for refiners of 100,000 b/d or more:

Value of small refiner bias/entitlements (Cents/bbl, PAD districts I-IV)

<i>Refinery capacity¹</i>	<i>Value²</i>
1,000	183.0
2,000	183.0
5,000	183.0
10,000	183.0
15,000	144.2
30,000	88.8
45,000	50.9
50,000	41.6
100,000	12.6
150,000	4.0
175,000	1.5
250,000	

¹ Throughputs assumed to be 90% of capacities.

² Crude oil entitlements price, \$8/bbl.

If the petroleum industry is and had been historically characterized by workable competition at all levels, we would not hesitate to say that economic efficiency and public welfare would be enhanced by the elimination of the small refiner bias. But if the ability of independent refiners to enter and become efficient operators is and has been impaired by an existing or historical anticompetitive industry structure, a different public policy toward small refiners may be warranted.

In our view, which we are pursuing in the Exxon litigation, the industry structure is noncompetitive and has been for a long time. Independent refiners, if they have had access to crude oil at all, may have had to pay effectively more (without cost justification) than their larger competitors. Through their control over crude supplies and crude and product prices and because of their propensity to use crude profits to subsidize downstream operations, the majors seemingly have been able to make independent refiners the victims of an artificial refinery margin squeeze and to deter entry or expansion by such independents. Government assistance to victimized classes of refiners, in the short run, may be required to offset these anticompetitive problems until the antitrust mechanism can make the industry structure competitive.

Until a more open crude oil market can be established (by legislation or otherwise) or until the refinery squeeze phenomenon can be eliminated (by vertical divestiture legislation or litigation, publication of major company financial data by functional segments, or some other solution), an interim legislative measure to encourage efficient, independent refiners may be warranted. The legislation should be drafted in such a way that grossly inefficient refineries are discouraged and that efficient refineries are encouraged to enter at or to grow toward optimum scale. The entitlements bias has been deficient in these respects.

2. Programs guaranteeing crude oil supply—

Four government programs provide security of crude oil supply: the Mandatory Allocation Program (Buy/Sell Program);¹⁰ the December 1 Rule, Supplier/Purchaser Regulation;¹¹ the Small Refiner Set Aside of Naval Petroleum Reserves;¹² and Royalty Oil for Small Business Refiners.¹³ These programs are

⁹ FEA Report to Congress, *supra*, at 45.

¹⁰ 10 C.F.R. § 211.65 (1977).

¹¹ 10 C.F.R. § 211.63 (1977).

¹² Public Law 94-258, Title 2, § 7430(d) (3) and (4).

¹³ 43 U.S.C. § 1334 (1974).

designed to ensure that small and independent refiners receive sufficient crude oil for their operations. If these programs are considered to be the "certain related regulatory activities [to the Entitlements Program which] could be phased out,"¹⁴ and if, as we believe, the crude oil market is not competitively organized, small refiners would be adversely affected by the elimination of the programs. We are not prepared to say whether or not these programs are the most efficient short-run methods of overcoming non-competitive industry structures.

The following is a summary of the four programs:

a. Mandatory Allocation Program—

This program now provides that the 15 major oil companies ("the refiner-sellers") are required to offer FEA-specified volumes of crude oil to the small and independent refiners (qualified "refiner-buyers"). Generally speaking, the refiner-buyer is guaranteed access to sufficient crude oil to operate his refinery at the national utilization rate (the national average supply/capacity ratio).

According to FEA, "a number of larger independents have ceased to use their purchase eligibility under the program. However, many small refiners continue to use the program and it provides them with assured supplies of the types of crude they need for their operations."¹⁵ Elimination of this program, therefore, would disadvantage small refiners who depend on the program to overcome competitive imperfections in the crude supply market.

In addition if the Equalization Tax may contribute to distortions in the crude market, as discussed earlier, then some form of crude oil allocation may be required to equalize crude oil costs for independent refiners disadvantaged by those distortions.

b. December 1 Rule—

This program at its inception required that all crude oil deliveries based on agreements for the sale or exchange of crude oil in effect on December 1, 1973, or entered into thereafter, are to be continued as long as the allocation program exists. Although liberalized since January 1974, the regulations continue to protect the flow of crude oil to independent and small refiners according to the FEA Report.¹⁶

c. Set-Aside from Naval Reserves—

The Secretary of the Navy may set aside up to 25 percent of the production of naval reserves for small refiners under 50,000 b/d capacity. These refiners may submit bids for a portion of set-aside naval reserves. The program provides no price advantage to small refiners, but according to FEA "would be very helpful to small refiners if crude oil should become difficult to obtain in the future."¹⁷ It is unclear whether this program is to be altered by the National Energy Plan.

d. Royalty Oil for Small Business Refiners—

This program gives preference in the disposal of royalty oil from Federal leases to small business refiners of less than 45,000 b/d throughput capacity. FEA's Report notes that the allocation of royalty oil is a significant advantage to the small refiner by lowering his crude oil acquisition costs.¹⁸ Here, too, it is not clear what the future prospects are for this program.

II. Effects of the Plan on New Refining Construction by Independents:

Any barriers to new refining entry created by the Plan would be in addition to very high entry barriers existing today to the independent construction of grass-roots refining capacity. The President's Plan probably will not result in new refinery entry.

A. Reduction in the Demand for Refining Capacity—

The reduction in the growth rate of petroleum product consumption, if achieved as anticipated by the Plan, could do away with the need for any new grass-roots refining capacity. Thus, the present structure of the refining industry, solidified over time by the exit of inefficient firms, would be virtually immune from penetration by de novo domestic entry. Foreign product would provide the only de novo competition.

Present domestic capacity, coupled with imported foreign product, may well be adequate to meet projected 1985 demand. Under the proposed National Energy Plan, consumption of petroleum products is projected to grow from 17.4 million barrels a day in 1976 to only 18.2 million barrels a day in 1985.¹⁹ 1.9 million

¹⁴ *Energy Plan Report, supra*, at 52.

¹⁵ *FEA Report to Congress, March 1977, supra*, at 30.

¹⁶ *Id.*, at 30.

¹⁷ *Id.*, at 32.

¹⁸ *Id.*, at 27.

¹⁹ Executive Office of the President, *Energy Policy and Planning, Report on the National Energy Plan*, April 29, 1977, at 96 ("*Energy Plan Report*").

barrels a day of the 1976 demand was satisfied by imported product, with 15.5 million barrels coming from domestic refinery production.²⁰ As of January 1, 1977 domestic refining capacity was rated at 16.2 million barrels per day.²¹ If one assumes that product imports will, at the very least, remain constant, the shortfall in domestic refining capacity from the 1976 total to 1985 demand could be as low as 100,000 barrels per day, the equivalent of at most one new refinery built to scale economies.²²

It is extremely unlikely that one grass-roots refinery would be built to satisfy this need. First, for the most part recent domestic capacity additions have been expansions of existing plants, not grass-roots entry. Second, with the effective price after tax of domestic crude oil rising to the world market price, imported product will be more competitive vis-a-vis domestic product. Thus, product from offshore areas may move into the United States in significant quantities at competitive prices making financially risky additional domestic capacity construction. Third, as of January 1, 1977 approximately 590,000 additional barrels a day of distillation capacity was already under construction.

B. Increase in Refining Entry Barriers—

If one assumes that the projected 1985 petroleum consumption goals²³ will not be met, then a more complex analysis of the Plan's effect on independent entry must be made. Three aspects must be considered: (1) the direct effects upon entry of the Plan's provisions; (2) the indirect effects upon entry from the repeal or replacement of existing provisions, primarily FEA programs; and (3) the barriers to entry existing independent of any government program. The first two are discussed in more detail below. The barriers to entry into refining independent of this Plan have been frequently discussed in Congressional hearings over the last several years and will not be further discussed here.

1. Direct Effects:

a. Working Capital Increase—

With the rise in crude oil and product prices, the amount of working capital required for inventory increases. For a refinery of efficient size (200,000 b/d) using foreign crude oil, a minimum 14 day crude oil inventory and a minimum 7 day product supply are constant volumes permanently requiring working capital. A hypothetical crude oil and product price rise of \$2.75 envisioned by the program will increase the working capital required by a minimum of \$11.5 million. Thus, the capital requirements are increased for new entry.

b. Margin Squeeze—

A second direct effect of the program, whose magnitude is speculative at this time, is the short-run decline in refining margins which would probably result from the imposition of the Crude Oil Equalization Tax. The imposition of the tax will raise the refiner's effective cost of crude oil. Yet the refiner may not be able to pass through completely that price rise to the ultimate consumer.

A margin squeeze, discouraging additional entry, would then develop. Such a margin squeeze for grass-roots refinery entrants is said to exist today under the present regulations, despite large refining margins. FEA has estimated that a major oil company refinery would fall \$0.74/bbl short of achieving a 15 percent DCP rate of return based on near-term refinery economics²⁴ whether or not the effect of the present government regulations is included. If the present set of government regulations were presumed to be inapplicable, a large independent's margin would show a net operating loss of \$1.01/bbl and a small refiner a loss of \$2.78/bbl. If the advantage of the present set of government regulations is included, a large independent continues to show a loss of \$0.97/bbl and the small refiner shows a loss of \$0.30/bbl if he produces gasoline and a net operating gain of \$0.13/bbl if he produces naphtha for petrochemical feedstocks.

An FEA contractor, noting that no major oil company or large independent refiners have started construction over the past two years, concluded that until refinery margins increased significant expansion of domestic refining capacity

²⁰ Bureau of Mines Mineral Industry Surveys, *Crude Petroleum, Petroleum Products, and Natural Gas Liquids*, December 1976, Table 2.

²¹ Oil and Gas Journal, "Annual Refining Survey," Mar. 28, 1977, at 98.

²² The elimination of domestic product price controls, as contemplated by the Plan, will not lead to entry or expansion of domestic capacity because (as we understand it) present price ceilings are too high to be an effective constraint on actual market prices and because, under the Plan, total product demand is not likely to grow.

²³ *Energy Plan Report*, *supra*, at 95.

²⁴ *FEA Report to Congress*, *supra*, at 40. FEA's contractor who prepared the study felt that 15 percent discounted cash flow rate of return would be the minimum required by companies considering facilities of this type.

seemed unlikely.²² It seems probable that a further depression in refinery margins will take place if a substantial crude oil price increase as proposed in the Plan is implemented. Thus this aspect of the Plan will discourage the construction of new capacity for some undefined term.

2. Indirect Effects:

The indirect effects of the Plan in making more difficult new entry occur because of the Plan's superseding of existing Federal programs. The primary program encouraging refinery construction is the small refiner bias of the Entitlements Program.

The small refiner bias may have the effect of lowering the barriers to entry for refiners, allowing these entrants to build at sub-optimal capacities and expand to optimal sizes. We have not studied the entitlements bias to verify this impact but feel that if it is present its loss may make less likely future industry deconcentration. In any event, programs to encourage efficient-sized independent entry should be explored.

A second indirect effect of the Plan could be a tendency on the part of entrants to discount the longevity of any government program designed to encourage entry. For example, elimination of the entitlements bias could lead to the demise of refiners who entered in reliance upon its continuation. If government programs change frequently, future entrants could be deterred by the resulting uncertainty.

I hope that the foregoing comments will enable you and your subcommittee to explore in greater depth the complex but important question of the impact of the President's Plan on the domestic refining industry. Because of the limited amount of time which we have had to analyze the Plan and because some aspects of the Plan are unclear or ambiguous, I may wish to supplement the views expressed herein with further comments.

Very truly yours,

ALFRED F. DOUGHERTY, Jr.,
Director, Bureau of Competition.

OIL, CHEMICAL AND ATOMIC WORKERS INTERNATIONAL UNION,
Denver, Colo., June 28, 1977.

INDEPENDENT REFINERS ASSOCIATION OF CALIFORNIA,
Arlington, Va.

DEAR SIRS: I hereby announce my support of legislation aimed at providing an exemption system for small refiners, comparable to the present small refiner bias of the FEA crude oil entitlements program, under the proposed crude oil equalization tax.

The small refiners provide a measure of market place competition in an industry dominated by the large oil companies. Because of their small size, these refiners have necessarily higher capital and operating costs per barrel. Their product furthermore is generally priced somewhat lower than that of the majors.

The viability of many small refiners would be threatened by the loss of the small refiner bias under the FEA entitlements program. My Union favors an amendment to the pending legislation on the crude oil equalization tax that would provide special treatment of small refiners equivalent to that now received under the current entitlements program.

Very truly yours,

A. F. GROSPICION, *President.*

APPENDIX V

CALIFORNIA INDEPENDENT PRODUCERS ASSOCIATION,
Los Angeles, Calif., July 19, 1977.

HON. THOMAS L. ASHLEY,
Chairman, Ad Hoc Energy Committee, U.S. House of Representatives, Washington, D.C.

DEAR CONGRESSMAN ASHLEY: The California Independent Producers Association (CIPA) is an organization composed of over 400 independent crude oil and natural gas producers. Our concern continues to be government price controls,

²² *Id.*, Appendix at 8.

especially those developed from inconsistent regulatory policies. CIPA's most pressing problem is that our heavy domestic crude is disadvantaged in the Entitlements Program and therefore becomes of limited economic interest to refiners. Beyond attending to that problem, we believe that much must be pursued to bring economic producing and refining balance to California. For example, we maintain that a long range solution to our predicament must include a removal of the restrictions which limit the movement of high sulfur residual fuel from California and the promulgation of incentives to stimulate the growth of refinery construction in California which will process heavy domestic crude into clean products for a safer environment.

In consideration of the above, CIPA wishes to pledge its support for the Independent Refiners Association of California (IRAC) in their cause to ensure the continuation of the benefits now received through the "small refiner bias". Those refiners, our independent customers, must be protected as the proposed COET in the National Energy Act (HR 6831) is phased in and becomes fully implemented. Section 2032 of HR 6831 calls for a "study" of the refiner's "potential problems", but more protection is needed. We strongly urge that the Congress provide for a continuation of offsets to crude oil costs (under the Entitlements Program) until the study has been concluded and its findings cited up. Such action would aid both independent producers and small refiners as they strive to achieve solutions to the inequities in the regulatory environment.

Sincerely,

JEROME J. O'BRIEN, *President.*

STATEMENT OF ELMER L. WINKLER, PRESIDENT, ROCK ISLAND REFINING CORP., ON BEHALF OF THE INDEPENDENT REFINERS ASSOCIATION OF AMERICA

Mr. Chairman and members of the Committee: My name is Elmer Winkler. I am the President of Rock Island Refining Corporation located at Indianapolis, Indiana. Rock Island has a refining capacity of 41,000 B/D and is a small and an independent refiner as those terms are defined in the Emergency Petroleum Allocation Act of 1973. What this means is that Rock Island has less than 175,000 B/D capacity and depends on others for over 70% of its crude oil supply. In fact, we own only about 1% of our crude needs.

Today, I am speaking on behalf of the members of the Independent Refiners Association of America, an association of 32 refiners with plants in 21 states ranging from California to Texas, from Georgia to New York and from Kansas to Wyoming. These refiners market their products, of course, in a far wider geographical area. Members of the Association make the entire range of refined products, although some specialize more than others. Asphalt, fuel oil, jet fuel, gasoline and even petrochemicals are produced by these plants. Most of us have been in business for a good number of years, and we have contributed significantly to serving this nation's petroleum needs and the public's demand for quality products at lower prices.

Unfortunately, the tax provisions of the National Energy Act, H.R. 8444, which this Committee is considering, threaten to obliterate us and all we have stood for more assuredly than the reincarnation of the Standard Oil Trust.

We oppose the tax on principle, because it appears to be nothing more than a \$16 billion revenue raising scheme which will not stimulate exploration for energy, will not open doors to increased crude oil production, will positively stunt the growth of domestic refining capacity and will make the research and development necessary to convert our processing plants to more efficient or alternate sources of energy financially impossible. We agree with those thinking critics of the Act who have written that it would save little energy, place unbearable demands on the nation's ever-diminishing investment capital supply, encourage both unemployment and inflation and generally make possible the catastrophe that it seeks to avert.¹

The very name "crude oil equalization tax" demonstrates the real lack of understanding of the oil business in general and the refining business in particular which permeates the provisions you are now considering.

This tax does not equalize the cost of crude oil to those of us who refine it. Over the next three years, it may raise domestic crude prices to OPEC set levels, but it will not provide this nation's independent refining industry with com-

¹ Lewis H. Lapham, "The Energy Debacle," *Harper's*, August, 1977.

petitively-priced crude oil. The most acute problem faced by all of our members—regardless of size or location—is lack of access to crude oil supplies at competitive prices. We do not own it or control it. The majors own 70% of the domestic supply of crude oil and control much of that which they do not own. This crude oil generally has been price controlled since 1973.

At the same time that the tax is phasing in, the FEA's crude oil entitlements program, including the small refiner bias, would be phased out. The entitlements program was made necessary because FEA recognized the advantage that certain refiners with access to lower-cost, domestic price-controlled oil would have over their competitors who were buying the higher priced foreign crude or uncontrolled domestic crude.

The FEA also understood that small, crude-deficient refiners would be struck particularly hard without some mechanism which tried to compensate for the inherent disadvantage in crude costs and other costs between small refiners and the integrated majors. Moreover, the consumer-oriented pricing and marketing concepts of the independents versus those of the majors tended to compound these problems of size and unequal access to a competitively priced crude supply.

The independents traditionally have marketed their products at prices below those of the majors. Independents have not relied on heavy advertising, brand loyalty, credit cards or repair facilities to attract customers. Price has been the key to competition. In addition, the majors have run refining and marketing at low or no rates of return because their profits are primarily made in crude oil production. To assist small refiners in meeting the inevitable cost-price squeeze resulting from price controls and lack of a free and open market in crude oil supply, the FEA adopted the small refiner bias. A more complete explanation of the bias can be found in the detailed memorandum attached to this testimony.

The bias is not perfect. We know that many have been critical of its tilt toward the smallest refiners, and we are not seeing to lock in any demonstrated inequities. The FEA has, of course, always had the power to recommend changes in the program; and the recent deletion of processing agreements has, by our calculations, already cut the cost of the program by about one-third. We are prepared to accept further changes in the bias, if based upon facts and not political rhetoric. But the COET will not do that. Instead, it is programmed to wipe out this current manifestation of over two decades of recognition that small, independent refiners—no matter how efficient or innovative—cannot overcome the economic advantages inherent in the majors' ownership and control of crude oil supplies. The Act does not contain any provision to replace the small refiner bias. I am here to plead with you to include in the legislation a mechanism which will continue the cost offset which is essential to the survival of small, independent refiners.

There are many valid reasons why continuation of separate treatment for small refiners is necessary; I will discuss only a few of them today.

First, it is well known that the majors have historically subsidized downstream refining and marketing operations with crude profits. There has been a lot of talk about change in the media, but there is nothing in the law or regulations which gives the slightest assurance that subsidization will cease. In fact, the combination of operating history, price controls and the majors' massive investment in a distribution system designed to maximize market share all tend to perpetuate the need to subsidize. And, of course, the tremendous jump in crude profits which has come about in the past few years and will likely continue increases the temptation.

Second, small, independent refiners are at a tremendous crude cost disadvantage which will grow as the OPEC cartel continues to push world crude prices higher and higher. As crude prices increase, crude profits also will rise because much of the oil now being sold was discovered in a time of lower costs and much of it can still be profitably sought out and drilled at prices far less than even current world price levels.

This problem of higher prices and greater profits for the majors also contributes to the crude oil cost/price disparity which plagues the independents. The cost of crude oil to the integrated major who owns it is the cost of finding it and getting it out of the ground. The cost to the independent is the price paid in the marketplace. The entitlements program only attempted to equalize costs of refiners at the refinery so that a so-called "booked cost" for the major was compared with the true cost of the independent. The small refiner bias made up for some of this disparity. But even when majors go to the market

to buy crude, a recent FEA study concluded that they could buy more cheaply than the independents by as much as 40¢/bbl. That happens to be about the same amount a 40-50,000 B/D small refiner currently receives under the small refiner bias.

There are other crude cost disparities which are borne by the independent: many must buy low sulfur (sweet) foreign crude at prices higher than the average price for foreign crude—and, of course, the independents have no foreign concessions or foreign oil profits. Other independents who use low quality domestic crude were hit with tremendous increases when price controls jumped this crude up to the so-called lower tier price. The small refiner bias made up for some of these disparities.

The crude oil equalization tax is not designed to deal with, much less resolve, these problems. On the contrary, the imposition of this tax will worsen the disparities because everyone will be led to believe that, come 1981, all refiners will be paying the same high OPEC controlled price for crude oil. Nothing could be further from the truth.

Despite the obvious need of small, independent refiners for a replacement for the small refiner bias program as part of COET, there is an important issue that needs to be discussed: Why should small, independent refiners be afforded separate treatment under crude oil equalization tax?

At least two reasons stand out: (1) competition and (2) service.

It is undisputed that small, independent refiners—often in conjunction with the independent marketers they supply—have been the lynchpin of competition in the oil industry, far out of proportion to their size or market share. These refiners have given the public lower product prices and an alternative supply source, free from brand advertising, credit cards and TBA. They have developed innovative marketing techniques including self-serve and mini-serve. They have assured a competitive market for the Federal Government in its vast annual purchases of refined products, thus indirectly benefiting every taxpayer.

Small, independent refiners have offered service where our larger competitors have withdrawn from markets, have not found certain customers desirable or have not wanted to manufacture certain products.

For example, by own company, Rock Island Refining Corporation, is the primary fuel oil distributor in the Indianapolis-Central Indiana area, having taken on this role when several majors withdrew because distillate was not very profitable. During the winter of 1977, Rock Island manufactured and purchased huge amounts of distillate for supply to an area of over a million people who were plagued with the most severe natural gas shortage in their history.

At the other extreme, Warrior Asphalt of Alabama manufactures roofing asphaltic materials. For years, this company provided a steady market for processing grades of crude oil no one else wanted or could use. Yet, in 1973, their price per barrel went up nearly two-thirds, and they were threatened with a supply cutoff if they did not pay. National Cooperative Refining Corporation, located at McPherson, Kansas, supplies thousands of farmers with gasoline and fuel oil. United Refining Company of Warren, Pennsylvania is a major supplier and marketer of gasoline to New York and other northeastern states. Importantly, small, independent refiners create jobs. For example, about 7 employees are needed for every 1,000 barrels of refining capacity. Recent surveys show that each refinery job creates 3.5 jobs in closely allied service and manufacturing sectors. In other words, loss of a 50,000 B/D refinery would mean a loss of nearly 1,600 jobs—a devastating blow to many communities where small, independent refiners are located.

Small, independent refiners are not the so-called "teapots" spoken of so disparagingly by ill-informed officials and, with few exceptions, they are not inefficient businesses which were "lured into production through a variety of incentives" as stated by Secretary Schlesinger in his recent testimony before this Committee. On the contrary, small, independent refiners are solid businessmen whose efficiency and innovation have permitted them to become a significant force in the petroleum industry despite the obstacles of smaller size and crude deficiency.

Even the FEA has confirmed this in its August report on gasoline decontrol. FEA said: "[T]he overall trend since 1971 and since the adoption of the FEA's Entitlements Program indicates that these [small, independent] refiners are able to maintain their market share when they have equal access to a competitively priced crude oil supply."

Today, small refiners are being subjected to intense economic pressures and ever-growing capital needs. They are spending millions on environmental controls and on refinery expansion and modernization. Many independents have embarked on huge capital programs, the goal of which is the conservation of fuel. At the same time, they will have to pay millions of dollars in projected fuel use taxes and, by the Administration's own estimate, will have to absorb as much as one-third of the crude oil equalization tax. This was recently confirmed by FEA in its July 22 Study on Future Capacity Needs, where a 70-75¢ per barrel tax absorption was expected of refineries under the proposed legislation you are now considering.

All of this money has to come from one source—refining and marketing profits. Small, independent refiners do not have the crude oil profit sponge available to the majors. Yet, with all of the financial pressures, these refiners can continue to play their vital role in maintaining a competitive oil industry and in the United States economy, if you members of this Committee and the Senate will plug the gaping hole in H.R. 8444.

Because the Administration has chosen a tax as the means of increasing domestic crude prices, small refiners urge that you provide, within the tax, a continuation of the program which is designed, at least in part, to deal with the cost disparities outlined above. This can be accomplished by the addition of an amendment to Sec. 4986 to provide for a credit or a refund of a portion of the tax sufficient to maintain a small refiner cost offset program.

I repeat: Our association is not seeking a windfall for anyone. We oppose the illegitimate use of the bias and seek only to assure, as Antony said, that the good we do is not interred with our bones. We have in the past, and are now, prepared to work with FEA, DOE, IRS or any other agency in an effort to see that an amendment secures only the continued competitive viability of a small and independent refining industry in this country.

I have attached to this testimony a memorandum which details the facts which are the basis of my statement today and which offers solid and convincing support for the need to provide small, independent refiners relief from the crude oil equalization tax. I would request that it be included in the record.

Thank you.

THE NEED TO RETAIN A CRUDE COST OFFSET FOR SMALL, INDEPENDENT REFINERS

I. THE PROBLEM BRIEFLY DESCRIBED

The National Energy Act as passed by the House would impose a "crude oil equalization tax" on domestically produced crude oil which would be paid, directly or indirectly, by refiners. Over a three-year period, that tax would bring the cost of controlled domestic crude oil up to current world market levels.¹ The crude oil equalization tax would replace FEA's crude oil entitlements program (10 CFR § 211.67), which was made necessary to even out the advantages enjoyed by refiners with access to lower cost, domestic price-controlled crude when price controls were imposed in 1973. However, the phase-out of the entitlements program as the crude oil equalization tax replaces it would result in the elimination of the small refiner bias aspect of the entitlements program.

The small refiner bias, which continues similar predecessor programs in effect since the 1950s, recognizes the need to preserve the crude-deficient small and independent refiner, and the vital role those refiners play in injecting competition into the petroleum industry. Such refiners have an inherent disadvantage vis-a-vis the major oil companies which is due primarily to artificialities resulting from current oil industry structure. The majors own most of the domestic crude oil and they have set market prices for it, and for their refined petroleum products, which have provided large profits on their crude oil but little or no profit in their refining and marketing functions. The result has been an artificial cost-price squeeze on the independent refiner. Absent a continuation of the long-standing recognition of the majors' crude cost advantages, the small and

¹ H.R. 8444, § 2031. The tax is initially on lower tier oil (as defined in the EPAA of 1973) and, during 1978, is one-half the difference between the price of lower tier oil and the price of upper tier oil of the same classification. In 1979, the tax will equal the full difference between lower and upper tier prices. After 1979, the tax is on all price-controlled oil and is the difference between the uncontrolled world market price and the controlled price for any classification of crude oil.

independent refiners will be unable to sustain their role as a check on the power of the large integrated refiners and will face strangulation as forces over which they have no control squeeze them from the marketplace. Without some substitute for the current small refiner crude cost offset in the bias provisions of the entitlements program, many small and independent refiners will be forced to drop from the market, some next year and many over the next three years.

II. WHO ARE THE SMALL, INDEPENDENT REFINERS?

a. Crude deficient and relatively small

As distinct from the major integrated oil companies, the typical independent refiner must purchase most of his crude oil supply and pay the full market price for it.² This lack of control over crude supply and the attendant necessity to purchase crude oil from the majors at prices set by them or the OPEC countries are the most critical characteristics of the independent refiners and distinguish them from the integrated majors. They reflect the most pressing problems of even the larger independent refiners. All independent refiners, regardless of size, share the common characteristic of lacking their own supply of crude oil and share the common disadvantage of competing with the vertically integrated majors who ultimately set the market price.

Another characteristic of the independent refiner is relative size. Most independent refiners are small by oil industry standards. Although many independent refiners are obviously extremely efficient, there are some advantages, such as bulk purchasing power, which come with size. It is important to keep in mind, however, that small refiners are efficient and can compete when true crude oil costs are relatively equal.³ An indication of that fact is that the integrated majors themselves own and operate some 56 refineries with capacities under 100,000 B/D of which 35 are under 53,000 B/D,⁴ either of which size would qualify as a small refiner under the EPAA standard of 175,000 B/D or less.

b. Market importance of majors

According to the Federal Trade Commission's 1973 study, integrated majors, as distinct from independent refiners, include the following 18 firms: Exxon, Gulf, Standard (Ind.), Texaco, Shell, ARCO, Mobil, Socal, Sun, Union, Phillips, Continental, Cities Service, Getty, Standard (Ohio), Amerada Hess, Skelly and Marathon.⁵ The aggregate capacity of these 18 major companies is now at about 75% of total domestic refining capacity; the remaining 25% is spread among some 110 companies who are generally small and independent refiners. More

² In the Emergency Petroleum Allocation Act of 1973, Congress established two precise classifications (which together constitute the independent refiner class vis-a-vis the integrated majors). The term "independent refiner" was defined to cover each firm which (a) in the calendar quarter July-September 1973 obtained more than 70 per centum of its crude oil from unaffiliated sources and (b) distributed a substantial volume of its gasoline output through independent marketers. The term "small refiner" was defined to cover each refiner with a capacity not in excess of 175,000 barrels per day.

The EPAA definition, which is necessarily arbitrary at the borderlines, has produced only two significant anomalies. Sohio and Amerada Hess are not treated as "majors" under the EPAA definition. Standard Oil of Ohio, by reason of crude deficiency in 1973, is defined to be an "independent refiner" although it is recognized historically as a major; this crude deficiency will be corrected when Alaskan crude, in which Sohio has a substantial interest, begins to flow. Amerada Hess is something of a special situation, not only in classification, but due to several additional factors involving its Virgin Islands refinery.

The definition of "small business" for purposes of federal aid programs administered by the Small Business Administration comprises firms (a) with total refining capacity not exceeding 50,000 barrels per day and (b) having not over 1500 employees. For the purpose of sale of government royalty oil administered by SBA, small refiners are defined as those with 45,000 barrel-per-day capacities. A refiner and its affiliates (whether or not related to petroleum) are counted for these definitions. The SBA definitions comprise only a portion (substantially less than half) of the capacity in independent refiner hands (using that general term in contradistinction to the majors). A precise figure is not available because the impact of the affiliation and number of employees' rules is not generally assembled and published. Accordingly, it must be recognized that any Federal action limited to SBA "small business" refiners covers substantially less than half of the independent refining industry.

³ In its *Preliminary Report on gasoline decontrol* (August 1977), FEA Said (at P. 60): "Although the allocation and price regulations helped to preserve the shares of the independent and small refiners during the embargo-caused national crude oil shortage in 1974, the overall trend since 1971 and since the adoption of the FEA's Entitlements Program indicates that *these refiners are able to maintain their market share when they have equal access to a competitively priced crude oil supply.*" (Emphasis added.)

⁴ NPRA, FEA Capacity List, July 22, 1977.

⁵ FTC, "Investigation of the Petroleum Industry," Committee Print, Senate Permanent Subcommittee on Investigations, 93rd Congress, 1st Sess., July 12, 1973, at p. 5.

important for competition, the 1977 FEA gasoline decontrol study⁶ shows that small independent refiners have only about 21 percent of the total gasoline market.

c. Close relationship of independent refining and marketing activities

In addition to the sale of products at wholesale, many independent refiners also engage directly in marketing products at retail. Independents vary in the extent of such downstream activities, some marketing only through jobbers and others through a combination of jobbers, independent retail outlets and/or company owned retail outlets. But a close interrelationship between refining and marketing exists. While independent marketers are free to buy from the majors, the independent refiners constitute their surest supply source.

d. Major vs. independent price differentials

Another basic characteristic of the independent refiner is that the prices of the independents are, and have been over the years, below those for the major brands. This results in part from cost savings (e.g., absence of extensive brand advertising, lack of credit cards and certain services) effected by the independents. It is also required by the marketplace because historically purchasers have expected a lower price from the unbranded independent to persuade them to buy. The import of these facts is twofold: (1) the independents' marketing strategy depends upon price competition, i.e., lower product prices (to the benefit of price-conscious consumers) and (2) if a major (by corporate choice or by government edict) sets its price at the independent's price, it is setting a price which the independent can "meet" only by going lower. Thus, the independent refiner's competitive disadvantage is that it has higher crude oil costs than the major which cannot be recovered by raising marketing prices above those set by the majors.

III. THE INDEPENDENT REFINER IS THE MAINSPRING OF COMPETITION IN THE PETROLEUM INDUSTRY

Ominously, from the viewpoint of the public interest, the total number of refining companies has declined dramatically from 223 in 1951 to 129 in 1977. This decline in the total number of refining companies reflects essentially a decline in independent refiner numbers.

The importance of the independent refiner to competition and lower consumer prices has long been recognized. The FTC has concluded that the independent refiners provide an injection of competition into the market disproportionate to their size or market share:

"The record is clear that independent refiners and marketers exert a beneficial influence upon competition that is disproportionate to their actual representation within the petroleum industry: they have long been innovators of marketing methods and have been the primary agents in translating efficiencies at the production and distribution levels into lower prices at the retail level."⁷

The independent refiner affords the only real assurance to marketers of unbranded gasoline of the availability of gasoline supply. While such marketers may buy significant amounts of their gasoline supply from major refiners, the independent refiner is their ultimate guarantee of an assured supply source and competitive prices in the market. Likewise, for the independent oil producers, the independent refiner constitutes a viable alternative to the major oil companies as an outlet for crude oil production. The independent segment of the refining industry is critically important, therefore, to the maintenance of effective competition throughout the entire petroleum industry.

The Senate Select Committee on Small Business summed it up: "The independent refiner is thus the *mainspring of competition* within the oil industry. His presence not only has economic benefit to individual consumers in their private capacities, but also has indirect public benefit to them as taxpaying citizens, by assuring a competitive market for the Federal Government in its vast annual purchases of petroleum products. (Footnote omitted.) Fourteenth Annual Report, p. 74.) (Emphasis supplied.)

In 1973, the FTC again noted the importance of the independent refiner in the preservation of competition and in maintaining the welfare of the independ-

⁶ See footnote 3.

⁷ Federal Trade Commission Report on Anticompetitive Practices in Marketing of Gasoline, June 30, 1967.

ent marketing sector. The FTC Staff Report on its Investigation of the Petroleum Industry concludes:

"1. The eight largest majors have effectively controlled the output of many of the independent crude producers.

"2. A high degree of control over crude is matched by relatively few crude exchanges with independents, an exclusionary practice which denies a high degree of flexibility to the independent sector while reserving it to the majors.

"3. Independent refiners are largely dependent on the majors for their crude supply, but independents sell very little of their gasoline output back to major oil companies. Independent refiners sell the largest amount of their output to independent gasoline marketers and to their own stations. *Thus, the welfare of the independent marketing sector is largely dependent on the well-being of independent refiners.*

"4. *The continued existence and viability of the independent refiner is necessary for the survival of the independent marketer.* This is especially true since the eight largest majors rarely sell gasoline to the independent marketers." (Emphasis supplied.)

IV. THE SMALL REFINER OFFSET TO THE MAJOR'S CRUDE COST ADVANTAGE: AN INTERIM SOLUTION TO THE INDUSTRY'S STRUCTURAL PROBLEM

The basic problem for the independent segment of the industry is that there is not now a free, open and competitive market in the supply of crude oil.⁸ This is due to the fact that a few integrated major oil companies own or control over 70% of domestic crude oil. Accordingly, Congress has recognized for nearly two decades the need for special consideration for small, independent, crude-deficient refiners. This consideration is currently reflected in the crude oil entitlements program⁹ with its small refiner bias.¹⁰ There are at least four valid reasons for a continuation of such separate treatment for small refiners.

a. An offset is needed because the majors create an artificial price structure by operating refining and marketing at or below cost

Historically, the majors have used their downstream refining and marketing operations primarily as an outlet for their profitable crude production; profits made in crude production have been used to subsidize refining and marketing operations which have been conducted at or below cost.¹¹ A combination of this history, the imposition of product price controls and massive investment in a distribution system designed to maximize market share rather than promote price competition has tended to perpetuate the subsidization.

⁸ See letter to Senator Edward M. Kennedy from Alfred F. Dougherty, Jr., Director, Bureau of Competition, Federal Trade Commission, July 13, 1977, 123 *Cong. Rec.* at S12771-S12774 (July 25, 1977).

⁹ *The Entitlements Program*: Foreign oil is sold at world market prices and is not subject to the price lids imposed on domestic oil. Some types of domestic oil can be sold at higher or uncontrolled prices to encourage development of new U.S. sources of crude. Pursuant to the FEA's "entitlements" program (10 CFR § 211.67), each month the FEA gathers information from U.S. refiners on total crude runs through their refineries and the percentage of those runs made up of price-controlled domestic crude and the percentage made up of uncontrolled domestic or foreign crude. A national ratio between controlled domestic and uncontrolled domestic and foreign crude is determined. "Entitlements" to run barrels of the cheaper price-controlled crude are then issued to refiners by applying the national ratio to each refiner's total runs. Refiners who have run more lower priced domestic crude in a given month than the national average must buy "entitlements" for those additional barrels of domestic crude runs from refiners who have run less such crude than the national average and thus have been issued more entitlements than they need to cover such crude runs. Each entitlement is assigned a dollar value, based on the difference between the national average of controlled prices and uncontrolled prices. The money which changes hands is designed to even out, but only at the refinery level and only in terms of national averages, what would otherwise be an unfair price advantage for those refiners which have greater access to low cost price-controlled domestic crude oil than those refiners which must use higher priced crude.

¹⁰ *The small refiner bias*, 10 CFR § 211.67(e), is a short-hand way of describing the system of granting small refiners (both those who are buyers and those who are sellers of entitlements) additional entitlements primarily in recognition of the need for a crude oil cost offset. The bias is calculated on a refiner's runs to stills, the value of the bias declining as the size of the refiner increases. The bias accounts for approximately 5.5% of the total dollars transferred under the FEA's entitlements program. Listed below are the values of the bias for small and independent refiners of various sizes calculated by the FTC in July 1977 based upon an entitlement price of \$8/bbl: 10,000 B/D—183.0¢ per barrel crude; 15,000 B/D—144.2¢ per barrel crude; 30,000 B/D—88.8¢ per barrel crude; 50,000 B/D—41.6¢ per barrel crude; 100,000 B/D—12.6¢ per barrel crude; and 175,000 B/D—1.5¢ per barrel crude.

¹¹ According to John Phelps, an FEA economist, in his Summary of Analysis of Segment Financial Statistics, the majors' pre-tax return on investment in refining and marketing during 1970-74 was only 2-5% on average.

This basic economic fact has been repeatedly recognized in government studies and, indeed, by oil industry leaders. For example, in the FEA hearings in February 1976 on the reevaluation of FEA's price and allocation controls, major oil companies stated that their refining and marketing activities did not earn an acceptable return or, indeed, operated at a loss.¹²

The competitive predicament of the small, independent refiner was recently confirmed in a report prepared on his own time by John H. Phelps, a respected FEA economist. The report concludes, according to Morton Mintz of The Washington Post, that "the majors clearly have market power incompatible with classical competition and use it manipulatively by taking 'upstream profits,' made on production to pay for huge outlays that prop up unprofitable operations downstream, particularly refining and marketing."¹³ As long as profits made in crude markets, where meaningful competition does not exist, are used to subsidize operations in the refining/marketing segment where the crude refiners face competitive challenge, some recognition, in terms of an offset for independents, must be maintained in order to retain that competition and keep consumer prices down.

This view was persuasively endorsed very recently by the Federal Trade Commission's Bureau of Competition in a letter to Senator Kennedy as Chairman of the Subcommittee on Antitrust & Monopoly of the Senate Judiciary Committee.¹⁴ That letter recognized the inherent disadvantage of the independents vis-a-vis the majors and suggested continuation of the small refiner bias type of relief pending some long-term correction of the problems created by the industry structure.

"If the petroleum industry is and had been historically characterized by workable competition at all its levels, we would not hesitate to say that economic efficiency and public welfare would be enhanced by the elimination of the small refiner bias. But if the ability of independent refiners to enter and become efficient operators is and has been impaired by an existing or historical anticompetitive industry structure, a different public policy toward small refiners may be warranted.

"In our view, which we are pursuing in the *Exxon* litigation, the industry structure is noncompetitive and has been for a long time. Independent refiners, if they have had access to crude oil at all, may have had to pay effectively more (without cost justification) than their larger competitors. Through their control over crude supplies and crude and product prices and because of their propensity to use crude profits to subsidize downstream operations, the majors seemingly have been able to make independent refiners the victims of an artificial refinery margin squeeze and to deter entry or expansion by such independents. *Government assistance to victimized classes of refiners, in the short run, may be required to offset these anticompetitive problems until the antitrust mechanism can make the industry structure competitive.*

"Until a more open crude oil market can be established (by legislation or otherwise) or until the refinery squeeze phenomenon can be eliminated (by vertical divestiture legislation or litigation, publication of major company financial data by functional segments, or some other solution), *an interim legislative measure to encourage efficient, independent refineries may be warranted.*" (Emphasis added.)

b. An offset is needed to make up for independents' lack of access to owned crude oil supplies

Small refiners with no access to owned crude oil supplies are at a definite crude cost disadvantage as compared with those integrated refiners who own their own crude oil. For example, in a recent study mandated by Congress dealing with the impact of FEA regulations on independent and small refiners, the FEA said: "First, major refiners have definite advantages in access to preferred crude supplies, in buying at low cost directly from producers, and in minimizing crude delivery costs. It is our experience that other (non-major) refiners actually incur crude costs of 20-40¢/barrel over producer prices in order to obtain required supplies."¹⁵

More important, the major's ownership of domestic crude, even without advantages such as the depletion allowance and foreign crude ownership, nevertheless provides a source of healthy profits and cost breaks, particularly as a result

¹² E.g., Statement of Sun Oil Company, p. 2; Continental Oil Company, p. 3; Exxon, p. 4.

¹³ Mintz, *Private Study Says 18 Oil Divestitures Could Cut Gas Cost*, The Washington Post, July 2, 1977, at A3, Col. 1.

¹⁴ Letter to Senator Edward M. Kennedy, see footnote 7.

¹⁵ FEA, Office of Oil and Gas, *Impact of Mandatory Petroleum Allocation, Price and Other Regulations on the Profitability, Competitive Viability and Ease of Entry of Independent Refiners and Small Refiners*, Report to Congress, Appendix p. 3 (March 1977).

of pricing set by the OPEC cartel. As an example, one experienced refiner has estimated that production and transportation costs of domestic crude are in the range of \$4/bbl. As can be seen, even today, every barrel of so-called "old" or lower tier crude produced would yield, on a selling price of about \$5.50, a profit of about \$1.50 (about 3.6¢/gallon) and upper tier oil selling at \$10.00 would yield a profit of about \$6+/bbl. (15¢/gallon). And when the crude oil equalization tax is fully implemented, it has been estimated that lower tier oil will yield \$2/bbl. profit and upper tier oil \$7/bbl.¹⁶

Profits earned from the production of crude oil are vitally necessary for the continued exploration for and production of the crude oil which is essential for all refiners. However, it must be recognized that such profits do provide a dramatic crude cost advantage for the major integrated company over the small and independent refiner who must purchase crude at the market price. The inherent disadvantage suffered by the independents can be seen when the majors use profits from production not for exploration but as a subsidy for the refining/marketing operation which is not carried on as a separate profit center.¹⁷

c. An offset is needed because the entitlements program alone (or its replacement by the crude oil equalization tax) does not fully equalize prices and leaves many independent refiners with abnormally high costs

Without the small refiner bias or some similar crude cost offset, the existing entitlements program¹⁸ would leave the small refiner at a disadvantage, notwithstanding the intention of the program to "equalize" prices. First, the entitlements program does not compare the actual crude costs of an integrated refiner (exploration, lifting, etc.) with the actual crude costs of the small and independent refiner (the price paid in the market). Instead, the major's "cost" is deemed to be the price at which it "books" its crude in at the refinery, which already includes its production profit. That artificial "cost" is compared against the independent's real cost which is the price which it must pay to the major or other producer in the market. Secondly, even if the major refiner must go to the market, it is likely to pay less than the small independent. As the recent FEA Report to Congress¹⁹ states: "[M]ajor refiners have definite advantages in . . . buying at low cost directly from producers. . . ." Beyond the advantages described by the FEA Report, there are other disparities which are not equalized by a system based on price averages and which are borne especially by the independent: (1) many independents must buy "sweet" foreign crude oil at higher prices than the average for imported oil, and (2) although many independents use lower quality domestic oil which imposes higher refining costs, they must pay the same entitlement price for each such barrel as a refiner using higher quality domestic oil. The major oil company purchaser gets to keep the benefit of its lower than average costs in such a system. Recognizing these particular problems of the small, independent refiners, the small refiner bias was employed to help offset the advantages enjoyed by the majors. Substitution of the entitlements program and its small refiner bias with a crude oil equalization tax without such an offset provision is not justified and will place the existence of that valuable small refiner segment of the industry in jeopardy.

d. An offset is needed to preserve the small refiner as a competitive catalyst in the petroleum industry

The existing small refiner bias in the entitlements program is designed to offset some of the crude cost advantages mentioned above. This offset also recognizes the value which this country, for years, has placed on the role of small business in our society. Not only is a dispersion of power in numerous units throughout the country a valuable social goal, it serves rural and farm populations which might otherwise be abandoned or served at intolerable expense, and provides a base from which new competition may emerge and grow.

Some have argued that inefficient refineries have come on stream to take advantage of excessive benefits and that existing small refineries have abused

¹⁶ United Refining Company Study on the effect of the crude oil equalization tax, submitted to Senate Subcommittee on Antitrust and Monopoly, July 15, 1977.

¹⁷ This has been confirmed by Phelps (see footnote 11). His Summary states: "Since cross-subsidization is generally viewed as the covering of financial losses in one area of operations by profits in another, this clearly was taking place by the majors for their downstream operations. A comparison of standard financial ratios indicates that the majors' total domestic operations beyond the lease were not financially viable. . . . As a result, producing earnings were increasingly used to subsidize downstream petroleum operations in the late 1960s and early 1970s."

¹⁸ For a description of the entitlements program, see footnote 9.

¹⁹ See footnote 15.

the bias by so-called processing agreements under which the refiner gets small refiner bias treatment for oil refined for it by someone else at a larger refinery. Of course, FEA has recently eliminated the bias entitlements for processing agreements and has had the full support in that effort of most small and independent refiners, and their trade associations, who are absolutely opposed to such abuses. As to whether some changes in the current bias may be appropriate, that is a question which the new Department of Energy can consider and its predecessor, the FEA, has indicated it is currently considering. What is absolutely clear, however, is that the small and independent refiner needs some substantial offset against the majors' crude cost advantage.

The small refiner program, in its present form, was put in place in May 1976 after substantial and detailed review of the program by FEA and Congress. At that time, FEA advocated, and Congress approved, an increase in the bias from its original 1975 level because of the small refiners' continuing cost disadvantages. If it is now believed that inefficiency is encouraged by the current levels, adjustments can be made using procedures already in place for just such a purpose. It is not necessary to destroy an entire program essential to viable competition in the marketplace in order to correct what some may perceive to be a problem in a small part of it. Surely, the fine-tuning of the program, which is FEA's responsibility, should not be performed with a meat cleaver as would happen if the crude oil equalization tax is permitted to eliminate the entitlements program without a provision in the new legislation continuing the offset for small refiners to the crude cost advantages of the majors.

V. CONCLUSION

In its present form, the proposed National Energy Act would abruptly terminate the government's long-standing policy of helping to preserve our nation's approximately 110 small and independent refiners. Yet, because even the Administration concedes that refiners will be forced to absorb a third of the crude oil equalization tax, the need of these refiners for that assistance has never been greater. The public's interest in continuing the competition which small refiners provide in this time of escalating consumer prices is equally compelling.

A crude cost offset for small and independent refiners has taken various forms in the past and just as readily can be adapted to the future. The entitlements program, by its small refiner bias, provides the vehicle presently used to implement that relief. Clearly, the termination of the entitlements program need not, and should not, result in killing an established national policy which has proved its worth over the years, both for consumers and the government. Methods exist, totally harmonious with the purposes and methods of the Act, by which that policy can be maintained. But *some* form of continued relief from the tremendous cost handicap faced by small and independent refiners must be adopted. America's current energy crisis simply must not be allowed to precipitate the elimination from the market of the critically important segment represented by the nation's small and independent refiners.

The CHAIRMAN. Is Mr. Eugene F. Rinta, Executive Director of Tax and Finance, here?

We will now hear from the panel: W. J. Taylor, president and chief operating officer, Illinois Central Gulf Railroad Co.; Prime F. Osborn, president and chief executive officer, Seaboard Coast Line Industries, Inc.; and William H. Dempsey, president, Association of American Railroads.

STATEMENT OF WILLIAM J. TAYLOR, PRESIDENT AND CHIEF OPERATING OFFICER, ILLINOIS CENTRAL GULF RAILROAD CO.; ACCOMPANIED BY PRIME F. OSBORN, PRESIDENT AND CHIEF EXECUTIVE OFFICER, SEABOARD COAST LINE INDUSTRIES, INC.; AND WILLIAM H. DEMPSEY, PRESIDENT, ASSOCIATION OF AMERICAN RAILROADS

Mr. DEMPSEY. We have submitted statements which we would ask to be inserted in the record. I would like to begin by summarizing my statement.

I would like to address briefly the role of the rail industry in connection with the energy program which is reflected in the bill that is under consideration by the Senate and suggest in a general way some of the tax provisions that we would like to recommend to the committee for its consideration. Mr. Osborn and Mr. Taylor will deal with those recommendations in more detail.

One of the major features of the national energy bill is an increased concentration upon the production and use of coal. It has been fascinating to listen to discussion this morning about the possibilities of different sources of energy in the future. Obviously, those things are of the utmost importance, but as a replacement fuel, I think no one questions that coal will be dominant. It is there, it is plentiful; we know that it works, and it comes at a cost that industry can afford.

The production of coal has always been terribly important to the railroads. Coal is our No. 1 commodity; it represents some 29 percent of rail tonnage originated and some 14 percent of our gross freight revenues. We feel that we carry it very well indeed.

The railroad industry transports about two-thirds of all of the coal that is mined in the United States. The increased coal production if the President's goals are met would amount to some 400 million tons over 1976 production by 1985, or to put it differently a total coal production in that year of about 1.1 billion tons. That represents about an 8-percent annual increase in the production of coal on the average.

It is plain enough that it is the railroad industry that will be called upon to shoulder the principal responsibility for transportation of that coal. The question then is can the railroad industry do it and what measures might be taken to make certain that the railroad will be able to discharge its public interest responsibility in the best possible way.

We are ready and willing and we think able to meet this challenge, and I would like to give you some indication of the kinds of things that we see will be needed in the industry. We will need first of all substantial new equipment. Our estimates are that including replacement cars our requirements for new coal cars will range from 9,700 to 13,400 cars a year for the next 8 years, depending upon the degree of unit train operations. The more extensively we can use unit train operations, the lower our requirements will be. We do feel that most of this coal since it will be used by utilities for generation of electricity will be amendable to unit train delivery. We have the capacity to purchase that kind of equipment in the sense that they can be built and indeed over the last several years we have been receiving something in the range of 15,000 additional coal cars a year. The railroad supply industry has plenty of capacity to produce many times that number a year so there is no real problem in that respect.

The same situation is true with respect to locomotives, generally speaking. That is, we will need a lot more, but the facilities are available for building locomotives and there will be no leadtime problem. We are getting cars and locomotives on the average about 3 to 5 months after order. Rail can be delivered in about 90 days on the one hand, and on the other hand it takes 4 to 6 years to put a coal mine into production, and it takes something like 8 to 10 years from the time a decision is made until an electric generating plant goes on line in producing electricity.

Of course, all of this will cost substantial additional money. Taking the cars and the locomotives alone, we estimate that we are looking at

a cost during this 8-year period of something in the range of \$4 to \$6 billion over what we otherwise would be facing.

So far as the plant is concerned, there is no question about the potential ability of the fixed plant to handle any conceivable increase in coal traffic. There is plenty of capacity there but at the same time just as plainly there are some difficulties associated with the physical condition of some segments of the rail plant. This is particularly true of those segments of the industry that are now carrying lighter amounts of traffic and not as heavy loads.

Most of the Nation's main lines are in good condition but as the committee chairman is well aware that is not true of certain parts of the Northeast and it is also not true of certain lines in the Midwest. Certainly it is the case that secondary rail lines will be called upon to carry large amounts of this coal, and they are not up to grade in terms of handling that additional and very heavy traffic. We have had 20 years of diminished rail traffic on these lines and we have had generally speaking inadequate rail industry profits. This has just made it impossible to have capital replacement that is necessary in order to serve the kind of traffic that will carry these huge additional amounts of coal.

Now, so far as improvement in road property—fixed plant as opposed to locomotives and cars—the railroad industry has to rely on internally generated cash flow because conventional railroad mortgages reach after acquired properties. This really precludes recourse to debt financing since such loans would be unsecured. So as I say what the railroads have to have is enough cash flow to make these improvements.

This committee and the Senate is well aware of the capital needs of the industry entirely apart from the energy program. The Department of Transportation at the direction of the Congress right now is conducting a study pursuant to last year's legislation the so-called "4-R Act" to determine the capital needs of the industry. It is clear enough that we are talking about the future modernization and expansion of fixed plant requiring something in the way of \$10 billion just looking at the plant itself, particularly track, and then something in the way of an additional \$8 billion for capital needs in addition to track such as signal systems, communications systems, classification yards, and things of that sort. The reason that these capital needs have not been met is that the industry has had an inadequate cash flow—which generally has not been high enough to permit these investments. As I indicated the energy program just makes these needs even more impressive and adds to them.

The solution for the problem that we face therefore as we see it lies in helping the industry achieve an adequate cash flow. What we are proposing in principle are cash flow incentives for the industry. We need those incentives to allow each of our companies to generate funds to put its roadbed in first class condition, to install modern electronic yards, to invest in up-to-date communications equipment and to acquire additional locomotives and coal hopper cars for the fleet.

I will just outline in a very general way these tax incentives, and as I say my colleagues will elaborate on them.

First of all we would propose an increase from 10 to 15 percent for qualified investment in equipment or road property. There is precedent

for this in the House-passed bill which includes a special 10-percent business energy investment tax credit in addition to the regular investment tax credit for certain types of energy related property.

Second, we would urge the committee to consider a 5-year amortization period for investment in additions and betterments to the track, rolling stock including locomotives, signals and communications equipment including centralized traffic control systems and classification yards.

We would underscore that in order for rapid amortization to achieve its goal the investment credit should be based on useful life rather than amortization period and the incentive should not be regarded as a tax preference for the purpose of the minimum tax.

Third, we would recommend extension of the investment tax credit and rapid amortization with full investment tax credit and no minimum tax consequences to any interested investor such as an interchange railroad or a customer such as a public utility. These incentives would enhance the coal carrying capacity of the railroad exactly as would a similar investment by a railroad.

Fourth, we support refundability of the investment credit, as the chairman is well aware, and we hope that this proposal will receive favorable consideration.

Fifth, we would simply note that we hope that there will be whatever oversight or remedial legislation as may be necessary to insure that the administrative practices of the Internal Revenue Service do not so restrict the use of leverage leases of sorely needed rolling stock as to thwart the will of Congress.

That concludes a summary of what my statement contains, Mr. Chairman.

Mr. DEMPSEY. I would like to turn to Mr. Osborn to continue our presentation.

Mr. OSBORN. Mr. Chairman, thank you for allowing us to appear today. I appear on behalf of the railroad industry and the Family Lines System.

The Family Lines System consists of 16,000 miles and is the third largest coal carrying railroad in the country.

The purpose of our appearing here today is to urge upon this committee the adoption of tax provisions which would be of immense aid to the industry in meeting the increased need for capital resulting from shift to coal as the major source of energy and also the need for a more efficient railroad system as a method of transporting it. It seems clear, as has been indicated, that the national energy policy is going to place a greater emphasis on the use of coal as a primary energy source. It is available in abundance in known reserves to provide a source of energy for many years to come.

The President's energy program calls for an increase of over 60 percent in the production of coal by 1985. This increase in production, of course, as indicated affects the railroads and requires considerable upgrading of the track structure as well as grading additional equipment acquisitions. Apart from the connection with the coal production, the railroad industry plays a very important part in fuel conservation since it is the most energy efficient mode of transportation.

The national energy policy must recognize, in our judgment, that fact and emphasize an increased use of railroad facilities. Again, how-

ever, in order to be truly an efficient operation much in the way of capital improvements must be made not only to the physical system but also to the equipment fleet.

Since the Federal Family Lines System is the third largest coal hauling railroad I can give you a picture of what would be needed, certainly insofar as our railroad is concerned, in order to handle this enormous coal hauling. New rail lines must be constructed. Existing lines must be upgraded to handle the increased loads. Additional storage tracks and passing tracks must be added. Classification yards must be extended and additional tracks added. Additional track and traffic requires improved and additional signaling and communication. The equipment itself must be upgraded.

More 100-ton cars are needed for each movement. As more utilities convert to or come on line with new coal-powered plants, more unit trains will be run requiring more locomotives. In short, we are faced with heavy capital investment needs in fixed plant and equipment. One of the chief sources for investment for the railroad industry is retained earnings. Large existing mortgages make financing of roadway improvements from outside sources somewhat difficult if not impossible. The tax proposals we advocate increase the earnings available for the needed investment and open new sources of investment capital to us. By increasing the investment credit to 15 percent and providing for a refund of unused credit railroads with good earnings records and as well as those whose records are not so good, have a valuable source of cash for needed capital improvements.

The proposals for transferability of credit and amortization as well as tax-exempt status for State bonds used to finance railroad equipment and facilities would make available additional sources of financing. Transferability of credit and amortization reduce the cost of traditional equipment financing and open up new opportunities for cooperation by railroads in meeting each other's needs for capital improvements. It can be easily accomplished by allowing the two parties to the lease or finance transaction to elect which will use the credit and amortization on its return.

The proposal to exempt bonds issued to finance the acquisition of rolling stock and other equipment from industrial development bond status will allow the railroads to tap the tax-exempt bond market.

The railroad industry welcomes its important role in the energy crisis and particularly the increased traffic which will result from the increased emphasis on coal and the increased use, in general, of its energy efficiency mode of transportation. At the same time Congress should realize the impact of these developments upon the capital needs of the railroad industry. We believe that the industry can meet these needs with the help of the tax incentives we have urged here.

Thank you.

**STATEMENT OF WILLIAM J. TAYLOR, PRESIDENT AND CHIEF
OPERATION OFFICER, ILLINOIS CENTRAL GULF RAILROAD**

Mr. TAYLOR. Mr. Chairman, as you know, I am Bill Taylor of the Illinois Central Gulf Railroad. I have filed a statement that I hope

will be incorporated in its entirety and I will attempt to highlight it for the committee.

As you know, we operate through the center of the country from Chicago, Ill., to New Orleans and Mobile in the South and our company really is predominantly a coal-hauling railroad. Coal produced in 1976, 60 percent more than any other commodity group. We had 288,000 cars in 1976 and that was in effect a depressed level of coal traffic due to the several forces such as the coal being high sulfur.

The ICG gets its origin coal basically from western Kentucky and southern Illinois, but it also participates in large degree in movements of western coal into the central part of the Nation for consumption in powerplants on our railroad. But just our origination coal—that is southern Illinois and western Kentucky—it is estimated that there are 117 million tons of reserves, so we anticipate that coal will continue to be a very important part of our railroad's business.

Since railroads are the most energy efficient form of transportation we also assume that the industry will be an important part of this increased energy effort. The rail industry is capital intensive; that is obvious.

Mr. Dempsey has told you about the needs of the industry and I would like to quantify some of the ICG's needs if it is to do its part in this effort.

Our studies reveal that based upon anticipated carloadings over the next 5 years we would be required to construct annually at least 600 new 100-ton hopper cars solely to remain at the 1976 equipment levels, that is taking into account necessary retirement. At today's price levels that represents approximately \$18 million annually in acquisition costs for coal cars apart from the additional costs of new or rebuilt locomotives. If the ICG coal-hauling equipment were to be doubled, and that is not an unreasonable possibility, the projected annual costs of present price levels of approximately \$36 million for new coal hoppers would almost equal the entire car purchase cost for the ICG in 1976.

These are total costs over the next 5 years of \$180 million. We would estimate the costs of new locomotives at approximately \$6 million annually to assure the needed power for coal hopper equipment. The tax changes recommended, which Mr. Dempsey summarized, will aid in the financing of these costs. We propose 5-year amortization of railroad rolling stock in locomotive to encourage the needed investment. To make 5-year amortization workable, however, the incentives should not be regarded as an item of tax preference for purposes of computing the minimum tax and the investment credit should be available on the qualified investment based on its useful life and not on the amortization period.

I would also like to emphasize the effect of proposed provisions will have on those railroads which from necessity have resorted to leasing to assure fulfillment of their capital program. To some extent the ICG is one of those railroads. There are a variety of reasons why a lessee chooses a lease rather than a purchase of equipment. However, the necessity to conserve cash and the shortage of available credit under normal bargaining arrangements are the two most prevalent in the rail industry.

Moreover, if the lessee cannot utilize the depreciation deduction on investment credit on the equipment, it may obtain a substantial portion of the benefits of such deductions or credits to be taken by the lessor/owner. The latter will utilize them and be willing to reflect such benefits by requiring lower rentals of the lessee.

I will give you an example of the specific case in our railroad in recent months. In recent negotiations the difference between the lessor claiming the investment credit on the one hand and the lessee, the ICG, on the other, by a passthrough of the credit to the lessee amounted to a reduction in the effective cost of financing the equipment of 4 percentage points in the lease situation. This would represent over the term of the lease a rental savings to the ICG of approximately \$1 million. I should add with the purpose of providing capital to those railroads most in need of such assistance Congress should very seriously consider the refunding to railroads of investment credits generated and/or expiring after the effective date of such legislation. Refundability would provide the railroads which need it most additional cash with which to upgrade existing railroads for carrying coal. For the marginal railroad the refundability certainly would be the most immediate way of providing much needed capital. The concept of refundability is not new to this committee nor I am well aware isn't new to the chairman. We think refundability is the way to go.

Thank you again for our being here.

The CHAIRMAN. Thank you, gentlemen.

I hope that we are able to move forward on any bill, including this one, with the refundable tax credit because to me if the Government wants to do something, that is about the most efficient instrument I can think of. We have to face up the fact of what we want to do in terms of investment tax credit. Let's not kid ourselves. We want somebody to undertake some investment, and so we say we will give him a tax advantage if he does it. Once you do that there is no reason why you ought to deny the fellow who is a marginal operator who invests now. We have taken care of that for the railroad industry. You don't have to be limited to just 50 percent of your taxable income, you can claim the credit against your entire income; but that is not adequate to take care of the people who are having a tough time making it. We have to make a tax credit refundable. And I hope that we can do that.

Now, in this room you undoubtedly heard two Senators say they don't expect to vote for that crude oil equalization tax. You heard the chamber of commerce say they are against it and the American Federation of Labor indicated they are against it. It is my thought that we ought to be willing to pay for what we want to accomplish in this bill. We ought to be willing to raise enough revenue to pay for it and from the Treasury's point of view, even though you argue it all will make its way back into the economy, it costs money. That is why, in my judgment, we ought to go ahead and pass this crude oil equalization tax and use the proceeds for things like you are talking about here, such as to modernize the railroad. Do you think if we give you what you are asking for here you can do that job?

Mr. DEMPSEY. Yes, Mr. Chairman, we do.

[The following was subsequently supplied for the record:]

ASSOCIATION OF AMERICAN RAILROADS,
Washington, D.C., September 23, 1977.

HON. RUSSELL LONG,
Russell Senate Office Building,
Washington, D.C.

DEAR SENATOR LONG: At the September 13 hearings before the Senate Finance Committee on the Energy Tax Act of 1977 (H.R. 8444) you asked me if the railroad industry would be able to employ any of the funds generated by the proposed crude oil tax to help the nation meet its energy goals. I would like to amplify my response.

The answer is indeed yes. The railroads are already an important factor in helping the nation both to produce and to conserve energy. The railroads presently carry fully two-thirds of all the coal produced, a fuel that figures to become increasingly important in meeting the nation's energy needs. And there is no mode of transportation that is as energy efficient as railroads in moving coal and many of the thousands of other commodities that comprise the nation's freight.

But the railroads need to play a still greater role if the nation is to work toward energy self-sufficiency, both by greater energy conservation in moving freight and by greater reliance on coal. And here is where the funds generated by the tax on crude petroleum enter. These funds can be of great assistance to the railroads as a source of the capital that the railroads require if they are to play this expanded role.

The railroads have large capital needs, and the cash flows in recent years have been far from sufficient to meet them. The railroads themselves, the Department of Transportation and the Interstate Commerce Commission have estimated the future capital requirements of the railroad industry. The railroad industry's ASTRO report in 1970 pegged the industry's capital needs at \$2.7 billion per year on the basis of 1969 costs. This estimate of need rose to \$2.9 billion per year when recomputed in terms of 1973 costs, as shown in the "ASTRO II" report submitted to the ICC in Ex Parte 305. Inflation since 1973 would raise this amount considerably higher. The DOT's National Transportation Report, issued in 1972, generally reaffirmed the industry's capital needs at the ASTRO level for maintenance of the railroads' current market share, but found that the industry's requirements will be approximately 25 percent higher than the ASTRO levels in order for the industry to meet improved performance goals by 1980.

Another recent estimate of the industry's capital needs was made by the ICC as part of Ex Parte 271, Net Investment—Railroad Rate Base and Rate of Return. This study estimates ten-year equipment needs for the industry at \$27.8 billion in constant 1975 dollars and \$39.6 billion at assumed future inflation rates. In addition, it concluded that \$14.5 billion (1975 dollars) should be spent over the next decade on fixed facilities for achieving a normalized track maintenance level, track additions and betterments and other roadway facilities, exclusive of Conrail and carriers in reorganization. These estimated fixed facility capital needs become \$20.4 billion under the Commission's assumption for future inflation.

Capital expenditures during the past decade, which totalled \$14.4 billion from 1967 through 1976, have been at only half or less the level indicated by these studies of need. Capital expenditures at their current level, even though well below the estimated needs of the industry, have been straining the financial resources of the industry severely. In fact, capital expenditures have exceeded the cash flow of the industry (that is, retained income and depreciation combined) in every year since 1963. In the most recent 12 months, capital expenditures have exceeded cash flow by over \$1.3 billion. It would be important, therefore, to assume that the railroads will be able to sustain even the present level of capital expenditures, as far short of the needed level as even it is, absent some basic changes in their earnings and their borrowing capacity. There is, in sum, a demonstrated need for capital in the railroad industry that is not being met. Some of the proceeds of the proposed tax on crude oil could be appropriately applied to this unmet need.

Indeed, if railroad capital expenditures continue to fall short of the needed sums, the result must inevitably be a vicious circle of higher operating costs, deterioration in service, and lost business opportunities, and a further weakening in the railroads' ability to finance further replacement and modernization programs at reasonable costs. This could lead eventually to a curtailment of service by the very mode of freight transportation that has a great potential for serving the nation's energy goals.

There are a number of uses for additional capital in the railroad industry that will not only produce a substantial return on investment, but will also contribute to energy conservation and production.

The railroads are the most fuel efficient mode of general freight transportation. According to a study by the Congressional Budget Office, estimates of the fuel efficiency of railroads in general freight service range from 639 to 816 BTUs per ton-mile while the range for trucks is 1,870 to 8,683 BTUs per ton-mile. For bulk deliveries, railroads can generate fuel consumption rates as low, by some estimates, as 226 to 330 BTUs per ton-mile in unit train operations, considerably lower than any estimate of the fuel efficiency of either barges or oil pipelines for comparable traffic movements. Consequently, greater reliance by shippers on railroads to carry both their general merchandise freight and their bulk cargoes will conserve on fuel, particularly the relatively more scarce petroleum-based fuels used for transportation. The proceeds of the proposed fuel taxes could be wisely used in upgrading railway fixed plant, as the railroads have not had access to the capital markets for financing roadway and facilities to nearly the same extent as for car and locomotive financing. Investments that create a more modern and efficient fixed plant will reduce railway operating costs, thus helping to hold rail rates down. They will also improve the quality of rail service by enhancing the speed and reliability of deliveries and reducing damage to lading, thus helping to attract more traffic to the fuel-efficient rails.

Piggybacking is proving to be an effective means for winning back to the railroads general merchandise traffic that has opted for the superior service characteristics of truck delivery. With piggybacking, the truck-trailer travels by rail for the line-haul portion of the trip; it is on these line hauls that railroads offer the greatest fuel economies over highway transportation. Piggyback has been one of the fastest growing categories of rail traffic in recent years. There have been substantial changes in piggyback technology recently which, combined with piggyback's rapid growth, have rendered many of the early piggyback terminals and facilities obsolete and inadequate. The railroads could profitably employ some of the monies generated by the proposed fuel taxes on improving and expanding their piggyback operations.

The President has proposed in his energy bill to expand coal production to 1.1 billion tons per year by 1985 in order to help meet energy needs from domestic sources. The railroads already carry two-thirds of all the coal produced, and expect to continue to carry at least this share as production grows. For not only do the railroads already have the capacity for handling this additional traffic, in terms of existing rights-of-way, but they can also carry it more cheaply than any other mode of transport, both in terms of total cost to the shipper and in terms of energy consumed.

However, this tremendous expansion of coal traffic will require an enormous investment in new coal hopper cars and locomotives and in track and yards. With appropriate tax incentives, most railroads will have little difficulty in obtaining the capital funds necessary for coal cars and locomotives. On the other hand, most railroads have not found it equally easy to obtain the capital funds required to provide for the upgrading of the fixed facilities for this onslaught of coal traffic. Many of the lines that serve coal producing regions in particular need to be rebuilt with heavier rail. Yards that will handle these larger volumes need to be modernized and expanded. Equipment for loading and unloading cars quickly must be installed. A number of the railroads that will be called upon to handle greatly increased coal shipments are the smaller and the financially more marginal carriers, particularly in the Northeast and Midwest, that have not enjoyed equal access to the capital markets as their larger, more prosperous brethren. The proceeds from the proposed fuel tax could be wisely employed in aiding railroads to prepare for the greater coal traffic ahead.

Naturally, the terms of Federal assistance—both the cost to the recipient and the conditions under which it can be provided—will dictate the extent to which individual railroads will use whatever aid is established and the consequent public benefits that will accrue in meeting the nation's energy goals. For some railroad projects, low interest, repayable financing could have significant application. For other projects involving either relatively low rates of return and/or railroads whose marginal financial condition effectively precludes the assumption of additional debt, a program of matching grants would seem to be the most promising vehicle.

There are a variety of mechanisms through which this assistance could be administered, including a Reconstruction Finance Corporation type arrangement

for energy-related projects. However, in our opinion, the most important feature of such a program is not its institutional form but the fact that whatever aid is authorized should be available to qualified applicants within a reasonably short period and without the onerous filing requirements and unreasonable restrictions on necessary management powers which seem to characterize the new Federal aid programs under Title V of the Railroad Revitalization and Regulatory Reform Act of 1976. In the first 16 months of experience under Title V, only one railroad was able to secure any of the \$1.6 billion in repayable aid first provided by the Congress in February 1976. And because of the extraordinary restrictions imposed, only six of the 57 Class I railroads have even applied for aid to date.

We appreciate your interest in this subject and stand ready to pursue this matter in greater detail at your convenience.

Sincerely,

W. H. DEMPSEY.

The CHAIRMAN. It is not going to do any good if you mine the coal and you cannot get the coal to the point of use. So if we are going to do it, we ought to have the courage and the responsibility to raise revenue that we are trying to spend. I am not here talking in favor of refunding it. It is a sort of futile effort to put a tax on someone and then give it back; he will think you are nuts. He won't see the point in it and neither do I. We want to raise some money. The American people understand it is for a purpose. We enact a tax, and the idea is to get more energy. We should put the money where we think it will get the best results. I think that would help.

You gentlemen heard Vice President Rockefeller testify today. What is your reaction to his presentation?

Mr. DEMPSEY. Unhappily, we didn't hear all of it. Of course, the industry has no position on it. My personal reaction to it is that it sounds interesting.

The CHAIRMAN. What he suggested was that we ought to have something like a Reconstruction Finance Corporation. It should be limited to energy projects, and where loans are not available that otherwise should be, there should be either loan guarantee or a loan by this new, let's say, Energy Development Administration. What is your reaction to that?

Mr. DEMPSEY. I ask my colleagues to give their personal views. I must say I am terribly fascinated by the discussion both by the former Vice President and the members of the committee. I have heard a number of people discuss the problems associated with bringing into commercial production more exotic and more risky kinds of energy sources. It seems to me there is some role that Government must play. I don't know whether it is precisely the kind that the Vice President suggests, I am just not an expert on that, but the emphasis upon a dedication of the attention of the Congress and the administration and the whole country to the production as well as the conservation of energy makes a great deal of sense to me personally.

Mr. OSBORN. Mr. Chairman, I would not comment pro or con except to say that what seemed to be proposed by the former Vice President while it may be good does not reach, in my judgment our particular problem because about 80 percent of our capital expenditures are paid for out of earnings and that probably will continue. For instance, our railroad in the past 4 years has spent almost \$300 million in the acquisition of coal cars alone. Now, that can't be borrowed even from an organization like he envisions.

The CHAIRMAN. Why not?

Mr. OSBORN. Well, we normally financed 80 percent of our capital improvements out of earnings for the reason that our debt equity ratio is already high. Now, there might be some provision for excluding that from the debt ratio. I don't see how it could be done, but we would want to be able to continue to finance that out of our earnings.

The CHAIRMAN. Just think about that for a moment. Obviously, a railroad that is in the black and is making a profit does not need any type of RFC arrangement to borrow money. We are not talking about that. We are talking about a railroad that is having a very tough time making it. We are talking about what we want to do in this energy bill.

I am not arguing with you about whether we ought to have the refundable tax credit. We are not talking about that. I am talking about financing in addition to that.

When a company wants to buy more equipment this organization could, if it saw fit to do so, let them buy the equipment and just take a mortgage on that piece of equipment without asking for a mortgage on other assets. My thought would be, and I don't know whether you can persuade them to see it that way, that basically you are talking about credit that is not otherwise available. I would favor providing that if you want to fix up what you think is an important part of the roadbed, you could borrow money to do that and give a mortgage on that piece of track. Where you are putting in that part of the rail, you could obtain the credit that is otherwise not available without cutting off whatever potential you have to get credit when you need it in the future.

I am trying to make the entire industry profitable. I would like to make it more efficient. I would like to help it get the equipment it needs to do this job, and I think solving the energy problem requires that we do this as well as a number of other things. And I just am thinking about the situation where the money is not available.

Mr. OSBORN. Of course, if the conditions you outline could be included under such a proposal; that would be great. We could use it. Many railroads could use it; all railroads could use it.

The CHAIRMAN. Comments?

Mr. TAYLOR. I agree with Mr. Osborn that if it were to so adversely affect the debt equity ratio that the Government in effect became our only banker I think that would be unfortunate. I think, however, that Governor Rockefeller, Vice President Rockefeller's proposal goes to some of the really higher risky type investments not in the equipment trust area were, as you know, the preference in receivership right in the statute, they are still financeable and, so far as I know, most all railroads are able to finance them at relatively reasonable rates. However, the question of the right-of-way what you brought up, while I don't think Governor Rockefeller's approach may necessarily help that because it would come as debt capital and we cannot for the most part offer any security interests in the right-of-way because of a whole series of prior mortgages already on the property having bond issues out and maturing beyond the life expectancy of anyone in this room. We are working on that now.

The CHAIRMAN. Well, of course, as you know, the trouble with the 4-R Act is that for the people who are administering the program, it

is as though they are the private bank making the loan. Of course, that was not my idea when I voted for it. I thought they were to make some loans that a bank would not make. I didn't think we were going to get the complete use of the program by trying to second-guess a bank and trying to say, "Look, here is a solid loan that a bank was foolish not to make." We think any smart banker would have made that loan. I thought we were proposing to make some money available in a situation where the bank would say, "This railroad is in a pretty weak condition, they might not be able to pay it off." So the bank would not lend it, but the Government would. That is what I thought we were doing with the 4-R Act, not looking for the good, solid loans that they were fools not to make.

Mr. TAYLOR. Are you addressing that to me, Mr. Chairman?

The CHAIRMAN. Yes.

Mr. TAYLOR. Since I spent the better part of yesterday negotiating with them, I think I am certainly glad to hear your feelings on the subject.

The CHAIRMAN. My position on that is not new.

Mr. TAYLOR. No, sir, I know it is not new.

The CHAIRMAN. Some years ago, and I hate to admit how far back it was now, I was saying to the Administrator of the Small Business Administration that it looked to me as though he was trying just to make a lot of loans that a bank made a mistake not to make in the first instance, and I said he ought to be able to take a chance.

Along came something in which the Republicans in my State saw a chance to help a small community. All their hierarchy came to Washington and advocated they ought to make a loan for a garment factory in Louisiana. Naturally that is near my hometown and I could not do anything but jump aboard. So the SBA extended the loan and the pants factory went into business. After it fell on bad times, the director then saw the loan was in bad shape and he said, "Tell Senator Long he will be happy to know that I just lost my shirt at the pants factory."

There was not any special advantage in it for me; it benefited my State, it benefited the economy of the country to take that chance. Somebody later came in and took over and produced something else in that factory, so it is still operating, but that was the whole idea. They were supposed to take some chances, and that is what I think ought to be done with the type of program that Mr. Rockefeller was advocating, to get somebody to take a chance that we don't expect a bank to take. Who in their right mind is going to lend the money? If someone puts \$100 million into it, all he needs is \$900 million to develop a shale plant. Who is going to invest \$900 million? You think he would be crazy. It is just as in the oil business: In order to find oil you have to drill some dry holes. The intention is to drill a lot of them in that business, because that is the only way one can find oil, by taking a chance. Somebody has to make the investment to take the chance to see if this thing will work. It is a safe investment with the railroad, but it seems to me as though the railroads need it. When the Reconstruction Finance Corporation was in existence it made lots of loans to railroads.

Mr. TAYLOR. Yes.

The CHAIRMAN. At that time they were needed, too.

Mr. DEMPSEY. Yes.

The CHAIRMAN. I want to ask you about one more thing. You have heard a lot about this subject, and I guess you have testified on it from time to time. The people who recycle material save a lot of energy and they complain bitterly that the rates are more favorable to those hauling the ore and to those hauling the virgin material than to those recycling. They would like to try to move toward equalizing those rates. If we can do what you are seeking for your industry here, could we make this part of the package—that your people would be willing to cooperate in adjusting rates so that recyclers could have more favorable rates for hauling recycled materials?

Mr. DEMPSEY. Mr. Chairman, it has been much discussed in the industry and at the Interstate Commerce Commission and, indeed, last year Congress addressed this matter in section 204 of that act and directed the ICC to investigate the rate structure of the industry with respect to the transportation of recycled materials and to determine whether there was any discrimination involved. We have prepared a memorandum for the record, I would like to do that so that you have all of these materials available to you. Just to summarize it, the investigation was conducted and the Commission, as far as I know, didn't find that any rate on recyclables were discriminatory. They did find that a few rates were unreasonable for other reasons and there is an investigation continuing by the Commission into some of the rates. Just a few days ago, August 25, the ICC had another proceeding dealing with the recyclables with respect to certain kinds of commodities and it upheld the railroads' position with respect to the reasonableness of those rates. So I think my response is that we don't regard our rate structure as being discriminatory, but, in any case, the Congress has directed the Commission's attention to and ordered them to look into this matter and the Commission is doing that, and it seem to me that the matter is resting there just about where it ought to.

[The material referred to follows:]

[Memorandum]

Rate Barriers to the Transportation of Recyclable Commodities

The claim that the railroad rate structure favors virgin commodities and discriminates against recyclables, thus discouraging the transportation of recyclable commodities, has been argued frequently in recent years by the recycling industry. Aware of these allegations and reacting to them, the Interstate Commerce Commission has, in recent years, considered the levels of rates on recyclables and their levels vis-a-vis the rates on virgin commodities.

In *Increased Freight Rates and Charges, 1973—Recyclable Materials*, 349 I.C.C. 250 (1974), the Commission considered the contention of a number of public and private environmental groups that freight rates on recyclables were unreasonably high and unjustly discriminated against recyclables. The Commission concluded to the contrary. It stated, "Our limited observation and analysis of the rate structures for transportation of recyclable materials did not reveal a pattern of rates and charges which operates to frustrate recycling efforts." The Commission also concluded that the pattern of consumption of recyclables is set by the consuming industry, and the effect of freight rates is minimal. See, also, *Increased Freight Rates, 1972 (Environmental Matters)*, 348 I.C.C. 88 (1973), *aff'd sub nom., Aberdeen & Rockfish R.R. v. S.C.R.A.P.*, 422 U.S. 289 (1975).

The Congress has also been exposed for some years to the argument that the railroad freight rate structure discriminates against recyclables and in favor

of virgin materials. Accordingly, when the Railroad Revitalization and Regulatory Reform Act of 1976 was passed, Congress included in it a mandate to the ICC to investigate the railroad rate structure on recyclables. Section 204 of the 4-R Act, copy attached, directed the Commission to investigate (a) the rate structure of the railroads for the transportation of recyclable or recycled materials and competing virgin natural resource materials, and (b) the manner in which that rate structure has been affected by successive general freight rate increases. The burden of justifying the present rate structure was placed on the railroads. The Commission was told that if it found the rate structure to be unreasonable or unjustly discriminatory, it was to issue orders requiring removal of the unlawfulness.

Pursuant to this statutory direction, the ICC instituted Ex Parte No. 319, Investigation of Freight Rates for the Transportation of Recyclable or Recycled Commodities, in which numerous parties participated. The investigation considered the rate structure covering thirty recyclables and twenty-six corresponding virgin natural resources. In addition, the investigations instituted earlier in Ex Parte No. 270 (Sub-No. 5), Investigation of Railroad Freight Rate Structure—Iron Ores, 345 I.C.C. 548 (1976), and Ex Parte No. 270 (Sub-No. 6), Investigation of Railroad Freight Rate Structure—Scrap Iron and Steel, 345 I.C.C. 867 (1976), were subsumed. A decision was issued on February 1, 1977, copy attached.

The Commission found that the rate structure on certain enumerated commodities¹ was not unjustly discriminatory but was otherwise unjust and unreasonable, and ordered adjustments made. With respect to certain other commodities,² there was found to be insufficient evidence of record and further investigation was ordered.

In this comprehensive investigation, with the burden of proof on the railroads, none of the rates on recyclables were found to be unjustly discriminatory and, except as noted above, none of the rates were found to be otherwise unjust or unreasonable. Certain rates are being investigated further.

The fact of the matter is that those who ship recyclable commodities seek to be subsidized at the expense of shippers of other commodities.

In an order served August 25, 1977, the ICC again dealt with rail rates on recyclables. It found that rate increases granted in several ex parte general rate increase proceedings have not been shown to be unjust, unreasonable or unduly discriminatory as they apply to recyclables. The proceedings considered were Ex Parte No. 305-RE, Increased Freight Rates and Charges, 1975—Recyclable Materials; Ex Parte No. 318, Increased Freight Rates and Charges—1976; Ex Parte No. 330, Increased Freight Rates—West and Interterritorial—1976; and Ex Parte No. 336, Increased Rates and Charges—1977.

This updated the findings in the broad general Ex Parte No. 319 investigation.

[Pub. Law 94-210—February 5, 1976]

INVESTIGATION OF DISCRIMINATORY FREIGHT RATES FOR THE TRANSPORTATION OF
RECYCLABLE OR RECYCLED MATERIALS

45 USC 793 note

SEC. 204. (a) INVESTIGATION.—The Commission, within 12 months after the date of enactment of this Act, and thereafter as appropriate, shall—

49 USC 1

- (1) conduct an investigation of (A) the rate structure for the transportation, by common carriers by railroad subject to part I of the Interstate Commerce Act, of recyclable or recycled materials and competing virgin natural resource materials, and (B) the manner in which such rate structure has

¹ Aluminum residues in the official, southern, and western territories; miscellaneous non-ferrous metal residues in the official territory; copper matte, speiss or flue dust in the western territory; zinc dross in southern territory; cullet in the official, southern and western territories; reclaimed rubber in the official and southern territories; and ashes in official and western territories.

² Miscellaneous non-ferrous metal residues in the southern territory; copper matte in the southern territory; lead matte in the southern territory; wood scrap in the western territory; municipal garbage in the official, southern and western territories; bags, old, in the southern and western territories; bags, old, having value for conversion in the official, southern and western territories; and bakery waste in the official, southern and western territories.

been affected by successive general rate increases approved by the Commission for such common carriers by railroad ;

Public hearing

(2) determine, after a public hearing during which the burden of proof shall be upon such common carriers by railroad to show that such rate structure, as affected by rate increases applicable to the transportation of such competing materials, is just, reasonable, and nondiscriminatory, whether such rate structure is, in whole or in part, unjustly discriminatory or unreasonable ;

(3) issue, in all cases in which such transportation rate structure is determined to be, in whole or in part, unjustly discriminatory or unreasonable, orders requiring the removal from such rate structure of such unreasonableness or unjust discrimination ; and

Report to President and Congress

(4) report to the President and the Congress, in the annual report of the Commission for each of the 3 years following the date of enactment of this Act, and in such other reports as may be appropriate, all actions commenced or completed under this section to eliminate unreasonable and unjustly discriminatory rates for the transportation of recyclable or recycled materials.

(b) PARTICIPATION.—The Administrator of the Environmental Protection Agency shall take such steps as are necessary to assure that the Commission carries out the requirements set forth in subsection (a) of this section as expeditiously as possible. Such Administrator is authorized to participate as a party in the investigation to be commenced by the Commission under such subsection (a).

(c) RESEARCH, DEVELOPMENT, AND DEMONSTRATION.—The Secretary, in cooperation with the Commission, shall establish a research, development, and demonstration program to develop and improve transport terminal operations, transport service characteristics, transport equipment, and collection and processing methods for the purpose of facilitating the competitive and efficient transportation of recyclable or recycled materials by common carriers by railroad subject to part I of the Interstate Commerce Act.

(d) REVIEW.—Orders issued by the Commission pursuant to this section shall be subject to judicial review or enforcement in the same manner as other orders issued by the Commission under the Interstate Commerce Act. In all proceedings under this section, the Commission shall comply fully with the requirements of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(e) DEFINITIONS—As used in this section, the term—

(1) "recyclable material" means any material which has been collected or recovered from waste for a commercial or industrial use, whether or not such collection or recovery follows end usage as a product ; and

(2) "virgin natural resource material" and "virgin material" mean any raw material, including previously unused metal or metal ore, woodpulp or pulpwood, textile fiber or material, or other resource which is, or which will become (through the application of technology), a source of raw material for commercial or industrial use.

ADEQUATE REVENUE LEVELS

SEC. 205. Section 15a of the Interstate Commerce Act (49 U.S.C. 15a) is amended—

(1) by adding at the end of paragraph (2) and at the end of paragraph (3) the following new sentence: "This paragraph shall not apply to common carriers by railroad subject to this part." ; and

(2) by redesignating paragraph (4) as paragraph (6), and by inserting immediately after paragraph (3) the following new paragraph :

Notice, hearing

"(4) With respect to common carriers by railroad, the Commission shall, within 24 months after the date of enactment of this paragraph, after notice and an opportunity for a hearing, develop and promulgate (and thereafter revise and maintain) reasonable standards and procedures for the establishment of revenue levels adequate under honest, economical, and efficient management to cover total

operating expenses, including depreciation and obsolescence, plus a fair, reasonable, and economic profit or return (or both) on capital employed in the business. Such revenue levels should (a) provide a flow of net income plus depreciation adequate to support prudent capital outlays, assure the repayment of a reasonable level of debt, permit the raising of needed equity capital, and cover the effects of inflation and (b) insure retention and attraction of capital in amounts adequate to provide a sound transportation system in the United States. The Commission shall make an adequate and continuing effort to assist such carriers in attaining such revenue levels. No rate of a common carrier by railroad shall be held up to a particular level to protect the traffic of any other carrier or mode of transportation, unless the Commission finds that such rate reduces or would reduce the going concern value of the carrier charging the rate."

