EXECUTIVE SESSION

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THURSDAY, SEPTEMBER 20, 1979

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United States Senate,

Committee on Finance,

Washington, D.C.

The Committee met, pursuant to notice, at 10:30 a.m. in room 2221, Dirksen Senate Office Building, Hon. Russell B. Long (Chairman of the Committee) presiding.

Present: Senators Long, Talmadge, Ribicoff, Byrd, Gravel, Matsunaga, Baucus, Boren, Bradley, Dole, Packwood, Roth, Chaffe, Heinz, and Durenberger.

The Chairman: Let us come to order.

What can you tell us about our situation, Mr. Shapiro, as we are getting started today?

Mr. Shapiro: Senator, yesterday you worked on the individual credits and I think that Senator Bradley is prepared to discuss this conservation proposal this morning. It may be unless the committee has some other course of action, it may be appropriate to start at that point.

The Chairman: Let us see. We have a pretty good audience for the Senator.

Why do you not go ahead and explain your conservation proposal, Senator Bradley?

Senator Bradley: Thank you very much, Mr. Chairman.

Yesterday, we were talking about residential conservation and what the potential in energy savings is in that sector of our economy and what the obstacles have been in obtaining that supply.

And recent studies have shown, done at Princeton and Harvard by OTA and many other reputable bodies, that it is possible, in the residential sector, to reduce consumption of energy by 50 to 75 percent. 50 to 75 percent, if appropriate technology is applied to the problem in a systemized, organized way.

The problem really has been threefold: that consumers do not perceive that they have a supply of energy in their homes; they do not have the technical skills to get at that supply; and they cannot be bothered by the dual hassles, first the financial hassle. Many people do not have $1,500 to pay for residential conservation equipment. That is a hassle. The second hassle is, who do they go to to get equipment installed? How can they be sure that Joe's Heating and Supply really will come in and put insulation in the right place and the right amount; and how do they know that it is going to last?

What I have tried to do in this residential energy conservation program is to address all three of those problems in a way that would result in the least amount of cost to the taxpayer while providing him with the maximum amount of

production in his energy consumption in his home and assure for quality control.

So what I would like to do is explain it. Everyone has the diagram before them. It is a somewhat complicated plan, but the principle is very basic and very simple: that is a mechanism to deliver the conservation equipment and overcome the financial obstacle.

There are three actors in the plan: one, the goverment; the other is the utility; and the third is a new entity, a private energy conservation company, a company that is a profit-making company and is paid only as it succeeds, only for results, only for units of energy saved.

Now, in the diagram, you will see at the top the Secretary of Energy. The way the program begins, the Secretary of Energy designates a contracting agency, a governmental agency. It could be state, it could be Federal, it could be local. And that contracting agency then enters into negotiations with a private energy consevation company and the negotiation is to set the rate at which the government will pay the private energy conservation company for units of energy saved.

The Chairman: Let me trace that first step; let me get that straight.

The contracting agency -- now, is that a utility commission or who? Who is that, the mayor of the city, or who?

Senator Bradley: It could be the governor. It could be

the mayor, unlikely. We want to leave maximum discretion for the Secretary of Energy to do this, because in different regions of the country it would be appropriate for different bodies to be the contracting agency.

The Chairman: It could be the state government, who else do you visualize it might be?

Senator Bradley: State government or local government, primarily. It could be the energy department of a particular state for example.

The Chairman: All right.

Senator Bradley: It could be located in the Secretary's office -- unlikely, though.

So they would enter negotiations and say, for every kilowatt of electricity that you save, or cubic foot of gas, or gallon of oil, we agree to pay you X amount. They would say, for example, to the conservation company, for every kilowatt of electricity that you save -- and it is proven that you save it -- we will pay you ten mills, for example, one cent.

So with that contract in hand, the private conservation company goes to the private capital markets and obtains front-end financing. With that money he enters into the market area and employs and trains expert auditors who go house to house, block by block. They knock on the door and they say, we are here to audit and to prescribe for you what you need to have done to save energy in your home.

The homeowner says yes. They come in and perform the audit, recommend the changes, and then are followed a week later, a few days later, by another component of the private energy conservation company that installs those measures that are prescribed: caulking, clock thermostatt installation, whatever that prescription was. They fulfill that prescription.

At that point, the homeowner receives an immediate reduction in his consumption of energy in the neighborhood of 50 to 75 percent.

Now, the energy conservation company, then, leaves the home. One year later, you see under negotiates a contract, the second job of the contracting agency is to measure the actual savings which is done indepencently of the energy conservaton company and one year later they determine that the measures that were installed in the home actually saved, say, a thousand kilowatt hours of electricity and the contract called for a payment of ten mills per kilowatt hour, so the payment is made to the energy conservation company through a revolving fund, a government revolving fund, on the basis of the contract price entered into at the beginning of the process and the energy conservation company is paid ten mills for every kilowatt of electricity that is saved.

That closes the circle on the delivery mechanism, so what we have done here is to harness the private sector and reward the profit-making company only for results, only for units of

energy that are actually saved and made the payment on a contract basis that was negoti·ted between the energy conservation company and the government.

We have achieved 50 to 75 percent reduction in the homes and we have done it in the most efficient manner possible, the energy conservation company employing all kinds of economies of scale, the problem of having insulation shortages overcome because you can project how much you will need if you are going into an area and making your orders in a systematic way.

Now we come down to how this is actually funded. The revolving fund, which is government controlled, has cash supplied to it, first by government bonds that are floated into the revolving fund. The government bonds are retired by assessments to utilities.

The assessments to utilities are never more than the value of savings to that utility in that year, and there will be two kinds. The first kind is savings in new capacity. A utility, for example, is contemplated in the construction of a new nuclear power plant or a new coal-fired power plant. Today in the country, the average cost for a new, nuclear power plant is roughly ten to twelve mills, even higher, per kilowatt hour, and what you can do in this process, so that is his option, new capacity.

Meanwhile, the energy conservation company has installed it. I would like just to go back to one point. When I said

that the average cost for new nuclear power, it is really about 90 mills, not 10 mills. I was thinking about 190 mills. So that the utility has the option of new capacity of 90 mills a kilowatt hour or the purchase of saved energy at about 25 mills a kilowatt hour. So the utility is going to purchase the saved energy at 25 mills a kilowatt hour and that will be its assessment what you will pay into the revolving fund.

It would be in the utility's interest to pay everything up to 90 mills, which is what it would cost if we built a new power plant.

So the volume of savings to the utility that is contemplating new capacity is up to marginal cost, in this case, 90 mills a kilowatt.

The other kind of volume savings is in savings in fuel. If you introduce conservation measures and reduce conservation 50 percent, you do not have to pay for the fuel to provide that 50 percent of energy, so that is a savings.

Both of these payments to the revolving fund will be allowed to pass through to the consumer. The consumer will always be paying less for saved energy than he would for new capacity or for the fuel that he would be required in the existing capacity before the conservation measures.

Now, we come down to those very few utilities, and this is a real contingency, a very small sliver of the total pie. Where there is a great deal of excess capacity and where you have the

net savings reduction of 50 percent and you cannot make that up, either through sale of that capacity through new consumers, and as a result you are forced with raising your rates to the consumer.

So what I am suggesting here is that we give a tax credit, a refundable tax credit, to the utility that is equal to the net reduction, the net reduction in revenues that comes from installing the conservation equipment.

For example, the conservation company has gone in and reduced a utility area 10 million kilowatt hours of consumption at roughly 5 cents a kilowatt hour. So, for the consumers, that means they are paying $500,000 less in rates to the utility.

To the utility, that means that it has $500,000 less in revenues. Now, assume that that 10 million kilowatt savings would also make it unnecessary to burn fuel to produce the 10 million kilowatts -- roughly the rule of thumb is 40 percent. So that the utility would not have to pay $200,000 for fuel, so that the $500,000 minus the $200,000 gives the utility a net shortfall of $300,000, and what I am proposing for those very few utilities in which this is the case, that the utility be given a refundable tax credit equivalent to that $300,000 so that it would not place it in the rate base by putting that refundable tax credit, the utility would be made whole in this process.

Now, what is the revenue effect of this? First of all,

this program will be phased in. This will not happen nationwide, immediately. It will be phased in so that it will be proven to be workable and sound, as we believe it is. But there are 80 million homes in the country. It costs $1,500 to retrofit a home, roughly. We project this to be a ten-year program, roughly 10 percent a year.

In the first year, you could not possibly do that, so we set 5 percent for the first year, but because it will be phased in, which is 4 million homes, but because it is phased in, frankly we are lucky to be able to get one million homes in the first year, one million homes, which is about the number of homes in the Washington metropolitan area, a little less than half the homes in the state of New Jersey. $1,500 a home results in $1.5 billion.

Taking a maximum problem of excess capacity and a maximum tax credit of 40 percent, which is a very small part of the total national utility structure, 40 percent of the $1.5 billion results in $600 million, but the payment is amortized over a 20-year period so that the revenue effect -- and this will not occur until 1982 -- will be $30 million.

And it is a minimal revenue effect. It is an attempt simply to make whole the utility in the event of a major problem in a small segment of the utilities sector, and that is a very brief explanation of how it would work, and how the tax credit fits into the total picture.

