

**Finance Subcommittee on Energy Hearings  
Advanced Technology Vehicles: The Road Ahead  
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Mr. Chairman, Members of the Committee, Ladies and Gentlemen, it is an honor to appear before you today to discuss the role advanced technology vehicles can play in addressing U.S. oil dependence and global warming. Thank you for the opportunity to share my views which are based on twenty-five years of professional experience as an economist, seventeen in the automotive industry as an analyst for General Motors, and J.D. Power and Associates and now the Director of the Automotive Analysis Division for the University of Michigan's Transportation Research Institute.

### **The Road Ahead**

- Vehicles are the source of 20 percent of U.S. greenhouse gas emissions and 40 percent of our oil dependency.
- By mid-century, the world's vehicle population is expected to reach 2 billion, almost triple the current figure. To limit global vehicle emissions to 50 percent more than today's levels, the average fuel economy of cars and trucks on the road would have to rise to about 60 mpg in 50 years or less, according to calculations by the Carbon Mitigation Initiative at Princeton University, a research effort funded in part by Ford.<sup>1</sup> Because it takes a decade or two for new technology to make it into every car on the road, all new vehicles within 35 years or less would need to reach 60 mpg.

### **Today's Market is Distorted Against Oil Conservation**

#### **Existing Market-based Incentives and Disincentives**

- There are a number of Federal market-based programs that encourage conservation. These include the automaker fines that are part of CAFE, the Gas Guzzler Tax (which mostly applies to high-end luxury and sports cars), and consumer tax deductions or tax credits for purchasing advanced technology vehicles.
- However, the programs encouraging oil conservation are more than offset by the flex-fuel provision of CAFE, the car-truck differential in CAFE, and the differential treatment of cars and trucks in the Federal Tax Code, such as exemptions for business owned SUVs and trucks.
- There is no such thing as a distortion-free market. On balance the current array of Federal incentives and disincentives exacerbate oil dependency and GHG

emissions. Whatever else Congress does to encourage oil conservation and reduced GHG emissions, these conflicting programs need to be revised so they do not work against each other.

- Among the tools available to Congress to decrease oil dependence and GHG emissions are programs that combine positive incentives that encourage oil conservation with negative disincentives that discourage oil dependency and GHG emissions. In addition to the existing Federal incentives and disincentives, such combined programs could include elements specifically aimed at reducing GHG emissions—clean car discounts and “polluter pays” fines.

## Existing Regulations

### CAFE Worked

Detroit automakers say that CAFE did not work to reduce fuel consumption. They point out that the price of oil was spiking in the late 1970s and early 1980s, at the same time that CAFE was being implemented, and that therefore fuel economy would have increased anyway. Let’s review the facts.

- After Congress set fuel economy standards for vehicles in 1975, our dependence on oil imports decreased very quickly from 46 percent in 1977 to 27 percent in 1985.
- After 1981, however, the price of oil fell rapidly.
- CAFE standards continued to be increased after 1981 and the actual fuel economy for cars and trucks separately continued to rise.
- **Combined** fuel economy for cars and trucks has been falling since 1986, not because “CAFE failed” but because of a loophole in the law that allowed trucks to meet a lower fuel economy standard. Automakers used that loophole, designed to protect farmers and small business, to build family vehicles on truck chassis – familiarly known as SUVs and Minivans.
- CAFE worked to increase average fuel economy for cars and trucks separately, but the steady growth in trucks from less than 20% of the market before CAFE to over 50% today, eventually offset CAFE. As a result, total fuel economy has been falling since 1986.
- Without CAFE standards, we would be using an additional 80 billion gallons of gasoline on top of the 140 billion gallons we will use this year. That would represent an increase in oil demand by 5.2 million barrels of oil per day, or a 25 percent increase in our oil addiction. At today’s average price for regular gasoline, about \$2.50 per gallon, that represents \$200 billion dollars saved.
- Even today, these standards continue to save nearly 3 million barrels of oil per day, according to the National Academies of Sciences. Since 1985, however, fuel economy has been stagnant and our imports have grown.
- According to data in the 2002 report by the National Academies of Sciences on CAFE, the technology exists to reach 37 mpg in a fleet of the same make-up as the NAS analyzed, even ignoring hybrids and cleaner diesels.<sup>ii</sup>
- Paul Portney, chair of the NAS committee, recently noted that, “It might be possible to meet more stringent fuel economy standards at lower costs than the committee foresaw.”<sup>iii</sup>