RATE INCENTIVES FOR CAPITAL INVESTMENT

SEC. 206. Section 15 of the Interstate Commerce Act (49 U.S.C. 15), as amended by section 202 of this Act, is amended by adding at the end thereof the following new paragraph:

Notice

"(19) Notwithstanding any other provision of law, a common carrier by railroad subject to this part may file with the Commission a notice of intention to file a schedule stating a new rate, fare, charge, classification, regulation, or practice whenever the implementation of the proposed schedule would require a total capital investment of \$1,000,000 or more, individually or collectively, by such carrier, or by a shipper, receiver, or agent thereof, or an interested third party. The filing shall be accompanied by a sworn affidavit setting forth in detail the anticipated capital investment upon which such filing is based. Any interested person may request the Commission to investigate the schedule proposed to be filed, and upon such request the Commission shall hold a hearing with respect to such schedule. Such hearing may be conducted without answer or other formal pleading, but reasonable notice shall be provided to interested parties. Unless, prior to the 180-day period following the filing of such notice of intention, the Commission determines, after a hearing, that the proposed schedule, or any part thereof, would be unlawful, such carrier may file the schedule at any time within 180 days thereafter to become effective after 30 * * *.

The CHAIRMAN. We acted and I voted for that what you are talking about. We are hoping to get something done. We are wasting a huge amount of energy in this country because they are not doing more recycling. It would seem to me that while we are trying to help you do a job that is going to help solve this energy problem, we ought to help recyclers, too. There is a provision in this bill to help them buy some machinery, but I would think that we ought to try to work together to find an answer that would make it more feasible for those people to recycle more and to move it on your railroads.

Mr. DEMPSEY. I think the question that is raised is whether the shipping of recyclables should be subsidized by the other shippers, and that is what it really comes to unless there is public money involved. I don't know exactly how that would work out or how it could be done, but that would be one thing. At the present time if there is no discrimination then the burden would have to fall on the other shippers and I think that is the problem we face.

The CHAIRMAN. I have heard them make their argument and I am sure that there seems to be discrimination in this area.

Mr. DEMPSEY. I think we would like to look at the materials they have and, with your permission, give you a detailed reply on it.

The CHAIRMAN. From my point of view, of course, you could raise the rate of the competing materials that offset it, and that would not bother me at all, but it might bother someone else—I am sure it would. [Laughter.]

One way or the other, whether with a tax or a subsidy or whatever means, it seems to me that you ought to encourage more recycling. I have never asked anybody to operate at a loss, but we are asking for something to be done with regard to the railroad industry. I think it is fair to ask the railroad industry to cooperate with us in helping to find a way that we can help those people to do a job, too. I think we could save energy if we make very substantial progress in recycling.

Mr. DEMPSEY. It may be that the public interest requires more interest in the recycling. As we look at it, what we would be called upon to do would be to discriminate against our other shippers in favor of those shippers recycling commodities, and that has both legal problems associated with it and competitive problems because, after all, if we raise the rate too far and wanted to offset those reductions in the other area, why we just lose business.

The CHAIRMAN. Well, it bothers me as chairman of the tax-writing committee to see us giving tax advantages to timber and to various minerals through favorable capital gains treatment or other tax benefits that the recycling industries do not receive, and then to find that while we are helping the virgin producers that it tends to work out that the recycling industry is left at a competitive disadvantage when conservation of energy would dictate that we not put it at a competitive disadvantage. I think we have, and I voted for some of the laws that did, and I think that it is time we tried to correct it. And I don't want to correct it by hurting you. I think we ought to all work together on problems like this.

Thank you very much.

Mr. DEMPSEY. Thank you very much, Mr. Chairman.

[The following letter was subsequently received by the committee:]

ASSOCIATION OF AMERICAN RAILROADS,
Washington, D.C., October 6, 1977.

Re Railroad Rates on Recyclables.

Hon. RUSSELL LONG,
Chairman, Finance Committee,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: During the course of my testimony on H.R. 8444, the Energy Tax Act of 1977, before the Finance Committee on September 13, 1977 (Tr., p. 4-159 et seq.), there was discussion of railroad rates on recyclables. I thought you might be interested in knowing what the railroads and the Interstate Commerce Commission have been doing in this area and why we believe that no additional legislation is needed.

The starting point which we all share is that recycling is good. Indeed, the railroads, through their disposal of worn-out rail and cars, are one of the largest scrap steel shipping industries in the nation. We obviously have an interest in maintaining a healthy demand for scrap. Where freight rates are concerned, however, the question is whether a rate adjustment will increase recycling. I think you will agree that neither the railroads nor the public would benefit from rate reductions that would not increase recycling and would only divert badly needed cash away from the carriers.

Where reduced rates increase rail traffic the railroads have been quick to lower their prices. For example, in the spring of 1976, a 10% reduction on waste paper was published throughout the South. And earlier this year Conrail published reductions on both scrap iron and scrap paper designed to increase rail participation in the movement of these commodities.

But these relatively broad rate actions should not mask the fact that the subject of freight rates on recyclables is very complex. There are scores of recyclable commodities involved, each with many grades, and thousands of point-to-point

movements. This is one reason, I am sure, why the Congress, in Section 204 of the Railroad Revitalization and Regulatory Reform Act of 1976, entrusted the investigation of recyclable rates to the ICC rather than making conclusive findings for itself. The ICC has carried out an exhaustive investigation pursuant to the congressional mandate. Ex Parte No. 319, Investigation of Freight Rates for the Transportation of recyclable or recycled commodities. The record stretched to thousands of pages with active participation by the railroads and recyclers alike. Oral hearings lasted for almost three weeks. In its report, the Commission found some of the existing rates not to be justified and ordered appropriate changes.

To illustrate some of the complexities which the ICC faced, let me give just two samples.

The first is a comparison between scrap iron and iron ore in the South. It is true that scrap iron rates bear a higher ratio to cost than do iron ore rates. This fact has fueled charges of "discrimination." But is there discrimination? The fact is that the iron ore rates are at a very low level—only barely compensatory—because of severe barge competition between Mobile and Birmingham. Despite the low iron ore rates, this ore traffic in the South has declined to a very low level. At the same time, the traffic in scrap iron has increased dramatically. Obviously there is no discrimination here.

Second is the argument advanced by certain users of waste paper in the Northeast that waste paper rates should be reduced. But the evidence before the ICC showed that there is an important difference in waste paper grades. The high grade waste moves hundreds of miles by rail and virtually never goes unrecycled. The lower grades of waste paper, when they move at all, move only short distances and move by truck. Changes in rail rates will not increase recycling in either high grade waste paper (it is all recycled now) or low grade waste paper (it wouldn't move by rail under any circumstances).

These are just two examples of the myriad which the ICC considered. The recyclers are now challenging the Commission in two suits in the United States Court of Appeals for the District of Columbia Circuit. Of course the recyclers are unhappy, for they failed to win rate reductions that would have enriched them by millions of dollars. But that does not mean that the ICC was wrong or that those rate reductions would have increased recycling. To the contrary, the available evidence establishes that the selling prices assessed by the recyclers in the marketplace fluctuate in a manner completely unrelated to adjustments in freight rates. What is important is that the recyclers have had and continue to have a forum to air their views without the need for further legislation.

The railroads are not insensitive to the needs of the recyclers. In the past, rate reductions have been made where those reductions would increase rail movement and similar reductions will no doubt be made in the future.

I respectfully request that this letter be made a part of the hearing record containing my testimony on September 13, 1977.

Sincerely yours,

W. H. DEMPSEY,
President.

[The prepared statements of the preceding panel follow. Oral testimony continues on p. 1227.]

STATEMENT OF WILLIAM J. TAYLOR, PRESIDENT AND CHIEF OPERATING OFFICER,
ILLINOIS CENTRAL GULF RAILROAD CO.

My name is William J. Taylor. I am President of the Illinois Central Gulf Railroad Co. The Illinois Central Gulf operates approximately 9,000 miles of railroad in thirteen states from the Great Lakes south to the Gulf of Mexico connecting some 2,000 communities that include Chicago, St. Louis, Memphis, New Orleans, Birmingham, Nashville, Louisville, Omaha, Kansas City, Montgomery, and Mobile.

I appreciate the opportunity to present my views on H.R. 8444 to establish a comprehensive national energy policy.

In our company, coal is the heaviest volume commodity. It produced in 1976 better than 60 percent more carloadings (approximately 288,000 in total) than the second-place commodity. The ICG serves a rich coal district which includes the extensive coal areas of Southern Illinois and Western Kentucky. It has been estimated that bituminous coal reserves in these areas are in excess of 117 billion tons. We anticipate that coal will maintain for our company its position of im-

portance even under normal conditions, but that the new energy program will require a greater reliance on coal in meeting the Nation's energy requirements and therefore increase its importance to our operations. Since railroads are the most energy efficient form of transportation, the industry will be an important part of this increased energy effort.

The rail industry is capital intensive and now new and immediate obligations and opportunities will be placed upon it to satisfy this need for more energy from domestic sources. As is well known, the railroads throughout the Nation have suffered from difficulties in developing plant and equipment to satisfy the needs of our economy while enduring cash flow problems. Industry studies have estimated that to maintain present coal carrying capacity over the next 10 years, approximately 58,000 new cars are needed for an average of about 5,800 per year. To accommodate the new coal traffic from the energy bill, the industry must acquire 9,700 to 13,400 coal cars per year (this figure includes replacements and depends upon the degree of unit train operations) for the next 8 years—a most significant capital investment for an industry already under great pressure to be able to satisfy its existing capital requirements.

In the case of the Illinois Central Gulf, our studies reveal that based upon anticipated carloadings over the next five years we would be required to construct annually at least 600 new 100-ton hopper cars solely to maintain 1976 equipment levels taking into account retirements. At today's price levels this represents approximately \$18 million annually in acquisition costs for coal cars apart from the additional costs of new or rebuilt locomotives. If the ICG coal hauling equipment were to be doubled, the projected annual costs at present price levels of approximately \$36 million for new coal hoppers would almost equal the entire car purchase costs for the ICG in 1976. These are total costs over the next five years of \$180 million. We would estimate the costs of new locomotives at approximately \$6 million annually to assure the needed power for coal hopper equipment.

The railroads can do what is required of them. Congress can assist by the enactment of the energy related tax provisions proposed by the industry to the Committee. We respectfully urge their consideration and adoption as a part of the energy program.

With new energy requirements, the replacement cycle for existing track and equipment will be accelerated thereby affecting cash flows. The tax changes recommended will aid in the financing of the costs. We propose 5-year amortization of railroad rolling stock and locomotives to encourage needed investment. Also, we recommend inclusion under this provision of the investment in classification yards and communication systems to permit greater efficiency in the employment and movement of the rolling stock. Additionally, we suggest rapid amortization for the additions and betterments to the track structure, which now are capitalized and not recovered for tax purposes until the track is retired or abandoned, to improve our ability to move the coal.

To make 5-year amortization workable, the incentive should not be regarded as an item of tax preference for purposes of the minimum tax, and the investment credit should be available on the qualified investment based on useful life of the equipment rather than the amortization period.

There should be little doubt that the above 5-year amortization would be a positive incentive to invest in railroad equipment and properties.

I would also like to emphasize the effect the proposed provisions will have on those railroads which from necessity have resorted to leasing to assure fulfillment of their capital programs. I have in mind particularly (1) the above request for five-year amortization of the qualified railroad property, and (2) the industry request also made today for an increased tax credit to 15 percent for investment in qualified railroad equipment.

There are a variety of reasons why a lessee chooses a lease rather than a purchase of equipment. However, the necessity to conserve cash and the shortage of available credit under normal borrowing arrangements are two most prevalent in the rail industry. Moreover, if the lessee cannot utilize the depreciation deduction or investment credit on the equipment, it may obtain a substantial portion of the benefits of such deductions or credits to be taken by the lessor-owner. The latter will utilize them and be willing to reflect such benefits by requiring lower rentals of the lessee.

For example, in recent leasing negotiations on our railroad the difference between the lessor claiming the investment credit on the one hand, and the lessee, the Illinois Central Gulf, on the other by a pass through of the credit to the

lessee, amounted to a reduction in the effective costs of financing the equipment of four percentage points in the former situation. This would represent over the term of the lease a rental savings to the ICG Railroad of approximately a million dollars.

The credit is especially effective as an incentive to investment because the cash from the credit is received shortly after making the outlay for acquisition of the equipment. The credit encourages one to undertake the investment by increasing the after-tax rate of return from the acquisition. The additional tax credit we are requesting, also to be utilized by lessors of railroad equipment and to be shared by railroad lessees through reduced rental payments, will be beneficial in meeting our goals. Combined with 5-year amortization there should be provided the necessary stimulus for railroads and for investor-lessors to acquire railroad equipment for lease to marginal railroads.

I should add that with the purpose of providing capital to those railroads most in need of some assistance, Congress must seriously consider the refunding to railroads of investment credits generated and/or expiring after the effective date of such legislation. Refundability would provide railroads additional cash with which to upgrade existing rail lines for carrying coal. For the marginal railroad, refundability certainly would be the most immediate way of providing such needed capital. The concept of refundability is not new to this Committee. Refundability recognizes what seems to be the inherent purpose of the investment credit provisions to make the investment incentive available to those encouraged to make investment regardless of their tax liability.

Since we have discussed leasing, we would also urge early consideration by Congress of legislation to insure that the Internal Revenue Service administrative rulings and practices with respect to leasing arrangements do not thwart or restrict the use of the leasing technique to obtain the needed rolling stock for the rail industry. We would like to see legislation eliminating the burdensome Internal Revenue Service rules defining when a lease is involved so long as only one taxpayer by agreement is enjoying the depreciation and investment credit on the leased property.

The legislation that we would propose would express a Congressional intent that finance leases be accorded true lease treatment for tax purposes. The lessor under such arrangements would be considered the owner of the property for investment credit and amortization or depreciation purposes and entitled to interest deductions with respect to interest paid on indebtedness incurred to acquire the property. There would be no revenue loss from the enactment of this legislation.

Thank you again for allowing me to offer my views on this subject.

**STATEMENT OF WILLIAM H. DEMPSEY, PRESIDENT, ASSOCIATION OF
AMERICAN RAILROADS**

My name is William H. Dempsey. I am president of the Association of American Railroads, with headquarters in Washington, D.C. The railroads which are members of the association operate 96 percent of the trackage, employ 94 percent of the workers and produce 97 percent of the freight revenues of all railroads in the United States.

I appreciate the opportunity to appear before you today to present the views of the association and its members on title II of H.R. 8444, the tax provisions of the House passed bill to establish a comprehensive national energy policy. The railroad industry is pleased that the bill provides an exemption from consumption taxes for fuel used in rail carriage. We naturally were disappointed that the House failed to include tax proposals as additions to title II which I will enumerate and which will be discussed by Mr. Primer F. Osborn, president and chief executive officer of Seaboard Coast Line Industries, Inc., and Mr. William J. Taylor, president and chief operating officer of the Illinois Central Gulf Railroad Co., who are accompanying me.

Since one of the major features of this legislation is a program designed to provide for a greater reliance on coal in meeting the Nation's energy needs, my statement will focus on the relationship between the railroads and the expansion of coal production, the basic ability of the railroad industry to carry the projected increased volumes of coal, and the importance of this new traffic to the railroads. I shall suggest revisions in tax policy which can greatly enhance the

financial ability of the railroad industry to serve increased coal traffic. Mr. Osborn and Mr. Taylor will speak in more detail concerning these recommended changes and their tremendous value to the industry.

On August 5, 1977, the House of Representatives approved the National Energy Act which has, as one of its major features, a program designed to provide for a greater reliance on coal in meeting the Nation's energy needs. Among the six energy goals set forth in the Energy Bill to be achieved by 1985 is an annual increase in national coal production to at least 400 million tons over 1976 production for the purpose of converting the Nation's economy to a greater utilization of coal wherever possible and particularly so in the case of utilities and other large industries. To meet this coal production goal of approximately 1.1 billion tons a year by 1985, an average annual increase of 53 million tons will be needed, starting with 1978. This would represent an 8 percent average increase per year over the projected 1977 production level.

The railroads look forward to this growth in important traffic. The railroads have always been an integral part of the system by which coal is ultimately converted into electric power or other usable forms of energy. Coal is the largest single commodity carried by the railroads. In 1976, it represented the following for the Nation's major railroads:

- 29 percent of rail tonnage originated—407.5 million net tons.
- 20 percent of total carloadings—4.7 million carloads.
- 14 percent of gross freight revenues—\$2.4 billion.

The industry is thus an experienced, available national resource ready and anxious to do what it can do best—transport large volumes of the Nation's coal. Most of the basic facilities are in place to meet the Nation's needs. Many will have to be improved. Obviously there will be a need for more new cars and locomotives. All of this will require large amounts of capital.

To handle the new coal traffic which would be generated by the Energy Bill, and to replace older cars used to haul existing coal traffic, we estimate that from 9,700 to 13,400 coal cars must be acquired annually for the next eight years, depending upon the degree of unit train operations. As attachments A shows, the number of new coal hopper cars required to transport the prospective increase in coal production depends on whether one assumes a low or a high use of unit trains to move this coal. Since most of the coal will be used by utilities for generation of electricity, it is reasonable to assume that most of the new coal will be amenable to unit train delivery, so that requirements will work out to be closer to the lower figure.

In recent years deliveries of new open top hoppers have averaged 20,000 annually, three-fourths of which were destined for coal service. The Railway Progress Institute, the national association of the railway supply industry, performed a survey in June, 1977, of the capacity of that industry to build coal cars. It was learned that major car builders would be able to produce as many as 65,880 coal cars per year—and that additional capacity exists in railroad car-building shops.

The projected coal production increases will also require increases in the railroad locomotive fleet. Annual locomotive needs for added coal traffic over the next 8 years, as depicted in Attachment A, will total somewhere in the range of 280 to 465, depending on the utilization rates achieved through unit train operations. This need is of course, in addition to the 205 that will be needed as replacements for existing locomotives as they are scheduled for retirement. Again, this will be an achievable requirement, in view of the fact that new and rebuilt diesel locomotives installed averaged 1,189 per year from 1972 through 1976. The Railway Progress Institute Survey of June 1977 also indicates that major builders would be able to produce as many as 1,692 new locomotives per year.

There are clearly ample lead times available for the railroads to prepare for any conceivable expected increases in coal traffic. A new coal mine takes 4 to 5 years to bring into production. The time lag from decision to production for an electric generating plant is 8 to 10 years. By contrast, elapsed time between the order of a new car or locomotive and its delivery is currently about 3 to 5 months and in fact the worst time lag in car delivery schedules experienced in the last decade has been about 18 months, and was in a period when total rail traffic grew 15 percent in 2 years.

Rail can be delivered in 90 days. All of these conditions reflect the ability of the railroads to meet increased demand on any logically feasible timetable. Thus

it is extremely unlikely that a railroad could be caught unprepared to move coal. A number of independent studies have upheld our view in this respect. Independent studies by such organizations as Peat Marwick Mitchell & Co., the Bureau of Mines and the Department of Transportation, among others, have agreed that the railroads are capable of handling the potential increases in coal traffic.

There can be no question about the potential ability of the rail system's fixed plant to handle any conceivable boost in coal traffic. While this enormous potential capacity exists, there are just as clearly some problems with the physical condition of some segments of the rail plant, particularly those which are now carrying lesser and lighter amounts of traffic. While most of the Nation's mainlines are in good condition, ready to carry the increase in coal traffic that is forthcoming, certain mainlines in the Northeast, some areas of the Midwest and most secondary rail lines throughout the Nation need to be upgraded so that they can handle large increases in coal traffic while continuing to serve other shippers. Twenty years of diminishing rail traffic on these lines and inadequate rail industry profits generally have made it impossible for prudent management to finance a realistic capital replacement program. The resulting obsolescence in the fixed plant that has occurred on these lines is well known to us all.

The industry must rely on internally generated cash flow for investment in road property because conventional railroad mortgages reach after acquired properties. This factor precludes recourse to debt financing because the loan would be unsecured.

That the railroad industry has substantial overall capital needs is well known to the Senate. One large part of these needs stems from the noted inadequate investment program in certain track. The future modernization and expansion of plant will require as much as \$10 billion over current spending levels. At the present time the Department of Transportation is conducting a study of rail capital needs pursuant to section 504 of the *Railroad Revitalization and Regulatory Reform Act of 1976*. This study is being made in recognition by Congress that it is a significant problem.

Another large part of the railroads' capital needs derives from needed improvements in fixed plant (other than track) which promise a high return on investment but for which carriers have not had funds, owing principally to inadequate profit levels. An in-depth analysis performed by the railroad industry some years ago pegged these needed expenditures at approximately \$5 billion. At current prices, these non-track improvements would cost over \$8 billion. The projected growth in coal traffic will make these improvements just that much more important.

The primary reason that these capital needs have not been met is the inadequate level of cash flow, which has generally not been high enough to permit such investments. The solution to the problem therefore lies in helping the railroad industry achieve an adequate cash flow.

The industry is prepared to move forward and anxious to meet its obligations and the opportunity presented by the challenge of the Nation's increased need for coal. One clear area where Congress can assist in meeting this challenge is to provide needed capital formation incentives.

The railroad industry is capital intensive. It is unique in that its members are directly affected by each other's capital investment program. Each road uses other roads' equipment. Coal traffic generated on one road is interchanged with others, and the quality of the receiving road's track can expedite or slow down coal shipments. We need tax incentives which will increase our cash flow and allow each company to generate funds to put its roadbed in first-class condition, to install modern electronic yards, to invest in up-to-date communication equipment and to acquire additional motive power and hopper cars where needed.

We propose specific changes in the tax law, which will be discussed in more detail either by Mr. Osborn or by Mr. Taylor. Our proposals are:

1. An increase in the investment tax credit from 10 to 15 percent for qualified investment in equipment or road property. There is ample precedent for this since the House passed bill includes a special 10 percent business energy investment tax credit in addition to the regular investment tax credit for investments in certain types of energy related property, i.e., an increase in the business investment tax credit from 10 to 20 percent plus the ESOP percentage.

2. Five-year amortization for investment in :

- a. Additions and betterments to the track ;
- b. Rolling stock, including locomotives ;
- c. Signals and communications equipment including centralized traffic control systems ;
- d. Classification yards ;

In order for rapid amortization to achieve its purpose, in each instance the investment credit must be based on useful life rather than the amortization period and the incentive cannot be regarded as a tax preference for purposes of the minimum tax.

3. Extension of the tax incentives of additional investment tax credit and rapid amortization with full investment credit and no minimum tax consequence to any interested investor such as an interchange railroad or a customer such as a public utility. Such incentives will enhance our coal-carrying capacity exactly as would a similar investment by a railroad. The technicalities of "ownership" should not be allowed to deter that investment.

4. Refund of investment credit. Our industry is very interested in, and will support, a provision for the refund of investment credit generated or expiring after the effective date of the act.

5. Remedial legislation or such oversight of the Treasury Department as necessary to insure that the administrative practices of the Internal Revenue Service do not so restrict the use of leverage leases of sorely needed rolling stock as to thwart the will of Congress.

We as representatives of the railroad industry appreciate this opportunity to appear here today and wish to assure you of our industry's complete cooperation in meeting the energy challenge.

[Dollar amounts in millions]

Item	Locomotives per year	Cars per year	Annual investment	8-yr investment
High unit train frequency:				
Replacement cars to maintain current coal traffic.....		4, 100	\$123. 0	\$984
Replacement locomotives to maintain current coal traffic.....	205		102. 5	820
Cars required for additional coal traffic.....		5, 600	168. 0	1, 344
Locomotives required for additional coal traffic.....	280		140. 0	1, 120
Total.....	485	9, 700	533. 5	4, 268
Low unit train frequency:				
Replacement cars to maintain current coal traffic.....		4, 100	\$123. 0	984
Replacement locomotives to maintain current coal traffic.....	205		102. 5	820
Cars required for additional coal traffic.....		9, 300	279. 0	2, 232
Locomotives required for additional coal traffic.....	465		232. 5	1, 860
Total.....	670	13, 400	737. 0	5, 896

STATEMENT OF PRIME F. OSBORN, PRESIDENT AND CHIEF EXECUTIVE OFFICER OF SEABOARD COAST LINE INDUSTRIES, INC.

I appreciate the opportunity to appear before this Committee on behalf of the railroad industry and the Family Lines System. The Family Lines System consists of approximately 16,000 miles of track located in the midwestern and southeastern portion of the United States.

I am here to testify in support of tax proposals which we believe are of the utmost importance to the railroad industry and the future well-being of the country. The importance of the railroads in the current energy crisis is well understood and needs little elaboration from me. Not only are railroads the most energy efficient method of moving the products of industry, they also are the primary means of transporting coal, an important source of energy and one which becomes increasingly more important as other types of fuel become more scarce and more expensive. Indeed, any sound energy program will have to have as its cornerstone the enhancement of the railroads' ability to deliver coal.

Mr. Dempsey has sketched the importance of coal to the railroad industry as a whole. I would like to briefly cite some statistics concerning the Family Lines.

The railroads in the Family Lines System are the third largest coal hauling railroad group in the country. In 1976, we originated a record-breaking 64.4 million tons of coal. Coal was the largest single commodity we hauled, both in terms of tonnage and revenue. In order to perform this service, however, the Family Lines were required to expend many millions of dollars to maintain and improve the roadway, as well as maintain and acquire the necessary equipment. The coal which originates on our lines comes from Kentucky, Tennessee, Alabama, and Virginia. The terrain here is mountainous, with numerous curves and grades. This type of terrain is hard on the track, and many areas are hard to maintain. Furthermore, coal is a commodity which is hard on the equipment, as was the intensely cold weather we experienced in this region this past winter. In order to meet the increasing demands for coal expected in the future, the Family Lines, as, indeed, all of the coal-hauling railroads, will be required to expend many million dollars more in such investment.

In many areas in which coal is mined the track structure is not adequate to support the loads to which it is being subjected, except at greatly reduced speeds. Sidings are not long enough to accommodate the longer trains needed to haul the increased amounts of coal. There is a need for increased signaling and communication equipment to allow an increased number of cars to be used along these lines. Increased coal traffic will require additional passing track and associated signal equipment, as well as enlarged and improved coal classification yards to assemble coal cars for shipment. These needed facilities will increase our efficiency and allow us to use existing equipment more effectively and service shippers more quickly. We are currently constructing a centralized coal management facility using computer technology for train management in Corbin, Kentucky, complete with microwave equipment designed to get more efficient use of our facilities and equipment. Even with more efficient use we will need much more equipment to replace that which will be retired and to meet increasing demands. Under current circumstances we have difficulties meeting all demands being made by shippers. Even those railroads which do not haul coal will be required to make large amounts of investment in track and equipment in order to perform their services as the most energy efficient mode of transportation. It is at this point that our energy related tax proposals come into play.

The primary source for financing the needed track improvements is the earnings generated by the railroads themselves. The large mortgage debt which encumbers all of the railroads' property makes outside financing for roadway improvements extremely difficult. While outside sources of financing are available for equipment acquisition, such financing requires an equity on the part of the railroads, which must come from earnings and, of course, the cost of maintenance of the equipment, which is expensive, must come from earnings. The more marginal roads have had to go to 100 percent financing by leasing needed equipment, thus putting themselves in the position of owning fewer revenue producing cars, which impairs their ability to improve their condition. Since the railroads' earnings are its chief source of financing these needed improvements, the tax proposals which we support have the effect of making additional amounts of earnings available for that purpose.

Mr. Taylor will testify concerning the proposal for 5-year amortization of the cost of capital improvements to the track structure, communication systems, rolling stock and locomotives. That provision would have the effect of making additional earnings available for needed capital improvements, and would be of great benefit to the railroad industry as a whole. I would like to state my support for an increase in the investment credit to 15 percent of qualified investment and several other proposals which will complement the amortization and the additional investment credit. These proposals call for (1) a refundable investment tax credit; (2) a transferable credit and amortization and (3) exemption of bonds issued for acquisition of railroad rolling stock and track improvements from the classification as industrial bonds under 103 of the Internal Revenue Code.

The tax credit has been a recognized method of stimulating investment in capital goods for the better part of the last 15 years. While the stimulative effect has been debated for almost as long, Congress has consistently come down (with two exceptions) on the side of the credit. Indeed, the suspension and termination of the credit in the past has had an adverse impact on investment. In recent years it has been increased from 7 to 10 percent, which is a further recognition of its effect on investment. Furthermore, its value, as an incentive, has most recently been endorsed when it was used to induce employers to establish employee

stock ownership plans. The credit is particularly helpful to the railroad industry because we have had a consistent record of spending available cash on track improvements. Marginal and loss roads, as well as roads whose earnings have not been as steady, have not gotten full use of the credit and transferability of credit.

The refundable investment tax credit envisions the payment by the Treasury of the amount of credit generated during a given year which cannot be used because of insufficiency of the taxpayer's earnings. The present law contains a limit on the amount of tax credit that can be used which is based upon the income tax liability of the taxpayer. The effect of this limitation is to allow taxpayers with high earnings the full benefit of the tax credit, whereas those taxpayers with lower earnings or none at all get little or no benefit from the investment tax credit. A refundable credit would insure that all taxpayers get the benefits which were contemplated, particularly those who need the benefit the most and who are in the greatest need of cash for necessary capital improvements. It would insure the full utility of the 15 percent tax credit being proposed. The concept of a refundable investment tax credit is not new and has been recommended in one form or another by President Ford, former Secretary of Treasury Simon and more recently by Senators Long and Kennedy. There is a precedent for credit in excess of tax liability in the case of the recently enacted section 43, which provides a refund of credit for certain earned income of low income taxpayers where that credit exceeds their tax liability. Indeed, the Energy Act of 1977 as passed by the House contains provisions for payments or credits in excess of tax liability in the case of the crude oil equalization rebates.

Another proposal which would complement the amortization and the additional investment credit would provide that the investment tax credit and special amortization available for track assets and rolling stock would be transferable at the election of the railroad owning the assets giving rise to the credit or the amortization. What is proposed would be similar to the election now allowed lessors to pass through investment credit to lessees. It would, however, be broader and would affect a larger number of different transactions. For instance, it would allow a railroad the benefit of amortization and investment tax credit for improvements it makes on the lines of another railroad over which it has trackage rights. Thus, more prosperous railroads would be encouraged to make needed capital improvements for railroads less favorably financially endowed. Such a provision would also have application in the field of leveraged leasing and would ease the structures and uncertainty created by the Internal Revenue Service's ruling guidelines for these transactions. If the parties to a lease transaction had the right to elect which of them would take the investment make needed capital improvements for railroads less favorably financially expensive and time-consuming process of obtaining a ruling from the Internal Revenue Service that the transaction constituted a "true lease". It would also allow leasing of "limited use property", such as bridges, for which the Service will not issue rulings. Finally, the election would be applicable to other methods of financing, such as equipment trusts and conditional sales. The virtue of transferability lies in the advantages it affords to railroads that cannot use, for one reason or another, the particular benefits involved. By transferring them to the party who is financing the acquisition of the qualifying property a railroad realizes the benefit in the form of reduced rents in the case of leased property or interest or principal payments in the case of other types of financing.

Finally, we propose to amend the Internal Revenue Code to exempt from the industrial development bond provisions of the Internal Revenue Code (section 103) bonds issued by States or local subdivisions to finance the acquisition of rolling stock and other fixed property used in the railroad business. States with large deposits of coal could purchase coal cars with the proceeds of the tax exempt financing, and lease them to the railroads hauling coal within their State. The railroads would pay a rent sufficient to pay off the bonds, and that rent would reflect the more favorable interest rate available for tax-free bonds. This provision would open a valuable new source of financing for the type of equipment and roadway improvements needed to meet the increased demand for coal in the future years. There are a number of activities which are excluded from the industrial development bond classification, such as wharves, commuter facilities, industrial parks and more recently student loan programs. The inclusion of rolling stock and fixed railway assets in the exempt classes of

activities would be little more than a recognition of the national policy to emphasize coal.

In summary, we believe that a strong railroad industry is the cornerstone of a national energy policy. The railroads, for their part, welcome the opportunity presented by the increased need for coal and the use of a more energy efficient means of transporting other products. In order for the railroad industry, however, to meet the demands that are being pressed upon it, and the even greater demands of the future which will result from a national policy encouraging an increased utilization of coal, the railroads must be free to devote a larger portion of their earnings to the necessary capital improvements both to the track structure and to their inventory of equipment. The tax proposals for which we seek your support are designed to accomplish that goal. We believe that the use of tax incentives is to be preferred to other methods of accomplishing the sought for results. Congress has provided in the 4-R Act for various types of financial assistance, but little has come of it. The use of tax incentives would afford quicker relief and has the virtue of simplicity in that the railroads will be using their own earnings to finance the needed improvements without the need for further involving the Government. The knowledge that an increased portion of their earnings will be available for use in the business will be an incentive for railroads to further increase earnings through operating efficiencies. Finally, the program we offer is a balanced one which will help equally railroads with earnings and those without.

The CHAIRMAN. Next we will call a panel consisting of Mr. A. F. Grospiron, president, Oil, Chemical and Atomic Workers International Union; Mr. Jack Morris, president, Crown Central Petroleum Corp.; Mr. Robert V. Sellers, chairman of the board, Cities Service Co.; Mr. Jack D. Pester, president, Pester Refining Co.; and Mr. Daniel J. Mundy, director of legislation, Building and Construction Trades Department, AFL-CIO.

I believe that Mr. Jack Morris is directed to be our first witness on this panel.

STATEMENT OF JACK MORRIS, PRESIDENT, CROWN CENTRAL PETROLEUM CORP.

Mr. MORRIS. Mr. Chairman, members of the Senate Finance Committee, my name is Jack Morris and I am president of Crown Petroleum Corp.

I would like to introduce the other members of this panel.

Al Grospiron, president of the Oil, Chemical and Atomic Workers International Union;

Dan Mundy, legislative director of the Building and Construction Trades Department of the AFL-CIO;

Robert Sellers, chairman of the board of Cities Service Co.; and
Jack Pester, chairman of the board of Pester Refining Co.

Each of these gentlemen will speak briefly but at this time I would ask that the prepared testimony of each of the members of the panel, including mine, be included in the record as if spoken.

The CHAIRMAN. Agreed.

Mr. MORRIS. The members of this panel represent companies of all sizes which own and manage our domestic refineries and the unions whose members construct and operate these refineries.

At the present time, the domestic refining industry is unable to justify expenditures for needed grass roots expansion or major modernization programs because it is at a severe competitive disadvantage

with foreign refineries. The administration's proposed energy plan—with its additional tax costs of the crude oil equalization tax and the industrial users tax—will aggravate this disadvantage and will jeopardize the financial viability of existing domestic refineries, thereby further impairing national security by increasing our dependence on unreliable sources of foreign oil products.

Accordingly, the domestic refining industry is unanimous in its opinion that the legislation recently introduced by the distinguished Senator from Colorado, Senator Haskell, (S. 2012), which addresses this problem, must be added as an amendment to the national energy program. A list of the more than 25 companies and unions which have joined in support of Senator Haskell's bill is included in my prepared remarks which have been inserted in the record.

I should point out that Senator Haskell's bill does not concern the so-called "small refiner bias" on which other witnesses may address you—that is a separate issue. Further, we do not represent the multinational companies who have refinery capacity outside the United States. Those companies do not suffer the same competitive disadvantages as domestic refineries. Most foreign refineries will benefit from enactment of these proposed taxes.

The cost advantages enjoyed by foreign refiners include unloading facilities for supertankers; use of foreign rather than U.S.-flag ships; lower wage and other employment costs; minimal environmental capital requirements and operating costs, ability to burn higher sulphur, lower cost fuel; and exemption from income taxes and local property taxes. These cost advantages, as major FEA studies have documented, are very substantial. For example, the July 1976 Pace study prepared for FEA showed that Caribbean refineries in just two expenditure categories, transportation and taxes, have a cost advantage over domestic refineries of approximately \$1.50 per barrel. Additionally, the domestic refining industry—in exercising its social, environmental and fiscal responsibilities—must incur additional costs which foreign refineries do not bear. Such cost advantages do not result from true economic efficiencies in the operation of foreign refineries.

Currently short-range programs, such as the domestic crude oil price controls, and the FEA's crude oil cost equalization program, and import fees—which reduce the average cost of crude oil to domestic refiners by approximately \$3 per barrel below the world market price—have offset the additional costs incurred by domestic refiners in meeting these national goals and thus have allowed domestic refiners to remain competitive with foreign refiners. However, the crude oil equalization tax and the fuel user tax further increase the cost of domestic refining. As indicated in the FTC letter to Senator Kennedy, July 13, 1977, such taxes could force the shutdown of some domestic refineries, resulting in decreased competition. Moreover, these additional costs will eliminate refinery expansion projects, increase exportation of refining capacity, cause a loss of American jobs, and increase our balance of trade deficit. Also of great significance, the resulting increased reliance on foreign sources for refined petroleum products is a more serious exposure to supply interruptions than is reliance on foreign crude.

Crown Central's own experience illustrates the dilemma which confronts us all. Crown Central presently owns and operates one modern and highly efficient 100,000 barrels per day refinery near Houston, Tex. Our petroleum products are marketed along the east coast from New York to Texas. The products of this refinery will not be competitive with imported product if this energy bill before you is adopted unamended.

For the past 6 years, Crown Central has been actively engaged in planning the construction of a modern, grass roots refinery on the east coast which would serve the mid-Atlantic area. No area of the country more urgently needs new refineries of the type which Crown Central is planning to build than the east coast which now relies on foreign refineries for over 80 percent of its residual fuel and over 26 percent of total petroleum products. Crown Central's proposed refinery, which would be constructed with full environmental safeguards and which would help achieve our national goals of full employment and national security with a favorable balance of payments, cannot and will not be constructed unless the Congress amends the administration's present energy proposals by adding the provisions of Senator Haskell's bill.

Senator Haskell's bill would strengthen our national security by insuring that a mechanism exists for protecting the United States from undue reliance on foreign refiners.

The bill would modify section 232 of the Trade Expansion Act of 1962 to explicitly delegate to the President authority to impose monetary exactions of the type required to protect the domestic refining industry. Under the terms of the bill, the President would have the authority to make adjustments to import license fees and/or tariffs with respect to foreign refined petroleum products as necessary to foster a strong domestic refining industry which is competitive with foreign refiners and to encourage construction of new or modernized refining capacity within the United States rather than in foreign countries.

Mr. Chairman, the economic welfare of the Nation and our national security will suffer if the administration's energy program is enacted as proposed. There must be a mechanism—such as the Haskell bill would provide—for the appropriate officers of the United States to determine the effect on national security of actions which may result in the control of domestic product supply and pricing by foreign interests and the destruction of the domestic refining industry.

Mr. MORRIS. At this time I yield to Mr. Grospiron.

The CHAIRMAN. These are companies that support your position.

Mr. MORRIS. Yes, sir.

STATEMENT OF A. F. GROSPIRON, PRESIDENT OF THE OIL, CHEMICAL AND ATOMIC WORKERS INTERNATIONAL UNION

Mr. GROSPIRON. Mr. Chairman and members of the Finance Committee, I am A. F. Grospiron, president of the Oil, Chemical and Atomic Workers International Union. I am pleased to have this opportunity to present to you the concerns of my union with respect to the future of the U.S. domestic refining industry if the energy

bill before your committee is passed in its present form without amendment.

There are currently 100,000 workers in the domestic refining industry and additional tens of thousands in petrochemical and other industries directly tied to the domestic refining industry. OCAW represents a large proportion of these workers.

The operations of these industries are largely computerized and labor-efficient. Their workers are highly skilled with years of on-the-job training and experience behind most of them. Layoffs of this category of skilled and experienced workers can be catastrophic to workers and their families as work of this caliber is generally not available to them elsewhere. Conversely, to again build up a skilled work force in these industries is exceedingly difficult, costly, and time consuming.

Domestic crude oil price control, FEA's cost equalization program and the resulting entitlement benefits on imported crude oil enables domestic refining to remain reasonably competitive. The proposed crude oil equalization tax would equalize the market prices of domestic and foreign crude by 1980. It would eliminate the entitlement benefit of around \$3 per barrel for refining foreign crude domestically. This new policy would have the effect of providing the financial incentive for large increases in the importation of oil products with a corresponding reduction in domestic refining operations and work force overnight, because foreign refineries are operating way below capacity.

The equalization of the market prices of domestic and foreign crudes would seriously weaken the competitive position of domestically refined products. Domestic refining is unavoidably more costly than foreign refining because of higher American wages and other socially desirable measures to protect the environment and the health of the workers. In addition, foreign refining operations have the unfair advantage of special and favorable tax treatment not available to domestic refiners. Furthermore, the proposed oil and gas business use taxes, if enacted into law, would give domestic refining another financial handicap.

Mr. Chairman, OCAW believes that the design and maintenance of domestic refineries should be upgraded to reduce emissions of noxious effluents into the surrounding community. We believe that worker exposures to toxic substances, such as benzene, should and can be reduced to levels such that workers suffer no threats to their health by working in a refinery. We acknowledge that the attainment of these objectives will additionally raise the cost of domestic refining above those of foreign refining operations that are beyond the reach of EPA and OSHA regulations.

In considering the competitive position of domestic refining, it is necessary to examine also the real costs of foreign crude to the multinational oil companies that produce it. Because of profits and special tax advantages, the net cost of foreign crude to the multinational producers is less than the nominal world price. Imported products made with foreign crude by the multinationals would cost less than domestic products made with domestic crude even were refining costs the same.

For these reasons, OCAW joins the other members of this panel in strongly supporting the Haskell bill, S. 2012. This legislation would provide protection for domestic refining, if national security so requires, should the crude oil equalization tax or other legislation equalize the costs of domestic and foreign crude oil.

In conclusion, the provisions of S. 2012 would come into operation only when the Secretary of the Treasury found that imports of refined products were impairing national security, related to the maintenance of a modern domestic refining industry that is competitive with foreign refineries. S. 2012 therefore would provide standby protection for domestic refining and should be enacted independently of the fate of the proposed crude oil equalization tax.

Mr. MORRIS. Mr. Mundy.

**STATEMENT OF DANIEL J. MUNDY, DIRECTOR OF LEGISLATION,
BUILDING AND CONSTRUCTION TRADES DEPARTMENT, AFL-CIO**

Mr. MUNDY. Mr. Chairman, I have 3 minutes of prepared testimony here prepared in a very statesmanlike way but I can summarize it in a lot less than that.

The rest of the members of this panel have testimony that will indicate the poor economic and competitive positions that they are going to be in as a result of the crude oil equalization tax. Incidentally, we oppose that, but as a minimal thing we want to support the Haskell amendment.

There are presently about 250,000 organized pipefitters in the United States. There are probably 90,000 boilermakers. These are not precise figures. There are probably 150,000 iron workers. Now these people have had a number of their jobs exported already. They are threatening to build drill platforms in the Pacific Ocean constructed by Japan if we don't do something about it legislatively.

Now here we have an industry in which every pipefitter in the United States spends at least part of his time; every boilermaker spends at least part of his working life working in an oil refinery. Between the electric utility industry and the petroleum industry and the petrochemical industry, that is the bulk of their business. Now we are going to create an economic situation where these refineries are going to be exported. The jobs are going to be exported with them, and you are going to have people, highly skilled workers who devoted 20 years and more of their life to developing their skills, no longer able to use their skills. So we strongly urge this committee to consider the adoption of Senator Haskell's amendment.

Thank you.

Mr. MORRIS. Mr. Sellers.

**STATEMENT OF ROBERT V. SELLERS, CHAIRMAN OF THE BOARD,
CITIES SERVICE CO.**

Mr. SELLERS. Mr. Chairman and members of the Senate Finance Committee, my name is Robert V. Sellers. I am chairman of the board and chief executive officer of Cities Service Co., headquartered in Tulsa, Okla. We operate a single large refinery—a 268,000 barrel-per-day facility—at Lake Charles, La.

We have prepared a written statement for your consideration, and I ask that it be accepted for inclusion in your record. It contains detailed information regarding the extra costs imposed on our Lake Charles refinery by policies and programs of the U.S. Government. Also submitted in support of our statement is a copy of the Pace Co. study of July 1976 which examines in depth the relative costs of domestic and foreign refineries.¹ The Administration, specifically those in the new Department of Energy, are well aware of the problems discussed today. Their attention has been directed primarily to these factors as they inhibit the development of additional domestic capacity for the future. This is a vital and necessary concern, but we must also recognize that the same forces impact on existing refinery investments and employment.

The problems cited by Mr. Morris would also damage Cities Service Co. as well as all domestic refiners, regardless of size. Those American refiners not having access to foreign refining capacity with which to offset the decline in their domestic throughput would encounter two distressing economic realities: first, they would be compelled to relinquish their domestic markets to foreign suppliers; and second, as their unit costs rose to unprofitable levels, they would be faced with the prospect to curtailing operations or closing down domestic facilities that were no longer competitive. This climate would obviously discourage the expansion of domestic refining capacity and could threaten that sector's economic viability.

We accept the administration's view that American consumers should pay the replacement cost of petroleum products used by them. However, we strongly disagree with the administration's plan to implement the replacement cost concept. Specifically, we deplore the fact that the current administration, while recognizing the inability of the domestic refining industry to compete with foreign refiners, would consciously force it to absorb one-third of the costs of the crude oil equalization tax.

In the case of Cities Service, this will mean the loss of \$73 million in operating income from Lake Charles in 1979. By comparison, our refining and related marketing and transportation operations, of which Lake Charles is the principal component, recorded a \$52 million contribution to pretax corporate profits in 1976—the highest in a decade. It is naive and dangerous to assume that our Lake Charles complex, representing a significant part of the Cities Service asset base and 3,000 jobs, can be expected to absorb new costs of over \$70 million a year.

We concur completely with previously expressed views that the Congress should regard domestic refineries as a national asset, which must not be allowed to lapse into economic ruin. I therefore urge your support for passage of S. 2012.

STATEMENT OF JACK D. PESTER, PRESIDENT, PESTER REFINING CO.

Mr. PESTER. Mr. Chairman, members of the committee, my name is Jack Pester. I am chairman of the board and chief executive

¹ The study referred was made a part of the committee file.

officer of Pester Refining Co. Pester is a small and independent refiner located in El Dorado, Kans. Our refinery supplies a full range of petroleum products to the midcontinent and Rocky Mountain areas. I am also appearing on behalf of the Independent Refiners Association of America, an association representing independent refiners in 22 States.

Mr. Chairman, I would like to state that my testimony is not related to the "small refiner bias"; we have already heard testimony on that subject.

Since I have submitted a written statement for the record, I would like to briefly summarize three concerns of Pester Refining and the Independent Refiners Association of America related to offshore refining capacity.

First, as the crude oil equalization tax will effectively raise the domestic refiner's crude oil costs, refiners located offshore, by reason of their lower costs, especially for transportation, labor and taxes, will have a substantial advantage over domestic refiners. These offshore refiners will be able to ship petroleum products into the United States and market those products at prices below the prices which domestic refiners should receive if they are to recover the increased cost of crude oil. As this will have the effect of exacerbating the refinery margin squeeze independent refiners currently suffer, this will be intolerable. Moreover, those very refiners who presently dominate the refining industry, the multinational majors, will be able to further dominate the refining sector by increasing the use of their currently idle offshore capacity. Such a result is clearly anti-competitive.

Second, as we are currently developing strategic petroleum reserves to insure that the country is insulated from the effects of any future oil embargo, is it sound energy policy to export that very refining capacity necessary to process that crude oil? I think not. If the demand for petroleum products continues to rise—the FEA projects that it will—then why should we be fostering the development of extraterritorial refining capacity to meet that demand? From a national security perspective, any Federal program with such a result does not make sense.

Finally, do we as a nation wish to see our balance-of-trade deficit continue to grow? If, as I assume, the answer is no, then why are we considering a program that will result in increasing our reliance on foreign-refined petroleum products? Again, this does not make good sense.

Speaking for Pester Refining Co. and the Independent Refiners Association of America, I wholeheartedly endorse Senator Haskell's bill, S. 2012, which addresses these concerns of ours.

Thank you for the opportunity to present these views and we will be happy to answer any questions you have.

The CHAIRMAN. Let me understand one thing. What you are trying to do with this Haskell amendment is keep the refinery industry flourishing and doing its job for the United States economy. Is this proposal one that mandates the President to act to protect these jobs, or is it purely discretionary?

Mr. MORRIS. It is discretionary. If at his examination he finds that action is needed, then he is supposed to act.

The CHAIRMAN. Well, my experience is a discretionary thing has not always been entirely satisfactory. How do you people expect to get the people to act when he finds that you are losing jobs?

Mr. MORRIS. Mr. Pester, would you like to try that?

Mr. PESTER. Well, you would hope that the President would recognize or the Department of Energy also would recognize that this would be a problem. You would hope that the industry and the unions would relate the problem to the Congress and the Congress and the Department of Energy and the Department of Labor would recognize the problems.

Mr. MUNDY. Mr. Chairman, candidly I don't think that the Haskell amendment is all that this industry needs, and we had that viewpoint on the House side. In all candor these gentlemen shared the same concern. Realistically the facts were that at least on the House side we could not get that kind of legislation enacted that would mandate the President.

The CHAIRMAN. Did you propose to the House to mandate that action?

Mr. MUNDY. Well, it is my understanding that it was proposed to mandate authority to the executive department. Somebody can correct me on that but that is my recollection.

The CHAIRMAN. Do you know whether or not that is so?

Mr. MORRIS. I cannot answer that, Senator.

Mr. SELLERS. I agree with Mr. Mundy that with stronger language and certainly as minimum with clear legislative intent we would feel more comfortable than with the sole discretionary language question. Perhaps that can be better answered on the other side of the table. We view it as an important problem and one that the Congress should address in considering all of its legislation.

The CHAIRMAN. Senator Haskell left some questions he would like me to ask. I would suggest that you prepare answers in writing and submit them for the record.

[The questions and answers follow:]

RESPONSE BY A. J. MORRIS, PRESIDENT, CROWN CENTRAL PETROLEUM COBP.,
TO QUESTIONS POSED BY SENATOR HASKELL CONCERNING S. 2012

Question 1. Could you explain for the record the difference between the small refiner bias and tariff legislation giving authority to the President to adjust license fees?

Answer. The "small refiner bias" is not related to the national security issues addressed by S. 2012. Whereas the small refiner bias is intended to address certain competitive imbalances between "small" and "large" domestic refiners, S. 2012 is directed at the competitive imbalance between domestic refiners and foreign refiners which may threaten our national security and economic well-being.

The "small refiner bias" refers to a special provision under the entitlements program which provides benefits to "small" refiners (those refiners with a capacity of less than 175,000 barrels per day) for the purpose of offsetting certain higher costs which small refiners incur.

S. 2012 authorizes the President to impose import fees or tariffs on imported petroleum products to offset the artificial cost advantages enjoyed by foreign refiners, if such action is necessary to protect our national security.

Question 2. Once the entitlements program is eliminated and the crude oil equalization tax passes, there will be an adverse impact on domestic refining. This could be corrected by an increase in the license fees. Can you indicate what type of increases would be needed to insure that domestic refiners would be competitive?

Answer. The exact amount of import fees or tariffs which may be necessary to protect our national security cannot be predicted precisely at this time. The Committee could find wise guidance in this regard. However, from the results of a major study which was prepared for the Federal Energy Administration in 1976 by the Pace Corporation. This study examined the cost differential between new domestic refineries and foreign refineries and made a series of recommendations concerning the tariffs or fees needed to protect and promote domestic refineries. A copy of this study was attached to the testimony of Mr. Robert V. Sellers, Chairman of the Board of Cities Service Company.

Question 3. Would you agree with the statement that this is really a clarification of existing policy rather than a change in policy?

Answer. Yes. S. 2012 merely builds on existing Presidential authority to protect national security. The United States Supreme Court, in *FEA v. Algonquin SNG, Inc.*, 426 U.S. 548 (1976), indicated that the President has some authority to regulate imports of oil and derivative products in this regard, but the case is not definitive on the limits of that authority. S. 2012 would modify Section 232 of the Trade Expansion Act of 1962 to explicitly delegate to the President authority to impose fees or tariffs or take other actions to adjust imports of refined petroleum products as required to protect our national security.

Mr. MUNDY. Mr. Chairman, I can tell you what happened because I didn't play the major role in this, as you are aware, involved many legislative activities here. These gentlemen or some of them did, the representative in Washington.

We proposed to the House Ways and Means Committee, or proposed to Chairman Ullman, that there be mandatory provisions to this. The administration opposed it on the basis that the Trade Expansion Act contains only discretionary authority. The authority is left discretionary on the part of the executive department. Realistically we could not get it passed. We are trying to get the best thing we can. Our concern is very real because we know that the major oil companies like to build refineries in Aruba and other foreign countries. We are dealing here with domestic refiners that don't have the ability to build in those foreign countries or perhaps not the desire. As long as they are building refineries here, we are keeping at least some of our people working.

The CHAIRMAN. Well, I think my position is clear. I would be willing to consider a provision which would be mandatory.

Thank you very much.

Mr. MORRIS. Thank you very much.

[The prepared statements of the preceding panel follow. Oral testimony continues on p. 1251.]

STATEMENT OF JACK MORRIS, PRESIDENT OF CROWN CENTRAL PETROLEUM CORP.

SUMMARY

The members of this panel represent companies of all sizes which own and manage our domestic refineries and the unions whose members construct and operate these refineries.

At the present time, the domestic refining industry is unable to justify expenditures for needed grass roots expansion of major modernization programs because it is at a severe competitive disadvantage with foreign refineries. The Administration's proposed energy plan—with its additional tax costs of the crude oil equalization tax and the industrial users tax—will aggravate this disadvantage and will jeopardize the financial viability of existing domestic refineries, thereby further impairing national security by increasing our dependence on unreliable sources of foreign oil products.

Accordingly, the domestic refining industry is unanimous in its opinion that Senator Haskell's bill (S. 2012) must be added as an amendment to the national energy program. Senator Haskell's bill would provide a mechanism, by amending section 232 of the Trade Expansion Act, to protect the United States from

undue reliance on foreign refiners by authorizing the President to adjust import license fees or tariffs to foster a strong domestic refining industry.

Senator Haskell's bill does *not* concern the so-called "small refiner bias"—that is separate issue. Further, we do not represent the multinational companies who have refinery capacity outside the United States. Those companies do not suffer the same competitive disadvantages as domestic refineries. Most foreign refineries will benefit from enactment of these proposed taxes.

Crown Central's own experience illustrates the dilemma which confronts us all. Crown Central presently owns and operates one modern and highly efficient 100,000 barrel per day refinery near Houston, Tex. The products of this refinery will not be competitive with imported product if this energy bill before you is adopted unamended.

For the past 6 years, Crown Central has been actively engaged in planning the construction of a modern, grass roots refinery on the East Coast. No area of the country more urgently needs new refineries than the East Coast which now relies on foreign refineries for over 80 percent of its residual fuel and over 26 percent of total petroleum products. Crown Central's proposed refinery cannot be constructed unless the Congress amends the Administration's present energy proposals by adding the provisions of Senator Haskell's bill.

STATEMENT

My name is Jack Morris, and I am the president of Crown Central Petroleum Corp. I thank the committee for giving us this time to speak on behalf of the domestic refining industry in support of amending the national energy plan to include the provisions of Senator Haskell's bill, S. 2012.

Some 24 companies and two major unions have joined this effort in support of Senator Haskell's bill. They include the following:

American Petrofina, Inc.; Ashland Oil, Inc.; Building & Construction Trade Dept., AFI-CIO; Champlin Petroleum Co.; Cities Service Co.; Clark Oil and Refining Corp.; Crown Central Petroleum Corp.; Getty Oil Co.; Hampton Roads Energy Co.; Hawaiian Independent Refinery, Inc.; Husky Oil Co.; Independent Refiners Association of America; Kerr McGee Corp.; Marathon Oil Co.; National Council of Farmer Cooperatives; National Petroleum Refiners Association; North Pole Refining Co.; Oil, Chemical and Atomic Workers International Union; Pester Refining Co.; Phillips Petroleum Co.; Pennzoil Co.; Standard Oil Company (Indiana); Sun Company, Inc.; Tenneco, Inc.; Union Oil Company of California; and Vickers Petroleum Co., Inc.

Although I fully associate myself with the prepared statements of my colleagues on this panel today, I do wish to elaborate on those statements from the perspective of a small, independent refiner which has for the past six years been actively engaged in planning the construction of a modern, grass roots refinery on the East Coast which would serve the Mid-Atlantic area. As I will explain in a few minutes, Crown's position is that its proposed refinery, which would be constructed with full environmental safeguards, and which would help achieve our national goals of full employment and national security with a favorable balance of payments, cannot and will not be constructed unless the Congress modifies the Administration's present energy proposals. An important step in implementing such a modification is the adoption of Senator Haskell's Bill, S. 2012, as an integral part of the energy legislation now pending before you.

Crown is a Maryland corporation with its executive and principal offices located in Baltimore, Md. We are a "small refiner" and an "independent refiner" as those terms are defined in the Emergency Petroleum Allocation Act of 1973, and we presently own and operate one 100,000 barrel per day refinery outside of Houston, Tex. Our petroleum products are marketed along the coast from New York to Texas.

Since 1971, Crown has been planning for the construction of a 200,000-barrel-per-day refinery which would be located in Baltimore, Maryland. We have spent some eighteen million dollars to date preparing for the construction of this refinery. Construction would require 141,500 tons of steel to be fabricated, 65,000 cubic yards of concrete, 20,000 gallons of paint, and \$15,000,000 of electric cable and equipment; it would employ up to 2,000 construction workers for three years at a total of 10,000,000 man-hours and it would employ 300 permanent workers

after competition. The filtering down effect of a project of this magnitude would strengthen the economy of the Middle Atlantic area; as one example, the conversion of the approximately 140,000 tons of raw steel used to build the Crown refinery would provide jobs for 400 steelworkers for one year. This plant would also significantly increase the Baltimore area economy and tax base, and it would assure the long-term energy supply necessary to encourage needed industrial growth in the expanding Baltimore, Washington, and Virginia area. Crown has coordinated its efforts to date with the City and State governments involved in this project—indeed Baltimore's Mayor Schaefer testified before this very Committee in July 1975 in support of legislative incentives to domestic refinery construction—and it has also worked closely with the Oil, Chemical and Atomic Workers International Union and the Building and Construction Trades Department of the AFL-CIO.

The refinery is designed to run heavy, high sulfur crude oil—which is the type of crude most widely available—and yield substitute natural gas, home heating fuel, diesel fuel, and low sulfur residual fuel. Our refinery is not projected to produce any significant amounts of gasoline because studies indicate that the growth and demand of area industries do not depend on gasoline supplies.

Though very costly, the best available technology will be incorporated in this plant in order to permit attainment of environmental requirements as to air and water, while the use of its products will contribute to a cleaner environment. The EPA requirements for refining operations and quality product yields can best be met through new construction of a modern, well-designed refinery. As a footnote, I would point out the Caribbean-based refineries are not required to meet these environmental and other socially desirable criteria.

Mr. Sellers of Cities Service has explained in his statement why the United States needs additional and modern refining capacity, and he has further explained why it is critical that such capacity be constructed at home rather than in foreign countries. While I will not dwell on these fundamental truths, I would like to emphasize that no area of the country needs new refineries of the type which Crown is planning more urgently than the East Coast. U.S. Department of the Interior, Bureau of Mines, reports PAD District I (U.S. East Coast) 1976 imports of 9.6 percent of distillate demand, 80.8 percent residual fuel demand and 26.1 percent of total petroleum products demand. For the first quarter of 1977, these figures increased to 22.4 percent for distillate, 82.2 percent for residual and 32.6 percent for total demand. This increasing dependence on imported products in the most populated and industrialized area of the country, with petroleum products demand at 6,437,000 B/D in 1976 or 36.9 percent of total U.S. demand, is detrimental to our security and economy.

Furthermore, as we look to the future, it is clear that this disturbing trend toward reliance on imported products is increasing—especially as to the critical need for residual fuel. Venezuela's announced policy is to restrict crude production, upgrade current residual fuel yields to lighter products and phase out the North American market. European refiners are constructing catalytic crackers to convert residual fuel to lighter products. The net result will be a reduced world supply of residual fuel oil and higher product prices.

The U.S. East Coast has traditionally depended on the U.S. Gulf Coast refining capacity as well as imported products. The bulk of products from the Gulf Coast to the East Coast is moved through the Colonial Pipeline, supplemented by vessels. During the high product demand period of the winter months, there is an excess demand for the limited number of available tankers. The cost to move heating oil on February 2, 1977 was \$2.28/barrel versus the rate August 15, 1977 of \$.81/barrel, a difference of \$1.47/barrel. Exxon has publicly announced plans to start shipping through Colonial Pipeline, which will apparently release its U.S. flag ships that are currently supplying product to the East Coast, for transporting Alaskan crude oil. The East Coast will thus be forced to import more products during the winter months due to the reduced number of tankers available to move products from the Gulf Coast to the East Coast. Increased refining capacity along the East Coast will go a long way toward eliminating these problems of inadequate supply, imports and transportation.

Although Crown's proposed refinery would help alleviate these undesirable conditions, the fact is that assurances of economic viability of refinery construction have not been available to independent refiners under the Cost of

Living Council, the Emergency Petroleum Allocation Act, the Energy Policy and Conservation Act, are now under the National Energy Plan.

To illustrate the plight of the independent refiner, we can look at the 1976 year-end financial statements of several representative independent refiners which reveal the before-tax profit per barrel from all operations of crude processed as follows:

United	\$0.27
Clark .....	.36
Crown .....	.61
Marion .....	.82
American Petrofina .....	.87

The excise tax on crude oil under the proposed National Energy Plan will raise the cost of crude for domestic refiners approximately \$2.50 per barrel. Given this level of pre-tax profits, the inevitable result of an increase of crude oil costs by \$2.50 per barrel would be a decrease in domestic refining industry and an increase in reliance by the United States on imported product. Moreover, this increase in costs of refining domestically will cause multinational refiners to shift some of their current domestic operations to their foreign refineries, marketing their production from these foreign refineries in the United States to the detriment of domestic refineries.

Domestic refiners have made large investments, have incurred additional operating costs, and currently face even larger expenditures for the achievement of numerous socially desirable ends, including clean air, clean water, unleaded and low-lead gasoline, lower sulfur fuels, and higher levels of occupational health and safety. These costs will not be recoverable in the product market. Indeed, these costs will be increased soon by federal requirements regarding conversion from the use of natural gas, by the industrial user's tax, and by cargo preference legislation. While domestic refiners are forced to increase costs by these laws and regulations, foreign refiners enjoy advantages of unloading facilities for supertankers; use of foreign vessels rather than U.S. flag ships; lower employment costs; minimal operating and capital costs for environmental protection; ability to burn high sulfur and lower cost fuels, and little or no income or property taxes.

The marginal economic viability of domestic refineries has been highlighted by several governmental studies. Two major studies prepared for the FEA within the past 13 months have concluded that domestic refineries are not competitive with foreign refineries and that new domestic refineries will not be able to return a reasonable rate on investment unless advantages enjoyed by foreign refineries are offset. The report to the FEA in February, 1977 ("Assessment of the Relative Profitability of Three Classes of Refiners") studies different types of *new* domestic refineries and concluded that "all of the base cases studies show a net operating loss. Even a *newly constructed* oil refinery owned by a major could not achieve a 15 percent DCF rate of return based on near-term refinery economics." This report also states that the majors have access to preferred crudes as well as minimum delivery costs, a \$.20-.40 per barrel lower crude cost, in addition to \$.27 per barrel refinery profitability over the large independent refiner.

The Pace Company report prepared in July 1976 for the FEA points to the following per barrel costs of East Coast, Bahamas and Caribbean refineries:

	East Coast Caribbean transfer	Curacao	Freeport Bahamas
Crude transportation	\$1.18	\$0.69	\$0.76
Crude handling .....	.49	.13	.13
Total delivery	1.67	.82	.89
Income taxes .....	.69	0	0
Taxes and insurance .....	.10	.05	.05
Total	2.46	.87	.94
Advantage		1.59	1.52

In addition, there are capital investment cost differences for environment protection equipment and land as follows :

	East Coast Caribbean transfer	Curacao	Freeport Bahamas
Environment.....	\$19,900,000	\$5,600,000	\$20,800,000
Land.....	15,600,000	1,700,000	1,700,000
Total.....	35,500,000	7,300,000	22,500,000
Advantage.....		28,200,000	13,000,000

These figures developed by the PACE study clearly show that foreign refiners enjoy large advantages in costs, principally because they are not subject to U.S. environmental, tax and social legislation.

Crown has made numerous studies of refinery construction during the past 6 years using different assumptions as to government regulations, market prices, inflation, product specifications and so forth. These studies support the discouraging results of the two studies discussed above. None of our studies have shown that a new refinery would earn an acceptable rate of return without protection from the advantages enjoyed by foreign refineries.

For example, attached is a study reflecting current earning and economics, including \$2.50 per barrel credit for entitlement, of a hydroskimming plant charging 100,000 barrels per day of Iranian heavy crude. This is not the refinery we hope to build in Baltimore, but rather is the type of medium-size refinery which we believe would be most economically viable under today's legal and market realities. This study has been prepared using the minimum capital investment and fairly optimistic income and expenses to reflect the most favorable conditions. Residual fuel yields are 1.50 to 2.00% sulfur which will not be acceptable shortly after completion so further desulfurization equipment would be needed. The results of this study, however, show a return which is \$.40 per barrel short of a 15 percent discounted cash flow rate of return. Thus, not even this low-budget refinery could earn sufficient income to meet the cash flow requirement normally considered as a minimum by companies planning facilities of this type.

Although there are siting, environmental and many other time consuming problems which increase costs, the two main detriments to construction of domestic refineries are the absence of assured longevity of government policies and the realities of competitive economics under today's legal and market realities. Alfred F. Dougherty, Jr., the director of the Bureau of Competition of the Federal Trade Commission, in a July 13, 1977 letter to Senator Kennedy plainly states these detriments as follows :

"A second indirect effect of the (National Energy) Plan could be a tendency on the part of entrants to discount the longevity of any government program designed to encourage entry.

"Without substantial product import tariffs or fees, the share of the market captured by imported products would be a large one, especially in the Eastern United States. In the short run, the market pressure of these foreign imports could severely depress domestic refinery margins.

"If import tariffs and fees on petroleum products are low or non-existent, domestic refinery margins would be narrowed as refiners meet the lower prices offered by imports. Independent refiners, relying for their well-being primarily upon refinery profits, would be hard hit . . .

To the extent import fees are set in such a way that some domestic refineries remain in business and some shut down, domestic refinery concentration could increase. To the extent product imports would come from foreign refineries of the very same major firms which now dominate domestic refining capacity, concentration could further increase."

The shifting Federal energy policy simply does not provide the stable atmosphere which is so necessary if domestic refiners and other prudent investors are to make reasoned decisions involving the expenditure of billions of dollars. Crown therefore urges that this Committee adopt Senator Haskell's bill as an

amendment to the National Energy Plan which is now before you. This amendment and the Administration's recognition of the required priority and urgency are absolutely necessary if Crown and other investors in domestic refining capacity are to move forward with planned construction and expansion.

Thank you for your time and consideration.

PROJECTED EARNINGS AND ECONOMICS—HYDROSKIMMING PLANT, U.S. EAST COAST LOCATION (100,000 B/CD, IRANIAN HEAVY CRUDE)

	Per gallon	Dollars per barrel	MB/CD ¹	Million dollars per year
Products—Revenue:				
Naphtha.....	36.0	15.12	25.0	137.97
No. 6 oil, 1.5 percent S.....	32.1	13.50	16.9	83.27
No. 2 oil, 0.1 percent S.....	34.75	14.595	26.1	139.04
No. 6 oil, 2.0 percent S.....	31.6	13.25	27.5	133.00
Sulfur.....				.66
Total.....	32.2	13.53	95.5	493.94
Raw material cost:				
Crude oil (landed cost).....		11.41	100.00	416.47
Gross margin.....		2.12	100.00	77.47
Operating expenses and G. & A.....		.46		16.80
Net margin.....		1.66		60.67
Capital charge (15 percent DCF) ²		2.06		75.30
Net profit (loss).....		(.40)		(14.63)

¹ Adjusted for refinery fuel use and loss.

² Assumes a target of 15 percent DCF rate of return. Based on a 16-yr double declining balance depreciation and 48 percent income tax. The pretax capital charge required to generate a 15 percent DCF rate of return is approximately 26 percent. This capital charge was applied to total capital including working capital.

STATEMENT OF DAN MUNDY, BUILDING AND CONSTRUCTION TRADES DEPARTMENT, AFL-CIO

My name is Dan Mundy and I am legislative director of the Building and Construction Trades Department of the AFL-CIO. I thank this committee for the opportunity to appear before it today in support of an adjustment to the National Energy Plan to ensure that any refinery construction, expansion or modification which would serve U.S. consumers occur within the United States rather than in foreign countries. I share the concern expressed in the prepared statements of each of the other members of this panel and wish to supplement their testimony briefly from the perspective of the members of building and construction trades.

Our members are concerned about the vitality of a basic American industry, that of oil refining. Refined petroleum products touch virtually every aspect of American industry and commerce and each of our daily lives. If we export refineries, or advanced refinery technology, we will experience a loss in national security, employment, our balance of payments, and our technological leadership. As citizens, we believe such a policy would be a national tragedy. And yet the effect of the Administration's crude oil equalization tax, coupled with the industrial users tax, will be, as the other members of this panel have explained, to make the expansion and modernization of our domestic refining industry impossible. Consequently, investment in new construction, expansion or modernization will flow overseas. This pattern, which we have seen far too often in other industries, is of profound concern.

Of course, our membership speaks not merely as citizens, but as individuals and family and community members who have a vital personal stake in the economic viability of our domestic refining industry. We build and expand refineries. Many of our members have spent 20 years or more in the refining industry. They want to continue to work in this field. They have expertise and skills that can only be acquired through years of building and expanding refineries. Attempting to transfer these skilled workers to a totally different industry causes wrenching personal crises. Many of our members are at an age where it is difficult, if not impossible, to start afresh in a new field. Others could do so but feel a deep personal loss that skills acquired over so long a period must now be forsaken. For too many of our members, a transfer to a new field at this time would cause them to lose pension and other hard earned benefits.

Such losses are unnecessary. There can be no doubt that America needs, at this moment, a modern, expanding refining capacity. This need is particularly great here on the east coast, where we are heavily dependent on foreign product imports. We therefore ask this Committee to establish a basis for a national policy that will enable us to build the refining capacity we need at home. We agree with the other members of this panel that a first step towards such a policy is the adoption of Senator Haskell's bill, S. 2021, as an amendment to the national energy plan. We ask this as citizens concerned about our national security and economic well being and as members of this Union, proud of the refining industry we have constructed, and determined that it will continue to expand and evolve to serve the interests of our fellow citizens.

Thank you.

STATEMENT OF ROBERT V. SELLEBS, CHAIRMAN OF THE BOARD, CITIES SERVICE COMPANY, THE SENATE FINANCE COMMITTEE

Cities Service is an integrated, largely domestic petroleum company with its headquarters in Tulsa, Oklahoma, and its only refinery—a 268,000 barrel-per-day facility located in Lake Charles, Louisiana. The Company believes that the nation's economy and its consumers would be hurt by the crude oil equalization and fuel user's tax provisions of H.R. 8444. Cities Service opposes those taxes in their present form. But because their enactment is a real possibility, it is essential that the domestic refining industry obtain relief to offset the adverse effects of the equalization tax, as provided in Senate Bill 2012. This amendment to the Trade Act of 1962 would give the President, acting on findings by the Secretary of Treasury, authority to adjust tariffs or fees related to imported petroleum products.

The crude oil equalization tax would bring the price of domestic oil to world levels by 1980, making it impossible for U.S. refiners to compete with foreign operations, and resulting in higher costs and less secure sources of petroleum supply. Domestic refiners would also be hurt by a fuel user's tax, adding further to their operating costs.

Foreign operations already have lower costs for other reasons, including smaller investments in environmental protection measures; exemptions from income and property taxes; lower employment costs; and transportation advantages related to the availability abroad of deep water ports to accommodate very large crude carriers, plus the fact that the Jones Act requires U.S. refiners to ship between domestic ports in higher cost American-flag tankers.

For all of these reasons, passage of the crude oil equalization and fuel user's taxes could produce an untenable domestic refining situation. Remaining surplus refining capacity would erode, and there would be a growing dependence on foreign products, as well as a loss of U.S. refinery investment and employment.

At Cities Service's refining complex at Lake Charles, the equalization tax will increase net raw material costs by an estimated \$125 million in 1978 and \$224 million in 1979. Based on Administration estimates, domestic refiners are expected to absorb one third of these costs, or a loss of more than \$73 million in operating income in 1979 for the Cities Service refinery. By comparison, the refining, marketing and transportation operations, of which the Lake Charles refinery is a part, recorded a \$52 million contribution to corporate profits in 1976—the highest in a decade.

The Lake Charles refinery has other cost disadvantages. Even after existing tariffs are considered, transportation factors produce a penalty to us of 50¢ per barrel of product shipped to the East Coast, which is heavily dependent on Gulf Coast refineries. We estimate that the capital and operating costs for environmental improvements result in a cost disadvantage of 25¢ per barrel. Our refinery's capacity to run sour crude is limited to 25 percent of its requirements, a limitation which translates into a further liability of about \$1 per barrel. Needed investments to give us sufficient sour crude capability will cost the Company more than \$100 million and the overall industry \$5 to \$6 billion.

In conclusion, Cities Service does not believe that the U.S. refining industry would remain viable if the crude oil equalization and fuel user's taxes were enacted, unless protection was afforded in the form of S. 2012. We support such action to preserve a valuable national asset—the domestic refining industry.

(The following is a statement of the position of Cities Service Company concerning the future of the domestic refining industry and the adverse implications

of the proposed crude oil equalization and fuel user's taxes. It calls for support of Senate Bill 2012, which is an amendment to the Trade Expansion Act of 1962.)

Cities Service Company is an integrated, largely domestic petroleum company that has its headquarters in Tulsa, Oklahoma. While its activities are dominated by oil and gas exploration and production, natural gas transmission, refining and the marketing of petroleum products, it also is involved in such fields as copper mining, industrial chemicals and plastics.

The Company is convinced that the nation's economic health and the consumers of America could be affected adversely by taxes included in H.R. 8444, the National Energy Act as approved by the House of Representatives. This statement outlines the general situation currently confronting refiners in this country, and the damage that would be inflicted on them by passage of the crude oil equalization and fuel user's taxes, as now proposed. In the former instance, we are opposed not to the proposition that consumers should pay "replacement cost" for energy. This is an essential economic requirement, if the domestic supplies now being consumed are to be replaced. However, any "equalization tax" application should be on producers and be progressively dedicated to developing new production, while moving toward eventual deregulation. To do otherwise, is a fraud perpetrated on the consumer and uses his energy problem as a vehicle to increase federal tax revenues for redistribution. As now proposed and approved by the House of Representatives, this is not an *energy* proposal. It is a *tax* proposal, and Cities Service opposes it as such.

Regarding the fuel user's tax, this seizes again on the opportunity for tax revenues in the name of energy conservation and fuel conversion, when replacement cost prices for energy will do both. It can only make American industry non-competitive, and Cities Service strongly opposes this tax in any form. If it is imposed, such broad exceptions will be necessary as to make it meaningless, except as another special dispensation to be granted or withheld, according to the favor or disfavor of a designated bureaucratic entity.

This tax would ultimately impact industrial consumers of petroleum, including refiners, by as much as \$3.00 per barrel consumed, even though the price basis of these fuels will have reached world levels through the Crude Oil Equalization Tax. The tax alone could increase domestic refinery operating costs by 20-30¢/barrel.*

Also, application of the user tax to other basic industries, such as steel, fabrication, chemical, etc. will further disadvantage domestic refiners in the form of higher procurement costs of supplies and capital goods.

It is ironic that Cities Service must now support one type of tariff or taxation measure to counteract conditions that have resulted from prior actions of government and new taxes that the Administration is advocating. However, the enactment of Senate Bill 2012, which is an amendment to the Trade Expansion Act of 1962, becomes essential if the crude oil equalization and fuel user's taxes that are included in the House energy package should go into effect. Cities Service presents this statement to outline the circumstances that require its adoption. S. 2012 would give the President one workable method of coping with the damage that would be inflicted on the United States refining industry by those ill-advised taxes, without careful consideration of the resulting effect on the domestic refining industry and subsequent action to moderate the damage that will result.

S. 2012 authorizes the Secretary of Treasury, upon request, to investigate the special circumstances of a problem affecting domestic refiners. He then would report his findings and recommendations to the President, who in turn would have the right to adjust tariffs or fees related to imported petroleum products under the national security provisions of the Trade Act of 1962.

It is not the Company's desire to restrict free trade in petroleum products in order to support any inefficiencies of domestic refiners. But, if domestic refiners were forced to pay world level costs for all of their crude oil suppliers, they would not be competitive with foreign operations. The refiners of this country would not be the only ones to suffer. A healthy national economy is dependent on a healthy refining industry. Consumers ultimately would be penalized by higher costs and less secure sources of adequate petroleum product supply.

*Statement of Don O'Hara before Federal Energy Administration hearings on "Regulatory Impacts on Refinery Investments" on August 8, 1977, on behalf of National Petroleum Refiners Association.

The crude oil equalization tax, as structured in the legislation passed by the House of Representatives, would increase the cost of domestic crude oil to the world price level by 1980. That would bring about the conditions referred to earlier—the necessity for domestic refiners to pay the same price for crude oil produced in the U.S. as they do for imported oil. Cities Service does not intend to go into the complexities of the crude equalization tax that the House approved, but by requiring an equivalent price for U.S. crude by grades, the price levels paid by domestic refiners could be above the average world level. That could be true because the bulk of domestic production is sweet crude, while overseas there is a heavy proportion of sour crude, and the sweet crude that is purchased abroad carries a premium price. Most existing facilities in this country are designed to process sweet crude; they will not be able to process maximum amounts of foreign sour crude without major new investments in equipment to handle high sulfur oil.

The company emphasizes that in terms of inherent economic and operating efficiencies—in the absence of factors beyond their control—domestic refiners are competitive with foreign operations. However, refineries overseas have a definite cost advantage over plants in this country that cannot be ignored nor can they be overcome simply by improving the operating efficiencies of United States facilities. These differences, caused by the following factors, would now be compounded by implementation of a crude oil equalization tax and a fuel user's tax.

Refinery costs are lower in foreign locations because the huge investments in environmental protection equipment and technology that must be made in the United States have not been required overseas in most cases. Where required, it has been to a significantly lesser degree. Thus, foreign refineries cost less to build and less to operate. They have a distinct advantage because they are not prohibited from burning lower cost, higher sulfur fuels.

Refining costs in some foreign locations are lower because there are special exemptions from income and local property taxes, as well as lower wages and reduced employment costs of many other kinds.

The United States presently has no unloading facilities for very large crude carriers or supertankers and its refineries thus must receive crude oil imports in small ships at a higher cost than do most large foreign refineries.

Also related to transportation costs, products may be shipped into the U.S. in tankers of foreign registry, while the Jones Act requires that shipments between domestic ports be made in American flag tankers.

These are among the principal reasons why the elimination of the present crude oil price advantage for domestic refineries, combined with an industrial fuel user's tax applied to these operations, would result in an untenable domestic refining situation. Domestic refineries simply would not be able to match the delivered cost of products shipped from foreign refineries. The results would include a growing dependency on foreign products and a loss of refinery investment and employment in the United States. Our ability to maintain sufficient domestic refining capacity would be eroded, increasing our vulnerability to foreign plants, which have very large spare capacities available and planned. It also should be noted that the nation's emergency oil storage plans are based on the stockpiling of imported crude oil; in a future embargo our vulnerability also could be one of products . . . if the refining industry is crippled by government policies.

Some of the disadvantages of domestic refineries that have been discussed are not new, but their full impact has been camouflaged as the result of still other government policies, namely the import restrictions on light products that existed until mid-1973 and price controls on domestic crude oil. These artificial advantages would be suddenly lost by the enactment of a rigid crude oil equalization tax. Least any Member of this committee think that domestic refineries have been reaping healthy profits under price controls that have artificially lowered their raw material costs, I would point out that the refining industry has had no such opportunity while operating during this period under a regulatory system that allows only a partial recovery of costs. In addition, domestic product prices have consistently been controlled below the government imposed ceilings by competition in the domestic refining and marketing process. The appeal today is not for a relief from competition, but for action to preserve in the future sufficient refinery capacity to maintain domestic competition at traditional levels.

The competitive disadvantages of U.S. refineries have been pointed out to various sectors of the Federal Government in testimony, letters and reports. Of par-

ticular significance is the Race Company Study of July, 1976, which examines the relative costs of domestic and foreign refiners. The company is entering it into the record as part of this statement to support its belief that S. 2012 would be of crucial importance to the domestic refining industry should the crude oil equalization and fuel user's taxes be implemented.

To put the problems of Cities Service in context, it is necessary to emphasize the importance of gulf coast refinery capacity to east coast markets, unless the nation intends to rely on foreign refiners for future supplies of refined products, a decision that will again increase the nation's vulnerability and a balance of payments problem that already is difficult. For instance, the total demand of P.A.D. No. 1 (east coast) is approximately 6.0 mmbd, while refinery capacity in that area is only 1.8 mmbd, leaving a shortfall of some 4.2 mmbd (based on published 1976 results). This shortfall must be covered by a combination of imports (1.7 mmbd) and shipments from refineries removed from East Coast markets (2.5 mmbd), primarily gulf coast refineries such as the Cities Service plant at Lake Charles. This is true because of the environmental restraints and local resistance through the years that have prevented additional refinery construction on the east coast. It has been necessary for companies like Cities Service to commit substantial refinery and transportation investments to supply these requirements or allow these markets and consumers to depend increasingly on foreign refineries for their needs. Because of the accumulation of economic disadvantages to a U.S. refinery (largely through social costs and actions of government), Cities Service is finding increasing difficulty in meeting these commitments for supply to the east coast areas while maintaining the economic viability of the Lake Charles refinery.

Our best estimates confirm that the Crude Oil Equalization Tax will increase net raw material costs at our Lake Charles refinery complex by \$125 million in 1978 and \$224 million in 1979. It has been widely reported, and in fact Administration witnesses have testified before Congress during hearings on the National Energy Plan that the domestic refining industry will be expected to absorb about $\frac{1}{3}$ of this net increase in raw material cost. In the case of Cities Service, this would mean a loss of operating income to the Lake Charles refinery in excess of \$73 million in 1979. It should be emphasized that the administration not only has made this estimate, but has projected such a result in their economic impact assessment of the National Energy Plan. It is naive and dangerous to assume that our Lake Charles complex, representing a significant part of the Cities Service asset base and 3,000 jobs, can be expected to absorb new costs of over \$70 million a year. By comparison, the refining, marketing and transportation operations, of which Lake Charles refinery is a part, recorded a \$52 million contribution to corporate profits in 1976—the highest in a decade. The administration has thoroughly studied the problems that domestic refiners have in competing with refineries outside the United States. We have every reason to believe their estimates of the results of the crude equalization tax on the industry and Cities Service are accurate.

Considering the problems that will result from the crude equalization tax, it should be evident that the additional imposition of the proposed fuel user tax would further burden domestic refiners who will already be in an untenable position.

You might consider these existing difficulties at Lake Charles as typical of a gulf coast refinery:

Logistics.—We cannot accept crude shipments in VLCC's, the very large tankers that are available to foreign refiners at sharply lower unit transportation costs. There is also an additional cost in moving products to the east coast by pipeline and by water in small ships. Cost of shipments from the refinery to east coast destinations by tanker carry the additional economic burden of the Jones Act requirement that these movements must be in American-flag tankers. Increasingly, product must move by water because pipeline capacity has been on proration for some time (pipeline capacity at 2 mmbd—required domestic supply to the east coast markets is 2.5 mmbd). We estimate these factors create a logistical disadvantage for Cities Service of about \$1 per barrel to serve these east coast markets. This is currently being offset in part by existing tariffs on imports (21 cents, crude; 63 cents—products), but foreign products landed on the east coast still have an advantage of about 50 cents per barrel, or in excess of 1 cent per gallon.

Environmental.—Cities Service has made environmental investments at Lake Charles of approximately \$100 million since 1970. As a result, we are incurring annual increased operating expenses estimated at \$9.7 million (including depreciation) to meet environmental requirements. Such environmental requirements are far less for many foreign refineries. In addition, our plant fuel costs are higher because of environmental restrictions. We estimate these capital and operating cost penalties are equal to 25 cent per barrel of throughput—a figure that may double if our fuel costs are increased by the proposed taxes.

Sour crude capacity.—Foreign refineries typically can utilize sour (higher sulphur content) crudes at significantly lower raw material costs. We estimate that gulf coast refiners can collectively utilize sour crude for no more than 40 percent of their needs. For a number of reasons, our Lake Charles refinery currently can only run about 25 percent sour crude. We estimate that this inability to utilize sour crude is a liability of perhaps \$1 per barrel to Cities Service. This is net after considering the lesser value of product yields that would be typical of sour crudes.

Based on recent industry experience, we estimate the costs to convert U.S. capacity to sour crude will range from \$5.6 billion, with such costs at Lake Charles in excess of \$100 million. Considering that 80 percent of the world's crude reserves are sour, this is a requirement U.S. industry must be enabled to meet. Present price controls are critical to this problem since any cost reductions resulting from the required investments could not be retained by refiners to justify such investments.

Though these are the areas of major disadvantage for domestic refiners, there are others that are important, such as tax advantages for many foreign refineries, health and safety regulation, employment regulation (EEO), price and allocation controls, and the dramatic escalation in administrative costs associated with regulation in this country. We do not debate the need for or desirability of institutionalizing such costs in our social system; our purpose is to recognize that they do exist and must be taken into consideration.

In closing, it appears to Cities Service that the administration plans to use the domestic refining industry as a pawn in its energy program. It wishes that this could be attributed to oversight or a lack of information on the part of the administration, but that assessment is too charitable. The administration fully recognizes that the domestic refining industry will not be able to compete with foreign operations, and therefore will have to absorb up to a third of the cost of the crude oil equalization tax. The consequences should be obvious with any objective appraisal of the facts.

Cities Service maintains that Congress should view domestic refineries as a national asset, for this resource would be sorely missed if it were allowed to lapse into economic ruin. Because of the prevailing political climate—one in which there seems to be a strong likelihood that damaging crude oil equalization and fuel user's taxes could be enacted—the company believes it is important that the Senate pass S. 2012. Support from the Members of this committee is imperative and justified.

STATEMENT OF MR. JACK C. PESTER, CHAIRMAN OF THE BOARD, PESTER REFINING Co., EL DORADO, KANS.

This paper is submitted to the Senate Committee on Finance as the statement of Pester Refining Co. and the Independent Refiners Association of America on the subject of the need to preserve and insure the competitive viability of the domestic refining industry. Legislative proposals currently before this committee have the potential for disadvantaging—domestic refiners to such an extent as to require positive preventive action by the Congress. The bill offered by Senator Haskell is a positive step to preclude what Pester Refining and the Independent Refiners Association of America believe to be one of the adverse effects of the legislation currently before this committee.

Pester Refining Co. is a refining and marketing organization located in the mid-continent of the United States. The refinery is located in El Dorado, Kans., and supplies Pester's gasoline marketing operation with approximately 65 percent of its product requirements. The products refined by Pester are marketed throughout much of the mid-continent United States, including the States of Kansas, Colorado, Nebraska, and Wyoming.

