

EFFECTIVENESS AND IMPACT OF THE CORPORATE AVERAGE FUEL  
ECONOMY (CAFE) STANDARDS

Statement of

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and

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Before the  
Committee on Commerce, Science, and Transportation  
and  
Committee on Energy and Natural Resources  
U.S. Senate

August 2, 2001

Good afternoon, Mr. Chairman and members of the Committee. I am Paul R. Portney, President of Resources for the Future and Chair of the Committee on Effectiveness and Impact of the Corporate Average Fuel Economy Standards of the National Research Council. The Research Council is the operating arm of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine, chartered by Congress in 1863 to advise the government on matters of science and technology.

It is a pleasure to be here to introduce the report on CAFE standards. That is not a pro forma statement. The last 6 months have been extremely demanding for the entire committee as well as the NRC staff, and it is a genuine pleasure to see it end. This study was requested by Congress last year to provide assistance in its decisions related to fuel economy standards. Since we started in February 2001, the full committee has met on a total of 17 days, and there have been an additional 11 subgroup meetings. Quite an investment of time for a group of unpaid volunteers.

I would like to provide a brief overview of the report. This is really a joint presentation. My colleagues from the committee, John Wise, Philip Sharp, Adrian Lund, and David Greene may fill in the holes I leave in the presentation, but on almost all issues, the committee reached unanimous conclusions. The report is complicated, and I cannot do it justice in a few minutes. Therefore I request that we include the Executive Summary as part of the record.

The committee had a 3-part mission:

1. Determine the effect that CAFE standards have had on fuel economy, and the impact on the industry, consumers, safety, and other issues;
2. Estimate the impact that changes to CAFE standards might have in the future; and
3. Evaluate the structure of the CAFE program and recommend potential improvements.

#### Review of the Current CAFE Program

Our review of past and current impacts of CAFE standards convinced us that the program has significantly reduced fuel consumption. Other factors also have been important, especially the reaction of consumers and the automotive industry to higher fuel prices in the 1970s and early 1980s. The committee could not apportion responsibility among these factors, but notes that CAFE was clearly important. In recent years, CAFE indisputably played an important role in maintaining higher fuel economy than would have resulted from the lower fuel prices that prevailed for most of this period.

There have been adverse consequences as well. Safety is most important. The majority of the committee concludes that the downsizing and downweighting that occurred in the 1970s and 80s (partially in response to CAFE) resulted in an additional 1,300 to 2,600 fatalities in 1993. While fatalities were declining in this period, most committee members believe that they would

have declined this much more had the downweighting and downsizing not occurred. Two members of the committee dissent from this view. They believe that the data does not support this conclusion, and that the net effect on highway fatalities of the increases in fuel economy may have been zero. David Greene, one of the authors of the dissent in the report, may elaborate on that conclusion.

An additional impact, although one we were unable to quantify, may have been restrictions on consumer choice. Requiring automotive manufacturers to focus on fuel economy diverted their resources from improving other attributes valued by consumers, such as acceleration and carrying capacity.

### Impact of Higher Standards

First let me note that the committee does not recommend whether or by how much the government should raise standards. We believe that that is a decision belonging to Congress, the President, and appointed officials because it involves tradeoffs among factors very important to the people of this country—the costs of driving, the environment, national security, consumer choice, safety, and others. In so far as possible, the committee identifies these tradeoffs, but a full analysis was not possible within the short time allotted to this study.

The committee believes that it is incumbent on decisionmakers to understand why they want to increase fuel economy and to ensure that the costs of the increases are consistent with the

motivation. The two main factors the committee considered are oil imports and global climate change. Analysts assign a wide variety of costs to these externalities. The committee considered this range, and ultimately chose values which, in total, are equivalent to about 30 cents/gallon of fuel. I mention this figure not because the committee endorses it (indeed other analysts might chose values much higher or lower), but because it helps to understand how hard one can push on fuel economy.

With that as context, the committee concludes that significant improvements in fuel economy are quite possible at reasonable cost. A variety of technologies to improve fuel economy are available for cars and light trucks. Many have been developed and are being implemented in Europe and Japan where fuel prices are much higher than here. Variable Valve Lift and Timing can reduce fuel consumption by 3-8%. Continuously variable transmissions can achieve another 4-8%. Other technologies are under development and will be available for wide scale use within 15 years. Fuel economy can be raised more for heavier vehicles than for light ones, and the resulting fuel savings will be much higher for the heavier vehicles also. For example, a midsize SUV might see a 34% increase (from 18 to 28 miles per gallon). Over the lifetime of the vehicle, these improvements would save nearly 2000 gallons, which would more than pay for the incremental cost.

As with the current CAFE program, raising standards will have other consequences as well, with safety again being the most contentious. Any increase in fatalities will depend on how

manufacturers meet higher standards. While the technologies examined by the committee generally appear to be more cost-effective than weight reduction, CAFE standards as currently structured do not preclude any methods. Thus some manufacturers might include some weight reduction, which the majority of the committee believes would involve some safety consequences. However, it is also possible that weight reductions could be concentrated in the heavier vehicles. This would reduce the weight disparity in the fleet, which would have beneficial consequences for safety. This could occur because the greater risk for the occupants of the downsized vehicles would be more than balanced by the lessened risk for other road users.

Again it should be noted that increased fuel economy is not a high priority for most consumers. If manufacturers have to meet higher standards, they will have to have to neglect other attributes that consumers might find preferable.

#### Recommendations on the Structure of the CAFE Program

First, I would like to point out that there is a marked inconsistency between raising fuel economy standards while keeping fuel taxes low. The committee certainly does not recommend raising taxes to the level of European countries (or to any specific level for that matter), but the members believe that efforts to raise fuel economy would work much better if consumers had more motivation from higher fuel prices.

The committee recommends that a tradable credit program be part of any regulatory program

on fuel economy. Even if the current structure is maintained and the standards not raised, the program can be made more efficient and effective with tradable credits. All manufacturers would have incentive to raise the economy of all their vehicles, and the results are likely to be less costly than the current approach of treating each manufacture separately. Tradable credits have worked well in reducing the costs of sulfur dioxide emissions from coal-fired power plants, and the committee believes that will work as well on fuel economy.

An attribute-based system should be considered for the regulatory standard. The partially weight-based system we call “Enhanced CAFE” is particularly intriguing. Lighter vehicles (up to 3500 or 4000 pounds) would be on a standard inversely proportional to their weight. Heavier vehicles would all have the same standard. This system would avoid any incentive for manufacturers to reduce the weight of light vehicles, but would encourage lightening the heavier vehicles, with advantages in safety as I noted earlier.

The committee recommends abolishing the foreign-domestic distinction. Given the global nature of the auto industry, this distinction makes no sense now.

The committee also recommends abolishing the credit for dual-fuel vehicles. There may be valid policy reasons for encouraging alcohol fuels, but CAFE is not a good way to do it. Owners of these vehicles essentially never buy alcohol fuel because it is expensive and difficult to find, but the credit lowers the fuel economy of the entire fleet.

The government should continue cooperative programs with industry to improve fuel economy.

The Partnership for a New Generation Vehicle (PNGV) is the most prominent of these programs.

Finally, the National Highway Traffic Safety Administration should update its analysis of the relationship between safety and fuel economy improvements.

Thank you Mr. Chairman, that concludes my comments. My colleagues and I would be happy to take any questions you may have.