- The United States is falling behind other nations pushing for better fuel economy as concerns mount over global warming. Even China, oft touted as the reason why the U.S. shouldn't act, has tougher fuel economy standards.<sup>iv</sup>
- Because the automakers did not meet voluntary agreements to reduce greenhouse gas emissions, the European Commission in Brussels is moving mandate automakers to limit carbon-dioxide emission to an average of 130 grams per kilometer for all new cars by 2012.<sup>v</sup>

## CAFE Going Forward

CAFE is usually seen as mandating the average fuel economy that each automaker must attain for its vehicles. However, fines for not meeting the required average fuel economy support enforcement of CAFE. The current fine that an automaker not meeting the required average fuel economy pays is \$55 for each mile per gallon the automaker's average fuel economy falls short of the requirement, multiplied by total unit sales.

The CAFE fine is too small to have induced compliance by itself. The Gas Guzzler Tax applies only to cars and amounts to an average of \$585 per mile per gallon below 21.5 mpg. Recent estimates both by UMTRI<sup>vi</sup> and by Espey and Nair<sup>vii</sup> put the value that consumers put on fuel economy at about \$600 per mile per gallon. Compliance also depends on interpreting the CAFE fines as penalties for illegal behavior, which would have consequences far more serious for publicly traded corporations than the magnitude of the fines.

The Detroit automakers, as U.S. corporations, have been unwilling to risk being penalized under CAFE and have always met the CAFE requirements. Most of the Japan-based automakers have always exceeded the CAFE requirements, so the fines have not been an issue. The European automakers are the only ones who have consistently paid CAFE fines. The European automakers have a relatively small share in the U.S. and total fines collected annually have always been less than \$100 million.

In order to induce automakers to significantly increase fuel economy, the fees for falling below the goal would need to be much higher than the current \$55 per mpg in CAFE—on the order of \$600 per mpg or more—or the illegal nature of noncompliance would need to be maintained or strengthened.

## What Consumers Want

Detroit insists they are responding to U.S. consumer demand. Do they really understand what American consumers want?

There are several important consumer indicators that have gone unheeded by automakers.

## Fuel Prices and Vehicle Sales

As fuel price doubled between 2002 and 2006, SUV unit sales were seemingly strong. But in reality, automakers were forced to offer expensive incentives, and deep discounts, dropping the SUV and truck price to offset fuel price increases. Sales may have stayed even, but revenue fell and profits fell.

Used vehicle prices are another critical indicator. From 2002 to 2006, large SUVs lost a third of their resale value. The market shift to trucks slowed, then reversed. Consumers respond to higher fuel prices by buying more fuel-efficient cars.

Other key indicators point to consumer demand for fuel economy:

- Fuel efficiency and hybrid technology are no mere passing fancies, but represent a “permanent” consumer shift that automakers must address, industry executives say. Their belief is captured in a global survey of auto industry leaders released today by the U.S. tax and audit firm KPMG LLG.<sup>viii</sup>
- Nearly one in five prospective buyers polled for an exclusive study conducted by J.D. Power and Associates for The Detroit News indicated that they would not consider a domestic brand -- and 40 percent of them named poor fuel economy as a reason. Coates, David and Christine Tierney.<sup>ix</sup>
- New survey of automakers, suppliers and industry experts released by UMTRI shows surprising agreement that fuel prices are on a steep upward trajectory, and CAFE standards will rise.<sup>x</sup>
- “Oil is much more likely to finish the decade at \$100 or more per barrel than at \$50,” argues Stephen Leeb, president of Leeb Capital Management in NYC, and author of several books on energy markets and investments.
- Oil addiction undermines our security because the volatility of oil prices threatens our economy. Because there is a world market for oil, supply interruptions anywhere affect the price of oil everywhere – therefore whether we import oil or make our own is relatively unimportant. Higher CAFE can mitigate the effects of oil price volatility, but real security can only come through finding a way to keep prices stable through more diverse supplies writes economist Ronald Minsk.<sup>xi</sup>
- A Wall Street Journal survey of economists found strong support for government intervention in the transition away from fossil fuels. "Economists generally are in favor of free-market solutions, but there are times when you need to intervene," said David Wyss at Standard & Poor's Corp. "We're already in the danger zone" because of the outlook for oil supplies and concerns about climate change." When asked to pick the greater geopolitical threat to the economy, by nearly a 3-to-1 margin the economists chose a disruption in crude oil supplies caused by tensions in the Mideast over the impact on spending and confidence that could follow a major terrorist attack.<sup>xii</sup>
- A “strong and bipartisan” 78% of Americans want Washington to impose a 40-mpg fuel-efficiency standard for American vehicles, according to a new Opinion Research Corporation national opinion survey.<sup>xiii</sup>