The whole thing, as I might reiterate, is based on the following: harnessing the private sector; employing economies of scale for efficient delivery of conservation services to the consumer at no direct cost to him; and the utiilties purchasing it because it is cheaper for them to purchase that saved energy than it is to continue paying escalating fuel costs or build new capacity.

If this is done in a systematic way as we envision it over the next ten years, you can achieve a savings in the residential sector of 1.6 to 1.78 million barrels a day, which is roughly the equivalent of the Alaskan oil fields. So there is, in the home of the American consumers, the equivalent of the Alaskan oil fields.

I would be glad to answer questions. I am sure nobody has any questions.

The Chairman: There are a couple of things that I think that we ought to explore a little bit. It would seem to me that you could get by without having a refundable tax credit. I would think that utilities pay enough taxes, if you give them a credit against all taxes, you could find enough taxes to credit against that they would not have to have a refundable credit, especially if you give them a carryforward and a carryback to go along with that.

Now, point number two, I want to ask you about, how much those government bonds that would have to be issued, how much -- would that be a burden on the Treasury? Does that increase your debt by that amount? How would you get the bonds?

Senator Bradley: It would obviously be off-budget and you would be probably -- the amount of the bonds would depend upon how fast the penetration of the market, how many energy conservation companies would be in operation out there, and the bonds are simply a cash mechanism. They will be paid off by the utilities through their assessments.

The Chairman: Maybe -- have you explored the idea of having the bond without the government, at least the Federal government, getting involved in it? What is the possibility of the states borrowing the money, or borrowing it from the private market?

Senator Bradley: Mr. Chairman, the program makes sense as a national program because there are differing characteristics in utility areas around the country, and it is going to be directed by the Secretary of Energy and executed in the private sector, and I think that as a facility of the government has a real role, and one of the way it facilitates, is by providing the cash that oils the mechanism to make it happen while we are waiting for the utilities to be assessed, for savings to be determined, and for payents to be made, so that I think it should be the government.

The Chairman: Has this matter been discussed with the Department of Energy, and what is the reaction to it, can you tell me that? They will speak for themselves later on. What can you tell us about that?

Senator Bradley: I am sure that the person who was here will not know about the program. I have spoken at great length with the Department of Energy. I think that they are very positive to this approach, and they agree that it should be phased in, as I think it should be phased in.

If it works as we say it will work, it is the only program going that addresses the delivery mechanism side of residential energy conservation.

The Chairman: This is complex for the average person to understand. If I understand your proposal, as far as the average consumer is concerned, the average householder is

concerned, his contact with it would be simply that they would come to his home, they would offer to insulate his home for him. That would save his money on his bill and the people insulating it would not charge him anything at that point. Is that correct?

Senator Bradley: That is correct. The homeowner simply says yes when the knock on his door comes, and the person there says, I would like to audit your home, make a prescription and install the equipment free of charge to you.

He has to say yes at that point. If he says no, they cannot come in.

The Chairman: If he understands what it is, he would be a fool not to let him in.

Senator Bradley: I think he would be.

The Chairman: That would save him money at no immediate expense to him.

Now, in terms of paying for it from the consumer end, would there be something on his bill to show him what his part of that cost would be?

Senator Bradley: No. The consumer would experience any payment on his bill only to the extent that the value of savings to his utility was assessed.

In other words, what his utility would pay, say 2.5 mills per kilowatt to the revolving fund, would be passed through to the consumer in the form of something like a fuel adjustment

cost and it would appear on his bill -- not specifically that payment, but his bill would go up slightly.

But the point to be made here, that it would go up far less than what it would go up if this savings had not been accomplished.

For example, let's take a hypothetical case where you have 100 units of energy you are consuming, and you are paying $100 for it. The energy conservation company comes into your home, reduces that consumption to 50 units of energy.

Let's assume, because of the pass-throughs for new capacity and fuel savings that the payment is made from that utility to the government fund. That forces your utility rate up 40 percent. It will never happen, but say that the worst possible case. He is then paying $70 for the same comfort and level of heat that he experienced when he was paying $100 and he is paying far less than if this conservation had not occurred, and the utility would have had to build new capacity.

Senator Packwood: Mr. Chairman?

The Chairman: Senator Packwood?

Senator Packwood: I was unaware of Bill's proposals when I introduced my energy conservation tax credits. I think he has a whale of a workable idea.

I want to read just about six or seven lines from the Harvard Energy Study in which they say as follows: "It is nothing short of ridiculous that now almost six years after the

embargo, the United States does not have a broadrange, national program of incentives to encourage retrofit. The speed with which retrofit can deliver substantial savings argues for a much more stimulative public policy with tax credits up to 50 percent."

Again, I think they were unfamiliar with this idea. I am not citing this for the tax credits per se, but for the fact of the tremendous, quick savings that are there. Such a policy would signal the importance of retrofit and would encourage homeowners, entrepreneurs, manufacturers. It would make retrofit economically attractive for some homeowners, not only attractive but possible for others.

I think Bill is right. I want to be a co-sponsor of what he is doing, and he is approaching it in the right direction. I am going to dovetail my energy credits to his effective dates and make sure that you cannot have a double-dip, but he is right in his conclusion that the single, biggest, quickest place to make a dent is in home conservation.

Senator Bradley: I would just like to respond to Senator Packwood by saying that the financial hurdle can be overcome in a variety of ways, by grants, loans, tax credits. The unique thing about this plan is that it develops a delivery mechanism to get the conservation equipment into the homes of the American consumer as rapidly as possible and as efficiently as possible for the party doing that, the energy conservation company, is

not paid unless it succeeds. It is paid only for results, for saved units of energy.

The Chairman: Senator Ribicoff?

Senator Ribicoff: Mr. Chairman, I want to commend Senator Bradley for his coming up with this plan. There is one question that I think that we have to determine, which is very important.

I do not think that any of us around this table is qualified really to give an answer or to make judgments on this proposal. The main actors here are the utility companies of this country.

If what Senator Bradley is talking about could work, it could be very, very beneficial to the entire nation. I would say that if there is interest in his plan around this table -- and I guess there is -- I think it deserves at least a one day hearing to bring the utility companies in here and the Energy Department to tell us how this thing is going to work, because many of these ideas look good on paper, but when you try to translate them into reality, they become altogether different and if there is an interest, Mr. Chairman, on our part, I think the utilities ought to be brought in and tell us how they can live with this, or how it will work from their standpoint.

The Chairman: Let me put the Senators down in order. Mr. Heinz asked to be heard, then Mr. Baucus.

Mr. Heinz?

Senator Byrd: Would you put me down, Mr. Chairman?

The Chairman: Senator Byrd, and Mr. Chafee.

Senator Heinz: I would like to commend Senator Bradley on what I think Senator Packwood has said, not only attacking an absolutely essential area where we can achieve much greater energy savings, where there is a tremendous potential pay-out, but on a very creative idea. An enormous amount of creative thought has gone into your proposed bill and I really commend you and salute you for it.

I would like to get a little clearer in my mind a couple of, I suppose, more operational questions. What happens if, instead of somebody heating their home with electricity, which is going to come from a utility, it happens to be fuel oil, as is often the case in your state and mine, and it is not a utility that is involved.

Will the operational effect of that be that the energy conservation company might pass up homes heated with fuel oil and go just to all-electric homes, or what?

Senator Bradley: Now, since your state and mine have a lot of homes heated by fuel oil, you would think that I would propose a plan --

Senator Heinz: I thought you might make clear how great the plan is.

Senator Bradley: Certainly.

Senator Heinz: You have not thanked me for giving you this opportunity.

Senator Bradley: Thank you.

There are several ways that this can be handled. One way is that there can clearly be a difference between what the revolving fund pays the conservation company. For example, in some utility areas where they have begun conservation efforts, they have determined that to save a kilowatt of electricity is about 2.3 mills, so that if the revolving fund paid the conservation company ten mills, it would be a substantial profit, substantial incentive for efficiency and aggressiveness.

On the other hand, in that area, the marginal cost, or the cost for new capacity, is 60 to 70 mills so that you have a range between 60 mills and 10 mills that you could assess the utility.

So you assess the utility at 25 mills. You have, for every kilowatt of electricity saved, a 15 mill margin that flows into the revolving fund which is a national fund and that can be used to retrofit homes that use home heating oil.

The key thing here --

Senator Heinz: It sounds pretty good. I do not know whether it is fair to utilities.

Senator Bradley: The utilities option is to purchase new capacity at 60 mills, 90 mills. There is one spigot out of the fund. It goes to the conservation company that goes house by house. There are a number of pipes into the fund from various utilities. That is one way that this can be financed for home

heating oil.

Senator Heinz: The one conceptual problem is, in a sense where everything you say is true and it is a good deal overall, I think for the utilities, someone could say that you are using utility revenues to finance home improvements that really do not save utility energy. They save heating oil distributors having to distribute less heating oil.

I am not sure how serious that is, but it is a potential problem that I would hope would be either insignificant or correctible.

Senator Bradley: I think it is easily correctible.