The Independent Refiners Association of America is an association of independent refiners operating refineries in 22 States. Independent refiners of all sizes and configurations are members of the association.

THE PROBLEM AND ITS GENESIS

President Carter in a speech to the American people on April 20, 1977, announced that he was submitting the next day a comprehensive National Energy Plan to the Congress. The development of this plan had been a commitment made by the President during his campaign for that office. Although the administration should be applauded for its efforts and intentions regarding a comprehensive energy plan, and we do so applaud, upon close scrutiny it is apparent that there are several effects of The National Energy Act that were unintended. Paramount among these unanticipated effects is the potentially damaging operation of the proposed Crude Oil Equalization Tax (COET) on the competitive viability of the domestic refining industry in relation to foreign refining capacity.¹

As currently proposed, the Crude Oil Equalization Tax will phase in a tax over a 3-year period (possibly 2 years) which is designed to raise the cost of domestic crude oil, including the tax, to world prices (the price of replacing domestic crude oil production). The concept for using a tax for such a purpose is to stimulate consumer conservation by raising the cost of crude oil while holding down the price paid to domestic producers to designated levels. As conservation is the cornerstone of the administration's energy plan, it was determined that if the cost of crude oil were allowed to rise to its replacement cost or the world price, then a natural result would be a lessening of demand. In theory, and in pure form, such a price rise might well have this intended result; however, the administration has already recognized that domestic refiners, now confronted with the large competitive advantages enjoyed by foreign refineries, will be able to pass through to the consumer only two thirds of the proposed crude oil equalization tax.² (The large advantages enjoyed by offshore refineries as the central theme of this paper. The adverse impact of these advantages has not been felt in recent years because domestic crude oil costs have been held down by price controls to a level below foreign oil costs which offsets these advantages.) With this limitation on cost pass-through, price increases to the consumer will be much less than programmed. If conservation is the goal, then the route to the goal is replete with detours and obstacles at this very first step.

The above example is intended to illustrate that, although the Natural Energy Plan has been formulated, it has not been critically examined by the administration as to its effects. As the administration has failed to satisfactorily determine these effects, it has been left to the Congress and the public to raise the spectre of its potential adversities.

It is our belief, Pester Refining and Independent Refiners Association of American, that the serious question of the adverse effect of the Crude Oil Equalization Tax on the domestic refining industry must be raised. In answering such a question we admit that we are not clairvoyant; nor do we possess the wealth of information available to the Administration. What we do possess, however, is substantial experience in the petroleum industry and, as we have managed to survive in a Federally controlled environment, good business judgment.

The result: A boom off-shore.—Under the proposed legislation, unless corrected, any refiner, either a multi-national or foreign-owned, who possesses refining capacity outside of the territorial limits of the United States will have an economic future that, when compared with domestic refiner, can only be termed rosy. The substantial advantages which foreign refineries inherently enjoy, compared with domestic refineries, will be unleashed to destroy the domestic refiner while enriching the offshore refiner. Let us identify those advantages.

1. Lower actual crude oil costs

Under the present proposal, wherein the cost of domestic crude oil including the tax, will rise to world prices through the functioning of the tax, the foreign

¹ For purposes of this paper, the term "domestic refining industry" does not include offshore refining capacity owned by U.S. firms.

² White House Statement: May 10, 1977, *Overall Economic and Budgetary Impacts of the National Energy Plan*, as reported in the *Daily Executive Reporter*, Bureau of National Affairs, No. 98, May 12, 1977. See also, *Testimony of Charles L. Schultze, Chairman of Council of Economic Advisors Before the House Ad Hoc Committee on Energy*, May 12, 1977.

and domestic refiner are supposed to have the same crude oil costs. But in fact won't the foreign refiner have a crude cost advantage in most cases? If that foreign refiner is state-owned in an OPEC nation, will that refiner's crude costs be the same as a domestic refiner attempting to purchase from that Nation? If the foreign-based refiner is a division of a multi-national company deeply involved in foreign production, does that multi-national really incur the same cost for that foreign crude oil as a domestic refiner? In both cases, we think not. In the case of a state-owned refinery and crude oil it should be obvious that such a refinery will receive its crude oil supplies at a substantially reduced actual cost compared with the price of that oil in an open market. It also should be obvious that those multi-national oil companies within producing nations will be able to purchase crude oil at substantially below world prices. Support for this statement is found in the recent book, *The Control of Oil*.³

2. Lower transportation costs

Insofar as the cost of crude oil to these offshore refiners may be subject to any argument, let us proceed on the assumption that the "purchase price" of foreign crude oil for on shore and off shore refineries are in rough parity. Note that we speak of "purchase price", not "laid-in", or total delivered, cost to the refinery. Here substantial transportation cost advantages are involved—and these are not open to dispute.

A domestic refiner, whether independent or integrated, will, when using foreign oil incur greater transportation costs for that crude oil (and for the products refined therefrom) than an offshore refiner. This increased cost is the result of (1) the distance differential between source of the oil and the refinery and refinery to market and (2) the exemption for the offshore refiner from the requirement to utilize American-flag vessels for the delivery of refined products by water.

This substantial cost disadvantage will be suffered by every domestic refiner, irrespective of his location or ability to receive crude oil by large tankers. Two other factors also raise the cost of foreign crude oil to some domestic refiners: The storage facilities available to the refiner and his location. In the case of many independent refiners,⁴ the available storage facilities are of such limited capacities to preclude purchasing crude oil in large quantities, with two derivative results: Use of tankers is limited and generally, the lesser the amount purchased, the higher the price. Also, if that refiner is located in a deep inland facility, as is the case with many members of the Independent Refiners Association of America and Pester Refining, the costs of transporting either the foreign oil or exchanged domestic oil to the refinery are substantial.

3. Lower labor costs

Obviously foreign wage rates are much lower. This lower wage scale is of particular importance in refinery operation and maintenance. These costs are generally substantial in the operation of any refinery, and foreign based refineries are generally more labor intensive than domestic refineries. Offshore refiners therefore enjoy a substantial cost savings when compared with the onshore refiner.

4. Lower environmental constraints and attendant costs

A domestic refiner is constantly aware of environmental constraints when constructing and operating his refinery. These constraints are often mandated by law and regulated by the Environmental Protection Agency. Domestic refiners have made substantial capital expenditures in many cases to comply with these laws and regulations. On the other hand a refinery located offshore is not subject to these laws and regulations, and does not have to make such substantial expenditures in order to operate.

5. Lower taxes

Offshore refineries were constructed to take advantage of tax breaks available only offshore. Not only are United States, State, and local jurisdictions deprived of property taxes on these refineries, but the Federal Government does not receive income tax payments on their offshore operations. As taxes

³ Blair, John M., *The Control of Oil*, Pantheon Books, 1976.

⁴ As defined by the Emergency Petroleum Allocation Act of 1973—a refiner who controls less than 30 percent of its crude oil requirements.

are a price or cost of doing business, he who does not pay them is advantaged to a considerable degree over the person who does pay.

From the above discussion it should be clear that, even assuming a rough parity of "prices" for crude oil (including tax) between offshore and domestic refiners, the offshore refiners will be able to purchase and refine crude oil at a substantially lower cost than any domestic refiner. The result of this lower operating cost will quite naturally be lower foreign product prices. However, rather than jumping to the immediate conclusion that lower product prices from off-shore refining will benefit the consumer, further analysis is warranted.

IMPACT ON DOMESTIC REFINING INDUSTRY

A primary consideration of this committee should be the harm to the domestic refining industry that may result from the Administration's proposed Crude Oil Equalization Tax, unless corrective action is taken. It should be made clear that domestic refiners are not seeking "special benefits", but rather we are seeking a recognition on the part of the Congress that our very competitive viability is threatened by ruinously low foreign operating costs. For the independent and small refiners the anticompetitive threat posed by effects of the Crude Oil Equalization Tax are particularly severe.

The "independent refiner" is defined by statute as a refiner that is crude deficient.⁵ The "small refiner" is defined by statute as a refiner with less than 175,000 barrels per day of refining capacity.⁶ Both of these types of refiners historically have had to pay substantially more for their crude oil.⁷ At the same time, independent and small refiners have traditionally marketed their refined products at prices substantially below the prices of their major company competitors. In order to successfully compete, the independent and small refiner has had to offer lower prices to the consumer to offset the advantages of nationally advertised brand names, credit cards, etc. offered by their major company competitors. With higher crude oil costs, and lower market prices, the independent and small refiner has been subjected historically to a refining margin squeeze. However, the independent and small refiners of this country have been able to overcome this margin squeeze by greater efficiency in operating their refineries and in marketing their products.

We have seen that, as a direct result of the Crude Oil Equalization Tax, the offshore refiner will be able to ship foreign refined products into the United States at prices substantially below those necessary for domestic refiners to recover the increased cost of their crude oil and earn an acceptable return on their investment. Products refined in domestic refining plants will have to be sold in competition with such foreign products and at prices no higher than those set by the foreign refiners--irrespective of the costs. The official estimate is that one-third of the increased cost of crude oil will have to be "swallowed" by domestic refiners. Independent refiners especially, lacking profits on crude oil, will have difficulty, to the point of impossibility, in absorbing such increased costs. At some point the increased refining margin squeeze familiar to all independent and small refiners will reach such a degree as to force these refiners from the market place.

The observation may be made that if the price in the market place is lowered then has not the public been benefited? Clearly, if the goal of the National Energy Plan is to foster conservation and restrict the growth of petroleum demand, that goal will not be served. Even more important in our view is the fact that these lower-price benefits to the consumer will be only short-term benefits and totally illusory as the ultimate anti-competitive effects of the tax are realized. To the extent that those companies enjoying artificially low refinery costs because of their offshore locations are benefited, the benefits are accruing to those multinational major companies who already control a major portion of the refining industry. Therefore, to the extent that the industry is already highly concentrated, the long range effect of the Crude Oil Equalization Tax, as it stimulates offshore refining, will not be to increase competition, but stifle competition further.

⁵ Supra, n. 4.

⁶ Emergency Petroleum Allocation Act of 1973, Pub. L. No. 93-159, as amended, § 3(4).

⁷ Federal Energy Administration, *Impact of Mandatory Petroleum Allocation, Price and Other Regulations on the Profitability Competitive Viability, and Ease of Entry of Independent Refiners and Small Refiners: Report to Congress*, March 1977, pp. 40-42, Appendix pp. 2-3.

There will be some who may observe that here again comes the petroleum industry raising the proverbial cry of "wolf". However, these dire predictions of our future have been echoed outside of the industry. The Federal Trade Commission's Director of the Bureau of Competition, Mr. Alfred F. Dougherty, Jr., in a letter to Senator Edward Kennedy on July 13, 1977, summarized accurately the impending boom offshore:

By increasing the effective price of domestic crude oil the plan makes foreign-produced petroleum products more competitive in domestic markets. After 1979, domestic refiners will no longer have a raw materials cost advantage over their foreign competitors. Disregarding tariffs and import fees, relative transportation costs and non-material-related refinery costs alone will determine how much foreign product imports into the United States increase. If, because of its freedom to ship on less expensive non-U.S. vessels, less severe or nonexistent environmental restrictions, special tax situations, or lower costs, the foreign refinery has an advantage over domestic refineries, and if that advantage is not eliminated either by higher transportation costs attributable to the foreign refinery's distance from the United States or by import fees and tariffs the foreign refinery's U.S. sales will increase relative to domestic refineries. Without substantial product import tariffs or fees, the share of the market captured by imported products would be a large one, especially in the eastern United States. In the short run, the market pressure of these foreign imports could severely depress domestic refinery margins.

The primary reason for these effects is the significant cost advantages that certain foreign refineries have over domestic refineries.

Mr. Dougherty also echoed the concern that ultimately the benefits would accrue to those already dominating the petroleum industry:

If import tariffs and fees on petroleum products low or nonexistent, domestic refinery margins would be narrowed as refiners meet the lower prices offered by imports. Independent refiners, relying for their well-being primarily upon refinery profits, would be hard hit . . . To the extent import fees are set in such a way that some domestic refineries remain in business and some shut down, domestic refinery concentration could increase. To the extent product imports would come from foreign refineries of the very same major firms which now dominate domestic refining capacity, concentration could further increase.

The analysis of Mr. Dougherty we feel accurately summarizes what lies ahead for the domestic refining industry. We agree with the Federal Trade Commission analysis of the problem, but we cannot help but wonder why those agencies directly concerned with energy policy and regulation failed to reach the same conclusion. What makes this an even more confusing question is that the source material utilized by the Federal Trade Commission came almost exclusively from the reports of the Federal Energy Administration. Primary among those source materials was a study conducted for the Federal Energy Administration entitled the Pace Study.⁸

In that study, it was found that current fee levels were inadequate to protect the domestic refining industry.⁹ However, as is evident from the following colloquy between the Federal Energy Administrator, Mr. John O'Leary, and Senator Mathias at a hearing of the Senate Subcommittee on Antitrust and Monopoly on June 17, 1977, Mr. O'Leary is unaware of his agency's study:

Senator MATHIAS. Is it not a serious question, whether that 63 cents, which could be, as I understand it, from 63 cents to 84 cents that is, whether that will provide adequate protection in view of the fact that the Pace Study, which FEA commissioned, conclude that a level of protection from \$1.88 to \$3.26 would actually be required to cause the installation of a new domestic refining capacity.

Mr. O'LEARY. The Pace Study, as I recall it, and I will have to take another look at that in light of your question, but I think it calls for about an 80 cent differential, not the substantial differential that you call for.

⁸Pace Engineering, *Determination of Refined Petroleum Product Import Fees* (study prepared for FEA, July 1, 1976, based on 1980 dollars).

⁹As it is not the purpose of this paper to discuss the appropriate level of import fees, suffice it to say that Pester Refining and the Independent Refiners Association of America feel that the current 63 cents fee on imported product is inadequate. As the appropriate level of fee may be open to dispute, it is of greater importance that the need for protection be recognized rather than the level being specifically determined at this time.

If the differential was so high, then I think it would raise a serious question as to whether or not we want on-shore additional refining capacity. That is an awful lot of cushion. That would say that what we would have to do is put on a \$3 or a \$2 to \$3 tax on imports. Of course, ultimately refining is a very desirable thing if it does not cost you too much, that is, to have it within your own borders.¹⁰

If the energy policymakers are unaware of their own data, then there is no reason to assume that they will be analyzing the adverse impacts of their proposed programs as revealed by such data.

FEA's erroneous assumption that impact on domestic refining capacity can be ignored.—It has been the position of the Administration that the immediate consequence of the National Energy Act will be the restriction of the growth of demand for refined petroleum products. It has been also asserted that because of this restriction of growth there will be no need for additional refining capacity in the United States. Mr. O'Leary in his testimony before the Senate Subcommittee on Antitrust and Monopoly stated, in response to a question from Senator Kennedy that "[a]s we look at the plan . . . if everything works we will not need substantial additions to refinery capacities"¹¹ In response to Mr. O'Leary's answer, Senator Kennedy asked about the consequences if the National Energy Plan does not function as anticipated? Mr. O'Leary's response is illuminating as to the entire planning and policy formulation process followed by the Administration:

Then we would have a much more serious problem. That is dependent upon refinery capacities. Indeed refineries are expanded all the time, but if we do not get to the point where our imports in the '80s are in the 6 million barrel range, or the 13 million barrel range, which are the plan and non-plan comparisons, then I think we have a very, very serious problem in this country.¹²

What the administration has determined is that their plan will solve all problems—unless it doesn't work.

Another example of erroneous assumptions or unclear analysis: subsequent to the testimony of Mr. O'Leary, the Federal Energy Administration released a report in conjunction with its proposal to remove price controls from motor gasoline.¹³ In this report the Federal Energy Administration reveals that domestic refining capacity will not be sufficient to meet consumer demand by 1979. This flatly contradicts, of course, the bland assumption that demand will be held in check so additional domestic capacity will not be required. Furthermore, its seeming acceptance of the proposition that the deficiency can and will be met by product imports is terrifying. The report says:

An analysis of projected supplies in Table IV-2 shows that total average annual petroleum product demand for 1979 cannot be met from increased domestic refinery capacity and will cause increases in imports of several product categories. Domestic refinery capacity is projected to increase by 1.7 MMB/D from 1976 to 1979, while the increase in total petroleum demand is projected to be 2.7 MMB/D. . . . to meet the total demand for refined products in 1979 imports will increase by 500 MB/D above 1976 levels. These incremental imports include 100 MB/D of distillate fuel oil, 300 MB/D of residual fuel oil, and 100 MB/D of other products and petrochemical feedstocks.¹⁴

The demand for petroleum products will require, in the opinion of FEA, that greater quantities of products must be imported. Domestic refiners will be doubly disadvantaged: first, because of the direct adverse impact of low-priced product imports, and second, because of the direct adverse impact of low-priced product meet this need acts as a further deterrent to the expansion of capacity in the United States. Those companies possessing offshore capacity, most notably the multi-national majors, currently have idle capacity there. Unless the current legislation is changed, the incentive will clearly be created for these companies to

¹⁰ Senate Subcommittee on Antitrust and Monopoly, *Official Transcript*, Hearing June 17, 1977, p. 35.

¹¹ Senate Subcommittee on Antitrust and Monopoly, *Official Transcript*, Hearing June 17, 1977, p. 37.

¹² *Ibid.*

¹³ Federal Energy Administration, *Preliminary Finding, and Views Concerning The Exemptions of Motor Gasoline From the Mandatory Petroleum Allocation and Price Regulations*, August, 1977.

¹⁴ *Ibid.*, pp. 86-89.

utilize their idle capacity offshore rather than bear the costs of expanding domestic refining.¹⁵ As noted by the Federal Trade Commission, there are clearly anti-competitive aspects to such activities because those who possess the offshore capacity already dominate the petroleum industry.¹⁶

In sum, the Crude Oil Equalization Tax in its present form will benefit offshore refiners at the expense of domestic refiners. We believe that such a result is not sound national energy policy. Three considerations have seemingly been overlooked by the administration.

First, security of supply.—The United States has been subjected to a lengthy oil embargo in the past and we are taking positive steps to avert any future supply interruptions by the development of strategic petroleum reserves. These reserves are designed to insure that any future interruptions will not cause wide-spread economic dislocations. But these reserves require that there be refining capacity *onshore* into which the crude oil will flow. Accordingly, we question the wisdom and soundness of any policy that will promote offshore refining capacity at the expense of domestic refinery expansion. The current legislative proposal clearly, as demonstrated in this paper and others, will cause those multinational companies with offshore capacity to use and expand that offshore capacity rather than expand their domestic facilities. Facing the competition of low-priced product imports, other firms have no incentive to expand. If the Administration has determined that the public should not be completely vulnerable to the capricious whims of the OPEC nations, by developing strategic petroleum reserves, it is wholly inconsistent therewith to affirmatively promote foreign-based refining capacity on which we must rely in the future.

Second, balance of payments.—Pester Refining and the Independent Refiners Association of America question the validity of any legislative program that has the natural effect of increasing our balance of trade deficit. In recent years we have seen the United States go from having a balance of trade that reflected our posture as a major exporting nation to a posture of a net importer. Realizing that many of the problems in this area can be directly traced to the rapid escalation of crude oil costs by the OPEC nations, we are opposed to any program that makes the country even more dependent upon foreign sources of refined petroleum products.

Third, anticompetitive aspects.—As independent refiners, we are deeply concerned about this aspect of the problem as outlined by the Federal Trade Commission and described earlier in this paper.

There is a solution to this problem. The Administration must be authorized, and in practical effect required, to increase the level of import fees to a point which will fully and effectively offset the cost advantages which would otherwise be enjoyed by foreign products—and to do so on a long-term and reliable basis which will permit refiners to finance the expansion of domestic refining capacity.

The CHAIRMAN. Now I will call Mr. Harry A. Logan, Jr., president of the United Refining Co.

Mr. Logan?

STATEMENT OF HARRY A. LOGAN, JR., PRESIDENT, UNITED REFINING CO., ACCOMPANIED BY EVAN EVANS, VICE PRESIDENT

Mr. LOGAN. Mr. Chairman and members of the Senate Finance Committee, my name is Harry A. Logan, Jr., and I am president of United Refining Co. With me today is Evan Evans, vice president of United.

I am most happy to be here today and to have this opportunity to bring to your attention a potentially devastating but perhaps unintended threat to the continued viability of small and independent refiners inherent in the National Energy Act which is now under consideration by your committee.

¹⁵ *Ibid.*, p. 103-106.

¹⁶ *Supra*, p. 11.

The effect I refer to would result from enactment of the crude oil equalization tax which is designed to bring the price of domestic crude up to the world price for crude oil by 1980. In so doing, the present crude oil entitlements program would be eliminated, along with the small refiner bias, unless the act can be amended to correct this omission.

I would emphasize that the failure of the National Energy Act to speak to the problems of small and independent refiners constitutes a reversal of long-established Federal policy. This apparent neglect, coupled with a growing misconception of the whole competitive situation in the petroleum refining industry, threatens small and independent refiners with a disastrous situation.

To illustrate this lack of understanding about the role of the independent refiner, let me cite the case of United Refining Co., a small and independent refiner as those terms are defined in the Emergency Petroleum Allocation Act of 1973. We have been in existence for 75 years. We have 1,800 employees and 2,300 shareholders. Our shares are traded on the New York Stock Exchange. In 1975 we were listed among the prestigious Fortune 500 industrial companies but dropped to No. 508 last year on sales of \$325 million. In addition, we collected \$75 million of Federal and State excise taxes on gasoline and diesel fuels. Over the last 12 years we have invested more than \$100 million in capital expenditures to improve our physical facilities.

We operate a completely modern refinery in Warren, Pa., with a capacity of 44,000 barrels per day when running for the optimum slate of product yields. We own interests in crude oil pipelines and several product distribution terminals. We market a one-half billion gallons of gasoline a year through a network of 700 owned or controlled service stations and last year accounted for one-half of 1 percent of all gasoline sold in the United States, although our marketing activities are concentrated in the three States of Pennsylvania, Ohio, and New York.

In addition we manufacture and sell propane, kerosene, diesel fuel, home heating oil, industrial fuel oils, and a variety of asphalts. We are refiners and marketers. We are not crude oil producers and we must purchase from others all of our requirements.

The first point I would like to make about our operations is that we are a very significant factor in the region where we operate and extremely important to its economic well being. For example, during the great winter of 1976-77 when acute natural gas shortages appeared and river transportation systems were clogged with ice and product pipelines overtaxed United was able to help our region avoid a much greater catastrophe.

We may be small by comparison with the major oil companies, most of whom operate nationally, but we are nevertheless just as important as any oil company to our particular region.

The second point concerns the matter of efficiency. It has been suggested by some that small refiners are inefficient and Government programs aimed at supporting them are no longer justified. This argument, insofar as it refers to companies like United, is entirely fallacious. As refiners and marketers we take a back seat to no one in efficiency. The record speaks for itself. We are significantly more

efficient than our major competitors except we do not enjoy their economies of scale.

Third, there is a lack of appreciation as to the role of the independent refiner. We are the mainspring of competition in the oil industry and stand as a bulwark against domination of our industry by a dozen and a half majors who control 80 percent of domestic refining capacity. Very small refiners, those with capacities under 10,000 barrels per day and numbering 49 companies, account for 1.43 percent of U.S. refining capacity while 18 percent of domestic crude oil is run by 63 companies with capacities from 10,000 to 175,000 barrels per day. It is these 63 small and independent refiners whose facilities represent substantial investments and who exert an influence disproportionate to their size whose continued viability should be a matter of extreme national concern.

Now I would like to proceed to define the problem. Independent refiners generally have no crude oil production of their own. They must purchase their supplies of raw material from others. Crude oil prices to them represent actual out-of-pocket costs as contrasted with the integrated majors for whom these prices are largely intra-company bookkeeping entries. Federal policy has long recognized the necessity of arranging Government programs in such a way as to offset in part the overwhelming advantages possessed by the integrated major oil companies, which have traditionally utilized profits from the production of crude oil, both at home and abroad, together with Government sponsored tax advantages derived therefrom, to subsidize their downstream marketing and refining operations.

Crude oil has grown enormously in value as a result of the activities of the OPEC cartel during the past 4 years. Domestic oil producers, including the integrated majors, have benefited greatly from this international price fixing conspiracy but higher crude oil prices have presented independent refiners with unprecedented problems.

Crude oil price controls were designed to permit domestic producers to benefit to a limited extent in OPEC dictated price fixing by establishing two or three tiers of incentive prices. The entitlements program then became necessary as a means of alleviating the otherwise devastating impact upon refiners with widely differing access to low cost price controlled domestic crude oil. Some large refiners as well as small are among the beneficiaries of this program.

Nevertheless, the entitlements program, despite its good intentions, has been disappointing to some refiners. Old domestic crude is still the best buy. Imports of offshore sweet crude cost the refiner considerably more than can be offset through entitlements.

In the case of my company, entitlements fell short last year of equalizing our feed stock costs with the national average by \$1.04 a barrel or \$14.6 million, even though we received \$22 million through the sale of entitlements. Of this amount, \$6.8 million was attributable to the small refiner bias. To put these numbers in perspective we reported a profit of only \$2.6 million in 1976 on sales of over \$325 million.

We are here today to plead for a provision in the crude oil equalization tax bill which would replace, in some form, the small refiner bias. We do this without any apologies because for many years Federal policy has accepted the principle that small refiners should be as-

sisted by such devices as the sliding scale of benefits under the old crude oil import program and the present small refiner bias.

These have always been considered offsets to the advantages enjoyed by the majors in terms of economies of scale, financial muscle, foreign tax credits, and ownership of crude oil production which they have traditionally utilized to subsidize losses downstream in refining and marketing.

For years United Refining Co. has been able to outperform the majors in refining and marketing because our operations are considerably more efficient than those of our major company competitors.

However, today we are operating our refining and marketing activities on roughly the same margin as we did 6 years ago when crude oil cost about \$3.50 per barrel. We are paying \$16 a barrel to bring imported crude oil to our refinery and our average cost for crude oil, including domestic, after adjustments for entitlements and the small refiner bias, is \$12.86 per barrel for the first half of this year. This is \$1.16 a barrel in excess of the average cost for the whole refining industry as reported by FEA. One reason for this is that the entitlements program does not address itself to a situation where a company is a heavy importer. We import 75 percent of our crude oil from abroad and must absorb as a deduction from entitlements receipts the 21-cents-per-barrel tilt in favor of domestic crude. Additionally, we must run on sweet crude from North Africa and the North Sea which tends to be higher priced than the average of all imported crude against which the FEA computes the value of entitlements.

We believe that Government policy being formulated today has thus far neglected the plight of the crude deficient refiner who cannot subsidize his downstream refining and marketing operations from producing profits. He must contend with shortages of domestic crude oil and FEA regulations which tie lower tier domestic crude to purchasers of December 1973. The alternative is foreign oil which must be bought at prices set by OPEC.

Furthermore, his gasoline must be marketed in competition with integrated refiners enjoying lower feed stock costs and who, in some cases, are subject to FEA gasoline price ceilings so low that he cannot compete profitably against them.

Moreover, in this, the most capital intensive of all industries, the independent refiners have been subjected to the extreme pressures of inflation since their financial resources are severely limited compared to their major company competitors. We have had to undertake huge new investments mandated by Government regulations such as those requiring the elimination of lead additives from gasoline, the abatement of air and water pollution from refineries, or the desulfurization of products from higher sulfur content crudes.

If the present entitlements program is to be phased out as a result of the imposition of the crude oil equalization tax, it is absolutely essential to the survival of the independent segment of the refining industry that some equivalent to the small refiner bias be instituted concurrently.

It has long been recognized that small independent refiners exert an influence on competition in the petroleum industry far out of propor-

tion to their size. The companies that I refer to are all well managed, efficient, significant in size by the standards of any other industry, and are important contributors to the economic well-being of their localities and the Nation as a whole.

The consequence of their demise, if it is permitted to happen through the failure to provide an equivalent substitute for the small refiner bias, will be greatly diminished competition in the petroleum industry and increased dependence for the Nation on imported finished petroleum products. Neither of these results is a happy one to contemplate.

We feel that a proper recognition of the independent refiner's unique role and the need to keep him healthy is long overdue and that an opportunity exists to accomplish this in the legislation now being considered in the Senate in the form of a graduate exemption from the crude oil equalization tax which will provide benefits comparable to the sliding scale in the old mandatory oil import program and the small refiner bias in the present entitlements program. It should be possible to devise a system of exemption which would serve the national interest by preserving the competitive viability of those independents which do in fact serve a vital economic role in our society and at the same time minimizing abuses created by diversion of entitlements to those whose sole purpose is to take advantage of a Government program.

The CHAIRMAN. Let me just ask one question about this matter. When this matter came up in the House, Members asked about the cost of retaining the small refinery bias, and it was estimated that the cost would be roughly \$800 million a year. That figure sounded like so much money that the House people said, "Let's have a study and talk about it later on. That is a lot of money and these are hard times."

Considering it costs that much, do you have any suggestions of what it would take to keep the small refineries going? Could we do it for half that, for example? I am troubled that what they are asking for would cost \$800 million a year.

Mr. LOGAN. Mr. Chairman, there is no cost as such to the public.

The CHAIRMAN. No, I am talking about under the new bill. If we put a refinery bias provision in the new bill, it works on a completely different basis, and in effect treats the foreign and domestic crude alike. Estimates are that it would cost \$800 million.

Mr. EVANS. Mr. Chairman, \$800 million was a figure that represented the small refiner bias in its entirety at the rate that it was going last year when that abuse that the FEA corrected was involved. At the present time the latest entitlement figures, the total small refiner bias is considerably less than that, in the neighborhood of \$440 million. It is true that what House was looking at was a reduction from the general revenues; that the crude oil equalization tax by virtue of that refund or remission for the small refiners, the cost to the country if that is not given, would be the elimination of these small refiners and the ultimate replacement of their capacity either with imported products or with much higher costs new refining capacity in the country. So it is a small price, a small portion of the total equalization tax to keep these refiners alive while additional plans are set to provide for functional accounting that the President has requested.

The CHAIRMAN. I would like to keep the small refineries going. I think that the majority of this committee will probably feel that we have to think about what it is going to cost to do it: So you think that to do what you are asking will cost about \$400 million plus rather than \$800 million.

There has been earlier testimony from the smaller refiners to the effect that the refinery cost was not much different from the cost of the big refiners. Is that right or not? In other words, there was testimony here by one of the witnesses that major companies just didn't seek to make much money at the refinery stage; they made money elsewhere along the line.

Mr. EVANS. Mr. Chairman, the problems are complex because the oil industry is extremely complex. The major oil companies have two distinct advantages on the independents generally. One is that they have their own proprietary crude oil which was revalued four or five times its prior value by the OPEC cartel and the other is their economies of scale in all phases of their business. A medium sized refiner such as ours is relatively a slight amount on this economy of scale but a tremendous amount on his lack of proprietary crude oil. I think that both of these factors have to be considered. The very small independent refiners suffer badly from the economy of scale, some of them sit on their own crude oil supplies, but that does not help them if they have this disadvantage of scale. The larger refiners lack the crude oil and that is their big stumbling block, their biggest disadvantage.

The CHAIRMAN. Thank you very much.

Thank you for your statement.

[The prepared statement of Mr. Logan follows:]

STATEMENT OF HARRY A. LOGAN, JR., PRESIDENT, UNITED REFINING CO.,
WARREN, PA.

Mr. Chairman, members of the Senate Finance Committee, my name is Harry A. Logan, Jr., and I am President of United Refining Company. I am most happy to be here today and to have this opportunity to bring to your attention a potentially devastating, but perhaps unintended threat to the continued viability of small and independent refiners inherent in the "National Energy Act" which is now under consideration by your committee.

The effect I refer to would result from enactment of the Crude Oil Equalization Tax which is designed to bring the price of domestic crude up to the world price for crude oil by 1980. In so doing, the present Crude Oil Entitlements Program would be eliminated, along with the Small Refiner Bias, unless Title II of H. R. 8444 can be amended to correct this omission.

I would emphasize that the failure of the National Energy Act to speak to the problems of small and independent refiners constitutes a reversal of long-established federal policy. This apparent neglect, coupled with a growing misconception of the whole competitive situation in the petroleum refining industry, threatens small and independent refiners with a disastrous situation in which they may become the Lost Battalion in the war against energy shortages which President Carter has recently proclaimed.

To illustrate this lack of understanding about the role of the independent refiner, let me cite the case of United Refining Company, a small and independent refiner as those terms are defined in the Emergency Petroleum Allocation Act of 1973. We have been in existence for 75 years. We have 1,800 employees and 2,300 shareholders. Our shares are traded on the New York Stock Exchange. In 1975 we were listed among the prestigious Fortune 500 industrial companies but dropped to No. 508 last year on sales of \$325 million. In addition, we collected \$75 million of federal and state excise taxes on gasoline and diesel fuels. Over the last 12 years we have invested more than \$100 million in capital expenditures to improve our physical facilities. We operate a completely modern re-

finery in Warren, Pa., with a capacity of 44,000 barrels per day when running for the optimum slate of product yields. We own interests in crude oil pipelines and several product distribution terminals. We market a half a billion gallons of gasoline a year through a network of 700 owned or controlled service stations and last year accounted for one half of one percent of all gasoline sold in the United States, although our marketing activities are concentrated in the three states of Pennsylvania, Ohio and New York.

In addition to gasoline we manufacture and sell propane, kerosene, diesel fuel, home heating oil, industrial fuel oils and a variety of asphalts. We are refiners and marketers. We are not crude oil producers and we must purchase from others all of our requirements.

The first point I would like to make about our operations is that we are a very significant factor in the region where we operate and extremely important to its economic well being. For example, during the great winter of 1976-77, when acute natural gas shortages appeared and river transportation systems were clogged with ice and product pipelines overtaxed, United was able to help our region avoid a much greater catastrophe.

We may be small by comparison with the major oil companies, most of whom operate nationally, but we are nevertheless just as important as any oil company to our particular region.

The second point concerns the matter of efficiency. It has been suggested by some that small refiners are inefficient and government programs aimed at supporting them are no longer justified. This argument, insofar as it refers to companies like United, is entirely fallacious. As refiners and marketers we take a back seat to no one in efficiency. The record speaks for itself. We are significantly more efficient than our major competitors except we do not enjoy their economies of scale.

Until the upheavals in oil prices caused by the events of 1973-74 occurred, we were able to establish an enviable record of growth and profits in these activities which the majors have traditionally subsidized with earnings from crude oil production.

Third, there is a lack of appreciation as to the role of the independent refiner. We are the mainspring of competition in the oil industry and stand as a bulwark against domination of our industry by a dozen and a half majors who control 80 percent of domestic refining capacity. Very small refiners, those with capacities under 10,000 b/d and numbering 49 companies, account for 1.43 percent of U.S. refining capacity, while 18 percent of domestic crude oil is run by 63 companies with capacities from 10,000 to 175,000 b/d. It is these 63 small and independent refiners, whose facilities represent substantial investments and who exert an influence disproportionate to their size, whose continued viability should be a matter of extreme national concern.

Now I would like to proceed to define the problem. Independent refiners generally have no crude oil production of their own. They must purchase their supplies of raw material from others. Crude oil prices to them represent actual out-of-pocket costs as contrasted with the integrated majors for whom these prices are largely intra-company bookkeeping entries. Federal policy has long recognized the necessity of arranging government programs in such a way as to offset in part the overwhelming advantages possessed by the integrated major oil companies, which have traditionally utilized profits from the production of crude oil, both at home and abroad, together with government sponsored tax advantages derived therefrom, to subsidize their downstream marketing and refining operations. Crude oil has grown enormously in value as a result of the activities of the OPEC cartel during the past four years. Domestic oil producers, including the integrated majors, have benefited greatly from this international price fixing conspiracy, but higher crude oil prices have presented independent refiners with unprecedented problems.

We are here today because the administration has proposed to substitute a crude oil equalization tax for the present three-tier system of domestic crude price controls, and the associated Old Oil Entitlements Program.

Crude oil price controls were designed to permit domestic producers to benefit to a limited extent in OPEC-dictated price fixing by establishing two or three tiers of incentive prices. The Entitlements Program then became necessary as a means of alleviating the otherwise devastating impact upon refiners with widely differing access to low cost price controlled domestic crude oil. Some large refiners as well as small are among the beneficiaries of this program.

It is simply not true that the Old Oil Entitlements Program constitutes a handout to refiners. When the Arab Oil Embargo hit in 1973, some refiners were lucky enough to be buying what later became known as Old Oil. Others were running Stripper Crude and some Canadian or Offshore Imports. The important thing to remember is that the free market for crude oil ceased to exist then and the classic price fixing cartel took over. Even Canadian oil prices became tied to OPEC levels.

A refiner is essentially a middle man who converts crude oil into usable finished products. The cost of his raw material can be as much as 85 or 90 percent of the value of the finished products. Refining is a capital intensive, high technology industry, dominated by a dozen and a half giants, most of whom possess large crude oil reserves. These companies were able to benefit from OPEC price fixing when the value of their reserves quadrupled or quintupled in a few months' time. The Entitlements Program was necessary to prevent the extermination of that portion of the refining industry forced to rely on high cost crude due to new circumstances of a political nature, largely beyond their control. The Entitlements Program was the direct outgrowth of our government's desire to provide selective and limited price increases to domestic producers while denying them the full benefits of OPEC-dictated prices in the form of unearned profits.

Nevertheless, the Entitlements Program, despite its good intentions, has been disappointing to some refiners. Old domestic crude is still the best buy. Imports of offshore sweet crude cost the refiner considerably more than can be offset through entitlements.

In the case of my company, entitlements fell short last year of equalizing our feed stock costs with the national average by \$1.04 a barrel or \$14.6 million, even though we received \$22 million through the sale of entitlements. Of this amount, \$6.8 million was attributable to the Small Refiner Bias. To put these numbers in perspective we reported a profit of only \$2.6 million in 1976 on sales of over \$325 million.

We are here today to plead for a provision in the Crude Oil Equalization Tax bill which would replace, in some form, the Small Refiner Bias. We do this without any apologies because for many years federal policy has accepted the principle that small refiners should be assisted by such devices as the sliding scale of benefits under the old Crude Oil Import Program and the present Small Refiner Bias.

These have always been considered offsets to the advantages enjoyed by the majors in terms of economies of scale, financial muscle, foreign tax credits, and ownership of crude oil production which they have traditionally utilized to subsidize losses downstream in refining and marketing.

For years United Refining Company has been able to outperform the majors in refining and marketing because our operations are considerably more efficient than those of our major company competitors.

All of our refinery feedstocks are purchased from others, but today our major competitors are profiting enormously from the crude oil they themselves produce, much of which was discovered years ago and enjoys extremely low lifting costs.

However, today we are operating our refining and marketing activities on roughly the same margin as we did six years ago when crude cost about \$3.50 per barrel. We are paying \$16 a barrel to bring imported crude oil to our refinery and our average cost for crude oil, including domestic, after adjustments for entitlements and the Small Refiner Bias, is \$12.86 per barrel for the first half of 1977. This is \$1.16 a barrel in excess of the average cost for the whole refining industry as reported by FEA. One reason for this is that the Entitlements Program does not address itself to a situation where a company is a heavy importer. We import 75 percent of our crude oil from abroad and must absorb as a deduction from entitlements receipts the 21 cents per barrel tilt in favor of domestic crude. Additionally, we must run on sweet crude from North Africa and the North Sea, which tends to be higher priced than the average of all imported crude against which the FEA computes the values of entitlements.

And, furthermore, there are special exceptions and other methods by which FEA has diverted entitlements to non-refiners and for other purposes which dilute their value to us.

We believe that government policy being formulated today has thus far neglected the plight of the crude deficient refiner who cannot subsidize his down-

stream refining and marketing operations from producing profits. He must contend with shortages of domestic crude oil and FEA regulations which the lower tier domestic crude to purchasers of December 1973. The alternative is foreign oil which must be bought at prices set by OPEC.

Furthermore, his gasoline must be marketed in competition with integrated refiners enjoying lower feed stock costs and who, in some cases, are subject to FEA gasoline price ceilings so low that he cannot compete profitability against them.

Moreover, in this, the most capital intensive of all industries, the independent refiners have been subjected to the extreme pressures of inflation, since their financial resources are severely limited compared to their major company competitors. Most have had to undertake huge new investments mandated by government regulations such as those requiring the elimination of lead additives from gasoline, the abatement of air and water pollution from refineries, or the desulphurization of products from higher sulphur content crudes.

If the present Entitlements Program is to be phased out as a result of the imposition of the Crude Oil Equalization Tax, it is absolutely essential to the survival of the independent segment of the refining industry that some equivalent to the Small Refiner Bias be instituted concurrently.

It has long been recognized that small independent refineries exert an influence on competition in the petroleum industry far out of proportion to their size. The companies that I refer to are well managed, efficient, significant in size by the standards of any other industry and are important contributors to the economic well-being of their localities and the Nation as a whole.

The consequence of their demise, if it is permitted to happen through the failure to provide an equivalent substitute for the Small Refiner Bias, will be greatly diminished competition in the petroleum industry and increased dependence for the Nation on imported finished petroleum products. Neither of these results is a happy one to contemplate.

We feel that a proper recognition of the independent refiner's unique role and the need to keep him healthy is long overdue and that an opportunity exists to accomplish this in the legislation now being considered in the Senate in the form of a graduated exemption from the Crude Oil Equalization Tax which will provide benefits comparable to the sliding scale in the old Mandatory Oil Import Program and the Small Refiner Bias in the present Entitlements Program. It should be possible to devise a system of exemption which would serve the national interest by preserving the competitive viability of those independents which do in fact serve a vital economic role in our society and at the same time minimizing abuses created by diversion of entitlements to those whose sole purpose is to take advantage of a government program.

The CHAIRMAN. The committee will recess until 9 o'clock tomorrow morning.

[Whereupon, at 2:05 p.m., the committee recessed, to reconvene at 9 a.m., Wednesday, September 14, 1977.]

ENERGY TAX ACT OF 1977

WEDNESDAY, SEPTEMBER 14, 1977

U.S. SENATE,
COMMITTEE ON FINANCE,
Washington, D.C.

The committee met, pursuant to recess, at 9:05 a.m. in room 2221, Dirksen Senate Office Building, Hon. Russell B. Long (chairman of the committee) presiding.

Present: Senators Long, Talmadge, Byrd, Jr. of Virginia, Bentsen, Hathaway, Curtis, Dole, and Packwood.

Senator TALMADGE. The committee will please come to order. The chairman has been delayed, so we will proceed with the hearing.

The first witness is Hon. David L. Boren, Governor of Oklahoma, on behalf of the Midwestern and Southern Governors' Conferences.

Governor, we are delighted to have you and appreciate your appearance.

STATEMENT BY HON. DAVID L. BOREN, GOVERNOR OF THE STATE OF OKLAHOMA ON BEHALF OF THE MIDWESTERN AND SOUTHERN GOVERNORS' CONFERENCES

Governor BOREN. Senator, thank you very much.

I appreciated this opportunity to appear this morning. I have submitted a brief statement and some attachments to it.

I appreciate this opportunity to appear today and to share with you some thoughts about the tax portions of the energy plan before you. I was asked by the Midwestern Governors' Conference to come to Washington and speak with you about some concerns these States have about the energy proposals before you. Likewise, having served as chairman of the Energy Committee of the Southern Governors' Conference, I am also expressing the concerns of these Governors about energy.

I have submitted for your information relevant portions of the energy resolutions passed by these two bodies last month. You will find that they are very similar in key elements.

The President has said it is time to lay it on the line about the need to end our wasteful consumption of energy. Our States are taking steps to conserve energy. In fact, my own State of Oklahoma was one of the first States in the Nation to complete an energy conservation plan.

While laying it on the line about conservation, however, it is also time to lay it on the line with the American people about the supply side of the energy crisis. You cannot conserve something you do not have, and a program based on conservation alone is a dead-end street.

What is the bottom line of the plan on the supply side? To be blunt, this Congress is being asked to take two positions which are unthinkable. First, you are being asked to declare defeat, and to say that our people do not have the ingenuity to meet a challenge. The vast majority of the funds derived in higher energy prices by the consumer will go to the Government for transfer payments instead of going to stimulate more production and development of old and new energy sources.

This proposal is tragically shortsighted. It provides for the most part only the rationing of a shortage and not for any long-range victory for the consumer through more adequate supplies.

The American people have always been willing to sacrifice but not when we declare defeat before we begin.

Second, you are being asked to substitute Government control for free enterprise in the energy field. I cannot believe that the American people if it were clearly presented to them, would agree with such a choice. Such a choice could well set a precedent that would destroy our free economy in all areas. In short, how we approach the energy crisis may well determine whether or not we maintain a free economic system in this country.

From the supply side, the energy shortage may be viewed primarily as a shortage of capital investment. Without a large increase in the rate of investment not only in oil and gas production, but also in development of and conversion of other forms of energy the shortage cannot be reduced.

Yet the President's plan puts few additional funds in the hands of the producers to stimulate investment. Only the Government will have sufficient funds and that means a switch from the private to the public sector. Governments have a very bad record when it comes to making investment decisions. There are many examples in other nations.

What is the effect of the tax portions of the plan before you and the regions who I am representing? I think the effect on the Midwest and the South will mirror the effect of the plan on the Nation as a whole. Why? Because we represent not only the greatest agriculture States of the country but some of the most heavily industrialized. We represent some of the largest producing States and some of the largest consuming States.

And yet with all this diversity and with only a total of three dissenting votes at these two conferences we were able to agree on some basic recommendations relative to the portions of the plan this committee is considering.

As to the question of domestic oil production, we believe that well-head prices should be phased to the world market price instead of imposing a wellhead tax to bring the price to world levels. To insure that producers would not make windfall profits at the expense of the consumer, we call for a strong excess profits tax with plowback provisions.

I have submitted for your consideration a narrative of how such a tax would work on both oil and gas. You will note that the removal of controls would be phased so that the impact will be minimal. Excess profits would be the difference between the price received for the petroleum and the current price as set by law for upper or lower tier

oil. If that money is not put back into producing more energy for the American people, it will be completely taxed away.

Parenthetically, there was testimony from the former Vice President, and I think there has been testimony from others, of some kind of energy development bank in this country. Governor Carey of New York is preparing a suggestion for regional development banks that would be keyed to energy development, both on the supply side and the conservation side.

The Midwestern Governors' Conference also included support for this concept in that resolution cast some 6 weeks ago when we had the counsel of Mr. Rostow and others who worked with us on the conference in exploring this concept and receiving endorsement for it.

This plan will do several things, the most important of which will be to put capital into the private sector for increased domestic production. Quite frankly, it astounds me that at the time in our Nation's history when energy production is needed the most, the administration prepares a plan to siphon off the needed capital. Under our proposal, the same conservation objectives will be met as the President proposes, but we will expand our capacity for production while insuring against excess profits.

I ask you, why was this approach not proposed then? I submit there could be two reasons. Either the administration proposed the largest single tax increase in the history of our country and called it an "energy program," or there is a conscious policy to subsidize foreign production and leave American petroleum in the ground.

There has never been a time in the history of our country when we were willing to pay more for a product if it is produced in a foreign country than we are willing to pay Americans to produce it at home. There must be a conscious goal of producing in other countries and leaving our own oil and gas in the ground.

If not, why would we tell our companies that we will pay them more for the same product if they will drill for the same gas or oil in Mexico or the Middle East than we will pay if they drill in the United States?

On the surface, it might sound somewhat reasonable to say:

Why should we use up our oil and gas if there is a limited supply? Let's use up the oil and gas from other countries.

But what would it do? What are we going to do with the domestic industry? What are we going to do if we stack the rigs? Can we say:

Well, we will leave all the people in our drilling crews on the payroll for the next ten or fifteen years while we wait until this nation needs its domestic oil and gas again.

What are we going to tell the graduates in petroleum engineering in our colleges and universities in the country?

Come on and major in petroleum engineering; 20 years from now we may need to produce again in the domestic industry.

You all know the results. Oil and gas production is not like turning on the water tap. You cannot keep an industry in existence and not have it do anything over a lengthy period of time. You cannot kill an industry and then bring it back into existence when you need it.

Look at the railroads or the coal industry. We need them now, but it will take time to bring them back.

Whatever the reason, the gamble is too great and the stakes are too high. The balance-of-trade deficit is staggering now and it will get much worse. American capital which escapes the tax will flow overseas. Jobs will be lost. Inflation will skyrocket.

What about those industries that cannot switch from oil or gas? The proposed business use tax on top of the equalization tax is at least twice as high as the comparable energy taxes currently paid by exporting industries in the five other major industrialized countries of the free world. How will U.S. goods compete in an increasingly tight world market?

There is no way to escape the fact that the American worker will bear the brunt of the administration's proposals. Certainly, sacrifices are necessary and I believe that the American people are willing to make them, but only if they are for the right reasons.

Another point which the Governors addressed themselves to was that of natural gas. While the Energy Committee will be addressing itself to deregulation, you will be looking at the proposed excise tax on use of gas. Many of the same problems which I discussed earlier apply equally to oil and gas, but I did want to make one point. Natural gas is the cleanest, most environmentally acceptable fuel we have, and we have plenty of it.

The reason for last winter's shortage was not the scarcity of gas, but a scarcity of reasonable Government policies. An ERDA study, commissioned last winter—the so-called MOPPS report—showed that at \$2.25, the Nation would be awash in natural gas. Sure we only have 10 years of 52 cent gas left, but you can run out of anything you are unwilling to pay for.

—Even at an unregulated price, natural gas is still the cheapest alternative we have. I call your attention to the experience we have had in Oklahoma with a free market. I have submitted statistics showing an increase in the net reserves of over 400 percent.

There have been very few times in our Nation's history when a tax increase would have had a more devastating impact than at this time. We do not need at this crucial point to subsidize a foreign product at the expense of that same product produced domestically.

Taxing on oil and gas without incentives for increased production means American jobs will be lost. We ask you to keep that in mind as you deliberate.

The CHAIRMAN. Thank you very much, Governor.

We operate under what we call the Early Bird Rule. If the chairman is late, the first member present is expected to pound the gavel and start the meeting.

Senator Talmadge was the first one here, and he will be the first man to ask you a question or two, or comment on your testimony.

Senator TALMADGE. Thank you, Mr. Chairman.

Governor, I compliment you on your statement. I understand the thrust of your statement. You recommend that we deregulate both petroleum and natural gas over a phased period of time?

Governor BOREN. Yes, sir.

Senator TALMADGE. What time frame do you have in mind, Governor?

Governor BOREN. The two conferences did not specify a time. I would say our informal discussion centered on a 3-year time frame.

Senator TALMADGE. Three years for both petroleum and for natural gas?

Governor BOREN. For natural gas, and petroleum would depend upon the length of time required with an escalation of 2 percent per month to the world price. That would take a longer time frame.

Senator TALMADGE. You would put an excess profits tax in the law if they did not plow back those increased profits into the production of more energy?

Governor BOREN. Yes, sir.

For example, in natural gas, we would take the figures used in the President's proposal, \$1.75, and treat the revenue above that each year, adjusted for inflation, as an excess profit unless it were plowed back in delineated ways.

Senator TALMADGE. You stated, I believe, that you had increased your production of natural gas. Is it, in Oklahoma, by 400 percent?

Governor BOREN. Not production, but our reserves as compared to demand. The amount each year—this has been true, I think, in all of the intrastate markets; I know it is true in Oklahoma—over the last 10 years, the net reserves as compared with demand have gone down 25 percent in the interstate market. But in the intrastate market we have had a rather substantial gain in reserves as compared to the need.

Senator TALMADGE. Would that be attributable to the fact that the producers are unwilling to let their gas go into the Interstate Conference and are withholding it from the market?

Governor BOREN. No, it would mean if you were going to drill—for example, in Oklahoma, I saw figures on one well recently, that unfortunately was dry, that cost \$9.5 million. It means if we were to drill and you and I were in partnership, and we had a choice, say a year or two ago to drill a well that expensive and sell the gas at 52 cents, or we could drill a well and sell it on the free market at that time for maybe \$1.80 or \$1.90, we would certainly sell to the market and drill for the market where we could make a profit.

Senator TALMADGE. You anticipated my next question. What is intrastate gas in Oklahoma now?

Governor BOREN. It is varying between \$1.90 and \$2 at the present time. The last figure I saw, of the new gas just coming on the market, that I believe 22 percent of it was above \$2, very slightly, and the rest of it is somewhere between the \$1.75 and the \$2 figure.

Senator TALMADGE. I think the President's recommendation is \$1.75 for both intrastate and interstate gas.

Governor BOREN. Yes, sir. That would result in a rollback of virtually all of the new gas sold in Oklahoma at this time.

Senator TALMADGE. Do you think that that would stimulate increased production of gas?

Governor BOREN. Well, I would say this. I do not think it would stimulate it nearly enough.

When you look at it, the intrastate market is already offering a higher price incentive than that, and I think we also have the added feature that psychologically—and I think this is very important to this industry—by continuation of controls itself, even if you set the figure at \$2 but controlled it, I think that permanent continuation of

controls is such a deterrent because of the past experience with controls, the notorious—so long at 52 cents—the notorious lags between the governmental price and what is really happening to the cost of production.

I think unless we decontrol and take the Government out of it, I do not think we will see the massive, long-term investment, for example, in building new rigs and other major capital projects that are needed.

Senator TALMADGE. You made one very intriguing and forceful statement. This is the first time in the history of the United States that we have been willing to pay more for a foreign product than we are to pay for one produced in our own country.

What are we paying for gas that is coming in from Canada, do you know?

Governor BOREN. I have seen figures—I think that this varies with time—both for Mexico and Canada that the prices range in the neighborhood of \$2.60, somewhere between \$2.60 and \$3, depending upon the time of purchase.

Senator TALMADGE. I believe they are building a pipeline to come up from Mexico to bring large quantities of new gas. That price is going to be in the \$2.60 range?

Governor BOREN. The latest price?

Senator BENTSEN. Would you yield?

Senator TALMADGE. I yield.

Senator BENTSEN. That consortium of companies is estimating that price for some 700 billion cubic feet, effective in 1985.

It would work out to \$3.10.

Governor BOREN. In terms of current prices?

Senator BENTSEN. Yes.

Senator TALMADGE. What would it be for liquefied natural gas? We are bringing that in from Algeria.

Governor BOREN. My goodness, \$5, whatever it is—much, much higher. \$6.

What is strange to me, if we were to sit down and consciously frame a policy to increase domestic production and do something about the balance-of-payments problem and all of the rest, how in the world could you formulate a better policy to get us to export our capital and our jobs than say, look, if you drill for natural gas in Texas or Oklahoma or wherever it is, we will pay you \$1.75 maximum, but we sure want you to stay here and drill for us.

But if you go south of the border, we will pay \$3.10 or whatever the figure is.

To me, it must be a policy of discouraging domestic investment as compared with foreign investment.

Senator TALMADGE. Thank you very much, Governor, for your excellent statement.

Mr. Chairman, I have no further questions.

The CHAIRMAN. Senator Bentsen?

Senator BENTSEN. Thank you very much, Mr. Chairman.

Governor Boren, we are pleased to have you. I was impressed with the leadership you have exercised in the Governor's Conference on this very major issue.

I think you put it in very basic terms, the fight that we have here, and we will have a bill on gas deregulation, which I coauthored, that will be coming before the Senate probably the first of next week.

Thus far we have seen about 10 percent of our exploratory wells now being drilled in the deep zones, where it is estimated that approximately 70 percent of our reserves will be found, and the reason for that is the limitation on the price being paid.

The taxpayers are paying for the marginal gas and new gas between \$2 and \$2.25. So the administration proposal still would actually result in a rollback on economic compensation.

There are those of us who are going to fight to try to see that new gas is deregulated and what is often overlooked is that the price of the gas at the well really ends up to be only about one-third of the price at the burner tip, because of the cost of transportation, and all of the rest of it.

In addition to that, with the rollover in the contracts over a period of 10 years or so, you are only talking about less than 10 percent of the gas that is coming on each year being deregulated.

What you are doing is holding a carrot out there to try to get them to go out and explore and do the drilling that is necessary.

Governor BOREN. Yes, sir.

I think the point you make about the small percentage that is really being paid at the wellhead as far as the consumer is concerned, I think most people do not understand that.

The Brooklyn Union Gas Co.'s study shows that very clearly. In that case, what the consumer at Brooklyn was paying at the wellhead, it was less than 20 percent, and in fact the pipeline amortization cost was higher or as high as what was being paid to the producer and, of course, three-fourths of the cost was in distribution once it got to Brooklyn.

What I cannot understand—we have two models in this country, the intrastate free market model where prices to the consumer have gone up more gradually than they have in the interstate market where we have had an adequate supply. We have two models, the interstate model which is failed controls, and the intrastate market, which has worked. And we are being asked to reject the one which has worked and accept the one which has failed. It defies logic.

Senator BENTSEN. I appreciate your testimony very much, Governor. Thank you.

The CHAIRMAN. Senator Curtis?

Senator CURTIS. Governor, I will not take time for very many questions. We do appreciate your very knowledgeable and forceful statement.

We have watched your career with a great deal of interest and appreciated your help when you have spoken out for financial responsibility in the Federal Government.

It was my privilege to serve in the House of Representatives with your father, and we are delighted to have you here.

Have you noticed in the overall administration's energy proposals, the total lack of anything that would encourage or promote or expand production of energy?

Governor BOREN. Yes, sir. I think that is a fair summation.

What concerns me, I know from some of the testimony that has already been presented before this committee, that expert after expert, far more qualified than I, have told us that we are having a shortage of capital invested. We are going to need hundreds of billions of dollars more in private investment to solve the problem.

I do not see a single dollar of additional private investment generated by this proposal. In fact, I think the tax portion will insure that you syphon off what could go to the private sector for investment and give it to the Government. I think it is a real tragedy for the country.

Senator CURTIS. Do you agree that conservation is a virtue, up to a point, because we should not waste things, we should do things as economically and efficiently as we can that adds to the overall welfare of our economy? But it cannot be a substitute for production, can it?

Governor BOREN. No, sir, it cannot. It just cannot.

Senator CURTIS. We can conserve energy by closing every factory in the country. We can conserve energy by compelling everyone to ride a bicycle, or ride in a compact. But we would wreck the economy.

I am not just talking about the automobile industry, but everything, clear down the line.

It seems to me that either we should wait for an energy policy that will serve the country to come along, or else this committee should totally rewrite and redirect the efforts to solve this problem before they send a bill to the floor.

Governor BOREN. Of course, I would urge this committee to follow that line. I think that the country can ill-afford to wait.

As you have said, I see nothing in the proposals so far that will head us in the right direction of producing more energy. These two conferences which I am speaking for, particularly the Midwestern Governors Conference and to some degree the Southern Governors Conference, I think there are 22 States in this conference. I think 3 of these 22 States produce any appreciable amount of oil or gas.

It is very interesting, seeing such a consensus with only three dissenting votes, from this group of Governors saying to this committee, please do something to produce more energy to keep our jobs in our States, and we are consuming States, to keep our economies going. I think that is the message that they would want me to give to you.

Senator CURTIS. We appreciate your testimony.

The CHAIRMAN. Senator Packwood?

Senator PACKWOOD. Governor, I think I would agree with everything you say about production, however, if we turn loose all of the incentives possible, I am not sure we could do the production that we need fast enough.

In the meantime, the President says that he is trying, by conservation, to cut our oil imports to 6 million barrels a day by 1985. We are now importing about 8.8 million. That is 8.8 out of about 18 million. We are aiming for 6 out of 20.

That means we have to increase our production from roughly 9 to 14 million barrels per day, which is a stupendous task, by 1985.

How, on the conservation side, can we get to 6 million barrels a day? Where can we cut? What kind of incentives can we use, if we are going to that amount of production—which I will support—but what can we do for conservation to make that kind of a dramatic cut?

Governor BOREN. I think this is where we have to, again, look seriously, I think, at some of the ideas that are being advanced to stimulate private investment, not only on the supply side, but on the conservation side.

For example, I think the ideas and the Governors Conference supported the concept, you have heard, of a development bank of some kind that would not only be for stimulating more production, but could help us in the areas of such things as building conversions, and other things that would stimulate not only the economy and the jobs, but it would be action which would be investments in energy conservation in the long run.

And I think that these are very worthy goals. I also think many of the other proposals that the President has made on the conservation side of the proposal has some merit.

Senator PACKWOOD. By any rational study—we have the Office of Technical Assessment, the Congressional Research Service, the General Accounting Office, all of them saying not only are we going—under the President's program—are we going to go down, we are going to go up someplace between 9.5 and 11.5 million barrels per day of imports. His plan simply will not do it; we have to have something different, than his plan on the conservation side.

Governor BOREN. I think that is correct. I am not the technical expert to give the committee advice on what can be done, except to agree with your comment that the targets set forth by the President—I think everybody agrees that the targets cannot be met.

I think—again, I would go back to the production side—if we do everything we can do and add even to some of the conservation aspects of the program, find other ways of strengthening it, I think we are still going to have to produce more, unless we are willing to have a complete change in our lifestyle and I think a slowdown in our economy, unless we approach this in a very creative way. We are simply going to have to have more production.

I do think this idea of using some kind of development program to stimulate private investment of energy-conserving features as well as energy production has some merit.

If we can turn what is, in essence, a critical problem for the country, the whole problem of energy production and conservation, into something that can be used to stimulate the economy in a creative way, we can help to turn, to some degree, a problem into something that can be a help to the country economically.

Senator PACKWOOD. Instead of the development bank, why not use the revenues from the crude oil equalization tax and use those for offsets for both production and conservation credits?

Governor BOREN. I think, if you are going to use all of the revenues, I think—you mean use them for production and conservation?

Senator PACKWOOD. Both. The amount of money that tax produces is immense, and use them both for production and conservation.

Governor BOREN. All right. My answer to that would be I do not think that the Government, as such, makes very good investment decisions. My answer would be the part that we want to use, for production particularly. I would even set the major part for conservation, if we get the right kinds of consensus.

I would rather see the private sector stimulated through incentives—

Senator PACKWOOD. I agree.

Governor BOREN. Rather than have it passed through. Why bring it to Washington and be collected in the form of a tax and doled out, in essence, back through some system? Why not allow the private sector to keep it with the right set of incentives in the first place? I really am worried about the fact that the Government is going to collect this money instead of leaving it in the private sector in the first place.

Senator PACKWOOD. That is not much different than a development bank with the Government selling bonds, collecting the money, and giving it to private enterprise?

How could they use it for incentives?

Governor BOREN. I am not an expert on that proposal. I would think it would be a matter of subsidization of interest rates and other things to encourage low-interest loans. I do not think it would be a grant mechanism.

I would prefer—I am not saying it is an all or nothing proposition; there need to be some rebates to minimize impact on people with fixed incomes. The Government has a role in research and production of the more expensive new forms of energy.

I do not mean it is an all or nothing proposition. I would much rather see the major part go to the private sector to make the investment decisions. We are notoriously bad, because we try to look at what we produce short range and all of us in elective office do these short-range results that will get down to our accountability periods, 2, 4, or 6 years, rather than long-term decisions.

Look at British coal. The average worker in British coal today, they have had Government investment decisions that produces exactly an eighth as much per hour than the American miner can produce.

Senator PACKWOOD. Let me ask you a political question. I think we have a chance of success on Senator Bentsen's and Senator Pearson's deregulation gas bill. I think at the moment we do not have an immediate chance of success on the deregulation of oil.

If you had the crude oil equalization tax between now and 1981, deregulation expires in 1981. The crude oil equalization tax will at that stage move our price of oil up to the world price. If you were to deregulate in 1981, there would be no traumatic increase in the cost of oil; that is already there. You remove the political argument that this is going to be a jolt to the consumer in 1981, because it will not.

Is that a feasible way to get deregulation?

Governor BOREN. No, sir. I do not think it is. Here is why.

Politically speaking, I think you are going to have a hard time selling the largest tax increase in the history of this country to the consumer when you are not really able to promise anything directly in return.

Second, I think the Government—and we certainly experience this at all levels of government, State and local—once you have a revenue source, and once you begin to use the revenue source and once you build up a bureaucracy to distribute this revenue source, it becomes very hard to ever wean us away from revenue sources once it is there.

Whatever the figure turns out to be, \$30 billion to \$50 billion, flows into the governmental treasury, and I would be very fearful, particularly when we are going to create a bureaucracy that is going to cost as much.

Senator PACKWOOD. This phases down as the price approaches the world price, which it is supposed to do as you hit 1981; you phase the tax out.

Governor BOREN. The question is this. If the private sector basically can do a better job of making investment decisions, why not let the private sector do it from the beginning then have a governmental pass-through of any programs?

Senator PACKWOOD. Are you saying, deregulate now, then will come the so-called windfall profits, but allow a total offset against that for any kind of an investment you make.

Governor BOREN. Not any kind; you have to draw this very carefully. Obviously, a plowback provision—one can be drawn, but you have to be very careful. You would not want oil companies investing in bigger cars for their executives, new paintings for their office walls. It would have to be back in delineated forms, building rigs, or whatever it is that would be most beneficial.

Senator PACKWOOD. Then are you not back to the Government making investment decisions? Yes, you can write it off, but only for certain things that we say you can write it off for?

Governor BOREN. I think there is nothing wrong with the Government using tax policy to direct private investment or make private investment make a private business decision to be attractive in the national interests. That is far preferable than the Government doing it.

I have had so many producers comment on the fact that we have a production crisis here. We are spending more on this new Department in terms of administration than the value of production.

Senator PACKWOOD. Under the limited plowback, it is the Government making the decision that it is all right to invest in a drilling rig, but not Montgomery Ward.

Governor BOREN. I think, to the degree of using tax policy, which we have done for years and years in this country, to encourage the private sector to make something profitable, you are still better off doing something like that than have the Government directly do it, because the private company is going to find the most profitable way of doing what you are giving them an incentive to do, much more profitably and efficiently than the Government.

The Montgomery Ward thing—I heard the President even use this argument in public, in speeches—that is a same argument, it seems to me, for someone in favor of the President's program. We have an intense capital shortage. Then we see an energy company invest in something else, and that argument is being used, we do not need more capital.

That is not true. They obviously need this. It is a tragedy in this country where our policy is so uncertain that an energy company would rather invest in something else rather than energy because they think it is more certain for a return to their stockholders. It is just the opposite, I think, than the argument that has been used by those favoring the President's policy.

Senator PACKWOOD. Thank you.

The CHAIRMAN. Governor, when we talk about one company acquiring the other, sometimes all they are actually doing is trading some stock. You have a company in one business and I have a company in another business. If I can get you to agree at the right price, I will give you some shares in my company and you will give me the shares of your company.

In this case, there is no out-of-pocket cost at all. It is the same thing as a merger. It is not necessarily a case of purchasing the corporation. Half the time, big corporate purchases that people complain about are purchased by exchanging some stock in the parent company in return for stock in the company acquired.

It really does not mean anything, although some people want to read a lot into it. No doubt about it, Governor, if we had not had the Federal Government around to provide the answers, the problem would have solved itself a long time ago.

If you had not had the Federal Government to clamp its fist on the industry when the world prices of oil went up, our oil and gas prices would have gone up with it. Oil and gas would have been the most profitable business to go into, and a plowback would have been unnecessary.

If a man is in the oil and gas business, what is he going to put his money into if he is making a profit? What is he going to put his money into? He is not going to spend all of that money on liquor and food. He is probably like me, shopping at the low calorie counter already.

The fellow will put his money into what would bring the best return. What would bring a better return than energy? People not already in that business would go into it.

They tell the story—you undoubtedly have heard it many times—about the fellow who has been in the oil and gas business all his life. When he passed away, he presented himself at the pearly gates.

St. Peter said, "I am sorry, it is crowded up here, but when we have some vacancies, we might let you apply again."

He asked, "Would you mind letting me go inside and look around a little bit?" St. Peter answered "Well, for just a few hours."

He went in and started passing the rumor that oil had been discovered in Hell. Then, all the lease hounds headed down for Hell. All the title jumpers began heading down for Hell, and all the wildcatters starting heading for Hell. The next thing you know, St. Peter looks up and say, "Hold on just a minute, where are you going?" He answered, "There are so many people heading that way, there just might be something to that talk about oil being discovered in Hell."

If there is a chance for somebody to make a profit and he will make more money in that than something else, that is what he will invest in. The Government really does not need a plowback, if it is adequately profitable for people to put their money into that type of venture.

Does that accord with your economic thinking about the matter?

Governor BOREN. We can create a shortage of anything if we fail to make it profitable, or if we derive a way that you can make a loss at it.

The CHAIRMAN. When the energy crisis hit, what did the Government do? It passed a group of bills that came out of the Interior Committee.

First, they rolled back the price. Then they jumped on one of our tax bills and doubled the tax on oil production by taking away the depletion allowance from everybody except small independents.

Then they proceeded to put more environmental constraints on offshore drilling.

They could not do that in one jump. First, they increased the time it takes from a lease on the Outer Continental Shelf to bring any oil ashore to 2 years; then they increased it to 4. They now have a new bill on its way for the President's signature to step that up to 6 years.

So, if President Carter hopes to see a barrel of oil brought ashore from land leased while he is President, he will have to be reelected before he sees a barrel of oil coming ashore during his administration.

Unfortunately, what former Governor Ronald Reagan said is probably correct. He said that Washington is not the answer to the energy crisis or the energy problem. Washington is the problem.

What you say makes sense. I am glad to see that you support Governor Rockefeller's suggestions, and that if you do not provide the incentive to make a little money out of energy production, maybe you will lend out some money and do something about the energy crisis that way. Companies are not asking for that. I do not know of any company that is interested in the Rockefeller proposal. They do not want to stand in line to borrow some money.

What they would like to do is be able to keep some profit that they could plow back into more production. If we cannot do anything else, I think we should do something to try to implement that idea.

It looks as though the price of survival of this Nation is 7 cents a gallon. That is what it is going to take to survive. Some say it is too big a price to pay. The President would be willing to raise the price by 7 cents. So far, they have not made the breakthrough in the administration of letting anybody use some of that to produce energy.

Their idea is a tax of 7 cents, and a rebate to consumers. If you can explain to me how that solves the problem, I would like to hear it. Up to now, I have not been able to figure it out.

Governor BOREN. No, sir. The President said the price of energy must reflect its true cost, but then not to give it back to the ones who are producing it and paying out its true cost, is a very strange notion to me, economically.

The CHAIRMAN. The price, as the President said, must reflect the cost of replacement, but not to the person who is supposed to replace it?

Governor BOREN. That is right.

The CHAIRMAN. He is supposed to get what it cost 20 years ago to go out and replace it.

Governor BOREN. Thank you, Mr. Chairman.

[The attachments to Governor Boren's statement follow. Oral testimony continues p. 1296.]

THE STATUS OF OKLAHOMA'S INTRASTATE NATURAL GAS SYSTEM AND THE EFFECTS OF FREE MARKET PRICING AT THE WELLHEAD ON RESERVES AND PRODUCTION THEREFROM

EXECUTIVE SUMMARY

The study supports conclusions in regard to the changes in Oklahoma's intrastate natural gas system.

Oklahoma's intrastate natural gas system has been and continues to be representative of the free market system as to wellhead pricing. Adequate supplies for

all users supplied by the intrastate market are available and should continue to be available even with deregulation of new interstate natural gas prices at the wellhead.

Total intrastate natural gas reserves in Oklahoma have increased four out of five years since 1972.

1976 annual new reserve additions from newly drilled wells were 123 percent above those added in 1972.

1976 annual net reserve additions, new reserve additions less withdrawals, were 454 percent over those added in 1972.

1976 annual consumption was only 31 percent over that consumed in 1972.

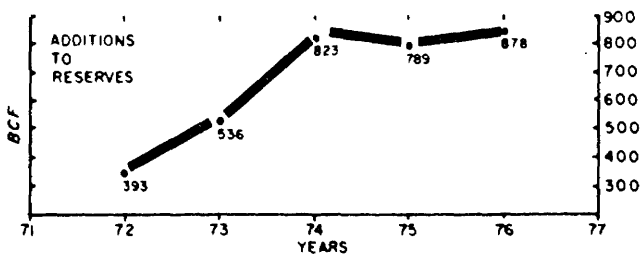
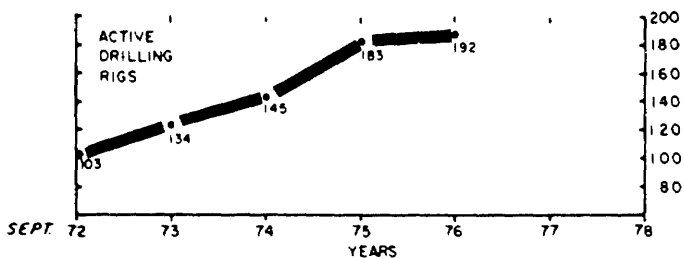
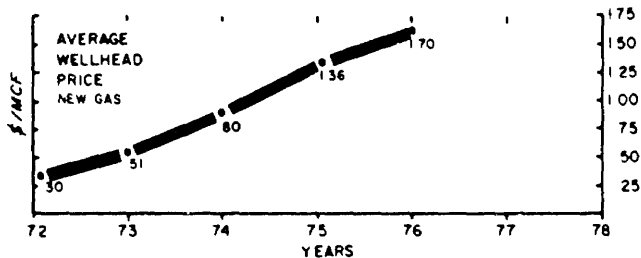
Intrastate natural gas reserve additions have exceeded withdrawals since 1972. In fact, since 1973 reserve additions have exceeded withdrawals by more than 49 percent.

In 1976 the average Oklahoma residential consumer paid \$1.54 per mcf, well below the national average for residential consumers of \$1.81 per mcf.

1976 deliverability of natural gas to Oklahoma's intrastate consumers was 34 percent above the peak day delivery capability in 1972.

These conclusions are based on the two basic conditions that (1) due to competitive free market pricing of natural gas, Oklahoma's natural gas producers have been able to find and develop natural gas reserves for the intrastate markets and (2) competition between intrastate market purchasers has resulted in Oklahoma's consumers having adequate supplies of natural gas and no curtailments to firm customers with delivered consumer prices well below the national average.

THE STATUS OF OKLAHOMA'S INTRASTATE NATURAL GAS SYSTEM AND
THE EFFECTS OF FREE MARKET PRICING AT THE WELLHEAD
ON RESERVES AND PRODUCTION THEREFROM



Prepared for the Oklahoma Department of Energy

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THE STATUS OF OKLAHOMA'S INTRASTATE NATURAL GAS SYSTEM AND THE EFFECTS OF FREE MARKET PRICING AT THE WELLHEAD ON RESERVES AND PRODUCTION THEREFROM

INTRODUCTION

The purpose of this presentation is to provide an analysis of the status of Oklahoma's intrastate natural gas system in 1977 and the effects of the intrastate competitive free market pricing on the development of new natural gas reserves and natural gas deliverability over the five year period, 1972 through 1976.

The status of the intrastate natural gas system in Oklahoma has been dimensioned. The effects of free market pricing on new intrastate natural gas reserve additions and on prices paid by the Oklahoma residential consumer also have been dimensioned.

The study and projections are especially important for several reasons:

Oklahoma ranks third among the states as an exporter of energy, is the third largest natural gas producing state and is the seventh largest natural gas consuming state.

Oklahoma is the only state which is representative of the results of a free market price for natural gas at the wellhead.

Oklahoma had 13 trillion cubic feet of proved recoverable reserves at 1975's year end. Only Texas, Louisiana and Alaska hold larger gas reserves.

Oklahoma's remaining potential natural gas reserves have been estimated by the Potential Gas Committee at 122 trillion cubic feet. However, nearly half of this natural gas is believed to lie at great depths (below 15,000 feet).

CONCLUSIONS

The study supports conclusions in regard to the changes in Oklahoma's intrastate natural gas system.

Oklahoma's intrastate natural gas system has been and continues to be representative of the free market system as to wellhead pricing. Adequate supplies for all users supplied by the intrastate market are available and should continue to be available even with deregulation of new interstate natural gas prices at the wellhead.

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1976 annual consumption was only 31 percent over that consumed in 1972.

Intrastate natural gas reserve additions have exceeded withdrawals since 1972. In fact, since 1973 reserve additions have exceeded withdrawals by more than 49 percent.

In 1976 the average Oklahoma residential consumer paid \$1.54 per mcf, well below the national average for residential consumers of \$1.81 per mcf.

1976 deliverability of natural gas to Oklahoma's intrastate consumers was 34 percent about the peak day delivery capability in 1972.

These conclusions are based on the two basic conditions that (1) due to competitive free market pricing of natural gas, Oklahoma's natural gas producers have been able to find and develop natural gas reserves for the intrastate markets and (2) competition between intrastate market purchasers has resulted in Oklahoma's consumers having adequate supplies of natural gas and no curtailments to firm customers with delivered consumer prices well below the national average.

OKLAHOMA'S NATURAL GAS SYSTEM—1977

Natural gas accounts for over 59 percent of Oklahoma's energy reserves, about 57 percent of Oklahoma's energy production and serves as Oklahoma's largest energy source supplying more than 64 percent of the energy used in Oklahoma. (See Figures I-1 through I-5 in Exhibit I.)

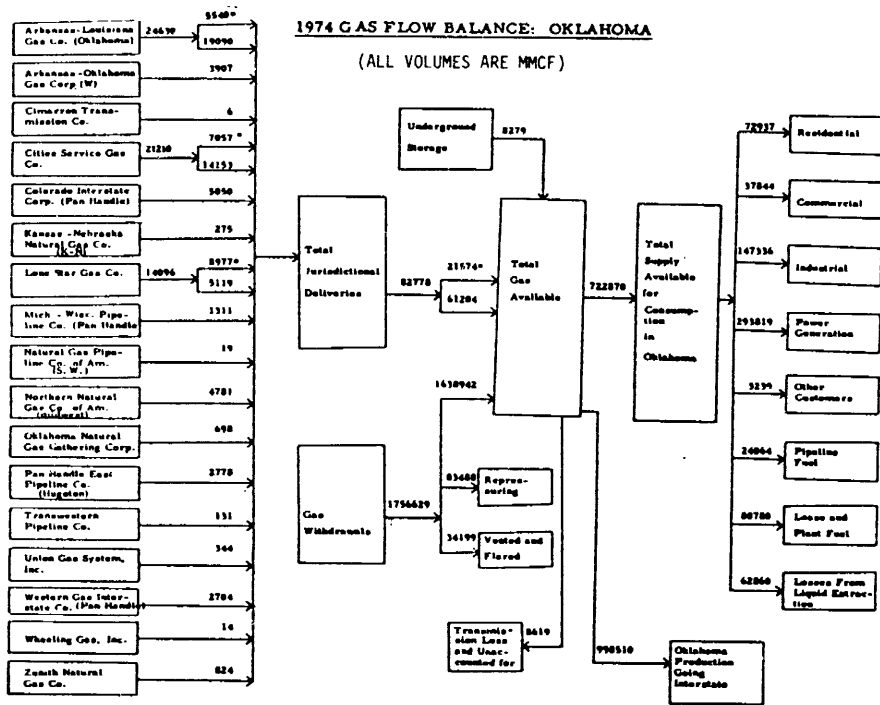
Oklahoma still produces more than twice as much natural gas as it consumes. The state ranks third among all the states in natural gas production and seventh in natural gas consumption.

In 1976, Oklahoma had 10,436 producing gas wells, an increase of 567 during the year, delivering more than 4.7 billion cubic feet of gas each day. About 58 percent of Oklahoma's natural gas production is delivered to interstate pipelines. However, interstate pipelines deliver to Oklahoma consumers only one mcf for every 16 mcf of natural gas they purchase in Oklahoma. The other 15 mcf is shipped to out-of-state consumers.

Interstate and intrastate patterns

During 1976 Oklahoma produced more than 1735 billion cubic feet (bcf) of natural gas. In 1975 Oklahoma consumed 729 bcf. Of this 729 bcf of natural gas consumed in Oklahoma, more than 93 percent was produced within the state and sold at unregulated wellhead prices to intrastate natural gas pipelines and electric utility companies. (See Figure 1 for Oklahoma's natural gas system flow balance.)

FIGURE 1



* These are mainline deliveries.

SOURCE: Natural Gas Transported in 1974 by FPC Regulated Pipelines, Federal Power Commission Mineral Industry Surveys, Natural Gas Production and Consumption: 1974, U. S. Bureau of Mines

Reserves

At the end of 1975, Oklahoma had 13 trillion cubic feet of proved recoverable reserves, or 5.7 percent of the U.S. total. Only Texas, Louisiana and Alaska hold larger gas reserves.

The state's remaining potential natural gas resources have been estimated by the Potential Gas Committee at 122 trillion cubic feet.¹ However, nearly half of this gas is believed to lie at great depths (below 15,000 feet), where high drilling costs are restraining exploratory efforts. (See Figure I-2 of Exhibit I.) As natural gas prices rise, drilling in these high-cost areas will become more attractive and could result in substantial additions to the state's proved reserves.

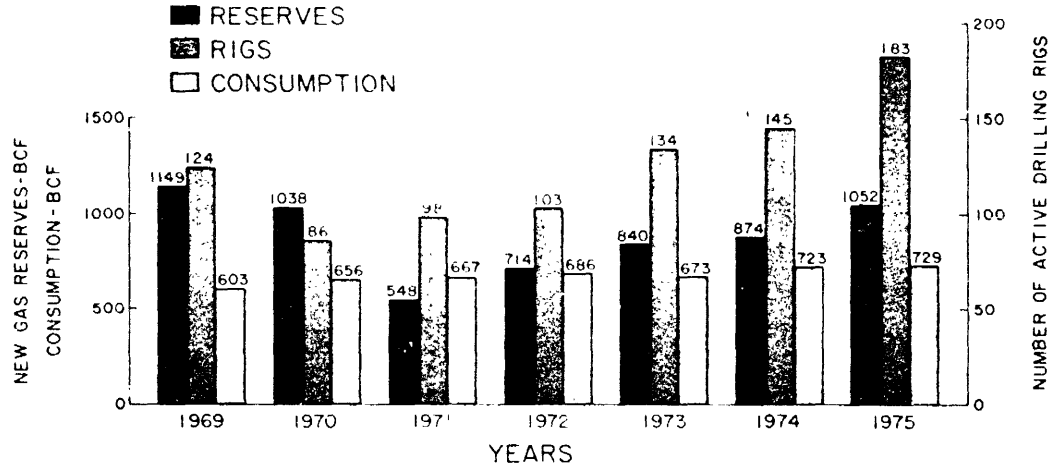
Reserve additions

As a result of the free market system, over 90 percent of the new gas discovered in Oklahoma in 1976 was dedicated to intrastate consumers. In fact since 1972 more than 85 percent of the cumulative natural gas reserves discovered in Oklahoma have been dedicated to the intrastate market. A summary of the number of drilling rigs active in Oklahoma, the amount of new natural gas reserves added annually and Oklahoma's natural gas consumption are shown in Figure 2.

¹ The 122 trillion cubic feet of potential natural gas resources is representative of the potential resources projected by others.

NUMBER OF ACTIVE DRILLING RIGS IN OKLAHOMA DURING SEPTEMBER NEW GAS RESERVES ADDED DURING YEAR CONSUMPTION DURING YEAR

FIGURE 2



Prices and reserves

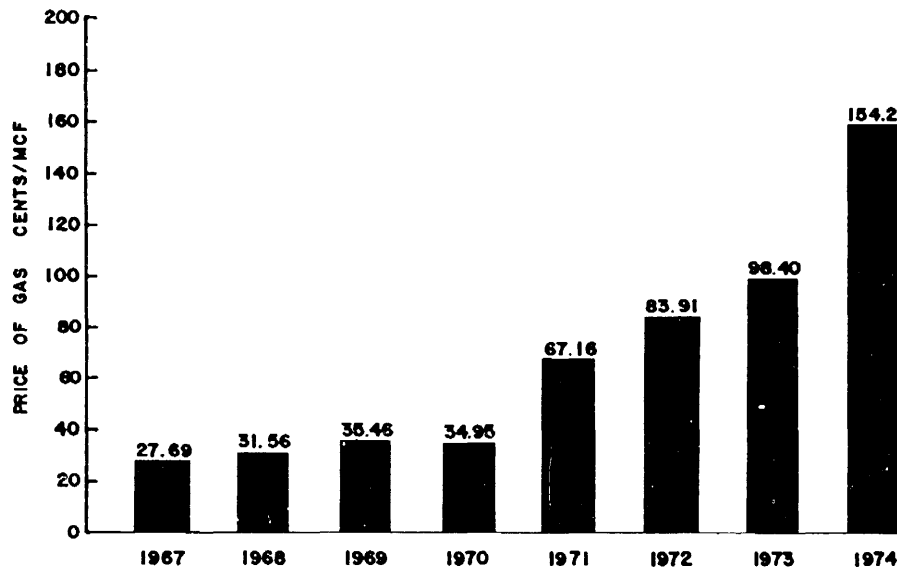
The well-head natural gas prices necessary to recover cost and profit in Oklahoma, based on the drilling and completion costs per foot and the amount of gas reserves found per foot drilled for the years 1967 through 1974, are shown in Figure 3. Informed opinion is that the wellhead price necessary to recover cost and profit in Oklahoma was \$2.10 to \$2.25 per mcf in 1976 and may have exceeded \$3.00 per mcf in ultra-deep exploration. Since the highest price paid for new reserves in 1976 approached only \$2.00, informed opinion is that producers make their decision to drill based on their concept of future price and the certainty of that price.

The revenues received for natural gas in Oklahoma's intrastate free market environment have tracked the revenues required by the producer, e.g. gas wells drilled in 1974 required a price of 154.2 cents per mcf (see Figure 3) and the average intrastate prices paid in late 1975 and 1976 ranged from 136 to 170 cents per mcf. (See Table 1.) The lack of steady increases in prices paid at the wellhead is an illustration of Oklahoma's intrastate natural gas market being a true and competitive free market.

STATE OF OKLAHOMA

GAS WELL GAS PRICES NECESSARY TO RECOVER COSTS AND PROFIT

FIGURE 3



Rising prices

While some Oklahoma consumers are served by intrastate pipelines, more than 93 percent of the natural gas used in Oklahoma is produced within the state and sold at competitive free market wellhead prices to intrastate pipeline companies. The wellhead price of gas sold into interstate markets has been and remains regulated by the Federal Power Commission at levels below the free market intrastate prices and below the levels required to recover exploration and production costs and a reasonable return on investment. As a result, almost all of the natural gas reserves discovered in Oklahoma since 1972 have been dedicated to the intrastate market.

TABLE I.—OKLAHOMA NEW INTRASTATE GAS PRICES¹

[Cents per thousand cubic feet]

	Wellhead prices: Range		
	Average	Low	High
1972:			
3d quarter.....	32	17	34
4th quarter.....	30	17	37
1973:			
1st quarter.....	38	17	58
2d quarter.....	44	22	52
3d quarter.....	35	19	68
4th quarter.....	51	19	75
1974:			
1st quarter.....	58	35	87
2d quarter.....	72	45	80
3d quarter.....	85	42	93
4th quarter.....	80	46	100
1975:			
1st quarter.....	88	56	107
2d quarter.....	101	51	143
3d quarter.....	120	63	140
4th quarter.....	136	53	163
1976:			
1st quarter.....	146	81	170
2d quarter.....	168	114	187
3d quarter.....	170	133	186

¹ Weighted prices for new natural gas contracts for selected intrastate purchasers.

Source: Center for Economic and Management Research, University of Oklahoma.

The Federal Power Commission has set a national rate for natural gas from wells commenced on or after January 1, 1975, of \$1.44 per mcf. This compares to the intrastate market price which now approaches \$2 per mcf. The regulated intrastate price has lagged behind the competitive free market intrastate price since the early 1970's. As a result, in the second quarter of 1976, the average intrastate wellhead price was 95 cents per mcf, and the average price for Oklahoma gas leaving the state was 35.8 cents.