- Forty-six percent of today's car shoppers say the feds ought to force automakers to meet higher fuel economy standards, according to Kelly Blue Book Marketing Research.<sup>1</sup>

How is it possible for Detroit to spend millions on market research and yet be so dependent on price and incentives to sell? Easy, assume that you already know what customers want and "adjust" or ignore market research if it disagrees with your assumptions. When the automakers say, "consumers say one thing and do another about fuel economy," they are really confessing to market research abuse. And then, when products engineered and built to meet these incorrect assumptions about what real consumers want are finally sold, it is at fire sale prices -- far lower than had the assumptions been accurate.

### **Higher Fuel Economy means Higher Profits and Jobs**

In July 2004 (before Katrina and spike in oil) UMTRI predicted that if fuel price went over \$3/gallon that Detroit would lose \$11 billion in profits. Detroit media ignored the story, and Detroit automakers denied it. One even said, "To link fuel prices and SUV sales is bad analysis and bad journalism."

But when fuel price spiked two years later, Detroit lost more than \$20 billion. The only thing wrong with our analysis was that we underestimated the extent of losses.

As a result, Detroit is now in the painful process of dramatic downsizing, closing plants, laying-off workers. And a new wave of large SUVs and trucks are facing difficulties in the market.

UMTRI released another study recently that shows if U.S. automakers increased their energy efficiency to accommodate increasingly conservation-minded customers, they could collectively increase profitability by \$2 billion in model year 2010. Following their current plans, we concluded, they are projected to lose \$3.6 billion that year.<sup>xiv</sup>

Increasing their fleet wide fuel economy 2-3 miles above CAFE would increase profits in Detroit even if the price of gasoline falls to \$2 a gallon.

The dilemma the Detroit automakers face is that while they may believe that they cannot afford to make fuel economy a high priority, in actuality, it turns out that they cannot afford not to.

### **Detroit Automakers Strongly Support Alternative Fuels In Part Because They Already Have Flex Fuel Vehicles**

- Another loophole in the CAFE law allowed automakers to meet CAFE standards with cars that can run on a combination of ethanol and gasoline called E85, despite the lack of availability of this fuel.
- Producing these vehicles required minimal investment in technology and proved an easier route to meeting CAFE.

- An unprecedented 1.5 million alternative fuel automobiles were sold in 2006, surpassing automaker sales' expectations by 50 percent, and bringing the total number of flex-fuel vehicles on U.S. roads to 10.5 million.<sup>xv</sup>
- But today only a fraction of U.S. service stations enable a driver to fill up with ethanol.
- Without tighter fuel economy standards, and before ethanol fuels become widely available, the more flex-fuel cars and trucks that are produced, the more gasoline is consumed, thereby dramatically increasing greenhouse gas emissions and deepening the country's dependence on petroleum. Union of Concerned Scientists estimates that without the flex fuel loophole in place, the U.S. would have burned 4 billion fewer gallons of gasoline since 1998. "<sup>xvi</sup>
- Vehicles powered by ethanol get 20-30 percent fewer miles per gallon than they do with gasoline, so in order to reduce spending at the pump any renewable fuels mandate must be coupled with significant improvements to auto fleet efficiency.<sup>xvii</sup>

### **Market Based Program needs Combination of Incentives and Disincentives**

- UMTRI is conducting research on a proposed program that combines incentives and disincentives to encourage consumers to purchase and manufacturers to produce cleaner vehicles. This 'clean car discount/polluter pay' program, sometimes called 'Feebates' combine incentives for clean, high fuel economy vehicles (rebates) with a similar disincentive for low fuel economy vehicles (fees). Such programs, which can be designed as self-financing, can have much greater impact on oil consumption and GHG emissions than one-sided rebates or fees alone. This is especially true when the feebate uses a sliding scale so that the size of the rebate or fee a vehicle has depends on the vehicle's fuel economy relative to other vehicles. By shifting consumer demand toward more fuel-efficient vehicles, feebates give a manufacturer the incentive to improve its entire product range.