First of all, let me reiterate --

Senator Heinz: Let's assume it is correctible, because I have one other question I wanted to get to, kind of an operational one, so that I understand the nature of the audits and retrofits.

One of the things that we found about three or four years ago was, just by putting a new burner in our oil-fired furnace, we could cut our usage by about a third. Would that kind of conservation be a part of the operation here?

Senator Bradley: You see, one of the purposes of this program is not to burden this effort, which is a national priority, with a lot of government regulations. We are saying, you can do heat pumps, but you cannot do furnace retrofits; you can do caulking, but you cannot do X, Y and Z.

So what you do is you leave that up to the private energy conservation company. It is going to do what is most efficient to achieve the maximum amount of savings because it is on that basis alone that it is rewarded, that it is paid.

If it finds in your area that if there is a retrofit of a furnace it will derive the maximum amount of savings, that is what it is going to do.

Senator Heinz: Thank you.

The Chairman: Senator Baucus?

Senator Baucus: I want to commend Bill for this idea, too. It seems to me it is going to take a leap for utilities, public and consumers, too, to move more towards saving power than buying additional production. I think it is an idea that we have an obligation to pursue very diligently.

A couple of quick questions, Bill. I wonder what you have found the utility reactions to be thus far?

Senator Bradley: I think that once you sit down with the utilities and go through this whole thing that they react with understanding and some support.

The reason that they do is that they are frankly in a very dire financial state. Just look at the number of utilities in 1970 that had AAA credit ratings and the number of utilities today that have AAA credit ratings.

In 1970, thirty utilities dropped their credit ratings; the credit ratings were lowered.

In 1974 alone, 43 dropped in credit ratings, and that is a continuing process.

Another example of utility problems, one of the ways that you assess the stability of a utility is to see what their before-tax coverage is. Before-tax coverage is the amount of earnings, how much their earnings times what their debt service is.

In 1970, their earnings were five times their debt service before taxes. In 1974, it dropped back to 2.6 and now it is about 2.8.

They are very pressed, and why are they pressed? They are pressed because they have $50 billion in investment out there in new construction that they are not able to rate-base effectively at this time. They are up against public utility commissions that do not always give them the maximum amount of flowthrough on their fuel adjustment, and they are under pressure from their investors to pass through the maximum amount possible in the form of dividends.

The utility then faces the prospect of a new power plant, with all of the assorted regulatory harrassments, with all of the complicated financial pressures that all of these facts indicate, and along comes somebody who says, "You do not have to any of that. What we are oing to do is create the equivalent of a new power plant within your present structure and we are going to charge you one-fourth of what it would cost.

Utilities respond to that. They ask a lot of questions, obviously, but they should ask a lot of questions.

Senator Baucus: I like what Abe suggested, to have a hearing on this.

One quick operational question. As I understand it, the company would be reimbursed for the marginal energy savings achieved through this retrofit, or would they be reimbursed on the amount of direct costs to the company for the retrofit?

Senator Bradley: The energy conservation company?

Senator Baucus: Yes.

Senator Bradley: The energy conservation company would be paid -- whatever it costs to do the retrofit is the energy conservation company's business. The cheaper they can do it, the better off they are going to be, becasuse the contract that they have with the government is, we will pay you 10 mills per kilowatt of electricity saved that is confirmed one year after you have installed the equipment.

The energy conservation company has to do a quick analysis of an area in order to determine what they think their costs will be to retrofit homes. They then begin negotiations and set on a per unit cost for saved energy. It is on that basis that they are paid.

Let me just say one other thing about the hearing. If you are interested in a hearing, I would suggest that this is under active consideration in the Energy Committee and the Energy

Committee has a scheduled hearing on this and other assorted plans a week from Friday.

The Chairman: Senator Byrd?

Senator Byrd: Thank you, Mr. Chairman.

I have listened very carefully to Senator Bradley as he has outlined this proposal and to me it is a very intriguing one. It is certainly a bold and imaginative approach and I like bold and imaginative programs.

On the surface, at least, it seems to have a great deal of merit. There are two thoughts that come to mind. The first one has been touched on by Senator Ribicoff and now by Senator Bradley.

I think that we need the judgment and viewpoint of the utilities. I am wondering, too, what bureaucracy would be needed to make this work, and then also -- I hate to mention it, the cost. It will not cost the homeowner, as I understand it, anything. 80 million homes will be retrofitted. The total cost will be in round figures, $150 billion.

Where does that $150 billion come from?

Senator Bradley: It comes ultimately from the utilities because the utilities option is to spend $560 billion to create the same capacity, so they have a good deal here, $150 billion over twenty years to purchase saved energy in the same amount that they would have to spend $560 billion to build the same capacity.

Senator Byrd: Of the $150 billion, just to use that as a round figure, what part of that would come from the general treasury in the form of credits to the uitlities?

Senator Bradley: From the general treasury, it is my view -- you mean on the tax credits?

Senator Byrd: Yes.

Senator Bradley: It is my viewpoint that this program will be a self-financing program. The point of the tax credits is to allow for the possibility that in a few utilities with a lot of excess capacity there will be a net revenue reduction because of the installation of energy-efficient equipment, and that net revenue reduction should be given a tax credit, in my view, and in 1982, that tax credit will be $30 million. That is the effect, and I do not know if you were here, Senator Byrd, when I went through how I arrived at that figure.

Senator Byrd: $30 million is very little to accomplish all of this.

Senator Bradley: In 1982, you see.

Senator Byrd: I think it is a very intriguing plan that should be fairly explored. Thank you, Senator.

Senator Bradley: Let me respond to your bureaucracy question as well. The whole purpose of this is to get away from the bureaucracy and that is why the actor in this, the one ho is going to employ the people -- and, by the way, to retrofit those homes in this country would require a labor force of 400,000 or

500,000 people. They are all going to be in the private sector.

Senator Byrd: Thank you.

The Chairman: Senator Chafee?

Senator Chafee: Thank you, Mr. Chairman.

I would just like to join in commending Senator Bradley for what is certainly a very thoughtful proposal that gets at one of the real problems that we have got in the country where the quick and mammoth savings can be made, as he indicated. I just have a couple of questions.

One, if I understood Senator Heinz's question, it went along the line that I had that the savings might well not be electricity. They might be in gas, they might be in oil, fuel oil, and your felling was yet the cost of that saving, or to accomplish that saving, would be paid by the electric utility.

But you have taken this into account in the figure? You can take care of it?

Senator Bradley: I would like to correct the impression that it would be paid by the electric utilities. It would be paid by electric and gas utilities. A large part of the savings would come from gas and in gas you have a real opportunity, because the amount of savings that you create in a gas utility you would allow that utility to resell at the marginal cost.

So that you would allow them to resell it in an unregulated environment.

You take the Citygate price average for gas in the country

is $1.50. That is what they pay, and they are regulated to sell to their consumers at a specific level.

If you freed up capacity in that gas utility, that extra gas could be sold to the industrial sector, or the commercial sector to back out residual oil, and it could be sold at the marginal cost, which would be the higher cost, which would mean the utility would be able to make more.

Certainly it is the gas and electric utilities that would be the revenue strengths for this; not simply the electric.

Senator Chafee: The oil, of course, we would have to somehow take care of that?

Senator Bradley: As I alluded, the oil costs would be the difference between what is paid to the conservation company and what the utility is assessed. Number one. That is one possibility. There are some other variations, and if you would like me to, I will speak to them.

Senator Chafee: The other problem I had, so much of an audit of energy savings in a house not only deals with the physical characteristics of the house insulation and so forth, but it also deals with the discipline of the owners of the house and that slackens as pressure comes off.

Under your measured savings, as I understand it -- this is a technical detail; I am curious. You had the measured savings take place a year later, after. Why such a long delay, because that gives the conservation company carrying these very

expensive costs for such a long time?

Senator Bradley You need a full year because consumption of energy is different for different seasons, and you have to measure that. You cannot do it -- if you installed it in July and measured it in August, how would you know what they saved in February?

That is why you have to do it one year later.

Senator Chafee: I see.

Mr. Chairman, I think it is a good idea. I look forward to further hearings. It seems to me it is the kind of thing that if we start it, it would be sort of a pilot project rather than trying to take too big of a step at once.

Thank you.

The Chairman: Let me just say this, Senator, that some years ago before you became a member of this body, when we had that last, big energy tax before us, it was my hope that we could find a way to achieve the kind of thing that you had in mind.

At the time, I was trying to find a way that the utilities could pay for it and get their money back out of their charges, and I asked members of the utility industry to come have breakfast with me and discuss it and see what they thought.

At that time, the thought was that the companies would do it themselves. I see that the President had a suggestion along the lines of what the utility companies had. Really, I was

disappointed in the meeting, because that is just not the kind of thing that they seem to be interested in doing themselves. But what you are talking about may work out very well.

I would be glad to suggest to you some people who live in this town that you can talk to who are very knowledgeable and experts in the utility business, having been chief executive officers of those kinds of companies who know what the utility end of it will be, and they think that it would work. As far as I am concerned, I would think that it would work.

Senator Bradley: May I comment, Mr. Chairman?

The Chairman: Yes.