Impact on consumers

Natural gas usage and costs for the average residential customer of Oklahoma Natural Gas and of Brooklyn Union Gas are compared in Table II. The Oklahoma consumer, relying on competitive free market intrastate gas, paid \$1.54 per mcf in 1976, while his counterpart in Brooklyn paid \$3.48 per mcf. In addition, in 1976, the Oklahoma residential price, \$1.54 per mcf, was well below the national average for residential consumers of \$1.81 per mcf.

Results

As a result of the free market pricing and Federal regulatory actions, Oklahoma's intrastate market has enjoyed substantial new supplies of natural gas and no intrastate curtailments to firm customers have occurred. At the same time, the delivered natural gas cost to the average residential consumer is increasing at not more than 8 to 10 percent per year.

TABLE II.—NATURAL GAS PRICE, AVERAGE USE AND COST TO RESIDENTIAL CONSUMERS

Average annual	1972	1973	1974	1975	1976
Oklahoma Natural Gas Co.:					
Use, thousand cubic feet.....	115	133	107	120	106
Price per thousand cubic feet.....	\$0.90	\$0.91	\$1.05	\$1.21	\$1.54
Average bill.....	\$104	\$121	\$113	\$146	\$163
Brooklyn Union Gas:					
Use, thousand cubic feet.....	235	239	213	221	210
Price per thousand cubic feet.....	\$1.57	\$1.71	\$2.02	\$2.78	\$3.48
Average bill.....	\$370	\$409	\$431	\$615	\$730

However, interstate pipelines such as AOKLA and Lone Star, among others, curtailed substantially schools, businesses and industry in Oklahoma this last winter. In fact, if it had not been for large emergency sales to the interstate pipelines from Oklahoma's intrastate systems, thousands of Oklahoma residences would have been without natural gas.

The system

Oklahoma's intrastate system is composed of natural gas pipeline companies that supply natural gas distribution systems (principally Delhi and ONG) and those companies which transport natural gas for Oklahoma's three large electric utilities:

Utility	Pipeline
Oklahoma Gas & Electric Co. (O.G. & E.).....	Mustang Fuel.
Public Service Co. of Oklahoma (PSO).....	Trans Oak.
Western Farmers Electric Cooperative (WFEC).....	Western Farmers.

Oklahoma Gas and Electric Company, Oklahoma Natural Gas Company and Public Service Company of Oklahoma account for approximately 85 percent of the intrastate natural gas purchases and deliveries in Oklahoma. All three companies each have individual, direct producer contracts for natural gas and are not supplied by other natural gas pipelines or gas utilities.

Representative Oklahoma intrastate data

Since these three companies' activities account for approximately 85 percent of the intrastate market, detailed analysis of their reserves, sales and consumption, new reserve additions and deliverability may be extended to Oklahoma's intrastate market as a whole.

Pertinent statistics on these three companies' natural gas reserves, reserve additions and consumption for each year from 1972 through 1976 are detailed in Table III and in Figure 4.

New natural gas reserves added.—New reserve additions from newly drilled wells increased 123.6 percent from 392.8 billion cubic feet (bcf) in 1972 to over 878.1 bcf in 1976. In fact, during the three years, 1974 through 1976, reserve additions exceeded withdrawals by more than 49 percent on an annual basis.

Natural gas sales and consumption.—Natural gas sales and consumption increased 31.5 percent from 454.6 bcf in 1972 to over 597.8 bcf.

Net natural gas reserve additions.—Net natural gas reserve additions, new reserves added less withdrawals during the year, increased from a shortfall of 61.8 bcf in 1972 to a net addition of more than 280.3 bcf in 1976, an increase of more than 454 percent.

Total natural gas reserves at fiscal year end.—The total reserves for these three companies increased from 4,874.5 bcf in 1972 to over 5,165.6 bcf in 1976 despite revisions in reserves from natural gas purchased and/or dedicated in prior years.

Peak day deliverability.—The peak day deliverability increased 34.5 percent from 2.23 bcf per day in 1972 to over 3.00 bcf per day in 1976.

TABLE III.—OKLAHOMA INTRASTATE NATURAL GAS RESERVES, CONSUMPTION AND PRICE DATA FROM 1972 TO 1976 FOR OKLAHOMA'S 3 MAJOR INTRASTATE COMPANIES¹

Year	New natural gas reserves added during the year (billion cubic feet)	Natural gas sales and consumption during the year (billion cubic feet)	Net natural gas reserve additions during the year (billion cubic feet) ²	Representative price for new reserve additions during the year (cents per thousand cubic feet)	Revisions to natural gas reserves previously contracted ³ (billion cubic feet)	Total natural gas reserves at fiscal year end (billion cubic feet)	Total natural gas deliverability fiscal year end (billion cubic feet per day)
1972.....	392.8	454.6	(61.8)	37	(8.7)	4,874.5	2.23
1973.....	536.3	487.5	48.8	66	48.2	4,971.5	2.35
1974.....	822.6	517.2	305.4	93	(290.4)	4,986.5	2.40
1975.....	789.1	551.2	237.9	154	(276.0)	4,948.4	2.55
1976.....	878.1	597.8	280.3	169	(63.1)	5,165.6	3.00
Total.	3,418.9	2,608.4	810.6	.....	(590.0)	.....	.....

¹ Based on Oklahoma Gas & Electric Co., Public Service Co. of Oklahoma, and Oklahoma Natural Gas Co. data. These 3 companies represent approximately 85 percent of the intrastate natural gas purchases and deliveries in Oklahoma. All information is based on each company's fiscal year end resources.

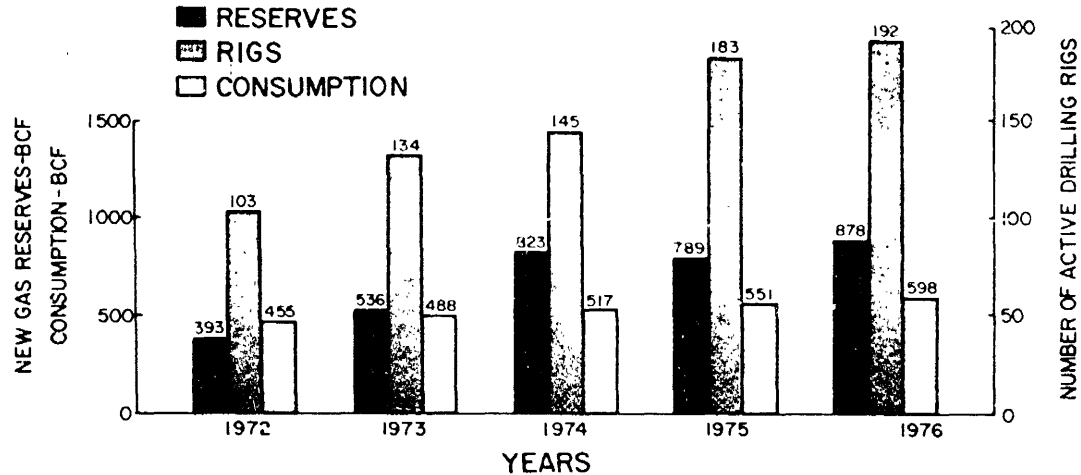
² Col. 2 minus col. 3.

³ Calculated using reserves at the beginning of the fiscal year, net reserve additions (col. 4) and reserves at the end of the fiscal year.

⁴ Natural gas reserves at the beginning of the 1972 fiscal year were 4,945 billion cubic feet.

SELECTED STATE OF OKLAHOMA NATURAL GAS STATISTICS
 NUMBER OF ACTIVE DRILLING RIGS IN OKLAHOMA
 DURING SEPTEMBER
 NEW GAS RESERVES ADDED DURING YEAR
 CONSUMPTION DURING YEAR

FIGURE 4



NOTE: FOR OKLAHOMA GAS AND ELECTRIC COMPANY, OKLAHOMA NATURAL GAS COMPANY AND PUBLIC SERVICE COMPANY OF OKLAHOMA

SUMMARY

This study has analyzed the status of Oklahoma's intrastate natural gas system in 1977 and has dimensioned the effects of competitive free market pricing on new intrastate natural gas reserve additions and on prices paid by the Oklahoma residential consumer.

The study supports conclusions in regard to the changes in Oklahoma's intrastate natural gas system.

Oklahoma's intrastate natural gas system has been and continues to be representative of the free market system as to wellhead pricing. Adequate supplies for all users supplied by the intrastate market are available and should continue to be available even with deregulation of new interstate natural gas prices at the wellhead.

Total intrastate natural gas reserves in Oklahoma have increased four out of five years since 1972.

1976 annual new reserve additions from newly drilled wells were 123 percent above those added in 1972.

1976 annual net reserve additions, new reserve additions less withdrawals, were 454 percent over those added in 1972.

1976 annual consumption was only 31 percent over that consumed in 1972.

Intrastate natural gas reserve additions have exceeded withdrawals since 1972. In fact, since 1973 reserve additions have exceeded withdrawals by more than 49 percent.

In 1976 the average Oklahoma residential consumer paid \$1.54 per mcf, well below the national average for residential consumers of \$1.81 per mcf.

1976 deliverability of natural gas to Oklahoma's intrastate consumers was 34 percent above the peak day delivery capability in 1972.

These conclusions are based on the two basic conditions that (1) due to competitive free market pricing of natural gas, Oklahoma's natural gas producers have been able to find and develop natural gas reserves for the intrastate markets and (2) competition between intrastate market purchasers has resulted in Oklahoma's consumers having adequate supplies of natural gas and no curtailments to firm customers with delivered consumer prices well below the national average.

FIGURE I-1
OKLAHOMA ENERGY PRODUCTION
BY SOURCE
(BTU'S)
1973

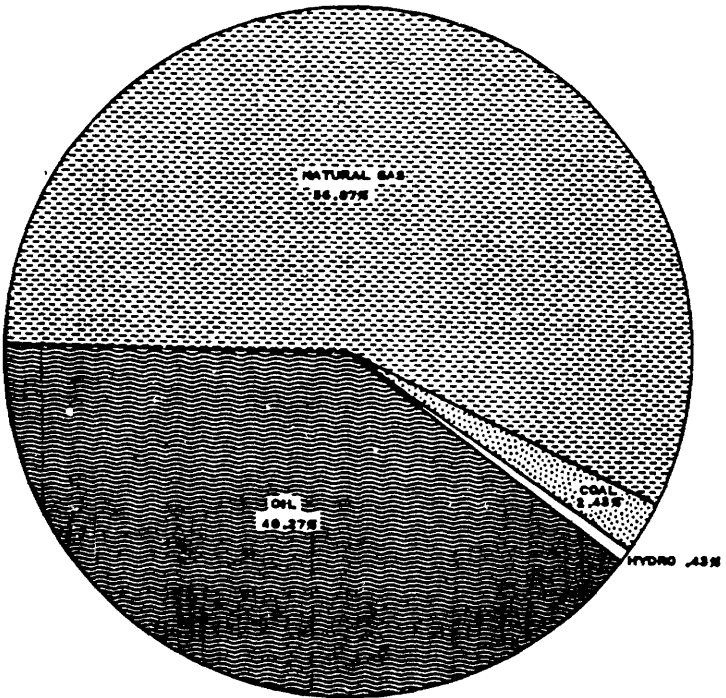
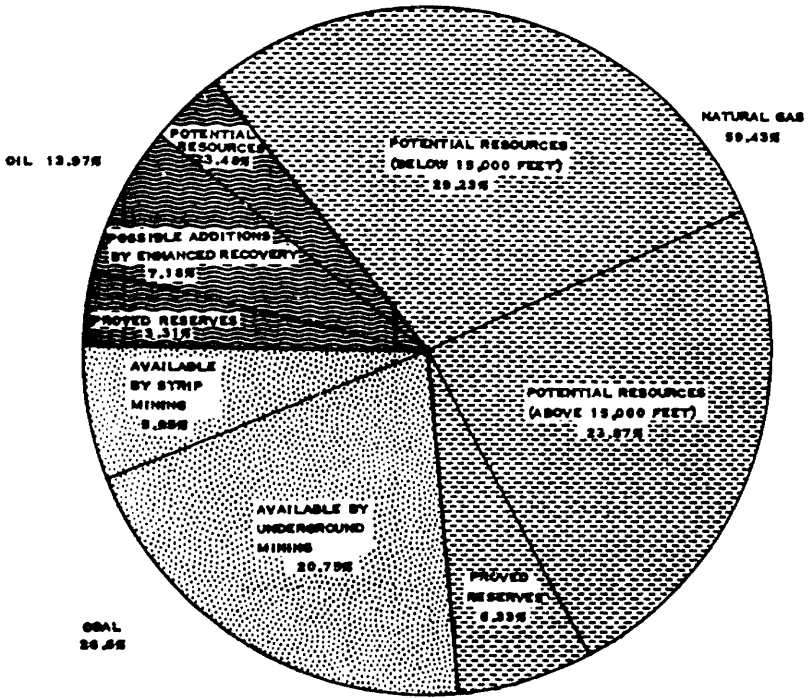


FIGURE 1-2
OKLAHOMA'S ENERGY RESOURCES
(BTU'S)
1975



**FIGURE I-3
OKLAHOMA ENERGY CONSUMPTION
BY
CONSUMING SECTORS
(BTU'S)
1975**

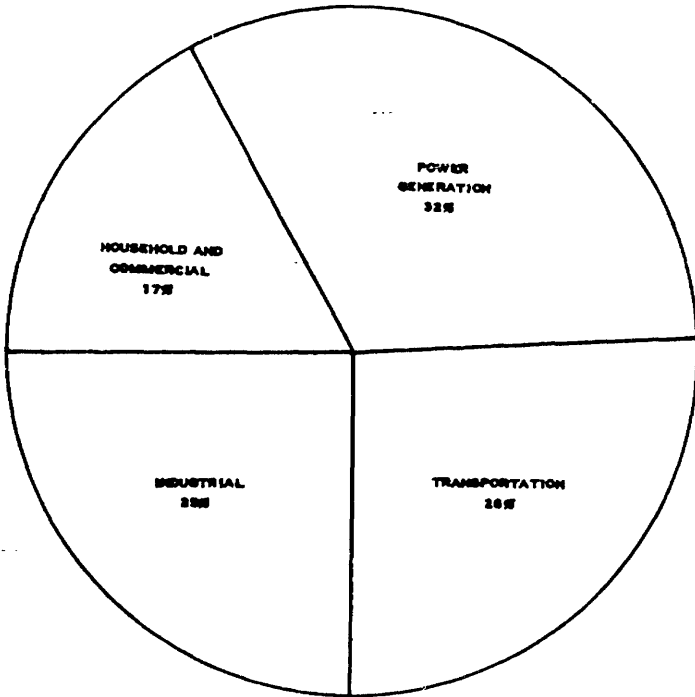
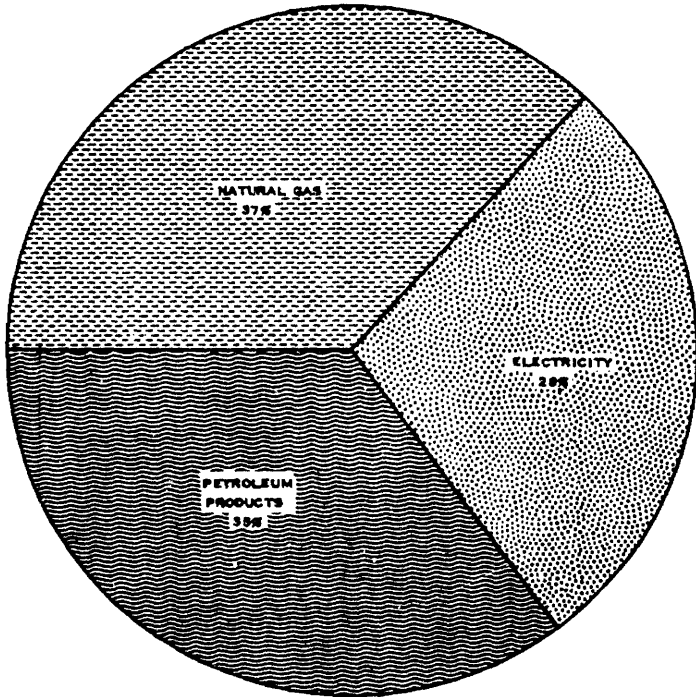
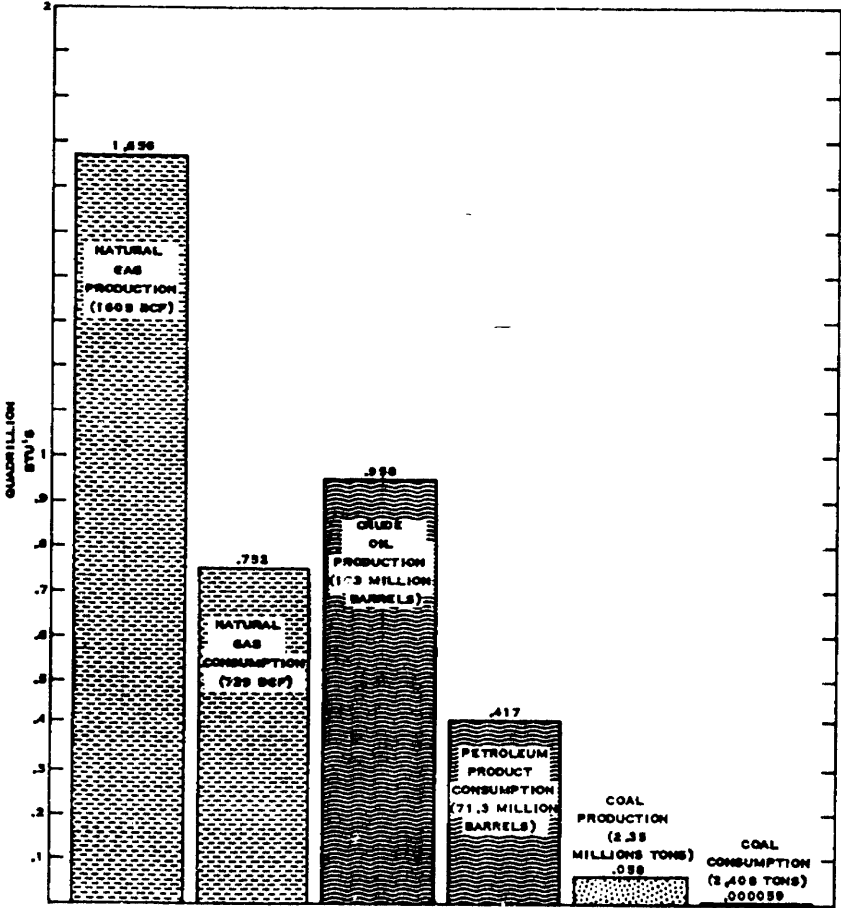


FIGURE I-4
OKLAHOMA ENERGY CONSUMPTION
BY ENERGY PRODUCTS
(BTU'S)
1975*



* EXCLUDES 2,408 TONS OF COAL, WHICH IS RELATIVELY TOO SMALL TO DEPICT ON THIS CHART.

FIGURE 1-5
OKLAHOMA ENERGY CONSUMPTION
VS. PRODUCTION
(BTU'S)
1975



MIDWESTERN GOVERNORS' CONFERENCE—POLICY STATEMENT ON PRESIDENT CARTER'S
NATIONAL ENERGY PROGRAM

The Midwestern Governors represent 15 states, encompassing a diverse blend of economies, lifestyles, energy producing regions and energy consuming regions. We believe that the region provides a fair reflection of the needs and perspectives of the nation as a whole.

The energy crisis is real and it is a serious national problem. An aggressive, constructive program to deal with this crisis could not only alleviate potential economic and human suffering and strategic danger, but also bring real benefits to the region and to the nation in terms of a stronger economy and reduced unemployment.

The governors have arrived at several conclusions concerning energy policy. We believe that, if implemented, they will bring needed balance to the energy legislation now being considered by the Senate, strengthen the economy, create jobs and provide equity among the regions.

CONSERVATION

We support strongly President Carter's emphasis on the need for energy economy and conservation. As governors, we accept our responsibility to be full partners in carrying forward national energy conservation policies.

We believe, however, that past, current and future conservation efforts in the field of gasoline consumption will accelerate the present short fall in state gasoline tax revenues. This poses a severe threat to our highway and bridge system, and consequently our economy. We urge the Administration, therefore, to return to the states, in an amount sufficient to hold them harmless, the appropriate share of any new federal energy taxes enacted by Congress.

PRODUCTION

The energy bill as passed by the House will not meet its goals of increased energy production and reduced energy imports unless it is substantially modified by the Senate. The program is dangerously weak from a production standpoint.

NATURAL GAS DEREGULATION

We reaffirm our support for the deregulation of new natural gas, coupled with an excess profits tax and plowback provision. This is needed to expand production, to stimulate conservation and to accelerate the switch from natural gas to coal. Failure to deregulate new natural gas guarantees future shortages. To protect consumers against rapid price escalation, deregulation of new gas should be phased in over a three-year period. This would coincide with the phased impact of the energy bill in reducing demand for natural gas by conversion to other fuels. The President should retain standby authority to fix price limits on natural gas if the price ever exceeds the BTU equivalent of the price of imported oil. Present state conservation regulations including spacing unit requirements for drilling should remain in force. Under any curtailment policy, priority should be given to agriculture.

REGULATION OF INTRASTATE NATURAL GAS

The proposed federal assumption of regulation over intrastate natural gas represents another unneeded federal intrusion into state authority, will erode the climate for innovative development and conversion projects within states and will add a burden of administrative confusion. We oppose it.

DOMESTIC OIL PRODUCTION

To expand the production of domestic oil, wellhead prices should be pleased to the world market price and an excess profits tax—with strong plowback provisions—should be imposed instead of the wellhead tax provision.

COAL PRODUCTION

The legislation's emphasis on coal utilization is based on disincentives for the use of natural gas and oil. We propose that the bill be amended to expedite the

resolution of the many problems associated with coal production, among them productivity, transportation, capital requirements for new mines and for conversion projects, environmental acceptability and the availability of trained labor. Sixty per cent of the projected increase in national coal production is expected to come from the Midwest region. As governors, we want to work with the Senate in identifying the obstacles to increased production and in defining solutions that can be addressed through legislation.

ENVIRONMENTAL IMPACT AND DELAY

To reduce the conflict between a national commitment to a healthy environment and the national goals of energy production, we propose that Congress legislate a statute of limitations that would provide a reasonable but fixed timetable for addressing environmental challenges to energy projects.

DEVELOPMENT OF NEW SOURCES AND TECHNOLOGIES

It is urgent that the nation determine the extent of its off-shore and on-shore crude oil and natural gas resources. In addition, accelerated research and development is required to tap the vast energy potential available through coal conversion, secondary and tertiary recovery of oil, oil shale, tar sands, Devonian shale gas, geothermal, solar and other sources. We need these energy resources as soon as they can be rendered economically viable. They will not come on line as soon as we need them without an intensified public and private sector effort.

UTILITY RATE REFORM

Although we support strongly the elimination of utility rates which are non-compensatory, we oppose the mandatory utility rate reform provisions included in the House version of the energy bill. For the most part, the goals are commendable and we pledge to work with our state utility commissions to explore their feasibility and most practical application in each of our respective states. However, we do object to the mandatory, across-the-board application of these concepts and ask that the Senate replace the mandates with recommendations. It is imperative that states—in ratemaking and assigning conservation tasks to regulated utilities—be allowed the flexibility to reflect unique state situations.

STATE INPUT IN FEDERAL POLICYMAKING

We call for a formalized process for state government involvement in policymaking and rulemaking of the Department of Energy and other federal agencies with responsibilities in this field. Existing mechanisms and procedures called for in pending legislation and regulations simply do not provide a guarantee that states will be consulted or their views taken into account in the early stages of policy formation or rulemaking.

PRESIDENTIAL CONFERENCE ON PRODUCTION

We applaud President Carter's willingness to convene a conference of the Administration and the governors to assess energy production needs and issues. However, that conference must be convened immediately if it is to serve any useful purpose. To delay it to late September—as it is now proposed—will guarantee that its results have no impact upon Senate deliberations on the energy legislation. Moreover, we believe that key Congressional leaders should be involved in the conference.

REGIONAL DEVELOPMENT BANKS

In order to deal with regional issues and problems, we propose the formation of regional development banks. Solving energy problems would be a major function in all the regions. However, the development banks could address other matters as well. In the Midwest, such a development bank would encourage investment in energy conservation and production, modernization of the transportation system, water resource development, land rehabilitation, rural development and other tasks. The objective of these regional banks would be to induce the maximum private investment in these projects and to undertake, where necessary and appropriate, certain public investment projects.

DEREGULATION OF NATURAL GAS AND CRUDE OIL WITH EXCESS PROFITS TAX
AND PLOWBACK PROVISIONS

NATURAL GAS

Price controls on natural gas at the wellhead would be removed over a three year period coupled with an excess profits tax and plowback provision. During this three year period the President would have standby authority to fix price limits on natural gas if the price ever exceeds the btu equivalent of the price of imported oil.

Three year phase-in

The three year phase-in of deregulation of interstate natural gas would be accomplished by:

(a) During the first year, deregulating the price for new gas as defined in Section 402(5) of H.R. 8444.

(b) During the second year, in additions to (a), deregulating the price for natural gas produced from new wells as defined in Section 402(8) of H.R. 8444.

(c) During the third year, in addition to (a) and (b), deregulating the price of all other gas as contracts expire as defined in Sections 405, 406 and 407 of H.R. 8444.

Variable excise tax to prevent excess profits

The excess profits tax is applied to that portion of the current natural gas price which is above the higher of \$1.75 per million btus or the current btu related as defined in Section 403(a) of H.R. 8444.

Plowback provision

CRUDE OIL

To expand the production of domestic oil, wellhead prices should be phased to the world market price and an excess profits tax with strong plowback provisions should be imposed instead of the wellhead tax provision.

Phased decontrol

The price of crude oil produced from wells drilled after April 20, 1977, from enhanced recovery methods and from stripper wells is not controlled. Since the cost of finding and developing crude oil has increased at rates of 19-20 percent per year since 1974, lower and upper tier crude oil prices are phased out at an escalation rate of two percent per month until the prices reach the world oil price. When the lower tier oil fraction decreases to 20 percent of the total domestic crude oil production, its price will rise to the world oil price.

Excess profits

The excess profits is the difference between (1) the price received for upper or lower tier oil and (2) the price specified for upper or lower tier oil as defined under the EPCA Act escalated at the domestic rate of inflation.

PLOWBACK (RECOUP) PROVISION OF EXCESS PROFITS TAX (CRUDE OIL EQUALIZATION
TAX)

(1) No plowback is required for revenues received as royalty payments to mineral fee interest owned by persons who are independent producers as defined in Sections 613 A(c) of the Internal Revenue Code.

(2) Plowback is required for all other interests or non-independent producers.

This means that small royalty owners will receive the fair market value of their owned minerals as produced and that producers must spend more than 139 percent of their additional revenue in order to recoup the excess profits tax (crude oil equalization tax).

Plowback credit

A plowback credit against the crude oil equalization tax (excess profits tax) will be allowed. The plowback credit will be 90 percent of a person's plowback investment. Plowback investment is defined as a person's qualified investment less his plowback threshold.

Qualified investment includes amounts expended for intangible drilling and development costs, leasehold costs, geological and geophysical expenses, dry hole costs, depreciable assets (whether constructed or purchased) used in the explora-

tion, development or production of crude oil or natural gas, certain pipelines, secondary or tertiary recovery of crude oil or natural gas and investments in alternative sources of energy as defined by the Secretary of Energy.

A person's plowback threshold will be 25 percent of his gross income from crude oil and natural gas production calculated on a property-by-property basis. The amount from each property which may be included in the threshold is limited to 75 percent of the taxable income from the property calculated without any allowance for depletion and without any deduction for items which are qualified investments.

To prevent double benefits from expenditures made for qualified investments, no tax deduction is allowed for a qualified investment (which would otherwise be deductible) to the extent it is used as a plowback credit. Furthermore, where a person's qualified investment consists of leasehold acquisition costs or the purchase of depreciable property, the person's basis in such property is reduced to the extent that the plowback credit is claimed. Where the qualified investment consists of both deductible and capital items, the qualified investment is prorated.

The CHAIRMAN. Next, we will call Mr. William McCollam, Jr., chairman of the National Electric Reliability Council.

We are very happy to welcome you to our committee, Mr. McCollam. We would be pleased to have your views.

STATEMENT OF WILLIAM McCOLLAM, JR., CHAIRMAN, NATIONAL ELECTRIC RELIABILITY COUNCIL

Mr. McCOLLAM. Mr. Chairman, as you know, my name is William McCollam, Jr. I am president and chief executive officer of New Orleans Public Service, Inc., a part of the Middle South system. I am also serving as chairman of the National Electric Reliability Council, commonly called NERC, and I will refer to it as that in the interest of brevity during my testimony.

It is in this latter capacity that I am appearing before this committee today.

The National Electric Reliability Council, by way of background, was formed by the electric utility industry in 1968. It has the principal mission of augmenting and promoting the reliability and adequacy of our electric bulk power supply in North America. I think it is of interest to note that NERC consist of nine regional reliability councils whose membership comprises essentially all of the electric power systems in the United States and, I might add, in a number of Provinces in Canada—the Provinces of Ontario, British Columbia, Manitoba, and New Brunswick.

The governing body of NERC, the board of trustees, consists of two representatives from each regional council plus such additional members as necessary to represent all segments of the electric utility industry. By that, I mean not only the investor-owned industry, but the public power industry as well. That is the Federal segments, municipal, State, and rural electric cooperatives.

As the present bulk power supply system was being developed into a highly interconnected network, it became necessary to increase the coordination among systems, areas, and regions.

My testimony today is going to be directed to the tax provisions of the bill that have a bearing on future adequacy and reliability of electric power supply in this country. I feel you need some background information on some of the conclusions we have reached about reliabil-

ity, before I get into addressing the point of the effect of the tax provisions.

These regional reliability councils, which were formed more than 10 years ago, have a function to coordinate the planning of all new bulk power generating and transmission facilities in the United States and in those parts of Canada which I mentioned earlier, to assure that these facilities are compatible and coordinated, and the transmission network can be operated reliably under a wide variety of conditions.

The present voluntary system has worked very well, and I am happy to report to you that the overall reliability of the bulk power supply system in North America has, in fact, improved considerably since 1965 when this country experienced the first massive electric power blackout, which covered most of New England; so we have accomplished a lot since that time.

The problems now being encountered, however, stem from present governmental restraints, and the situation, frankly in our judgment, is only going to be exacerbated by the injection of further governmental controls and financial constraints.

Our problem now, Mr. Chairman, is not one of reliability, but of adequacy of electric generating capacity. These governmental constraints impose a very serious problem of our getting these new powerplants built and on the line.

We in NERC wholeheartedly concur with the statement in 501 (a) of S. 1469 that: "The Congress finds * * * that adequate and reliable supplies of electric energy * * * are necessary for the general welfare and national security." Last week, NERC released two very important reports, and I have asked that these reports be included as exhibits to my testimony. I have them here in my hands.

The first is the "Seventh Annual Review of Overall Reliability and Adequacy of the North American Bulk Power Systems" and a companion report entitled "Fossil and Nuclear Fuel for Electric Utility Generation, Requirements and Constraints" which are listed as exhibits 1 and 2 to my testimony.

One of the overall conclusions of these reports is that the adequacy of electric power supplies for the future is in fact, in jeopardy, and that once the deficiency of generating capacity exists, the time to recover will literally be measured in years, because of the time required to build facilities.

The uncertainties associated with the timely completion of generating units presently under construction and planned for the future raises the specter of inadequate generating capability to serve the electric load in the United States starting as early as 1979.

I mentioned the area that we have identified as the first area to be in trouble is the Southeastern part of the United States, as shown on the map inside our report to which I made reference earlier.

The result is inevitably going to be a degradation of the quality of electric bulk power supply in the following years, with the likelihood of forced curtailments of electric power of increasing severity and adverse impact on the economic well-being of the Nation and its citizens.

The electric utility industry, as I mentioned earlier, is presently being restrained from providing an adequate future supply of electric energy, the consequences of which are spelled out in these reports:

- An era of an energy-limited economy for the United States;
- Disruption of operations in the industrial sector;
- Economic hardships to commercial establishments;
- Reduced operating efficiency of the business community;
- Adverse changes in lifestyle of the American people; and
- Threats to the health and welfare of all citizens.

Past power interruptions to electricity supply, as well as experience in Europe during prolonged fuel deficiencies, clearly establish the adverse consequences of such circumstances.

Some of the present restraints that are mentioned in these reports are:

Overlapping and conflicting governmental regulations which are now impeding the siting and the timely completion of new generation and transmission facilities;

Conflicts that exist between environmental goals and energy requirements;

Lack of timely and adequate rate relief adversely affecting the ability of utilities to finance construction of facilities required for the future;

Existing and possible future impediments which will impact on the ability to develop the necessary coal and uranium fuels to supply future planned generation facilities; and

Lack of stable Government policies relative to the supply of electric energy.

One of the most important conclusions, I might mention, in the fuels report, is that there is no way that we are going to be able to double the coal capacity in this country in the next 10 years. There are too many restraints.

The recent amendments to the Clean Air Act and the recent surface mining bill passed by the Congress impose additional restraints which, frankly, are going to make it impossible in our judgment to meet the coal requirements of this country in the next 10 years. Those requirements are spelled out in detail in these reports.

One of the most significant conclusions we have reached in the light of that background is that neither the administration's proposals nor the House-passed version of the energy bill adequately address any of these problems. I have heard you, Mr. Chairman, state repeatedly that the President's energy proposals do not do enough to increase supply. We could not agree with you more.

The various restraints that are being proposed on the electric utility industry in fact preclude our solving the future electric supply problems in this country. There are too many restraints; we cannot do the job unless some of these restraints are removed.

None of the proposals before this Congress right now, in our judgment, adequately address any of these problems that we have identified in these reports.

I am going to skip over that part of my testimony which details the constraints on fuels. It is in the record, and in the interest of time, I will not go into all of the detail.

The CHAIRMAN. Has this statement that you made here—is that also in the record, that document you referred to?

Mr. McCOLLAM. Mr. Chairman, both of the reports are listed as exhibits to my testimony. We do ask for them to be made a part of the record in these hearings.

The CHAIRMAN. I will ask that that be done, that these be printed in the record so that those who want it can have it.

Mr. McCOLLAM. We have provided sufficient copies of these reports, so that the committee staff does have them already.

The most important conclusion that I mentioned earlier in the fuel report—I will just mention that in passing without going into all of the details—is that even though the President's energy program is heavily committed to coal, we do not see how we are going to meet the future coal supply requirements of the electric utility industry, much less the other industrial sectors here in our economy. That is a serious problem.

Even if we can bring this generating capacity on line in our judgment, there is going to be no way to mine, transport, and burn all of the coal that is going to be required.

The CHAIRMAN. Let me ask you one question along that line. Are the utilities in your part of the country taking seriously the potential of developing methane gas from that salt brine that is beneath Louisiana and Texas?

Mr. McCOLLAM. Yes, sir, we are.

The four principal Middle South companies, the four largest companies of which my company is one, several years ago formed a fuel subsidiary called Systems Fuels, Incorporated, for the purpose of developing and providing the necessary fuels to our electric generating stations—oil, natural gas, coal, methane, and uranium. We are getting into the development of coal, and even uranium, to provide fuel for our coal and nuclear plants.

We are actively going out right now, in specific response to your question, and acquiring leases in order to develop the methane potential in Louisiana.

This is a program that needs a lot of emphasis. We want to be a part of it.

The CHAIRMAN. I have not yet found the first person who knows anything about it tell me that that will not work, that methane gas cannot be developed. It is down there in hot water. All you have to do is bring it up to the surface. There is enough of it in Louisiana and Texas, they say, which automatically liberates itself from the brine, without a mechanical process, to heat the whole country if you did not use anything but that for a hundred years.

Mr. McCOLLAM. Mr. Chairman, we agree with you that it does have tremendous potential. We agree with you so much that we are putting hard cash on the line and acquiring some leases in order to develop this potential in Louisiana.

The CHAIRMAN. I am told that that is estimated to cost \$2 a thousand cubic feet for gas, as pure and clean a gas as can be found.

What would it cost you? What would be the price to make gas from coal?

Mr. McCOLLAM. Mr. Chairman, I am not sure that I could specifically answer that question. It would probably be greater than that, though.

In the first place, you have a tremendous capital investment in the coal plant, a much greater capital investment as compared to a plant that generates electricity using natural gas. I can only cite our own experience there.

Many of our gas-fired plants in Louisiana were built for less than \$100 a kilowatt of capacity. When you are looking at coal, you are looking at anywhere from \$400 to \$600 per kilowatt of capacity. You have a tremendous additional capital investment.

The CHAIRMAN. One of the great liberals of America, at least in the energy area, has been Dr. Barry Commoner. He came before this committee—I know it impressed some of us. It impressed Senator Packwood, and it impressed me. He said at some point you are going to have to convert away from oil and away from gas, but he said, what you should be aware of is the enormous cost of having to convert twice: Once, to spend untold billions to convert to coal, and then, to spend untold billions to convert to other energy sources after you convert away. He thinks in the long run we will be converting to solar energy. I do not know whether we will or not.

In any event, if we are going to have to convert, does it not make better sense to convert one time rather than convert twice?

Mr. McCOLLAM. Yes, sir, it does.

In the case of all of our plants in Louisiana and the system of which my company is a member, we are not converting. It is physically impossible to convert our oil-fired and gas-fired plants to coal, as you probably know, without completely removing the boiler and building a new boiler.

In many cases, the sites of these plants do not lend themselves to coal-fired plants. You do not have enough room for your coal stockpiles; you cannot meet environmental criteria, particularly in major, metropolitan areas, such as the New Orleans area.

We are going to coal and nuclear plants for new plants.

The CHAIRMAN. You have to locate those plants outside of the metropolitan areas.

Mr. McCOLLAM. Yes, sir, in the middle south system, our generating units are all interconnected and we share the generating capacity on the system throughout the States of Arkansas, Louisiana, Mississippi, and part of Missouri.

The coal-fired plants at the present time are being built in Arkansas in basically rural areas, not major metropolitan areas.

Our nuclear powerplants are being built in Arkansas, Mississippi, and Louisiana. In Louisiana, our sister company, Louisiana Power & Light Co., has under construction a major nuclear plant about 25 miles up river from New Orleans, a little over 1,000 megawatt plant.

We are heavily committed for new plants to move to coal and to nuclear plants. We have had to cope with severe gas curtailment in our area and to convert our gas-fired plants to the burning of oil, and that has been done at great cost to our system and also at greater additional cost to the customers.

When you are burning fuel oil that costs up to the equivalent of \$1.75 or \$2 a million Btu compared to gas which only several years ago we were burning at 25 to 30 cents, this has a tremendous impact on the cost of energy we are furnishing to our customers.

The CHAIRMAN. Could I get some idea from you as to the cost of converting from gas and oil over to coal?

What is your estimate of the cost of that in 1977 dollars?

Mr. McCOLLAM. I have some information, if I can locate it here. My recollection is that a cost figure was included in testimony—

The CHAIRMAN. I saw a figure somewhere that it is estimated to be \$500 billion just for the exhaust scrubbers.

Mr. McCOLLAM. I have the information here, if I can put my finger on it.

The CHAIRMAN. Maybe one of your colleagues around here can help you find it; get it for the record if you can.

Mr. McCOLLAM. In our case, the cost of the scrubbers, the cost of scrubbers together with operating and maintaining them to all of the Nation's electric consumers by 1985—I am looking at Mr. Lewis' testimony before your committee earlier—was \$5 billion per year. The figure I have was an annual cost, an additional cost of \$5 billion per year just for the scrubbers that you are talking about.

You take that \$5 billion and multiply it by the number of years of the useful life of a plant, say 30 years, and you are looking at \$150 billion. You can put your finger on that right there, just for scrubbers.

The capital costs of converting all of the oil and gas fired plants to coal, I do not have that at my fingertips but it is information which can be furnished to you for the record. We have some studies on that.

The CHAIRMAN. I wish you would.

[The following was subsequently supplied for the record. Oral testimony continues on p. 1358.]

**NATIONAL
ELECTRIC
RELIABILITY
COUNCIL**

Research Park, Terhune Road
Princeton, New Jersey 08540

September 27, 1977

The Honorable Russell B. Long
Chairman, Committee on Finance
The United States Senate
2445 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Senator Long:

This is in response to a question asked of Mr. William McCollam, Jr., chairman of the National Electric Reliability Council (NERC) at the hearings before the Senate Finance Committee on September 14, 1977. Mr. McCollam was requested to submit the information on the total cost of conversion of oil-fired and gas-fired boilers to coal.

A recent study shows that to convert the 155,000 MW of existing and planned oil- and gas-burning capacity expected to be in service in 1985 would necessitate an expenditure of \$50 billion in 1976 dollars. Of this total, approximately \$28 billion would represent conversion of oil facilities to coal and \$22 billion would be accounted for by gas to coal conversion.

If an annual inflation rate of seven percent were assumed and conversion expenditures were staged uniformly over the nine years, 1977-1985, the \$50 billion constant dollar capital requirement would equate to a current dollar outlay of \$71 billion. It has also been estimated that the addition of scrubbers on all such units would add another \$5 billion per year for capital carrying charges, operation, and maintenance. For a thirty-year life of plant, this would add \$150 billion over that period.

Present estimates of electric utility current dollar expenditures on electric plant and equipment over the same period total some \$345 billion. Thus a total conversion program would increase presently projected capital requirements by more than twenty percent.

It should be emphasized that a "conversion" program in reality is a "replacement" program, because gas-fired or oil-fired boilers would have to be completely replaced with coal-fired boilers. And in most cases, the existing gas or oil generating sites are not adaptable for coal-fired boilers because of space requirements for coal storage and ash disposal. In addition, transportation facilities for coal are usually not available at gas or oil generating plants.

The Honorable Russell B. Long
September 27, 1977
Page 2

It seems evident that the only prudent policy to reduce the use of gas and oil in electric utility boilers is to proceed as rapidly as possible to install presently planned new base load coal-fired and nuclear generating units which will in time relegate existing gas- and oil-fired units to peak load usage and reduce their consumption of gas and oil.

As indicated in Mr. McCollam's testimony and the attached NERC reports, present projections show that gas will provide only 2.8 percent of electric energy usage in 1986 and oil will be 14.6 percent. A large portion of this oil will be used to displace gas, the only reasonably feasible way to reduce use of gas.

I trust this is fully responsive to the questions asked by the Committee.

Sincerely yours,



Walter D. Brown
Executive Vice President

WDB:lr



**NATIONAL
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RELIABILITY
COUNCIL**

7th ANNUAL REVIEW

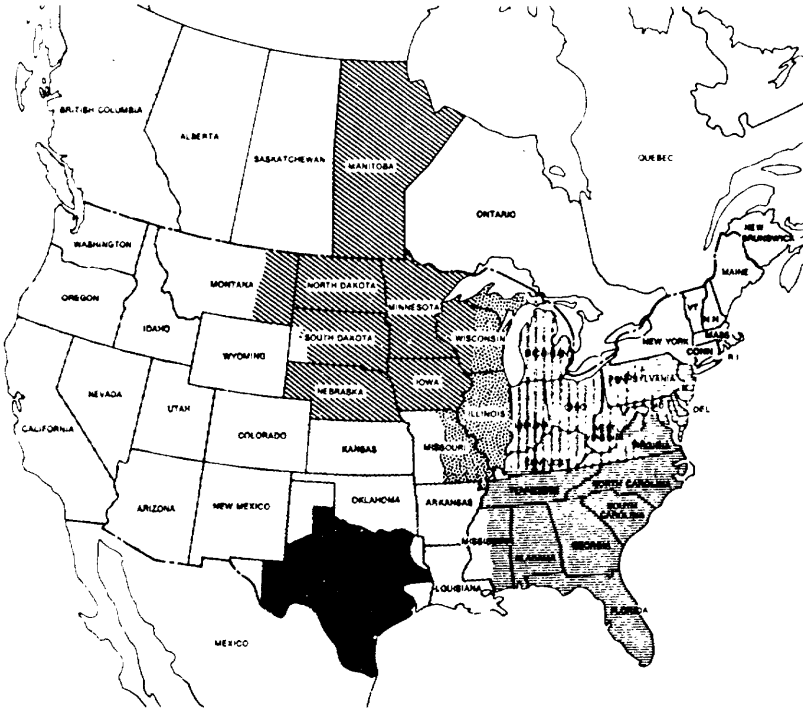
**OF OVERALL RELIABILITY AND
ADEQUACY OF THE NORTH AMERICAN
BULK POWER SYSTEMS**










A Report by Interregional Review Subcommittee of the Technical Advisory Committee

July 1977

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Research Park, Terhune Road, Princeton, New Jersey 08540

NATIONAL ELECTRIC RELIABILITY COUNCIL



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|--|--|---|
|  ECAR East Central Area Reliability Coordination Agreement |  MAIN Mid America Interpool Network |  SERC Southeastern Electric Reliability Council |
|  ERCOT Electric Reliability Council of Texas |  MARCA Mid Continent Area Reliability Coordination Agreement |  SPP Southwest Power Pool |
|  MAAC Mid Atlantic Area Council |  NPCC Northeast Power Coordinating Council |  WSCC Western Systems Coordinating Council |

The National Electric Reliability Council (NERC) was formed in 1968 with the stated purpose: "... further to augment the reliability and adequacy of bulk power supply in the electric utility systems of North America." It consists of nine Regional Reliability Councils and encompasses essentially all of the power systems of the United States and the Canadian systems in Ontario, British Columbia, Manitoba and New Brunswick

7th ANNUAL REVIEW of OVERALL RELIABILITY and ADEQUACY of the NORTH AMERICAN BULK POWER SYSTEMS

RELIABILITY and ADEQUACY are two separate but interdependent aspects relating to the bulk power supply system of the electric utility industry in North America. RELIABILITY involves the security of the interconnected transmission network and the avoidance of uncontrolled cascading trippouts which may result in widespread power outages. ADEQUACY refers to having sufficient generating capability to be able at all times to meet the aggregate electric peak loads of all customers and supply all their electric energy requirements.

Early efforts of the National Electric Reliability Council (NERC) and its Regional Reliability Councils were directed to augmenting RELIABILITY. Notwithstanding the serious power outages in the Miami area in May and in New York City in July, these efforts have been successful in avoiding uncontrolled cascading trippouts. These two outages do emphasize the urgent need for maintaining a high standard of reliability in system design and system operation.

In this seventh annual review of the overall reliability and adequacy of the North American bulk power systems, however, NERC finds that the ADEQUACY of electric power supply for the future is in jeopardy. Once a deficiency of generating capacity exists, the time to recover will be measured in years, i.e., the time to build new facilities. In view of the pervasive nature of electric energy and the energy intensiveness of this nation's economy, the future well-being of American society is highly dependent on the ability of the electric utility industry to continue to provide an adequate supply of electric energy.

The utility industry is presently restrained from providing an adequate future supply of electric energy. The consequences of this will inevitably result in:

- An era of an energy-limited economy for the United States.
- Disruption of operations in the industrial sector.
- Economic hardship to commercial establishments.
- Reduced operating efficiency of the business community.
- Adverse changes in life-style of the American people.
- Threats to the health and welfare of all citizens.

Past power interruptions to electricity supply, as well as experiences in Europe during prolonged fuel deficiencies, clearly establish the adverse consequences of such circumstances. In the light of the long lead times required to build power supply facilities, such deficiencies are too great to risk. It is imperative, therefore, that concerted efforts by the government and the electric power industry be pursued to remove the existing restraints which are inhibiting the construction of facilities necessary to provide an adequate and reliable power supply for the future. The continuation of these restraints will surely result in forced curtailments of electric power starting as early as 1979 and increasing in severity in the period beyond. Furthermore, an inadequate bulk power supply system will inevitably place greater stresses on the network thus threatening its reliability.

Some of the more critical restraints are:

- Overlapping and conflicting governmental regulations impeding the siting and the timely completion of new generation and transmission facilities.
- Conflicts that exist between environmental goals and energy requirements.
- Lack of timely and adequate rate relief adversely affecting the ability of utilities to finance construction of facilities required for the future.
- Existing and possible future impediments which will impact on the ability to develop the necessary coal and uranium fuels to supply future planned generation facilities.
- Lack of stable government policies relative to the supply of electric energy.

On April 20, 1977, President Carter presented to the nation his proposed National Energy Plan and programs for implementation. In the Administration's view, these programs are required to overcome the energy shortages that loom in the immediate future and to reduce the nation's reliance on the dwindling supply of oil and natural gas. In essence, this plan is founded on a strict commitment to energy conservation and the utilization of energy sources other than petroleum, namely coal and uranium. NERC supports these basic tenets.

Conservation is a necessary ingredient to a healthy economy, and the wasteful use of electric energy should be eliminated to gain the maximum benefit from our limited energy resources. However,

NERC has concern that the degree of electric energy conservation visualized by the plan may not be attainable. With the introduction of taxes and other approaches to achieve a reduction in the use of petroleum in end-use applications, it is possible—in fact, likely—that there will be a significant shift from other fuels to electric energy, particularly in the industrial sector, thus placing an even greater demand on electric supply facilities. The need for electric energy to support the growth of the nation's economy makes it imperative that an adequate and reliable supply of electric energy be available.

NERC supports the development of coal-fired and nuclear generating plants. However, this development is dependent on the future adequacy of fuel supply. The increase of coal consumption projected by the industry, which corresponds to that indicated in the National Energy Plan, to support the vigorous development of coal-fired generating capacity, will not be achieved because of the impediments that presently exist. It has been indicated that the Administration has accepted the fact that there is

a need for continued development of nuclear power, but there is substantial and persistent opposition to the use of nuclear power by some segments of the populace.

Unless positive steps are taken immediately to solve problems regarding adequate future fuel supply, including those problems associated with construction and operation of nuclear units, the nation will be faced with an electrical energy shortage in the near future.

In this report, prepared by the Interregional Review Subcommittee of the NERC Technical Advisory Committee, these problems and restraints are discussed. If not promptly resolved, they will prevent the development of an adequate and reliable electric supply in the future, which is absolutely essential if this nation is to survive economically and politically. Although this report is addressed for the most part to specific issues within the United States, the problems and concerns voiced herein are similar to those in the Canadian utility systems—which are members of NERC Regional Reliability Councils

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Load Forecasting

Current forecasts by the electric utilities indicate a compound annual growth rate in summer peak loads for the United States of 5.7% for the next ten years. This compares with an historic growth rate between 7.0 and 7.5%. In view of the emphasis in the proposed National Energy Plan to foster growth in the industrial sector and the need to replace oil and natural gas with other fuels, there is increasing evidence that the load growth of the electric utility industry will exceed the present forecasts.

Load forecasts are basic to planning the future requirements for generation and transmission facilities. With the extremely long lead time now required to bring into operation new facilities, a fraction of a percent increase in the forecasted peak load growth rate can, during that time, diminish planned reserves to the point of jeopardizing the reliability and adequacy of the bulk power supply. For example, an increase of one-half of 1% in the compound annual growth rate between now and 1986 would result in a reduction of some 30,000 MW of reserve capacity for the United States.

The ten-year forecasts of peak loads reported by the NERC regional reliability councils show a reduction of about one year's growth by the tenth year, when compared with last year's forecasts. The moderate level of industrial activity, higher cost of electricity, and another mild summer resulted in the 1976 peak demand being only about 4% greater than 1975. The utilities are, however, now forecasting an annual compound growth rate of 5.7% for the total United States for the next ten years. The annual projected peak loads by regional councils are shown in Appendix A-1.

For the United States as a whole, the electric energy consumption for the first seven months was 7.0% higher than the comparable period in 1976. Furthermore, the peak loads through July, 1977 exceeded 1976 peak loads by more than 8%. While 1977 summer weather was considerably warmer than in 1976, industrial activity was still depressed in many areas in 1977 and the voluntary curtailments of power in the Western United States due to the drought conditions resulted

in lower-than-normal electric power usage in much of that large area. These circumstances raise the concern that the present projections do not sufficiently anticipate the factors which would increase electric loads in the future beyond what is being presently forecast. The implementation of the Administration's proposed National Energy Plan will affect electric load growth both positively and negatively, and adds to the uncertainties already present in forecasting future loads. These influences need to be considered in detail.

a) Conservation. The electric utilities endorse the efficient use of energy and the elimination of waste. The effects of conservation are being included in present load forecasts to the extent that they can be quantified at this time. There may be instances where the effects have been overestimated as well as underestimated. The proposed National Energy Plan stresses the conservation of all forms of energy, however, it will take some time to determine the effects of this policy on the rate of growth of electric energy usage and on peak load growth rates.

The extent to which voluntary conservation has taken place or will take place in the future is largely unknown. The anticipated reduction in electric energy use to be achieved by other conservation efforts varies greatly from system to system, depending on such factors as the extent to which insulation programs for existing homes are implemented, actions to change building codes for new construction, extent of introduction and use of more efficient appliances, the proportion of industrial load on the system and the

rate of conversion to more efficient processes and equipment, the application, and uncertain effects, of time-of-use rates, and more importantly, the effects of the implementation of national energy policies to stimulate conservation. There are many experiments and tests underway by the utilities, either alone or in cooperation with various governmental agencies, the results of which may show the way to more effective programs and could improve the accuracy of efforts to quantify the long-term effects. In any case, the energy savings from conservation will only be achieved over a period of several years, and any significant effect on peak demand will take even longer. In the interim, sufficient capacity must be available to reliably serve the load.

b) Substitution of Electricity for Other Forms of Energy. The Administration's proposed National Energy Plan has as its main objective a reduction in the consumption of oil by 1985 so as to limit imports to some 6 million barrels a day, a reduction from the 12-16 million otherwise anticipated. Some of this reduction is expected to take place in the transportation and electric utility sectors but most of it is anticipated in reduced industrial consumption. Also, the policy seeks to reduce natural gas consumption by utilities and industrial users to make more gas available for residential and commercial consumers. This policy will obviously lead to an increase in the use of electricity by industrial customers which are already the largest consumers. The growing shortage of natural gas, so evident during the cold wave last winter, will increase the substitution of electricity in end-use applications. Nearly all regions in the United States report evidence of shifts away from gas in new residential and commercial installations. The current load forecasts were made prior to the announcement of the proposed National Energy Plan, which is designed through taxes and incentives to bring about this national shift in fuels. The net result will likely be an industrial electric load growing much faster than now predicted.

Furthermore, to achieve the stated goals, the proposed National Energy Plan calls for a substantial increase in the amount of coal to be used directly by industrial customers. Considering all of the difficulties in the burning of coal, it appears unlikely that these

goals will be achieved, thus further adding weight to the contention that a large portion of industry's energy requirements will be shifted to the electric utility industry.

c) National Economic Conditions. The economic conditions in the country are still unsettled, resulting in a significant dampening effect on all sectors of electric energy usage. However, if the Administration's goals of reducing unemployment and controlling inflation are to be achieved, the economy must be revitalized. As part of the proposed National Energy Plan, the Administration has indicated that it anticipates an increase in the gross national product of about 46% from 1975 to 1985. From 1950 to 1973, total energy consumption for industrial use increased at an annual rate of 3.0%. The National Energy Plan projects an increase in this growth rate to more than 5% a year between now and 1985. Since the industrial sector consumes about 40% of all electricity produced by the electric utility industry, it is reasonable to conclude that the higher projected growth in this sector will result in an increasing dependence on electricity.

d) Load Management. Utilities have successfully matched the changing pattern of load with a combination of types of generation so as to achieve the greatest overall economy, which in reality is supply management. Since practically all conservation programs will impact on energy use more than on peak demand, a load management

program which attempts to reduce peak demand, or shift load to off-peak periods, is a desirable complement. However, the daily load factor—as high as 85–90% for many utilities—will limit the amount of load that can be moved to off-peak periods.

The most effective methods of load management, and those which have the most immediate and direct impact, are those which place loads under the direct control of the utilities' dispatchers. Indirect methods, such as time-of-use rates, are also being investigated, although it will take a long period of time and experience to determine their effectiveness.

To the extent that plans for load management have been developed, the anticipated effects have been included in current load forecasts. There are wide variations in these plans; some utilities have adopted plans for a specific amount of load to be under management, others have subtracted an amount from future peak demands in anticipation of the development of future load management plans, while others feel the need for further research and experimentation regarding the indirect methods.

e) Use of Solar Energy. The status of technology and the present cost of facilities to utilize solar energy in the production of electricity in central stations precludes its near-term utilization. The use of solar collectors and storage facilities may be feasible for supplying some portion of the heating needs in individual residential and

commercial installations. However, the uncertainty arises in that if such installations are to reduce a utility's requirements for new capacity, the heat storage part of the installation will have to have sufficient capacity so that no electrical backup will be required. Either that, or the backup source must be oil or gas, stored on site, ready for use when required. As long as there is a possibility that the electric system will be required to serve the heating load on cold and cloudy days, the utility must still maintain the capacity ready to serve the load.

f) Cogeneration. Cogeneration, an arrangement by which a utility supplies to industry process steam from a generating plant, or by which a utility purchases excess electric energy which is the by-product of an industrial process, can show improvement in efficiency over the production of the same amount of electricity or steam alone. This is not a new concept, a number of electrical utilities have such arrangements now and others are considering them where feasible. Although the utility and industry might find cogeneration to be a mutual advantage, the constraints (both institutional and technical) are such that each installation must be examined and weighed separately. It seems likely that cogeneration will have little impact on the need for major generation additions on most utility systems in the next decade, and that its near-term effects have been overestimated in the proposed National Energy Plan. ■

Adequacy of Future Bulk Power Supply

The uncertainties associated with the timely completion of generating units presently under construction and planned for the future raises the specter of inadequate generating capacity to serve the electric load in the United States starting as early as 1979. The result will be a degradation of the quality of electric bulk power supply, with the likelihood of forced curtailments of electric power of increasing severity and adverse impact on the economic well-being of the nation and its citizens.

Without a sufficient amount of installed generating capacity, the electric utility industry cannot continue to provide an adequate power supply. The determination of what constitutes an

adequate electric bulk power supply is a complex process dependent on a host of interrelated factors, such as, amount, type and expected operating performance of generating units, load

characteristics, available supplies of fuel, availability of water for hydro, characteristics of the transmission network, potential slippage of the in-service dates of generating units under construction, deviations that can be expected in load projections, and availability of emergency support from other utility systems in the interconnected network.

Often times, adequacy is presented only in terms of the numerical relationship between installed generation and peak load demand, simplistically referred to as "generation reserve." This relationship, however, does not provide a conclusive indication of the

sufficiency of generating capacity to meet consumer demands.

Generation reserves are essential to the reliable and adequate operation of power systems. These are not excess capacity as some contend, but rather are required to permit scheduled outages for preventive maintenance, repairs, and overhauls, essential to continued operation of generating plants, to compensate for forced outages and partial curtailments of generating units, and to provide for the instantaneous response characteristics necessary to maintain at all times a balance between load and generation and to assure stable operation and security of the bulk power system.

During the 1974-76 period, all NERC regional councils experienced higher than planned for reserves, a temporary situation resulting from the unexpectedly depressed electric demands associated with the economic recession following the oil embargo in late 1973, the relatively mild weather conditions experienced during the last three summer peaking seasons, and the bringing into service of new generating capacity too advanced in construction to be delayed when these conditions developed. This created an illusion that utilities were overbuilt with generating capacity.

To meet future demand requirements, the nine NERC reliability regions are projecting capacity installations of approximately 300,000 MW during the 1977-1986 period, as reported April 1, 1977, to the Federal Power Commission (FPC Order 383-4) and updated to represent current information on the status of units. The distribution of yearly capacity additions (300 MW and larger) by fuel type is shown for the United States as a whole on Figure 1. This information is displayed in Appendices B-1 through B-9 for each of the nine regional reliability councils. The total capacity, by fuel type, planned to be in service each year and the energy projected to be generated with each fuel, are shown on Figure 2. Appendix A-2 lists projected resources planned for each of the following ten years, and Appendix A-3 shows the capacity, by fuel type, for selected years.

As shown on Figure 1, most of the new capacity being added during the forecast period is either nuclear or coal-fired. The last gas-fired base load generating units to be installed were completed in early 1977 and have a

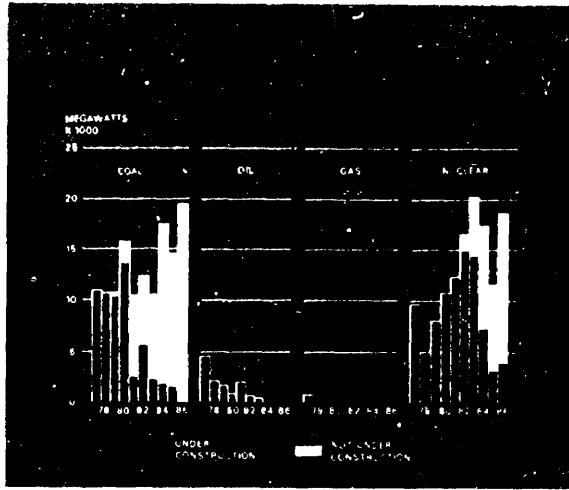


Figure 1

total capacity of 800 MW. The capacity of oil-fired base load units being added amounts to only about 13,000 MW, all of which is presently under construction. This does not reflect the

addition of oil-fired combustion turbines for peaking purposes. In SPP and ERCOT, which presently have a high percentage of gas-fired capacity, specific plans and construction pro-

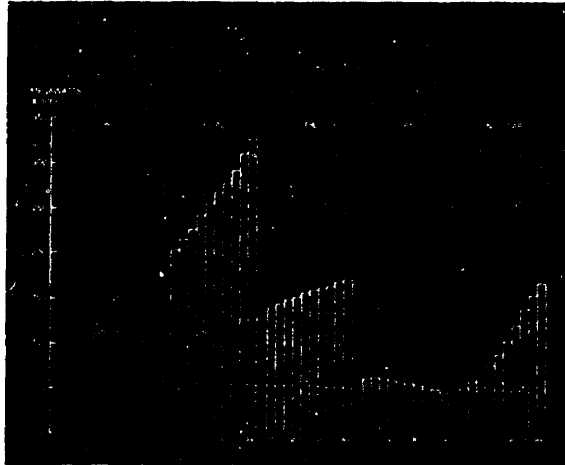


Figure 2

grams are underway to convert—to the extent possible—portions of the gas-fired capacity to oil and to add new coal-fired and nuclear generation, thus materially reducing the use of gas as a boiler fuel in the future. These conversion plans must be programmed in an orderly fashion to avoid an adverse impact to the reliability and adequacy of these regions and must be coordinated with the construction of new coal-fired and nuclear plants.

Also shown on Figure 1 for the United States as a whole and in Appendix B for each reliability region, is the amount of capacity presently under construction and that which, while not under construction, is in various stages of planning, design or licensing. Considering the long lead times required for the approvals and construction of new generating units—which is reported by some systems to be up to 14 years for nuclear plants and up to 10 years for coal-fired capacity—there is serious doubt as to whether the indicated amount of capacity additions will in fact be brought into service on schedule. Systems in all regions have indicated increasing delays in receiving timely approvals and the necessary permits from appropriate agencies for the construction of generating units. Even after receiving approvals, and construction has been initiated, delays have occurred when intervenors have had hearings reopened through actions of the courts.

In many cases, conflicts between regulatory agencies at the state and federal levels have also added to the growing delays in the planning, licensing, and construction phases of new generating units. For example, the regulatory conflict associated with the Seabrook nuclear plant in New Hampshire has delayed its completion. This plant received all necessary construction permits from the Nuclear Regulatory Commission (NRC) and construction was begun. Withdrawal of the Environmental Protection Agency (EPA) approval of the proposed water cooling system by the Regional Administrator led to the withdrawal of the NRC construction permit. Appeals to the Federal EPA Administrator resulted in the reversal of the EPA Regional decision on June 17, 1977. The NRC construction permit has just recently been re-issued.

Also greatly affecting the timely installation of new generation is the financial condition of the utilities in-

olved. All units presently under construction or in the planning stages are subject to deferral or cancellation, depending on the utilities' financial capability to continue construction or complete them. Furthermore, because of this uncertain financial climate, many utilities have found it increasingly difficult to make commitments for their required construction programs.

At present, approximately 20% of new base load generating capacity to be added between 1977 and 1986 is not yet under construction, as is indicated on Figure 3. On the basis of the constraints discussed above, a significant amount of this capacity will be delayed for any of several reasons. Such slippage will seriously impact future reliability and adequacy.

Realistically, there is no alternative to the coal-fired and nuclear generation program now planned if presently forecasted electric power requirements are to be met. The shorter term option for meeting future generating capacity deficiencies by the installation of combustion turbines is not an adequate substitute for new base load capacity. More importantly, the use of combustion turbines for other than peaking service would be in direct conflict with

the Administration's proposed National Energy Plan to reduce the use of petroleum. Although generating units powered by solar, wind, etc., are in various stages of experimentation, none of these can be considered a substantial energy source during the next ten years.

The uncertainties associated with the timely installation of new generating capacity can significantly affect projected generation reserve levels during the next ten-year period. Based on previous experience and the present outlook, it is reasonable to conclude that in the aggregate, some of the new generating capacity projected for service during the next ten years will be delayed as follows:

- a) All coal-fired generating units not under construction will be delayed one year because of changes in environmental regulations, and those for which there is currently no corporate commitment will be delayed two years; and
- b) All nuclear generating units under construction will be delayed one year because of difficulties in securing operating licenses, and those which do not presently have a construction permit will be delayed two years.

Likewise, uncertainties related to

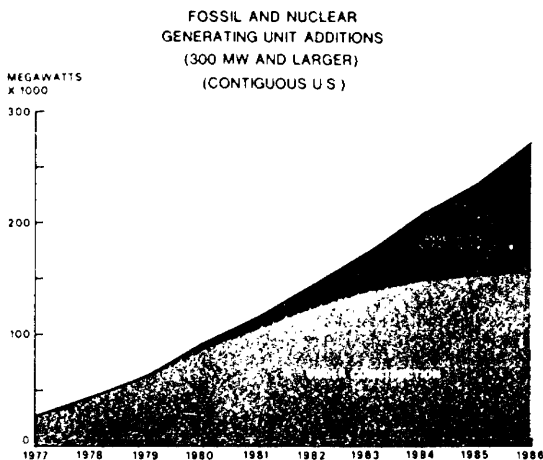


Figure 3

Figure 3

peak load projections, as discussed previously under "Load Forecasting," could well result in a growth rate 5/2 per year higher than presently projected.

The net result of both these effects on capability and load is shown on Figure 4 by the dotted lines as compared to presently projected conditions indicated by the solid lines.

The amount of generation reserves required to provide an adequate supply is indicated by the white band on Figure 4. The combination of higher load growth and delayed generating unit additions creates the real possibility of an inadequate power supply situation, which is indicated by the "Potential Deficit" area (dark color). This shortfall is critical and clearly indicates the need for immediate action to remove the obstacles which are affecting the timely installation of new generating units.

Generation reserves are not—and should not be—uniform across the nation, as the situation in each of the nine reliability council regions is uniquely related to conditions within that region. Appendices B-1 through B-9 show the results, by regions, of an analysis similar to the above for the United States as a whole. Based on these analyses, all nine reliability council regions begin to face inadequate generating capacity conditions within the 1979-1986 period. The year in which generating deficits begin in each region is summarized in the following table:

TABLE I—Evaluation of Reserves for Higher Load Growths and Delayed Capacity Additions

Region	Year When Generation Deficit Could Begin
ECAR	1961
ERCOT	1965
MAAC	1965
MAIN	1960
MARCA	1963
NPCC	1963
SERC	1979
SPP	1961
WSCC*	1966

*Not applicable to the WSCC region as a reliability council since the WSCC region is not a reliability council.

In WSCC, the situation regarding reserves is different from other reliability regions. Here, a large portion of the region is supplied by hydroelectric

generation, which has limited energy capability. As a result, capacity reserve by itself is not a meaningful indicator of regional adequacy. The availability of water resources to generate energy must also be factored into this assessment.

WSCC's hydroelectric resources are located primarily in the Pacific Northwest and Northern California, but the availability of water impacts the adequacy of the entire region. During good water years, hydroelectric energy from the Pacific Northwest is transmitted to the Pacific Southwest by means of the North-South Transmis-

sion interties. During years of drought conditions, the hydro capacity is greatly restricted, and the region must rely primarily on its thermal resources. Although the numerical relationship between capacity and load appears substantial for WSCC, this simplistic analysis is meaningless as a measure of adequacy in drought years such as 1977. Although more than adequate generating capacity presently exists to meet peak loads, there is great concern for meeting the Pacific Northwest region's energy requirements because of the low level of water stored in the reservoirs. ■

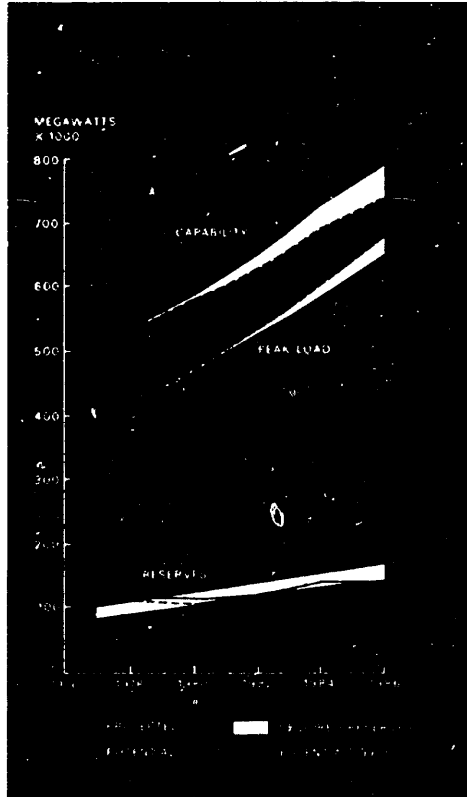


Figure 4

Fuels for Electric Generation

The role of the electric utility industry is vital as the United States moves to an energy economy based on minimizing the use of oil and natural gas as fuels. Electricity, as a secondary source of energy, however, depends for its production on a supply of primary fuel resources, both fossil and nuclear. A dependable and assured primary supply is, therefore, essential to the adequate and reliable production of electric energy in the future.

At a time of diminishing supplies of natural gas and domestic oil, there is no reasonable and economic alternative to the use of coal and uranium for an increasing percentage of our energy requirements for the remainder of this century. To utilize these fuel sources effectively means an expanding role for electric energy. However, a major concern regarding the future reliability and adequacy of this country's electric energy supply is the problem of an adequate fuel supply for the electrical utility industry.

The problems of adequate fuel supply for the production of electric energy are addressed in a companion NERC report.¹ Although the Administration has announced a proposed National Energy Plan, concerted action by the Congress, government agencies, and the utilities will be required to assure that the adequacy and reliability of electric power systems will not be placed in jeopardy by the lack of fuel. The proposed policy would minimize the use of oil and natural gas and increase the use of coal for industrial and utility use, while also recognizing the need for uranium as a fuel for electric generation. This situation already exists to a large degree in the electric utility industry. In 1976, utilities utilized only about 9% of the oil consumed in this country, and only about 15% of the natural gas, while consuming about 70% of the coal mined.

The utilities had earlier recognized the need to phase out the use of natural gas as a boiler fuel, and programs have been underway for some time to ac-

complish this through conversion to oil and installation of future coal-fired and nuclear units. The use of natural gas will decrease so that by 1986 less than 3% of electric energy in this country will be produced by that fuel, representing less than 6% of total natural gas use. These plans were developed before and independently of the proposed National Energy Plan. It is noteworthy, as illustrated on Figure 5, that the proportionate roles of nuclear, oil, hydro and gas for electric generation will be completely reversed in the next ten years as compared to the previous ten years. Figure 6 shows the

projected electric generation by principal energy sources in 1977 and 1985, in kw-hr's and in percentages.

While the existing gas-fired plants can be converted to oil at the price of reduced capacity and increased unavailability, any conversion to coal is virtually impossible, and requires, in almost every case, complete replacement of the boiler and the installation of coal-handling equipment. In many cases, the additional space needed for the larger coal-fired boiler and associated equipment is not available, nor are transportation facilities required to deliver the coal. Existing air quality regulations, and the possibility of more restrictive regulations in the future must also be considered in the decision to convert. Even where all other criteria can be met, the age of the units may be such as to make the added expense unjustifiable. These plants can continue to serve a useful purpose as peaking plants, using a minimum of gas, if new base load capacity can be constructed. Any conversion plans must be carefully developed on an area-wide basis, and sufficient time must be allowed, so that the amount of capacity which will be out of service at any one time will not have a major impact on reliability.

The National Energy Plan recog-

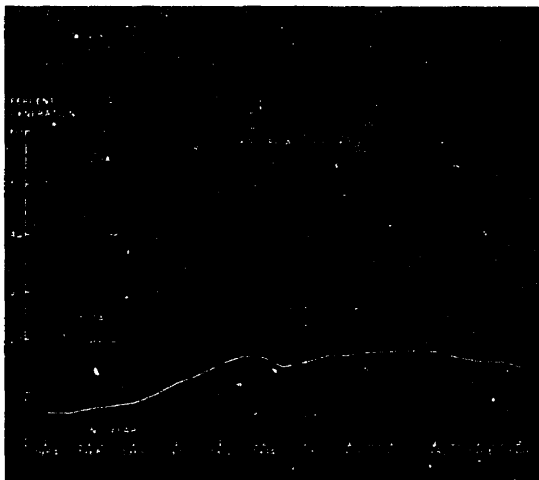


Figure 5

¹Oil and Natural Gas in the Electric Generation Requirements and Availability, 1977-1985, Santa Ana, August 1976.

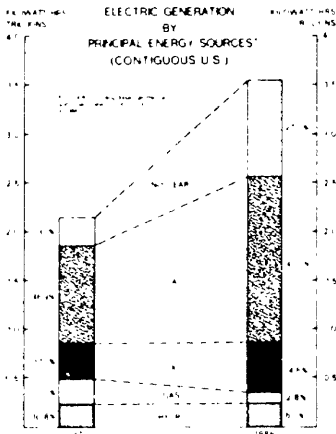


Figure 6

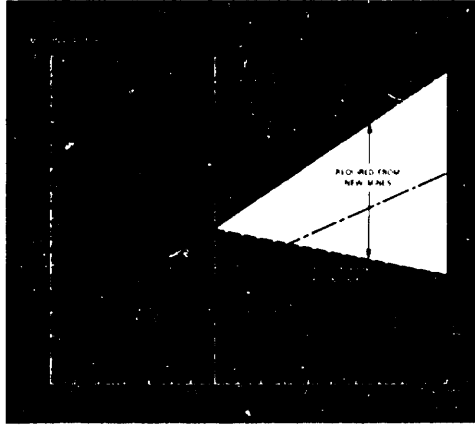


Figure 7

nies the need for continuing the use of uranium as a fuel for electric power production. This is essential, as is the recognition of a continuing need for additional uranium enrichment capacity. There are, however, other problems in the nuclear fuel cycle that must be addressed. The decision not to proceed with uranium and plutonium recycling and the Clinch River Breeder Reactor Program at this time will increase the need for exploration, mining and processing additional amounts of uranium. Since the inventory of uranium resources cannot readily be established, it is difficult to determine how long the supply will last at a price that energy consumers can afford.

The nuclear waste disposal problem will not be solved by delaying the breeder and nuclear fuel reprocessing programs, but may in fact make the problem worse. Work must continue toward solutions, both short term and long term. Spent fuel from operating nuclear reactors represents a significant energy source which will be required in the future. As an interim measure, the utilities can enlarge storage pools at the plants, but there are

limits as to how long this will be a feasible or economic solution.

The proposed National Energy Plan will certainly lead to increased use of coal. The utilities are already projecting a need for 824 million tons in 1985 and 879 million tons in 1986. Figure 7 shows this increasing requirement and the substantial need for new mining capacity. Obtaining and using this amount of coal, plus the additional amounts used in other industries will be made even more difficult by the inherent dichotomy in the policy—a call for increasing our dependence on the use of coal while imposing overly restrictive environmental regulations on the mining and burning of it. The entire coal supply picture has been thrown into a state of turmoil by the Administration's proposal that the "best available control technology" for sulphur removal be required for the utilization of all coal, regardless of sulphur content. Although the intent of this proposal is to expand the use of eastern coal, it will be impossible to meet the coal production goals indicated on Figure 7 without the development of the vast coal reserves in

the West.

An increasing amount of residual oil became available from refineries producing ever-increasing amounts of gasoline, heating oil, and other light distillates during the past two decades. While not exactly a by-product, residual oil has limited uses other than as boiler fuel. The availability of this fuel and the increasing environmental restrictions associated with burning coal led many utilities to install oil-burning units—some of which are still under construction. In fact, most of the oil-fired units now under construction were committed prior to the 1973 oil embargo, and would have been completed earlier if the load had required it.

The absolute quantities of oil for power production will increase in the future because of generating units now under construction, the need for additional peaking capacity in combustion turbines, and from conversion of existing gas fired units to oil-firing. Oil-fired units, however, while providing about 17% of total electric energy in 1977, will supply only about 15% by 1986. ■

The Transmission Network

Constraints in obtaining right-of-way approvals and financial difficulties have delayed the construction of a number of key transmission lines in the interconnected network in the United States and Canada. This has resulted in the uneconomic dispatch of generation, increased use of oil, and limitation of intra- and interregional energy transfers. Continuation of these constraints will accentuate limitations and make the network more vulnerable to interruptions and forced curtailments of electric power. Those agencies responsible for approval of licensing of transmission lines must recognize the vital role of transmission in the development of a reliable bulk power supply system and direct their efforts to reach timely decisions on proposed transmission lines.

Energy supplied at generating stations is moved to the user over a transmission and distribution network which has been designed through a balancing of reliability, cost, and efficiency. The network is made up of high voltage transmission lines, subtransmission and distribution lines, and substations. The subtransmission and distribution facilities are not of interest in this report since outages on these systems will have only a local impact. On the other hand, high vol-

tage transmission lines—those operating at 230 kV or higher voltage—are of major concern to regional or national energy supply reliability. The high voltage lines now in existence have been integrated to form coordinated bulk transmission networks, covering the United States and four provinces of Canada.

The electric utilities are planning a substantial increase in bulk power transmission facilities. In the next ten years, 20,800 miles of 145 kV, 14,800

miles of 500 kV, 2,300 miles of 765 kV, and 2,500 miles of HVDC lines are planned as additions to the existing networks by the member systems of NERC. The following table lists the number of miles of transmission lines in each NERC region as of January 1, 1977, and the amount under construction, committed, or planned for 1977 through 1986. These lines are for strengthening existing networks and for additional intra- and interregional interconnections, and, if constructed, would increase interregional transfer capabilities as shown in Appendix B. However, unless there is some relief from the constraints and delays which are currently impeding transmission construction, these plans of the utilities will not be achieved.

The high voltage transmission system can be considered in three categories: lines from generating plants which move energy to the major portion of the transmission network, the network of lines which interconnect generation and load centers within utility systems, and the lines which interconnect utility and regional systems providing a path for mutual assistance. Each of these categories has a function which, if impaired, can cause unreliable, inadequate, or uneconomic supply of energy to the user.

The number and arrangement of transmission lines associated with generating plants are such that the output of generating plants can be delivered to the network with a high de-

TABLE II Transmission Lines — Miles
(Existing 1/1/77)

Voltage (kV)	ECAR	ERCOT	MAAC	MAIN	MARCA	NPCC	SERC	SPP	WSCC	Total NERC
230	762		4 235	239	6 192	7 977	15 125	2 709	28 291	65 530
345	8 741	3 413	160	4 460	2 550	3 240		1 845	5 509	29 918
500	705		1 150			650	3 654	1 363	8 143	15 665
765	1 330			90		96				1 516
HVDC										
830									844	844
250									30	30

Under Construction, Committed or Planned
(1977 Thru 1986)

Voltage (kV)	ECAR	ERCOT	MAAC	MAIN	MARCA	NPCC	SERC	SPP	WSCC	Total NERC
230	425	159	712	2	669	317	6 563	2 856	3 143	14 873
345	4 265	833	12	2 771	3 303	2 249		2 794	5 225	20 752
500	327		554	40	570	1 286	3 567	702	7 736	14 782
765	1 850			45		433				2 328
HVDC										
1 000									1 590	1 590
400						417				417
250						456			30	486

Source: Data from NERC, available at the NERC, Electric Supply Office.

gree of reliability. However, if utilities are unable to obtain approval for the construction of some of these lines, the likelihood of being able to supply energy from the generating plants is substantially decreased. The result can be uneconomic dispatch of other generating plants, which, in addition to increasing costs paid by the consumers of electric energy, may require using scarce resources such as oil. Obviously, in the extreme, the output of a plant could be completely restricted.

For example, a direct current line from western North Dakota to Minnesota has been delayed even though the utilities involved had obtained all necessary permits after establishing need and complying with siting procedures of appropriate state agencies. This will impair the operation of a new 500-MW coal-fired unit located in North Dakota. Legal proceedings initiated by various organized groups and opposition groups have interfered with construction in disregard of court orders.

Another example is the delay in a 500-kV line between Bruce and Toronto, Ontario. Output of the third and fourth units (scheduled for operation in 1978 and 1979) at the 3,000-MW Bruce Nuclear Plant will be limited due to lack of transmission capability. There will be a cost penalty of \$25 to \$50 million for the coal to replace this nuclear generation prior to the completion of this 500-kV line, presently scheduled for operation in 1979. Further delay of the line will result in an additional penalty of about \$500,000 per day.

The majority of the transmission network components serve to integrate load and generation centers. The network is designed so that when one component fails, other network elements absorb the additional load with no interruption of service. The network must also be designed to operate satisfactorily under a wide variety of conditions from summer or winter peak periods to spring or fall light load periods and periods when power flow patterns are abnormal due to maintenance of generating units or transmission components. Delay in obtaining necessary permits to construct network transmission facilities will result in the need to operate the existing transmission system closer to its capability, thus utilizing the transmission margins that should be available in the network

to provide for contingency conditions. As a result, the reliability of supply to load centers will deteriorate.

An example of this situation is the delay of a 765-kV line in Virginia, originally scheduled for operation by the summer of 1977. Due to extended certification hearings before the Virginia State Corporation Commission, the service date for this line had to be rescheduled to the summer of 1980, and may need to be delayed further, if immediate action is not forthcoming. Without this line, reliability of supply to a large number of customers in Virginia will be adversely affected if parallel network facilities are out of service.

The third significant function of transmission is to interconnect utility systems to provide the means for emergency support during generating capacity deficiency situations and to provide for the exchange of power for economic reasons. An example of the emergency use made of the interconnected system occurred during the extreme cold wave that hit the eastern two-thirds of the nation during January 10-21, 1977, when various utilities in the East, portions of the Midwest and the South experienced problems with frozen coal and disabled generating units due to a variety of reasons. The interconnected transmission system was utilized extensively to provide emergency support to those utilities experiencing problems.

In this regard, the completion of the 500-kV loop around the Washington, D.C. area, originally planned for service in 1974, and presently scheduled for late 1979 or early 1980, is critical to the reliability of the MAAC region and to the ability to transfer power among MAAC, SERC, and ECAR regions.

Another example of the use made of the interconnected system is for economic exchange of power. In 1976, MAAC region purchased a total of 7.5 million Mwh of economy energy from neighboring regions which amounted to 4.7% of its total energy requirements. This exchange saved dollars—and oil.

Interconnections are absolutely essential to the continued reliable operation of the interconnected system. Failure to obtain necessary regulatory permits to build interconnections will and has resulted in the uneconomic operation of power systems. Several

examples of key transmission line delays and the consequences are:

1) Elroy-Hosensack 500-kV line (Pennsylvania) originally scheduled for operation June 1974, permits not received to date because of condemnation proceedings before Pennsylvania Public Utility Commission. Eastern MAAC area ability to import power is restricted.

2) Keeney-Salem 500-kV line (Delaware-New Jersey) originally scheduled for the spring of 1971; delayed to fall of 1977 because of the delay in receiving permit for Delaware River crossing. Customers in Delaware and New Jersey have been subjected to unnecessary outages. Frequent operation of uneconomic oil-fired generation has been required to provide local area protection.

3) Greenlee-Hidalgo 345-kV line (New Mexico) originally scheduled for 1976, delayed to 1977 because of controversy over route alignments and federal processing of Bureau of Land Management Environmental Impact Statement. Deterioration of system resulted in numerous load shedding instances in 1976.

As indicated, the major cause of delay has been the inability to obtain timely regulatory approvals. Utilities now are allowing a minimum of 3 to 5 years for approval, acquisition of right-of-way, engineering and construction of new transmission lines. The present regulatory process may involve several agencies which are generally not constrained as to the amount of review time. Furthermore, after obtaining regulatory approval, delays in the courts or even physical intervention at the construction site may prevent completion of construction. The problem of delay can best be met by simplification and expedition of the review and approval process, with a final approval not subject to challenge.

Transmission—as in the case of any other facility—must be justified by weighing the economic and technical benefits versus the cost and environmental effect of the project. The reinforcement with EHV of the interconnections between the Florida Subregion and the rest of SERC is an example of where the completion of a 500-kV network internal to the Florida systems and internal to Georgia to satisfy local area needs is necessary to support justification of 500-kV interconnections between these two areas. Until such

strengthening of interconnections is completed neither area will be able to provide large scale assistance to the other.

The situation in ERCOT also deserves some mention. This condition has been complicated by the legal questions attending the 1976 electrical separation of certain of the ERCOT systems. Although this separation did not result in any loss of load, NERC viewed this situation as one which could have become serious. On May 4,

1977, in compliance with an order from the Texas Public Utility Commission, ERCOT was reconnected and is now operating in the integrated configuration which existed prior to the 1976 separation. The indications are that this integrated operation will be continued until a final determination is made by the regulatory and legal authorities.

An additional point of concern is a tendency to minimize the installation of transmission lines because of inability

to obtain rights-of-way, because of financial limitations, or because of designing closer to minimum reliability criteria. The result of such minimization will be to work the existing network harder and to decrease the availability of generation. Either will result in lower reliability. Utilities are urged to continue to evaluate the consequences of eliminating or delaying the construction of important transmission lines. ■

Legislative and Regulatory Issues

Conflicting and overlapping regulations and the length of the approval process are making it difficult, and may make it impossible in the future, to site new coal-fired and nuclear generating plants. Congress and the states must establish a mechanism for eliminating duplicative hearing procedures, resolving conflicts between agencies, establishing reasonable but strict time limits for action by the agencies, and obtaining final and irreversible decisions on the siting of generating plants.

If the proposed National Energy Plan is to achieve its goals of minimizing the use of oil and natural gas and increasing the use of coal while recognizing the need to continue the use of uranium as an energy source in light water reactors, the construction of new generating plants is essential. However, the lead time for licensing and constructing nuclear units has increased to between 12 and 14 years, and for coal-fired plants it has increased to 7 to 10 years. This increase is due primarily to the lengthened process for certification and licensing rather than engineering and construction. Several reasons have emerged to account for this increase.

At the state level the regulatory and certification process has become increasingly fragmented by a variety of agencies, each concerned with a separate, but sometimes overlapping, aspect of the siting or construction of power plants. In addition to the Public Utility Commission, or its equivalent, there may be separate siting commissions, state environmental protection agencies, state energy commissions, and land use commissions requiring independent hearings.

In an effort to alleviate some of these difficulties, some states have passed "one-stop" siting laws. Unfortunately, this may operate so as to completely halt all approvals for new plant sites. For example, since Article VIII, 149-b of the Public Service Law of New York State was passed in 1972, the New York State Siting Board has yet to approve a single plant site application of the seven submitted.

In addition to the various state agencies, the siting of generating plants involves Federal and regional agencies such as the Corps of Engineers, Environmental Protection Agency (EPA), Nuclear Regulatory Commission (NRC), Coastal Zone Commissions, River Basin Commissions, and sometimes the Bureau of Land Management or the Federal Power Commission (FPC). The National Environmental Protection Act has conferred on these agencies responsibilities which they sometimes are not prepared to assume in a timely manner. This has led to many unreasonable delays in the approval process.