### **Recommended Approach: Combine Regulations with Market-Based Incentives and Disincentives**

- The inconsistencies in current policies have reduced the effectiveness of instruments directed specifically at reducing oil consumption and greenhouse gas (GHG) emissions. Any attempt to create new instruments that does not also address inconsistencies will have limited success.
- CAFE includes both a mandate and a market-based disincentive, but the magnitude of the disincentive is too small to have much impact, so the mandate is responsible for most of CAFE's impact.
- The two most important policies that create inconsistencies and weaken efforts to reduce oil consumption and GHG emissions are the differential treatment of cars and trucks in the Federal tax code and the existence of separate CAFE standards for cars and trucks.
- Consumer tax deductions and tax credits for advanced fuel efficient technology have given automakers incentives to produce and sell them.

- In spite of conflicting policies, there is more than enough evidence that consumers and automakers respond to incentives and disincentives.
- Regulations alone, incentives alone, disincentives alone will not achieve what a combined approach can achieve in reducing U.S. oil consumption and GHG emissions.
- The committee should consider a feebate policy to replace the complex and often conflicting incentives provided by current vehicle tax policy. Feebates complement CAFE by using the power of the market to guide consumers towards cost-effective, high fuel economy vehicles. Together, CAFE and feebates address both the supply and demand side of the vehicle energy challenge.

<sup>i</sup> Brown, Peter and Harry Stoffer. “The heat is on/How global warming is closing in on the U.S. auto industry.” *Automotive News* (Feb. 7, 2007)

<sup>ii</sup> NRC, 2002

<sup>iii</sup> Portney, Paul. February 9, 2005

<sup>iv</sup> Freeman, Sholnn. “Democrats Plan to Press Automakers on Fuel Efficiency.” *Washington Post* (Mar. 10, 2007).

<sup>v</sup> Hutton, Ray. “Emissions row divides carmakers/Europe’s motor industry can’t decide how to deal with tough new limits on carbon emissions.” *Sunday Times* (Mar. 18, 2007).

<sup>vi</sup> McManus, Walter, “Can Proactive Fuel Economy Strategies Help Automakers Mitigate Fuel Price Risk?” UMTRI Research Report, Sept. 2006.

<sup>vii</sup> Espey, M. and Nair, S., “Automobile Fuel Economy: What is it Worth?” *Contemporary Economic Policy* (Western Economic Association). Vol. 23, No. 3, July 2005, 317-323

<sup>viii</sup> Chappell, Lindsay. “What’s sparking car buyers now? Fuel efficiency.” *Automotive News* (Jan. 4, 2007).

<sup>ix</sup> “Detroit carmakers push to be greener.” *Detroit News* (Jan. 6, 2007).

<sup>x</sup> Hoffman, Bryce G. and Sharon Terlep. “AUTOMOTIVE NEWS WORLD CONGRESS Wagoner calls for U.S. to focus on alternative fuel.” *Detroit News* (Jan. 17, 2007).

<sup>xi</sup> Minsk, Ronald. “Praying at the Pump.” *New York Times* (Feb. 2, 2007).

<sup>xii</sup> Izzo, Phil. “Is It Time for a New Tax on Energy? Economists Say Government Should Foster Alternatives – But Not How Bush Proposes.” *Wall Street Journal* (Feb. 8, 2007).

<sup>xiii</sup> Opinion Research Corporation. “The U.S. Auto Industry, Washington and New Priorities: What Americans Think.” (Nov. 20, 2006).

<sup>xiv</sup> (<http://www.osat.umich.edu/research/economic/FuelEconStrat.pdf>)

<sup>xv</sup> Austin, Mike. “Automakers See Unprecedented Alternative Fuel Auto Sales In '06.” *CBS 5* (Mar. 29, 2007).

<sup>xvi</sup> Herbst, Moira. “The Dirty Secret about Clean Cars/President Bush and the Big Three are pushing cars that run on ethanol. But the policy may be doing more harm than good.” *Business Week* (Mar. 28, 2007).

<sup>xvii</sup> Shepardson, David. “Bush: Motorists must use more alternative fuel.” *Detroit News* (Apr. 10, 2007); Wingfield, Brian. “Impact of New EPA Renewable Fuel Rules Likely Small” *Forbes* (April 10, 2007)