Senator Bradley: I think that there will be those people who will be testifying a week from Friday and there are sometimes ideas that are new ideas and require a test and I think, as Senator Chafee said, that this is certainly one of those ideas that, if it were tested in several areas, if it were phased in, you could determine whether it worked or not.

And in this whole process the taxpayer is not out at all. You have to have an energy conservation company that is willing to assume risk before anything happens, before any money has changed hands, and that is also the answer to Senator Chafee's point about what they will install.

The Chairman: Yes, sir.

Maybe you can move your hearing up, Senator, because I would hope that we might be able to vote on that before we

report this bill, and I would hope we could report this bill next week.

Senator Baucus?

Senator Baucus: A quick question. Why have you discarded the idea of giving the credits to utilities for the work itself, the work of the energy companies, the conservation companies? Why do you not provide a credit, or some incentive to the utilities themselves to provide the audits and retrofits directly? Why go through this fairly convoluted process?

Senator Bradley: The reason you do not give the credits to the utilities to do this is that the utilities in the last energy bill were specifically prohibited from getting involved in this conservation effort.

Senator Baucus: Theoretically, why?

Senator Bradley: Theoretically, why? Because I think that the penetration rate will be much greater if it is lodged in the private sector with energy conservation companies that have a real incentive to get out there and do an effective job. If utilities did it without this mechanism, you would find that the problem that we are addressing in the tax credit in a much broader area where, if they were successful in promoting the reduction in consumption, their rates would rise.

Utilities are going very slow, and the next thing is, if utilities did it, it would require the consumer to initiate. In this program, somebody knocks on your door. He is there. You

have to say yes or no. If he says no, you go away; if he says yes, you have an energy-efficient house.

If the utilities did it, the way it would happen, they would send a flyer out in their bills, if you want an audit, call number X. You call number X, the audit would come, and they would say, if you want a financing plan, select and send back. You would have to figure out the financing plan. Then they would send you a list of installers and you would have to make a third decision that, indeed, you want this bad enough that you are going to select among ten or fifteen installers to get it installed in your house.

That will not lead to a back-out of 1.6 to 1.8 million barrels of oil a day in seven years; it just will not happen. This is a more efficient delivery mechanism.

The Chairman: What the advantage is in your proposal is that it means a problem that I have been worried about for a long time. When you approach this, you go to some fellow's house, and he would like for you to really do a super job for him and do a lot of expensive things, from the point of view of energy conservation, are not the most efficient.

And if you just let somebody add something to his rate base, a manager of a utility company, you spend a lot more money than is necessary.

If they are being paid by the number of units that they save, then it is to their advantage to use the cheapest possible

method to save the money to save energy, because in this case, they are paid on the number of units they save.

There are going to be some problems here that arise that do not immediately meet the eye, but do come up, such as in an area where you are losing population, and people move out of town. A ghetto area does not have as many people as it wants to, so they do not use much energy because there are not as many people in the house, not home as much of the time as they were before.

It is hard to measure how much of it occurred because of that. And I guess you will have to have -- how would you handle that? Suppose you lose population?

Senator Bradley: First of all that is a decision that the energy conservation company has to make. They have to make the assessment in Newark, New Jersey, for example, who is moving and how many houses are vacant and what their costs would be.

But what we find in older areas is that those homes are the least energy efficient, so if they just did a little bit in those areas, it would give the maximum amount of savings.

The Chairman: Senator Ribicoff?

Senator Ribicoff: Just a suggestion. Since you are taking this up with the Energy Committee and also it involves finance, because of its size and complications, I would suggest that you consider piloting it out somewhere in this country with a utility that is enthusiastic. They will try to make it work.

I think that you save the problem of trying to impose

anything so vast on the entire nation and it probably would fall because of its complexity and its size.

But I think that you really have got something here, and it deserves to be piloted out by some group in some community that has enthusiasm to prove to the country that it will work, and then go on from there.

Senator Bradley: I think Senator Ribicoff's suggestion is a positive one. What I would like to do is to have the legislation and to have it gradually introduced. It will not be a nationwide program overnight. It will be a program that will be tested in a few areas, and those areas will have to be areas where you can get a very clear judgment on whether it works or not.

If it does work, then it is expanded.

To me, the important thing is to have in place the structure for a national program and to phase it in.

This tax credit that we are talking about is really a very small sliver of this whole operation. This is not an enormous amount of revenue and the Energy Committee is very much getting into the inter-workings of this whole thing and I would hope that he Comittee could keep that in mind and address the question of the tax credit as just a small part of the whole package.

Senator Ribicoff: Are there any other comments?

Senator Heinz?

Senator Heinz: One question you may have given some thought to is to what extent, or to how you will deal with the problem that the company who may come in and insulate, as I understand it, will, by virtue of the fact that there is one measurement period a year later, there is not a series of measurement periods going out into the future. Is that not correct? Just one measurement?

Senator Bradley: That is correct. It is unsure whether it would be one year or one-and-a-half years.

Senator Heinz: A potential problem is whoever is putting this stuff in could put in insulation or whatever the retrofitting device is that does not last, and that they are highly motivated to get a quick show of energy savings, and then the world be damned thereafter.

Senator Bradley: We have taken care of that.

Seator Heinz: I am sure there is a way of taking care of that.

Senator Bradley: The way you take care of that, the payment to the conservation company is spread over a ten-year period or a twenty-year period. As a result, during that time, the energy conservation company is responsible for quality control. If something goes wrong, they are the ones that have to make sure that it works.

So as long as they still have to get money, the shoddy workmanship or the fly-by-night operator will not have a part of

the market.

Senator Heinz: This energy conservation company has a monopoly in the area in which it operates, and it seems to me that if you only measure the energy efficiency on a one-time basis, tere is no way you know whether or not you pay that company out over a period of time, whether the job they did is actually working.

It gets even more complicated if the house changes owhership -- houses do change ownership to a considerable degree in this country over five years. You and I know, from mailing our constituents, how often those letters come back marked, "Nobody here at this address" or at this name.

You might want to take that into account by some kind of subsequent measurement period. If you do that, you might want to think of structuring some kind of release so there would be no privacy problem when the first contract or audit is made.

It seems to me that the owners of the house five years hence, particularly if a different owner has some kind of invasion of privacy problem, if it was not spelled out as a condition for doing the audit and work, that measurements can be taken.

I assume the measurement can only be establishesd by getting the owners of the house too give you all their bills.

Senator Bradley: No, those are all on central file with the utility, with the exception of heating oil.

Senator Heinz: If it is heating oil, lots of luck. They are not on central file.

Senator Bradley: With the heating oil company and distributors.

One of the other purposes of this program is to deal with the fewest number of actors possible. For example, if you are involved in a grant program, you are dealing with 80 million homeowners. In this program, you are dealing with 3,000 utilities.

Senator Heinz: In just one Congressional districts in Pennsylvania you are dealing with 90 heating oil distributors. I wish it was that simple, I really do. I do not know how many there are in the state of Pennsylvania and New Jersey, but they are local, little guys.

Senator Bradley: And vocal.

Senator Heinz: And vocla.

One last thought. What do you do -- and I am trying to put myself in the position of the unscrupulous energy conservation manager who just wants to make a buck. The first thing I would do --

Senator Bradley: I never thought of you that way.

Senator Heinz: Thank you. I appreciate that.

I think I would be awfully tempted to find people who are about to change their living patterns in a way that would save energy -- those who, say, go to Florida for a couple of months,

have a second home, about to buy a second home, someplace where energy -- you know, where they can go in the cold winter, a variety of things like that, or somebody who might be moving away and their house might be closed for six months while it is being sold.

I am sure those things can be dealt with. I just wanted to raise them as things that do need to be dealt with. I am not asking you to deal with them right now. It would be bad for the program, which I think is a good idea, under the program for several scandals would show up that would put a bad name on something that I think that is inherently very, very good. That is why I raise it, that is all.

Senator Bradley: Let me just say one more thing to that point. The energy conservation companies have to be complex management firms that have to have some ability to raise capital before they get the government and contract, and all of the incentives are structured so that you will avoid the fly-by-night people.

You have a very high-powered management company that utilizes local suppliers and local people as subcontractors. But, you know, there are a number of tricks to the kind of problem you are citing.

First of all, the contracting agency will negotiate the contract, but the Secretary of Energy is the final decision maker on what the price will be.

Second, with that contract, they have to convince the bank, and the bank has to look at their stability and whether they are going to be around eight years from now, so that you have that check as well, so that you have two checks before they even begin their work.

Senator Ribicoff: Is thee anyone here from Treasury or DOE that is familiar with this proposal and would like to comment on it?

Mr. Lubick: Mr. Chairman, we have seen the details for the first time. We knew that it was coming and basically it takes off on the theme that was part of the President's program. He suggested using electric and gas utilities to help do the retrofitting for the residential and commercial customers for conservation improvement.

So that we think that the plan also is very promising and that it seems to move very close to ideas that we were working on.

Senator Ribicoff: What was the attitude of the utilities when this was first broached a number of years ago?

Mr. Lubick: I do not know, Senator.

Senator Ribicoff: Wanting to take that responsibility.