At each step in the approval process there is opportunity for intervention and challenge and the same case has to

be proved over and over again. It is not unusual for some 50 permits and approvals to be required for a single plant. The sum total of this chain of approvals adds years to the lead time for new plants, and can cause delays which adversely affect reliability and adequacy of power supply. It is recognized that government has a regulatory responsibility and has created the various regulatory agencies out of a concern that the public interest be protected. It should be of equal concern to government that its citizens be assured of an adequate supply of electric energy. The increasing lead time resulting from overlapping regulation is not only tending to bring about an inadequate supply of energy, but also is increasing the cost of this energy to all consumers. This situation calls for a review and rationalization of regulation to assure that only areas vital to the public interest are involved in the regulatory process.

The licensing of a nuclear plant, in particular, requires a multiplicity of separate permits and approvals. In many cases, the applications before a given agency must encompass not just the particular aspect of plant siting, construction, and operation for which that agency has some responsibility, but the overall impact of the project for which the license is sought. Current requirements compel the agency to consider all environmental impacts and alternatives to the facility even though it lacks authority to act on all of the factors presented. The range of environmental factors that must be considered is much broader than that agency's jurisdiction. This course of

action is needless and wasteful of time and effort.

Within the framework of a clearly defined national energy policy for the use of coal and uranium, certain steps can be taken which will speed up the licensing process. Among these are separation of site approval and plant licensing. NRC has recognized this in a new rule announced this year. A utility should be able to obtain approval of sites prior to actual use, by means of joint hearings involving all agencies having jurisdiction, in which all environmental matters would be considered. This hearing would provide a forum for all interested parties, but

after approval, matters addressed in the hearings could not be reopened later in the licensing process. Furthermore, a mechanism is required to assure that the site would remain usable for a given number of years except under the most unusual circumstances. Issues, such as need for power, should be settled outside the licensing process.

Constantly changing and increasingly rigid operating constraints for nuclear power plants is an area of deep concern. These regulations with their requisite governmental reporting are a growing burden and complication

and raise the fundamental question as to whether or not, as in the case of plant security, they are unrealistic and, in fact, counterproductive. A review and rationalization of this growing body of operating regulations by the Nuclear Regulatory Commission is in order.

The problems of nuclear licensing have grown so severe as to be specifically identified in the proposed National Energy Plan. The industry welcomes a review of this process and stands ready to work with government toward a prompt resolution of the problem. ■

Financial Considerations

The difficulties of electric utilities to finance new generating and transmission facilities is a continuing constraint which will adversely affect the reliability and adequacy of power supply in the United States with its resultant impact on economic welfare. State and Federal regulatory agencies must accept their responsibility to assure the financial integrity of utilities through prompt and adequate rate relief, thereby permitting the construction of vital electric power supply facilities for the future.

Due to the capital intensive nature of the electric utility industry, some \$250-300 billion will be required over the next ten years to finance the construction of new facilities to provide an acceptable level of reliability and adequacy. The competition for capital in the financial marketplace and the resultant higher costs of financing, escalating construction and operation costs, and the added costs of environmental protection are among the most serious problems faced by the industry. Also adding to the utilities' financial problems is that with the extremely long lead times now prevalent, they must commit money for new generating plants not knowing when they will be able to begin earning a return on the investment.

There has been some improvement

during the last year in that some state commissions have provided reasonable levels of rate relief. In other cases, only an apparent improvement has been achieved, due as much from cutbacks in construction programs as from any rate relief provided. A number of commissions have taken the position that their primary function is to keep the present day cost of electricity to the consumer as low as possible, regardless of the financial impact on the utilities and to the exclusion of their responsibility for future energy cost to the consumer or the adequacy of future electric power supply.

In many cases, interest coverage ratios are inadequate to permit further debt financing. Also, the common stocks of many electric utilities are selling at or below book value. This ham-

pers not only the raising of equity capital but oftentimes may foreclose debt financing.

Some of the regions have indicated that some utilities are being forced to plan to install only that generating capacity for which they have been able to arrange financing. Thus, the financial problem is a major reason for assuming declining reserve levels as discussed previously in this report. If timely and adequate rate relief is not provided, there will, of necessity, be delays in bringing generating units into service or cancellations of units, leading to potentially disastrous low margins of generating reserves. In some cases, the effects of delays and cancellations will be reflected beyond the ten-year period examined in this report. ■

PEAK LOADS — MW (SUMMER)

REGION	1976 (Actual)	1977	1978	1979	1980	1981
ECAR	53,396	59,124	62,759	66,441	70,448	74,425
ERCOT	25,330	27,200	28,834	30,532	32,321	34,511
MAAC	29,264	32,650	34,200	35,780	37,400	39,050
MAIN	30,510	33,614	35,646	37,805	39,999	42,239
MARCA	14,938	17,478	18,727	20,030	21,501	23,036
NPCC (U.S.)	32,614	35,470	37,053	38,770	40,520	42,224
SERC	75,116	82,022	88,481	95,118	101,841	108,201
SPP	33,764	37,090	39,851	42,539	45,782	48,753
WSCC (U.S.)	65,004	69,937	74,477	78,555	83,128	87,492
NERC (U.S.)	359,936	394,595	420,028	445,570	472,940	499,931
NPCC (Canada)	12,783	13,835	14,920	15,861	16,891	17,932
WSCC (Canada)	3,717	3,910	4,221	4,707	5,206	5,688
NERC (Total)	376,436	412,340	439,169	466,138	495,037	523,551

REGION	1982	1983	1984	1985	1986
ECAR	78,641	82,982	87,656	92,519	97,630
ERCOT	36,576	38,556	41,003	43,099	45,303
MAAC	40,730	42,450	44,230	46,030	47,810
MAIN	44,647	47,211	49,974	52,836	55,829
MARCA	24,537	25,995	27,467	29,048	30,579
NPCC (U.S.)	43,977	45,950	48,091	50,140	52,289
SERC	114,482	120,889	127,677	134,564	141,998
SPP	52,222	55,994	59,956	64,147	68,590
WSCC (U.S.)	91,764	96,238	100,753	105,909	110,705
NERC (U.S.)	527,576	556,265	586,807	618,292	650,733
NPCC (Canada)	19,060	20,371	21,771	23,267	24,858
WSCC (Canada)	6,078	6,497	6,947	7,445	8,010
NERC (Total)	552,714	583,133	615,525	649,004	683,601

PLANNED I.L. (M)

REGION	1976 (Actual)	1977	1978	1979	1980	1981
ECAK	72,610	75,851	81,039	85,042	86,833	91,839
ERCOT	33,605	35,459	38,147	40,094	41,653	44,668
MAAC	41,636	44,518	45,717	47,232	47,197	49,443
MAIN	39,158	40,612	43,196	44,606	46,413	50,063
MARCA	20,031	21,265	22,821	24,145	25,776	28,357
NPCC (U.S.)	48,872	50,544	51,667	53,142	53,772	54,447
SERC	97,308	104,764	110,294	117,853	125,241	129,569
SPP	43,158	46,131	49,189	50,471	54,974	58,029
WSCC (U.S.)	<u>86,305</u>	<u>91,506</u>	<u>97,602</u>	<u>103,123</u>	<u>109,095</u>	<u>112,926</u>
NERC (U.S.)	482,683	510,650	539,672	565,108	590,954	619,341
NPCC (Canada)	20,040	22,441	24,203	25,379	25,517	26,630
WSCC (Canada)	<u>6,204</u>	<u>7,582</u>	<u>7,990</u>	<u>8,062</u>	<u>8,641</u>	<u>8,991</u>
NERC (Total)	508,927	540,671	571,865	599,149	625,112	654,962

REGION	1982	1983	1984	1985	1986
ECAR	98,300	104,778	108,539	111,702	115,981
ERCOT	47,255	49,156	51,588	54,180	55,179
MAAC	50,449	54,149	56,125	58,523	61,382
MAIN	53,552	57,323	59,543	60,968	64,315
MARCA	28,888	30,769	31,929	34,386	35,471
NPCC (U.S.)	56,896	56,942	61,963	63,636	64,325
SERC	134,625	144,356	156,055	164,156	171,889
SPP	62,057	66,213	71,642	75,753	80,094
WSCC (U.S.)	<u>119,746</u>	<u>124,309</u>	<u>131,620</u>	<u>136,630</u>	<u>143,649</u>
NERC (U.S.)	651,768	687,995	729,004	759,934	792,285
NPCC (Canada)	28,269	30,446	32,299	33,209	35,963
WSCC (Canada)	9,091	10,991	11,488	11,988	12,488
NERC (Total)	689,128	729,432	772,791	805,131	840,736

*NOTE: These resource data include scheduled purchases/sales (net) and generating capacity existing, presently under construction, and that which is in various stages of planning. The completion of this capacity is subject to the timely receipt of appropriate approvals of permits and licenses and the continued financial capability of the systems.

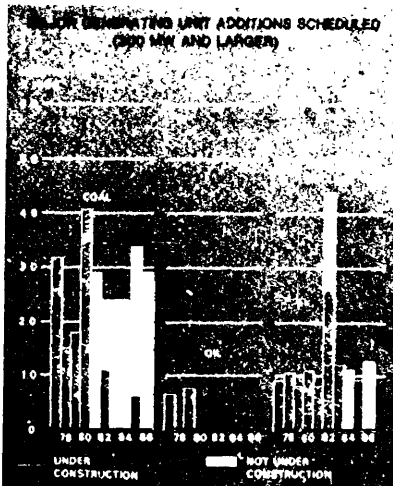
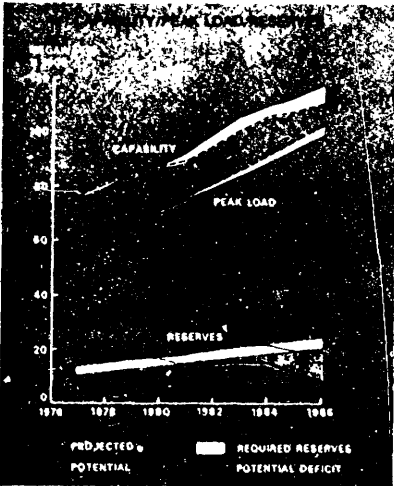
EXISTING AND PLANNED GENERATING CAPABILITY

	Steam Turbines			Combustion Turbine	Combined Cycle	Nuclear	Hydro	Pump Storage	Other ^{b/}	Total
	Coal	Oil	Gas							
1976 TOTAL - MW (ACTUAL)										
ECAR	62,620	4,402	92	3,495	568	2,187	550	2,697	0	76,651
ERCOT	2,360	0	30,013	1,011	715	0	318	0	0	34,417
MAAC	14,057	12,985	0	7,941	120	4,298	941	1,286	50	41,678
MAIN	26,014	1,893	95	3,290	0	6,564	573	924	0	39,353
MARCA	9,964	628	235	2,492	72	3,719	3,086	0	0	20,196
NPCC	3,737	24,843	54	5,220	0	7,686	5,237	2,631	7	49,408
SEPC	51,936	16,133	640	10,402	348	10,647	8,945	660	7	99,718
SPP	5,084	8,067	23,504	2,068	873	836	2,283	260	59	43,034
WSCC	<u>15,564</u>	<u>23,886</u>	<u>2,121</u>	<u>4,497</u>	<u>846</u>	<u>3,383</u>	<u>37,523</u>	<u>3,411</u>	<u>765</u>	<u>89,996</u>
NERC	191,336	92,837	56,754	40,416	3,542	39,320	59,456	9,869	881	494,461
<hr/>										
1981 TOTAL - MW										
ECAR	76,154	5,921	92	3,495	568	6,723	590	2,797	0	96,340
ERCOT	10,711	1,797	28,688	1,011	715	2,400	350	0	0	45,672
MAAC	14,730	14,861	0	8,040	246	9,333	957	1,286	0	49,453
MAIN	30,754	4,808	78	4,294	0	11,435	573	924	0	52,866
MARCA	17,704	600	170	3,064	176	3,719	2,742	0	0	28,175
NPCC	4,035	26,966	54	5,361	189	8,688	5,235	2,631	32	53,191
SEPC	58,585	19,052	142	11,357	796	27,928	9,850	2,803	0	130,513
SPP	15,954	10,151	20,754	3,469	1,173	4,108	2,580	260	109	58,558
WSCC	<u>24,735</u>	<u>24,001</u>	<u>2,011</u>	<u>5,615</u>	<u>3,461</u>	<u>8,601</u>	<u>42,333</u>	<u>3,710</u>	<u>1,497</u>	<u>115,964</u>
NERC	251,362	108,157	51,989	45,706	7,324	82,935	65,210	14,411	1,638	630,732
<hr/>										
1986 TOTAL - MW										
ECAR	88,101	5,696	92	3,560	560	15,925	590	3,797	1,000	119,325
ERCOT	18,999	5,700	22,927	1,011	715	6,000	350	0	0	55,702
MAAC	16,989	14,845	0	8,717	246	19,235	957	1,286	400	62,675
MAIN	37,297	3,878	78	6,027	0	17,294	573	612	420	66,179
MARCA	21,422	572	161	3,087	176	7,106	2,732	0	0	35,256
NPCC	5,337	26,395	54	5,435	419	16,633	5,329	3,631	32	63,265
SEPC	74,574	18,770	135	11,202	1,178	49,677	10,655	4,823	770	171,784
SPP	30,384	12,081	17,601	5,254	1,223	9,888	2,580	260	377	79,648
WSCC	<u>32,978</u>	<u>23,539</u>	<u>2,011</u>	<u>5,864</u>	<u>6,351</u>	<u>22,021</u>	<u>43,870</u>	<u>4,012</u>	<u>2,935</u>	<u>143,581</u>
NERC	326,081	111,476	43,059	50,157	10,876	163,779	67,636	18,421	5,934	797,415

a/ Net generating capability (excluding purchases/sales) anticipated at end of calendar year; ratings based on season of regional peak.

b/ Includes diesel, geothermal, and undesignated fuel type.

c/ Includes Hanford (850 MW). Hanford is not considered a firm for peaking and is not included in the projected capability data for 1981 and 1986.

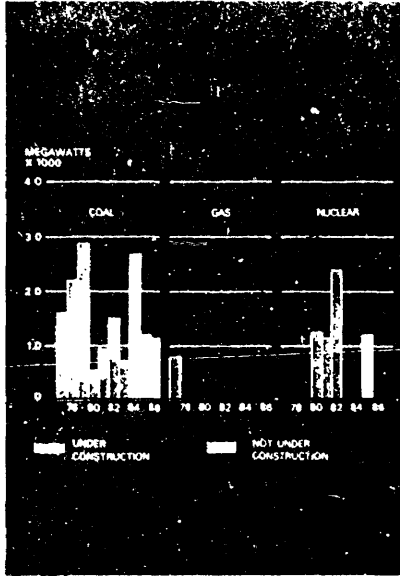
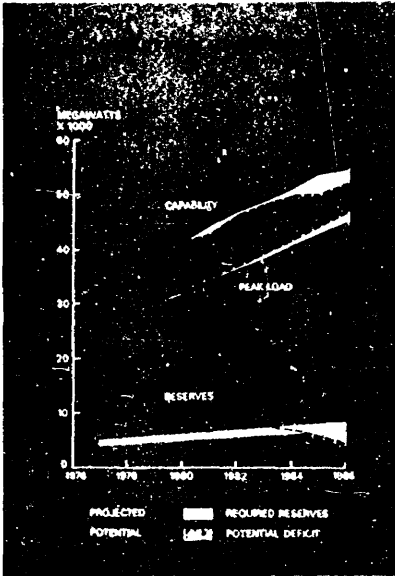


VOLTAGE (KV)	EXISTING (12/77)	UNDER CONSTRUCTION COMMITTED OR PLANNED	TOTAL (12/31/86)
230	782	425	1187
345	8741	4285	13006
500	705	327	1032
766	1330	1850	3180

ECAR	2300+	8000+	MAAC
	2080	4000	
ECAR	2300	3500	MAIN
	4000+	8500+	
ECAR	1200	1650	NPCC
	2300	3200	
ECAR	3000+	SERC (TVAI)	
	1500		
ECAR	1650	SERC (VACARI)	
	2200		
ECAR	3600	SERC-	
	4500+		

ERCOT

Appendix B.2



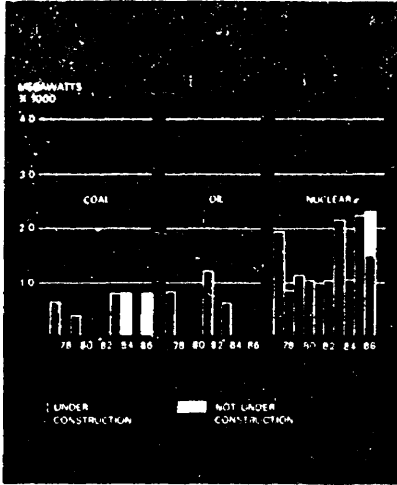
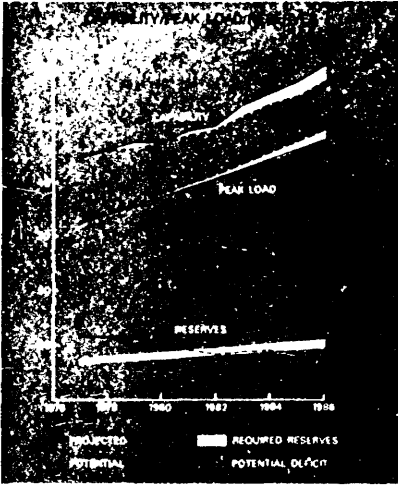
VOLTAGE (KV)	EXISTING (1/1/77)	UNDER ^a CONSTRUCTION COMMITTED OR PLANNED	TOTAL (12/31/86)
230	—	159	159
345	3413	833	4246

^a COMPLETE DATA NOT AVAILABLE AT THIS TIME FOR THE FULL TEN YEAR PERIOD



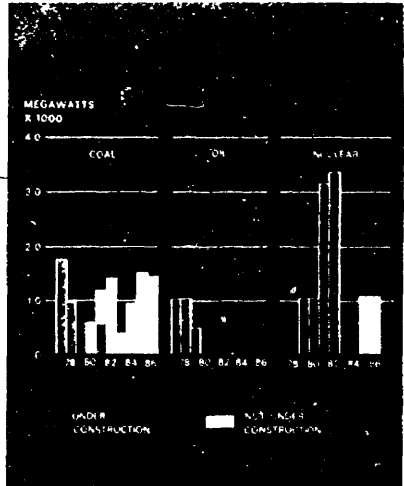
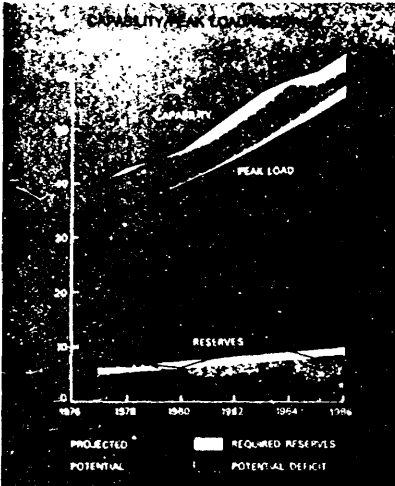
MAAC

Appendix B.3



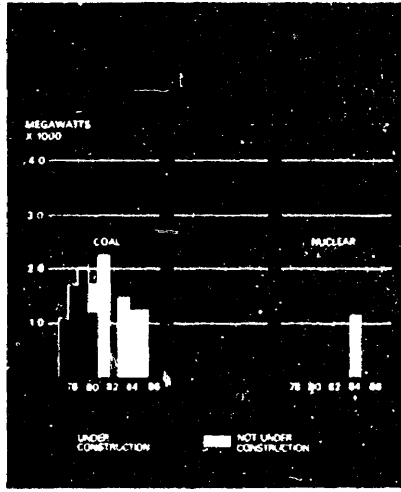
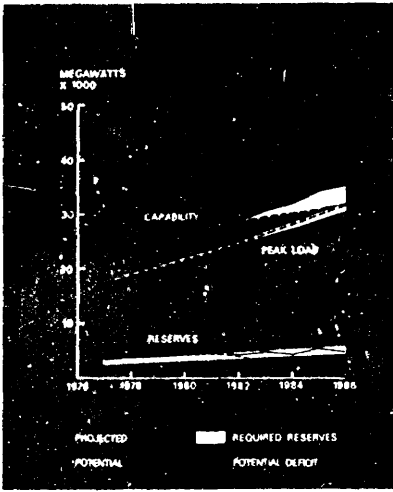
VOLTAGE (KV)	UNDER CONSTRUCTION COMMITTED OR PLANNED		
	EXISTING (1/77)		TOTAL (12/31/88)
330	4235	712	4947
345	180	12	192
500	1150	554	1704

MAAC	2050	4000	ECAR
	3100+	5000+	
MAAC	1041	4000	SERC
	1457	4500+	
MAAC	750	NPCC (NEW YORK)	
	850		
MAAC	1500	NPCC (ONTARIO)	
	2200		
MAAC	1500	NPCC	
	3000		

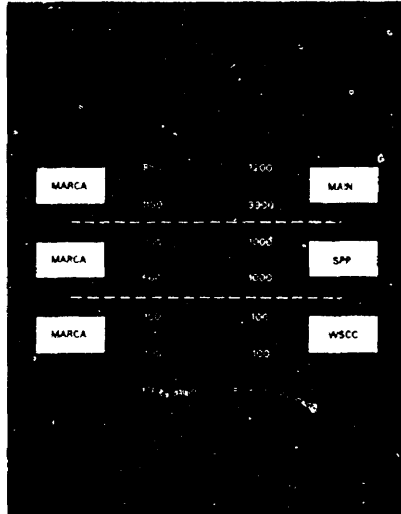


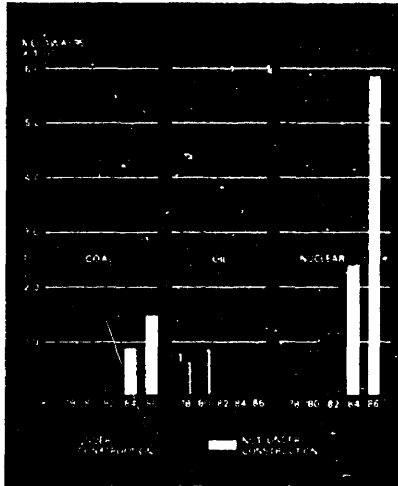
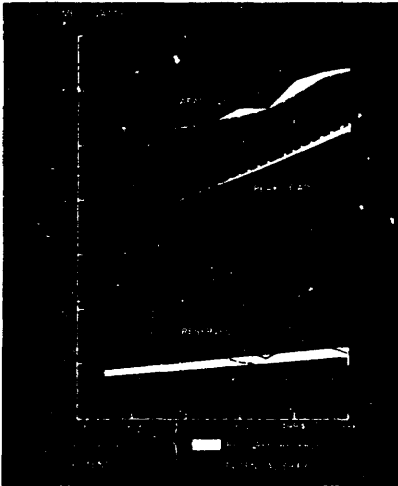
VOLTAGE (KV)	EXISTING (1/1/77)	UNDER CONSTRUCTION COMMITTED OR PLANNED	TOTAL (12/31/86)
230	239	7	241
345	4460	2771	7231
500		40	40
765	90	45	135

MAIN	4000	5500	ECAR
MAIN	3500	3500	MARCA
MAIN	1150	3900	SERC
MAIN	850	1200	SPP
MAIN	7300	5300	
MAIN	2250	3260	
MAIN	1400	3500	
MAIN	1100	4100	

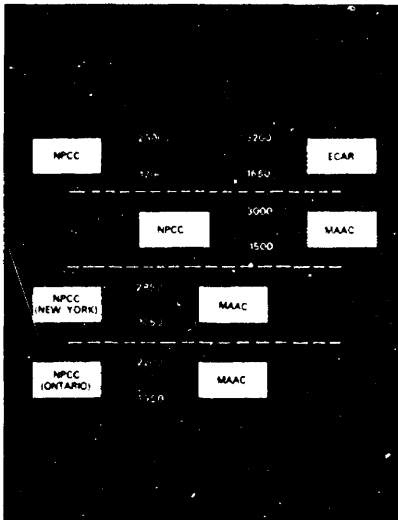


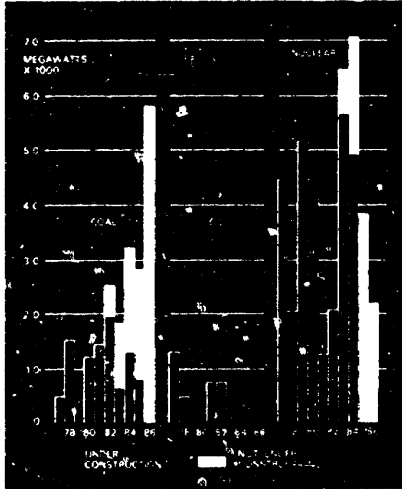
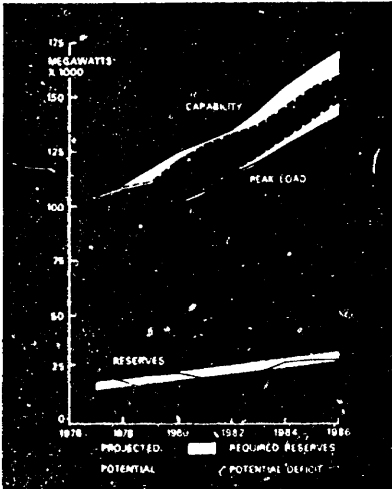
VOLTAGE KV	EXISTING (1/1/77)	ENTER CONSTRUCTION COMPLETED OR PLANNED	TOTAL (12/31/86)
230	6192	70	7088
345	2550	303	5853
500	—	570	570
250 (HUBCH)	—	516	456
250 (HUBCH)	—	51	417



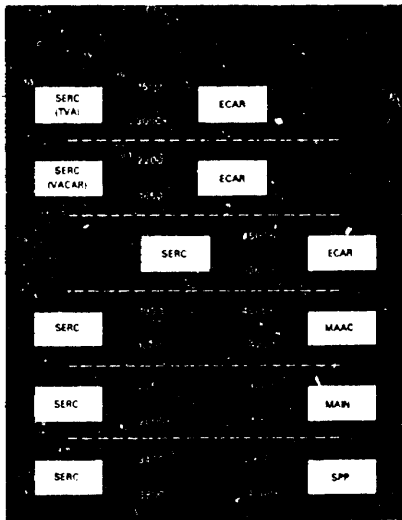


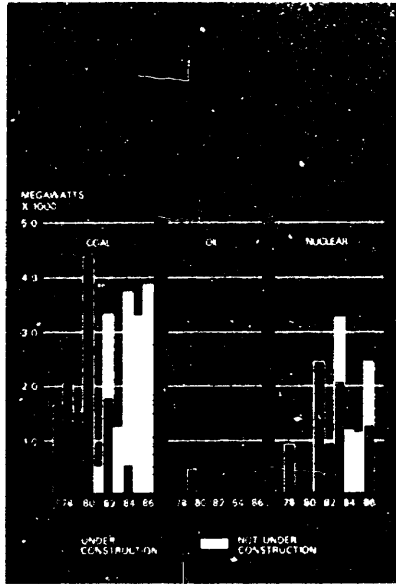
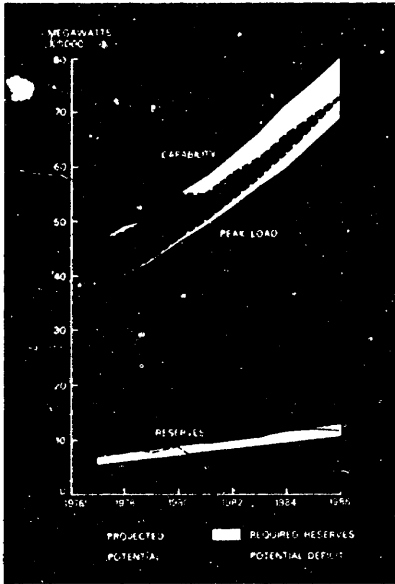
EXISTING (1/1/77)	NEW WATER CONSTRUCTION (12/31/88)	TOTAL (12/31/88)
7877		8294
--		
3240	2243	5483
850		1936
94		529





VOLTAGE (KV)	EXISTING (11/77)	UNDER CONSTRUCTION, COMPLETED OR PLANNED	TOTAL (12/31/86)
230	15125	6563	21688
500	3654	3567	7221



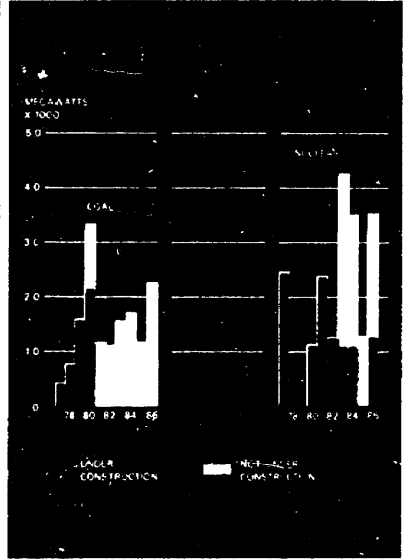
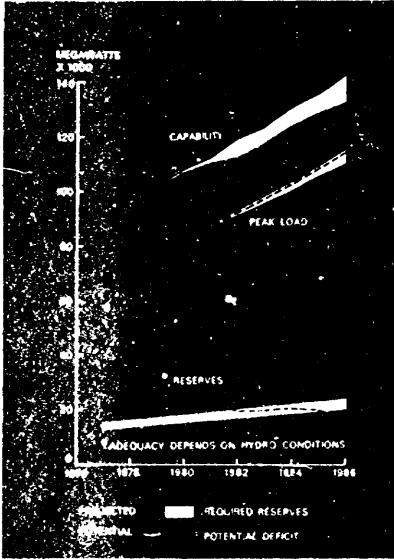


VOLTAGE (kV)	EXISTING (11/77)	UNDER CONSTRUCTION COMPLETED OR PLANNED	TOTAL (12/31/86)
330	2709	2156	5365
345	1645	2054	3939
500	1383	712	2065

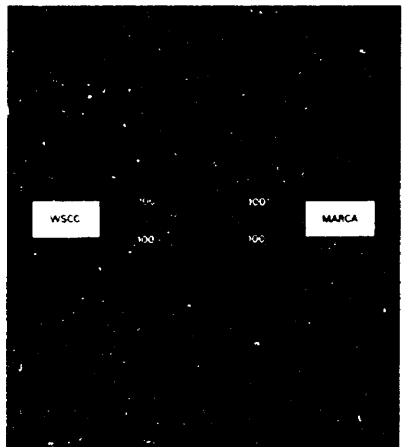
SPP	2300	4100	MADN
	1400	3500	

SPP	800	1000	MARCA
	700	1000	

SPP	3900	4300	SERC
	2400	2900	



PLANT	UNDER CONSTRUCTION COMMITTED OR PLANNED		TOTAL (12/31/88)
	EXISTING (1/1/77)		
COAL	28291	3143	31434
NATURAL GAS	5509	5225	10734
HYDRO	8143	7738	15879
NUCLEAR	30	30	80
OTHER	844		844
TOTAL		1590	1590





**NATIONAL
ELECTRIC
RELIABILITY
COUNCIL**

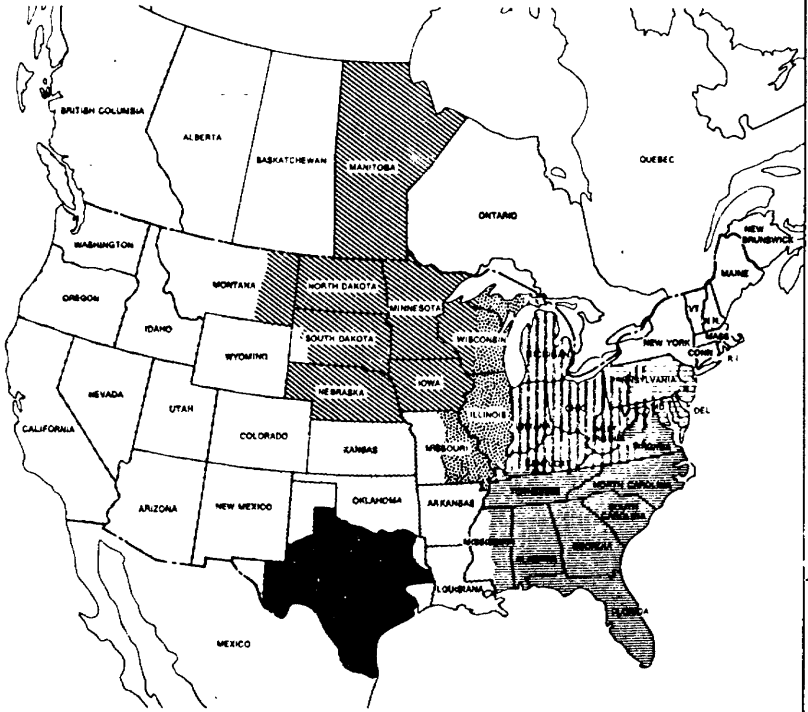
FOSSIL
and
NUCLEAR
FUEL










for
ELECTRIC UTILITY GENERATION
REQUIREMENTS and CONSTRAINTS

1977-1986

August 1977

NATIONAL ELECTRIC RELIABILITY COUNCIL



- | | | |
|--|--|---|
|  ECAR East Central Area Reliability Coordination Agreement |  MAIN Mid America Interpool Network |  BERC Southeastern Electric Reliability Council |
|  ERCOT Electric Reliability Council of Texas |  MARCA Mid Continent Area Reliability Coordination Agreement |  SPP Southwest Power Pool |
|  MAAC Mid Atlantic Area Council |  NPPC Northeast Power Coordinating Council |  WSCC Western Systems Coordinating Council |

The National Electric Reliability Council (NERC) was formed in 1968 with the stated purpose: "... further to augment the reliability and adequacy of bulk power supply in the electric utility systems of North America." It consists of nine Regional Reliability Councils and encompasses essentially all of the power systems of the United States and the Canadian systems in Ontario, British Columbia, Manitoba and New Brunswick.



**NATIONAL
ELECTRIC
RELIABILITY
COUNCIL**

FOSSIL
and
NUCLEAR
FUEL

for
ELECTRIC UTILITY GENERATION
REQUIREMENTS and CONSTRAINTS

1977-1986

August 1977

SUMMARY AND CONCLUSIONS

Electricity as a secondary source of energy depends for its production on primary fuel resources, both fossil and nuclear. The generation of electric energy requires about 29% of the nation's overall energy usage. This is expected to approach 40% by the year 1986. A dependable and assured primary fuel supply is, therefore, vital to the adequate and reliable production of electric energy in the future.

The National Electric Reliability Council (NERC) has again surveyed the fuel requirements for the production of electricity in the United States during the next ten years. The results of the survey relative to principal energy sources, as shown on Figure 1, are:

- Coal-fired generation is projected to continue to maintain its commanding role in electric power supply, averaging about 47% over the period 1977-1986. This will nearly double coal requirements from 481 million tons in 1977 to 879 million tons in 1986.
- Nuclear generation is projected to increase its contribution to electric energy production from about 13% in 1977 to 28% in 1986, which results in nearly a four-fold increase in absolute quantity.
- Oil-fired generation is projected to hold its proportionate role at about 17% from 1977 through 1982 and then decrease to less than 15% by 1986. In absolute quantities, the consumption of oil will rise from 631 million barrels in 1977 to 878 million barrels in 1986, with the bulk of this increase occurring by 1982. Much of this increase will be to replace natural gas.
- Gas-fired generation will decline by 58% over the same ten-year period from 2.6 billion MCF to 1.1 billion MCF, its proportion, however, decreasing from about 12% to 3%.
- Hydro generation will supply a decreasing proportion of electric power's needs, dropping from about 11% to 7% by 1986.

These fuel requirements, to a

large extent, are already determined by power plant construction decisions made in the past, with approximately 80% of all new base-load generating capacity to be added by 1986 now under construction (Figure 2). The need for early commitment results from the growing lead times—caused largely by lengthy procedures for securing the numerous regulatory approvals—which are reported to have reached in some instances as much as ten years for coal-fired plants and as much as fourteen years for nuclear

plants. The total generating capacity and electric generation by principal fuel sources is shown on Figure 3.

Last year's report by NERC¹ on "Fossil and Nuclear Fuel for Electric Utility Generation, 1976-1985," focused on the many constraints which faced the electric power industry in its search for an adequate fuel supply. It was pointed out in that report that most of the key constraints could be relieved only by legislative action or governmental

Issued by NERC in June 1976.

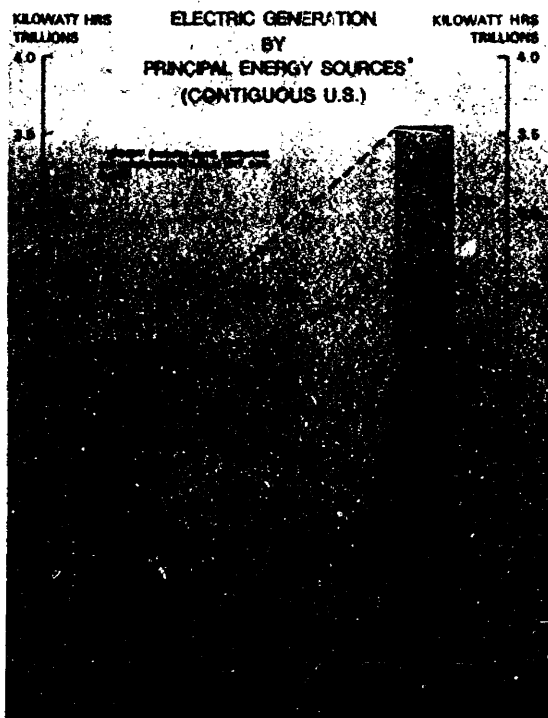


Figure 1

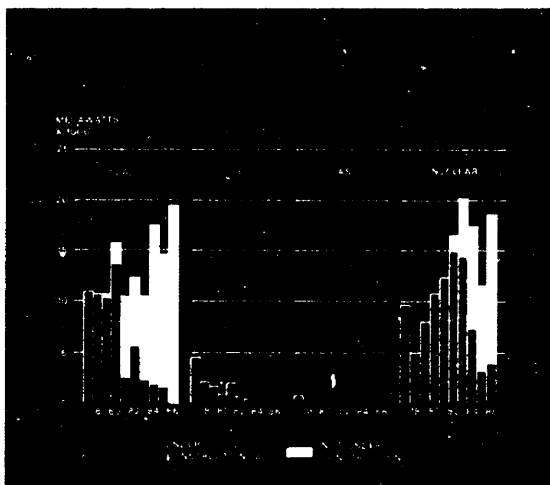


Figure 2

administrative decisions. The Federal Administration has now released its proposed National Energy Plan (NEP) which currently is being debated in the Congress. While there is no way to predict the specifics of the ultimate legislative program that will constitute the nation's guide to the supply of its future energy needs, it is both timely and important that the power industry relate its projected needs to the National Energy Plan, as presently set forth. It is also vitally essential that these needs be once again related to the constraints which threaten the future adequacy of electric power supply.

In summary, the following constraints threaten the power industry's ability to secure adequate quantities of fuel and thus the assurance of an adequate and reliable power supply:

- A complete inability to meet the coal needs of the nation without rapid and extensive action to expand the Western coal fields
- The adverse effects on coal production by the Federal Surface Mining legislation
- An impossible demand on the

utilities by NEP to use scrubbers as the "Best Available Control Technology" (BACT) on all future coal-fired power stations, and legislative and

administrative trends toward more restrictive air quality standards

- A bottleneck in railway and river channel transportation of coal, together with the lack of legislation to permit the building of slurry pipelines
- A slowdown in the installation of light-water reactors due largely to the vastly extended licensing procedures and the Administration's ambivalence toward nuclear power, together with the hiatus in commitment toward the breeder reactor for longer-term needs and in the reprocessing of spent fuel
- Regulations affecting the use of oil and gas as boiler fuels in existing plants with gas phased out completely after 1990 (NEP) ²

All the above constraints raise serious questions concerning the availability of fuel to power the nation's electric generating stations in the future. These constraints and their implications are discussed in greater detail in the following sections of this report. ■

² It should be noted that the last gas-fired generating unit became operational this year with the last scheduled base load steam turbine unit currently planned for 1983.



Figure 3

COAL FOR ELECTRIC GENERATION

Coal Requirements

Coal has been—and will continue to be—the principal fuel for the production of electrical energy in the United States for the next ten years. In 1976, coal-fired stations, representing 40% of total installed generating capacity, produced some 47% of all electric energy.

Utility usage of coal in 1976 totaled 434 million tons or 65% of the 665 million tons produced. For 1977, approximately 481 million tons of coal is forecasted for utility use, an increase of 47 million tons over 1976. However, recent forecasts of the National Coal Association project this year's coal production at 665 million tons, the same as last year. Overall coal requirements for 1977 have been projected at 698 million tons, leaving a potential shortfall of 33 million tons to come from stockpiles.

Consumption of coal for electricity production has been projected to increase by 445 million tons during the ten-year period, 1977–1986, reaching a level of 879 million tons by 1986. Figure 4. Combined with other demands for coal, this would indicate an overall 1986 requirement of close to 1,300 million tons. These figures compare with the proposed NEP¹ projections of 779 million tons for the utility sector and a corresponding amount of 1,265 million tons for overall requirements, by 1985.

The utilities' coal needs for the next decade, 1977–1986, are predicated on a 5.7% annual compound growth rate for electric energy and the addition of some 134,000 MW of coal-fired generating units (almost 45% of all new power plant additions) over the decade. This information is documented on a regional basis in the Appendices and shows that about 317 million tons of the estimated additional 445 million tons is projected as coming from Western coal fields (both lignite and steam coals) with 128 million tons coming from the eastern (Appalachian) and mid-western coal provinces.

The coal production goal of the NEP¹ is not too high, rather it is too

low. The power industry's own projection for 1986 assumes that the construction of the projected coal-fired plants is realized. Should this not be the case, coal's consumption will be reduced, but given the probable shortfall of nuclear generation as well as the critical supply of oil and natural gas, the demand on such coal-fired generation—as is built—will be increased.

Coal Availability

Increasing coal production to anywhere near 1,300 million tons by 1986 is impossible unless drastic changes are made in several areas of federal law and in the present posture of the Administration and the Congress regarding coal's use. Even with such changes, the doubling of coal production in ten years will be an exceedingly difficult task.

The coal industry has added on the average no more than 10 million tons of new coal-mining capacity per year over the past 25 years. The average increase in production from 1960 to

1976 was 2.6% per year. Expanding coal production by about 662 million tons over the next ten years would require on the average 66 million tons per year of new production, plus some 13–15 million tons per year to replace depleted mines. This results in a far greater expansion than has ever been achieved by the coal industry.²

A coal industry survey has indicated planned additions to production of 500 million tons of coal-mining capacity by 1986.³ But plans and realization are two different things, often worlds apart. The latter report also refers to a substantial portion of the 1985 tonnage as already being under contract. However, experience has indicated a wide degree of variation in the degree of firmness of such contracts and the extreme difficulty in making new ones. All plans or intentions, particularly when dealing with a subject of such vital importance, must be measured against the many variables and uncertainties confronting coal mining and coal burning.

¹ Peter Gamber, "The Coal Challenge," *World Resources*, Vol. 1, No. 1, March 1977, 1, cited in *Energy*, June 1, 1977, page 73.

² National Coal Association, letter to the President, May 11, 1977, page 6.

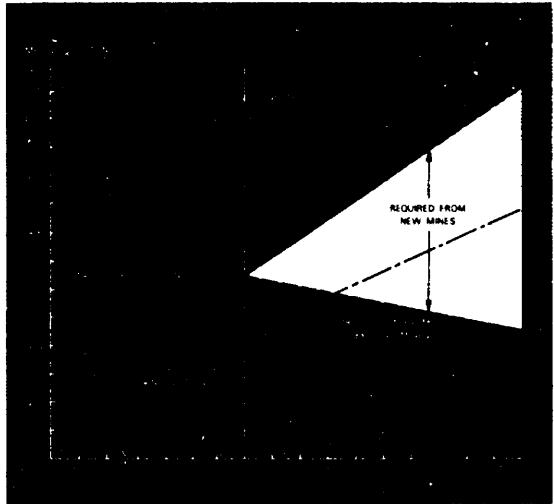


Figure 4

³ As cited by the Director of Energy Office, State Department, Staff Paper, "Expanding Coal and Gas with Coal and Other Fuels in the National and Utility Sectors."

The rate of expansion in coal production historically has reflected the relatively low productivity of underground mines which are very labor intensive. Also, the total production of an underground mine cannot be increased beyond a certain point merely by adding men and equipment. Underground mining was characterized by a continuing improvement in productivity from 5.5 tons per man-day in 1947 to 15.6 tons per man-day in 1969. Since then, however, productivity has steadily decreased reaching a level of 8.5 tons per man-day in 1976. During the period of rising productivity the number of people employed in the coal mines decreased appreciably. In recent years with declining productivity, the number of workers has steadily increased.

Productivity in surface mining consistently has been vastly superior to that of deep mines. In 1976, average productivity was 26 tons per man-day, versus the 8.5 tons per man-day in underground mines. In some large surface mines, 150 tons per man-day may be expected. The recovery factors for surface mining are generally above 80% and may reach 90% in large western mines. Recovery in underground mines averages approximately 50%. Finally, very little—if any—strippable coal reserves can be mined by underground methods.

If the goals for coal production and utilization are to be met by either the proposed NEP or the power industry's own projections, surface mining must play a major role. Hence, the leasing of Federal reserves in areas of high-volume surface mining in the West offers the best, and probably only, means of expanding production quickly enough to meet the coal needs of the nation.

Coal Constraints

The NEP as it relates to coal development says, "Full utilization of America's coal resources has been hindered principally by constraints on demand rather than by lack of supply" and "the coal industry can expand production significantly." On this basis, the plan assumes that there will be no difficulty producing greatly increased amounts of coal and hence, the nation can have a program heavily weighted in favor of environmental restraints on both coal production and

use. Also, it is assumed that the "constraints on demand" will be removed by forcing utilities to burn coal, particularly high-sulfur coal, by the use of BACT (the Best Available Control Technology).

Such constraints on demand, however, have been largely the result of Federal law and regulations, which have made it difficult, and in many cases impossible, to use coal. Federal law has also constrained supply, supply in terms of coal mined and on top of the ground.

Constraints on the mining and burning of coal are being increased at the same time that the Administration and Congress are urging the use of coal to combat the energy shortage which the President has rightly compared to a "national crisis that otherwise could overwhelm us."

The major constraints on coal's supply and demand are reiterated below:

Air Quality Requirements. The Clean Air Act and its implementation has created great uncertainty among both coal producers and users. Recent amendments to the Act add to this uncertainty and will deter the use of coal. They will impact especially hard on decision-making regarding coal's production or use over the next few critical years. Without such decisions, the necessary capital commitments for coal's expansion—estimated at \$25 billion⁴ over the next half-dozen or so years—will not be made.

The use of BACT (scrubbers) is a further obstacle to the use of coal, representing as it does a staggering expenditure of some \$20 billion for all new coal-fired plants to be installed during the next decade. Existing plants would present formidable problems of cost, space, and time out of service, all this on the basis of a still unproven technology for utility applications, and with disregard to full cost/benefit analyses.

The Congressional Office of Technology Assessment has recently pointed out that the installation of a short-term technology such as scrubbers, may hinder the development of a long-term technology to burn fuel cleanly. It also recommended that greater research be undertaken to determine the pollutants to be controlled and the extent of such control.

Federal Leasing. The coal needs of the utilities—and indeed of the nation—cannot be met without rapid and extensive Federal action to expand the Western coal fields. The leasing of new Federal reserves would give the best, and probably only, opportunity for expanding production relatively quickly. It would also provide the opportunity for a planned expansion that the Federal government could monitor effectively and in some measure control.

The Department of Interior promulgated comprehensive new regulations in 1976 governing Federal coal leasing, calling for a new system, i.e., the Energy Minerals Activity Recommendation System (EMARS). However, this procedure is now under review and the present focus of the Administration appears to be to compel production from existing non-producing leases and to rely on additions to existing producing leases. "Interior is convinced that new leasing in the West won't be needed for several years."

Although surface mines generally require less time for development than deep mines, four years will probably be needed to get a large mine into production. This, together with the fact that delays due to environmentally-oriented litigation must be expected, makes it essential that the Federal government resume leasing at the earliest opportunity. Only in this way can the nation's coal needs be met.

Federal Surface Mining Legislation. A Federal surface mining bill has now been passed by the Congress and enacted into law. The extent of its impact remains to be seen but, without doubt, it will substantially reduce the amount of coal that could otherwise be recovered and will delay the opening of new mines and the expansion of existing mines. The proportion of surface-mined coal to all coal mined has steadily risen over the past several years, reaching a level of 56% in 1976. This is the result of the higher productivity of surface mining compared to underground mining, the increased depletion of choice eastern underground mines, the opening of large new surface mines in the West, the development of large-volume earth-moving equipment and the

⁴ Wall Street Journal, June 8, 1977, page 1.

⁵ Coal Week, Vol. 3, No. 20, May 21, 1977.

lower relative cost of surface mining. If the goal for coal production is to be met, surface mining must play an increasingly major role.

The "Surface Mining Control and Reclamation Act of 1977" through its cumbersome procedures and generalized language creates an opportunity for almost endless delay. The "Dissenting Views" in the Congressional Committee Report indicate that "this legislation will seriously impair the ability of our nation to combat the continuing energy shortage which President Carter rightly has compared to a 'national crisis.'" The report refers to an EPA-CEQ study, performed by ICP, Incorporated, on a predecessor bill which in all essential respects was the same as the 1977 Act. This study predicted an immediate 1978 coal production loss of 54 million tons in Appalachia alone assuming the increased reclamation costs the bill imposes. The Congressional Committee Report refers to the fact that the sponsors of the bill were strangely silent since the ICP study's release on January 24, 1977. They indicate that the bill's "imprecise and undefined terms... could likely result in extensive litigation," and conclude that "there is the distinct possibility that there will be no long-term future at all for the surface mining of coal" under the terms of this bill. In conclusion, the authors of the "Dissenting Views" stated that the bill "could reduce coal production by up to 200 million tons by 1985 and remove(s) possibly eight and one-half billion tons of coal from ever being mined."

These conclusions surely present a gloomy picture for an energy-short nation which is staking its future on coal.

Coal Mine Health and Safety Legislation. The power industry supports the basic objectives of this legislation but the specific requirements of the Act and their enforcement by the Mine Enforcement and Safety Administration (MESA) have resulted in substantial reductions in coal production and coal-mining productivity without any significant improvement in safety.

Following the passage of the Act in 1969, productivity in underground mines which had been on the increase for over two decades started downward and has been on a decline ever since. Meanwhile, total production from underground mines has also

fallen below the 1969 figure. The Act created many new tasks, non-related to coal mining, so that today 15-20% of all employees in a coal mine are engaged in Act-related tasks. However, the total number of disabling injuries in bituminous coal mines per million man-hours worked has remained fairly constant since 1955.* Enforcement efforts do not seem to correlate with safety efforts.

There is a need to examine MESA's enforcement activity so as to determine if effective monitoring of compliance cannot be accomplished with less interference with production. Also, increased emphasis needs to be placed on training the individual miner and assuring that he accepts greater responsibility for his actions.

Labor Relations. Industrial anarchy has become a fact of life in the bituminous coal industry. The loss of experienced miners—resulting from many responsible workers deserting the coal industry to seek more dependable employment—is compounded by repeated disruptions of training programs for inexperienced miners.

In 1976, almost 2,000,000 man-days and 20,500,000 tons of coal were lost due to illegal strikes. The Buffalo Forge decision of the United States Supreme Court has been interpreted by the UMW union as legalizing wildcat strikes. Congressional action appears essential to provide an avenue of relief from illegal wildcat strikes.

Transportation. Coal transportation depends largely on railroads, trucks, and barges. Of the 665 million tons of coal produced in 1976, 66% moved by rail, 12% by trucks, and 11% by barges. The remainder was consumed at mine-mouth plants. Pipelines accounted for a minimal amount of total coal haulage.

Railroad transportation of coal is oftentimes beset by slow transit and turn-around times, poor track conditions, the lack of suitable equipment, unduly restrictive labor practices, financing and rate problems. A series of rail studies, ordered by the Congress and scheduled for completion by February 1978, will address many of these issues and, hopefully, offer long-range rail programs.

A major problem of concern to utilities, however, is the abandonment of rail lines necessary for coal delivery to existing and future power plants. The creation of a Rail Bank, now pending before Congress, may alleviate this condition.

Barge lines, while transporting only about 11% of the nation's current coal demand, are critically important. They reach many areas in the eastern United States. Coordinated joint rail-barge movements offer both economic improvements and can extend the areas serviced by coal. Coal barging's greatest problem is expanding the capacity of waterways. The need exists for maintaining adequate riverlock capacity.

Coal slurry pipelines have a definite role in the long-distance transportation of large volumes of Western coal to locations such as the southwestern area of the country, an area heavily committed to future coal-burning plants. The only coal pipeline now in service is in the western United States. Others cannot be built unless Congress grants powers of eminent domain to pipeline contractors. Opposition to slurry pipelines currently comes from railroads and environmentalists who oppose such legislation. Even though such legislation is passed, lengthy litigation seems inevitable.

The NEP, as amplified in reference 3, assumes that while short-term constraints to coal transportation exist, there should be no long-term constraints. It claims "that coal traffic could increase to over 900 million tons with existing facilities." It further states that "significant lead time is available to expand facilities and alleviate many of the potential bottlenecks." Inherent also is the assumption that a shift in some coal production from the West to the East, occasioned by the BACT requirement, will eliminate the eastern and mid-western markets for low-sulfur coal from distant sources.

In the final analysis, unless positive action on transportation improvement is instituted and unless it is recognized that Western coal will be required—regardless of BACT—to supply eastern and mid-western market needs, transportation will constitute a significant constraint on the use of coal. ■

*Coal Data, 1977 Edition, 1976.

NUCLEAR FUEL FOR ELECTRIC GENERATION

Nuclear Requirements

Nuclear power is projected to make the largest relative increase of all sources of generation to electric energy production in the United States during the next decade. In 1976, nuclear power plants, representing about 8% of the nation's installed generating capacity, produced 9.7% of all electric energy. By 1980, nuclear generation is expected to comprise about 12% of all power plant capacity and produce approximately 17% of all electric energy, while by 1986, these figures are projected to rise to 20.5% and approximately 28%, respectively.

Nuclear's role in fueling the electric generating plants of the nation is critical, and in fact is vital to the future adequacy of electric power supply. It cannot be displaced by coal, particularly in the light of the many difficulties already facing coal mining and coal burning. The NEP report¹ states that "The United States must continue to count on nuclear power to meet a share of its energy deficit." It speaks of an additional 75 plants by 1985 resulting in nuclear power supplying "as much as 20% of electricity supply." Table IX-1 of the same report projects nuclear power supplying some 24.5% of all electrical energy by 1985.

While this NERC report is dedicated to fuel requirements for electric generation during the next decade, 1977-1986, it is important to address the longer-term problem associated with nuclear's role in power generation technology. The Administration accepts nuclear power in terms of light-water reactors but opposes the breeder reactor based on its concern with plutonium proliferation.

Proliferation, however, is a political problem and, in the light of the international scene, requires a political solution. It has little, if anything, to do with power generation. Plutonium can be bred from the large amounts of natural uranium already spread around the world without involving power generation. Nor is plutonium the only nuclear explosive. Uranium can be enriched to bomb-grade levels using rather simple and already de-

veloped technology. None of the present nuclear weapons were developed through the use of nuclear power. The fact is, if nuclear power is to remain a source of electric generation in the longer-term future, it needs to draw on the advanced technology of the breeder, we cannot delay until the year 2000 to initiate such technology.

Nuclear Availability

The power industry's projection of nuclear generation supplying about 28% of total electricity production by 1986 is premised on having 163,500 MW of nuclear capacity in operation. This compares to some 39,000 MW of such generating plant at year-end 1976. The additional installed capacity of 124,500 MW during this ten-year period is, if anything, optimistic and exceeds most other authoritative estimates by more than 20%. While any shortfall of nuclear generation will reduce the power industry's near-term need for enriched uranium, it will only worsen the problem of an inadequate electric power supply in the early to mid-1980's. This inadequacy results from both a lack of generating capability as well as a lack of electric energy supply and accompanying fuel.

Nuclear is a base-load type of generation. It cannot be realistically substituted for by such short-term generating options as combustion turbines—an oil-dependent type of generation. To the extent that any such substitution may take place to carry the peak load demands of the consumer, other base-load capacity—such as coal-fired generation—will be called upon to provide additional amounts of electric energy. This will further exacerbate an already difficult fossil fuel supply problem.

Much has been said and written about United States uranium reserves for future nuclear plants. If nuclear generation, however, is to depend only on the fissionable U-235 content (0.7%) of uranium ore, it is doubtful that United States uranium reserves will last much beyond the end of the century. In any case, the use of lower grade ores will add to the problems associated with uranium mining.

There is a vast amount of U-238 in

uranium tailings (some 200,000 tons)—depleted of its fissionable U-235—now going to waste in storage vessels at government enrichment plants. These tailings, if used as breeder fuel, could provide large amounts of energy, estimated as equivalent to current levels of OPEC oil imports extended over 700 years.

Likewise, spent fuel rods from operating nuclear plants are now kept in cooling ponds at such plants. This in itself is a waste of energy as well as creating problems of spent fuel storage. The solution must be the reprocessing of such spent fuel with the solidification of radioactive wastes into glass-like material and their ultimate storage in underground caverns. It has been estimated that such reprocessing of spent fuel rods would reduce the requirement for uranium mining by 22.5%, if used in current light-water reactors, and to only 1% if used in breeders.

The current programs for uranium enrichment, as announced by the Federal government and now scheduled for the mid-1980's, will help meet the light-water reactor requirements of the industry for some period of time but additional enrichment capacity will be required by the later 1980's.

Nuclear Constraints

Uranium Supply. Concern over the availability of yellowcake, its rising price and the attempted abrogation of contracts for its supply are all negative factors in nuclear power plant construction. A clear-cut governmental commitment to nuclear power with a clarification of regulations on uranium exploration, development, mining, and milling would be helpful. This would be in contrast to the Administration's ambivalent attitude toward nuclear as merely a reluctant adjunct to coal-fired generation.

Uranium Enrichment. Programs have already been announced by the Federal government relative to expanding the present capabilities of its existing enrichment plants from 17.2 million separative work units (SWU) to 27.6 million SWU. In addition, the Administration has indicated its desire to build a new centrifuge uranium enrichment facility at Portsmouth, Ohio.

¹The National Energy Plan Report, April 28, 1977.

funds for this new facility are already in the proposed fiscal 1978 budget. As previously indicated, such an expansion in enrichment facilities, if realized by the mid-1980's, should be sufficient to meet the industry's fuel needs for a period of time. However, additional enrichment capacity will be required shortly thereafter, particularly if the proposed policy of nonreprocessing of spent fuel is followed.

Spent Fuel Storage. The lack of a commitment to a solution for reprocessing has created uncertainties about the future of spent fuel storage. The NEP report⁷ states that "Improved methods of storing spent fuel will enable most utilities at least to double their current storage capacity without constructing new facilities." This, however, is wasteful of energy, as previously indicated, and adds to costs. The original intent was that

spent fuel rods would only be kept in cooling ponds for a period of about three months at which time they would be transported to reprocessing plants for the extraction of the remaining fuel and the disposal of the waste materials. The lack of a commitment in this regard again results in uncertainty about a future course of action.

The Breeder. The Administration's policy to defer any United States commitment to advanced nuclear technologies that are based on the use of plutonium, as stated in the NEP report⁸, and its hope to seek a better approach to nuclear power raises serious questions about the future of nuclear technology. The plutonium breeder will permit utilizing the vast quantities of U-238 tailings and is an energy conservation measure. This is in contrast to uranium enrichment which consumes large quantities of

energy rather than producing energy and at the same time converting fertile material to fissionable fuel. The breeder, in addition to providing an energy source beyond this century, will also provide the time and assure the technical expertise to develop other types of advanced reactors, such as those dependent on thorium.

NSSS Suppliers. The current lack of orders for nuclear steam supply systems (NSSS) raises a most serious concern regarding the future of nuclear power in the United States. If the present logjam in the numerous areas referred to above, is not broken, the NSSS suppliers will vanish from the American scene and this nation will indeed face a grim future in energy supply. In such event, the difficulties to rebuild a nuclear industry will be exceedingly great. ■

OIL FOR ELECTRIC GENERATION

Oil Requirements

Oil remains a critical fuel for the production of electricity in both base-load generating plants and for combustion turbine operation for peaking purposes. In terms of electric energy production, oil-fired plants will contribute about 17% in 1977, of which 95% represents base-load installations primarily dependent on residual oil. By 1986, current projections foresee oil's contribution amounting to 14.6% of overall electricity supply.

Approximately, 26% of all generating plant capacity is currently oil-fired with 93,000 MW (18.8% of total installed generation) in base-load, steam-turbine plant and the remaining 37,000 MW in combustion turbines. By 1986, oil-fired, base-load generation is projected to increase to 112,000 MW with combustion turbines forecasted at 48,000 MW.

The electric power industry consumed approximately 555 million barrels of oil in 1976, essentially all of which was in the residual and distillate categories. On a daily basis, this averages around 1.5 million barrels, or less than 9% of overall petroleum product use. This contrasts with some 7 million barrels/day, or 40% of the total product, consumed in gasoline production.

Total United States consumption of

oil in 1976 amounted to about 17.3 million barrels/day, of which an average of approximately 7.3 million barrels/day, or 42%, was imported. Residual oil used by the power industry is largely dependent on such imports. By 1986, the power industry's dependence on residual oil will have increased from about 1.5 million barrels/day in 1976 to approximately 2.0 million barrels/day, and represents about 83% of the power industry's oil needs. Meanwhile, distillate requirements are forecasted to increase from about 0.15 million barrels/day to approximately 0.4 million barrels/day.

The great bulk of the power industry's increased need for oil in the future will occur within the next 5-6 years. In terms of residual oil—representing as it does the major portion of the power industry's total oil requirements—this increase will have occurred by 1982 and represents oil-fired units already under construction with much of the growth in demand arising from the replacement of natural gas as a boiler fuel.

As for the increase in distillate oil requirements the growth in demand reflects, in part, plans to install some 11,000 MW additional combustion turbines together with about 7,500 MW of combined-cycle plants over

the next decade. Such generation—absent the availability of gas—can burn only distillate oil. In addition, coal-fired plants require distillate oil for start-up and flame stabilization during low load operation. Distillate oil, in this regard, is essential to the use of coal as a boiler fuel.

Oil Availability

Domestic oil production in the United States peaked at 11 million barrels/day in 1970. Current domestic production is 10 million barrels/day. The nation's growing dependence on imported oil, reaching an average of 42% of all oil consumption, has been well documented. This has given rise to legitimate and very serious concerns. It is not the purpose of this report to argue for a greater dependence on oil but rather to address the power industry's needs for oil within the nation's framework of priorities, giving full recognition to the vital and far-reaching role of electric energy in the nation's economy and in the public welfare. Nor is it the purpose of this report to treat the complex issues arising from how, where, and when the nation can increase its domestic oil production.

The NEP and much of the legislative activity in the Congress, at the time of this writing, is directed toward

regulatory programs, penalty taxes and financial incentives to remove oil as a boiler fuel for utility use. The regulatory measures of the NEP would forbid oil to be used as a boiler fuel in all new power plants. The power industry, in those areas of the nation where oil heretofore has been a viable boiler plant fuel and excepting for those plants previously committed and/or under construction, has already planned and committed future generation to coal and nuclear plants.

Consumption taxes, proposed by the NEP, would levy a penalty on all oil for utility boilers beginning in 1983. This will not only increase electric energy costs to the consumer in these areas but would constitute "double jeopardy" in that much of this future oil consumption would arise from having previously converted from natural gas to oil with its attendant costs, loss of plant capability and reduction in plant availability. Finally, the financial incentive aspect of the proposed NEP would provide a tax rebate when making qualified investments in coal-fired plant for oil and natural gas. This presumably is an inducement to retire still usable plant and incur the much higher incremental cost of new coal-fired or nuclear capacity. Such a course of action is economically infeasible because the proposed fuel-consumption taxes would in no way provide an offset for the added financial burden of new plant construction.

A final aspect of oil's availability and use—as currently treated in the regulatory arena—is compulsory conversion from oil to coal as boiler fuel. Here, it needs to be re-emphasized, that only those units originally designed to use oil or coal, can be converted back to coal. And, in those instances where coal was used originally, air quality regulations, the prior removal of coal-handling facilities, the present lack of space for coal and ash storage, the inability to secure an adequate and suitable coal supply, and the financial problems associated with those factors, may well foreclose any ability to go back to coal as boiler fuel.

The FEA has issued both "notices of intent" and "prohibition orders" to utilities, under the authority of the Energy Supply and Environmental Coordination Act (ESECA) for the conversion of generating units from oil to

coal as a boiler fuel. Of the latter orders, a majority have gone to utilities in the northeastern section of the country where air quality regulations required past conversions from coal to oil. While very few "effectiveness notices," i.e. legal orders to convert, have been issued to date, future uncertainty abounds. This uncertainty is compounded by deliberations underway in the Congress regarding the use of oil in existing power plants in the future. The National Energy Act, S. 1469, as amended on June 16, 1977, would require the Administrator of the Federal Energy Administration to prohibit the use of oil in generating units which on April 20, 1977 had, or thereafter acquired, the ability to use coal and in which coal's use is technically and financially feasible as determined by FEA. While this and other exceptions to continue the use of oil may moderate the impact of such regulations, they add greatly to the future uncertainties of fuel availability for electric generation. The latter is of major significance when it is realized that fully 93,000 MW of presently operating and 112,000 MW of oil-fired, steam-turbine generating plant by 1986 is involved.

Constraints on Availability and Use of Oil

The power industry is well aware of the need to diminish its dependence on oil as a boiler fuel. This is demonstrated by the fact that the last oil-fired, steam-turbine generating unit—a unit previously committed as part of a two-unit plant where the use of oil had been necessitated by air quality regulations—will come into service in 1983. The bulk of, if not all, new base-load generating plant is projected either for coal or uranium as primary energy resources. Nevertheless, recognition must be given to the continued need for oil in existing steam-turbine generation, for peaking combustion turbines and for start-up and flame stabilization of coal-burning units. The discussion which follows deals principally with this need.

Air Quality Regulations. Air quality restrictions on the use of oil for electric generation have increased in recent years due largely to progressively severe regulations on sulfur, particulates, and NO_x. This has involved

generating units which had been designed to use either coal or residual oil depending on fuel availability or cost. The consequence of the air quality regulations was the compulsory conversion from coal to oil with constraints on sulfur content of fuel as low as 0.3%. The impact of this constraint was to greatly increase the cost of electric energy to the consumer and the industry's dependence on imported residual oil. The effects of this were felt severely during the oil embargo in late 1973 and early 1974.

The same air quality regulations, coupled with the unavailability of suitable coal, the lack of coal handling and storage facilities and excessively high costs, prevent the power industry from reconverting to coal. S. 1469 provides that no proposed order to convert from oil to coal as a primary energy source may be issued by the FEA until the Administrator of the Environmental Protection Agency notifies the FEA under the Clean Air Act that such conversion is permissible. This results in conflicting objectives within the framework of a national energy policy and, in the likely event that environmental impact statements will be required from the FEA, delays of one to two years appear inevitable.

Residual Refinery Capacity. The production of residual oil in the United States is limited, refineries are designed for optimum production of gasoline and distillates, which results in much of the coastal regions of the country being dependent on imported residual oil. This constitutes a further constraint on the nation's attempt to diminish its foreign dependency and still retain an adequate power supply.

Distillate Oil. Distillate oil fuel, use both in peaking combustion turbines and for start-up and flame stabilization of coal-fired plants is critically important. The quantities required, as previously noted, are relatively insignificant in the light of the nation's total oil requirements. Distillate's importance in electric generation bears emphasis, particularly in light of the difficulties experienced in assuring its priority in allocation during the 1973-74 oil embargo. Any mandated constraint, by law or regulation, will operate to adversely impact the reliability and adequacy of electric generation. ■

NATURAL GAS FOR ELECTRIC GENERATION

Natural Gas Requirements

Natural gas presently provides the primary fuel for about 12% of electric energy's production. Approximately 75% of this gas is supplied under firm contracts with the balance coming from interruptible arrangements. The power industry's consumption of natural gas for the year 1976 of about 2.9 billion MCF represented approximately 15% of total United States production of 19 billion MCF for that period.

By 1982, or five years hence, power industry projections indicate less than 6% of all electricity generation will be supplied by gas-fired boilers with an overall gas consumption by utilities of less than 1.7 billion MCF. By 1986, this demand is projected to reduce to less than 3% of electricity production for an overall consumption of natural gas of slightly under 1.1 billion MCF.

Gas-fired generating plants amounted to some 62,000 MW of installed capacity in 1976, or about 12.5% of the 495,000 MW of all power plants in operation at year's end in the United States. About 91% of this gas-fired generating capacity represented steam turbine plants, with the balance in combustion turbines and combined cycle installations. These plants are largely concentrated in two NERC regions, ERCOT and SPP, and are located in the States of Texas, Louisiana, Oklahoma, Arkansas, and Kansas. By 1986, gas-fired plants are projected to total about 47,000 MW or 7% of the nation's total generating plant capacity anticipated to be in operation. Gas-fired generating capacity in megawatts will be reduced over the next decade by 24%, and electricity production in megawatt-hours from such plants will be reduced by 62%. This shows the growing transition from base-load to peaking service for gas-fired units.

Constraints on Availability and Use of Natural Gas

The power industry is fully cognizant of the need to reduce its dependence on natural gas as a boiler fuel, particularly in the face of United States production declining since the peak year of 1973 (22.6 billion MCF). However, any transition in fuels must recognize, in addition to environmental considerations, the fact that fuel-switching is oftentimes limited by original design. For example, the plants in the ERCOT and SPP regions were not designed to burn coal and any such transition to coal would require enormous expenditures for complete boiler replacement and would involve outage times of several years with resultant threats to the availability of electric power. In addition, such conversions are totally infeasible because of site limitations. Neither were such plants designed for oil. Conversion to oil—a fuel which in itself is a critical resource—is not only expensive but requires considerable boiler modification, is time-consuming, and results in both a loss of generating capability and an increase in the plant's unavailability. Where conditions permit, some conversion from gas to oil has already taken place.

The proposed NEP³ as well as the current National Energy Act, S. 1469, places a ban on the use of gas for new generating plants. The power industry has anticipated this need, and has for some time been committing all future generating capacity to coal-fired and nuclear plants. The Act, furthermore, provides for certain exemptions—up to a maximum period of five years—in the use of gas for existing plants. However, the conditions and procedures associated with such exemptions are such as to be fraught with great uncertainty. The NEP³, furthermore, calls for consumption taxes on natural gas for utility use starting in 1983 and rising to the cost level of distillate's BTU equivalent by 1988.

Such constraints on the use of natural gas for the generation of elec-

tricity ignore the significant steps already taken by utilities to use coal and nuclear power as primary energy sources in new plants. They also ignore the fact—as indicated above—that existing gas-fired generating plant will operate at lower and lower capacity factors in future years. Governmental restrictions on the use of natural gas as boiler fuel should recognize both the need for "time" to make the necessary transition in boiler fuels and the huge economic burden that any such accelerated conversion program would place on the utilities involved as well as on the consumer of electric power.

The General Accounting Office in its recent report, "An Evaluation of the National Energy Plan"—submitted to the Congress on July 26, 1977—questioned the rationale behind taxing users that are unable to convert to coal. It indicated that base-load generation in the South Central gas-producing states of Texas, Louisiana, Oklahoma, Arkansas, and Kansas "is expected to be completely coal and nuclear" by 1983. It also states that "it is reasonable to question" whether utilities in those states can move any faster on coal conversion. The report takes issue with the NEP gas-tax formula and suggests that it would have unfair regional impact on such utilities.

In the final analysis, it is vital to the nation's future and the well-being of its citizens to recognize the critical role of electric power in terms both of its direct contribution to energy needs and the fact that its absence makes virtually impossible the utilization of the other primary energy sources in end-use applications. In the light of these facts, it is essential that electric generation be given a priority status in the allocation of the nation's primary fuels. ■

GENERATING CAPABILITY, YEAR END - MW (Contiguous U.S.)

	<u>ECAR^{2/}</u>	<u>ENCOT</u>	<u>MAAC</u>	<u>MAIN</u>	<u>MARCA</u>	<u>NPOC</u>	<u>SERC</u>	<u>SPP</u>	<u>WSCC</u>	<u>NERC</u>
TOTAL										
1976*	75,364	34,417	41,678	39,353	20,196	49,408	99,718	43,034	89,996	494,764
1977	83,114	36,555	44,843	41,963	21,275	50,075	106,961	45,124	93,777	523,687
1978	85,794	39,105	45,717	44,649	22,852	51,210	112,382	48,040	99,230	548,979
1979	88,631	41,411	47,232	46,649	24,664	51,888	119,477	50,143	104,174	574,269
1980	94,244	43,220	48,757	48,618	25,636	52,519	126,485	55,906	109,735	605,120
1981	100,078	45,672	49,453	52,866	28,175	53,191	130,513	58,558	115,964	634,470
1982	104,714	48,387	51,171	58,218	28,755	55,639	136,015	62,244	119,511	664,674
1983	109,852	50,055	54,199	58,606	30,492	55,684	145,950	65,685	124,727	695,250
1984	112,368	52,521	56,071	59,923	31,657	59,523	157,070	71,042	132,050	732,245
1985	116,608	54,477	58,613	62,937	34,170	62,375	164,051	75,936	137,989	767,156
1986	118,225	55,702	62,675	66,179	35,256	63,265	171,784	79,648	143,581	796,315
NUCLEAR										
1976*	2,166	0	4,298	6,564	3,719	7,686	10,647	836	3,383 ^{2/}	39,233
1977	3,608	0	6,288	6,564	3,689	7,498	15,011	836	5,001	48,495
1978	5,494	0	7,208	6,564	3,689	7,816	16,159	1,748	5,001	53,679
1979	5,494	0	8,323	7,642	3,719	7,832	22,172	1,748	5,081	62,011
1980	6,587	1,250	9,333	8,720	3,719	8,720	26,678	1,748	6,471	73,226
1981	9,541	2,400	9,333	11,435	3,719	8,688	27,928	4,108	8,601	85,753
1982	11,502	3,650	10,343	15,300	3,719	10,969	30,038	4,947	10,055	100,523
1983	13,656	4,800	12,518	15,550	4,869	10,956	36,553	6,799	12,185	117,886
1984	13,685	4,800	13,585	15,550	6,019	13,186	43,613	8,988	16,472	135,898
1985	14,591	6,000	15,790	16,547	6,019	15,516	47,442	9,888	18,972	150,765
1986	15,691	6,000	19,235	17,294	7,106	16,633	49,677	9,888	22,021	163,545
HYDRO										
1976*	550	318	941	573	3,086	5,237	8,945	2,283	37,523	59,456
1977	550	318	941	573	2,917	5,237	9,225	2,345	37,524	59,630
1978	550	318	941	573	2,832	5,237	9,210	2,362	40,560	62,583
1979	590	350	941	573	2,792	5,235	9,442	2,580	41,701	64,204
1980	590	350	941	573	2,767	5,235	9,769	2,580	42,018	64,823
1981	590	350	957	573	2,742	5,235	9,850	2,580	42,333	65,210
1982	590	350	957	573	2,732	5,235	9,905	2,580	42,546	65,468
1983	590	350	957	573	2,732	5,245	10,130	2,580	43,270	66,427
1984	590	350	957	573	2,732	5,254	10,430	2,580	43,602	67,068
1985	590	350	957	573	2,732	5,256	10,655	2,580	43,731	67,424
1986	590	350	957	573	2,732	5,329	10,655	2,580	43,870	67,636
PUMPED STORAGE										
1976*	2,697	0	1,286	924	0	2,631	660	260	1,411	9,869
1977	2,697	0	1,286	924	0	2,631	910	260	2,007	10,715
1978	2,697	0	1,286	924	0	2,631	2,450	260	2,327	12,575
1979	2,797	0	1,286	924	0	2,631	2,690	260	2,377	12,965
1980	2,797	0	1,286	924	0	2,631	2,803	260	2,627	13,328
1981	2,797	0	1,286	924	0	2,631	2,803	260	3,710	14,411
1982	3,297	0	1,286	924	0	2,631	2,803	260	3,711	14,912
1983	3,797	0	1,286	612	0	2,631	3,928	260	3,711	16,225
1984	3,797	0	1,286	612	0	3,631	4,643	260	3,711	17,940
1985	3,797	0	1,286	612	0	3,631	4,723	260	4,012	18,321
1986	3,797	0	1,286	612	0	3,631	4,823	260	4,012	18,421

*Actual

GENERATING CAPABILITY, YEAR END - MW (Contiguous U.S.)

	<u>ECAR</u> ^{a/}	<u>ECOT</u>	<u>MAAC</u>	<u>MAIN</u>	<u>MARCA</u>	<u>NPCC</u>	<u>SERC</u>	<u>SPP</u>	<u>WSCC</u>	<u>NERC</u>
<u>GEO THERMAL</u>										
1976*	0	0	0	0	0	0	0	0	502	502
1977	0	0	0	0	0	0	0	0	502	502
1978	0	0	0	0	0	0	0	0	663	663
1979	0	0	0	0	0	0	0	0	908	908
1980	0	0	0	0	0	0	0	0	958	958
1981	0	0	0	0	0	0	0	0	1,178	1,178
1982	0	0	0	0	0	0	0	0	1,398	1,398
1983	0	0	0	0	0	0	0	0	1,668	1,668
1984	0	0	0	0	0	0	0	0	1,888	1,888
1985	0	0	0	0	0	0	0	0	1,998	1,998
1986	0	0	0	0	0	0	0	0	2,208	2,208
<u>STEAM - COAL</u>										
1976*	62,656	2,360	14,057	26,014	9,964	3,737	51,936	5,084	15,564	191,372
1977	66,701	3,946	14,382	27,614	11,183	3,737	52,084	6,704	16,184	202,535
1978	67,351	6,106	14,382	29,094	12,367	4,044	54,582	8,750	17,324	214,000
1979	69,266	8,566	14,782	29,023	14,173	4,044	55,721	10,340	19,796	225,713
1980	73,852	9,766	14,747	29,554	15,138	4,044	56,945	14,981	22,633	241,660
1981	76,736	10,711	14,730	30,754	17,704	4,035	58,585	15,954	24,735	253,944
1982	78,911	12,211	15,419	32,154	18,269	4,030	61,609	18,565	25,845	267,013
1983	81,461	13,421	15,389	32,554	18,897	4,027	63,481	20,275	27,190	276,695
1984	83,948	15,933	16,189	33,121	18,896	4,712	66,982	23,175	29,572	292,528
1985	86,262	17,659	16,189	35,171	21,423	5,437	69,756	26,438	31,141	309,476
1986	86,779	18,999	16,989	37,297	21,422	5,337	74,574	30,384	32,978	324,759
<u>STEAM - OIL</u> ^{2/}										
1976*	4,751	0	12,985	1,893	628	24,843	16,133	8,067	23,886	93,186
1977	5,414	0	13,697	2,920	611	25,444	18,183	9,112	23,820	99,201
1978	5,558	0	13,651	3,940	618	25,900	18,574	9,122	23,820	101,183
1979	6,338	430	13,651	4,672	618	26,510	17,812	9,829	24,137	103,997
1980	6,274	430	14,251	4,808	600	26,253	18,295	10,674	24,022	105,607
1981	6,270	1,797	14,661	4,808	600	26,966	19,052	10,151	24,001	108,506
1982	6,270	2,751	14,807	4,533	600	26,912	19,365	10,093	23,975	109,306
1983	6,204	3,867	15,310	4,533	572	26,879	19,365	10,229	23,975	110,934
1984	6,159	4,332	15,316	4,533	572	26,795	19,002	10,150	23,765	110,624
1985	6,159	5,007	15,153	4,475	572	26,595	18,960	13,001	23,751	113,673
1986	6,159	5,700	14,845	3,878	572	26,395	18,770	12,081	23,539	111,939
<u>STEAM - GAS</u> ^{2/}										
1976*	92	30,013	0	95	235	54	640	23,504	2,121	56,754
1977	92	30,565	0	78	212	54	380	22,294	2,115	55,790
1978	92	30,955	0	78	188	54	209	22,135	2,115	55,826
1979	92	30,339	0	78	188	54	142	21,402	2,101	54,396
1980	92	29,698	0	78	170	54	142	20,965	2,095	53,294
1981	92	28,688	0	78	170	54	142	20,754	2,011	51,989
1982	92	27,699	0	78	170	54	142	20,750	2,011	50,996
1983	92	25,891	0	78	170	54	142	20,393	2,011	48,831
1984	92	25,380	0	78	170	54	142	20,241	2,011	48,168
1985	92	23,735	0	78	161	54	142	17,700	2,011	43,973
1986	92	22,927	0	78	161	54	135	17,601	2,011	43,059

*Actual

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GENERATING CAPABILITY, YEAR END - MW (Contiguous U.S.)

	<u>ECAP^{a/}</u>	<u>ERCOT</u>	<u>MAAC</u>	<u>MAIN</u>	<u>MARCA</u>	<u>NPCC</u>	<u>SERC</u>	<u>SPP</u>	<u>WSCC</u>	<u>NERC</u>
<u>COMBUSTION TURBINE - OIL</u>										
1976*	3,090	53	7,709	3,060	2,446	5,175	10,303	1,377	4,256	37,469
1977	3,090	53	7,721	3,119	2,456	5,240	10,303	1,878	3,992	37,852
1978	3,090	53	7,721	3,370	2,951	5,294	10,303	1,968	4,246	28,996
1979	3,090	53	7,721	3,631	2,967	5,316	10,603	2,289	4,667	40,317
1980	3,090	53	7,721	3,855	3,035	5,316	10,958	2,953	5,444	42,425
1981	3,090	413	7,781	4,188	3,033	5,316	11,258	3,073	5,094	43,246
1982	3,090	413	7,854	4,550	3,058	5,312	11,258	3,276	4,869	43,680
1983	3,090	773	8,034	4,600	3,045	5,396	11,225	3,276	4,744	44,183
1984	3,155	773	8,033	5,350	3,061	5,395	11,068	3,791	4,974	45,600
1985	3,155	773	8,333	5,375	3,056	5,390	11,003	4,114	4,939	46,138
1986	3,155	773	8,458	5,721	3,056	5,390	11,103	4,779	5,343	47,978
<u>COMBUSTION TURBINE - GAS</u>										
1976*	962	958	232	230	46	45	99	691	241	3,504
1977	962	958	232	171	31	45	99	463	241	3,202
1978	962	958	232	106	31	45	99	463	311	3,207
1979	962	958	232	106	31	45	99	463	381	3,277
1980	962	958	232	106	31	45	99	463	451	3,347
1981	962	598	259	106	31	45	99	396	521	3,017
1982	962	598	259	106	31	45	99	491	521	3,112
1983	962	238	259	106	31	45	99	491	521	2,752
1984	962	238	259	106	31	45	99	475	521	2,736
1985	962	238	259	106	31	45	99	475	521	2,736
1986	962	238	259	106	31	45	99	475	521	2,736
<u>COMBINED CYCLE - OIL</u>										
1976*	d/	0	120	0	72	0	348	3	622	1,165
1977		0	246	0	176	189	766	17	1,895	3,299
1978		0	246	0	176	189	766	17	2,367	3,761
1979		0	246	0	176	189	766	17	2,529	3,923
1980		0	246	0	176	189	766	87	2,529	3,993
1981		271	246	0	176	189	766	87	3,237	4,972
1982		542	246	0	176	419	766	87	4,037	6,273
1983		542	246	0	176	419	997	87	4,837	7,304
1984		542	246	0	176	419	997	87	4,837	7,304
1985		542	246	0	176	419	1,177	87	6,127	8,774
1986		542	246	0	176	419	1,084	137	6,127	8,731
<u>COMBINED CYCLE - GAS</u>										
1976*	0	715	0	0	0	0	0	870	224	1,809
1977	0	715	0	0	0	0	0	1,156	224	2,095
1978	0	715	0	0	0	0	30	1,156	224	2,125
1979	0	715	0	0	0	0	30	1,156	224	2,125
1980	0	715	0	0	0	0	30	1,086	224	2,055
1981	0	444	0	0	0	0	30	1,086	224	1,784
1982	0	173	0	0	0	0	30	1,086	224	1,513
1983	0	173	0	0	0	0	30	1,086	224	1,513
1984	0	173	0	0	0	0	94	1,086	224	1,577
1985	0	173	0	0	0	0	94	1,086	224	1,577
1986	0	173	0	0	0	0	94	1,086	224	1,577

*Actual

**GENERATING CAPABILITY, YEAR END - MW
(Contiguous U.S.)**

	<u>ECAR</u> ^{a/}	<u>ERCOT</u>	<u>MAAC</u>	<u>MAIN</u>	<u>MARCA</u>	<u>NPCC</u>	<u>SERC</u>	<u>SPP</u>	<u>WSCC</u>	<u>NERC</u>
<u>OTHER</u>										
1976*	0	0	50	0	0	0	7	59	263	379
1977	0	0	50	0	0	0	0	59	272	381
1978	0	0	50	0	0	0	0	59	272	381
1979	0	0	50	0	0	32	0	59	272	413
1980	0	0	0	0	0	32	0	109	263	404
1981	0	0	0	0	0	32	0	109	319	460
1982	0	0	0	0	0	32	0	109	339	480
1983	0	0	200	0	0	32	0	209	391	832
1984	0	0	200	0	0	32	0	209	473	914
1985	1,000	0	400	0	0	32	0	307	562	2,301
1986	1,000	0	400	420	0	32	770	377	727	3,726

*Actual

- a/ ECAR data based on capability anticipated by end of winter season; i.e. February of following calendar year.
- b/ Includes Hanford (850 MW). Hanford is not considered firm for peaking and is not included in the projected capability data for 1977-86.
- c/ Fuel that is expected to be burned more than 50% of the time.
- d/ For ECAR, 568 MW of combined cycle capability for 1976-86 included as follows:
234 MW, STEAM - OIL; 334 MW, COMBUSTION TURBINE - OIL.

NET ELECTRICAL ENERGY GENERATED - MILLION KWHR (Contiguous U.S.)

	<u>ECAR</u>	<u>ERCOT</u>	<u>MAAC</u>	<u>MAIN</u>	<u>MARCA</u>	<u>NPCC</u>	<u>SERC</u>	<u>SPP</u>	<u>WSCC</u>	<u>NERC</u>
TOTAL										
1976*	352,865	122,206	148,181	156,165	86,714	187,047	404,190	161,769	383,890	2,003,747
1977	372,900	137,328	160,881	163,905	91,009	194,273	443,497	177,468	407,433	2,148,694
1978	394,200	147,598	170,010	173,489	95,475	201,614	467,166	190,660	429,894	2,270,106
1979	416,600	157,052	178,801	184,525	105,976	206,826	507,511	204,765	447,128	2,409,184
1980	440,300	167,053	185,396	195,610	112,258	216,366	549,788	222,104	472,352	2,561,227
1981	465,300	177,424	197,856	207,130	120,884	225,771	582,490	237,642	499,198	2,713,695
1982	491,800	188,158	203,237	219,327	129,337	236,212	615,700	251,876	525,603	2,861,250
1983	519,800	197,314	211,805	232,361	136,947	247,989	658,331	263,106	548,309	3,015,962
1984	549,400	208,069	224,690	246,003	144,554	260,488	700,301	285,303	576,435	3,195,243
1985	580,600	216,374	233,403	260,697	155,117	273,687	741,873	301,621	616,854	3,380,226
1986	613,600	226,526	244,868	275,970	163,349	286,670	784,165	323,634	644,544	3,563,326
NUCLEAR										
1976*	13,282	0	26,232	35,078	22,059	40,814	43,857	3,858	9,335	194,515
1977	22,124	0	37,720	34,250	24,674	45,772	83,864	5,607	27,200	281,211
1978	33,689	0	45,209	35,745	25,704	47,995	94,871	10,598	36,155	329,966
1979	33,689	0	50,247	38,570	26,015	48,213	131,734	10,425	36,292	375,185
1980	40,391	1,126	53,973	44,004	25,631	52,880	160,631	13,233	43,154	435,023
1981	58,505	12,973	59,946	51,857	25,619	51,637	175,601	29,347	50,637	516,122
1982	70,530	19,449	65,756	65,528	26,260	59,455	188,579	28,653	63,405	587,625
1983	83,739	26,381	75,146	81,854	32,191	66,005	223,188	44,149	75,034	707,687
1984	83,916	28,430	84,663	84,518	38,156	81,794	259,835	55,980	89,765	807,057
1985	89,472	33,976	95,158	86,541	40,952	91,280	287,255	64,709	107,472	896,815
1986	96,217	35,559	105,688	93,633	43,922	107,776	311,914	67,293	127,898	989,900
HYDRO										
1976*	1,445	451	4,254	1,698	15,446	34,358	34,884	4,577	182,842	279,955
1977	1,445	380	3,178	2,128	13,147	30,617	30,219	3,102	148,699	232,915
1978	1,445	385	3,191	2,128	12,963	28,417	30,577	4,562	150,111	233,777
1979	1,551	427	3,194	2,131	12,963	28,417	31,143	4,650	150,426	234,902
1980	1,551	469	3,166	2,135	12,966	28,417	31,616	4,931	151,399	236,650
1981	1,551	469	3,197	2,131	12,914	28,417	31,717	4,931	152,038	237,365
1982	1,551	469	3,221	2,124	12,864	28,497	31,714	4,931	150,074	235,445
1983	1,551	469	3,224	2,122	12,614	28,497	31,866	4,931	151,076	236,350
1984	1,551	469	3,237	2,130	12,366	28,575	31,944	4,931	152,531	237,734
1985	1,551	469	3,201	2,131	12,114	28,775	31,944	4,930	156,799	241,914
1986	1,551	469	3,207	2,128	12,114	28,975	31,944	4,931	152,937	238,256
PUMP STORAGE - LOAD (-)										
1976*	4,523	0	2,450	1,946	0	3,383	683	323	857	14,170
1977	4,523	0	2,823	1,694	0	2,302	489	750	912	13,493
1978	4,523	0	2,902	1,769	0	2,746	2,077	750	1,253	16,020
1979	4,726	0	3,037	1,607	0	3,057	3,200	750	1,263	17,640
1980	4,726	0	3,023	1,599	0	3,327	3,569	750	1,363	18,357
1981	4,726	0	3,031	1,605	0	3,661	4,026	300	1,377	18,726
1982	5,570	0	3,114	1,602	0	4,333	5,181	300	1,372	21,472
1983	5,570	0	3,088	1,179	0	4,813	7,093	300	1,382	23,425
1984	5,570	0	3,127	1,028	0	5,818	8,307	300	1,402	25,552
1985	5,570	0	3,157	1,138	0	6,670	8,682	300	1,560	27,077
1986	5,570	0	3,139	1,130	0	6,562	9,022	300	1,680	27,403

*Actual

NET ELECTRIC ENERGY GENERATED — MILLION KWHR (Contiguous U.S.)

	<u>ECAR</u>	<u>ERCOT</u>	<u>MAAC</u>	<u>MAIN</u>	<u>MARCA</u>	<u>NPOC</u>	<u>SERC</u>	<u>SPP</u>	<u>MSOC</u>	<u>NERC</u>
<u>PUMP STORAGE - OUTPUT (+)</u>										
1976*	3,166	0	1,689	1,284	0	2,388	594	194	792	10,107
1977	3,166	0	1,910	1,101	0	1,719	345	500	804	9,545
1978	3,166	0	1,957	1,179	0	2,027	1,348	500	1,054	11,231
1979	3,308	0	2,070	1,048	0	2,256	2,436	500	1,032	12,650
1980	3,308	0	2,064	1,037	0	2,456	2,683	500	1,121	13,169
1981	3,308	0	2,072	1,039	0	2,702	3,046	200	1,130	13,497
1982	3,899	0	2,140	1,030	0	3,192	3,914	200	1,147	15,522
1983	3,899	0	2,118	776	0	3,542	5,212	200	1,181	16,928
1984	3,899	0	2,146	655	0	4,276	6,081	200	1,232	18,489
1985	3,899	0	2,161	714	0	4,898	6,339	200	1,352	19,563
1986	3,899	0	2,135	712	0	4,819	6,582	200	1,487	19,834
<u>GEO THERMAL</u>										
1976*	0	0	0	0	0	0	0	0	3,615	3,615
1977	0	0	0	0	0	0	0	0	3,460	3,460
1978	0	0	0	0	0	0	0	0	3,964	3,964
1979	0	0	0	0	0	0	0	0	5,771	5,771
1980	0	0	0	0	0	0	0	0	6,375	6,375
1981	0	0	0	0	0	0	0	0	7,461	7,461
1982	0	0	0	0	0	0	0	0	8,845	8,845
1983	0	0	0	0	0	0	0	0	10,455	10,455
1984	0	0	0	0	0	0	0	0	12,038	12,038
1985	0	0	0	0	0	0	0	0	13,301	13,301
1986	0	0	0	0	0	0	0	0	14,694	14,694
<u>STEAM - COAL</u>										
1976*	319,927	14,956	82,654	112,227	43,985	18,273	241,607	17,171	72,521	923,321
1977	328,794	21,626	84,268	121,659	51,125	21,700	259,549	27,320	93,810	1,009,851
1978	338,028	39,170	86,163	127,791	54,683	23,577	271,230	37,613	104,096	1,082,351
1979	357,650	50,204	91,753	133,300	65,114	23,550	272,293	47,301	114,053	1,155,218
1980	374,872	58,490	93,445	137,706	71,651	24,175	279,587	63,562	126,166	1,229,654
1981	381,772	63,882	93,323	143,498	80,579	24,400	291,505	76,253	138,890	1,294,102
1982	396,500	74,606	93,092	142,467	88,434	24,800	307,350	90,646	148,690	1,366,585
1983	411,291	78,884	93,477	139,462	90,496	26,900	321,267	101,041	155,344	1,418,162
1984	441,057	88,113	97,944	149,375	92,373	28,350	324,122	110,435	164,512	1,496,281
1985	466,701	94,045	98,178	161,173	100,373	33,900	334,498	127,579	178,583	1,595,030
1986	492,956	103,264	100,803	166,575	105,533	33,800	352,284	155,161	187,788	1,698,164
<u>STEAM - OIL</u>										
1976*	16,648	1,569	32,332	5,111	1,357	91,985	66,337	22,142	62,851	300,332
1977	18,974	3,051	34,624	4,584	994	95,002	53,129	36,431	103,400	350,189
1978	19,475	1,767	34,134	6,521	857	100,474	54,511	37,099	106,142	360,980
1979	22,208	7,064	32,297	9,136	700	105,487	57,981	46,044	112,419	393,336
1980	21,984	11,411	33,422	9,323	798	109,640	64,999	47,241	120,097	418,915
1981	21,970	22,748	38,548	7,993	691	119,726	69,695	38,191	124,754	444,316
1982	21,970	25,034	38,267	7,654	615	121,255	73,076	42,398	127,379	457,648
1983	21,970	26,546	37,225	7,545	422	124,374	68,459	36,414	124,130	447,085
1984	21,581	29,607	36,249	7,679	386	120,049	71,471	35,643	123,644	446,309
1985	21,581	41,082	34,213	7,894	368	118,316	76,499	42,000	118,836	460,789
1986	21,581	42,066	33,184	8,070	390	114,742	76,739	43,958	117,433	458,163

*Actual

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NET ELECTRICAL ENERGY GENERATED - MILLION KWHR (Contiguous U.S.)

	<u>ECAR</u>	<u>ERCOT</u>	<u>MAAC</u>	<u>MAIN</u>	<u>MARCA</u>	<u>NPCC</u>	<u>SEEC</u>	<u>SPP</u>	<u>WSCC</u>	<u>NERC</u>
<u>STEAM - GAS</u>										
1976*	81	102,931	901	769	2,893	446	12,715	107,025	39,613	267,374
1977	81	106,200	50	144	345	0	11,920	96,249	23,251	238,240
1978	81	100,229	60	48	151	0	11,050	91,839	17,174	220,632
1979	81	93,436	60	20	6	0	8,840	87,743	14,499	204,685
1980	81	90,073	74	20	11	0	6,810	84,656	11,058	192,783
1981	81	71,606	63	20	0	0	6,825	80,180	7,815	166,590
1982	81	62,969	63	20	0	0	6,876	76,448	5,241	151,698
1983	81	59,476	63	20	0	0	6,445	68,698	5,254	140,037
1984	81	55,803	63	20	0	0	5,735	70,544	5,177	137,423
1985	81	41,458	63	20	0	0	4,683	55,231	4,124	105,660
1986	81	39,425	63	20	0	0	3,810	46,089	4,263	93,751
<u>COMBUSTION TURBINE - OIL</u>										
1976*	2,165	4	2,465	1,658	661	1,896	5,288	519	571	15,227
1977	2,165	3	1,401	1,513	591	1,170	4,078	1,223	2,224	14,368
1978	2,165	3	1,305	1,412	968	1,205	4,653	1,721	3,170	16,602
1979	2,165	3	1,243	1,545	1,020	1,205	4,588	1,607	2,107	15,483
1980	2,165	3	1,300	1,752	1,036	1,280	5,228	1,513	2,582	16,859
1981	2,165	100	2,218	1,345	872	1,580	6,313	1,925	3,516	20,034
1982	2,165	68	2,556	1,199	950	1,716	7,704	1,768	3,860	21,986
1983	2,165	277	2,621	916	1,035	1,864	7,334	1,701	3,342	21,255
1984	2,211	326	2,252	1,553	1,105	1,762	6,847	1,831	3,118	21,005
1985	2,211	179	2,307	2,254	1,144	1,788	6,460	1,407	3,610	21,360
1986	2,211	213	2,031	2,433	1,215	1,810	6,454	1,578	4,136	22,081
<u>COMBUSTION TURBINE - GAS</u>										
1976*	674	171	65	183	286	0	314	724	730	3,147
1977	574	393	28	56	13	0	156	565	437	2,322
1978	674	393	32	30	8	0	119	572	383	2,211
1979	674	312	28	17	6	0	225	532	575	2,369
1980	674	379	31	17	8	0	207	447	604	2,367
1981	674	350	30	18	8	0	163	404	343	1,990
1982	674	297	31	19	8	0	142	404	221	1,796
1983	674	122	29	18	7	0	137	325	221	1,533
1984	674	124	31	21	6	0	177	305	216	1,554
1985	674	118	30	22	0	0	262	305	215	1,626
1986	674	122	31	24	0	0	235	305	216	1,607
<u>COMBINED CYCLE - OIL</u>										
1976*	2/	5	39	0	27	270	2	3	721	1,067
1977	0	0	525	0	62	595	726	8	2,189	4,105
1978	0	0	861	0	143	665	681	46	5,846	8,242
1979	0	0	946	0	152	755	1,256	188	7,578	10,875
1980	0	0	944	0	157	845	1,384	286	7,890	11,506
1981	1,965	1,490	0	201	970	1,429	148	9,735	15,938	
1982	3,983	1,225	0	206	1,620	1,302	156	14,051	22,543	
1983	3,876	990	0	182	1,620	1,290	160	19,067	27,185	
1984	3,914	1,232	0	162	1,500	2,168	156	21,214	30,346	
1985	3,765	1,249	0	166	1,400	2,385	113	29,375	38,453	
1986	3,827	865	0	175	1,310	2,995	168	30,065	39,405	

*Actual

**NET ELECTRICAL ENERGY GENERATED - MILLION KWHR
(Contiguous U.S.)**

	<u>ECAR</u>	<u>ERCOT</u>	<u>MAAC</u>	<u>MAIN</u>	<u>MARCA</u>	<u>NPCC</u>	<u>SERC</u>	<u>SPP</u>	<u>WSOC</u>	<u>NERC</u>
<u>COMBINED CYCLE - GAS</u>										
1976*	0	2,119	0	0	0	0	0	4,515	1,022	7,656
1977	0	5,118	0	0	58	0	0	5,703	838	11,117
1978	0	5,061	0	0	0	0	203	5,382	1,122	11,768
1979	0	4,977	0	0	0	0	215	5,092	1,072	11,356
1980	0	4,877	0	0	0	0	212	4,985	772	10,846
1981	0	3,107	0	0	0	0	222	4,819	1,371	9,519
1982	0	1,060	0	0	0	0	224	5,016	1,139	7,439
1983	0	1,060	0	0	0	0	226	4,216	1,356	6,858
1984	0	1,060	0	0	0	0	228	4,002	1,051	6,341
1985	0	1,060	0	0	0	0	230	3,853	1,188	6,331
1986	0	1,060	0	0	0	0	230	2,666	1,151	5,107
<u>OTHER</u>										
1976*	0	0	0	103	0	0	0	1,364	10,134	11,601
1977	0	557	0	164	0	0	0	1,510	2,033	4,264
1978	0	590	0	404	0	0	0	1,478	1,930	4,402
1979	0	629	0	365	0	0	0	1,433	2,567	4,994
1980	0	225	0	1,215	0	0	0	1,500	2,407	5,437
1981	0	224	0	834	0	0	0	1,544	2,885	5,487
1982	0	223	0	888	0	0	0	1,556	2,923	5,590
1983	0	223	0	827	0	0	0	1,571	3,231	5,852
1984	0	223	0	1,080	0	0	0	1,576	3,329	6,218
1985	0	222	0	1,086	0	0	0	1,594	3,559	6,461
1986	0	521	0	3,505	0	0	0	1,585	4,156	9,767

*Actual

a/ For ECAR, energy generated from 568 MW of combined cycle capability for 1976-86 included proportionately in STEAM - OIL and COMBUSTION TURBINE - OIL.

ESTIMATED FOSSIL FUEL REQUIREMENTS - COAL
(Contiguous U.S.)
(1,000 Tons)

Appendix C-1
1 of 1

	<u>ECAR</u>	<u>ERCOT</u>	<u>MAAC</u>	<u>MAIN</u>	<u>MARCA</u>	<u>MPCC</u>	<u>SERC</u>	<u>SPP</u>	<u>WSCC</u>	<u>NERC</u>
WESTERN LIGNITE - STEAM										
1976*	0	12,018	0	0	9,881	0	0	0	0	21,899
1977	0	14,618	0	0	10,745	0	0	0	0	25,363
1978	0	22,614	0	0	11,212	0	0	0	0	33,826
1979	0	26,281	0	0	13,480	0	0	0	0	39,761
1980	0	27,593	0	0	14,149	0	0	0	0	41,742
1981	0	30,325	0	0	15,843	0	0	0	0	46,168
1982	0	39,410	0	0	18,650	0	0	0	0	58,060
1983	0	41,074	0	0	19,088	0	0	0	0	60,162
1984	0	49,214	0	0	19,397	0	0	2,607	0	71,218
1985	0	52,872	0	0	22,754	0	0	2,893	0	78,519
1986	0	58,001	0	0	24,718	0	0	7,041	0	89,760
WESTERN COAL - STEAM										
1976*	6,700 ^{a/}	0	0	18,860	12,411	759	0	9,143	39,945	87,818
1977	8,200	1,363	0	19,192	16,754	1,005	0	15,318	52,446	114,278
1978	8,200	5,197	0	22,264	18,620	1,090	400	26,687	57,726	140,184
1979	11,400	8,573	0	22,485	22,961	1,205	800	33,600	63,320	164,344
1980	12,200	12,346	0	23,963	26,287	1,310	1,600	48,263	70,674	196,643
1981	12,200	15,684	0	21,742	30,580	1,410	1,400	57,732	78,100	218,848
1982	12,400	15,182	0	23,147	31,819	1,410	2,000	71,084	83,615	240,657
1983	17,000	16,521	0	22,144	33,117	1,410	2,800	78,689	87,841	259,522
1984	18,300	15,334	0	25,768	33,933	1,390	3,000	87,474	92,008	277,207
1985	20,500	16,390	0	29,375	38,425	1,370	4,700	96,465	98,918	308,143
1986	20,900	18,228	0	30,880	39,456	1,770	9,200	113,386	103,102	336,922
OTHER COAL - STEAM										
1976*	135,490	0	32,859	38,469	6,116	7,024	104,347	0	0	324,305
1977	137,931	0	35,001	45,658	5,443	8,000	109,347	0	0	341,380
1978	142,035	0	35,146	47,960	5,714	8,800	113,805	0	0	353,460
1979	147,556	0	37,968	46,943	5,502	8,700	113,965	0	0	362,634
1980	154,410	0	38,585	49,430	5,562	8,800	115,944	0	0	372,731
1981	157,476	0	38,584	52,234	5,713	8,700	121,593	0	0	384,300
1982	163,822	0	38,329	51,822	5,891	9,000	127,278	0	0	396,142
1983	165,796	0	38,474	52,305	5,940	9,700	131,977	0	0	404,192
1984	177,725	0	40,249	54,176	5,705	10,200	132,751	0	0	420,806
1985	186,923	0	40,346	56,743	5,724	12,400	135,193	0	0	437,329
1986	198,192	0	41,612	57,214	5,802	12,000	137,906	0	0	452,726
TOTAL COAL - STEAM										
1976*	142,190	12,018	32,859	57,329	28,408	7,783	104,347	9,143	39,945	434,022
1977	146,131	15,981	35,001	64,850	32,942	9,005	109,347	15,318	52,446	481,021
1978	150,235	27,811	35,146	70,224	35,546	9,890	114,205	26,687	57,726	527,470
1979	158,956	34,854	37,968	71,428	41,943	9,905	114,765	33,600	63,320	566,739
1980	166,610	39,939	38,585	73,393	45,998	10,110	117,544	48,263	70,674	611,116
1981	169,676	46,009	38,584	73,976	52,136	10,110	122,993	57,732	78,100	649,316
1982	176,222	54,592	38,329	74,969	56,360	10,410	129,278	71,084	83,615	694,859
1983	182,796	57,595	38,474	74,449	58,145	11,110	134,777	78,689	87,841	723,876
1984	186,025	64,548	40,249	79,944	59,035	11,590	135,751	90,081	92,008	769,231
1985	207,423	69,262	40,346	86,118	66,903	13,770	132,893	101,358	98,918	823,991
1986	219,092	76,229	41,612	88,094	69,976	13,770	147,106	120,427	103,102	879,408

*Actual

^{a/} Anticipated contracts; does not necessarily indicate delivery or burn.

ESTIMATED FOSSIL FUEL REQUIREMENTS - OIL
(Contiguous U.S.)
(1,000 Barrels)

	<u>ECAR</u>	<u>ECOT</u>	<u>HAAC</u>	<u>HAIR</u>	<u>MARCA</u>	<u>MPOC</u>	<u>SERC</u>	<u>SPP</u>	<u>MSOC</u>	<u>NERC</u>
<u>DISTILLATE OIL - STEAM</u>										
1976*	2,296	336	1,671	4,006	514	0	6,067	2,599	309	17,798
1977	2,296	1,707	1,850	1,430	403	0	5,554	5,212	1,257	19,709
1978	2,296	2,311	1,746	1,528	261	0	4,234	5,118	2,557	20,051
1979	2,296	3,052	1,929	1,419	302	0	4,968	11,544	2,629	28,139
1980	2,250	3,767	1,886	1,784	336	0	5,258	11,664	2,857	29,802
1981	2,250	6,336	1,998	1,851	318	0	5,503	15,654	3,450	37,360
1982	2,250	8,043	2,018	1,305	277	0	5,611	17,110	3,762	40,376
1983	2,250	5,838	2,196	1,100	345	0	5,481	14,583	3,954	35,747
1984	2,250	6,325	2,282	1,282	261	0	5,692	14,798	3,789	36,679
1985	2,230	8,020	2,285	1,495	250	0	6,117	14,283	3,859	38,539
1986	2,230	8,861	2,320	1,844	287	0	6,116	11,301	3,472	36,431
<u>DISTILLATE OIL - COMBUSTION TURBINE</u>										
1976*	5,035	2	5,691	3,852	1,444	5,250	11,168	1,154	1,404	35,000
1977	5,035	0	3,360	1,744	1,328	3,105	10,637	2,777	5,346	35,332
1978	5,035	0	3,173	3,524	2,300	3,167	10,211	3,308	7,368	38,116
1979	5,035	0	3,152	3,808	2,298	3,197	10,254	3,880	4,886	36,510
1980	5,035	0	3,165	4,285	2,382	3,395	10,842	3,555	5,565	38,424
1981	5,035	208	5,701	3,219	2,006	4,345	11,838	4,436	7,393	44,181
1982	5,035	135	6,497	2,852	2,204	4,645	12,330	4,162	8,192	46,052
1983	5,035	571	6,681	2,168	2,575	5,050	13,768	3,972	7,218	47,038
1984	5,142	673	5,729	3,782	2,793	4,965	13,201	4,247	6,837	47,369
1985	5,142	367	5,667	5,585	2,899	4,775	13,046	3,316	8,090	48,887
1986	5,142	438	4,470	6,021	3,086	4,575	13,020	3,770	9,372	49,894
<u>DISTILLATE OIL - COMBINED CYCLE</u>										
1976*	a/	6	104	0	54	0	17	5	1,384	1,570
1977		0	812	0	151	370	42	20	4,120	5,515
1978		0	1,376	0	289	410	65	102	10,917	13,158
1979		0	1,495	0	285	477	58	221	13,125	15,661
1980		0	1,531	0	279	559	73	582	13,502	16,526
1981		3,819	2,365	0	356	750	87	338	16,167	23,882
1982		4,202	1,943	0	368	1,894	175	361	22,180	31,123
1983		4,640	1,585	0	306	1,894	36	368	29,155	37,984
1984		5,148	1,962	0	268	1,732	0	363	32,330	41,803
1985		5,758	1,988	0	276	1,584	0	273	46,596	56,475
1986		5,848	1,390	0	255	1,481	0	380	48,272	57,626
<u>TOTAL DISTILLATE OIL</u>										
1976*	7,331	344	7,466	7,858	2,012	5,250	17,252	3,758	3,097	54,368
1977	7,331	1,707	6,022	5,174	1,882	3,475	16,233	8,009	10,723	60,556
1978	7,331	2,311	6,295	5,052	2,849	3,577	14,510	8,528	21,072	71,525
1979	7,331	3,052	6,576	5,227	2,885	3,674	15,280	15,645	20,640	80,310
1980	7,285	3,767	6,782	6,069	2,997	3,954	16,173	15,801	21,924	84,752
1981	7,285	10,363	10,064	5,070	2,680	5,095	17,428	20,428	27,010	105,423
1982	7,285	12,380	10,458	4,157	2,849	6,539	18,116	21,633	34,134	117,551
1983	7,285	11,049	10,462	3,268	3,226	6,944	19,285	18,923	40,327	120,769
1984	7,392	12,146	9,973	5,064	3,322	6,697	18,893	19,408	42,956	125,851
1985	7,372	14,145	9,940	7,080	3,425	6,359	19,163	17,872	58,545	143,901
1986	7,372	15,147	8,180	7,865	3,628	6,056	19,136	15,451	61,116	143,951

*Actual

ESTIMATED FOSSIL FUEL REQUIREMENTS - OIL
(Contiguous U.S.)
(1,000 Barrels)

	<u>DCAR</u>	<u>ERCOT</u>	<u>MOAC</u>	<u>MAIN</u>	<u>MARCA</u>	<u>MPCC</u>	<u>SEPC</u>	<u>SPP</u>	<u>WSCC</u>	<u>NERC</u>
RESIDUAL OIL - STEAM										
1976*	31,000	2,550	63,184	5,443	1,009	152,114	107,579	34,139	102,701	499,719
1977	35,652	3,465	61,033	6,873	1,419	156,706	84,625	55,203	164,877	569,853
1978	36,654	726	60,826	9,983	1,336	166,623	86,531	58,481	168,086	589,246
1979	42,120	8,848	57,294	14,310	1,267	176,568	91,387	65,447	174,704	631,945
1980	41,690	15,415	59,317	14,469	1,316	186,027	102,553	67,645	186,272	674,704
1981	41,690	27,823	68,417	12,174	1,128	206,886	109,946	49,982	192,872	710,918
1982	41,690	29,670	68,020	11,957	1,091	207,283	115,050	55,351	196,207	726,319
1983	41,690	33,394	65,897	11,932	1,061	211,277	107,857	47,031	190,988	711,127
1984	40,912	37,413	64,199	12,040	1,022	202,442	112,583	46,201	189,957	706,769
1985	40,912	54,630	60,553	12,267	1,036	196,817	120,251	58,050	182,612	727,128
1986	40,912	55,315	58,757	12,337	1,001	191,402	120,493	63,899	181,924	726,040
RESIDUAL OIL - COMBUSTION TURBINE										
1976*	0	0	0	0	0	0	79	1	1	81
1977	0	0	0	0	0	0	79	0	20	99
1978	0	0	0	9	0	0	925	0	31	965
1979	0	0	0	7	0	0	961	0	35	1,003
1980	0	0	0	7	0	0	1,674	0	50	1,731
1981	0	0	0	0	0	0	2,819	0	100	2,919
1982	0	0	0	0	0	0	3,597	0	150	3,747
1983	0	0	0	0	0	0	3,513	0	160	3,673
1984	0	0	0	0	0	0	2,940	0	160	3,100
1985	0	0	155	0	0	0	2,393	0	160	2,708
1986	0	0	351	0	0	0	2,448	0	180	2,973
RESIDUAL OIL - COMBINED CYCLE										
1976*	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	605	0	0	0	605
1978	0	0	0	0	0	700	944	0	0	1,644
1979	0	0	0	0	0	808	1,758	0	0	2,566
1980	0	0	0	0	0	916	1,935	0	0	2,851
1981	0	0	0	0	0	985	1,998	0	0	2,983
1982	0	0	0	0	0	976	1,760	0	0	2,736
1983	0	0	0	0	0	976	1,822	0	0	2,798
1984	0	0	0	0	0	893	3,185	0	0	4,078
1985	0	0	0	0	0	801	3,462	0	0	4,263
1986	0	0	0	0	0	750	4,428	0	0	5,178
TOTAL RESIDUAL OIL										
1976*	31,000	2,550	63,184	5,443	1,009	152,114	107,658	34,140	102,702	499,800
1977	35,652	3,465	61,033	6,873	1,419	157,311	84,704	55,203	164,897	570,557
1978	36,654	726	60,826	9,992	1,336	167,323	88,400	58,481	168,217	591,855
1979	42,120	8,848	57,294	14,317	1,267	177,376	94,106	65,447	174,739	635,514
1980	41,690	15,415	59,317	14,476	1,316	186,943	106,162	67,645	186,322	679,286
1981	41,690	27,823	68,417	12,174	1,128	207,871	114,763	49,982	192,972	716,820
1982	41,690	29,670	68,020	11,957	1,091	208,259	120,407	55,351	196,357	732,802
1983	41,690	33,394	65,897	11,932	1,061	212,253	113,192	47,031	191,148	717,598
1984	40,912	37,413	64,199	12,040	1,022	203,335	118,708	46,201	190,117	713,947
1985	40,912	54,630	60,708	12,267	1,036	197,618	126,106	58,050	182,772	734,099
1986	40,912	55,315	59,108	12,337	1,001	192,152	127,369	63,899	182,104	734,197

*Actual

ESTIMATED FOSSIL FUEL REQUIREMENTS - OIL
(Contiguous U.S.)
(1,000 Barrels)

	<u>ECAR</u>	<u>ERCOT</u>	<u>MAAC</u>	<u>MAIN</u>	<u>MARCA</u>	<u>MPCC</u>	<u>SERC</u>	<u>SPP</u>	<u>WSCC</u>	<u>NERC</u>
<u>TOTAL CRUDE OIL (STEAM)</u>										
1976*	b/	0	571	0	40	0	0	0	0	611
1977		0	0	0	10	0	0	0	0	10
1978		0	0	0	10	0	0	0	0	10
1979		0	0	0	23	0	0	0	0	23
1980		0	0	0	55	0	0	0	0	55
1981		0	0	0	132	0	0	0	0	132
1982		0	0	0	96	0	0	0	0	96
1983		0	0	0	91	0	0	0	0	91
1984		0	0	0	54	0	0	0	0	54
1985		0	0	0	65	0	0	0	0	65
1986		0	0	0	91	0	0	0	0	91
<u>TOTAL OIL</u>										
1976*	38,331	2,894	71,221	13,301	3,061	157,364	124,910	37,898	105,799	554,779
1977	42,983	5,172	67,055	12,047	3,311	160,786	100,937	63,212	175,620	631,123
1978	43,985	3,037	67,121	15,044	4,195	170,900	102,910	67,009	189,189	663,390
1979	49,451	11,900	63,870	19,544	4,175	181,050	109,386	81,092	195,379	715,847
1980	48,975	19,182	66,099	20,545	4,368	190,897	122,335	83,446	208,246	764,093
1981	48,975	38,186	78,481	17,244	3,940	212,966	132,191	70,410	219,982	822,375
1982	48,975	42,050	78,478	16,114	4,036	214,798	138,523	76,984	230,491	850,449
1983	48,975	44,443	76,359	15,200	4,378	219,197	132,477	65,954	231,475	838,458
1984	48,304	49,559	74,172	17,104	4,398	210,032	137,601	65,609	233,073	839,852
1985	48,284	68,775	70,648	19,347	4,526	203,977	145,269	75,922	241,317	878,065
1986	48,284	70,462	67,288	20,202	4,720	198,208	146,505	79,350	243,220	878,239

*Actual

a/ For ECAR, distillate oil requirements for 568 MW of combined cycle capability for 1976-86 included proportionately in DISTILLATE OIL - STEAM and DISTILLATE OIL - COMBUSTION TURBINE.

b/ Crude and Residual Oil combined for ECAR.

ESTIMATED FOSSIL FUEL REQUIREMENTS - NATURAL GAS
(Contiguous U.S.)
(1,000 MCF)

	<u>ECAP</u>	<u>ERCOT</u>	<u>MAAC</u>	<u>HAIN</u>	<u>MARCA</u>	<u>NPOC</u>	<u>SERC</u>	<u>SPP</u>	<u>WSOC</u>	<u>NERC</u>
FIRM NATURAL GAS - STEAM										
1976*	0	867,402	9,394	15,134	1,211	0	117,518	826,494	130,863	1,968,016
1977	0	920,220	504	4,080	896	0	114,871	799,078	79,319	1,918,968
1978	0	869,905	616	4,080	5	0	108,914	754,626	48,161	1,786,307
1979	0	803,670	605	80	5	0	93,026	736,943	43,089	1,677,418
1980	0	785,449	753	80	5	0	71,551	702,160	45,429	1,605,427
1981	0	619,604	637	80	5	0	71,924	671,527	39,390	1,403,167
1982	0	555,112	637	80	5	0	71,868	639,281	34,889	1,301,872
1983	0	533,550	637	80	5	0	67,425	470,531	34,291	1,206,519
1984	0	488,590	637	80	5	0	60,426	574,761	36,954	1,161,453
1985	0	344,460	637	80	5	0	49,912	422,531	25,291	842,916
1986	0	324,601	637	80	5	0	40,979	350,775	26,906	743,983
FIRM NATURAL GAS - COMBUSTION TURBINE										
1976*	0	2,726	101	784	1,690	0	4,188	5,891	4,268	19,648
1977	0	3,738	24	12	0	0	2,613	6,504	162	13,053
1978	0	3,763	24	12	0	0	1,986	5,328	420	11,533
1979	0	2,726	5	12	-0	0	3,696	5,057	440	11,936
1980	0	3,539	7	12	0	0	3,415	4,791	380	12,144
1981	0	3,138	11	12	0	0	2,681	5,112	380	11,334
1982	0	2,476	11	12	0	0	2,346	5,081	380	10,306
1983	0	126	11	12	0	0	2,245	4,037	380	6,811
1984	0	126	11	12	0	0	2,902	3,700	380	7,131
1985	0	126	11	12	0	0	4,274	3,700	380	8,503
1986	0	126	11	12	0	0	3,831	3,700	380	8,060
FIRM NATURAL GAS - COMBINED CYCLE										
1976*	0	9,951	0	0	0	0	0	41,835	10,375	62,161
1977	0	39,422	0	0	0	0	0	53,516	8,266	101,204
1978	0	38,900	0	0	0	0	0	49,671	10,376	98,947
1979	0	38,150	0	0	0	0	0	47,235	10,600	95,985
1980	0	37,253	0	0	0	0	0	46,180	7,636	91,069
1981	0	21,323	0	0	0	0	0	44,799	9,713	75,835
1982	0	2,900	0	0	0	0	0	46,831	7,418	57,149
1983	0	2,900	0	0	0	0	0	39,040	9,565	51,505
1984	0	2,900	0	0	0	0	0	36,871	6,548	46,319
1985	0	2,900	0	0	0	0	0	35,570	7,903	46,373
1986	0	2,900	0	0	0	0	0	25,318	7,537	35,755
TOTAL FIRM NATURAL GAS										
1976*	0	880,079	9,495	15,918	2,901	0	121,706	874,220	145,406	2,049,825
1977	0	963,380	528	4,092	896	0	117,484	859,098	87,747	2,033,225
1978	0	912,568	640	4,092	5	0	110,900	809,625	58,957	1,896,787
1979	0	844,546	610	92	5	0	96,722	789,235	54,129	1,785,339
1980	0	826,241	760	92	5	0	74,966	753,131	53,445	1,708,640
1981	0	644,065	648	92	5	0	74,605	721,438	49,483	1,490,336
1982	0	560,488	648	92	5	0	74,214	691,193	42,687	1,369,327
1983	0	536,576	648	92	5	0	69,670	613,608	44,236	1,264,835
1984	0	491,616	648	92	5	0	63,328	615,332	43,882	1,214,903
1985	0	347,486	648	92	5	0	54,186	461,801	33,574	897,792
1986	0	327,627	648	92	5	0	44,810	379,793	34,823	787,798

*Actual
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ESTIMATED FOSSIL FUEL REQUIREMENTS - NATURAL GAS (Contiguous U.S.) (1,000 MCF)

	<u>BCAR</u>	<u>ERCOT</u>	<u>MAAC</u>	<u>MAH</u>	<u>MAURCA</u>	<u>MPCC</u>	<u>SERC</u>	<u>SPP</u>	<u>WSOC</u>	<u>NERC</u>
<u>INTERRUPTIBLE NATURAL GAS - STEAM</u>										
1976*	1,080	165,118	0	8,433	30,581	9,396	23,878	278,246	272,747	789,479
1977	1,080	171,067	0	1,444	5,073	0	13,911	201,663	153,353	547,591
1978	1,080	151,396	0	36	2,350	0	9,113	179,760	126,441	470,176
1979	1,080	150,357	0	36	110	0	889	151,105	105,850	409,427
1980	1,080	135,139	0	36	210	0	1,140	145,514	70,870	354,009
1981	1,080	145,970	0	36	110	0	976	120,864	43,771	312,807
1982	1,080	141,024	0	36	10	0	827	117,055	24,925	284,957
1983	1,080	117,327	0	36	10	0	816	111,373	25,659	256,301
1984	1,080	132,058	0	36	10	0	747	121,720	21,891	277,542
1985	1,080	134,149	0	36	10	0	686	119,087	22,677	277,725
1986	1,080	141,128	0	36	10	0	717	109,510	22,422	274,903
<u>INTERRUPTIBLE NATURAL GAS - COMBUSTION TURBINE</u>										
1976*	10,370	0	891	3,210	3,604	0	577	4,030	5,822	28,504
1977	10,370	0	372	1,009	185	0	9	2,099	4,831	18,875
1978	10,370	0	431	509	112	0	0	2,111	4,475	18,008
1979	10,370	0	398	231	84	0	0	1,334	6,788	19,805
1980	10,370	0	432	231	112	0	0	1,053	7,493	19,691
1981	10,370	0	424	324	112	0	0	300	4,031	15,561
1982	10,370	0	432	419	112	0	0	300	2,505	14,138
1983	10,370	0	407	327	98	0	0	300	2,512	14,014
1984	10,370	0	432	605	84	0	0	300	2,401	14,192
1985	10,370	0	424	697	0	0	0	300	2,354	14,145
1986	10,370	0	431	882	0	0	0	300	2,378	14,361
<u>INTERRUPTIBLE NATURAL GAS - COMBINED CYCLE</u>										
1976*	0	9,555	0	0	0	0	0	2,541	0	12,096
1977	0	7,229	0	0	540	0	0	1,723	0	9,492
1978	0	7,229	0	0	0	0	1,871	1,085	0	10,185
1979	0	7,229	0	0	0	0	1,972	425	0	9,626
1980	0	7,229	0	0	0	0	1,951	161	0	9,341
1981	0	7,229	0	0	0	0	2,035	195	3,289	12,748
1982	0	7,229	0	0	0	0	2,054	218	3,289	12,790
1983	0	7,229	0	0	0	0	2,075	253	3,289	12,846
1984	0	7,229	0	0	0	0	2,094	311	3,289	12,923
1985	0	7,229	0	0	0	0	2,115	345	3,289	12,978
1986	0	7,229	0	0	0	0	2,114	380	3,289	13,012
<u>TOTAL INTERRUPTIBLE NATURAL GAS</u>										
1976*	11,450	174,673	891	11,643	34,185	9,396	24,455	284,817	278,569	830,079
1977	11,450	178,296	372	2,453	5,798	0	13,920	205,485	158,184	575,958
1978	11,450	158,625	431	545	2,462	0	10,984	182,956	130,916	498,369
1979	11,450	157,586	398	267	194	0	2,861	153,464	112,638	438,858
1980	11,450	142,368	432	267	322	0	3,091	146,748	78,363	383,041
1981	11,450	153,199	424	360	222	0	3,011	121,359	51,091	341,116
1982	11,450	148,253	432	455	122	0	2,881	117,573	30,719	311,885
1983	11,450	124,556	407	363	108	0	2,891	111,926	31,460	283,161
1984	11,450	139,287	432	641	94	0	2,841	122,331	27,581	304,657
1985	11,450	141,378	424	733	10	0	2,801	119,732	28,320	304,848
1986	11,450	148,357	431	918	10	0	2,831	110,190	28,089	302,276

*Actual

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ESTIMATED FOSSIL FUEL REQUIREMENTS - NATURAL GAS
(Contiguous U.S.)
(1,000 MCF)

	<u>ECAR</u>	<u>ERCOT</u>	<u>MAAC</u>	<u>MAIN</u>	<u>MARCA</u>	<u>MPCC</u>	<u>SERC</u>	<u>SPP</u>	<u>WSOC</u>	<u>NERC</u>
TOTAL NATURAL GAS										
1976*	11,450	1,054,752	10,386	27,561	37,086	9,396	146,161	1,159,037	424,075	2,879,904
1977	11,450	1,141,676	900	6,115	6,694	0	131,404	1,064,583	245,931	2,609,183
1978	11,450	1,071,193	1,071	4,637	2,467	0	121,884	992,581	189,873	2,395,156
1979	11,450	1,002,132	1,006	359	199	0	99,583	942,699	166,767	2,224,197
1980	11,450	968,609	1,192	359	327	0	78,057	899,879	131,808	2,091,681
1981	11,450	797,264	1,072	452	227	0	77,616	842,797	100,574	1,831,452
1982	11,450	708,741	1,080	547	127	0	77,09*	808,766	73,406	1,681,212
1983	11,450	661,132	1,055	455	113	0	72,511	725,534	75,696	1,547,996
1984	11,450	630,903	1,080	733	99	0	66,169	737,663	71,463	1,519,560
1985	11,450	489,864	1,072	825	15	0	56,987	581,533	61,894	1,202,640
1986	11,450	475,984	1,079	1,010	15	0	47,641	469,983	62,912	1,090,074

*Actual

The CHAIRMAN. If you are talking about \$150 billion just for the scrubbers, I would think you are talking somewhere in the vicinity of a minimum of \$500 billion—I did not say millions, it is billions.

You are talking about roughly \$500 billion, and we are talking about a tax to force you to do that, a tax which was supposed to phase in fully 6 years from now.

Can you tell me who can say with any certainty if we treat this methane problem as we ought to treat it, as a matter of high priority, that between now and then we will not develop the methane? And if we do develop the methane, then we would want to convert back to gas, because we would have a cleaner substance. With gas, you would not have to fool around with all of these scrubbers and all of that, and you would have a source of fuel that would last you for more than a hundred years, so you would want to convert back, I assume.

Meanwhile, if we treat energy production as a priority matter, we might find that we could make oil out of shale on a competitive basis. If we converted, we might later want to use oil extracted from shale, or, for that matter, they may let them drill in the Atlantic sometime between now and the time that the Good Lord calls us all home. Or we might explore the Baltimore Canyon and find more gas than anybody on earth has, for all we know. It has a great potential.

If you do that, of course, you would have to reverse conversion and try to start all over again, would you not?

Mr. McCORMACK. Yes, sir.

It does not make economic sense—I am sure you remember the testimony of my associate in the industry, Mr. Reid Thompson who, in fact, said that this would be—I forget the exact words he used, but it would be an incredible lack of appreciation for the capital resources of this country if we forced this conversion, in effect, scrapped all of these good plants.

The CHAIRMAN. Let me touch on the argument of those who say we are running out of energy.

When Mr. Schlesinger appeared before the committee, he said if someone said we had a thousand year supply of energy that he had to be smoking pot. I later tried his argument out on a technician or two.

Let me ask you this. If we really are that hard up for energy, what would keep somebody from drilling down into the earth, or enough down to where he is tapping the heat of the molten core of the earth, where the earth heat is 450° to 500° or more? You have to get about 25,000 feet down to do that, and simply pushing water—it could be any kind of water—down into any porous rock that you can find down there and putting wells alongside to let the steam come back up through a separate hole. Would that work?

Just as a country boy, I am thinking of how you might solve the energy problem. The engineer I talked to said, "No doubt about it. It is just a matter of cost whether you want to do it that way or some other way." But that would work; I am confident that it would.

Let us assume that you tap the molten core of the earth. You have 8,000 miles of it between here and China. How long do you suppose that would last us?

The danger of our running out of this kind of energy is so remote that it is ridiculous to even think in those terms.

If Mr. Schlesinger wants to check that, I would like his answer. How many thousands of years would the molten heat of the Earth last us?

If you look at the solar energy available, look at the geothermal, just take those two as ultimate sources, not talking about the others, what it really gets down to is purely a matter of price, is it not?

Mr. McCOLLAM. Yes, sir.

There is one other factor, I think, that I would comment on and that is in the immediate time frame, we have a serious electric power supply problem. These things you have mentioned have great potential for further development and we ought to pursue them at great length. They are going to require a good bit more research. The methane potential is great, in my judgment, but it is not going to be produced tomorrow.

We have a problem today that we have to address ourselves to, it is that we are going to have a serious power supply shortage in this country as early as 1979 in the southeastern part of this country unless we can do something about the restraints that are on the industry right now in providing the future generating capacity. In the time frame we are talking about, 10 years, we have to rely basically on what we now have in the way of technology.

The things you are mentioning have tremendous potential for the future. We have to be looking at this very seriously, and pouring research money into these types of projects.

The CHAIRMAN. With this tax they are talking about imposing by 1983, do you not have to set some money aside in order to pay the tax?

Mr. McCOLLAM. Yes, sir. I have not really gotten to the meat of my testimony. This is background.

Could I cover this part, as far as the way we assess the effect of taxes on reliability?

As I mentioned earlier, the NERC report, this annual review of overall reliability I am holding up here, which is exhibit 1 to my testimony, concluded that the difficulty of electric utilities to finance new generating and transmission facilities is a continuing restraint, one of the major restraints, which is going to adversely—is, and is going to—adversely affect the reliability and adequacy of our bulk power supply system in the United States.

The State and Federal regulatory agencies must accept their responsibility to assure the financial integrity of utilities through prompt and adequate rate relief, thereby permitting the construction of vital electric power supply facilities for the future.

This is a very important must, if we are going to finance these facilities. Due to the capital-intensive nature of the electric utility industry, the report I mentioned points out that we are going to need, in the next 10 years, some \$250 to \$300 million to finance the construction of new facilities to provide an acceptable level of adequacy and reliability.

That figure, Mr. Chairman, does not include any of the conversions that we are talking about. This is just what is now planned by the utilities.

The CHAIRMAN. How much is that?

Mr. McCOLLAM. \$250 to \$300 billion over the next 10 years.

As you know, our industry is the most capital-intensive of all industries, and represents about 20 percent of all of the capital needs of the country in the next 10 years, \$250 to \$300 billion. That is a lot of money we have to raise.

The competition for capital in the financial marketplace and the resultant higher costs of financing, escalating construction and operation costs and the added costs of environmental protection are among the most serious problems that our industry is facing today.

Also adding to the utilities' financial problems is the extremely long leadtimes now prevalent. They must commit money for new generating plants not knowing when they will begin earning a return on that investment. We have to be able to attract capital to provide these facilities now that may not come on-line until 10 years from now because of all the constraints we are dealing with.

I am getting now to the meat in the coconut. The imposition of additional taxes on the use of oil and natural gas in electric utility boilers as proposed would add one more financial burden on the utility systems at a time when many systems are under great pressure to maintain sufficient earnings to attract these tremendous amounts of capital that we are going to need to finance our ongoing construction programs.

Furthermore, the cost of such taxes—which ultimately must be borne by the customers—would only be recoverable through increased rates approved by regulatory commissions.

As highlighted in the reliability report, the NERC report, the lack of timely rate relief is one of the basic reasons why the future adequacy of electric bulk power supply is, in fact, in jeopardy now.

Without adequate financial resources, utility systems cannot build bulk power facilities sufficient to reliably meet the projected load requirements of our customers. We believe that it is obvious that with the time lag which would be inherent in recovering such tax costs, many utilities would be forced to further delay installations in new coal-fired and nuclear-generating units.

It is completion of these coal-fired and nuclear units that are going to be the most effective means of reducing the use of oil and natural gas as boiler fuel.

The utilities, in some areas of the United States, our area of Louisiana is the classic example of this, will not be able to qualify for rebates sufficient to offset the taxes imposed because they will be required to operate some of their oil-fired and gas-fired capacity for longer than the 1,500 hours allowed for peaking service—specifically referring to the House version of the bill, H.R. 8444. We will have to operate these plants more than 1,500 hours a year in many areas of the country in order to meet our electric load requirements.

Thereby, we are not going to qualify for the tax rebates that were supposed to offset the taxes if we are moving as rapidly as possible to convert to coal and nuclear from oil and gas.

So that is a serious problem for our part of the country, and many other areas of the country.

Mr. Chairman, in summary we believe that frankly the electric utility industry is not part of the energy problem, but rather it is an essential part of the solution to the problem. The prudent course for

governmental policies and actions is to assist in providing an increase in the supply of energy. That is what is not being done, especially electric energy for the future.

The electric industry can provide an adequate supply in the future, as it always has in the past, only if the policies and administrative regulations which are now constraining the industry are promptly removed, without the introduction of such things as the additional tax burdens that we are talking about today.

We believe, in the National Electric Reliability Council, that the risk of an energy limited economy is too great to contemplate, and we would urge the support of this committee and of the Senate in developing a sound, realistic energy policy for the Nation that would address itself to the supply side of the equation which is being totally ignored in our judgment by the proposals now under consideration.

Thank you for your patience, and I apologize for the time I have taken.

The CHAIRMAN. Senator Talmadge?

Senator TALMADGE. Mr. McCollam, how long does it take you to get a nuclear plant from the drawing board to onstream in the United States?

Mr. MCCOLLAM. Senator Talmadge, our studies show most recently that it takes up to 14 years from the time that a nuclear plant is planned until we can bring it on the line because of the tremendous amount of restraints imposed upon us now.

Our studies show up to 14 years.

Senator TALMADGE. How long does it take in Japan?

Mr. MCCOLLAM. It takes a much shorter period of time in most foreign countries. We understand, sir, it is 7 years at most in the areas like Japan and Europe. They can do it in half the time that we are doing it.

Senator TALMADGE. Is there anything that Congress has done to date, including creating the Energy Department, that will eliminate any of those strict constraints?

Mr. MCCOLLAM. No, sir. We have not seen anything that would eliminate those constraints.

It is my understanding that the present administration is going to make a proposal to the Congress which is now under study to accelerate the licensing procedures for nuclear powerplants, that is getting the construction permit and the operating permit, but that proposal has not yet been made.

We have got to speed this process up, or we are indeed in serious trouble.

Senator TALMADGE. Secretary Schlesinger, in his authority now as Secretary of Energy, does he have authority to cut those restraints and redtape?

Mr. MCCOLLAM. Senator Talmadge, my understanding of the bill that passed by the Congress creating the new Department of Energy is that it does not give Secretary Schlesinger the control over the Nuclear Regulatory Commission which is the main body involved in the licensing process.

Senator TALMADGE. Does not nuclear energy offer the greatest potential for the generation of electrical power of any resource that we have?

Mr. McCOLLAM. Nuclear and coal. There is no way we are going to meet the energy requirements of this country without having reliance on both. We are kidding ourselves if we think we are going to solve our problems without heavy reliance on nuclear.

To answer your question, it is absolutely essential.

Senator TALMADGE. Is the construction of nuclear plants increasing or decreasing?

Mr. McCOLLAM. There is a heavy commitment to nuclear energy plants that are already under construction or planned. There certainly has been a slacking off in the ordering of new nuclear units.

There is a great deal of concern in the industry about whether we can maintain a viable nuclear industry if we do not have more plants being ordered. That concern has been expressed in many quarters.

Senator TALMADGE. Why the slowdown?

Mr. McCOLLAM. The tremendous uncertainties that most utilities face in planning, financing and bringing these plants on the line. And it takes up to 14 years to build a nuclear powerplant and because of the uncertainties in handling the spent nuclear fuel, and the uncertainties associated with the whole nuclear process.

Many companies that would otherwise commit themselves to nuclear are going other routes. They are going the coal route, for example.

Senator TALMADGE. What is the comparative cost of the generation of electricity from a nuclear plant and, say, a coal fired plant?

Mr. McCOLLAM. Senator, that is a very difficult question to answer, as a generality, because it would depend on what part of the country you are talking about, the site problems, for example. It would depend on the transportation distance you would have to haul coal.

In many areas of the country, you would find that nuclear is the more attractive alternative. Let me give you the example of our part of the country.

Our sister company, Louisiana Power & Light Co., as I mentioned earlier, is building a nuclear plant 25 miles up river from New Orleans.

The studies they did demonstrated conclusively that it was more economical than a coal fired plant. In that case, I can cite a specific example. There are other examples in other areas of the country, for example, where plants might be in close proximity to coal fields where a coal fired plant would be more economical.

Senator TALMADGE. Thank you.

I have no further questions, Mr. Chairman.

The CHAIRMAN. Senator Packwood?

Senator PACKWOOD. One of the witnesses for the electric utility trade association who testified earlier in the hearings indicated there was no need for the user tax because all the utilities are going to be changing to coal and nuclear by 1985 and there would not be any, or very few, new plants that would be built that are gas fired or oil fired.

Mr. McCOLLAM. Yes, sir. That is correct.

Senator PACKWOOD. Is that also true in Louisiana?

Mr. McCOLLAM. That is true. We are not planning any new oil or gas fired plants.

Senator PACKWOOD. He gave the figure nationwide of something like six oil, five gas—an insignificant number in terms of the new plants.

Mr. McCOLLAM. I might call your attention to the report that you may not have before you. There is a chart I can hand you which is contained in our report which shows the major generating unit additions which are scheduled by principal fuel sources over the next 10 years.

Senator PACKWOOD. This indicates no oil and no gas, no gas after 1978?

Mr. McCOLLAM. That is correct.

Senator PACKWOOD. No oil after 1983, it looks like.

Mr. McCOLLAM. The reason you see the oil units there that go through 1983, is that they were already under construction before the energy crisis hit. You will see on this chart graphically the point you are making, that there is heavy commitment to coal and nuclear for new plants; for all practical purposes, a complete phaseout of any new plants of oil and gas.

Senator PACKWOOD. Let me ask you this. There is no point in the user tax, because they would be stopped anyway?

Mr. McCOLLAM. We think it would be counterproductive in that it is going to impede our ability to attract the capital to finance the coal and nuclear plants. No useful purpose.

Senator PACKWOOD. The premise is—I am not sure I accept the premise, but the premise is that we are running out of oil and gas, therefore we need the user tax to force you to convert from plants that now use oil and gas, even though it is not economic. We are placing un-economic second, because we are running out of oil and gas.

If we had the user tax, in your estimation, would a good many plants, would they convert some of their existing oil and gas to other forms of generation?

Mr. McCOLLAM. No, sir, in my judgment, they would not. I cited the example in my part of the country. There is no way that we can convert. The only thing you can do is build a new plant.

In many States where we have oil and gas plants, as I mentioned earlier—I am not sure you were present then—you could not. The site limitations are such that you could not put a coal fired plant in a major metropolitan area, like New Orleans, where I come from. We are doing everything we can to convert in the sense of building new coal and nuclear plants, but it is not technically or economically feasible to convert the oil and gas fired plants to coal, and so the user tax is going to do absolutely nothing as an incentive to us, because we are already doing it.

Senator PACKWOOD. At the time that gentleman testified, I asked if there was anybody in the room from the administration—I think there were several, but nobody raised his hand—we suggested having them wear tall hats so we could identify them from time to time—who made the argument that there is no use for the user tax.

Nobody in the audience or the administration has come to me, as far as electric generation is concerned, to justify the user tax. I mention that because again, my mind is still open on it. If there is anybody here from the administration in the room that can prove that this user tax would, indeed, force a major conversion presently away from natural gas, I wish they would contact me.

I have no other questions, Mr. Chairman.

The CHAIRMAN. Senator Curtis?

Senator CURTIS. I have no questions.

The CHAIRMAN. Senator Dole?

Senator DOLE. I think Senator Packwood, and maybe others, before I arrived, covered the basic questions. Like everything else in the administration's proposal, we are either talking about reducing demand or encouraging, in your case, conversion to coal. Senator Packwood has covered the conversion question.

As far as reducing demand, how much will the tax raise electricity rates per kilowatt hour?

Mr. McCOLLAM. Senator Dole, I probably could best answer that question by referring to my own area of the country, that is the area of Louisiana from which I come and in which my company is located. It is going to have a tremendous economic impact.

We figure—you are talking about the oil and gas user tax now?—we figure that this is going to impact on the customers in Louisiana to the tune of in excess of \$1 billion over and above the costs that we are now incurring or charging our customers.

We figure on a per capita basis that this is going to increase the electric bills of the residential consumers in Louisiana something like \$200 a year.

Senator DOLE. You have had rate increases?

Mr. McCOLLAM. We have had some rate increases, Senator Dole, but I think the principal reason that the cost of electricity has gone up to our consumers in Louisiana is that we have had our natural gas for electric generation taken away from us through Federal Power Commission mandates.

We have had a forced conversion to oil burning as a result of this.

In the case of my own company, for example, we have had tremendous increases in the cost of energy to our customers simply because of added fuel costs of oil versus natural gas.

Senator DOLE. Have you had any decrease in demand because of increases in rates in the past?

Mr. McCOLLAM. Senator Dole, in the case of my own company, we have noticed some effect, price elasticity effect, if you will, as the cost of energy has gone up. We have had some evidence of conservation for economic reasons. But it is very difficult to get a precise handle on.

Right after the Arab oil embargo when the cost of oil went up dramatically, we did notice a cutback in the use of electricity on the part of our customers, but that leveled off and our growth has now resumed.

Senator DOLE. Do you feel that the tax imposed by the administration will tend to reduce the consumption of electricity?

Mr. McCOLLAM. I think that it will have probably a minimal effect.

Senator DOLE. If the tax is going to have any impact, it would fall on the very low income Americans who can least afford it?

Mr. McCOLLAM. Yes, sir. It will certainly have that effect.

Senator DOLE. This is an administration dedicated—

Mr. McCOLLAM. In clear conscience, I could not tell you it would not have any effect, but it would be minimal. It is not going to induce the conservation on the order of magnitude that most people think it will. It is going to be counterproductive in that sense.

Senator DOLE. You said in Louisiana you would have \$1 billion in increases that is \$200 per household. I do not know if you have any estimate of the nationwide figure, or whether I could comprehend that anyway.

Mr. McCOLLAM. No, sir, I do not have a nationwide figure available. I am sure we could—there are statistics that have been developed. I would be glad to furnish that information for the record. We can get that information.¹

Senator DOLE. The other issue that Senator Packwood, and maybe others as well have roused is, there is either going to be reduced demand or incentive to convert to coal. I understand that there are no new oil- or gas-based plants on order now?

Mr. McCOLLAM. No, sir, there are not. The chart I handed Senator Packwood, which is the reproduction of a figure in our report, indicates the new electric generating units that are planned or under construction. The only ones, oil and gas plants, that are in the picture in the next 10 years are those already under construction. There are no new ones.

Senator DOLE. It is not going to have any impact at all on conversion to coal. No way it could have?

Mr. McCOLLAM. No, sir.

Senator DOLE. I do not have any more questions. I keep wondering why we have this bill before us.

I was here all day yesterday. I had to go back and regroup after the hearing, just with myself, because I found the chamber of commerce, the CIO, and the Consumers Federation of America, every single witness who has testified is against the equalization tax except the administration witnesses.

I do not know. There has to be some witness who comes from somewhere outside of the administration to indicate that this a good program before I think we can act on it, unless we are just going to rubberstamp the administration's program.

I am certain there is no one here—or at least not a majority—who would do that.

What part do you like best about the program?

Mr. McCOLLAM. Senator Dole, before you came in, I commented that in the judgment of National Electric Reliability Council, none of the proposals before the Congress adequately addresses the problem of increasing the supply side of the equation.

There is not any doubt about it, as it pertains to the electric power supply in this country, that we have a serious adequacy and reliability problem staring us in the face as early as 1979, and yet we are not doing anything about removing these constraints that would enable us to solve these problems.

I do not see anything encouraging in the proposals before the Congress.

Senator DOLE. Did you have a chance to hear or read about the proposal of former Governor and Vice President Rockefeller?

Mr. McCOLLAM. I have heard about that proposal. I must say I am not too familiar with the details of it. I am generally familiar with it.

¹ See p. —.

Senator DOLE. If you are not too familiar, I will not ask you for a comment. It did indicate at least some initiative where we might involve primarily the private sector. Maybe only loans to develop the rare resources or the resources of last resort.

We are asked to pass on an energy program before mid-October, the end of November, sometime before the end of this year. It does not seem to have much support for it anywhere. I thought I might have missed something.

I know everybody here probably has some bias. So far there has not been one group of witnesses except those who want a tax credit for insulation who favor the program I can understand that. We are all for that.

But do you present an alternative, in your proposal?

Mr. McCOLLAM. What we are saying, in effect, is that the Congress must remove many of the restraints.

Senator Talmadge, for example, asked a question about nuclear power. We have got to do something to cut down this whole process, from the time we plan a nuclear plant until we bring it on line. It is ridiculous, the amount of time that it takes.

That is going to take, in our judgment, some legislation to do that.

As I mentioned earlier, it is our understanding that the administration is coming forth with some sort of proposal—we do not know exactly what it is going to be—but it means that is a serious problem, as far as nuclear power is concerned.

As far as coal, there are many, many restraints now being imposed of an environmental nature, for example, with respect to the mining of the coal, with respect to the burning of the coal.

With all the constraints, we do not think we can mine and burn all the coal that we need, and with the recent amendments to the Clean Air Act, which in effect require the use of scrubbers as the best available control technology, regardless of the sulfur content of the coal, low sulfur Wyoming coal, high sulfur eastern coal—we think that is going to be a tremendous impediment in providing the electric power supply through the coal route.

Everything, it seems to us, that is being done goes in the wrong direction as far as helping the supply side of the energy equation.

Senator DOLE. Have you had any input with Dr. Schlesinger? Have an opportunity to visit with him?

Mr. McCOLLAM. Yes, sir. Last Wednesday three of my associates on the National Electric Reliability Council and I had a discussion with Dr. Schlesinger for about an hour and 15 minutes in his office in the White House, and the purpose of our meeting was to present the findings of these two reports to which I have referred today.

I guess I could summarize his reaction this way. I have said this probably in response to questions from the press. He does not dispute that we have many of the problems that we identify in these reports. He is more optimistic that the problems are going to be solved.

He thinks we are entirely too pessimistic. Frankly, we think he is too optimistic, that in this time frame you are going to solve any of these problems without a major, aggressive effort, looking at the present laws on the books of Congress, and realizing some of these things that we have been talking about.

Senator DOLE. I do not know how he can be classified as an optimist when he says we are out of energy in this country. Maybe from the standpoint of some of the other problems he is an optimist.

Mr. McCOLLAM. He is more optimistic that we are going to solve some of the specific problems impeding the development of the electric power supply. We just do not agree with that. We think our assessment is well substantiated.

Senator DOLE. Thank you.

The CHAIRMAN. Senator Byrd.

Senator BYRD. I just want to say that I think Mr. McCollam is an excellent witness. I have no questions.

Mr. McCOLLAM. Thank you very much.

The CHAIRMAN. Thank you very much.

[The prepared statement of Mr. McCollam follows:]

STATEMENT OF WILLIAM McCOLLAM, JR., CHAIRMAN, NATIONAL ELECTRIC
RELIABILITY COUNCIL

Mr. Chairman and members of the Subcommittee, my name is William McCollam, Jr. I am President and Chief Executive Officer of New Orleans Public Service Incorporated, a part of the Middle South System. I am also Chairman of the National Electric Reliability Council (NERC)¹, and it is in this latter capacity that I am appearing before this Committee today.² Because the principal mission of NERC is to augment the reliability and adequacy of bulk power supply of the electric utility systems in North America, my remarks will be directed to the tax provisions which have a bearing on a future reliable and adequate supply of electric energy.

As the present bulk power supply system was being developed into a highly-interconnected network, it became necessary to increase the coordination among systems, areas, and regions. As a result, starting more than ten years ago, regional reliability councils were formed, which councils include essentially all systems, publicly-owned and investor-owned. The function of these councils has been to coordinate the planning of all new bulk power generating and transmission facilities to assure that they are compatible and coordinated and that the transmission network can be operated reliably under a wide variety of conditions.

Additional coordination has been provided by the formation of a number of interregional council arrangements in the higher load-density areas of North America, and overall coordination has been developed through the National Electric Reliability Council.

The present voluntary system has worked well and the overall reliability of the bulk power supply systems in North America has improved considerably. The problems now being encountered stem from present governmental constraints and the situation will only be exacerbated by injection of further governmental controls and further financial restraints.

NERC wholeheartedly concurs with the statement in Section 501(a) of S. 1469 that "The Congress finds . . . that adequate and reliable supplies of electric energy . . . are necessary for the general welfare and national security." Last week, NERC released two reports—its "7th Annual Review of Overall Reliability and Adequacy of the North American Bulk Power Systems," and "Fossil and Nuclear Fuel for Electric Utility Generation, Requirements and Constraints" (Exhibits 1 and 2). One of the overall conclusions of these reports is that "the adequacy of electric power supply for the future is in jeopardy," and that "once

¹ The National Electric Reliability Council (NERC), formed by the electric utility industry in 1968, has the principal mission of augmenting the reliability and adequacy of bulk power supply of the electric utility systems in North America. NERC consists of nine regional reliability councils whose memberships comprise essentially all of the electric power systems in the United States and the Canadian systems in the provinces of Ontario, British Columbia, Manitoba, and New Brunswick. The governing body of NERC, the Board of Trustees, consists of two representatives of each regional council plus such additional members as necessary to assure at least two representatives from each segment of the industry: i.e., investor-owned, Federal, State/Municipal, and Rural Electric Cooperative.

² Canadian members in NERC do not participate in any comments offered by NERC on matters concerning legislation by the Congress of the United States.

a deficiency of generating capacity exists, the time to recover will be measured in years, because of the time required to build facilities."

The uncertainties associated with the timely completion of generating units presently under construction and planned for the future raises the specter of inadequate generating capability to serve the electric load in the United States starting as early as 1979. The result will be a degradation of the quality of electric bulk power supply in the following years, with the likelihood of forced curtailments of electric power of increasing severity and adverse impact on the economic well-being of the nation and its citizens.

The electric utility industry is presently being restrained from providing an adequate future supply of electric energy, the consequences of which will inevitably result in:

- An era of an energy-limited economy for the United States;
- Disruption of operations in the industrial sector;
- Economic hardships to commercial establishments;
- Reduced operating efficiency of the business community;
- Adverse changes in life-style of the American people; and
- Threats to the health and welfare of all citizens.

Past power interruptions to electricity supply, as well as experience in Europe during prolonged fuel deficiencies, clearly establish the adverse consequences of such circumstances. In the light of the long lead times required to build power supply facilities, such deficiencies are too great to risk. It is imperative, therefore, that concerted efforts by the government and the electric power industry be pursued to remove the existing restraints which are inhibiting the construction of facilities necessary to provide an adequate and reliable power supply for the future. Legislation now being considered by this Committee will add additional restraints which will only compound the problem further. Furthermore, an inadequate bulk power supply system will inevitably place greater stresses on the transmission network thus threatening its reliability.

Some of the present critical restraints are:

- Overlapping and conflicting governmental regulations impeding the siting and the timely completion of new generation and transmission facilities;
- Conflicts that exist between environmental goals and energy requirements;
- Lack of timely and adequate rate relief adversely affecting the ability of utilities to finance construction of facilities required for the future;
- Existing and possible future impediments which will impact on the ability to develop the necessary coal and uranium fuels to supply future planned generation facilities; and
- Lack of stable government policies relative to the supply of electric energy.

Neither the Administration proposals nor the House-passed version of the Energy Bill adequately address these problems.

As to the essential requirements of primary energy for the production of electric energy, the NERC reports indicate that the following constraints threaten the power industry's ability to secure adequate quantities of fuel and thus the assurance of an adequate and reliable power supply:

- A complete inability to meet the coal needs of the nation without rapid and extensive action to expand the Western coal fields;
- The adverse effects on coal production by the Federal Surface Mining legislation;

An impossible demand on the utilities to use scrubbers as the "Best Available Control Technology" (BACT) on all future coal-fired power stations, and legislative and administrative trends toward more restrictive air quality standards;

A bottleneck in railway and river channel transportation of coal, together with the lack of legislation to permit the building of slurry pipelines;

A slowdown in the installation of light-water reactors due largely to the vastly extended licensing procedures and the Administration's ambivalence toward nuclear power, together with the hiatus in commitment toward the breeder reactor for longer-term needs and in the reprocessing of spent fuel; and

Regulations affecting the use of oil and gas as boiler fuels in existing plants with gas phased out completely after 1990.

The NERC report previously referred to (Exhibit 1) concluded that the difficulties of electric utilities to finance new generating and transmission facilities

is a continuing constraint which will adversely affect the reliability and adequacy of power supply in the United States with its resultant impact on economic welfare. State and Federal regulatory agencies must accept their responsibility to assure the financial integrity of utilities through prompt and adequate rate relief, thereby permitting the construction of vital electric power supply facilities for the future.

Due to the capital intensive nature of the electric utility industry, some \$250-300 billion will be required over the next ten years to finance the construction of new facilities to provide an acceptable level of reliability and adequacy. The competition for capital in the financial marketplace and the resultant higher costs of financing, escalating construction and operating costs, and the added costs of environmental protection are among the most serious problems faced by the industry. Also adding to the utilities' financial problems is that with the extremely long lead times now prevalent, they must commit money for new generating plants not knowing when they will be able to begin earning a return on the investment.

The imposition of additional taxes on the use of oil or natural gas in electric utility boilers as proposed would add one more financial burden on the utility systems at a time when many systems are under great pressure to maintain sufficient earnings to attract the capital needed to finance their essential construction programs.

Furthermore, the cost of such taxes—which must ultimately be borne by the customers—would only be recoverable through increased rates approved by regulatory commissions. And, as highlighted in the NERC report, the lack of *timely* rate relief is one of the basic reasons why the future adequacy of electric power is in jeopardy. Without adequate financial resources, utility systems cannot build sufficient bulk power facilities to reliably meet the projected load requirements of the customers.

We believe it is obvious that with the time lag which would be inherent in recovering such tax costs, many utilities would be forced to further delay installations of new coal-fired and nuclear generating units. It is the completion of these generating units which will be the most effective means of reducing the use of oil and natural gas as boiler fuel.

As to the proposed rebates of User Taxes on oil and gas, utilities in some areas of the United States will not be able to qualify for rebates sufficient to offset the taxes imposed because they will be required to operate some of their oil-fired and gas-fired capacity for longer than the 1,500 hours allowed for peaking service (in H.R. 8444), in order to meet the electric load requirements.

In summary, we believe that the electric utility industry is not part of the energy problem, but rather is an essential part of the solution to the problem. The prudent course for governmental policies and actions is to assist in providing an increase in the supply of energy, especially electric energy, for the future. The electric industry can provide an adequate supply in the future—as it always has in the past—only if the policies and administrative regulations which constrain the industry are promptly removed, and without the introduction of the added financial tax burden.

We believe the risk of an energy-limited economy in the future is too great to contemplate. We urge the support of this Committee and the Senate in developing a sound, realistic energy policy for this nation.

The CHAIRMAN. Next, we will call Mr. Louis Lambert, chairman of the Louisiana Public Service Commission.

We are pleased to have you here, Mr. Lambert.

STATEMENT OF LOUIS J. LAMBERT, CHAIRMAN, LOUISIANA PUBLIC SERVICE COMMISSION

Mr. LAMBERT. Mr. Chairman and members of the Senate Finance Committee, first of all let me express to you our appreciation and my gratitude to talk with you very briefly about a subject that is important to a State that I represent, Louisiana.

I am here today as chairman of the Louisiana Public Service Commission, and I would like to hurriedly give you some background concerning this agency.

Unlike most public service commissions in this country, the Louisiana Public Service Commission is an elected body. From 1921 to 1973, it consisted of three members elected from equally apportioned districts throughout Louisiana.

Since the 1973 constitution was adopted within our State, it was expanded to a five-member body, and that is what we presently operate under at this time.

What I would like to do is very briefly talk with you about the problems that many aspects of this legislation will create within our State.

I have been here this morning. I have had an opportunity to listen to a couple of witnesses that more or less put forth the viewpoint of the utility industry and how this legislation would adversely affect their industry.

What I would like to do is focus, if I might, on the plight of the people who are going to actually have to pay the bill ultimately. Those are the ratepayers, or the customers, under the various systems.

I am going to confine my remarks to Louisiana. I am going to try to be as brief as I possibly can.

I submitted a statement, 75 copies, as you requested. I am not going to read it.

Members of the committee, I know you have heard this many times, but I would like to restate it, if I might. We, in Louisiana, produce approximately 35 percent of all of the natural gas that is consumed within the continental bounds of this Nation.

We presently generate all electricity by using natural gas in our State. We have done that for many, many years and the reason we have done that is because we voluntarily—we did not have to; no one put a gun to our heads—we decided that we wanted to produce natural gas and oil that was located beneath our State.

We did this many years ago, and we have continued to do this.

Because natural gas at one time was a very cheap and clean fuel, we constructed our industry using natural gas as its fuel. We constructed our electric generators using natural gas to run the boilers and generate the electricity.

Consequently, we find ourselves in Louisiana at this time with all of our generators of electricity being fueled by natural gas.

The first point I would like to oppose in the legislation before this committee is the forced conversion from natural gas to coal. The reason for that is that the ratepayers in our State probably enjoy some of the lowest rates in this country.

The reason for that, as I stated earlier, is we chose to produce natural gas which was, and still is, a relatively cheap fuel. Because we have done this, all of the capital costs of all of the plants that went into the actual constructing of the electric generators is now being paid by the ratepayers, because after all of these plants were built, these costs were put into the rate base.

If we are forced, at this stage, to convert to coal, a fuel that we would have to transport from Wyoming, Pennsylvania, from other parts of this country, and pay a large amount of transportation costs to do that, when we can use natural gas that sits beneath our State. I submit to you that it is an unfair burden and undue burden on the ratepayers of Louisiana, the consumers of electricity.

In effect, what we will be faced with will be, No. 1, the capital costs in constructing the generators we now use that still have a lot of time left on them. Then we have to build coal plants, so in effect, what we will be doing, we will be paying twice.

We will be paying for the capital costs of the natural gas generators which will become obsolete, as I understand it, if we are forced to change to coal. We build the coal generators, or nuclear, which cost, as I understand it today, between \$600 to \$1,000 per kilowatt-hour to construct as opposed to approximately \$200 for natural gas generators.

What I am asking you gentlemen, is this. Please consider the situation that we find ourselves in.

The entire economy of Louisiana today, our industry, burns natural gas. We have not—to any great extent, we have not been able to put ourselves in a position in this short a period of time to convert. Really, it is very difficult for me to explain, to explain to Louisiana, to people in our State when we are willing to drill for oil and gas and willing to suffer whatever environmental damage may go on—which is not a whole lot, in my judgment—the lower part of our State is marshy; it is near the Gulf of Mexico. Our road systems are damaged substantially by moving this heavy equipment in and out.

This costs us extra money, but we pay it, and we are willing to accept this. All we ask, please let us the natural gas that we voluntarily produce. We do not have to produce it, but we want to produce it, because we think it is wise.

Fifty cents out of every tax dollar that runs Louisiana today comes directly or indirectly from the production of oil and gas, which are service-oriented industries. It is something that certainly has been beneficial to us.

But, on the other hand, we chose to produce it. We did not have to; we do not have to. There are other parts of the country that have the same choice. They choose not to produce natural resources located beneath their soil and would help the economy of their State. I suggest that they consider doing that.

When you look at the economy of Louisiana today and you note that we have hardly no property tax, we have, on an average, some of the lowest taxes in the United States, and then you ask yourself why? Because we live in a country, I am sure we would all agree, where people feel as though they are overtaxed.

When you ask yourself why, we find ourselves in the position where the answer is very simple: Because we have chosen to produce the oil and gas that is located beneath Louisiana.

The revenues derived from that help us to run our State.

I am suggesting that other States in this country could choose to do the same thing.

Senator PACKWOOD. If I may ask a question there, I am from Oregon. We have explored for oil and gas and we have not found any in the State.

Should Louisiana not share that gas? It does not belong to Louisiana. It is in interstate commerce; it belongs to the country.

Mr. LAMBERT. I agree with you 1,000 percent. The point I am trying to get across this morning if I am successful, and I hope I am, is sure, we want to share it, but please do not displace our industry at this

time. Please do not put us in a position where we go from having some of the lowest utility rates in the country—not the lowest; not as low as hydroelectric States—do you have hydroelectric power?

Senator PACKWOOD. Seventy-five percent.

Mr. LAMBERT. You have some of the lowest rates in the country. You have very low fuel costs.

Senator PACKWOOD. We have very difficult times during periods of drought.

Mr. LAMBERT. I understand that. Let us hope that that does not reoccur next year.

We find ourselves in a position where we produce natural gas—we do not own it, the United States owns it—we know that. We understand that. We realize that. We want to share it.

But please, let us have just enough, so we are willing to produce it, to run our State. That is all. No more, no less.

This winter we are faced, if the Federal Power Commission accepts the recommendations of the administrative law judge, Judge Campbell, we are faced with 45,000 people being laid off in Louisiana because they cannot convert. These industries, they have no other source, because over the years we have used natural gas. There was no reason for us not to use it. So it is a difficult thing for us to do.

I certainly understand what you said, and I agree with you. No; we do not own it. No, sir. The country owns it.

I am an American first, but I am also from a State that is willing to produce it. There are many States, although your State is not able to—I know you do not have deposits—

Senator PACKWOOD. I am perfectly willing to pay a deregulated price for it.

Mr. LAMBERT. There are many States, I assume you would agree, that could drill. Lake Erie, right now, I am under the impression, has a vast reservoir of natural gas located along the Pennsylvania shore.

If you draw an imaginary line through the middle of the lake, on the Canadian side, they are drilling. There are rigs all along their side of the lake. They are taking that natural gas and oil from beneath the United States border, from across the border, and they are selling it back to us at a high price.

And if an oil shortage should occur—it is not going to stop at the imaginary line. It is going to drift down across the shortline of the State of Pennsylvania in the United States.

All I am saying is this: the oil and gas in this country belongs to everyone, but please, allow the States who had the foresight in the past and who are willing today to pay the price, whatever the price might be, to drill and to produce it, please give us enough.

Under this administrative law judge's proposal to the FPC, he would close the university, Mackanee State College. He would close the Charity Hospital. The Charity Hospital in Louisiana is second to none, has been for years. He would close the Charity Hospital in Lafayette, would close a number of schools, would close all of the sugar mills in Louisiana—by the way, the sugar mills happen to sit right directly on top of some of the biggest natural gas reserves in our State and in our country.

All we are asking for is to please let us use enough of that so we can run these operations, so the economy of our State is not dislocated. That is all.

Senator PACKWOOD. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, Mr. Lambert.

Senator CURTIS?

Senator CURTIS. I have no questions.

Mr. LAMBERT. There is one other point that I would like to make, very briefly. I would like to go on record in opposition to the Federal Government. I think it would be the FERC, if I am not mistaken, under this act of taking jurisdiction and supervision. We are close to the people. We have been able to keep the rates on a national level very low.

We ask for your consideration that our opposition to this section of the bill be noted.

Thank you very much.

The CHAIRMAN. Mr. Lambert, on the second point you are talking about, I agree with you, but that is not before this committee. I think that the Energy Committee would have jurisdiction on that matter. Senator Johnston is on that committee. Talk to him before you leave town.

Mr. LAMBERT. I will do that. It is very difficult, all the bills that are being passed up here, who determines where they are.

The CHAIRMAN. I regret to say that most of the laws this Government has passed are not going to get us more production. They will only slow down production.

Mr. LAMBERT. I am aware of that.

Senator Long, I really appreciate your giving me a chance to come up. Thank you, sir.

The CHAIRMAN. Thank you very much, sir.

[The prepared statement of Mr. Lambert follows:]

STATEMENT OF LOUIS J. LAMBERT, JR., CHAIRMAN, LOUISIANA PUBLIC SERVICE COMMISSION

Mr. Chairman and Members of the Committee, my name is Louis Lambert and I am Chairman of the Louisiana Public Service Commission which regulates the rates and services of public utilities and common carriers in Louisiana. I wish to express my appreciation for your honoring my request to appear before you to express not only my concern, but that of virtually everyone in my State, over the impact of the proposed National energy bills on the public utilities and their customers, as well as the economy in general in our section of this Country.

By way of background, I previously served in the Louisiana State Senate, and while in the Senate was elected to the Louisiana Constitutional Convention of 1974 and served as Chairman of the Committee on National Resources prior to my election to the Louisiana Public Service Commission in November, 1974. I have been Chairman of the Public Service Commission since January, 1976.

In order not to burden this Committee and belabor the issues which I am certain have been echoed by the public utility industry in Louisiana, my remarks will be brief and will relate solely to the question of proposed nationalization of utility regulation and the economic impact on utility subscribers in Louisiana as a result of the prohibition against the use of natural gas and oil for electric generation and the required conversion to coal.

In the past, but much less so presently, Louisiana utility subscribers have experienced some of the lowest utility rates in the Country, primarily because the lower plant and generation costs associated with the utilization of fuels

indigenous to our region. This not only benefitted the economy of our State, but also permitted the implementation of plans for stability in the utility industry through consummation of long term fuel contracts. Rate structures were so designed to provide adequate revenues when compared to fixed costs and to accommodate growth and expansion at minimum capital costs. As a consequence, until recently, there were relatively few rate increase applications filed by the electric utilities in Louisiana. More frequently, there were rate reductions.

This has all changed because of the inordinate capital costs associated with both the conversion and the substitution of present facilities for those capable of utilizing fuels other than those produced in our State. We are not faced just with plant expansion projects designed to use coal or nuclear power for future growth. Such projects will be required also to substitute for present facilities meeting present service requirements which will be prematurely retired although their economic life would extend into the next century.

In essence, Louisiana electric utilities will be required to abandon plant presently in the rate base constructed at a cost of less than \$100 per KW and substitute therefor plant costing from \$600 to \$1000 per KW at present prices.

Louisiana utility ratepayers already have experienced increased fuel costs of as much as eight times that included in the base rate through the utilization of fuel adjustment clauses, which, incidentally, are approved only after monthly public hearings with required submission of proof of all costs and efficiency of fuel utilized during the previous month. The resultant impact has been an increase of as much as $\frac{2}{3}$ in the average residential bill during the last three years solely because of fuel costs and not due to rate increases.

Succinctly stated then, there will be a compounding effect on Louisiana utility subscribers who will have to bear not only the ever-increasing fuel costs, but also the tremendous increases in base rates imposed by forced conversion of facilities which will be required to compensate the utilities for the capital costs associated with the replacement of relatively low investment plant with plant costing from 6 to 10 times as much as present facilities. This compounding effect will not be experienced by utility ratepayers in other regions of this Country who presently receive power generated with coal or nuclear-fired plants.

Adding the proposed tax on oil and gas used for power generation after 1983 will certainly add insult to injury to those of us in Louisiana, resulting, I am told, in excess fuel costs of over One Billion Dollars by virtue of this penalty tax. With the lead time required to consider a coal generating plant, or convert present facilities, it would be physically and economically impossible to accomplish this prior to 1983 in order to avoid the penalty taxes.

I feel sure that you have been inundated with comments, both written and verbal, in opposition to the usurpation by a federal agency of state regulatory authority over utility ratemaking. It would serve no useful purpose in consuming your time by reiterating all of the arguments in favor of retention of local authority in ratemaking, but I do join in opposition to those provisions of the proposed energy bills with a few comments for your thoughtful consideration.

In Louisiana, our duty is to protect the public interest, which I interpret to mean regulation which will provide the most economical rates to the utility customer. We firmly believe that we are in a better position to accomplish this objective, and if we fail to do so, we, periodically, are answerable to the electorate, which is not the case when regulation is removed to Washington. Additionally, geography, climate, income, classes of customers, load factors and other variables make it impossible to apply uniform standards nationwide to utility ratemaking. The wide diversity of some of these variables among utilities within a single state makes it impossible to predict the effect of any specific ratemaking formulas as applied to a given company or area. It is only through state regulation that adequate attention can be given to individual company conditions and the needs of the consumers receiving services from that particular company.

As an illustration, there are utilities in Louisiana which have heavy industrial loads and high load factors which require different treatment from those utilities who serve basically low-usage residential customers with a relatively low load factor. We certainly favor cost-of-service formulation of rate schedules for the various classes of customers and recognize the need for a revision in the declining block rate structures; however, carelessly improvised changes in rate schedules could result in the industrial classes resorting to self-generation, which would place an impossible burden on residential customers who would bear the full embedded cost of an already excess generating capability. It is certainly not

clear that the proposed rate reforms would accomplish conservation of fuel. More likely, time of day and peak load pricing in Louisiana would only conserve utility plant which already has excess capacity.

In closing, energy conservation and the development of alternate sources of energy is a must if we are to retain our posture of independence and maintain the economic standards to which we have become accustomed. A National energy policy is long overdue. However, it should not be ill-conceived and hastily adopted so as to discriminate against and be unfair to certain regions of the Country, which would be the result if the proposed energy bills are adopted as proposed.

I leave you with these final thoughts. Inadequate consideration has been given to the economic impact, logistical and transportation problems, ecological consequences and capital requirements problems associated with the prohibition in the use of traditional fuels for electric generation in Louisiana and the rapid conversion to coal-fired units. Until some solutions are provided for these problems other than imposing penalty taxes and the probability of substantial increases in base rates for Louisiana utility customers, Louisiana utilities should be permitted to utilize the full economic life of present facilities.

The CHAIRMAN. Next, we will call Mr. William A. L. Sibley, Jr., assistant director, Manufacturing Services Division, J. P. Stevens & Co., and member of the American Textile Manufacturers Institute.

**STATEMENT OF WILLIAM A. L. SIBLEY, JR., ASSISTANT DIRECTOR,
MANUFACTURING SERVICES DIVISION, J. P. STEVENS & CO., INC.,
AND MEMBER, AMERICAN TEXTILE MANUFACTURERS INSTI-
TUTE**

MR. SIBLEY. Mr. Chairman, I am William A. L. Sibley, Jr., assistant director of the Manufacturing Services Division, J. P. Stevens & Co., Inc., a diversified textile manufacturing company. I am also a member of the energy policy committee of the American Textile Manufacturers Institute.

I am accompanied this morning by Mr. Jay Glassman who serves as tax counsel for ATMI.

My appearance here today is on behalf of the American Textile Manufacturers Institute, which is the central trade association for the U.S. spinning, weaving, knitting, and finishing industry. The membership of ATMI accounts for about 80 percent of the U.S. textile production. Our industry employs nearly 1 million people in 47 States.

Because the textile industry is heavily dependent upon reliable supplies of all forms of energy—oil, natural gas, electricity, and coal—the national energy plan, and the legislation pending before this committee, are of major importance to us.

How well the Nation is able to cope with our energy problems will have a major impact on the future course of the textile industry, as well as other energy-dependent industries.

It will be extremely important to the millions of people who depend on industry, both directly and indirectly, for their livelihoods. We are concerned that the Carter administration's national energy plan and H.R. 8444, as passed by the House of Representatives, will place an extreme financial burden on the American public and energy-dependent manufacturing industries without assuring the Nation of the supplies which will be so essential to our future growth and development. It will be highly inflationary without producing the additional supplies needed to safeguard energy-dependent jobs.

Textile manufacturers believe very strongly that reliance on the free market must be the foundation of a fair, equitable, and effective national energy policy. The House-passed bill and the administration's proposals are a massive intrusion by the Government into the free market. These proposals rely on more, rather than less, Government regulation.

It has been price controls and regulation which brought the Nation deeply into the problems we have today. More regulation and more price controls can only compound these problems.

Instead of turning to taxes and regulations to solve our problem, energy pricing must work to encourage development as well as conservation. We do not believe the administration's national energy plan as presently conceived can solve our immediate or long-range problems.

There should be total deregulation from price controls of oil and natural gas to encourage the fullest possible development of domestic resources. Free market pricing would encourage conservation and at the same time contribute to the development of undiscovered and undeveloped domestic resources.

Textile manufacturers are strongly opposed to the crude oil equalization tax and the industrial consumers surcharge contained in the legislation pending before this committee. We believe these taxes are inflationary and will add significantly to the cost of living without any offsetting benefits in the form of more oil and gas production.

The crude oil equalization tax would be particularly inflationary where textiles are concerned, because it would increase the cost of the petrochemicals used in manmade fibers as well as the prices textile manufacturers pay for the oil used in their own processes.

The industrial users tax would weigh heavily on the textile industry. Much of the use of oil, and more particularly the use of natural gas, in the textile industry cannot be replaced by coal. Manufacturers would have no choice but to pay the surcharge and pass on the higher costs to customers, if they could.

The administration has made quite a point of the fact that the user charge can be recovered, dollar for dollar, for investments in fuel conversion or conservation facilities. This is one of the many areas in the plan where the theory does not translate into reality. With coal-burning facilities costing four to five times as much as comparable oil and gas boilers, the surcharge credit will not accomplish very much.

A survey of the textile industry indicates that a good deal of natural gas consumed today is used in processes for which there is no substitute. Consumption of natural gas by individual companies and plants varies depending on the product being manufactured.

We estimate process use amounts to anywhere from 30 percent to 100 percent of the consumption of individual companies. Nonprocess use increases during the summer months because natural gas has been available. Because of product differences and seasonal variations, it would be impossible to apply a surcharge equitably.