Mr. Lubick: You would have to address that question to the Department of Energy rather than to us. We plan to have the Department of Energy work with Senator Bradley on this. I understand that there has been some cooperation and the general

response has been very favorable.

Senator Bradley: Mr. Chairman, could we ask Treasury to comment about the general administration of this kind of tax credit, as to whether they see it as efficient or problematical?

Mr. Lubick: On the tax credit itself, we have done some quick checking since we saw the details this morning and, indeed, we see a few problems, but we believe they can be surmounted.

We were informed by the Revenue Service that there already is extensive audit coverage of the utilities, that of course, they maintain for rate-making purposes excellent books and records, and so it appears to us that, administratively, we can surmount the problems.

Senator Ribicoff: Are there any further questions or comments by the Senators here concerning the Bradley proposal? I believe that when we suspended, Senator Packwood's proposal was before the committee generally.

Senator Packwood: I have some other proposals, Mr. Chairman. We adopted some yesterday, and I would be happy to go on.

You ought to have in front of you a chart entitled "Summary Analysis of S. 1760" and dated September 20, 1979.

Senator Ribicoff: Would the staff distribute that chart?

Senator Packwood: I thought they had been distributed.

Senator Ribicoff: S. 1760?

Senator Packwood: Dated September 20, 1979. I updated it from yesterday. I will be updating it from time to time, because on occasion you see the words "no estimate." I do not want to mislead anybody. At the time the charts were passed out, I had no estimates and I left them out. But I do not know why the charts have not been passed out yet.

Mr. Chairman, we all have in front of us now the Summary Analysis of S. 1760 dated September 20, 1979 and as I indicated yesterday on these estimates, they are Joint Committee tax revenue estimates.

The center column, entitled "Rate of Oil Saved Per Day as a Result of the Bill," the savings that, by and large, the Department of Energy agrees that the method of computatin is as good a method as you can have, but realizing that nobody can guess how many people might put in heat pumps or insulation in 1988 or '89, so that it is a guess.

However, the righthand column, the savings per barrel are reasonably accurate estimates, because there that is simply a function of how much did it cost and how much was put in. If you doubled the amount put in and you doubled the savings per barrel cost, you are still going to come out about the same.

Yesterday we adopted under the first section, residential (a) and (d), solar, wind and geothermal and primary residence test deletion.

We passed passed over for the moment (b) conservation and

(c) heat pumps. I want to argue today stongly for conservation although I want to tailor the effective dates to Bill's bill that would make an effective date of July 1st, next year, and have it terminate July 1, 1990 which, I think, is the date in your bill.

Let me explain exactly what these columns are so that you understand.

The estimated revenue loss in 1990 to the Treasury is $1,750,000,000. This is on a 50 percent tax credit for conservation up to a maximum, however, of a $2,000 investment or $1,000 credit, on the assumption that for the bulk of the homes in this country, what this conservation covers, which is insulation, storm windows, weather-stripping, it can be done for that price, and there was no need to go to the $10,000 limit that we had in the solar installations, wind, or geothermal.

In 1990, it is presumed by the Joint Committee you will have a revenu loss of roughly $1.7 billion.

The savings in 1990, 344,000 barrels of oil per day, roughly at a cost of $15 a barrel and if you never had another installation of anything, of any kind, of any kind of conservation device, any kind of weather-stripping, and kind of storm windows, you would continue to have that per barrel savings after that, year-in, year-out.

The Chairman: Here is a problem that occurs to me on this. This is a tremendous item of cost, $1,350,000,000.

Senator Packwood: I will change the effective date on that, Mr. Chairman. I am willing to bring that loss tremendously down in 1980 and, frankly, I do not mind giving it an eight or nine month delay on the effective date to allow people to get primed up to get ready to produce it and put it in.

The Chairman: Now here is the thing that we are talking about. Bill Bradley had a proposal which required very little government tax money, hardly any at all. He is talking something about -- he talked about $30 million a year and even that would not hit until a little later on.

In that case, you would be paying, by way of the utility companies, to get this job done. If we go that route, this duplicates that.

Senator Packwood: No, it does not duplicate it, Mr. Chairman. This is complementary to it, and you cannot double dip it. Indeed, Bill Bradley's energy doctor comes to your house and you accept what they put in. You do not get any credit. You are not paying anything for it. They come in and put in the insulation and they determine the savings. The utility company pays them and the homeowner does not get any credit.

I do not know, assuming Bill's plan goes into effect, how quickly it is going to cover this nation, how many rural areas are going to immediately have a house doctor in a conservation

company available. They have the alternative of conservation credits. We have those in the law now. This is simply an increase of what is in the law.

I do not want to leave anyone out of the opportunity for taking these conservation credits because Bill Bradley's house doctor has not gotten there. It is not a double dip.

I do not want to pretend to you, Mr. Chairman, that these are inexpensive, but I want you to look at the righthand column of what you are saving and conservation is the single biggest area where we can immediately make savings of what you are saving per barrel of oil, and this is not going to require any extra production.

It is going to provide some employment, although I am not trying to sell it on that basis. It is just the thing that can be done the quickest, and where we have the biggest area to save, and for the life of me, of all of the ones in here, this is the one that would apply to more people, more quickly than any other single particular device or program that we may look at.

Senator Ribicoff: Mr. Chairman, I think Senator Packwood makes a good point. I do not think there is any inconsistency with Senator Bradley's proposal, with Senator Packwoods'. Senator Bradley's proposal, if it were adopted, would not stop paying off maybe another four or five years to try to put it together.

Bill, when do you think?

Senator Bradley: Assume that the bill was passed and an energy conservation company moved into an area in 1980. Assume that they were trying to do one million homes in 1980. You would wait until 1981 to measure savings and that would be the point at which payments would start to be made.

That is why the credit does not take effect until 1982. And because it is phased in, to prove its workability, you are talking about 1980 and probably 1981 as times in which we will not be certain whether it will go full-scale, a national program, although the legislation will be drawn so that it can.

So that it seems to me that that is the window where the tax credits that were specifically written so as not to apply to an area in which a conservation company was operating would provide some relief, dependent upon the budgetary situation.

Senator Ribicoff: The problem that you have setting up a contracting agency, negotiating contracts and an energy conservation company and the retrofitting and the utilities respectfully, I think it will take a considerable period of time, but that does not mean that you should stop because it will take a considerable period of time.

But I think Senator Packwood's program contemplates one of the two biggest users of energy: the home, next to that is the automobile. If you could get a handle on both of those, you would really start doing something about our energy problem.

And as far as Senator Packwood's proposal, it can start tomorrow; as fast as you pass the bill.

Senator Packwood: In every single treatise that is written, when everything is shaken out, conservation comes to the top as the thing you can do the quickest and one, as you look at the different estimates, one of the most inexpensive.

Senator Ribicoff: The least implication on the environment, the least bureaucracy, and without problems of the environment or anything else involved.

Senator Bradley: Mr. Chairman, may I ask the Joint Committee that settled on the revenue loss estimates what they would base that on, the $1.3 billion or $1.7 billion.

Senator Packwood: In answering that, I am going to change the effective date on the first one, because we only have a slight amount. I am going to change the effective date. It would dramatically reduce the revenue loss in that year.

Senator Bradley: I would like to suggest that those are high, that, in fact, that will not be the amount that will happen.

If you have a tax credit that is available, I think that if you made a tax credit available, you are taking care of those people who do not yet have a conservation company and you have given them the opportunity. if history is a guide, there are not many people who take advantage of that tax credit, becaues they have to overcome the inertia of taking action to make their

home energy efficient, so that the idea of a tax credit might even be less here than you have estimated.

Senator Packwood: If you bill and my were both passed, my revenue estimates would be very high. My guess is, given the option between the house doctor coming and saying, we will take care of it for nothing, and you go out and find a contractor and put in the insulation and take the credit, I know which way most poeple would go.

So those estimates when Jim Wetzler and the Joint Committee made them, they did not presume your bill at all, so I think that has probably got to be the highest estimate.

Senator Bradley: I think it is by far the highest.

The Chairman: Let's hear from Treasury.

Mr. Lubick: There are a couple of points here. I would like to ask Mr. Smith from the energy Department also to comment on them.

Essentially it comes down to a question of cost-effectiveness, I think, on all of these things. The prices of energy have increased dramatically since the credits that are already in the law have been passed and that has provided a tremendous stimulus to insulate and we have found that the great demand for insulation has, in fact, led to shortages and is driving up the price of insulation.

On the delay of the effective date, we woul have to be concerned, of course, that this may cause some delay in people

putting their insulation into effect which could create some problems.

I think I would like to ask Mr. Smith, if he would, to comment on the cost-effectiveness because I think they have done some work in that area.

Mr. Smith: I do not have any specific information, but we certainly, I think, can confirm that any kind of rapid increase in the rate of the tax credit, say from 15 to 50 percent, or 15 to 30 percent, is going to create a demand sufficient to run the price of the product up in the short run. As Mr. Wetzler pointed out yesterday, of course, in the long-run, capacity for insulation can be constructed and eventually the market will settle out.

In any event, it is likely to settle out with a considerable influence to the tax credit.