Most of the oil used by the textile industry is for nonprocess use. Some experimentation is being done with No. 2 fuel oil as a substitute for natural gas. But that use is minimal at this time and limited to certain specific products.

Much of the oil consumed by the textile industry is burned in small package boilers designed to burn oil or natural gas. Because of their size and other characteristics, they cannot be converted to burn coal. Therefore, we would have little choice but to pay the surcharge as another add on to the price of our products.

It has been conservatively estimated that the impact of the petroleum equalization tax and the industrial use surcharge on the textile industry would be in excess of \$500 million by 1985.

If Congress should decide to levy the user's tax, it is extremely important that those processes which cannot possibly convert to coal, or where the costs of boiler replacement would be prohibitive, be exempt from the tax.

The House of Representatives recognized this problem when it exempted process users for the surcharge. The House report said, and I quote:

Industrial process use would be exempt from the tax when the use of fuels other than oil or natural gas would materially and adversely affect the manufacturing process or the quality of the manufactured goods, and the use would not be economically and environmentally feasible.

Examples of textile processes in which the use of oil and natural gas would be exempt include singeing fabrics, heat used in dyeing and heat setting and similar processes where direct flame or precise temperature control are essential to maintaining the quality of the product.

The international trade implications of these highly inflationary taxes should be carefully assessed. Together with the apparel industry, we are the Nation's largest manufacturing employer, supplying 2.3 million jobs or 1 out of every 8 in the manufacturing sector. Of this number, 64 percent are women and 19 percent minorities. The security of these jobs will be adversely affected by the mandated increase in our costs of doing business. We cannot afford to lose more jobs to imports.

Because of the tremendous capital requirements of an accelerated move toward greater consumption of coal, tax incentives should be available for those facilities where conversion to coal is possible by means of a boiler replacement program.

Without greatly increased investment credits and more rapid amortization for equipment and facilities, this legislation would add significantly to the already difficult capital formation problems of the textile industry. Textiles are traditionally a low-profit industry, and our industry currently is faced with heavy capital commitments as a result of the Environmental Protection Agency and Occupational Safety and Health regulations, not to mention the normal needs for capital for modernization and expansion.

For example, the estimated cost to the textile industry to meet the proposed OSHA cotton dust control standard is \$2.8 billion.

The industry faces another \$3 billion expense if the proposed OSHA noise standard is issued and enforced.

The industry will need to spend another \$528 to \$785 million to meet 1983 water pollution control standards. Operating and maintenance requirements would add another \$50 to \$81 million annually.

To place these capital costs in focus, they would more than double present levels of capital expenditures by the textile industry—an in-

dustry which is spending its entire retained cash flow now. Depending on the nature of the final regulations and the time limit in which the investment is permitted, it would appear that the textile industry would have to invest from \$1 to \$1.5 billion a year on top of normal outlays of a billion a year.

The goal of greater conservation and conversion would be achieved by reliance on free market pricing, stimulated by an increased investment credit for conservation equipment and facilities.

During the first half of 1977, textiles earned only \$336 million after taxes—but before dividends—equivalent to a return on total assets of a mere 3.5 percent. This is hardly high enough to attract outside capital which would be required for these additional spending burdens.

The administration's bill addressed this need with its proposed business energy tax credit. We believe that the administration's proposals for additional tax credit to encourage expenditures are an important step in the right direction.

However, they do not go far enough. We recommend a flat 25-percent investment credit for expenditures in business energy property. The credit should be applied broadly to include not only boilers and other combusters, but all of the additional modifications which have to be made in order to utilize coal.

The bill specifically lists some of the necessary related facilities such as coal handling equipment and pollution control equipment. It should be expanded to include such things as pipe valves, pipe, valves, and such things as special purpose buildings and other facilities to house alternative energy and pollution control equipment.

Further, we think that all expenditures for business property, not just those relating to pollution control equipment, should be eligible for rapid amortization. In the textile industry, for example, most cogeneration equipment and alternative energy property would probably be assigned a 22.5-year life under the ADR depreciation rules. This is much too long for expenditures in what is essentially non-productive equipment.

We would urge that the maximum cost recovery period assigned to business energy property be 3 years and that there be no cutback in the investment credit.

In summary, the textile industry believes in energy conservation and fuel conservation, but these must be accomplished by incentives rather than repressive taxation. We already have made significant gains with regard to conservation voluntarily in response to market conditions. This effort will continue. It can be accelerated in a free-market economy free without energy price controls and burdensome taxes.

I have attached to my prepared statement two additional documents which may be of use to the committee. One is a statement commenting on the administration's energy plan issued to the press by ATMI on April 25 of this year.

The second is a series of technical recommendations which we think would improve the program where taxes and tax incentives are concerned.

We certainly appreciate this opportunity to present our views. Because this is such an important matter, we want to assure you of our

willingness to work constructively with Congress in developing a national energy program which will achieve the goals we are all seeking.

[The documents referred to follow:]

AMERICAN TEXTILE MANUFACTURERS INSTITUTE,
ENERGY POLICY COMMITTEE,
April 25, 1977.

The overall plan was discussed at a specially called meeting of the ATMI Energy Policy Committee this morning in Washington. The Committee commended the Administration for making it clear to the American people that a serious energy situation exists today which will be worse, if not calamitous, in the '80's, unless the United States looks it clear in the eye and comes up with a way to cope with it.

While agreeing with the seriousness of the situation, we take broad exception to the President's proposals for dealing with it. We believe that there is no need for Americans to be condemned to resource shortages or to a limited growth economy. We believe that incentives have to exist to discover and tap energy resources that will provide the energy necessary to create the employment of those known to be coming into the work force in the next ten years.

Government intervention in subsidizing gas through price control starting in 1954 was largely responsible for the gas shortage situation that caused so many job layoffs last winter and put a halt to the growth in the use of coal over the last twenty years.

We are opposed to more of the same!

We are opposed to the building of a giant bureaucratic effort to control prices and allocate resources through taxation which, inevitably, would reach into every facet of the lives of all Americans.

We believe that deregulation of the price of oil and gas would remove the need for such a bureaucracy, and that the free market place would encourage both conservation and additional production as it always has.

We believe that the additional taxes proposed are inflationary and will add significantly to the cost of living without offsetting improvements in private sector productivity.

The security of the 2.3 million jobs in the textile-apparel industries will be adversely affected by the mandated increases in the cost of our synthetic raw materials. We cannot afford to lose more jobs to imports.

Energy pricing should work to encourage energy development and conservation and should not be used for any other purpose, including social restructuring.

TECHNICAL COMMENTS ON BILL

I. SEC. 2061—BUSINESS ENERGY INVESTMENT CREDIT

A. Proposed Code § 48(1) generally excludes from the definition of "business energy property" and property used in connection with a new manufacturing or production process initiated in an existing building after April 20, 1977. Exceptions to this general rule are made for alternative energy property and recycling equipment.

It is a rare textile plant which does not innovate, modify or change some manufacturing process within a relatively short period. Clearer statutory definition of the change to be prohibited should be provided to prevent administrative rejection of such nonsubstantive changes as substitution of pressure dyeing for open dye becks, open-end spinning for roving and ring spinning, and various weaving or knitting machines for conventional looms.

The fact that an entire building may be affected if a new process is introduced raises questions as to the import of mere relocation of related operations within a complex of several buildings, such as sewing and mending or winding, warping, etc.

The statute is silent as to whether recapture rules are to apply if some new process is undertaken in an existing building, in a taxable year after investments in qualifying business energy property have been made for use in connection with such building. We would hope that the legislative history would specifically touch on this point.

B. Proposed § 48(1)(5)(L) permits the Secretary to prescribe by regulations an "any other property" category of business energy property, subject to the requirement that the purpose for its installation be reducing the amount of energy consumed in any existing industrial or commercial process and which is installed in connection with any existing industrial or commercial facility. Here again, ATMI is troubled about the potential recapture problem if the existing process is later modified or changed.

ATMI strongly recommends that the statute be modified so as not to deny or recapture credits with respect to business energy property acquired for the principal purpose of conserving energy in connection with manufacturing processes currently carried on in plants in operation as of April 20, 1977, irrespective of whether such processes are subsequently modified, expanded or completely changed. In like fashion, the addition of new processing facilities in the plant or the expansion of the plant itself should not trigger a recapture of investment credit where the business energy property involved continues to promote energy savings.

C. Proposed § 48(1)(5)(G) lists automatic energy control systems as an item to be included as business energy property. It should be made clear that this item includes the entire system, embracing computer, software, electrical control and power wiring interfacing, etc.

D. Proposed § 48(1)(2), defining alternative energy property, bars buildings or other structures from qualifying for the new business energy tax credit. ATMI recommends modification of this provision to permit special purpose buildings to qualify as alternative energy property, where the building is inseparable from the facilities or equipment which it houses, and where the building is not amenable to general building use.

II. SEC. 2041—EXCISE TAX ON BUSINESS USE OF OIL AND GAS

A. As already pointed out, ATMI feels that it is of utmost importance to the competitive position of its members that the proposed new tax not be applied to natural gas which enters directly into the production processes of its industry. An example is direct flame gas applied to single fabrics in finishing operations. Proposed § 4992(b), dealing with exemptions, provides an exemption for such essential process uses. ATMI urges that this provision be retained in the bill without change.

B. ATMI has urged that relatively small gas and oil fired boiler facilities, which cannot be converted to coal, and whose replacement by coal fired facilities will be extraordinarily expensive, should be exempted from application of the oil and gas consumption tax, at least for a reasonable period of time. If this suggestion is not accepted, we urge that the determination of "taxable use" under proposed § 4992 for other than utilities be based on consumption by individual installations rather than by taxpayer or by members of a controlled group. As presently drafted the bill seriously penalizes the textile industry, since its operations (even for the largest companies) are carried on in relatively small plants in widely scattered locations. Many of the mills are so small as to make conversion to coal fired operations all but impossible under existing economic conditions. These small plants, in many cases, are the primary employer in numerous small communities, largely concentrated in the South and Southwest.

Senator HATHAWAY. Thank you very much. I am sympathetic with the textile industry. We have a lot of textile manufacturers in Maine. I know your problem with respect to imports.

Can we go industry by industry and say this industry should get that, and that one that, and so forth?

Does it not make it pretty difficult for us?

Mr. SIBLEY. I understand your concerns. We feel that the textile industry has a legitimate request in this regard. We are talking about processes where coal cannot be utilized, and there is no choice but to pay the tax.

Senator HATHAWAY. Senator Curtis?

Senator CURTIS. You ended by saying that you hoped the energy policy could be worked out. Do you feel it is important that the policy

stress and encourage the production of more gas and oil in the country?

Mr. SIBLEY. Absolutely. We feel that this is one of the things that is really seriously lacking in the administration's program.

Senator CURTIS. Is there anything in the administration's program directed at increasing production?

Mr. SIBLEY. If there is, we have been unable to uncover it.

Senator CURTIS. I think that that is a very serious defect. Now, we can accomplish something by conservation—and certainly it is a virtue to save and not waste, and it adds to efficiency and the general welfare of our economy, but we can save energy by closing all the factories, could we not?

Mr. SIBLEY. Absolutely, an alternative that none of us want.

Senator CURTIS. A full growing economy, and full employment, depends on the use of energy, not the nonuse of it; is that not correct?

Mr. SIBLEY. Precisely that, yes, sir.

Senator CURTIS. Will the wellhead tax do your industry any good?

Mr. SIBLEY. We do not think that the wellhead tax will do us a bit of good, sir.

Senator CURTIS. Would you be helped by the user tax?

Mr. SIBLEY. No, sir. We do not feel that we will be helped one bit.

Senator CURTIS. That is all.

Senator HATHAWAY. Senator Dole?

Senator DOLE. I have read the statement and listened to the statement. I assume, with the additional cost of this tax, you are faced with other additional costs, as set forth in your statement because of OSHA regulations and other Government regulations; in addition I know there are other problems that affect your industry that we do not have jurisdiction over in this committee, but that we hear a lot about.

I assume that all of these other costs will eventually be passed on to consumers. That may impact, as you indicated, the international competitive markets and your ability to compete in world markets.

Mr. SIBLEY. Absolutely. We are very concerned about those added costs and there is some concern as to whether or not we will be able to pass on those costs to the consumers. It might ultimately result in our not being able to do so, which would make us more vulnerable to imports, which would mean the loss of additional American jobs. We do not want that, either.

Senator DOLE. There is some talk about how this system of taxes and rebates is going to make everyone whole, but that is not the case. The textile industry must pass it on to the consumer. I do not think that they are going to rebate additional costs of what might be bought at the retail outlet because of what might be bought at the retail outlet because of your increased costs.

There is no way that costs can be rebated that I know of. I applaud the President for focusing on the energy problem. I just do not believe he has sent us the right vehicle.

Mr. SIBLEY. Senator Dole, we could not agree with you more.

Senator DOLE. I do not suggest that we just walk away from it and say this is a mistake. We do not have a problem and we all go home. I would hope that the Congress in its wisdom will not be stampeded into taking action on this massive tax program. It is essentially a tax program, not an energy program. It is a no-growth program, and as

I said earlier, with no one appearing in support of it except those on the Federal payroll. How we can act on it affirmatively?

If you are on the payroll, I can understand why you might be persuaded to testify for it, even though you might have your reservations. There certainly is not much support for it, kind of like the Panama Canal.

Mr. SIBLEY. We certainly concur with your assessment of the situation.

Senator DOLE. Thank you.

Senator HATHAWAY. Thank you very much, sir.

Before you leave, let me ask you one question. You proposed deregulation, but you proposed a rebate for home heating oil?

Mr. SIBLEY. We would prefer deregulation and allowing the free market to establish the price in the supply and demand situation.

Senator HATHAWAY. You have a lot of poor people who are forced to pay \$1 a gallon for heating oil next winter if you do that.

Mr. SIBLEY. We think the social implications of this bill should perhaps be addressed elsewhere.

Senator HATHAWAY. Direct payments to those people?

Mr. SIBLEY. We do not know if we have the answer to that. I am speaking to the energy portion only.

Senator HATHAWAY. Thank you.

Senator DOLE. If I may follow up the point I was attempting to make earlier. In addition to the costs that are going to be felt by the poor, we are going to have all these secondary costs. I do not know how they are described by an economist, but all the other costs. Because your costs are increased, you are going to have to increase the cost of the end products. I do not know if that is covered anywhere in the administration's program. I do not believe it is.

Mr. SIBLEY. I do not believe it is, Senator Dole. I think that ripple effect, or domino effect, whatever you are going to call it, is an immense underlying problem.

Senator DOLE. The effect impacts entire economy. Thank you.

Senator HATHAWAY. Thank you.

With the indulgence of the chairman, since I have to get back to the Human Resources Committee where we are marking up minimum wage. I would like to call my friend, Tim Wilson, accompanied by Charlie Isenberg.

Mr. Chairman. I have known Mr. Wilson for many years. Without taking up the time of the committee at this time, I would like to put a statement in the record. Mr. Wilson was the former director of the State office of civil defense and ran the office of oil regulation, and the State's first oil allocation program back in 1973, and also worked on operation fuel, a program aimed at insulating homes of low-income persons, and that has become a model for other insulation programs.

Mr. Wilson now works in the Governor's office, and we are glad to have you here.

[The statement of Senator William D. Hathaway follows:]

STATEMENT OF SENATOR WILLIAM D. HATHAWAY

I am pleased to be here today to speak in favor of a heating oil rebate—something of extreme importance to New England and to my own State of Maine.

The cost of heating fuel has been a great burden to people in many sections of the country, but it has caused a particular hardship for the people of New England, who have been forced to pay even higher prices for fuel than have those in other areas.

There are a number of reasons for this. New England does not have access to such natural resources as oil, gas or coal. In addition, New England, and Maine in particular, is at the end of the line when it comes to distributing fuels for heating.

These reasons and others have resulted in an extremely difficult situation for those of us in the Northeast. New Englanders are already paying 30 percent more for all sorts of energy than the rest of the country, because of high rates for electricity and because of our high oil dependency costs. Last winter was one of the longest and coldest in memory, and—despite conservation efforts—New Englanders were forced to buy heating oil in large quantity. And that heating oil has tripled since 1973—from 18 to 20 cents per gallon then to between 45 to 50 cents per gallon today.

Unfortunately, this heating oil rebate has been seen by some to be an unfair regional bias toward the Northeast in general and New England in particular. But on the plus side, the Administration has taken a more reasonable stance, and has characterized this measure as one designed to achieve regional balance and equity.

The Northeast is somewhat unique because, while it must import nearly all of the fuel it uses for home heating, it is particularly dependent on oil, in contrast with other regions which use natural gas. For example, in my own state of Maine, about half the homes are heated with home heating oil. The average home burning oil uses between 1,100 and 1,300 gallons of fuel each heating season. It is not hard to see the impact of any heating oil price increase can be substantial.

For example, a home burning 1,000 gallons of fuel in 1971 had a fuel bill of \$195, while last year's prices meant that the same amount of fuel cost \$450. That amount was actually more, because of the severity of last winter's weather.

And this situation does not appear any rosier when we look into the future. It has been pointed out that failure to pass a rebate plan could result in higher prices for heating oil than for gasoline. If that happens, it brings up an interesting question: Is there more elasticity in home heating than in gasoline usage? In my state, where there are large rural areas and extremely cold winters, there may be little elasticity in either area.

And finally, failure to rebate the home heating oil tax could well continue the current disparity between users of natural gas and users of heating oil. One estimate indicates that heating oil users will be forced to pay 20 cents more per gallon on a Btu equivalency basis than users of natural gas. This disparity is certainly not intended in the Administration's energy program.

You will be hearing from someone who knows a great deal about the heating fuel situation in Maine. Tim Wilson, as the former director of the state Office of Civil Defense, ran the State's first oil allocation program, which was begun in 1973. Tim also worked on "Operation Fuel", the program aimed at insulating the homes of low-income persons. That program became a model for other insulation programs.

Tim Wilson now works in the Governor's office, and is involved in community action programs.

He's familiar with the problems associated with the heating of homes, and he's familiar with the problems faced by the low and middle income citizen.

Mr. WILSON. Senator, I am going to let Charlie go first, and then I will go. I think he represents the oil dealers, the independent oil dealers in New England. I have had a lot of contact with him over the years. I think some of these things would be good for the other Senators to hear.

Senator HATHAWAY. I should remind you that we have a time limitation. Your whole statement will be put in the record.

Mr. WILSON. Mine will be. I will pick up when he finishes for a couple of statements.

**STATEMENT OF CHARLES ISENBERG, EXECUTIVE VICE PRESIDENT,
INDEPENDENT CONNECTICUT PETROLEUM ASSOCIATION**

Mr. ISENBERG. Good morning, Mr. Chairman and Mr. Acting Chairman. My name is Charles Isenberg and I am the executive vice president of the Independent Connecticut Petroleum Association, and I am chapter executive of the New England Fuel Institute, and I am appearing today on behalf of both associations to briefly discuss two parts of H.R. 8444, the Energy Tax Act: section 2039 for home heating oil users and section 2011 establishing the residential energy credit.

First of all, Mr. Chairman, I would like to thank you and members of this committee for giving us this opportunity to speak out on these terribly important issues that affect millions of consumers and thousands of independent small businessmen.

Mr. Chairman, I have a lengthy prepared statement that I will not read. It addresses these issues in depth, complete with supporting data and attachments, and in the limited time allotted, I would like instead to highlight some of the key issues and request, Mr. Chairman, that my full statement be entered into the record for the purposes of these hearings.

The three basic issues I will attempt to highlight are: one, the proposed heating oil rebate; two, the mechanics of the rebate and three, tax credits for residential and heating equipment.

Just in the way of a very brief background, Senators, the New England Fuel Institute is an association of 1,300 independent retail and wholesale home heating oil distributors who serve 2,400,000 homes, and 85 percent of the 5 billion gallons of heating oil sold throughout the six New England States.

The Independent Connecticut Petroleum Association is composed of 350 oil dealers. To give you an indication of how important fuel oil is in my own State of Connecticut, 72 percent of the population, or 2,230,000 people depend on oil for their space heating and 1,030,000 buildings are heated with that oil.

With this percentage of New England's population so highly dependent on oil heat, our members and the millions of consumers we serve are greatly concerned about any increases in costs in a necessity of life in a region which experiences such cold winter weather.

Mr. Chairman, during the past four heating seasons, the cost of heating oil has increased more than 150 percent. It took the entire 20 years prior to that to increase 100 percent.

Many citizens, as Tim Wilson will explain, are going to have a great deal of difficulty in meeting their basic heating bills. This is especially true with low-, moderate-, and fixed-income people. The imposition of additional costs without an equitable rebate would at best make a difficult situation much worse, and force many people to choose between the basic necessities of life.

When he presented his national energy plan to Congress in April, President Carter emphasized that the plan was based on the principles of regional equity and regional prices of fuels. We strongly support these principles, and have supported the President's plan, because it promises equal treatment for all consumers in all regions.

An essential element such as equal treatment in home heating oil rebates; without the rebate that plan in our opinion becomes distorted and unfair. Without the rebate, the plan is clearly unsupportable for the economic consequences to our region would be devastating. Homeowners would be forced to pay higher prices as a result of the crude oil equalization tax and get a smaller portion rebated. People in other regions will, to be sure, also pay higher prices, but they will receive a rebate that will more than compensate for these increased prices.

In other words, without the rebate, money will be taken from the fuel oil regions, such as the Northeast, and given to other regions.

Essentially, sir, the crude oil equalization tax is paid for by oil users. We are substantial oil users, and that is one of the reasons why we must have some type of equity.

The total impact on the New England economy will be devastating, as I stated; a projected increase of 10 cents a gallon due to the crude equalization tax will add more than \$400 million per year to the region's annual fuel bill.

In Connecticut, the added fuel costs will be \$54 million a year. This is just on heating oil in these aspects, and in your State of Maine, Senator Hathaway, the economic arm of the New England Congressional Caucus has estimated that the increased cost to your State, as you are, I am sure, aware, will be \$41 million.

In the middle Atlantic States, the added consumer costs probably will be in the area of \$600 million. It has been estimated, as we have already pointed out, without the fuel oil rebate, this money would be transported to other regions and rebated to consumers who do not heat with fuel oil.

The average fuel bill will annually increase, by simple statistics, by \$150 to \$200 per year, and the fuel user, who has already done a great deal to conserve energy, can only grimly pay—if he can afford it.

Perhaps more serious, if the committee examines the plan in detail, it will realize that even with the rebate the fuel oil consuming regions, such as the Northeast, will be placed at another serious disadvantage. Even with the rebate, the President has not made his treatment, equal treatment. The inequity results from the pricing provision for residential natural gas, and at the present time, the residential price for natural gas is to be kept at an artificially low level. As a result, homes heated by natural gas will be guaranteed a price that is on an average of 10 cents per gallon and on a Btu equal basis below the price of home heating oil. This is not the equity that was promised in the President's message.

If the rebate is rejected by this committee, the disparity would be 20 cents a gallon between fuel and natural gas in our area.

In brief, we believe a careful examination of the facts reveal that far from being a special deal, the home heating rebate provides some measure of equal treatment for consumers of fuel, homeowners, apartment dwellers, hospitals, schools, and churches.

A careful examination of the facts will also reveal, even if the full rebate is granted, fuel oil consumers will still be forced under the present plan to pay far higher prices than consumers who heat with natural gas. Unless the rebate is provided under workable and effective mechanisms, our associations would strongly recommend that the crude oil equalization tax be rejected in its entirety.

Mr. Chairman, we are also deeply concerned about the mechanism by which the rebate would be granted under the specific language of section 2039, as approved by the House, the rebate is to be given through monthly advance payments to individual fuel oil dealers who must, in turn, pass this on to the consumers, or his customers. The rebate covers two products, distillate heating oil, residual fuel oil used for space heating of residences, houses, hospitals, schools, and churches.

In brief, after a careful review of the mechanism adopted by the House, we have concluded that it is basically unworkable and will place an intolerable cost and administrative burden on small fuel oil dealers and will result in the establishment of massive audits, regulations, and increased bureaucracy to assure that the rebate is actually passed on to the consumer and may force many small companies out of the marketplace.

A better mechanism can and must be developed. One alternative, as the House testimony indicated, as our testimony indicated, is the direct rebate to the consumer, paying it directly to him through a tax credit or direct payment. Another is to exempt the middle distillate and residual fuel oil from the tax in the first instance at the refiner level, as is done in the case of propane.

Either mechanism would be acceptable to us, and we would be pleased to assist this committee and its staff in developing a practical and workable system.

My final point, Mr. Chairman, concerns the tax credits for equipment that we feel are extremely important. However, the specific language of the credit, as adopted by the House, does not provide sufficient coverage to meet the real needs of the consumer, nor does it meet the conservation goals of the Government.

It does not provide strong support for the most effective conservation measures by the homeowner at that point where his home energy costs are the highest.

If this committee and the Congress has, as their objective, the insuring of maximum conservation—and I know, Senator Hathaway, from your questions at the last hearing I testified at, that you are extremely interested in this area—then the language that defines other energy conserving components needs to be broadened.

As the committee will note, and without getting too technical, but in subsection 44(c)(a), and one which I have elaborated on in detail in my complete testimony, includes only furnace replacement burners, which is one, but not the major, heat transfer component of residential heating systems.

There are many integral parts of the furnace which are not included. Therefore, I have provided suggestions on behalf of our associations. Thank you for hearing this testimony today. As we outlined, the home heating oil rebate is essential in assuring fairness and regional equity, and without the rebate, the President's plan will impose a punitive and senseless burden on millions of fuel oil consumers and thousands of small, independent businessmen throughout the Nation.

Unless the rebate and a simple and effective mechanism for implementation of this rebate, are approved by this Committee and Congress, the crude equalization tax, in our opinion, should be rejected.

Mr. WILSON. I guess you can see why I let Mr. Isenberg go first. I have been down here 27 times, as you know, Senator, in the last 4 years, and I do not come very often any more, and I appreciate your inviting me down.

I have placed in the record a statement that is 7¼ pages long, on both sides of the paper. I suggest that the Senators read it—not staff people, but I wish you would read it. This statement has the best statistics in the country.

We, the people who work for me in my office, have a tremendous credibility across the country because many of your own States have asked for information on low-income people, people on fixed incomes, when somebody comes up with something that is ludicrous, such as an increase on a payment for fuel oil which the tax situation would actually happen.

We are concerned because in May we took our data from 1973 to 1977 on winterization, the beginning of the program started in our area, and we just continued with it. We were able to check exactly what is going to happen.

What I mean by that, if you take the basic income for a person, 20 percent of our State, which is about \$5,000, give or take \$100 here or there, and you break out 40 percent for fuel, you do not have very much left to live on. That is what concerns me.

I came listening to other people getting up and talking about billions of dollars—do not misunderstand me; that is important for our economy. But what worried me is that it was 30° in Maine on August 25, and I am concerned. Later on they are going to have to pay more, \$150, \$200 more for a necessity, a necessity of life. They have to stay home.

Most of the folks up there have conserved as far as they can go; they cannot go any more, and it is a known fact—I do not want to get into why we do not drill for oil on the Atlantic shore; that is—what I am saying is somebody has to—people cannot be pushed. They are making decisions affecting their children, vis-a-vis clothes, food, based on what they have to pay for their oil.

We have people burning food, all the things that are necessary, cutting down. We cannot cut any more. Bottom line.

If we have a winter like we did last year, it is going to wreak havoc. If the price inflation is whatever—what I am saying to you, I appreciate the opportunity to come back I would not have—I am one of those pessimistic people. I have heard it before, and it has not changed very much. You only come once a year, once, in essence. I hope this committee will see in its good wisdom, and do a quick job on this and move on to something else. Thank you.

Senator HATHAWAY. We will try to work your problem out, to help the poor people you are trying to help, to succeed in making the President sign a bill which will provide some temporary relief and to provide some extra money. You can tell them we are trying. I am not sure we will succeed, but we are trying to do something.

You spoke of this New England program. It is not necessarily confined to New England?

Mr. ISENBERG. That is right. New England represents 20 percent of the heating oil used in the United States. There is additionally 80 percent throughout the country and especially in cold areas. New

York, for instance, which is close by New England, is a very heavy user of fuel oil as well as many other parts of the country, including the north central.

Senator HATHAWAY. What bothers me—and I realize people are converting—they have the price of oil kept down, yet a large segment of the population is opposed to hydroelectric projects which would help with respect to industry in the New England area; a large number is opposed to drilling offshore for oil, and I hope that you and other leaders in the State will speak out in favor of some of these other programs that will have our people do what they can in addition to what they are doing to conserve energy.

Mr. WILSON. I am not in that kind of position any more. One segment of my office is dealing with winterization in that area. But I have talked to enough people in industry and they have a different viewpoint. I call it a balanced situation in the State. I think everybody has to look at representatively what we need and come to some decision.

What I am hearing is a certain group—we all use the term “special interest”—my special interest happens to be that particular group of people who don't always get heard because people sort of feel we will just pass it on to them all the time even though we talk about consumers—I am talking about consumers at the bottom of the well and they just can't afford any more—you know, the number of people who are elderly in our State.

They are very proud. They will not ask you for anything for free. I have seen that and that is what worries me. I look at my own parents, who are in their eighties, and they live in another State entirely. I know what their attitude is about some of this stuff, and we use that kind of thing for a barometer all the time.

That is what concerns me, because those people aren't being heard. They don't talk enough. I think what they have done is say, “Hey, there is not much we can do any more.” So we do need some more people who say, “Hey, look, let's take a look at the people who paid the price a long time ago and make sure they are not burdened with any more.” That is my concern.

Mr. ISENBERG. Senator Hathaway, for the record—and maybe Senator Long will be surprised—but the New England Fuel Institute and my State association, the Independent Connecticut Petroleum Association, is very much in favor of offshore drilling.

Senator LONG. I am pleased to know that. I have tried to explain this to the President. It is ridiculous that the Federal Government does not propose that the States should have a share in the revenue that might be generated from offshore drilling. They send people out there to risk their lives drilling in that cold water. If someone falls off the rig any time in the winter, he will freeze before a boat can pick him up. If the producer finds something there, the Federal Government wants to hog it up.

So I can understand that the State will take the attitude they do—“If there is not anything in it for us, we will see you later.” When someone starts to drill offshore, here comes somebody from the State to file a lawsuit and take him to court and challenge the drilling on an environmental basis. If the Federal Government is going to hog all the revenues, to take 100 percent of it, all you have to do is have the danger of an oil slick along the shore someday and then people are inclined

just to say: "No, we don't want to have anything to do with offshore drilling."

But Louisiana went out there and developed offshore like fury because our people thought they were going to make some money, and the State did. It paid for half the cost of the State government, so everybody was tickled pink to go out and develop offshore resources because we were making money, which we used for schools and to provide State services and things of that sort.

Maybe someday they will get wise and provide the States some share in what they can produce out there as they do with the Federal Government on the property within the purview of the State. You would see a lot of excitement in going out there and developing those resources.

That is just one more counterproductive policy of the Federal Government—hog 100 percent of the royalties and give nothing to the local people. The result is that the local people are not interested in cooperating. That is part of the problem.

Senator CURTIS. I was very much interested in what you had to say. I am aware that places that have extreme winter weather have additional problems with reference to the cost of fuel. I wonder if the economic forces are not limited to any one region according to the figures.

Mr. ISENBERG. Propane is getting a rebate.

Senator CURTIS. But according to the figures of Senator Haskell, home heating oil is now \$450, where it used to run \$195. In Virginia, electric heating is running higher than that. It would be very expensive if Louisiana is forced to convert from gas to coal, which would mean constructing new facilities and shipping coal to the North. The cost would exceed \$500.

My point is this: I recognize that areas of low temperatures have a very acute additional problem and the economic forces that are forcing up the cost of the energy are not limited to regions. It is all over the United States.

Mr. ISENBERG. We are aware of that, but one of the key issues—and also I would like to for the record indicate that the average residential home heating oil user in New England consumes approximately 1,500 gallons a year, at about 47.9 cents a gallon or in that area, closer to half a dollar range. It is a little higher than Senator Haskell indicated from his earlier studies.

But, in fact, what has happened is that Louisiana experiences—and many other States as well—\$150 to \$200 increase on heating oil and then get a \$50 rebate back—

Senator CURTIS. You are talking about these taxes recommended?

Mr. ISENBERG. That is right.

Senator CURTIS. I have not heard anything about this—

Mr. ISENBERG. We are not for them, either, sir.

**TIMOTHY P. WILSON, DIRECTOR OF COMMUNITY SERVICES,
STATE OF MAINE**

Mr. WILSON. Can I address that a minute. I understand what you are saying about the different parts of the country and economic impact.

— Senator CURTIS. And I don't mean to imply that places that have low temperatures do not have an additional problem.

Mr. WILSON. The one issue I wanted to bring before you is that there are ways to deal with this. When you start balancing out the number of degree days, that could be a way of explaining the process. What I mean by "process" is the way that we dealt with winterization money. When they first talked about breaking up the money across the country, they went by formula.

Those kinds of formulas, when they sit down and ask somebody locally how to do it, they come out with something better than when somebody over here sits in the backroom and comes up with it.

So what I am saying is that maybe that kind of message could be passed back to the administration. Maybe you should check with the folks on the local level. They have some ideas that might help you in this area to help you better understand what their needs are.

Senator CURTIS. I think the people on the local level are way ahead of Washington all the time.

Senator HATHAWAY. Senator Dole.

Senator DOLE. I don't have any questions except the difficulty after you start a tax program, everybody wants to be exempted. I don't fault anybody for that. We already had the light bulb people and they want to be exempt, and the geothermal and refuse burning people. We have several other witnesses and they will want to be exempt. If we are going to have to feel the full impact, as you do in New England, we will not be able to sustain it. In other areas of the country where it is hot instead of cold, your air-conditioning is going to go up. Nobody has offered a rebate for that poor person who may be hot in western Kansas—not Kansas, that is more or less a garden spot—but other areas where it is way up there. There is great potential in Maine—as I review last year's election results. It seems to me that the problem is how we are going to treat everybody equally in a program like this. It is almost impossible to do. I am sympathetic with the idea if we can't treat everybody equal, why should we pass a tax at all.

Mr. ISENBERG. That is precisely the point I made in my conclusion, that there are areas of the country that are blessed with far better weather. We might have gorgeous fall foliage. We like New England and the area we are in, but does it make sense to give somebody a \$50 rebate when the actual proportion of the oil that he is being taxed for is like next to nothing, whereas in a State that is rather severe—and, Senator Curtis, you have had severe winters in your State; you know what energy costs are like there—does it make sense not to make allowances for those using the product? It is really not fair and equitable, as stated by the President in his preamble.

Senator DOLE. It has been called the moral equivalent of war—MEOW.

I guess what you are suggesting is that you prefer we try to kill it and, if we can't kill it, put in exemption.

Mr. ISENBERG. Yes, sir, or equitable exemption based on fact.

Senator DOLE. We had a bill yesterday offered by Senator Schweiker for fuel stamps which might have offered some relief, but the vote was 78 to 12. I think it was 12. I owed him one so I switched.

Senator HATHAWAY. Thank you both very much.

[The prepared statements of Mr. Wilson and Mr. Isenberg follow. Oral testimony continues on p. 1404.]

**STATEMENT OF TIMOTHY P. WILSON, DIRECTOR, MAINE DIVISION OF
COMMUNITY SERVICES**

Mr. Chairman, Distinguished Senators and Guests: I have been asked to address this Committee today to present the situation regarding the availability and cost of energy in Maine presently and to describe the probable impact of the home heating oil rebate system. I would like to present my comments in three, distinct parts and will submit for the record supportive data to illustrate points made:

PART I—PREFACE TO COMMENTS

The evidence is overwhelming. The country has experienced a difficult economic period and is just now beginning to recover. Unfortunately, Maine tends to carry a disproportionate burden in this regard. Although the inflation rate has stabilized in the area of 6 or 7 percent, down from the 12.2 percent in 1974, the cost of living continues to be disproportionately high for the Northeast, and Maine in particular.

Consider the following facts regarding the State of Maine, a rural state with a total population of slightly over one million:

Close to 20 percent of the population in Maine are living in poverty or near poverty conditions.

Maine has consistently ranked as one of the lowest average states in per capita income. Most recently, for the period 1973 through 1976, Maine has ranked 43rd, 45th, 42nd, and 44th in per capita income. That is to say, only six other states had lower per capita incomes and these were predominately Southern states.

Unemployment rates in Maine, historically and consistently, have been greater than the national average. Recent data, for June of 1977, indicated a national unemployment rate of 7 percent; the rate was 9.7 percent for Maine and five of the sixteen counties had unemployment rates in excess of 13 percent.

Recent income data released for 1976 indicates that the average household income in Maine is only 87 percent of the United States average and only 82 percent of the New England average.

The Consumer Price Index for the Northeast area of the United States is rising at a faster rate than the National Index, no doubt reflecting the comparatively higher energy costs.

In short, Maine is not a wealthy state and, although it may be rich in natural beauty, many of its one million citizens are living in poverty conditions, unable to secure adequate jobs and required to carry a disproportionate burden as relates to energy costs.

**PART II—CHARACTERISTICS OF CLIENTS SERVED BY THE MAINE WINTERIZATION
PROGRAM**

The following points of interest are presented based upon a cumulative survey of approximately 9,000 households winterized in Maine. These households were occupied by low income and elderly citizens and represent homes winterized from the start of the winterization program in 1973 through 1976:

48 percent of the households had either residents or heads of households who were 62 and over.

42 percent of the families were married couples with dependents under 18.

78 percent of the heads of household were unemployed; an additional 10 percent were only employed part-time. Of those indicating employment, the greatest percentage, approximately 12 percent, indicated employment in the manufacturing sector followed by forest and agricultural activities.

Types of assistance received by families were as follows:	Percent
AFDC	19
Supplemental Security Income.....	21
Food Stamps.....	49
General Assistance.....	6
Social Security.....	38
Other types of assistance.....	15

Value of homes is estimated to be under \$5,000 for 38 percent of the households; 71 percent of the homes were valued under \$10,000.

Types of heating systems were as follows:	Percent
Hot water or steam.....	18
Central hot air furnace.....	36
Fireplace or stove.....	39
Built-in electrical heat.....	1
Room heaters.....	11
Other types of heating systems.....	8

Correspondingly, the types of fuel used were as follows:	Percent
Fuel oil.....	55
Kerosene.....	27
LP gas.....	10
Coal or coke—less than.....	1
Electricity.....	3
Wood.....	33
Other fuel types.....	none

Since the start of the project, fuel records have been requested of clients served; however, many people are unable to provide this information. Of the information collected, we were able to determine that the average cost for heating for the low income family is in the area of \$400 per year. The average number of gallons of fuel oil consumed is in the area of 750 gallons per year. The average amount of wood used was 6 cords per year.

It is interesting to note that increasingly families are using secondary and even third sources of heat in their homes. The primary fuel used continues to be oil at 44 percent, followed by wood at 25 percent, and kerosene at 23 percent. Oil and kerosene make up 67 percent of the total type of fuel used. Wood is the largest secondary fuel used.

In considering the incomes of people served, the average amount earned yearly was \$3,568. Ninety-five percent of the clients served earned less than \$7,000 and 61 percent earned less than \$4,000 per year.

Cost of the utilities averaged at \$56 per month; however, 54 percent of the clients had costs greater than \$60 per month.

Sixty-six percent of the clients have had their electricity discontinued at some point or disconnected.

Forty-three percent of households served did not have complete plumbing.

Forty-five percent of the houses served did not have basements.

Seventeen percent of the clients served had been served by earlier weatherization projects, indicating a continuing need.

Fifty-five percent of the materials provided were installed by the owner.

Range of man-hours expended in the installation of materials ranged from 1 hour to 128 hours with the average number of hours per home at 16.

An additional bit of information recently collected indicates the amount of work remaining for complete installation. Thirty-eight percent of the homes insulated at an average cost of \$160 indicated work remaining, most of which would have required an additional \$300 plus per home for complete weatherization.

In summarizing this section, the typical Maine winterization client that emerges consists of a male head of household, between the ages of 31 and 50, with a wife and 1 or 2 dependents under 18, or of an elderly couple, 62 and over. Family head is unemployed with the family income averaging \$3,568 per year, and the family is receiving food stamps. The family is living in their own home, valued at less than \$5,000, and pays over \$60 per month for utilities.

The house has an average of 5 rooms, incomplete plumbing, and a central hot air furnace and/or stove which burns fuel oil. More than one type of heating system is employed with 750 gallons plus of fuel oil burned and 6 cords of wood burned during the most recent heating season. This would translate to over \$500 per year for heating costs at prevailing prices.

PART III—PROBABLE IMPACT OF HIGHER FUEL PRICES UPON LOW INCOME AND ELDERLY

In this final section, I would like to cite the probable impact of higher energy costs upon the poor and elderly. I would like to preface these comments by saying that I don't have a crystal ball by which to provide ready made solutions. However, in view of the information we have collected through the weatherization project, I feel the following comments are reasonable and not exaggerated.

The average low income family in Maine has available \$3,528/year and burns 750 gallons of oil plus approximately 6 cords of wood per year. If the family is burning only oil, the consumption is closer to 1200-1500 gallons per year. At prevailing prices, total cost for heating is anywhere from \$500 to \$700 per year. This represents 20 percent of the average low income family's total income. Add the \$60/month average utility bill and you conclude that 40 percent of the average low income family's total income is obligated to heating and utility costs.

Something else has got to give! That family has \$2,148 left to pay for all other necessities of life including food, health costs, transportation, and other shelter costs. This is not tolerable in a civilized country while oil companies report record earnings!

Now, let's assume then that we add a 10 cents per gallon tax on oil. What is the impact upon the low income family?

-- It's disastrous!

You in effect will increase the average cost of heating for that family anywhere from \$100 to \$150 per year. You will increase that portion of their budget obligated to heating from 20 percent to 24 or 25 percent of their total income. Add the cost of utilities to this and we're in the area of 44 to 45 percent of the total family budget obligated to heating and utility costs.

The hypothesis that continually increasing the price of fuel will decrease consumption simply does not apply in this situation. Heat in an area such as Maine, and elsewhere, is a necessity of life. People cannot cut down on consumption beyond a certain point. They have no choice but to pay the increased price at the expense of some other necessity of life.

Analysis of area winterization data from 1973 to the present has indicated that low income families are using less than in pre-embargo days. The average oil consumption in 1973 was closer to 1500 gallons/year; in 1976, it was below 1200 gallons/year; and for people burning wood as a secondary source of heat, it was closer to 750 gallons/year plus 6 cords of wood. This was accomplished through insulation, lower temperatures, and the use of secondary and third heating sources such as wood. For low income citizens, I believe we have squeezed the conservation potential of ever higher prices to its limit. Further price increases will simply force people to do without other necessities of life. Heat is an inelastic commodity. It does not respond to the "normal" economic laws of cost and consumption, of supply and demand.

A tax increase system on oil with rebates will undoubtedly benefit the middle and upper income levels, but it will be disastrous for the poor unless some special provisions are made. Higher energy costs are a fact of life that we can't escape from at this point in our Nation's history. I appeal to your sense of fairness and ask that these higher costs not be placed disproportionately upon the shoulders of the low income and elderly citizens of this country.

I stated at the onset that I didn't have a crystal ball and did not possess any cure-all solution for the energy crisis we are now faced with. I would, however, underscore the following:

Continued and increased emphasis should be placed upon conservation by means of programs such as weatherization presently being implemented by the Community Services Administration.

Tax incentives for homeowner insulation should be expanded.

Low or non-interest loans should be available to those citizens unable to benefit significantly from tax rebates.

Year-round programs aimed at benefiting the low income citizens should be developed which would minimize many of the problems encountered with short duration cyclical programs.

Any increased costs should be borne by those able to pay. We cannot allow the continued exorbitant energy costs to be placed upon the low income and the elderly, the very citizens who are least able to pay.

Thank you.

STATE OF MAINE
FUEL UTILIZATION CHARACTERISTICS

[State population: 993,663; total year-round housing units: 339,969]

	State	Urban	Rural
All occupied housing units.....	302,923	159,326	143,597
House heating fuel:			
Utility gas.....	5,552	4,881	671
Fuel oil, kerosene, etc.....	278,062	148,300	129,762
Percent.....	(92)	(93)	(90)
Coal or coke.....	2,275	1,166	1,109
Wood.....	6,296	507	5,789
Electricity.....	5,793	2,760	3,033
Bottled, tank, or LP gas.....	4,238	1,362	2,876
Other fuel.....	569	350	219
None.....	138	0	138
Water heating fuel:			
Utility gas.....	14,660	12,288	2,372
Fuel oil, kerosene, etc.....	132,874	85,029	47,845
Coal or coke.....	309	187	122
Wood.....	2,241	293	1,948
Electricity.....	104,661	48,443	56,218
Bottled, tank, or LP gas.....	25,784	8,908	16,876
Other fuel.....	394	278	116
None.....	22,000	3,900	18,100
Cooking fuel:			
Utility gas.....	33,698	25,970	7,728
Electricity.....	164,995	96,373	68,622
Bottled, tank, or LP gas.....	82,690	28,789	53,901
Fuel oil, kerosene, etc.....	13,482	6,496	6,986
Coal or coke.....	393	97	296
Wood.....	6,575	689	5,886
Other fuel.....	119	81	38
None.....	971	831	140

Source: 1970 U.S. census. Compiled: Maine State Office of Economic Opportunity.

HEATING EQUIPMENT TOTAL, OWNER AND RENTER OCCUPIED HOMES

	Steam or hot water	Central warm-air furnace	Built-in electric units	Floor, wall or pipeless furnace	Room heaters with flue	Room heaters without flue	Fireplaces, stoves, or portable room heaters	Not heated
Computed State total (oc- cupied and vacant).....	139,138	117,301	4,373	6,867	36,223	5,356	28,066	2,116
Occupied housing.....	130,585	109,761	3,741	6,085	30,765	4,458	17,342	186
Owner occupied.....	86,555	87,998	2,613	4,768	17,555	2,424	10,051	112
Renter occupied.....	43,930	21,763	1,128	1,317	13,210	2,034	7,291	74
Vacant: For rent.....	3,301	1,461	160	148	1,155	200	929	171
Vacant: For sale.....	1,010	995	42	72	510	74	497	192

Source: 1970 U.S. census. Compiled: Maine State Office of Economic Opportunity.

MAINE ELDERLY POPULATION TOTALS, BY COUNTY

County	1970 census					Total households below 125 percent poverty ¹
	July 1, 1975		65 plus	Heads of households 65 plus, below 125 percent poverty		
	60 plus	65 plus		Number	Percent	
Androscoggin.....	15,600	11,400	10,252	2,176	9	16,286
Aroostook.....	12,500	8,700	7,408	2,761	11	27,729
Cumberland.....	33,100	24,000	21,365	3,397	14	28,772
Franklin.....	3,900	2,800	2,418	679	3	4,243
Hancock.....	7,900	5,800	4,817	1,122	4	8,225
Kennebec.....	16,000	11,700	9,689	2,071	8	15,566
Knox.....	6,600	5,100	4,528	1,036	4	6,498
Lincoln.....	5,100	3,700	3,060	788	3	4,445
Oxford.....	8,300	5,900	5,064	1,054	4	8,710
Penobscot.....	18,000	13,000	11,472	2,300	9	23,211
Piscataquis.....	3,300	2,400	2,165	501	2	3,810
Sagadahoc.....	4,100	2,900	2,534	691	3	4,573
Somerset.....	7,300	5,200	4,469	1,151	5	9,548
Waldo.....	4,200	3,100	2,691	579	2	5,910
Washington.....	6,600	4,900	4,222	1,649	7	10,205
York.....	20,600	14,900	12,640	2,925	12	18,774
Maine.....	172,900	125,300	108,848	24,880	100	196,505

¹ Includes unrelated individuals.

Sources: 1975 data—National Clearinghouse on Aging (Administration on Aging); 1970 data—U.S. census. Compiled by: Maine Division of Community Services.

POPULATION AND HOUSING ESTIMATES—MAINE COUNTIES, 1970 AND 1976

County	Population		Population residing in housing with incomplete plumbing		Index ⁴
	1970	1976 ¹	1970	1976	
			(percent) ²	(estimate) ³	
Androscoggin.....	91,279	94,100	6.7	6,304	5.42
Aroostook.....	94,078	98,100	13.2	12,949	11.16
Cumberland.....	192,528	203,700	5.2	10,592	9.11
Franklin.....	22,444	25,100	16.8	4,217	3.63
Hancock.....	34,590	39,400	16.6	6,540	5.64
Kennebec.....	95,247	102,000	9.8	9,996	8.60
Knox.....	29,013	32,200	14.0	4,508	3.88
Lincoln.....	20,537	23,700	16.2	3,839	3.30
Oxford.....	43,457	45,200	15.1	6,825	5.87
Penobscot.....	125,393	135,200	10.1	13,655	11.77
Piscataquis.....	16,285	16,700	17.9	2,989	2.57
Sagadahoc.....	23,452	26,200	11.4	2,987	2.57
Somerset.....	40,597	44,500	16.0	7,120	6.12
Waldo.....	23,328	26,900	22.6	6,079	5.23
Washington.....	29,859	34,600	24.3	8,408	7.25
York.....	111,576	122,200	7.5	9,165	7.88
Maine.....	993,663	1,070,000	10.8	116,170	100.00

¹ 1976 data—provisional estimate.

² Percentage of county population residing in housing with incomplete plumbing.

³ Number derived from 1970 percentage data applied to 1976 population estimate.

⁴ Index represents relative weight of persons residing in substandard housing as percentage of State total.

Source: U.S. Census Bureau. Compiled by: Maine Division of Community Services.

MAINE DEPARTMENT OF MANPOWER AFFAIRS, EMPLOYMENT SECURITY COMMISSION, MANPOWER RESEARCH DIVISION—LABOR FORCE DATA 1

Areas	Labor force			Unemployment			Rate			Resident employed		
	July 1977 ²	June 1977 ²	July 1976 ²	July 1977	June 1977	July 1976	July 1977	June 1977	July 1976	July 1977	June 1977	July 1976
Counties:												
Androscoggin.....	48,360	46,940	47,490	7,130	3,650	6,510	14.7	7.8	13.7	41,230	43,290	40,980
Aroostook.....	42,700	42,690	41,100	5,720	5,280	5,840	13.4	12.4	14.2	36,980	37,410	35,260
Cumberland.....	99,630	100,650	99,220	7,070	7,220	7,580	7.1	7.2	7.6	92,560	93,430	91,640
Franklin (Farmington LMA).....	13,810	12,600	12,960	1,840	980	1,450	13.3	7.8	11.2	11,970	11,620	11,510
Hancock (Ellsworth LMA).....	22,080	20,510	21,180	1,690	1,320	1,090	7.7	6.4	5.1	20,390	19,190	20,090
Kennebec.....	46,650	46,840	45,580	4,330	3,670	3,470	9.3	7.8	7.6	42,320	43,170	42,110
Knox.....	14,580	14,640	15,990	1,060	1,070	1,290	7.3	7.3	8.1	13,520	13,570	14,700
Lincoln.....	9,270	8,680	9,500	790	850	760	8.5	9.8	8.0	8,480	7,830	8,740
Oxford (Rumford LMA).....	21,010	19,540	20,760	2,480	1,580	2,350	11.8	8.1	11.3	18,610	17,960	18,410
Penobscot.....	60,820	61,040	57,210	5,470	4,880	5,490	9.0	8.0	9.6	55,350	56,160	51,720
Piscataquis.....	8,290	8,540	7,480	770	760	840	9.3	8.9	11.2	7,520	7,780	6,640
Sagadahoc.....	12,200	12,070	11,250	1,170	950	1,240	9.6	7.9	11.0	11,030	11,120	10,010
Somerset (Skowhegan LMA).....	19,820	20,100	19,810	2,670	2,040	2,220	13.5	10.1	11.2	17,150	18,060	17,590
Waldo (Belfast LMA).....	12,500	12,420	12,230	1,760	1,510	1,460	14.1	12.2	11.9	10,740	10,910	10,830
Washington (Calais-Eastport LMA).....	16,860	17,170	14,360	1,500	2,200	1,060	8.9	12.8	7.4	15,360	14,970	13,300
York.....	59,300	56,080	55,920	3,930	3,110	4,850	6.6	5.5	8.7	55,370	52,970	51,079
Labor market areas:												
Augusta.....	26,180	25,860	26,030	3,010	2,400	2,370	11.5	9.3	9.1	23,170	23,460	23,660
Bangor-Brewer.....	40,100	40,200	41,500	3,100	2,900	3,900	7.7	7.2	9.4	37,000	37,300	37,600
Bath-Brunswick.....	19,010	18,970	18,370	1,480	1,380	1,620	7.8	7.3	8.8	17,530	17,590	16,750
Biddeford-Sanford.....	30,100	29,500	29,500	2,500	2,000	2,700	8.3	6.8	9.2	27,600	27,500	26,800
Caribou-Presque Isle.....	23,860	23,910	21,500	4,140	3,810	3,930	17.4	15.9	18.3	19,720	20,100	17,570
Dover-Foxcroft.....	6,930	7,170	5,960	690	610	740	10.0	8.5	12.4	6,240	6,560	5,220
Fort Kent-Allagash.....	4,070	4,120	4,150	330	410	450	8.1	10.0	10.8	3,740	3,710	3,700
Greenville.....	1,370	1,360	1,150	100	150	120	7.3	11.0	10.4	1,270	1,210	1,030
Houlton.....	5,190	5,250	5,310	380	340	590	7.3	6.5	11.1	4,810	4,910	4,720
Lawiston-Auburn SMSA.....	39,400	38,800	39,900	5,500	2,900	6,100	14.0	7.5	15.3	33,900	35,900	33,800
Lincoln-Howland.....	5,270	5,150	4,390	560	430	330	10.6	8.3	7.5	4,710	4,720	4,060
Madawaska-Van Buren.....	4,720	4,740	4,480	490	500	480	10.4	10.5	10.7	4,230	4,240	4,000
Paten-Island Falls.....	3,020	2,990	2,700	150	130	220	5.0	4.3	8.1	2,870	2,860	2,480
Portland SMSA.....	88,000	89,200	87,900	6,700	6,600	7,600	7.6	7.4	8.6	81,300	82,600	80,300
Southwest Penobscot.....	6,780	6,600	6,750	1,260	890	870	18.6	13.5	12.9	5,520	5,710	5,880
Stonington-Deer Isle.....	3,910	3,580	3,740	140	170	150	3.6	4.7	4.0	3,770	3,410	3,590
Waterville.....	21,640	22,140	20,630	1,400	1,330	1,190	6.5	6.0	5.8	20,240	20,810	19,440
States:⁴												
Connecticut.....	NA	1,485.9	1,494.4	NA	107.1	142.4	NA	7.5	9.5	NA	1,378.8	1,352.0
Maine.....	508.0	500.5	492.1	49.4	41.1	47.5	NA	8.2	9.7	458.6	459.4	444.6
Massachusetts.....	NA	2,759.6	NA	NA	175.1	NA	NA	6.3	NA	NA	2,584.5	NA
New Hampshire.....	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rhode Island.....	441.2	437.1	427.6	36.7	29.2	36.8	8.3	6.7	8.6	404.5	407.9	390.8
Vermont.....	222.9	220.8	221.2	15.2	16.0	18.6	6.8	7.2	8.4	207.7	204.8	202.6
New England States ⁴	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
United States ⁴	99,314	99,135	97,185	6,941	7,453	7,577	7.0	7.5	7.8	92,372	91,682	89,608

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¹ All rates shown are not seasonally adjusted. Estimates for the State and sub-State areas have been benchmarked to the latest current population survey annual average estimates for the State.
² Preliminary estimates.

³ Revised estimates.
⁴ In thousands.
 NA—Not available.

30-YR AVERAGES TOTAL YEARLY DEGREE DAYS, MAINE LOCATIONS, 1941-71

	Degree days	Degree days squared	Index
Androscoggin.....	7,374	54,375,876	5.84
Aroostook.....	9,135	93,448,225	7.23
Cumberland.....	7,498	56,220,004	5.94
Franklin.....	8,237	67,848,169	6.52
Hancock.....	7,240	52,417,600	5.73
Kennebec.....	7,726	59,691,076	6.12
Knox.....	7,353	54,066,609	5.82
Lincoln.....	7,353	54,066,609	5.82
Oxford.....	7,912	62,599,744	6.26
Penobscot.....	8,648	74,787,904	6.85
Piscataquis.....	9,387	88,115,764	7.43
Sagadahoc.....	7,498	56,220,004	5.94
Somerset.....	8,071	65,141,041	6.39
Waldo.....	7,353	54,066,609	5.82
Washington.....	7,933	62,932,489	6.28
York.....	7,498	56,220,004	5.94
State average.....	7,888	62,220,544	.....

Source: National Oceanic and Atmospheric Administration.
Compiled by: Maine Division of Community Services.

CURRENT SELLING PRICES OF NO. 1 (KEROSENE) AND NO. 2 (PRIVATE RESIDENCE FUEL OIL) OF A NUMBER OF OIL COMPANIES PICKED AT RANDOM IN DIFFERENT LOCALITIES OF THE STATE

Company	Area	No. 1	No. 2
Coury Oil Co., Madawaska, Maine.....	Fort Kent.....	24.2	23.0
Agway Petroleum Service, Presque Isle, Maine.....	Presque Isle.....	30.9	25.4
Webber Oil Co., Bangor, Maine.....	Bangor.....	23.4	21.8
Randall & McAllister, Portland, Maine.....	Portland.....	25.85	23.85
Gagne Fuel Oil Corp., Augusta, Maine.....	Augusta.....	26.9	24.9
Wadleighs, Hallowell, Maine.....	Augusta.....	27.5	27.0
Auburn Fuel, Inc., Auburn, Maine.....	Lewiston-Auburn.....	24.9	22.4, 24.4

1 Today.

2 Next week.

Source: Maine Division of Economic Opportunity telephone survey, Nov. 13, 1973.

FUEL COST AVERAGES BY MAINE COUNTIES

County	Price range, No. 2 Fuel	Average price, No. 2 Fuel	Fuel index
Androscoggin.....	45.4-47.0	46.1	6.11
Aroostook.....	48.2-49.2	48.9	6.48
Cumberland.....	45.4-46.5	46.1	6.11
Franklin.....	46.6-49.0	47.2	6.26
Hancock.....	46.9-47.9	47.3	6.27
Kennebec.....	46.8-47.9	47.4	6.28
Knox.....	37.0-47.3	47.1	6.24
Lincoln.....	47.2-48.6	47.9	6.35
Oxford.....	45.0-47.8	46.4	6.15
Penobscot.....	47.5-48.0	47.6	6.31
Piscataquis.....	47.0-47.8	47.4	6.28
Sagadahoc.....	45.8-46.9	46.5	6.16
Somerset.....	45.0-48.5	47.3	6.27
Waldo.....	46.5-46.9	46.7	6.19
Washington.....	48.3-48.9	48.6	6.44
York.....	45.0-45.4	45.2	5.99

Source: Maine Division of Community Services, telephone survey of Maine oil dealers, by county, May 27, 1977.

**STATEMENT OF NEW ENGLAND FUEL INSTITUTE AND INDEPENDENT
CONNECTICUT PETROLEUM ASSOCIATION**

Mr. Chairman: My name is Charles S. Isenberg. I am Executive Vice President of the Independent Connecticut Petroleum Association (ICPA) and Connecticut Chapter Executive of the New England Fuel Institute (NEFI). I am appearing today on behalf of both associations to discuss two parts of H.R. 8444, the Energy Tax Act of 1977—Section 2039, providing for a rebate to home heating oil users, and Section 2011, establishing the residential energy credit.

The New England Fuel Institute is an association of 1,300 independent retail and wholesale home heating oil distributors throughout the six-state region. The independent marketers serve over 2.4 million retail home heating oil consumers and market 85 percent of the 5 billion gallons of No. 2 home heating oil sold in our area at the retail level and 40 percent of the gallonage at wholesale. Seventy-one percent of all of New England's buildings and 74 percent of its population are heated by oil. Members of our association also market residual fuel oil at the wholesale and retail levels.

The Independent Connecticut Petroleum Association is composed of 350 independent fuel oil dealers and distributors who sell their products to homeowners, businesses and industries throughout the state of Connecticut. According to the State Department of Planning and Energy Policy 72 percent of the population—2,232,000 people—depend on oil for their space heating; and approximately 1,030,000 buildings in Connecticut are heated with oil.

With this percentage of the population so highly dependent on oil heat, the ICPA, its members, and the consumers we serve are gravely concerned about increases in the cost of this necessity of life in a state that experiences cold Winter weather.

During the past four heating seasons, the cost of heating oil has increased more than 150 percent, and the customers of our member companies have, without question, conserved energy to the best of their ability. Our members have been participating with every type of program to assist their customers—both businesses and homeowners—to reduce their consumption of fuel oil. Our association, in cooperation with the state of Connecticut, trained more than 1,500 service technicians in the skills required to bring equipment up to peak efficiency.

Our customers are conserving. Thermostats are being kept lower; and still, many citizens have a great deal of difficulty meeting their basic heating bills. This is especially true with low, moderate and fixed income people. We feel certain that additional taxes on home heating fuels would do little, if anything, to encourage people to conserve more. Imposition of additional costs would just make a difficult situation much worse, and force many people to choose between basic necessities of life.

**I. HOME HEATING OIL REBATE. (SECTION 2039, REFUNDS OF CRUDE OIL EQUALIZATION
TAXES FOR RESIDENTIAL, ETC., USE)**

When he presented his National Energy Plan to the Congress in April, President Carter emphasized that the Plan was based upon the principles of regional equity and equal pricing of fuels. NEFI and ICPA strongly support those principles and have supported the President's Plan because it promises equal treatment for all consumers and regions. An essential element of such equal treatment is the home heating oil rebate. Without the rebate, the Plan becomes distorted and unfair. Without the rebate, the Plan is clearly unsupportable, for the economic consequences on our region will be devastating. Our homeowners will be forced to pay higher prices as a result of the crude oil equalization tax and get a smaller proportion rebated. People in other regions will, to be sure, also pay higher prices, but they will receive a rebate that will more than compensate for these price increases. In other words, without the rebate, money will be taken from the fuel oil regions such as the Northeast and given to other regions.

Perhaps more serious, if the Committee examines the plan in detail it will realize that even with the rebate, the fuel oil consuming regions such as the Northeast are placed at serious disadvantage. In other words, even with the rebate, the President has not met his commitment to equal treatment. The inequity results from the pricing provisions for residential natural gas. Under the President's Plan, the residential price for natural gas is to be kept at an artificially low level. As a result, homes heated by natural gas will be guaranteed a

price that is an average of 10 cents per gallon (on a BTU equivalent basis) below the price of home heating oil. If the rebate is rejected by this Committee the disparity will be 20 cents per gallon—in favor of the natural gas consumer.

In brief, NEFI and ICPA believe that a careful examination of the facts will reveal that, far from being a "special deal", the home heating oil rebate provides some measure of equal treatment for consumers of fuel oil—homeowners, apartment dwellers, hospitals, schools and churches. A careful examination of the facts will also reveal that even if the full rebate is granted, fuel oil consumers will still be forced, under the President's Plan, to pay far higher prices than consumers who heat with natural gas.

Unless the rebate is provided, under a workable effective mechanism, NEFI and ICPA would strongly recommend that the Crude Oil Equalization Tax be rejected in its entirety.

Specific comments

ICPA and NEFI strongly support the home heating oil rebate for four specific reasons:

First, prices of fuel oil have already risen far too much. Since the Arab Oil Embargo of 1973, the price of fuel has risen more than 150 percent. As a result, homeowners have made an extraordinary effort to cut their consumption. Our experience in the field shows that the average home in our region has reduced fuel oil usage by at least 15 percent, weather adjusted.

Our region has taken the lead in seeking ways to conserve and to utilize alternative sources of energy, such as solar heat. And what is to be our reward? If there is no rebate, our reward will be an unwarranted, punitive increase in prices—an increase of about 25 percent over the next two years. The average fuel bill in New England will increase by \$150-\$200 per year. And the fuel user who has already done a great deal to conserve can only grimly pay.¹

The total impact on the New England economy will be devastating. The projected increase of 10 cents per gallon due to the Crude Oil Equalization Tax will add more than \$400 million per year to the region's annual fuel bills. In Connecticut the added fuel cost will be \$64 million per year; in Maine they will be \$41 million. In the Middle Atlantic states the added consumer costs will be more than \$600 million.²

As we have already pointed out, without a fuel oil rebate, this money will be transferred to other regions and rebated to consumers who do not even heat with fuel oil.

Second, the impact on retail fuel oil dealers will be equally devastating. With the sharp increase in fuel oil prices, the cost burden on fuel oil dealers has grown—due both to the added expense of financing higher cost inventories and the growth in accounts receivable. Accounting to a NEFI survey the number of consumers who delayed payment of fuel bills beyond the customary 30-day period increased by nearly 10 percent from March 1976 to March 1977. This upward trend is expected to continue over the forthcoming Winter.

The combination of higher prices, FEA audits and FEA monitoring and regulations is forcing a growing number of retail fuel oil dealers to sell out or go out of business. In New England alone approximately 70 dealers were forced out of the marketplace during the 1976-77 Winter. Some 50-60 companies are currently up for sale and a total of 130-140 are expected to leave the market between now and next Spring.

The trend is ominous—70 New England companies gone last Winter and twice that number expected to go next Winter. The basic cause is, as we have stated, that steadily rising prices of fuel oil, coupled with the oppressive policies of the Federal Government, have sharply reduced the margins and profits of independent marketers.

Third, the President's National Energy Plan is designed to equalize the prices that all consumers pay to heat their homes. The Plan does make an attempt at achieving this result; it does not, unfortunately, insure fuel equality.

As we have indicated, when the Plan is fully effective, the fuel oil consumer will pay 10 cents per gallon more (on a BTU equivalent basis) than the natural

¹ We might also note that conservation on the part of natural gas consumers has been far less. According to a recent nationwide study by the National Oceanic and Atmospheric Administration, homeowners using natural gas for space heating have not reduced their consumption over the past three years. Despite this fact, and despite the fact that gas is, as the Committee realizes, in far shorter supply than fuel oil, the President proposes to keep natural gas residential prices at artificially low levels.

² See chart in Attachment A.

gas consumer. Further, the consumer who heats with electricity will receive substantial cost benefits.

Thus, without the rebate, the gap between fuel oil and natural gas will increase to 20 cents per gallon and the principle of equal treatment will be completely destroyed.

Fourth, the rebate is simply not a special deal for New England. Rather, as the facts outlined above demonstrate, it is an attempt—albeit a partial one—to insure that the President's plan does not become a special deal for everyone but fuel oil consumers. For the central fact is that, without the rebate, New England fuel consumers will be taxed so that consumers elsewhere can enjoy a larger rebate—a rebate that in many cases will exceed their increased energy costs.

Further, since we in New England use only 20 percent of the nation's fuel oil, the vast majority of consumers who will be damaged by the lack of a rebate live outside of our region.³

Mechanism of rebate

The New England Fuel Institute and Independent Connecticut Petroleum Association are deeply concerned about the mechanism under which the rebate would be granted. Under the specific language of Section 2039, as approved by the House, the rebate is to be given, through monthly advance payments, to the individual fuel oil dealer who must in turn pass it on to his customers. The rebate covers two products—No. 2 distillate oil and residual fuel oil—used for space heating in residences, hospitals, schools and churches.

We have examined the mechanism closely and believe it is far too complex and cumbersome. Many dealers, particularly the small, independent ones, will find it impossible or far too expensive to comply with the new law; they lack the expertise and resources. They will simply be forced to go out of business.

Our detailed objections were presented to the House Ways and Means Committee on May 24. Rather than take the time of the Committee this morning, I ask that an excerpt of this testimony, setting forth those objections, be included in the record.⁴ We might note that the House Committee dealt with two of our objections. It removed the unworkable distinction between foreign and imported oil, and it attempted to solve our cash flow problems by permitting (under subsection (f)) dealers to apply for monthly advance payments. However, the result of this latter provision will be to add a new complexity and uncertainty for the thousands of small businessmen who sell home heating oil. The monthly advance estimate can only be a guess and will be right or wrong depending on the weather. Thus, despite the advance payments (and we doubt that in actual practice, the payments would arrive in time) many small dealers could end up, during months of severe cold, lending money to the U.S. Treasury.

In brief, after careful review of the mechanism adopted by the House, we have concluded that it is basically unworkable, will place an intolerable cost and administrative burden on small dealers, will result in the establishment of massive audits, regulations and bureaucracy to insure that the rebate is actually passed on to the consumer, and will force many small companies out of the marketplace.

A better mechanism can and must be developed. One alternative, as our House testimony indicated, is a direct rebate to the consumer through a tax credit or direct payment. Another is to exempt middle distillates and residual fuel oil from the tax in the first instance, at the refiner level, as is done in the case of propane (natural gas liquids).

Either mechanism would be acceptable to ICPA and NEFI, and we will be pleased to assist the Committee and its staff in developing a practical, workable system. Based on our careful review of this complex issue, we strongly believe that such a system must embody the following principles:

First, the rebate must be given in full to the ultimate consumer—the homeowner, apartment, school, hospital or church.

Second, the consumers must be provided clear evidence, in terms of precise numbers and amounts, that he is receiving the rebate.

Third, the administrative burden on the small, independent businesses who sell and deliver the large proportion of home heating oil in our region must be reduced, if not eliminated. The mechanism adopted by the House is so complex that it will force companies to become entangled in a mass of bureaucratic difficulties,

³ See Attachment A.

⁴ See Attachment B.

force them to commit unintended violations of law, and, in some cases, force them out of business.

Fourth, the home heating oil rebate must parallel, as closely as possible, the general rebate provisions adopted by the Congress. We recommend a direct tax credit for homeowners who file and itemize returns, and added direct payments under the provisions of Sections 2034-2038 of H.R. 8444 for those who heat with fuel oil but do not file and itemize.

II. RESIDENTIAL ENERGY CREDIT (SECTION 2011)

NEFI and ICPA strongly believe that the tax credit for home conservation measures is an essential part of this legislation. It is clear that this proposal has widespread support among the public and in Congress. The specific language of Section 2011 of H.R. 8444 is a major step forward. For the first time, it has been recognized that effective conservation within the home involves not just storm windows, caulking and insulation, but also the home heating system itself. The experience of our members in the field has shown that the installation of a new oil burner and furnace or boiler can result in fuel savings of 20-40 percent. When one recognizes that at least one-third of the heating plants in the Northeast are 13 years old or older and that about 20 percent of the furnaces and/or boilers are from 15-20 years old, the potential for conservation is immense.

For this reason, tax credits for equipment are extremely important. However, the specific language for the credit, as adopted by the House, does not provide sufficient coverage to meet the real needs of consumers, nor meet the conservation goals of the Government. It does not provide strong support for the most effective long-term conservation measures that can be taken by the homeowner, at a point where his home energy consumption during Winter is highest.

If this Committee and the Congress have as their objective the insuring of maximum conservation of fuel oil and other heating fuels, the language, which defines "other energy-conserving component", needs to be broadened. As the Committee will note, subsection 44C(c)(4)(A)(i) includes only "a furnace replacement burner", which is one, but not the major, heat transfer component of the residential heating system. The remaining integral parts—the furnace (for warm air heating) or boiler (for hot water heating) are not included. Therefore, we strongly recommend that the language in subsection 44C(c)(4)(A)(i) be amended to read: . . . replacment burner, boiler, or furnace desgined to achieve a reduction in the amount of fuel consumed as a result of increased combustion or absorption efficiency.

Such an amendment will insure that homeowners are given a tax credit to install the basic components of a more efficient oil heating system and will insure that the most effective quantitative energy conservation will be achieved.

Based on the direct field experience of the members of our associations, the replacement of simply a burner in older oil heating equipment is in most cases not enough to optimize long-term energy conservation. In those cases the complete replacement of a furnace or a boiler is necessary to achieve substantial energy savings.

III. CONCLUSION

In conclusion, Mr. Chairman, on behalf of the Independent Connecticut Petroleum Association and the New England Fuel Institute, I wish to express our appreciation for the opportunity of presenting the testimony today. As we have outlined in our statement, the home heating oil rebate is essential to insuring fairness and regional equity. Without the rebate, the President's Plan will impose a punitive, senseless burden on millions of fuel oil consumers and thousands of small, independent retail dealers throughout the nation. Unless the rebate and a simple, effective mechanism for implementation of the rebate are approved by this Committee and the Congress, the Crude Oil Equalization Tax should be rejected.

Thank you very much.

ATTACHMENT A

[From the Congressional Record—House, August 5, 1977]

Mr. CONTE. Mr. Chairman, I rise in strong opposition to the amendment offered by the gentleman from New York (Mr. CONABLE).

Mr. Chairman, I do so because the effect of this amendment would be to strike the provision mandating a dollar-for-dollar debate for the home heating oil consumer. This exemption from the full effect of the crude oil equalization tax, in

the form of the rebate, was adopted by both the Ways and Means Committee and the Ad Hoc Energy Committee, both after lengthy debate.

Mr. Chairman, I would first like to correct a misconception surrounding this issue that the tax will only benefit the heating oil consumers of New England. While it is true that the New England consumers of this expensive heating fuel stand to benefit, it is also true that consumers in the remaining States, and especially in the Mid-Atlantic, North Central, and South Atlantic regions will also benefit. In total, 19 States will derive major relief from this provision of the ad hoc committee's bill.

Mr. Chairman, a recently released study compiled by the Bureau of Mines found the total amount of savings to these already overburdened heating oil customers would be \$1.406 billion in 1980. Additionally, the Federal Energy Administration just released their study which shows that the rebate, in 1985, would have a greater impact on the consumers in the New York, New Jersey area and in the Midwest area than it would have on New England. I hope we can lay the misconception to rest, once and for all.

Mr. Chairman, I strongly support the proposal in the energy bill which grants the exemption from the tax for these home heating oil consumers. But it is not accurate to say that these consumers will receive a special benefit, direct from Washington, assuming this amendment is defeated, since these consumers have been and will be saddled with high energy costs for years to come. This amendment would, in essence, allow these "captive consumers" to retain a stable price level, while the other users of petroleum products would experience some cost increases. But, make no mistake about it, the cost to these other consumers will, in no way, be as high as those borne by the heating oil consumer. Without this dollar-for-dollar rebate, the home heating oil consumer will be paying an average of 20 cents more per gallon by 1980, than home heating consumers of natural gas, on a Btu equivalent.

Mr. Chairman, the President supports this proposal and opposes the amendment now before this body. In fact, the President stated in his energy message to Congress last April that--

Home heating oil users would receive an additional share of the equalization tax as a dollar-for-dollar reduction in the price when they buy fuel oil.

The proposal contained within the energy bill accomplishes that stated goal.

Finally, Mr. Chairman, I was pleased to hear the President state that one of the cornerstones of his comprehensive national energy policy was the assurance to the public that the policies are equitable across the country, and that the special needs of special regions are met. The amendment now before us will get that cornerstone, and thus we will revert back to the previous policies of forcing some groups of individuals to pay exorbitant prices while others reap the benefits of this sacrifice. I trust this body does not want to go on record in support of such a policy. I therefore, urge my colleagues to oppose this amendment, in the interest of equity.

Thank you, Mr. Chairman.

*Annual homeowner cost increases resulting from crude oil
equalization tax (1980)*

[In millions of dollars per year]

Mid-Atlantic States:		
New York	-----	\$335
New Jersey	-----	155
Pennsylvania	-----	114
Mid-Atlantic total	-----	604
North Central States:		
Michigan	-----	86
Wisconsin	-----	65
Illinois	-----	45
Minnesota	-----	44
Indiana	-----	42
Ohio	-----	26
Missouri	-----	12
North Central total	-----	320

*Annual homeowner cost increases resulting from crude oil
equalization tax (1980)—Continued*

South Atlantic States:	
Maryland	\$34
Virginia	21
North Carolina.....	20
	<hr/>
South Atlantic total.....	75
	<hr/> <hr/>
New England States:	
Massachusetts	229
Connecticut	64
Maine	41
New Hampshire.....	29
Rhode Island.....	29
Vermont	15
	<hr/>
New England total.....	407
	<hr/> <hr/>
Total 19 States.....	1,406

SOURCE: Federal Energy Administration.

Rebate to region as a percent of total U.S. rebate (1985)

New England.....	19
New York/New Jersey.....	25
Mid-Atlantic	13
South Atlantic.....	8
Midwest	23
Southwest	4
Central	2
North Central.....	1
West	1
Northwest	8

SOURCE: Bureau of Mines.

ATTACHMENT B

EXCERPT

STATEMENT OF NEW ENGLAND FUEL INSTITUTE, OIL HEAT INSTITUTE OF LONG ISLAND, INC. AND OIL HEAT INSTITUTE OF WESTCHESTER, INC. ON TAX ASPECTS OF THE "NATIONAL ENERGY ACT" BEFORE THE COMMITTEE ON WAYS AND MEANS UNITED STATES HOUSE OF REPRESENTATIVES, WASHINGTON, D.C., MAY 24, 1977

2. The Rebate for Home Heating Oil Consumers (Section 1402 of Title II).

As indicated, the independent home heating dealers strongly support the objective of insuring that the increased costs attributable to the crude oil equalization tax are returned in full to the home heating oil consumer. This provision recognizes the vital interests and the current severe financial difficulties of the fuel oil consumers.

However, we are opposed to the mechanism proposed in Section 1402 which gives the rebate to the retail dealer ("the ultimate vendor") who then passes on this rebate to his customer. In place of this provision, we strongly recommend that this Committee consider and adopt a direct tax rebate to the consumer, in the form of a tax credit or a cash payment.

We are opposed to the President's proposal, as embodied in Section 1402 of Title II, for the following reasons:

We do not believe that the interposition of over 10,000 retail heating oil dealers between the Federal Government and 12 million home heating oil consumers¹ is a wise or effective means of returning this money to the consumers. To monitor

¹ While the total number of bill payers is 12 million, the actual number of dwelling units heated by oil is significantly higher.

over 108 million retail sales transactions per year would impose a tremendous burden on retail dealers, 50 percent of whom have less than 10 employees each. It would also result in confusion and delays in getting the rebate to the consumer and could cause the demise of a considerable number of small retail distributors. In addition, it would cause the creation of a bureaucratic morass that would require a small army of auditors to police. Indeed, it would be much more sensible and practical to return this \$1-2 billion of tax rebates to home heating oil consumers directly.

The President's Proposal does not insure that the consumer will receive the full and complete benefit of the rebate.

The President's Proposal is unduly complex and will create a bureaucratic system that the small independent dealer simply is not equipped to comply with.

The President's Proposal will force the independent retailer to be the distributing agent for what will be billions of dollars of Federal refunds. This is a burden that the retail distributor should not, as a matter of public policy, be required to carry. In truth, he is not capable of handling it with his limited resources.

The President's Proposal will further create a serious cash flow problem for independent retailers who will be required to rebate funds to the homeowners some 90-120 days before such funds are received by the dealers from the Federal Government. In fact, the small businessman would be lending money to the U.S. Treasury.

The President's Proposal will create an artificial distinction between domestically refined and imported home heating oil. This distinction will result in a "two tier" pricing system, with regions such as New England and New York which import a significant volume of its home heating oil each Winter, paying a considerably higher price than other regions. This clearly undercuts the President's commitment to equality of treatment for all regions. This distinction will also force specific dealers in an area [particularly those supplied by independent wholesalers] to pay much higher prices than their direct competitors [many of whom are major oil companies]. This clearly weakens the competitive viability of the independent marketing sector. The provision will also give some homeowners a full rebate, their neighbors on the same block a partial rebate and other neighbors no rebate at all, depending on the proportion of "imported" heating oil delivered into each fuel tank on the block. Further, in an attempt to monitor and enforce the distinction between domestic and foreign oil, the Federal Government will be forced to establish a complex reporting system, reaching into every home.

In brief, we strongly favor the rebate principle, but urge that a more practical, less complex mechanism be developed—one that will insure the fullest cost reduction (in the rebate form) to the homeowner at the least expense and difficulty to the already heavily overburdened independent retail dealer.

Our next witness is Mr. Richard J. Bauer, president of Eastern Alloys, Inc., and president of Independent Zinc Alloyers Association. It is nice to have you with us.

STATEMENT OF RICHARD J. BAUER, PRESIDENT, EASTERN ALLOYS, INC., AND PRESIDENT, INDEPENDENT ZINC ALLOYERS ASSOCIATION, ACCOMPANIED BY JANICE LIPSEN, DEPUTY EXECUTIVE DIRECTOR, INDEPENDENT ZINC ALLOYERS ASSOCIATION

Mr. BAUER. Mr. Chairman and members of the Senate Finance Committee—

Senator HATHAWAY. We will put your entire statement in the record. You may summarize it if you wish.

Mr. BAUER. In the essence of saving time I would be happy to do that.

I am Richard J. Bauer, president of Independent Zinc Alloyers Association as well as president of Eastern Alloys, Inc., of Maybrook,

N.Y. I have with me Janice Lipsen, deputy executive director of IZAA.

The petrochemical industry, the only industry to use oil for both raw materials and energy, would be exempted from paying taxes on oil used as raw material if H.R. 8444 is adopted. While most Americans are being told to conserve energy, the House bill enables one of the largest industrial users of fuel to increase its share of the depletable oil resources.

According to a leading company in the petrochemicals field, Union Carbide, "making chemicals requires a lot of energy—about 25 percent of the amount used by all industries and 10 percent of the Nation's total energy consumption."

The industry used over 13 billion barrels of oil in 1974, nearly 1¾ times as much energy as the motor vehicles and car bodies industries combined. The entire transportation industry used less than one-quarter as much fuel as petrochemicals did last year. Petrochemicals used enough oil for feedstock in 1976 to provide a complete year's supply of electricity to 28 million American homes.

In the NEP, petrochemicals appears to occupy a privileged position. Not only will its use of oil as feedstocks be tax exempted but the plan states that oil will have to be reserved for petrochemicals and other uses in which it has a maximum value.

An energy policy exclusively focused on fuel substitution and conservation overlooks a considerable body of developing economic analysis concerned with the continued use and dependence upon energy-intensive products where less energy-intensive manufactures might be used. Although plastic's light weight gives it an advantage in some uses, this must be balanced against the demerit of high energy input in its manufacture.

Producing plastics takes up to four times as much energy as production of the metals it replaces and, unlike metals, plastics are not recyclable. While metals can be reused at great savings in energy costs, plastics will eventually use up to one-fifth of our landfill acreage.

The energy required to produce large quantities of plastics may outstrip the energy saved by using these lightweight materials. The comparable fuel costs of plastics may become prohibitive with the introduction of less energy-intensive materials.

If continued use of plastics is encouraged, we may be faced with importing oil not just to keep our cars on the road but to build them as well.

Thank you very much. That is the end of my summary.

Senator HATHAWAY. Thank you very much. If there is an increase in the amount of zinc die casting in automobiles will this country be able to produce enough zinc alloy to satisfy the demands?

Mr. BAUER. Yes; there is adequate capacity. In fact, there is idle capacity available in the country today and foreseeable for the next 5 years.

Senator HATHAWAY. How much?

Mr. BAUER. We are running 55 percent of capacity as an industry.

I think it is important to consider the recyclability of metals. The initial energy needed to extract them from the ground, and to win them from the ores and concentrate, is less than the amount of energy

needed to produce plastics. The real windfall and saving of energy is in the recyclability of metal. It can be processed as a secondary metal over and over again. The energy required to recycle is only a fraction of the energy required to win the metal from the ore.

Senator HATHAWAY. What fraction?

Mr. BAUER. It varies from industry to industry. In zinc about 83 percent of energy required to win the metal from the ore is saved through recycling.

Senator HATHAWAY. What is the zinc industry doing to reclaim some of the areas that have been usurped by plastic?

Mr. BAUER. The industry is involved in a very heavy marketing program. They are developing new techniques and new technology—for instance, they are working with the automotive industry in developing and using lightweight zinc castings. These can now be processed in many applications in the same weight as a comparable plastic part. Consider the number of cars that are built over a period of 5 years and you virtually have a rolling resource of recyclable zinc when the cars come back to be scrapped. Plastics are just incinerated away.

Senator HATHAWAY. Is the zinc at a competitive price?

Mr. BAUER. Yes; it has a competitive price.

Our great concern here is that the plastic industry has asked for and lobbied strongly for a favored position protecting it from the tax that would be placed on competing materials and competing industries. What we are saying is: We think it is only fair that we have equal treatment.

Senator HATHAWAY. Thank you. Senator Packwood.

Senator PACKWOOD. No questions.

Senator DOLE. You just pointed up again what happens when you start with a massive program, then start making exceptions or exemptions. You are being penalized because of action taken by the other side, or the House side, as I understand it in your statement. It is not fair to you. That is the essence of your statement.

Mr. BAUER. That is correct. It is not fair to many industries.

Senator DOLE. Even though you have certain advantages, because it is less costly and can be recycled. It demonstrates what I tried to indicate with the last witness, that once you start a massive tax program and try to make it fair, you end up with many inequities. Maybe that is always the case. There is nothing we can do but do the best we can. You illustrated the point better than I did.

Mr. BAUER. I have to agree with you that we have a definite need for an energy program, but we seem to have started at the wrong end. We started dealing with the tax program rather than finding a way of producing more energy from whatever source.

Senator DOLE. There was a great deal of concern expressed—I commend those who expressed it—about the end user and how you ease the impact by rebates, but in the process there was not enough focus on production. Now we have a massive tax program. We are trying to figure out ways to ease it for some, and when we do that, we will probably make it more difficult for others.

Mr. BAUER. As a personal comment, addressing it to the comments of Senator Long from before, as an American I find it very distasteful that we are willing to pay offshore sources a higher price than we are

willing to pay American producers. Yet this whole program, as it is advanced, really amounts to U.S. consumers paying the offshore price at some point down the road, 3 or 4 years ago.

I am not sure what that accomplishes. ...

Senator DOLE. We import oil at high prices, but we don't want to pay that to American producers.

Mr. BAUER. I can't understand why.

Senator HATHAWAY. Thank you very much.

[The prepared statement of Mr. Bauer follows:]

STATEMENT OF RICHARD J. BAUER, PRESIDENT, INDEPENDENT ZINC ALLOYERS ASSOCIATION; PRESIDENT, EASTERN ALLOYS, INC.

My name is Richard J. Bauer.

I appreciate the opportunity to appear today on behalf of the Independent Zinc Alloyers Association because we feel that certain provisions of the House version of the President's energy plan may be detrimental to a sound national energy policy. The 21 member companies of the association produce about 90 percent of the zinc alloy sold in this country. I am president of the IZAA, and I am also president of Eastern Alloys, Inc., of Maybrook, N.Y.

The President has called for sacrifices by the public and by industry to carry out his program. Under the National Energy Plan, most energy users will pay rather hefty taxes for increased oil consumption. Consumers will have to cut down on gasoline usage or face up to 50 cents a gallon in taxes by 1985. Corporations will have to spend money on pollution control, fuel substitution technology and other energy devices rather than increase normal investments. The automotive industry is struggling to produce lighter weight, more fuel efficient cars. All sectors of the American economy are being asked to make sacrifices. All sectors except one, that is.

While most Americans are being told to conserve energy, the House is enabling one of the largest industrial users of fuel to increase its share of the depletable oil resources.

The petrochemical industry, the only industry to use oil both for energy and raw materials, is successfully lobbying for tax breaks to increase its use of fuel. The tax bill on energy, as passed by the House, would exempt companies which use oil as a raw material from paying the tax on that oil.