Secondly, I would reaffirm the 60 percent price increase that we have had for crude oil is certainly adding an enormous incentive to all forms of conservation measures so that I think that we would share the concern that we would be reasonably cautious in advancing the rate of tax credit on the expenditures over the next few years, particularly in light of the strong potential, as Senator Bradley's plan.

Senator Packwood: Mr. Chairman, let me say again I did not make these estimates. These are Joint Committee and Treasury. Correct me where I am wrong, because we have checked with

Treasury also and, although there are slight variances in estimates, they do not vary very much from the Joint Committee's on these estimates.

These are not my estimates on energy savings; they are not my estimates on cost.

What they are is the best estimate we can have on the net increase above the present credit, then an increase in cost and the net increase in energy savings and the mathematical computation of the per barrel cost.

I well say over and over, I cannot guarantee that those figures are accurate. I do not think that there is anyone else who has, at the moment, a better methodology in anything we are going to talk about, exemptions for small producers, stripper wells, tertiary, all we can go on is the best information we have.

The Chairman: Mr. Sunley?

Mr. Sunley: I obviously cannot guarantee that those figures are accurate. To put some perspective on it, in the 1978 tax returns that were filed covering two years worth of insulation credits, as you recall, the '78 act went back to '77, we had $4.2 billion of qualified insulation expenditures recorded on the '78 returns and a tax credit of $550 million. That was at a time when we had a 15 percent credit.

Sort of general inflation and the increase in the credit rate, more general awareness of the credit. The 1980 estimate

on effective date that we were considering when we were trying to estimate your proposal, $1.3 billion, does not really strike me as being out of line, out of the ballpark.

Obviously it might be $1 billion, $1.5 billion.

Senator Packwood: John, on my staff, has checked the Joint Committee's against the rough Treasury estimates, and where we may be off $5 or $10 million or $15 million here or there, we are not very far apart from the Joint Committee estimates.

Mr. Shapiro: Senator Packwood, let me make another point, to follow up on what Mr. Sunley just indicated and that is there are times when we give you revenue estimates and there are times when they are just assumptions and close guesstimates, and some of them are better than others.

I should point out that here is a good case where, as Mr. Sunley said last year, taking two years into account, the actual tax credits with regards to residential installation was $550 million. The estimate that we gave the committee was $580 million. So that showed that we were very close in this particular item. It is good to point that out when it happens.

The Chairman: Here is the thing that bothers me about it. Maybe the Joint Staff can help me.

You have got a cost of alternative energy which is the same thing that the oil and gas people are trying to get. Is that not right?

You have that here.

Mr. Shapiro: That is not ours. That is Senator Packwoods'.

The Chairman: That is Senator Packwoods'.

Senator Packwood: I have taken them from other sources. You will see them footnoted there. That particular one is from Princeton University, Professors Ross and Williams, published in July.

The Chairman: That is not DOE, that is not the Joint Committee, that is what somebody says?

Senator Packwood: I tried to get these from the Joint Committee. I am not going to complain. They are not going to make those estimates.

The Chairman: I understand that.

Here is the problem that bothers me about this. We were discussing this same insulation credit a couple of years ago and Bob Dole was here making the point that all of the fiberglass that could be manufactured was being put into place the way it was, and he was right. You could not get the fiberglass.

So if you wanted to do more insulating that was being done, you would have to do it with an inferior insulation material because you could not get the fiberglass. You could not get the fiberglass, which was the best insulating material to do the job with.

I guess they have expanded capacity, but I looked at TV the night before I left and there they were again on television

explaining the late night show, showing us that all of the fiberglass they can produce is being put in place under the existing incentives.

Fiberglass is not under price controls. There is no price control on it, so when you put a 50 percent tax credit, the government is going to pay half the cost of it. I would think that what you are really doing is just running up the price.

So if you give a 50 percent tax credit and you double the price of the product, all you have done is just let Uncle Sam pick up the tab for doubling the price.

Senator Packwood: I would like Jim Wetzler to comment on that. He mentioned yesterday some facts in addition to fiberglass.

The Chairman: Some other fellow had something he was showing on there. He took a bunch of stuff in his hand and put a blow torch on it and he showed he could hold off the bottom of this material even though the blow torch was on top. That stuff might work, although it has not been proved out.

Go ahead, Mr. Wetzler. What can you tell us?

Mr. Wetzler: I think the danger of a credit like this is by increasing the credit by 35 percent you could induce the price to go up as much as that. Obviously it is precisely the higher price that you would be counting on to get more companies to expand their capacity to produce more insulation.

On the one hand, the price increase is bad from the

standpoint of inflation. But on the other hand, it is the price increase that would get more companies into the business of constructing, making these materials.

It is more a matter of degree. The more modest credit, you would have less risk on the inflation front.

Senator Packwood: Again, let me ask you this. I do not want to overstate these figures.

The 344,000 per barrel day savings estimate would be dramaticlly reduced if you assumed the doubling of the cost of insulation, doubling of the cost of not so much installation of insulation. That 344,000 figure is taking some presumptions about cost.

Mr. Wetzler: What you have got is you have a certain number of people who would insulate without any change in the credit and then your energy savings come from the people who are induced to insulate because you have increased the incentive. If currently there is very little excess capacity in some of these industries -- and again, this is something that is hard to predict -- a large fraction of insulation goes into new homes.

Now, to the extent that the monetary policies of the Federal Reserve cause housing starts to decline, that will make some capacity available for retrofitting.

This is the sort of thing that is very hard to predict very far in advance.

Senator Packwood: That is why I was trying to be very

careful with these figurs, and I want you to correct me if I misstate them. Your estimated loss in 1990, 1.7; estimated savings, 344,000; per barrel cost, $15 a barrel.

Mr. Wetzler: That is not our estimated savings, Senator.

Senator Ribicoff: If you would yield. I would like someone to comment on Senator Packwood's figure, estimated savings of 344,000 barrels.

Is this not the objective of this entire exercise, the savings of energy?

I would like a comment from the Deaprtment of Energy or the Joint Committee or the Treasury Department concerning his figures of 344,000. I think that should be one of the most important factors in our decisions here.

Mr. Wetzler: The Department of Energy has been studying Senator Packwood's proposals and trying to make estimates of the energy savings.

Senator Ribicoff: Could we have a comment, Mr. Smith, on Senator Packwood's figure?

Mr. Smith: I am afraid our estimates -- and I suspect none of those in this area are derived from good econometric models. We do not know how people react, so basically you have to assume some kind of participation rate, and that is what derives the tax loss estimates and that, in turn, almost automatically, since you generally can assume a fairly constant savings rate out of the given expenditure, that pretty fairly directly

derives oil savings.

So, on balance, we do not seriously disagee if you spend that amount of money you will get that amount of oil savings through this kind of tax credit. But it assumes also that the tax credit does not drive up the price so that, in effect, you get a net reduction -- not a net reduction, but a reduction in the overall amount of insulation.

Senator Ribicoff: You have another problem. I do not think there is any question that the price of oil is going to continue to rise year by year.

$22 or $23 a barrel, in another few years it will be $30 or $40 a barrel. So the big issue before the country and the Congress is how do you sve energy, because the costs are going to keep going up, and I would say by 1990 we would be lucky if we are not paying $50 a barrel for oil.

So therefore, while the costs may be going up and there may be a tax loss, but what you would pick up, if you are picking up if you are picking up the equivalent of $15 a barrel certainly would be an offset.

But the key problem for the nation in its future is saving energy. Do you agree with Senator Packwood that conservation is the greatest of all sources to save energy, or is he wrong?

Mr. Smith: I do not thnk there is any question that, as a group, it has the largest potential. It is a question of matching the tax credit to the capacity of the industry.

Senator Ribicoff: The big issue the country is going to have to face somewhere down the line is not the cost, but the supply from any source.

The Chairman: The administration -- I assume you have been recommending tax credits to help with insulation. Just how far has the administration gone in your recommendations for tax credits? It is not in this bill, but how much have you been recommending for tax credits to encourage insulation?

Mr. Smith: We have recommended no additional tax credits beyond those in the National Energy Act for insulation. We have proposed a passive solar tax credit related to new homes. It does not deal with conservation and retrofits, obviously.

The Chairman: Senator Bradley?

Senator Bradley: Mr. Chairman, I would like to make the point that again the tax credit idea addresses only one-half of the problem, which is the financial hurdle. The other half is the delivery mechanism.

I would like to suggest to the committee that there seems to be a move in the Senate these days that there is going to be some specific proposal that addresses only the financial hurdle. And I frankly would like to see the Finance Committee get a little piece of that, and so that we are assuming that my plan has a delivery mechanism and that it is going to go full out as soon as possible, that I think it might make a nice package to trigger a tax credit in the early years of this program, as

Senator Packwood has suggested.

Frankly, he has tailored it so as mine succeeds his is phased out, which is another incentive that I would like to see. And I think it might be worthy of some consideration in net effect, because the other proposals we have not yet reached a meeting of the minds, whether Senator Kennedy has his grant, somebody else has loans, there could be some duplication unless the plans are harmonized.

I think that is indeed what Senato Packwood has suggested.