Petrochemicals are among the largest energy users in the country. The combined consumption of plastics, organic fibers and nitrogen fertilizer industries, for instance, outranks all other users except blast furnaces and steel mills, petroleum refining and industrial organic chemicals. According to Union Carbide, a leading petrochemical manufacturer, "making chemicals requires a lot of energy—about 25 percent of the amount used by all industries and 10 percent of the nation's total energy consumption."¹

To produce one ton of plastics, nearly two tons of oil are required. According to Ernest Robson, a vice president of Monsanto, the domestic demand for plastics is nearly 15 million tons annually.² The two tons of oil which are used to make a ton of plastics could produce 25,000 kilowatt hours³ of energy; enough to provide electric power to three average one family homes for a full year. It would take an eight percent reduction in gasoline consumption across the country to equal all of the petroleum consumed in petrochemical feedstocks alone.⁴

The industry used over 13 billion barrels of oil in 1974,⁵ nearly one and three-quarters times as much energy as the motor vehicles and car bodies industries combined. The entire transportation industry used less than one-quarter as much

¹ Union Carbide advertisement, the Washington Post, Tuesday, Aug. 23, 1977, p. B14.

² Statement of Ernest S. Robson, vice president, energy and materials management, Monsanto Co., on behalf of the Petrochemicals Energy Group, Mar. 13, 1975, in Panel Discussions, House of Representatives, Committee on Ways and Means, 94th Cong., 1st sess., pt. 4, pp. 1622-1640, Panel Discussions.

³ Society of Automotive Engineers, paper by M. Robert Davidson, Noranda Sales Corp., "Zinc, a Versatile Strategic World Commodity," Automotive Engineering Congress and Exposition, Detroit, Mich., Feb. 24-28, 1975. SAE booklet 750184, p. 4.

⁴ Robson, op. cit.

⁵ Department of Commerce, "Annual Survey of Manufactures 1974, Fuel and Electric Energy Consumed," p. 158.

fuel as petrochemicals did last year.⁶ A table from the Commerce Department is attached which breaks down the consumption of the 16 leading energy consuming manufacturing industries.

These figures, however, do not reflect the entire oil consumption of the petrochemical industry. The federal government remains only partially informed about the total oil and gas consumed by plastics and other petrochemicals because of the complex nature of the industry and its apparent reluctance to provide such information. Federal Energy Administration economists and administrators as well as some congressmen have been dissatisfied with government energy data.

During the natural gas shortages last winter when some industries suffered temporary shutdowns and productions cutbacks, 25 chemical companies accounting for more than 50 percent of the U.S. chemical industry shipments had only "minimal employment or production disruptions," according to a Commerce Department survey.⁶

The reporting of energy use by this industry has left large gaps of information. That dissatisfaction is reflected in the NEP's proposals to require more detailed information from oil and gas companies and to open certain figures to public inspection, in order to "restore confidence * * * that the government, not the oil industry, is in charge of national energy policy."⁷

The government has, however, been able to make some rough comparisons between industries as to their oil consumption.

Despite the petrochemicals industries' claims that they use only a small portion of the nation's fuel supplies, it is interesting to note that over 400 million barrels of oil were used as feedstocks for petrochemicals in 1976. This represented nearly six and a half percent of U.S. petroleum demand for that year. This would have supplied enough energy to provide a complete year's supply of electricity to 28 million homes, according to data from the Bureau of Mines, Census and Edison Electric Institute.⁸

The Plastics Materials and Synthetics industry consumed enough natural gas in 1974 to heat 1.3 million homes for a year, more than the estimated total new housing starts for 1976. About 70 billion cubic feet of gas went exclusively for resins and plastics materials.⁹

Petrochemicals, whose plastic products are often substituted for metals, used more energy, not even including feedstocks, than the aluminum industry and almost as much as the entire nonferrous metals industry. It used 13 times as much as all the secondary nonferrous metals industries.¹⁰

In the National Energy Plan petrochemicals appears to occupy a privileged position. Not only will its use of oil as feedstocks be tax exempted, but the plan states that "oil will have to be reserved for petrochemical and other uses in which it has a maximum value."¹¹

But an energy policy exclusively focused on fuel substitution and conservation overlooks a considerable body of developing economic analysis concerned with the continued use and dependence upon energy-intensive products where less energy wasting manufactures might be used.

According to Hans Landsberg, a Resources for the Future economist writing in Science magazine last year, although plastic's "light weight gives them an advantage in some uses (such as in automobiles) this must now be balanced against the demerit of a high energy input in their manufacture."¹²

⁶ Department of Commerce press release, Feb. 18, 1977.

⁷ "The National Energy Plan," report on the Executive Office of the President, Apr. 29, 1977, pp. 85-86.

⁸ Department of Commerce, op. cit., pp. 145-146 for figures below; and for specific fuel consumption, see pp. 156-157:

[Purchased fuel and electric energy, kilowatt-hour equivalent, (billions)]

1974 fuels and electric energy consumed (billion kwh) :	
Plastics materials and synthetics, SIC 282.....	143.6
Primary nonferrous, SIC 333.....	115.7
Primary stnc, SIC 3333.....	9.9
Primary aluminum, SIC 3334.....	111.0
Primary nonferrous, SIC 333.....	155.7
Secondary nonferrous metals, SIC 3341.....	10.7

⁹ Loc cit.

¹⁰ Loc cit.

¹¹ NEP, p. VIII.

¹² Hans H. Landsberg, "Materials: Some Recent Trends and Issues," Science, Feb. 20, 1976, p. 37.

The NEP also ignores the recommendations of numerous materials policy studies at the national level. The National Commission on Supplies and Shortages reported in 1976 that "the use of recycling as a source of supply can reduce the escalating capital requirements and environmental degradation which accompany the exploitation of lower-grade virgin resources. It can also reduce energy demands and import dependence."¹³

Plastics are not at present recyclable. Nor are they biodegradable and, because of their poor compaction characteristics, the sanitary landfill requirements of the Nation would quadruple from 1970 to 1980. By the year 2000, plastics would use nearly one-fifth of the total landfill acreage.¹⁴

Petrochemicals industries are working hard to overcome some of these disadvantages, through measures such as grinding up plant plastic waste as filter for new plastic products.

The petrochemical industry, however, points the finger of conservation at the automotive industry.

Forced by the government and consumer groups to design more fuel efficient cars, American automobile manufacturers have been steadily reducing the weight of their products. Since a lighter body puts less strain on the car's engine, it will use less gasoline than a heavier built model.

This reduction in weight is accomplished by substituting plastics materials for heavier steel components.

The average Ford Motor Co. car weighs in at around 4,200 pounds. According to Fred G. Bush, a vice president of the company, this will decrease to between 2,500 and 2,800 pounds by 1985. If current policies are continued, up to 15 percent of this weight could be in plastic parts.¹⁵

According to Bush, this reduction in weight "does not have as great an affect on gas mileage as you might anticipate." His own calculations indicate that for every 100 pounds cut from a car's total weight, the average motorist would save only \$10 a year in gasoline bills.¹⁶

Detroit currently uses 170 pounds of plastics per car, a figure which the Society for Plastics predicts will rise to 300 pounds by 1985.

But producing plastics takes much more energy than the manufacture of the metals it replaces, Zinc, which was used for much of the trimwork and accessories now made of plastic, uses roughly one-quarter the amount of energy to produce as plastic does. And, unlike plastics, zinc is recyclable.

By 1980, 15,000 to 200,000 tons of zinc could be recycled, according to James Alexander, a former high official of New Jersey Zinc. This would conserve enough energy to supply nearly 75,000 homes. While plastics would pile up in landfills, zinc would be reworked into the economy.¹⁷

A Columbia University metallurgist, for instance, estimates that 47 of the 56 million BTU's required for production of a ton of primary zinc can be saved by using recycled zinc. Plastics uses anywhere from 45 million to 135 million BTU's per ton, none of which is recycled.¹⁸

The energy required to produce large quantities of plastics may outstrip the energy saved by using the light weight materials. With the introduction of comparable, less energy-intensive materials such as thin-cast zinc, the comparable fuel costs of plastics may become prohibitive.

Without immediate action to cut down or at least slow down the increasing domestic need for oil, it will surpass domestic and world production by the mid-1980's. The increased tax on oil will force all industries to slow down on the consumption rate of oil. The plan also provides incentives to hasten the development of new technological devices to conserve oil and use non-petroleum fuels.

The petrochemicals industry is a large and important sector of the economy. It employs over 300,000 people in over 1,000 plants with annual sales of \$41 billion.¹⁹ We recognize the importance and extraordinary value of the industry to the economy. We do believe, however, that if the exemption for feedstocks is

¹³ National Commission on Supplies and Shortages, "Government and the Nation's Resources," December 1976, p. xvii.

¹⁴ Battelle Columbus Laboratories, "Environmental Assessment of Future Disposal Methods for Plastics in Municipal Solid Waste," June 1975.

¹⁵ Tom Walsh, in *American Metal Market*, June 20, 1977.

¹⁶ *Loc cit.*

¹⁷ Society of Automotive Engineers, *op. cit.*, p. 4.

¹⁸ Herbert H. Hellog, "Sizing up the Energy Requirements for Producing Primary Materials," *Engineering and Mining Journal*, Apr. 1, 1977.

¹⁹ O. Pendleton Thomas, chairman of the board and chief executive officer, B. F. Goodrich, in testimony for the Petrochemical Energy Group in front of the U.S. Senate Committee on Finance, Apr. 12, 1977, p. 15.

retained, there will be little incentive for them to conserve oil or to push development of less energy wasting technology.

Prior to the introduction of the National Energy Plan, the petrochemicals industry projected a growth rate that would double its demand for oil and gas feedstocks over the next ten years.

Without the tax surcharge on feedstocks, the industry could continue to expand and further deplete those oil resources the country is trying to conserve.

The basic choices of the nation should not be determined by any industry, particularly one that has command of so much of the basic fuels that run our economy. A national energy policy should at the least address the question of materials energy efficiency.

In order to make meaningful comparisons of energy use, the government will need more complete accounting and reporting from industry, particularly in the complex petrochemicals network.

Meanwhile, allowing plastics use to grow as fast as the industry can promote may switch our dependence on foreign oil from transportation needs to the manufacturing of our basic consumer needs. Instead of importing oil to keep American cars running, it may be imported to keep building them as well.

"Annual Survey of Manufacturers 1974, Fuel and Electric Energy Consumed," U.S. Department of Commerce, p. XIV (see table below). According to preliminary 1975 data, plastics more than held its own. Miscellaneous plastics products even lumped motor vehicles and car bodies from the top 16 largest energy users list.

LARGEST 16 ENERGY-CONSUMING MANUFACTURING INDUSTRIES, 1974

Rank	Description	Kilowatt-hour equivalent consumption (billions)	SIC code
1	Blast furnaces and steel mills.....	448.4	3312
2	Petroleum refining.....	435.0	2911
3	Industrial organic chemicals, n.e.c.....	288.5	2869
4	Papermills, except building paper.....	167.8	2621
5	Paperboard mills.....	149.8	2631
6	Cement, hydraulic.....	144.8	3241
7	Industrial inorganic chemicals, n.e.c.....	112.4	2819
8	Primary aluminum.....	111.0	3334
9	Nitrogenous fertilizers.....	73.2	2873
10	Plastics materials and resins.....	53.6	2821
11	Alkalies and chlorine.....	52.9	2812
12	Organic fibers, noncellulosic.....	45.0	2824
13	Glass containers.....	41.2	3221
14	Cyclic crudes and intermediates.....	41.2	2865
15	Motor vehicle parts and accessories.....	35.7	3714
16	Motor vehicles and car bodies.....	32.4	3711
(x)	All other manufacturing.....	1,691.6	(x)
(x)	Total, manufacturing.....	3,924.5	(1)

¹ 20 through 39.

Mr. Edward Donley, president of Air Products and Chemicals, Inc., and chairman of the executive committee of the Manufacturing Chemists Association and a member of Manufacturing Chemical Association.

STATEMENT OF EDWARD DONLEY, PRESIDENT, AIR PRODUCTS AND CHEMICALS, INC., AND CHAIRMAN, EXECUTIVE COMMITTEE, MANUFACTURING CHEMISTS ASSOCIATION; ACCOMPANIED BY LAWRENCE L. SAPHIER, ENERGY CONSERVATION MANAGER, DOW CHEMICAL, U.S.A., APPEARING FOR THE MCA ENERGY CONSERVATION COMMITTEE

Mr. DONLEY. Good morning, Mr. Chairman and members of the committee. My name is Edward Donley; I am president of Air Products and Chemicals, Inc., and I am appearing before you today as chair-

man of the executive committee of the Manufacturing Chemists Association. It is our plan to present a summary of the written statement which we filed with your committee for the record. With me is Mr. Lawrence Saphier of the Dow Chemical Co., who is energy conservation manager there.

The Manufacturing Chemists Association is a nonprofit trade association having 189 members, representing 90 percent of the production capacity of industrial chemicals in this country.

Our combined raw material and fuel uses account for approximately 29 percent of the energy hydrocarbons used by the whole industrial sector and 7.7 percent of total U.S. consumption, almost equally split between fuel and feedstock use.

The basic U.S. chemical and allied products industry directly employs more than 1 million people and has annual sales of \$101 billion. The downstream consumers dependent on chemicals in manufacturing, construction, agriculture, and service industries multiply these numbers severalfold. Our exports provided positive trade balance of \$5.2 billion in 1976.

We agree with the national energy goals of reducing oil imports, increasing coal use, and conserving energy. We are convinced, however, that these goals can best be achieved at the lowest cost to consumers by deregulation, thus allowing new oil and gas prices to reach equilibrium under free market conditions rather than by taxation.

The chemical industry is more acutely affected by energy legislation than most industries because we have the most energy-intensive processes. However, the effect of certain elements of the proposed energy program will also have a substantial negative effect on the economy as a whole.

With regard to the key elements of the House bill, we would applaud the exemption of feedstock and nonsubstitutable process uses from business user taxes and suggest the following:

The crude oil equalization tax would be complex and difficult to administer. The desired conservation incentive would be more effectively achieved by a phased deregulation of oil and gas. Allowing the free market to balance supply and demand is the most efficient means of encouraging conservation and allocating scarce resources to their highest valued use.

Because of the rebate provisions, the tax fails to promote conservation in the substantial area of residential energy use.

If the Government decides to retain price controls and imposes a crude oil equalization tax, it should do so only with a commitment that the tax will be phased out in 1981 and that a proportional share of taxes generated be returned to industry for development of additional sources of energy supply or process engineering developments as proposed by Mr. Rockefeller.

The chemical industry is one of the most research-intensive industries in our country. There is a massive potential for research in this industry if funds are available prior to the time when conditions justify it on a purely commercial basis. Earlier access to available funds would, in the long run, benefit the country in substantial measure.

Eventually petroleum costs will reach world levels, either by reregulation, which we strongly support, or the imposition of a crude oil

equalization tax, which we do not support. We oppose business use taxes that increase costs above world parity.

Such taxes would be devastating domestically and internationally. Domestically, they would raise costs to consumers. Internationally, they would impair U.S. competitiveness, encourage imports, and discourage exports. The program enacted by the House introduces the same complexity in regulation, compliance, and enforcement that has been recognized to be unworkable in past energy programs.

At a minimum, if a business use tax is retained, exemptions for feedstocks and nonsubstitutable process uses in the House-passed version must be retained and should be extended to incremental pricing of natural gas.

The conservation record of the MCA members reveals a 10-percent reduction in fuel and power use per unit of output for 1976 compared to 1972, spurred largely by the fourfold to tenfold increase in energy costs since 1973. This 10-percent reduction is the equivalent of 164,000 barrels per day savings, and was achieved even though incentives were diminished by oil and gas prices controlled artificially below world levels.

The program to replace oil and gas boilers with coal boilers will not significantly increase the replacement rate and will fail to meet the goal for conversions forecast under the national energy program even with all the penalties and incentives embodied in the plan.

It is simply uneconomic to build coal boilers—which cost three to five times more than an oil-fired boiler—except on the scale of very large industrial installations. Even the replacement of large-scale boilers will proceed slowly because of the leadtime of 3 to 8 years required to build, and ever-changing environmental constraints.

The enormous gap between the cost of new oil-fired and coal-fired boilers is not bridged by the incentives proposed. The tax mechanisms do not provide sufficient incentive for converting existing oil- or gas-fired facilities to coal or other substitute fuels.

The House bill would encourage construction of large, new, wasteful liquid-based SNG plants which only convert one clean fuel to another with a substantial energy loss.

Despite the apparent energy cost advantage now enjoyed by the chemical industry in the United States, 7 of the top 10 chemical companies in the world are not American. Mr. Bauer, speaking for the Zinc Institute, just alluded to a competition between plastics and metals for our industrial system in the United States. We believe that that competition between different materials in our domestic economy is a healthy, constructive thing and it should be encouraged.

In the chemicals industry we are not concerned about competition with other products produced domestically. We are concerned with the competition from chemicals produced overseas and the impact that the lower cost overseas would have on our market shares, our companies, our Nation's balance of payments, and our employment. Foreign competitions are getting government help in their home countries. This more than offsets the \$3-a-barrel-of-oil advantage which the United States producers presently have.

Artificially stimulated increases in energy cost above world parity will cause significant difficulties for all United States industries and

impact heavily on the chemical industry's ability to maintain historic levels of favorable balances of trade, which presently exceed an annual rate of \$5 billion. We also would be faced with an increase in imports, loss of domestic jobs, relocation of major segments of the chemical industry overseas, and serious effects on our exports and balance of trade.

We do not understand the rationale of imposing a tax to drive the price of oil or gas above the world market. We must compete in an international market even for domestic customers. In designing an energy policy, the cost to consumers of crippled domestic industry, balance of trade, and jobs, all must be carefully considered.

To summarize, 7 of the 10 largest chemical companies in the world are not American. The cost in the chemical industry is composed of five elements: the cost of feedstocks and fuels we have to acquire, the cost of capital, the cost of labor, the cost of environmental controls, and the cost of distribution.

Foreign governments are assiduously developing mechanisms to enhance the competitive posture of their domestic industries in every one of those five elements of cost. Steps we take here in our Nation which adversely affect any of the principal elements of cost of the domestic chemical industry will result in a change in our competitive posture, and diminution of our market share, with the result that our balance of payments will decline and that jobs presently in existence in the United States will go overseas.

Thank you for this opportunity to speak to you this morning, and if there are questions, Mr. Chairman, we would be happy to try to answer them.

The CHAIRMAN. Thank you very much for a very thoughtful statement.

Senator PACKWOOD. No questions.

[The prepared statement of Mr. Donley follows.]

[The appendix mentioned in the prepared statement was made a part of the official committee file.]

STATEMENT OF THE MANUFACTURING CHEMISTS ASSOCIATION PRESENTED BY
MR. EDWARD DONLEY

Mr. Chairman and Members of the Committee, my name is Edward Donley and I serve as President of Air Products and Chemicals, Inc. Today, however, I appear as Chairman of the Executive Committee of the Manufacturing Chemists Association (MCA). Accompanying me is Lawrence Saphier, Energy Conservation Manager, Dow Chemical, U.S.A., a member of the MCA Energy Conservation Committee. Manufacturing Chemists Association is a non-profit trade association having 189 members representing more than 90 percent of the production capacity of basic industrial chemicals within this country.

Everything from insecticides to insulation, rubber tires to tennis shoes, paint to plywood and pharmaceuticals to textiles depend on the products of this industry.

Our combined raw material and fuel uses account for approximately 29 percent of the energy hydrocarbons used by the whole industrial sector and about 7.7 percent of total U.S. consumption, approximately equally split between fuel and feedstock use.¹

The U.S. chemical and allied products industry directly employs more than one million people and has annual sales of \$101 billion. Downstream consumers, de-

¹ 1976 Petrochemical Industry Profile, Arthur D. Little, Inc., June 28, 1977, see Appendix, Exhibit I, Table 7.

pendent on chemicals in manufacturing, construction, agriculture and service industries, multiply these numbers severalfold.²

The chemical and allied products industry accounted for \$10 billion in foreign sales last year, and 8.7 percent of all exports. Our exports provided positive trade balance of \$5.2 billion in 1976.³

This brief account of the magnitude of the chemical industry, its dependence on energy for feedstocks, process fuel and other uses and the role it plays in this nation's balance of trade clearly demonstrates our direct and substantial interests in the development of a rational and effective national energy policy.

SOME PRELIMINARY OBSERVATIONS

We believe in and support a national energy policy. We recognize and support the national energy goals of reducing oil imports, increasing coal production and consumption and conserving energy. If every sector of the United States is responsive to these goals, the quality of life in America will not be seriously impaired.

We are convinced that these goals can best be achieved at the lowest cost to consumers by deregulation, thus allowing new oil and gas prices to reach equilibrium under free market conditions, rather than by taxation. This would correct a major flaw in the Administration proposal by providing incentives which would increase reserves and production of oil and natural gas.

We feel that the energy programs, as submitted to Congress by the President, or as passed by the House, do not address and solve all the major issues. The House recognized the need for improvement of the Administration proposal, but did not go far enough to avoid serious consequences for industry and the economy. We can evaluate these consequences more accurately using a chemical industry example than by a general industrial model.⁴ We are affected more acutely by energy legislation than most industries because our industry has the most energy intensive processes and depends upon oil and gas for raw material as well. The effect of certain unsound elements of the proposed energy programs, as measured by chemical industry impact, also would have a substantial negative effect on the entire economy.

Therefore, we are suggesting some major changes in the Administration program, but which are consistent with national goals, would improve the nation's energy posture and are founded in legitimate concern for significant economic and trade issues.

With regard to the key elements of the Administration's tax program as passed by the House, we applaud the exemption of feedstock and non-substitutable process uses from business user taxes and make the following summarized observations and recommendations:

1. *Crude oil equalization tax.*—Primary energy prices should reflect replacement cost. Replacement cost should be achieved by phased removal of price controls, permitting petroleum prices to rise to world levels. This course would provide the maximum opportunity to develop new resources and expand the supply base.

2. *Business use tax on oil.*—The business use tax on oil should be eliminated. This tax would increase U.S. petroleum costs above world prices.

3. *Conservation.*—Energy conservation always has been a competitive necessity for our industry. MCA's members already have saved 10 percent of their fuel use per unit of output compared with 1972 and the savings are increasing even without the National Energy Program taxes.

4. *Replacement of gas and oil with coal.*—The current industry programs to replace oil and gas boilers with coal boilers will not increase significantly the replacement rate and also will fail to meet the goal for conversions forecast under the National Energy Program despite the penalties and incentives embodied in the plan. It is simply uneconomic to build coal boilers except on the scale of very large industrial installations. Even the replacement of large-scale boilers will proceed slowly because of the leadtime required and environmental constraints.

5. *Incentives for replacement of oil and gas with coal.*—Conversion to coal actually involves replacement of facilities. The National Energy Program does

² *Ibid.*, page 29.

³ Trends in Chemical Exports 1970-1976, U.S. Department of Commerce, Office of Business Research and Analysis, June 1977. See Appendix, Exhibit II, Table II.

⁴ MCA Survey of 65 Chemical Companies, June 1977. See Appendix, Exhibit III.

not contain sufficient incentives and would not provide the capital needed. Furthermore, the supposed incentives could actually penalize replacement rather than provide benefits.

6. *Synthetic natural gas*.—The government should not encourage construction of large and costly SNG plants merely to convert one clean fuel to another with an attendant energy loss.

7. *Balance of trade*.—The tax proposals of the National Energy Program would have a negative effect on our domestic chemical industry, resulting in a loss of jobs and a decline in exports which now produce a \$5.2 billion *positive* balance of trade.

An examination of these points in greater detail follows.

CRUDE OIL EQUALIZATION TAX

The crude oil equalization tax would be complex and difficult to administer. The desired conservation incentive would be achieved more effectively by a phased deregulation of oil and gas. World oil parity in pricing can be reached by either method, but decontrol would promote expansion of energy supplies. In addition, allowing the free market to balance supply and demand is the most efficient means of encouraging conservation and allocating scarce resources to their highest valued use. The crude oil equalization tax, because of the exemptions and rebate provisions, also has the anomalous international arena.

In the domestic market, these taxes, if imposed on raw material and non-convertible manufacturing fuel uses, would raise costs to consumers. In the international markets, they would encourage foreign imports into the United States and discourage exports, thereby affecting jobs and this country's economy in general. With the business use tax added to the crude oil equalization tax, U.S. industrial users would go from an apparent \$3 per barrel advantage over foreign competition to a \$3 per barrel disadvantage. The total swing is equivalent to a 60 percent price increase over present average U.S. crude oil acquisition costs. The indirect cost impact of increased regulation also would be material.

The program enacted by the House introduces the same magnitude of complexity in regulation, compliance and enforcement that has been recognized as unworkable in past energy programs. A tier system of taxation mirrors the tier system of crude pricing that has been identified by Administration spokesmen and House committee reports as a major factor undermining oil price controls. In fact, one stated purpose of the proposed programs is to simplify administration of crude oil price controls by bringing all oil to parity with foreign oil and eliminating the entitlements program.

In all regulatory confusion, the Chairman of the FEA Task Force on Compliance and Enforcement cites the tier system of crude oil price controls as the major roadblock to satisfactory enforcement of regulatory policy.⁵ In reference to the failings of the complex tier system, he has indicated that an alternate system is to be preferred and has further stated that the enforcement of a complex crude oil tax structure would further diminish the Agency's ability to enforce regulations.

Apparently, Secretary Schlesinger has come to a similar conclusion in proposing a simplification of the Administration's industrial use taxes in testimony before this Committee.

We feel that the tax program, as enacted in the House, would create an administrative regulatory quagmire. It would lead to costs for regulation and enforcement of a magnitude beyond any contemplated.

The business use tax is a major revenue measure. It is estimated that the tax, after credit offset, would increase net budget receipts by more than \$2.3 billion during the fiscal years 1979-1985. However, the basic terms of the tax and the several credit offsets thereto are deficient in many important respects. These statutory defects would make it extremely difficult to understand, administer and comply with the new tax. More importantly, they disclose an underlying failure to develop a coherent statutory pattern for a major tax measure, and demonstrate the need for Congress to reexamine the basic concepts involved. Otherwise, businesses and consumers—already faced with major problems of increased energy costs and reallocations of energy resources—may be unfairly burdened with the further costs of an ineptly drawn business use tax.

⁵ Task Force on Compliance and Enforcement, Final Report, Federal Energy Administration, at xxviii, July 13, 1977.

As previously stated, the business use taxes on oil and gas are intended to provide the impetus for conversion of facilities to other energy sources, primarily coal. Accordingly, it is difficult to understand the equity of having a consumer pay for an inability to convert from oil or gas, which in most cases will be due to legitimate environmental constraints or lack of economically feasible technology. Therefore, at least those exemptions for feedstocks and non-substitutable process uses contained in the House-passed version must be retained.

It should be pointed out that the same type of inequity occurs when natural gas is incrementally priced to industrial users for feedstocks and process use where no potential for conversion to alternative fuel exists. A similar exemption from incremental pricing should apply to these uses.

The impact of increased costs through taxes with no rational basis for consumer sacrifice is difficult to explain, since raising prices over world parity will, in effect, lower the standard of living of our citizens in relation to citizens abroad.

CONSERVATION

Energy conservation always has been a competitive necessity for our industry because of its energy-character. Increased incentives for energy conservation are an objective of the plan. We submit that the four-to-tenfold increase in energy costs experienced since 1973 have been a huge incentive to the chemical industry to invest in energy conservation. The record since that time bears this out. One hundred and five companies are reporting to MCA in a voluntary energy conservation program.

The results for 1976, compared with a 1972 base, have been reported to FEA and DOC.⁶ These show a 10 percent reduction in fuel and power use per unit of output, a reduction equivalent to 60 million barrels of oil per year. Another cost increase approaching \$3 per barrel brought about by either deregulation or the crude oil equalization tax would enhance the response, which is still catching up with the stimulus created in 1974 and 1975.⁷

Today's rate of energy conservation investments is as much a function of engineering and technology availability and sheer time requirements as it is capital availability. To add a business use tax would add incentive, but is clearly counterproductive and not necessary to promote conservation investment.

This is confirmed in a study submitted to the White House Energy Group by the Business Roundtable (see Appendix, Exhibit VI). It demonstrates that U.S. petrochemical facilities are designed for equal efficiency with their foreign counterparts when energy cost reaches parity for both locations.

In sum, the energy efficiency of new chemical plants in the United States should be equal to or better than those of new plants overseas when energy costs are the same.

REPLACEMENT OF GAS AND OIL WITH COAL

The business use tax aspect of the Administration's bill, as adopted by the House, supposedly is designed to increase the utilization of coal in the business sector. It will not accomplish the stated objectives and is not the appropriate mechanism to effect such a change.

The mechanism chosen was a tax disincentive for those who continue to use oil and natural gas. Concurrently, there is proposed an incentive in the form of either a tax credit against the users tax, or an additional investment tax credit in qualifying coal-utilization facilities.

Coal burners and necessary support installations far exceed oil and gas burners in cost. Industrial size (50 million to one billion Btu/hr.) coal-fired boiler installations would cost three to five times more than an oil-fired boiler, depending on the size and other factors. (See Appendix, Exhibit VII.)

To this must be added accelerating costs of pollution control equipment. In addition, cost escalation inevitable will occur since coal boilers take three to eight years to build because of cumbersome permit processes, environmental impact statements and other government regulations. (See Appendix, Exhibit VIII.)

Replacement of existing oil- and gas-fired units with coal is even more punitive economically. Replacement is not a simple matter of removing existing apparatus and substituting coal-burning equipment. In many instances it would be physi-

⁶ MCA Energy Conservation Report. See Appendix, Exhibit IV.

⁷ Selected MCA member company concerned letters to DOE. See Appendix, Exhibit V.

cally impossible to replace existing oil or gas boilers with coal-burning facilities. The attached overlay illustrates why. (See Appendix, Exhibit VII.)

The exhibit shows the silhouette of an oil-fired boiler installed recently at a plant located in the South. At the same location, and adjacent to the oil-fired boiler, a coal-fired boiler is installed.

It is shown on the overlay. This silhouette includes the bunker, the boiler, the baghouse needed to meet particulate emission controls and the interconnecting ductwork. As shown on the overlay, the top of the coal bunker is approximately 75 feet above grade. The startling thing is that both units have the same capacity, approximately 190 million Btu/hr. Obviously, the oil-fired package unit is not "convertible" to coal. Substitution of coal for oil would require complete replacement of this unit, a capital-intensive and time-consuming procedure. If manufacturing and process equipment are built around the power source, which for energy efficiency purposes is often the case, space limitations would prevent substitution of a coal-fired boiler for an existing oil- or gas-fired unit.

INCENTIVES FOR REPLACEMENT OF OIL AND GAS WITH COAL

The enormous cost gap between new oil- and coal-fired boilers is not bridged by the incentives proposed. In the area of boiler fuel consumption, the tax mechanisms do not provide sufficient incentive for converting existing oil- or gas-fired facilities to coal or other substitute fuels. As a result, the tax will prove to be inflationary and will seriously jeopardize our competitiveness with foreign chemical producers. If, however, any tax is adopted, we have specific recommendations on credits which should be made. These are set out in the Appendix as Exhibit IX.

SYNTHETIC NATURAL GAS

Section 416 of H.R. 8444 would encourage construction of large, new wasteful liquid-based SNG plants which only convert one clean fuel to another with a substantial energy loss. The government should not encourage such construction.

The chemical industry will face a threat of feedstock shortages and additional feedstock price increases if the National Energy Plan increases liquid-based synthetic gas production, as now proposed.

FEA studies^a have predicted that expanded SNG production could consume up to 33 percent of the domestic production of natural gas liquids, causing United States dependence on imports to increase. Prices of propane, butane and naphtha would rise even for historical users such as farmers, rural residents and petrochemical manufacturers. Yet these users have no alternative to these liquids for process use or raw materials.

Accordingly, the government, by its energy program, should not encourage such a wasteful and uneconomic use of a precious resource. The government should encourage a program which facilitates conversion of coal to synthetic fuels.

BALANCE OF TRADE

Despite the apparent energy cost advantage now enjoyed by the chemical industry in the United States, seven of the top 10 chemical companies in the world, ranked by sales, are located outside the United States. The control of domestic crude oil has given U.S. chemical companies an apparent \$3 per barrel advantage over foreign competitors in crude derived fuel and feedstock cost. It is reasonable to assume that foreign governments would view this as an unfair disadvantage to their chemical companies in competing for international trade. Many MCA members are persuaded by product movement in the international market that foreign operators have found means to offset a significant portion of the \$3 per barrel U.S. advantage and surmise that a substantial increment of the offset is some form of foreign government subsidy or trade device.^b

It is difficult to determine the extent to which subsidies and other trade devices are being implemented. To the extent that they do exist, crude equalization to foreign parity will disadvantage U.S. trade potential by the amount of those foreign trade incentives. We suggest that Treasury, Commerce and DOE include an investigation of these trade devices in their economic analysis of the Crude Oil Equalization Tax impact. Any additional costs incurred by the Administra-

^a Estimate based on data in the FEA's "Draft Programmatic Environmental Impact Statement on the Allocation of Petroleum Feedstocks to Synthetic Natural Gas Plants," p. 3, 2-50.

^b See Appendix, Exhibit II.

tion's program would, we hope, be blunted by having U.S. GATT negotiators prevail upon foreign trading partners to forgo tariff and non-tariff barriers to offset U.S. energy cost advantages of the past three years.

The Administration's program, as approved by the House, would drive the cost of oil in certain specific instances (steam raising, power generation, conservable process uses) above world parity levels. Artificial increases in energy costs world parity would cause significant difficulties for all U.S. industries and impact heavily on the chemical industry's ability to maintain historic levels of favorable balances of trade.

The effect of the business use tax would make us non-competitive in world markets. We would be faced with an increase in imports, a loss of domestic jobs, a relocation of major segments of the chemical industry overseas and a serious impact on our exports and balance of trade.

We would import foreign oil in such expensive forms as textiles, clothing, plastics, medicines, fertilizers, pesticides, tires and other goods, at prices equivalent to a minimum of \$100 a barrel or more, while losing the opportunity to add this value with our labor in our plants.

We would lose a substantial share of our exports which have provided a positive trade balance of more than \$5 billion for each of the last three years. In 1977, the U.S. trade deficit is estimated by Secretary Blumenthal to be \$23-\$25 billion while the positive trade balance of the chemical industry sector is running at an annual rate of \$5 billion.

Chemicals are used in so many industrial and consumer products that lost production would have a large downstream economic impact on production and jobs in other industries which need synthetic rubber, fibers, plastics, agricultural chemicals, to name a few.

In sum, we do not understand the rationale of imposing a tax to drive the price of oil or gas above the world market. Our domestic industries do not compete in a sheltered domestic market. We must compete in an international market even for domestic customers. In designing an energy policy, the cost to the nation's consumers, the cost to the nation's balance of trade and the cost to the nation's security of crippled domestic industries must be considered carefully.

SUMMARY

Replacement cost for oil should be achieved by phased removal of price controls, not be the crude oil equalization tax. Removal of price controls will stimulate exploration and development; the crude oil equalization tax, if insisted upon, must be coupled with tax credits for qualified conservation and conversion investments and for development of additional sources of energy supply.

We cannot urge too strenuously that the business use tax which takes petroleum above world parity be eliminated. It will not trigger the actions contemplated and will affect severely our domestic and international markets.

If a business use tax is imposed, we would urge strongly that it be applied only to boilers, that the tier system be eliminated and that utilities and the industrial sector be treated alike in tax rate and timing. The exemptions developed in the House bill for feedstocks and process uses, for which there is no conversion potential, also should be retained, and similar exceptions should be adopted under any incremental pricing scheme which might be enacted. This would be more in line with stated objectives, produce a lesser impact on the consumer and simplify the administrative burden greatly.

The National Energy Program would not create extensive conversions to coal within its time-frame and raising petroleum costs above world parity is not needed to increase the already substantial conservation efforts.

Finally, the National Energy Program should not encourage construction of SNG plants merely to convert one clean fuel to another.

The energy issue is a complex and multi-faceted one and we take this opportunity to offer our assistance to you and your staffs as you develop a national energy policy.

We support a national energy policy. We think the proposals we submit today will improve its implementation, will be consistent with national energy goals, and will enhance the economic viability of this nation.

The CHAIRMAN. Our next witness is Mr. Marshall Hahn, president of Georgia-Pacific Corp., on behalf of the American Paper Institute and the National Forest Products Association.

STATEMENT OF MARSHALL HAHN, PRESIDENT, GEORGIA-PACIFIC CORP., ON BEHALF OF THE AMERICAN PAPER INSTITUTE AND THE NATIONAL FOREST PRODUCTS ASSOCIATION, ACCOMPANIED BY DALE DON OF GEORGIA-PACIFIC, AND JEFFREY DUKE OF THE AMERICAN PAPER INSTITUTE

Mr. HAHN. Mr. Chairman and members of the Senate Finance Committee, I am Marshall Hahn, president of Georgia-Pacific Corp., and with me on my right are Dale Don of the Tax Department of Georgia-Pacific, and Jeffrey Duke of the American Paper Institute.

We appreciate this opportunity to appear before you today on behalf of both the American Paper Institute, the trade association of the pulp, paper, and paperboard industry; and the National Forest Products Association, the trade association for the lumber and wood products industry.

These two industries employ close to 1.4 million people and annual sales amount to about \$70 billion.

The National Forest Products Association represents several thousand timber growers and manufacturers and wholesalers of lumber, plywood, and other solid wood products.

The 200 member firms of the American Paper Institute produce more than 90 percent of the pulp, paper, and paperboard manufactured in the United States. The paper and allied products industry uses more oil than any other manufacturing industry and ranks among the top five manufacturing industries in total energy consumption. Yet we are here today to recommend as the simplest, most straightforward, and most effective solution to the Nation's energy problem, the decontrol of oil and natural gas prices.

The forest-based industry is an integral part of the economy. We are concerned with the impact of the proposed energy program on our industry, but more importantly we see severe restrictions to balanced growth because the administration's program fails to provide adequate incentive for increased supply through exploration and development.

By imposing several layers of taxes on energy prices the administration's program concedes that higher fuel prices are needed to encourage conservation and utilization of alternate fuels. But the use of a rebatable tax program as recommended by the administration is complicated, self-defeating, and will not solve the energy problem.

A carefully designed program of oil and gas price deregulation would not only increase prices but also encourage development of increased supply. It would have the merit of permitting individuals and businesses to adjust to the new economics of energy in a predictable and less distorting pattern.

The paper industry is a good example of this adjustment to the realities of energy costs and supplies. During the past 5 years, we have invested heavily in energy conservation.

Our dependence on purchased fuel has been reduced through greater use of wood-related manufacturing wastes. In 1972, 42 percent of our energy requirements were self-generated; by 1976 that figure had

risen to 45 percent, equivalent to a savings of more than 100 million barrels of oil per year.

We now use 12 percent less fuel per ton of pulp, paper, and paper-board produced than in 1972.

We have invested heavily in cogeneration facilities. In 1976, the industry generated half of its electrical needs. Of this about 75 percent was cogenerated; that is, electricity was generated as a byproduct of process steam production.

More investment in energy conservation and conversion is needed, but the administration's program does not provide reasonable incentives for such investment. As a matter of fact, it would create disincentives and distortions.

The forest products industry strongly supports deregulation of oil and gas prices and opposes the equalization tax on crude oil as ineffective and unnecessarily complex. If the equalization tax is imposed, the revenues should be earmarked for financing additional drilling, developing new technology in energy, and funding of conversion to alternate energy sources. The revenues should not be rebated to individuals in a hodgepodge of energy measures, social reform, and income redistribution. Tax measures to relieve the financial strain on individuals caused by higher energy prices should be part of an overall program for tax reform and relief such as the one the Senate will be considering later on. The role of higher prices should be to help encourage conservation and to help finance investment in additional sources of supply and energy-saving facilities.

The oil and gas user taxes will have a negative effect on the forest-based industries. They will create distortions by region, by size of mill, and for individual products. For example, a company with mills in different parts of the country would be apt to convert and expand mills in one region because of coal availability and cost at the expense of mills in other locations. The company would still qualify for all of its user tax rebates but would shut down or reduce output in one or two mills where alternative energy investment is not feasible.

The availability of rebates and investment incentives will not automatically insure conversion for many reasons.

Conversion is expensive. Boilers designed to burn coal cost much more than oil- or gas-fired boilers. I might give you an example. We currently have an engineering study, a plan where the cost of a conventional boiler fired by residual oil would be approximately \$10 million. The equivalent coal boiler with the necessary coal handling, loading, and storage facilities, our engineering estimate shows us, would be \$30 million.

A recent survey of steam-generating equipment currently in use in the forest products industry shows that approximately half which utilize purchased fuel operate on oil or gas. Conversion of these boilers would cost \$4 to \$5 billion. That figure is close to the total amount spent by the paper industry on all its plant and equipment in a year.

Many small mills could not afford such investments. When viewed on a regional basis, this means that papermills in the New England, Mid-Atlantic, and Midwestern regions become vulnerable to closure. Clearly, this will be an added burden for regions which already suffer from a low economic growth rate.

The capital investment for steam and electric generating systems is becoming a much larger percentage of the total investment for a typical mill. Just a few years ago about 5 percent of the cost of a new facility was for gas and oil boilers. A comparable facility today would require 25 percent for wood and coal boilers and electric power generation. Remember that these higher percentages are applied to capital dollars that are already rising because of inflation.

Another distortion is created by the fact that about 65 percent of our industry's integrated pulp and paper mills are located in non-attainment air quality control regions which means that a pulp and paper mill could convert to coal only if it could find a means to reduce emission elsewhere. Although oil- and gas-using facilities located in such areas prior to May 1977 would be exempted from user taxes in H.R. 8444, any new facility built after April 1977 would be subject to user taxes with resulting discouragement of expansion projects.

Another resulting distortion would be the lower cost base for mills located in nonattainment areas compared with those converting to coal.

The American Paper Institute has prepared a number of examples of distortions that would result from the proposed user taxes. Such examples leave little doubt that the user taxes are punitive and distorting to all segments of the forest-based industries. This is a large price to pay for an extremely large new tax that is unnecessary in the first place.

Your committee is charged with the responsibility of legislating the tax aspects of the administration's energy program. There is a great need to simplify the program and make it workable. User taxes are troublesome, difficult to administer, and uneven in their effects. They should be eliminated from the program.

We in the industry I represent recommend the following :

1. The basic concept should be reliance on the free-market mechanism to provide the least disruptive adjustments to the new economics of energy. If the deregulation of oil and gas prices cannot be accomplished then the equalization tax revenues should be used to encourage investment in energy production and conservation.

2. Conflicting regulations between Federal agencies such as the EPA and DOE should be eliminated.

3. An additional 20-percent investment tax credit should be available for qualified energy conservation, cogeneration, fuel substitution, and related environmental expenditures. This additional tax credit should be available without tax liability limitation.

The American Paper Institute has prepared a list of other recommendations for modifying the House energy bill which will be submitted separately.

I would like to conclude with the observation that as a manager of a company involved in producing many different products, I have seen our company make rapid adjustments to the changing economics of energy. I also support the urgent need for an energy program that recognizes the requirement to conserve energy, to shift to alternate fuels and to develop new sources of supply. The administration's program is a complicated, expensive, dangerously untried experiment in Government allocation of resources. It is based solely upon a psy-

chology scarcity and limited growth. It ignores the potential for solving the problem of possible scarcity through innovation and investment.

The program is presented as a minor drain on the private sector as a whole over an 8-year period. Yet more than \$100 billion would be changing hands during that period. Administration studies claiming to indicate that there would be no serious impacts from this massive shift of funds fail to recognize the volatile and harmful influences on specific sectors of the economy. There is no assurance that the net effect will be relatively neutral. Budget estimates indicate payments of \$25 billion in user taxes offset by \$22 billion received for investments in qualified energy alternatives between 1980 and 1985. But this netting of receipts and expenditures ignores the time lags involved in tax payments and tax rebates. It also ignores the debilitating effect on productive investment, and the detrimental impact on the balance of trade.

The industry has expanded capacity at a slower rate than demand has increased during the past 5 years. Surveys of changes in the industry's capacity during the next 4 years show a continued shortfall in capacity growth relative to the demand indicated by a full employment economy. Environmental outlays during the past 6 years have absorbed significant amounts of cash flow. They have also increased the energy requirements in the industry. Now the industry is faced with another set of regulations that can impede investment in productive facilities.

Capital formation remains a serious problem for the Nation. A simpler and more effective program can be designed to meet the changing energy needs of the Nation without creating conflicts with productive investments.

This committee has an opportunity to provide future generations with an energy policy that will maximize efficiencies and accommodate growth. The administration's program is seriously lacking in both.

The CHAIRMAN. Thank you for a very helpful statement.

Mr. Packwood.

Senator PACKWOOD. How much land do you own—

Mr. HAHN. In fee simple approximately 4½ million acres. We have franchises or cutting concessions on approximately 1½ million additional.

Senator PACKWOOD. Do you do any mineral exploration?

Mr. HAHN. We do a limited amount. We, in fact, have a wholly owned subsidiary, Exchange Oil & Gas Corp., which we did have merged into our company with the thought that we would expand our exploration program. We have good knowledge of the coal and lignite reserves on our properties but the financial return and the uncertainties in terms of drilling for oil and gas are such that our drilling program on our own lands is more limited than we would like to see it. We are concerned about the possibility that we would drill wells on our own land and then not be able to use the oil, for example, in our own boilers which we think we should be able to do.

Senator PACKWOOD. If you find you have to sell at a controlled price less than you could use it yourself—

Mr. HAHN. At the controlled prices the economics are not there. We are confident that there are untapped reserves on our lands and we would, of course, be very anxious to develop those reserves if the economics made it a prudent thing to do in the interest of our shareholders.

Senator PACKWOOD. A minimum part of the economics would be you could use it yourself without interference?

Mr. HAHN. Yes, sir.

Senator PACKWOOD. I don't have any more questions, Mr. Chairman.

Senator HATHAWAY. If you did have decontrol, how would you take care of the rapid increase in price for heating oil?

Mr. HAHN. Senator Hathaway, I agree with your view that this is a real problem and it must be dealt with and, as I attempted to say in my prepared statement, it seems to me that is a matter that should be dealt with in the general tax and welfare program rather than hooked into the overall effort to deal with the energy program.

Senator HATHAWAY. We won't get to that until next year. In the meantime there will be a winter coming up that would severely affect a lot of people. So we probably have to deal with that in this particular package, I would think.

Mr. HAHN. It depends on the relative timing of the two bills. I might also say that even if the prices are at lower levels it does not help if the oil and gas are not available and without the incentives to produce the oil and gas we definitely are headed down the road to shortages. So, it does not do any good to say all right, we will protect the consumer with the prices. It is like when you go into the store you say, "I would like to buy some of your \$8 parts". They are all out of the \$8 parts. They have \$6 parts and those \$3 don't do any good.

Senator HATHAWAY. Thank you.

The CHAIRMAN. Thank you very much.

Mr. HAHN. Thank you, gentlemen.

The CHAIRMAN. Next we will call on a panel consisting of Charles J. Carey, president of the National Cannery Association; Mr. William W. Hodson, senior vice president, Tri/Valley Growers, San Francisco, Calif.

STATEMENT OF CHARLES CAREY, PRESIDENT, NATIONAL CANNERS ASSOCIATION, ACCOMPANIED BY WILLIAM A. DAVIS, COUNSEL

Mr. CAREY. Mr. Chairman, I am Charles Carey. With me, as you have already announced, is Mr. Robert Hodson, who is senior vice president of Tri/Valley Growers, and is currently the chairman of the Cannery League of California. Also with me is our counsel, Mr. William Davis of the law firm of Covington & Burling.

In the interest of time, with your permission, I would like to submit our full statement for the record and try to highlight it.

We certainly concur with many of the points in the testimony that have been given so far, but our own purpose in speaking here today is to discuss certain specific provisions in the proposal which impact the food industry in ways that we believe are inconsistent with the purpose of the bill and in ways which indicate that the food production in this country is not perhaps fully understood by the authors.

In our prepared statement we recite the constituency that we represent. It consists, in the canning industry, of about 450 companies with approximately 1,700 plants in 47 States and Puerto Rico and Samoa, and it is an industry which produces some of the most basic elements in our food supply; approximately 11 percent of the per capita consumption which includes the basic fruits, vegetables, seafood, and so forth, which are explained in greater detail in the statement.

Our industry recognizes and appreciates the problems in drafting legislation which seeks to stimulate energy efficiency in our industry and all industries as well to bring about maximum feasible conversion from oil and gas to other fuels.

But we are here particularly to explain that a large portion of the canning industry must rely on natural gas and oil, to process the food products and maintain sanitation in the plants. Without these fuels, most plants in the industry cannot operate. To place a user tax on these fuels, in addition to crude oil equalization taxes, thus deliberately driving the cost of oil and gas above the world market prices, will, in our view, cause the following detrimental impacts on our society.

First, as an essential industry, which produces staples for the U.S. diet, an industrial user tax will affect adversely the ability of the canning industry to continue to provide wholesome food in a variety of forms at a reasonable price.

Many farm products are highly perishable in the raw state and must be canned or frozen to preserve them for consumption throughout the year. The processing of seasonal agricultural products for human consumption requires a considerable amount of heat and power in a dependable, readily available form at time of harvest.

Congress and the administration have already recognized the essentiality of the food processing industry and its needs for a dependable energy source. H.R. 8444, in its present form, grants a priority to our industry for natural gas use. The food processing industry has already been recognized by the Federal Energy Administration as a priority user of petroleum. An energy user tax on gas and oil is inconsistent with the philosophy underlying these actions.

Second, as an industry providing an essential product to consumers, who purchase a certain quantity of the product regardless of its cost, an industrial user tax will cause food price increases which will have disproportionate and adverse impacts on low-income consumers.

Imposition of the industrial user tax will serve neither as a conversion nor a conservation incentive to most companies in the canning industry. Many food processing plants are located in States whose environmental regulation makes conversion to coal next to impossible. Other plants must be physically proximate to the source of perishable raw foodstuffs; locations where reliance on coal delivery and storage are economically infeasible. Where conversion to coal is impossible, the excise tax will wind up being passed on to the consumer, further adding to this country's inflationary economy.

This user tax provision, when fully effective, will add an additional layer of nonproductive cost and will force canners to pay more for energy. In the case of this industry, which deals in an essential consumer commodity, strong arguments can and must be made against this provision on national welfare grounds.

The administration did not recommend that Congress impose an energy user tax on residential homes. Logic would dictate that such a tax not be imposed on food. Food, like housing, is an essential, nondiscretionary item. Furthermore, low-income consumers already must pay a disproportionate amount of their income for food. Many families rely upon food stamps and welfare payments in order to meet even minimal nutrition needs. These low-income citizens will be forced to pay, under this proposed legislation, even more of their limited incomes for these basic commodities.

Third, as an essential industry, with a comparatively low profit margin position among American businesses, an industrial user tax will adversely affect the strength and viability of this essential industry.

In our written statement we supplied some facts on the industry. A great many more facts are available.

But to sum it up, for an industry with these difficult financial characteristics an industrial user tax would be unnecessary.

Thus, where food processing plants find it impossible to convert to coal, the only effect of the industrial user tax will be to impose a substantial economic penalty and an added unproductive cost on an industry that already suffers from modest earnings from cash flow and heavy borrowing requirements for working capital.

Fourth, as an industry which forms a vital link in the chain between the American farmer and the ultimate consumer, any adverse effect on the viability of the food processing industry will eventually lead to negative impacts on the farming industry and to decreased agricultural production, affecting the strength of our own economy as well as the quantity of world food supplies.

In another connection, Senator Talmadge stated at an earlier date, in supporting a priority system for certain agricultural uses of natural gas:

Agriculture is America's largest industry. It is literally the lifeblood and the cornerstone of this Nation's economy. The production of food and fiber is important not only for obvious domestic needs, but also because of the energy crisis. Our dependence on oil imports makes the \$22 billion in agricultural exports vital to this Nation's balance of payments.

Speaking just of our industry, serious problems in agricultural production can develop out of the closing of fruit and vegetable processing plants. If the fruit and vegetable growers lose their access to processors, which have closed down or relocated because of the impact of the industrial user tax, they will have to shift land to alternative crops or other uses, with resultant increases in costs, lower returns, and other inefficiencies.

Our industry, though a high energy user, is keenly aware of the need to conserve energy. In a report to the Federal Energy Administration, we reported that our member companies utilized energy almost 10 percent more efficiently during 1976 than during the base reporting year of 1972. We are proud of this record by the industry, which was accomplished without the imposition of user taxes, or provisions of tax credits.

In short, none of the purported justifications for imposing an industrial user tax applies to our industry.

A substantial part of the canning industry will be unable to convert to coal—thus, a user tax will establish a penalty with no effect on industry action.

The industrial user tax will not cause consumers to shift to products made by using cheaper energy sources because processed food is a nondiscretionary consumption item. It will merely raise prices to the consumer.

The industrial user tax will not cause the food processing industry to be more efficient in its use of oil and gas, as the industry already has adequate incentives to conserve energy and has already become more efficient.

We would support fully an amendment to H.R. 8444, which would make "agricultural production, processing, and distribution" an exempt use under the excise tax provisions of this legislation.

Thank you for your attention to our views.

Mr. CAREY. Now, with your permission, Mr. Chairman, Mr. Hodson has one related but additional point to make in this connection.

**STATEMENT OF ROBERT W. HODSON, SENIOR VICE PRESIDENT,
TRI/VALLEY GROWERS, SAN FRANCISCO, CALIF.**

Mr. HODSON. Just briefly, Senator, I think it is a logical extension of Mr. Carey's remarks about our industry which in many cases is not going to be able to convert to coal and which may be severely penalized by these taxes we have been talking about. I think there is another part of H.R. 8444 that should be brought to your attention. This has to do with the expansion and replacement of facilities.

As I understand this bill's wording, a facility which may currently be exempted from coal conversion would not necessarily be exempt when that same facility is replaced or expanded (in H.R. 8444, title I, part VI). We feel this is impractical. Most of our canners and food processors have multiple boilers where we use most of our fuel in the processing of food. These plants vary in size and age.

It seems impractical to us to require that replacement of one of these boilers, or the addition of a new boiler for expansion of the facility, be required to go to coal. Even replacement of a facility with a new facility in an area that will not be able to convert to coal, but by the wording of title I, part VI, of H.R. 8444 would be required to use coal. We certainly hope this language will be clarified so those of us in the food processing business would be exempt from coal conversion for replacement or expanded boiler capacity in existing facilities.

We will all be happy to answer questions.

The CHAIRMAN. The previous witness said he thought the answer is to deregulate. What do you think the answer is?

Mr. CAREY. We supported deregulation. If we had our choice, that is where we would go.

The CHAIRMAN. In other words, if you look at all the complexities of all different industries, it sounds like the simplest approach might be to just deregulate, either do it now or do it over a 3-year period or something of that sort so the Government won't be running everybody's business. That seems like one possible answer.

Mr. CAREY. We would certainly agree with that and we supported deregulation on previous occasions, but in the present proposal we see the extreme distortion that we tried to recite, so if we are not to have

deregulation we will certainly ask that consideration be given to these obvious distortions in the present bill.

Senator HATHAWAY. Doesn't the House bill contain exemptions that you are asking for?

Mr. CAREY. No.

Senator HATHAWAY. Isn't there exemption for agriculture?

Mr. CAREY. The agriculture exemption does not extend to processing, and a central point that we are trying to make—and we will be glad to provide illustrations—is that the processing of the food cannot be separated from agriculture. The farmer harvests the peas or corn or peaches. These crops will spoil in a short period of time and will not be available for general consumption on a year-round basis unless they are processed, either by canning or freezing or by drying, but they must be processed. This applies to most of the fruits and vegetables that one harvested and a large percentage of our seafood.

The CHAIRMAN. Thank you very much, gentlemen.

[The prepared statement of Mr. Carey follows:]

STATEMENT OF CHARLES J. CAREY ON BEHALF OF THE NATIONAL CANNERS
ASSOCIATION

SUMMARY

Background information

The National Canners Association is a nonprofit trade association headquartered in Washington, D.C., which represents approximately 450 canned food processing companies with more than 1,700 plants located in 47 states, Puerto Rico, and American Samoa. Our member companies pack about 85 to 90 percent of the total United States production of canned foods for human consumption; foods which include fruits, vegetables, soups, juices, meat and poultry products, seafood, baby foods, puddings and specialty items. The American canning industry is an essential national resource. Canned food items account for almost 11 percent of total per capital food consumption.

Detriments/impacts of industrial user tax on canning industry

A large portion of the canning industry must rely on fossil fuels, particularly natural gas and oil, to process food products. We believe that the imposition of an industrial user tax will cause the following adverse effects on the canning industry and our society:

(1) As an essential industry, which produces staples for the U.S. diet, an industrial user tax will affect adversely the ability of the canning industry to continue to provide wholesome food in a variety of forms at a reasonable price.

(2) As an industry providing an essential product to consumers, who purchase a certain quantity of the product regardless of its cost, an industrial user tax will cause food price increases which will have disproportionate and adverse impacts on low-income consumers.

(3) As an essential industry, with a comparatively low profit margin position among American businesses, an industrial user tax will adversely affect the strength and viability of this essential industry.

(4) As an industry which forms a vital link in the chain between the American farmer and the ultimate consumer, any adverse effect on the viability of the food processing industry will eventually lead to negative impacts on the farming industry and to decreased agricultural production, affecting the strength of our own economy as well as the quantity of world food supplies.

Purported justifications of industrial user tax not applicable to canning industry

None of the purported justifications for imposing an industrial user tax applies to our industry.

A substantial part of the canning industry will be unable to convert to coal—thus a user tax will establish a penalty with no effect on industry action.

The industrial user tax will not cause consumers to shift to products made by using cheaper energy sources because processed food is a non-discretionary consumption item. It will merely raise prices to the consumer.

The industrial user tax will not cause the food processing industry to be more efficient in its use of oil and gas, as the industry already has adequate incentives to conserve energy and has already become more efficient.

Recommendation

The canning industry supports fully an amendment to H.R. 8444, which would make "agricultural production, processing and distribution" an exempt use under the excise tax provisions of this legislation. Thank you for your attention to our views.

STATEMENT

My name is Charles J. Carey. I am president of the National Cannery Association. I appear this morning with Robert W. Hodson, Senior Vice President of the Tri/Valley Growers of San Francisco and current Chairman of the Cannery League of California, and our counsel, William A. Davis, Jr. from the law firm of Covington & Burling. The National Cannery Association is a nonprofit trade association headquartered in Washington, D.C. which represents approximately 450 canned food processing companies with more than 1700 plants located in 47 states, Puerto Rico and American Samoa. Our member companies pack about 85 to 90 percent of the total United States production of canned foods for human consumption; foods which include fruits, vegetables, soups, juices, meat and poultry products, seafood, baby foods, puddings and specialty items.

The American canning industry is an essential national resource. Canned food items account for almost 11 percent of total per capita food consumption. Farmers and growers market a large portion of their annual harvest to canners and often are guaranteed a cash income which helps absorb risks involved in marketing other crops on the fresh market. The canning industry provides direct employment in canneries for almost 300,000 workers during the peak of the canning season and pays out more than \$1.3 billion in wages during the year. In addition, the canning industry provides indirect employment for a large number of workers in related industries such as suppliers, transportation, brokers, and wholesaling. What affects this industry affects the welfare of families, workers, and farmers in every state.

The canning industry recognizes and appreciates the difficult task which Congress now faces in drafting legislation which will decrease our country's dependence on dwindling oil and gas supplies—an effort which takes the form in H.R. 8444 of tax measures which seek to stimulate increased energy efficiency in industry as well as to bring about the maximum feasible conversion from oil and gas to other fuels. To achieve these laudable goals, the Administration has proposed a system of taxes on industrial and utility use of oil and gas and tax offsets and credits for conversion to coal and other more abundant fuel resources. What Congress must understand, however, is that a large portion of the canning industry must rely on fossil fuels, particularly natural gas and oil, to process the food products and maintain sanitation in the plants. Without these fuels, most plants in the industry cannot operate. To place a user tax on these fuels, in addition to crude oil equalization taxes, thus deliberately driving the cost of oil and gas above world market prices, will, in our view, cause the following detrimental impacts to our society:

(1) As an essential industry, which produces staples for the U.S. diet, an industrial user tax will affect adversely the ability of the canning industry to continue to provide wholesome food in a variety of forms at a reasonable price.

Many farm products are highly perishable in the raw state and must be canned or frozen to preserve them for consumption throughout the year. The processing of seasonal agricultural products for human consumption requires a considerable amount of heat and power in a dependable, readily available form at time of harvest.

Congress and the Administration have already recognized the essentiality of the food processing industry and its needs for a dependable energy source. H.R. 8444, in its present form, grants a priority to our industry for natural gas use. The food processing industry has already been recognized by the Federal Energy Administration as a priority user of petroleum. An energy user tax on gas and oil is inconsistent with the philosophy underlying these actions.

(2) As an industry providing an essential product to consumers, who purchase a certain quantity of the product regardless of its cost, an industrial user tax will cause food price increases which will have disproportionate and adverse impacts on low-income consumers.

Imposition of the industrial user tax will serve neither as a conversion nor a conservation incentive to most companies in the canning industry. Many food processing plants are located in states whose environmental regulations makes conversion to coal next to impossible. Other plants must be physically proximate to the source of perishable raw foodstuffs; locations where reliance on coal delivery and storage are economically infeasible. Where conversion to coal is impossible, the excise tax will wind up being passed on to the consumer, further adding to this country's inflationary economy.

This user tax provision, when fully effective, will add an additional layer of non-productive cost and will force canners to pay more for energy. In the case of this industry, which deals in an essential consumer commodity, strong arguments can and must be made against this provision on national welfare grounds. The Administration did not recommend that Congress impose an energy user tax on residential homes. Logic would dictate that such a tax not be imposed on food. Food, like housing, is an essential, non-discretionary item. Furthermore, low income consumers already must pay a disproportionate amount of their income for food. Many families rely upon foodstamps and welfare payments in order to meet even minimal nutrition needs. These low income citizens will be forced to pay, under this proposed legislation, even more of their limited incomes for these basic commodities.

(3) As an essential industry, with a comparatively low profit margin position among American businesses, an industrial user tax will adversely affect the strength and viability of this essential industry.

A 1975 study of a sample of 31 canning companies from 1961 to 1973 placed the average net earnings after tax at 2.4 percent of operating revenue for this 13 year period.¹ In its 27th Annual Report on American Industry, a leading business publication² conducted a five-year survey covering the period 1969-1974 in which it examined the average return on equity of thirty-one industry groups. The canning industry ranked twenty-ninth out of the thirty-one industries; its return was 7.2% compared to the median industry average of 11.5 percent. The industry, by nature, requires substantial working capital to finance inventory. Thus, where food processing plants find it impossible to convert to coal, the only effect of the industrial user tax will be to impose a substantial economic penalty and an added unproductive cost on an industry that already suffers from modest earnings from cash flow and heavy borrowing requirements for working capital. Almost certainly the user tax will aggravate the increasingly alarming impact of expanding controls and taxes on the ability of some food processing plants and companies to survive.

(4) An industry which forms a vital link in the chain between the American farmer and the ultimate consumer, any adverse effect on the viability of the food processing industry will eventually lead to negative impacts on the farming industry and to decreased agricultural production, affecting the strength of our own economy as well as the quantity of world food supplies.

If the House-passed legislation, H.R. 8444, becomes law, without an exemption from the industrial user tax for the food processing industry, the total costs for energy within just a few years will be staggering. To give you an example, it is estimated that in the State of California alone, the 1977 costs of energy for canned food production will double to a cost of \$96,000,000 by 1980. An industry with historically low-profit margins cannot absorb such cost increases if the industry is to remain viable and competitive. If it attempts to pass the total increased cost on to consumers, it may create consumer resistance and serve to price U.S. processed foods out of the export markets. As Senator Talmadge stated at an earlier date, in supporting a priority system for certain agricultural uses of natural gas,

"Agriculture is America's largest industry. It is literally the lifeblood and the cornerstone of this Nation's economy. The production of food and fiber is important not only for obvious domestic needs but also of the energy crisis. Our dependence on oil imports makes the \$22 billion in agricultural exports vital to this Nation's balance of payment."³

¹ This study, "Financial Ratios, Canned Fruits and Vegetables, Thirteen Years 1961-1973," was performed by Touche Ross & Co. for the National Canners Association and presented on March 20, 1975.

² *Forbes*, January 1, 1975.

³ See *Congressional Record*, Feb. 21, 1977, at p. S2773.

Speaking just of our industry, serious problems in agricultural production can develop out of the closing of fruit and vegetable processing plants. If the fruit and vegetable growers lose their access to processors, which have closed down or relocated because of the impact of the industrial user tax, they will have to shift land to alternative crops or other uses, with resultant increases in costs, lower returns, and other inefficiencies.

My colleagues and I will be pleased to elaborate, in answer to the Committee's questions, on any of the foregoing points concerning the detrimental impacts which an industrial user tax will impose on the canning industry. These detrimental impacts, in our view, far outweigh the benefits and defeat the objectives that Congress seeks to attain. We believe that those few companies in our industry, which because of their unique geographical and other circumstances are capable converting from oil and gas to coal, will have the necessary incentives to do so. The growing relative high price of oil and gas in relation to coal, as well as the tax credit features incorporated in other provisions of H.R. 8444, provide adequate economic incentives. The industrial user tax, in those instances, would be a superfluous device to achieve the nation's goals.

Our industry, though a high energy user, is keenly aware of the need to conserve energy. In a report to the Federal Energy Administration, we reported that our member companies utilized energy almost 10 percent more efficiently during 1976 than during the base reporting year of 1972.⁴ We are proud of this record by the industry, which was accomplished without the imposition of user taxes, or provision of tax credits.

In short, none of the purported justifications for imposing an industrial user tax applies to our industry.

A substantial part of the canning industry will be unable to convert to coal—thus a user tax will establish a penalty with no effect on industry action.

The industrial user tax will not cause consumers to shift to products made by using cheaper energy sources because processed food is a non-discretionary consumption item. It will merely raise prices to the consumer.

The industrial user tax will cause the food processing industry to be more efficient in its use of oil and gas, as the industry already has adequate incentives to conserve energy and has already become more efficient.

We would support fully an amendment to H.R. 8444, which would make "agricultural production, processing and distribution" an exempt use under the excise tax provisions of this legislation. Thank you for your attention to our views.

sash

CANNERS REPORT ENERGY SAVINGS THROUGH CONSTRUCTION

The National Canners Association reported to the Federal Energy Administration this week that its member companies utilized energy almost 10 percent more efficiently during 1976 than during the base reporting year of 1972.

The gain in energy efficiency is based on reports to NCA from 82 members participating in the canning industry's voluntary energy conservation reporting program. The improved energy efficiency results from a comparison of BTUs required to produce each pound of canned food product.

Canners participating in the program produced about eight percent more processed food in 1976 than in 1972, but utilized two percent less total energy. The canners consumed 10 percent less energy per pound of product in 1976 compared with 1972.

NCA estimates the canners' energy cost last year at \$96.9 million. Energy-saving steps cut almost \$10 million from their fuel bills, NCA said.

According to the association, the 82 canners used 51 trillion BTUs in 1972 and 49.9 trillion BTUs last year for a net saving of 1.1 trillion BTUs. Their total food production increased 1.6 billion pounds, from 20.2 billion pounds in 1972 to 21.8 billion pounds last year.

In the report to the federal agency, NCA said canning industry use of natural gas and coal declined from the base year to 1976 and the use of fuel oils—both middle distillates and residual fuel oils—increased.

Canners have achieved the increased energy efficiency through a number of conservation measures. These include such steps as turning off unneeded lights and motors, adding insulation to buildings and steam lines and capturing heat for reuse.

⁴ See the attached copy of the National Canners Association press release of Apr. 29, 1977.

Other measures included cutting water use for raw product handling and periodically checking steam-using equipment such as blanchers, retorts, cookers, and kettles for proper temperature and absence of leaks.

Regular maintenance of transportation vehicles and farm equipment is also part of energy conservation by canners. The use of rail and "piggy-back" transportation and the substitution of diesel for gasoline-operated engines has also increased energy efficiency, NCA said.

The CHAIRMAN. Now, we call Mr. Edgar Speer, Chairman of the Board, American Iron and Steel Institute.

**STATEMENT OF EDGAR B. SPEER, CHAIRMAN OF THE BOARD,
AMERICAN IRON AND STEEL INSTITUTE**

Mr. SPEER. Mr. Chairman and members of the committee, I am Edgar B. Speer, chairman of the Board of the United States Steel Corp.

I appreciate the opportunity to appear before this committee on behalf of the American Iron and Steel Institute to share our views on the important energy legislation under consideration. Our institute represents 63 domestic member companies which account for about 93.5 percent of steel production and which directly employ approximately 700,000 people.

Our industry is a major consumer of energy and for this reason is very conscious of the cost effect energy has on finished product cost. It is interesting to note that the industry has reduced energy usage per unit of steel production an average of 1 percent per year over the past 15 years. This is a record we are proud of and it further demonstrates the active development of technology in the steel industry.

In addition the industry has the technology today to reduce fuel usage of a greenfield plant by 30 to 35 percent. The reason more plants are not being built is because of excessive regulation by Government which causes a continual drain on capital, and antiquated tax laws which do not address themselves to the need for capital formation to replace facilities and expand capacity. For an industry that is highly capital intensified, these conditions create serious problems in keeping its products competitive in the world marketplace.

The Energy Resource Industry is much like the steel industry in that it too is highly capital intensive. The National Energy Act passed by the Congress early in August does not address itself to this problem. Rather, it provides for both producer as well as user tax provisions which are not only punitive in nature for the user and at the same time drain off much needed investment capital from the supplier of energy. Conservation is an important element of an energy program but unless it is well balanced with a plan to substantially increase the supply of all energy whether it be natural gas, oil, coal, nuclear or solar power it is our opinion the overall program will be a failure which this country can ill afford.

All successful programs that this country has launched in the past have had the element of pulling all stops and going forward with an allout effort with all obstacles eliminated. This was true in the Space program, in the wonderful medical breakthrough in the cure of diseases at times of national emergencies, and many other examples.

President Carter related the energy problem to a national emergency. If we are to solve the problem, we must pull all stops and put forth an allout effort to develop new energy supplies. It is our opinion that price controls on natural gas and oil need to be phased out over a short period of time, and plowback provisions should be adopted to encourage producers to channel investments into the search for additional energy supplies.

Further, we should abandon any idea of eliminating the depletion tax credit on coal—oil shale—yellow cake or any of the energy-hard minerals. If it is our goal to encourage conversion from oil and natural gas to coal as the basic alternate source of energy, we must specifically encourage additional investment in the coal industry. Not only should the crude oil equalization tax be allowed to be used to develop coal or any other source of energy, but there should be other specific moves to encourage investments in coal. If three hundred new coal mines at an investment of some \$25 million are required by the late 1980's to meet our goals, the Congress must address itself to the critical problems of capital formation. There must also be serious consideration given to balancing our environmental goals with our need for energy if we are to avoid widespread unemployment due to energy shortages and curtailments.

Mr. Chairman, it is our opinion that these are the hurdles and the important hurdles which need to be eliminated, and any thought of taxing the much-needed capital to solve the energy problem is counterproductive to meet our energy goals and could be catastrophic to our overall economy.

I want to thank you for the time that you have given me to come here today and express the thoughts of the steel industry. We will file a written statement with the committee detail more fully our areas of concern and specific recommendations for change. We would certainly appreciate, Mr. Chairman, your including the written statement as part of the hearing record.

The CHAIRMAN. You made one of the most succinct and logical statements that have been made during these hearings. We learned a lot. I wish all of the members could have been here to hear it.

Something remains in my mind that happened when I was a very young man. Prior to the Japanese attack on Pearl Harbor, Franklin Roosevelt had been barreling ahead with the New Deal. He was going all out with very populist-type ideas and after the war got started he said, "We are going to have to send 'Dr. New Deal' home and call in 'Dr. Win The War'." With that attitude a lot of industrialists were called back to see what could be done about turning out war production.

You may recall we had some battles in which, we would lose a tremendous number of airplanes, 200 planes over Germany, maybe 300. We said that was unfortunate, but we produced twice that number in the States the same day. At that rate we could win the war. But the social reform idea had to take a back seat because the objective was to "win the war."

You are suggesting—and I think you are right—that we should develop the same kind of approach now. We should say we have a lot of people out of work and everybody that is able bodied and can fill a job ought to be put to work in the energy effort, both to insulate, to make more efficient use of energy as well as produce more energy. If

we just followed that example we would really be off and going toward solving that problem. I admit that some of our environmental friends have done some fine work. I am not critical of them. They have good ideas and in an appropriate way they should be implemented. But for the time being they should take a back seat. The same thing is true of some of our tax reform friends and some of our other social reformers who have some very noble ideas. I would like to help them, but at the moment in terms of priorities it would seem to me it is better to put this energy problem up front because if we don't do that we might not hold together long enough to put all these other things into effect.

Mr. SPEER. I don't think there is any question about it, Senator. Of course, from my contacts in the business sector of our economy—no one likes to see the prices of the products that they buy go up. We are all against that. But I don't know a man who manages a company that does not recognize that the price of energy is going to go up if we are to strive to create a greater supply for energy—I don't know one who does not say "I am willing to pay the price if that is what it is for," but if paying the higher price is for something else, I think we get all shades of agreement and disagreement. But I think we all recognize that energy is the number one national priority we face, and it is so important as to how we face this national emergency. And time is running out.

The CHAIRMAN. Yesterday Mr. Nelson Rockefeller, former Vice President and former Governor of New York testified that we ought to use the same type of mechanism as was available to Franklin Roosevelt and this Government during World War II. He suggested we should set up what amounts to a Reconstruction Finance Corporation for energy, and he felt it should not finance any projects through the private banking system that private industry would do on its own. As for going into shale, the cost is \$1 billion to build a plant, and if the Arabs should decide to drop their price, one would lose \$1 billion. The Government should be willing to put money into that type of risky business so we could go forward with the technology.

Now, I would be curious to know what your reaction to that suggestion is.

Mr. SPEER. I would be 100 percent in agreement. There is no question it will take a tremendous amount of capital investments such as oil shale, in a relatively short period of time to be able to overcome the problem that presents itself to us today and when you take a look each year at the shortfall of natural gas production and of domestic oil production, we have to get that turned around and that is going to take a lot of capital. The resource development industry is a very, very high intensive capital industry and it takes time to spend that kind of money. So that we have the time problem and the concentration of capital problem that presents itself to us today and unless we can face up to the flexibility that is necessary we are going to lose this war and it is a war. We are going to lose it. If we would have thought at the time we were turning airplanes out on the west coast and fighting the Japanese that if the planes we were turning out we would really not need them because we were losing the war, hell, we would never have built any and the same thing is true in this whole area of energy.

The CHAIRMAN. Thank you very much for a very fine statement. The hearing is adjourned.

[The prepared statement of Mr. Speer follows:]

STATEMENT OF AMERICAN IRON AND STEEL INSTITUTE

NATIONAL ENERGY ACT—SUMMARY

The American Iron and Steel Institute endorses the concept of conservation as an essential element in eliminating the current imbalance between the supply of, and the demand for domestic sources of oil and natural gas. We also favor appropriate measures to increase the supply of these energy sources and to develop alternative sources such as coal and nuclear power.

The tax-and-control approach of the Administration which has been adopted in H.R. 8444 will have little impact on the decisions to be made in the steel industry as to where conservation is economically and technologically feasible. This approach also does nothing to encourage producers to expand the supply of oil and natural gas so as to avoid the forced shutdown of factories and the attendant lay-offs.

No one really knows how much oil and natural gas remains to be discovered and extracted with improved technology and at a higher cost. The only way we will ever find out is to remove the artificial price restraints and let the free market system work to get the supply back in line with the demand.

While we remain opposed to the use of the tax laws as a tool to deal with this problem, it is possible that some form of tax incentives and penalties will ultimately be enacted as part of the overall energy program. Therefore, we recommend that the following technical deficiencies or inequities contained in H.R. 8444 be corrected.

(1) Incentives should be provided to aid in raising the capital which will be required to expand coal production.

(2) The industrial process use exemption or its equivalent must be retained. We believe it would be much simpler to merely tax oil and natural gas used in boilers.

(3) The process use exemption should be extended to apply to the crude oil equalization tax, and refunds of this tax should be permitted.

(4) Any net revenues generated from this crude oil equalization tax should be applied toward the development of existing or potential sources of energy rather than being rebated to individual taxpayers.

(5) The determination of when an alternative fuel can be economically used for purposes of the process use exemption should be clarified to provide a unit cost test as the basis for comparison.

(6) The election to offset the investments in alternative energy property against the user tax or to claim an additional energy credit should be provided on an annual basis rather than as a one-time election.

(7) The environmental exemption from the use tax should be expanded to apply to all facilities, whenever constructed, that are precluded from burning coal by Federal or State laws.

(8) User taxes should not apply to industrial use until 1983 in order to provide adequate time to construct the new coal fired boilers which will be required.

(9) Investments in major energy conservative manufacturing processes which substantially reduce the amount of energy consumed per unit of production should qualify for either the offset provision or the energy credit.

NATIONAL ENERGY ACT

The American Iron and Steel Institute considers the National Energy Act to be potentially one of the most important pieces of legislation ever to be considered by Congress. As the representative of 64 member companies which account for about 93 percent of domestic steel production we have a vital interest in insuring that the final product of the Congress in this area is responsive to the industry's problems and is realistic in providing a solution to the Nation's energy problems.

The National Energy Act has come to its present state with such speed that it has often been difficult to separate the facts from the myths and to accurately assess the impact of the plan on the Nation. Barely three months elapsed from the time the program was proposed until the Act was passed by the House of Representatives.

Two questions have persisted since this program was introduced and remain unresolved even now.

First—does the United States really have a critical shortage of oil and gas which requires an immediate shift to other fuels, or is there an abundance of these energy sources available at a higher cost? We believe the most reasonable answer to this question is that no one knows how much oil and gas remains to be discovered in the United States or what will be the cost of finding additional reserves, and unless artificial price restraints are removed we may never find out. It must be apparent that the controls placed on the wellhead price of natural gas for nearly a quarter of a century have been a major factor in contributing to the current shortage in the supply of this vital energy source. There is nothing to suggest that continuing these controls in one form or another will help to alleviate the problem in the future. We firmly believe that a free market pricing structure will help to bring the domestic supply of oil and gas back in line with the demand and we strongly urge that this approach be adopted. We are willing to pay a higher price for the product if there is good reason to believe that adequate supplies will be available. There is no benefit in paying a low price if there is a corollary detriment in the form of curtailed operations and forced employee lay-offs as a result of a shortage.

The second nagging question is whether the tax provisions contained in this Act are primarily designed to address whatever energy problem may exist, or whether the vast amount of revenue to be raised is mainly an additional revenue source which is essential to balance the Federal budget in future years. It is virtually impossible to estimate the total amount of net revenues to be generated by this Act in the future. In a recent Wall Street Journal editorial it was suggested that the amount raised between now and 1985 would be \$53 billion on a conservative basis and that ultimately the amount of taxes raised would be anywhere from \$20 billion to as high as \$100 billion annually. By any standards it is apparent that even the most conservative of these estimates would produce substantial amounts of additional revenues even after considering the various rebates, credits and offsets. This raises two obvious questions. First, is it really necessary to generate that much additional net revenue in the interest of conserving fuel or converting to alternate sources? Second, if we are serious about reducing the dependence on foreign sources of energy, why are the net revenues not channeled into the exploration and development of existing and alternative domestic sources of energy?

We must conclude that on balance, the National Energy Act places more emphasis on simply raising revenue than it does on solving the supply and demand equation that is the root cause of the current energy imbalance. This Committee would do a great service to the American people by rejecting the complicated system of taxes, offsets, rebates, and credits, complete with exemptions, deferrals, and qualifications which purports to tax-and-control our way out of the problem. At the very minimum, the amount of revenues to be generated must first be drastically reduced with the balance to be used to increase the supply of energy in the future.

Since it may eventually be determined that some form of tax penalties and incentives are required, we will concentrate in the balance of this statement on what we consider to be technical deficiencies in the tax provisions of H.R. 8444.

One of the principal features of the Act is its heavy reliance on conversion to coal as an alternative source of energy for the future. This would obviously require vast new quantities of coal to be available and by government estimates, doubling the output of coal as envisioned by the late 1980's could require opening and operating of nearly 300 new mines at a capital cost of more than \$25 billion, which is approximately four times the current capitalization of the industry.

In addition to the huge capital outlays required, environmental restrictions both on burning of coal and on strip mining low sulfur coal in the West present formidable obstacles to the ultimate use of coal in any significant amount as a substitute fuel.

The National Energy Act fails to address either of these problems. If coal is to achieve its potential, environmental laws must be re-examined to remove the counterproductive restrictions, and incentives must be provided to insure that the required amount of capital can be raised.

The original bill as proposed by the Administration would have been disastrous to the industry in terms of added taxes. A major improvement was made when the House of Representatives recognized that there are many industrial uses of oil and gas which simply cannot be converted to coal or some other energy source, and concluded that the imposition of punitive taxes on these industrial uses

would not be appropriate. It is absolutely essential that the process use exemption or some provision which accomplishes the same purpose be retained in the final bill. We would suggest that a more direct method of accomplishing this objective would be to simply provide that the tax would apply only to the use of oil or natural gas in a boiler. This would eliminate the need for a complicated tier system and an economic analysis of every manufacturing process to prove that conversion of that process to an alternate energy source is not practical. At the same time, imposing a tax on boiler use of oil or gas might provide an incentive to convert the boilers to coal. This would be consistent with the purpose of the legislation.

Having determined that the imposition of taxes on some process uses is not appropriate, it would be consistent to exempt these same processes from the effect of the crude oil equalization tax since the same reasoning applies to both cases. If the imposition of a direct or indirect tax on a process would not provide an incentive to convert to an alternate fuel because the process cannot be converted technologically, or economically, then it merely becomes an added process cost with no potential for energy conservation. We urge your Committee to consider either a direct exemption from the crude oil equalization tax similar to that contained in the industrial use tax or a provision for a refund of tax paid similar to that contained in other excise tax sections of the Code. The net effect of this action would only be to reduce the amount of revenue generated under this bill; there would be no impact on the incentive for conservation or conversion.

Regardless of what action the Committee takes on the industrial exemption for the crude oil equalization tax, it is imperative that the whole concept of this tax and the related rebate to individuals be reexamined. These provisions are the clearest examples of why this bill is more of an income redistribution measure than an attempt to find solutions to the energy problem. The individuals to whom this revenue will be distributed do not incur any additional cost as a result of the crude oil equalization tax as it affects home heating since, at a minimum, the tax is rebated to their fuel vendors, and many of the individuals do not even use oil for home heating. Why, then, should they get a rebate of money which they have not spent? If a tax must be levied on crude oil, it would be far more appropriate to use the revenues in any of several forms which would foster the development of new energy sources or the development of known or potential oil and gas reserves. The tax is designed ostensibly to raise the price of domestic oil to the world price. It would be much simpler and more efficient to permit the price of oil to rise at the same rate. Some safety device such as a tax in excess of the revenues reinvested in exploration and development might be appropriate as an interim step. At least this approach would be responsive to the need to increase domestic supplies.

If the industrial user tax provisions are to be retained in the final bill, then there are a number of technical corrections which should be made in the interest of administrative simplicity and plain equity.

The process use exemption applies where there is no substitute fuel which may be used without an adverse effect on the manufacturing process or the quality of the product and which is environmentally and economically feasible. Most of this exemption is explained adequately in the Committee Report, but the test applied to determine economic feasibility is entirely too subjective and open to interpretation. We suggest that the economics should be evaluated by a direct comparison of the unit cost of the process with the normal and alternative fuel and that such test be contained in the law rather than leaving it to the imagination of an individual writing the regulations.

Taxpayers are given an option of electing to offset the cost of certain investments in alternative energy property against the user tax liability or to elect to take an additional 10 percent tax credit for investment in energy property. The election, which must be made in 1980 by most taxpayers, can be changed only with the consent of the Secretary and history would indicate that such consent is far from assured. The time frames in which these alternatives apply vary considerably. The offset provision applies to all expenditures made through the year 1990 while the additional energy credit is available only through 1982. This places the taxpayer in the totally untenable position of having to estimate the amount of his tax liability for a twelve year period and then determine whether the offset provision over that period would be more beneficial than a credit over a shorter period. This determination can hardly be more than a wild guess in most cases. This obvious inequity can be eliminated by making both provisions applicable except, of course, an offset and credit could not be claimed for the same investment. This would mitigate against the impact of the tax and at the same time provide the maximum incentive to invest in energy conservation

property. At the very minimum, the taxpayer should be given an opportunity to make an annual election and to change the election at any time prior to the expiration of the statute of limitations. This would take the guesswork out of the decision. We also suggest that the 1982 termination for application of the credit be deleted.

Section 2061(d) of the Bill would amend Section 46 of the Code so as to permit some of the additional tax credit to be applied against 100 percent of the taxpayer's annual tax liability, rather than the 50 percent applicable to the regular investment tax credit. There should be an order of priority established for the use of these credits to insure that some of the combined credits will not be lost because of the limitation.

The use of oil or gas in an existing facility or a facility under construction on April 20, 1977 would be exempt from the users tax if the use of coal in such facility was precluded by Federal or state regulations which were in effect on April 20, 1977. There is no similar exemption for the use of oil or gas in facilities constructed in the future even though there may be an identical restriction against the use of coal. Therefore, it is entirely possible to have two identical facilities in the same area, completed at virtually the same time, one being penalized and one being exempt from the tax. This gross inequity should be eliminated and this could be accomplished simply by removing the arbitrary construction commencement date, and granting the exemption solely on the basis on Federal or state laws in existence whenever the tax would be imposed. It would further be appropriate to conform the exemption from the tax to installations which have received an exemption under Section 612 of the Bill.

In general, the user taxes are not imposed on utility companies until 1983 while the same taxes are imposed on other industrial users beginning in 1979. The rationale for this distinction is apparently based on the belief that it will take utilities longer to convert to an alternate fuel. In most cases in the steel industry, existing boilers cannot simply be converted to coal. If coal is to be used as a fuel source, it will be necessary to construct entirely new boilers at existing locations. When the time required to obtain necessary permits to satisfy the environmental considerations is added to the actual construction time, it is inconceivable that the steel industry, or probably any other industry, could have coal fired boilers in place by 1979. Even with the carryover provisions permitting excess taxes paid in 1979 and 1980 to be carried to 1981 and offset by investments in that year, it is likely that some liability could be incurred which would not be recovered even if the industry were to start planning on coal fired boilers immediately. It would be far more realistic to defer the imposition of the tax on industrial users to the same date the tax on utilities would apply in order to allow adequate time to construct the new facilities.

The steel industry is capable of saving considerable amounts of energy by adopting new processes which are energy conservative. It is possible, for example, to consume about 2 million Btu less per ton shipped by continuous casting of steel rather than the traditional form of casting and reheating ingots. Even though the adoption of this process on a wide scale would probably save more energy than all of the potential retrofit devices combined, it would not qualify for either the offset against the user tax or the business energy credit. It would be consistent with the purpose of this legislation to include a provision that would make the investment in major fuel conservative processes eligible for either the credit or the offset provision.

One feature of the Bill which we question as having received adequate consideration is the substantial increase in regulatory action, bureaucratic involvement and potential litigation which will be required to implement the plan and resolve the inevitable disputes. The complicated system of taxes and rebates, tax tiers and reclassifications, credits and offsets, variable and fixed taxes, exemptions, and on virtually insures that the Energy Department and the Internal Revenue Service will have to add unknown thousands to their respective staffs just to administer the law. The Administration has pledged to reduce the involvement of government in people's lives, yet this bill would produce the opposite result.

In conclusion, we wish to reiterate that the technical corrections which we have suggested should not be construed as an endorsement of the concept that the tax system is an effective tool for dealing with the Nation's energy problems. These comments are intended to be considered only if it is determined that some form of tax penalties and incentives are necessary.

[Whereupon, 12:55 p.m., the committee adjourned.]