The Chairman: Senator, what concerns me about it is the cost of this, and I do not want to pre-empt the consideration of these other items. I think that we ought to consider them together. I think that we understood yesterday that we were going to try to look at these things in terms of where we think we get the best return for our money.

Now, I am a little concerned because of the very high expense of this that this might pre-empt some of the other things that ought to be considered.

Why do we not --

Senator Packwood: Mr. Chairman, look --

The Chairman: Look at this in connection with the other items.

Senator Packwood: I deferred this yesterday. I am willing to defer this again and look at the other items. But once more, I want to go through the process. I am getting frustrated. I

have done the best I can to get the best statistics I can and I do not think they are going to get any better tomorrow or the next day or the day after that. I know that Bruce Hagen has talked to Jim Wetzler and went through the process of reasoning as to where we got the figures.

I say again, I cannot guarantee that they are right. I guess I can say nobody else can produce any better methodology so just skip over it, and you come down to business.

(c) hydro-electric, is a great bang for the buck. It is the best estimate on there. But if you get down to conservation, it is the single biggest savings, and therefore it is going to cost the most money.

Senator Ribicoff: Mr. Chairman, I think that we can proceed as we talked yesterday. I think that our decisions around here should be made on the basis, is this a worthy idea, with the understanding that the Committee is not acting finally, that somewheres when we are through we are going to have a reconciliation.

As I look at this whole list that we have before us, there is no question that we are going to be way, way over on what we can really afford to do, so I think that we could save a lot of time trying to find out whether we think that the idea is a good one, with the understanding that it is not final, that before we come out with a final bill we are going to have to go through a reconciliation process.

The Chairman: Why do we not agree yes, we will have a further credit for conservation and then we go down to summing up, see how much we can afford for it.

Senator Packwood: That is exactly what I would like to do.

Senator Dole: How much do you have in there?

Senator Packwood: Conservation, storm windows, clock thermostats, weather stripping, electronic replacements for pilot lights.

The Treasury Department -- correct me if I am wrong -- now has the power to broaden definitions in the conservation section, do they not, as new ideas come along? I do not want to give you a list and say that is all there is. That was in the law two years ago, was it not?

Mr. Lubick: If they are of more or less the same.

Senator Packwood: Generically.

We tried to freeze that about two years ago when we had the boiler heater up here. Rather than saying the state of the technology of 1978 is such and we will freeze it right there, give a reasonable discretion to Treasury to include other things that would fit within the broad idea.

The Chairman: Senator Danforth?

Senator Danforth: Mr. Chairman, the present credit is what -- 15 percent, is that it?

Mr. Shapiro: 15 percent.

Senator Danforth: The proposal here is 50 percent.

Senator Packwood: On the maximum of a $2,000 investment.

Senator Danforth: Let's say is the 30 percent credit twice as good as the 15 percent credit? Is the 45 percent credit three times as good? Is there some diminishing return that sets in?

Senator Packwood: I had, and I can get, some figures on that. I will, again, come back to these figures. These are net costs and net savings, so that, if you wanted to have, instead of a $1.7 billion loss, a $1 billion loss, your savings might be ---again, I will take a guess -- 200,000 rather than 344,000. And at one time I thought about trying to estimate these at 30 percent to 40 percent, 60 percent, which is what Professor Stroebel recommends.

Senator Danforth: I guess that if you had no credit at all, you would have some poeple putting in insulation, and if you had a 100 percent credit, you would have more people putting in insulation, and that there is probably some kind of a curve of whether or not we can figure out what the curve is or not, in between.

Senator Bradley: I think that is kind of imposing an arbitraty judgment on something that there is not a lot of reliable information on. Is a 35 percent credit better than a 40 percent credit? How much better? How do you measure that?

I think that the list of measures that qualify, I think, just simply illustrate the problem of how ridiculous it is for

the government to make a list that they will modify annually or every two years to determine whether you will get a credit or not when it all could be handled in the private sector.

That is my argument which I have made for two hours; I will not make it any more. The relative merits between 30 and 35 percent are very difficult to calculate.

What methodology would you use to try to calculate that?

Senator Danforth: I do not know. All I am asking is a question.

If 50 percent is the best figure and we can estimate that at 50 percent there is going to be certain energy savings and a certain cost to the Treasury, can the same projection be made with 40 percent, 30 percent?

Senator Ribicoff: If the Senator would yield at that point, would Mr. Wetzler and Mr. Shapiro comment on Senator Danforth's question?

Mr. Wetzler: You have to look at both the supply and demand. In terms of the demand for insulation, you can look at a 15 percent credit as sort of reducing the price of insulation to the consumer from $1.00 to 85 cents.

As you increase the credit, you are getting to lower and lower prices. Eventually, if you got to a 100 percent credit, the insulation would be free. Presumably, at that point, everybody would want to do it.

And so, progressive increases in the credit generate more

and more demand very likely because you are making the stuff cheaper and cheaper to the consumer.

The risk you run as you get higher rates of credit in the short run you will run against the capacity ceiling of the industry and the credit from that point on will be dissipated as just leading to higher prices or shortages. From the standpoint of energy savings, you get more energy savings, you get more energy saving in the long run, as you go to higher and higher credits, until, of course, you reach the point where everybody is insulated and you stop getting any more. By having a little credit, you reduce your risk on the inflation side that you are going to lead to price increases in the next couple of years. That is more or less the choice the committee has to make.

Senator Danforth: I have understood everything you have said, but the theory behind this amendment is that a 15 percent credit is not enough to do the job, but a 50 percent credit would do a better job, that you pay for the 50 percent credit and that you have a revenue loss which is greater than the existing law would have it be.

All I was saying was to say if this theory is right ---and I am sure it is -- is it just a straightline kind of a curve where the higher the credit you get predictably higher amounts of insulation put in, or is that kind of a diminishing returns type curve? I do not know.

Is there any way to know?

Mr. Wetzler: Very clearly, there is a point after which further increases in the credit lead to diminishing returns because once you have gotten the credit high enough, that everybody insulates, then further increases in the credit do not buy you any more.

It is sort of like the Lafer curve, not something theoretically true, but the key is finding out where that point is. That is something that is a lot more difficult, and we just do not know.

Senator Matsunaga: Mr. Chairman?

The Chairman: Mr. Matsunaga.

Senator Matsunaga: I raise the question that the Chair raised earlier, and I would like to know whether, under the present law, there is enough insulating material so that we can adopt a program such as the Bradley plan and even the plan being proposed here by Senator Packwood, by increasing incentives.

Do you have any figures as to whether we do need additional incentives and if we provide additional incentives, will there be sufficient insulating material to those who will have an incentive to do things?

Mr. Wetzler: As we understand the situation for fiberglass, they are doing very well. They are close to capacity. Much of that fiberglass goes into new houses and where people are predicting a decline in new housing starts in the next six months.

If that occurs, that will make some capacity available for retrofitting. It is hard to say how much. Apparently there are other kinds of insulation, cellulose. There is ample capacity for those, so there is some room for additional insulation.

Just how much there will be depends, in the short run -- it depends on what really happens to housing starts in the next year. In the longer run, of course, they can construct new capacity and that is really not a problem.

Senator Matsunaga: So that you are saying, then, that there is room for further incentives?

Mr. Wetzler: For some. I think the question is, is there room for 50 percent. You would be running less risk if you went to a smaller figure than that.

Senator Matsunaga: We have 50 percent on the one hand and then 100 percent on the other.

The Chairman: Yes, sir?

Mr. Lubick: We reviewed this, Mr. Chairman, when we worked out the President's energy program. We came to the conclusion that we ought to stick with the existing level of credits now and work instead on devices along the lines of Senator Bradley's proposal to provide the financing.

we believe that the present price of energy has awakened a need, along with the existing credits, and then if we can help provide the financing through some direct program operating with the utilities that we can solve the problem a lot more

efficiently.

That was the reason that we did not make any recommendations. We still hold to that position. We think that we ought to explore these direct programs that provide financing for people. People are interested in retrofitting. There is an exxisting incentive under the tax credits of last year. They need the help in financing these things and devices whereby they can be done through the utilities and spread over a long period of time along with the incentive of price to do what we think will economically do the job.

The Chairman: Let me just point out what is an essential conflict -- and I know Senators like to get together on things. I will try to help your amendment if you will help me with mine. I have been living with that around here for 30 years and that is a good way to do busines, that is, to get your amendment agreed to.

Let's just look at the essential problem we have here, applied to my own apartment. I think that something ought to be done to make my apartment more energy efficient. It was not built in the days when energy was a big problem. We ought to do something.

I have had some estimates and all of that. If I went out of here and even with a 50 percent tax credit, and I did the job, and the government paid half of it through a tax credit and then about the day after I got through doing that, somebody

comes in and tells me about Mr. Bradley's program, and says we are here to do a job for you and we are going to pay the whole cost, the whole cost, it is not going to cost you anything, I would feel like a sucker.

Why didn't somebody tell me about the Bradley program? I am out $1,000 I could have saved if I had just heard about Bradley's program first. Then I went along with the Packwood program.

Senator Packwood: If they see the Bradley program coming six months or a year down the road, my hunch is they will wait and these revenue losses are going to go down.

That is a chasing-your-tail argument, and you know it.

The Chairman: I do not think it is chasing my tail. I would feel like a fool. I went and signed up with Packwood and lost $1,000, even with the tax credit.

Senator Packwood: My hunch would be, Mr. Chairman, that one of the people who would not be fooled would be you.

The Chairman: Senator Dole?

Senator Dole: I just wanted to raise a question. Has there been any effort to trace whether or not with the tax credit we have on insulation, which I questioned a year ago, whether they have increased the prices of insulation to absorb the tax credit? Has there been any evidence of that?

Mr. Shapiro: We have not checked that.

Senator Dole: I understand the Federal Trade Commission

may be checking that. I am not suggesting it is based solely because of the credit, but that is one temptation. If the government is going to pay half the cost, I do not know why some company would not find it reasonable to raise the prices.

Mr. Shapiro: Senator Dole, I will tell you why it is very difficult to determine that completely. On the one hand, you are talking about companies who manufacture the insulation and that is very easy, to determine what their price is. But the delivery process of getting into the home is a different one.

These are a lot of small companies and they give estimates and many times these estimates are what the traffic can bear, and sometimes a salesman will say, you get a 50 percent credit, but he raises his price 20 percent. It still makes the net the same. The homeowner has not really benefitted.

That depends on the salesman and the homeowner, how they bargain.

Senator Dole: There is a question on whether or not the supply is there and I do not understand the R factor. That has been another investigation carried on by the FTC, defective insulation. So it is very attractive. People want to be insulated, give them a 50 percent tax credit. It is going to be even more attractive.

Again, I think there is a question of whether or not the supply is there, fiberglass or some other source. Even without any credit, or with the existing credit, you can recover your

cost between three and five years because of savings on your energy bill.

Senator Packwood: Not with no credit, Bob.

Senator Ribicoff: Mr. Chairman, I am wondering; time is going by and we have a lot to do.

I would move that we approve the Packwood proposal in principle and then come back to it when we have finished this long laundry list and reconciled where we want to go with all the individual items.

In principle, it is worth approving, so I so move, Mr. Chairman.

The Chairman: All in favor, say aye.

(A chorus of ayes.)

The Chairman: Opposed, no.

(No response)

The Chairman: The ayes have it.

Yes, sir, Mr. Chafee.

Senator Chafee: I have a couple of brief additions if it is apporpriate now, to the Packwood proposal. One, I would include boilers, burners and furnaces. That is a problem in that the Packwood proposal, the present 15 percent, only applies to burners currently and we have estimates that a 24 percent savings could be made in replacement of the entire unit.

That is where the problem comes. The entire unit is much more expensive when you are talking, the burner alone is

relatively inexpensive. When you are talking about an entire furnace, then you are talking some real dollars. Not real dollars investment, but real dollar in savings.

It is the standard principle that the expensive things save the most money.

So I have this proposal that I would set before you dealing with a variety of items. One, the complete furnace unit; the other lessors that they can claim credit. A tenant is never going to fix up his property. And the principal residency rule and cover that little gap of between the house is built in April of '77 and '79. Just choosing some cut-off date.

And the last one, allowing the credit against the previous year's taxes, if you do it before April 15th.

Senator Ribicoff: Mr. Chairman, I think, like the Packwood proposal, Senator Chafee's ideas are excellent, and I think, again, that we ought to approve this on principle and come back in the reconciliation, and I so move.

Senator Chafee: Thank you very much and I appreciate that.

There is just one other thing that I had.

The President has come out with a wood stove tax credit at 15 percent and, you know, people do not take that seriously, but honest-to-goodness, up our way, they are going into it more and more, and the more we can get them -- I suspect down your way, too; I do not know -- but the most we can encourage people, so I would suggest not a 50 percent. That seems a little high,

because people seem to be doing it. I would go a bit higher than the President's. I would go to 25 percent on the wood stove.

The Chairman: I so move.

Senator Heinz: If the Senator would yield.

Senator Chafee: That completes my points. I am through, Mr. Chairman.

Senator Heinz: I indicated, Mr. Chairman, yesterday that I would like to include in Senator Chafee's amendment -- I have discussed it with Senator Chafee and I understand he has no objection -- to include clean-burning coal furnaces.

I am not an agent for any of the suppliers, but according to the estimates we have made on what happened to be anthracite-fired furnaces widely used in England, the energy saving that would be realized assuming a 50 percent tax credit rather than the 25 percent tax credit would be in the neighborhood of approximately ---the cost of that would be approximately -- $5.50 a barrel per barrel saved, at a 25 percent tax credit, would be $2.75 per barrel saved, according to the estimate we made.

I think that it would be very advantageous to include these in here. Yesterday, when I brought the subject up, the Treasury was going to be prepared to say something, one way or the other, I think.

Senator Ribicoff: I think the principle ought to include

the Heinz proposal. The more we can use coal, the better off this country is for any reason. So that I would move the Chafee proposal as amended by Senator Heinz.

The Chairman: Mr. Lubick?

Mr. Lubick: If I may speak first to Senator Chafee's proposal on furnace units, this is a real watershed. Last year you were limiting yourself to the retrofitting and now if you give a credit to these complete replacement units you are spending an awful lot of money on what somebody is going to be doing anyway, which is to be buying a new unit, a whole new unit, that he is going to have to buy when he builds his house. You are not making more efficient --

Senator Chafee: I would not have it for new construction, just for replacement.

Mr. Lubick: Even so, replacement, when the old one gets back, if you are paying for the whole cost of it.

Senator Chafee: You are not paying for the whole cost. You are paying for 50 percent, the credit.

Mr. Lubick: You are giving the credit based on the whole cost, not retrofitting and making an existing unit more efficient.

When one buys a new unit, presumably he is going to buy an efficent one. It seems to us that this is a big and very expensive change in the policy that was consciously adopted last year.

Senator Ribicoff: I think that you missed the point.

Most of the old furnaces are in old homes owned by the lower middle-class and they do not have the money to put in a complete new unit, a complete new furnace. And I think that the encouragement you would give tem would amount to a substantial sum and energy savings and I think that this year we are much more serious about saving energy than we were last year.

I think Senator Chafee's concept and idea is an excellent one.

Mr. Lubick: Senator Ribicoff, I would say that, in most cases, people replace their furnaces when the old one is completely on the blink and they cannot use it anymore.

Senator Ribicoff: I do not know. If you travel to some of the small, old mill towns in Rhode Island, or Connecticut or Massachusetts, you would find out that they make do with what they have. They just do not have the money to put in a new furnace. They make do, even though it is not the right thing for them, because they cannot afford the high cost of the replacement of a complete unit.

I am sure that Senator Chafee is talking out of experience in his own state.

Senator Chafee: I think you have put your finger on it, Senator Ribicoff. The point is that these things are inefficient and the technology ha advanced, but the capital advancement to put a new one in, the savings are not enough of

an incentive to take that plunge.

What we are trying to do ---sure, some people will when -- buy, the old furnace is no good, then they will get a 50 percent credit. Those are the marginal groups.

The people we are really trying to get after are those who go in and make this 24 percent savings in energy with this incentive that normally they would never ever think of doing.

Senator Ribicoff: I move the adoption, in principle, of the Chafee proposal as amended by Senator Heinz.

The Chairman: All in favor, say aye.

(A chorus of ayes.)

The Chairman: Opposed, no.

(No response)

The Chairman: The ayes have it.

Mr. Stern: Mr. Chairman, in regard to how we describe this in the press release, am I correct that what you have agreed to is that you have agreed in principle to increasing the tax credit for individual conservation plus -- and in principle to making some of these other items in Senator Chafee's proposal, and so on, eligible, but that the effective date and the amount of the credit would be determined later.

The Chairman: It will have to be subject to what we call a reconciliation.

Senator Packwood: What we agreed to in principle is a $2,000 limit, 50 percent. I do not want people to confuse this

with the higher solar limit. We do not need that.

The Chairman: With this understanding that these amendments will have to be subject to a reconciliation when we come to the end of the bill because we anticipate that we are going to vote for some things that will increase the cost very substantially, then we are going to adjust the cost of it and we are going to have to reduce the amount of the credit from 50 percent, or even 25, and you may have to move the dates so as to make it 50.

The cost, in other words -- we are looking at some expensive cost estimates here and we are going to have to anticipate that we may have to reduce it in order to come within the cost estimates.

Senator Pakwood: Alternatively, keep the credit and drop some other things altogether, but tailor it to fit it.

Senator Bradley: Mr. Chairman, I think we should maintain our flexibility to be able to reduce, if we do not have the revenues.

Senator Packwood: Let me ask a quick question, Abe. Do you want to do heat pumps today?

Senator Ribicoff: If you do.

The Chairman: I would prefer not to do it now. It is 12:27 and I am due at a meeting at 12:30.

Senator Packwood: We could do it after you left.

Senator Chafee: The wood stove is only a 25 percent

maximum credit after his.

The Chairman: We will meet at 10:00 tomorrow, gentlemen.

(Whereupon, at 12:30 p.m. the Committee recessed, to reconvene at the call of the Chair.)

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