

met almost entirely by changes in domestic refining activity. As a consequence, the specific geographic pattern of fuel savings resulting from the agency's action—which depends in turn on the distribution of light truck purchases and use—is likely to influence the mix of reduced gasoline imports and domestic refining that occurs in response to these fuel savings.

The agency believes that the consistent association between changes in gasoline demand and domestic refining activity revealed in current and historical data is notable, and that the effect of the pending Tier 2 fuel standards will reinforce this association. However, we also realize that the effects of future variation in gasoline demand on foreign and domestic sources of supply may differ from these historical patterns. Since the new CAFE standards will take effect in the future, the agency believes it is prudent also to consider these forecast changes in foreign and domestic gasoline supply in its analysis.

In an effort to do so, as well as to recognize the uncertainty inherent in forecasting the future effects of lower gasoline demand on specific supply pathways, the agency has elected to assume that 50 percent of the reduction in future light truck gasoline use resulting from its action will be reflected in reduced imports of refined gasoline, while the remaining 50 percent will be translated into reductions in domestic gasoline refining. The agency recognizes that neither historical data nor forecast trends indicate that changes in gasoline use are likely to have equal effects on gasoline imports and domestic refining. However, this assumed distribution represents a probability-weighted average impact of reduced gasoline consumption, which incorporates both the extreme range of possible outcomes suggested by historical and forecast data, as well as the approximately equal likelihood that either outcome will occur.

The agency further assumes that the resulting decline in U.S. gasoline production will reduce domestic refiners' use of imported and domestic crude petroleum feedstocks in direct proportion to their current fractions of total U.S. refinery feedstock use. The implications of these assumptions for the resulting changes in emissions occurring during various phases of the gasoline supply chain are discussed in detail elsewhere in this document, addressing General Motors' concern that the agency examine the domestic-import split in terms of its marginal effects on refining and other sources of emissions.

i. Greenhouse/Carbon Emissions

Environmental Defense requested that NHTSA place a value on the benefit of avoided greenhouse gas emissions, while also noting the magnitude of the global warming externality is admittedly difficult to estimate. The value of avoiding greenhouse gas emissions is unquantifiable at this time. However, our analysis in the Environmental Assessment indicates that if the proposed standards were adopted in the final rule, they would result in an estimated 9.4 million metric tons of avoided greenhouse gas emissions over the 25-year lifetime of the vehicles (measured in terms of carbon equivalents).

3. Comparison of Estimated Costs to Estimated Societal Benefits

NHTSA estimates that the direct fuel-savings to consumers account for the majority of the total social benefits, and exceed the estimated costs of adopting more fuel-efficient technologies. In sum, the total incremental costs by model year compared to the incremental societal benefits by model year are as follows:

[Dollars in millions]

Model year	Total costs	Total societal benefits	Net benefits
2005	\$170	\$218	\$48
2006	537	645	108
2007	862	955	93

In light of these figures, we have concluded that the final rule serves the overall interests of the American people and is consistent with the balancing that Congress has directed us to do when establishing CAFE standards. For all the reasons stated above, we believe the final rule is economically practicable and, independently, that it is a cost beneficial advancement for American society.

a. Consumer Choice

In their comments on the NPRM, automobile manufacturers argued that in a well-functioning market with fully informed consumers and manufacturers, consumers would take into account the savings to themselves associated with more fuel-efficient vehicles. Therefore, if the value of cumulative fuel savings exceeded the additional price and associated financing cost of purchasing a more fuel-efficient vehicle, consumers should be inclined to buy these vehicles and producers should be inclined to sell them. The Mercatus Center stated that the analysis should include foregone benefit to consumers from not being

able to choose attributes they prefer in a vehicle.

The automobile manufacturers and Mercatus Center raised these issues and arguments because they do not believe that there is a market failure in the market place. Many commenters asserted that NHTSA had made a determination that there is a market failure in the provision of vehicle fuel efficiency. In the NPRM, the agency did not make any such determination. NHTSA noted a paradox that cost-saving technologies appeared to be penetrating the market to only a limited extent and therefore sought public comment on possible sources of market failure.

First, on the supply side of the vehicle market, it is well known that the light truck market is concentrated in three large producers who account for roughly 75 percent of market share, although there are a number of smaller producers that account for the remaining 25 percent. As several commenters noted, there is substantial evidence of competition among producers in the light truck market and indications that the three large producers are under increasing competition from the smaller producers. Under these circumstances, NHTSA maintains its previous statement that there is only a "remote" possibility that a supply side failure in the marketplace accounts for the limited market penetration of cost-saving, fuel-saving technologies.

Second, commenters discussed whether there could be a failure on the demand side of the market for fuel economy, rooted perhaps in the way that consumers perceive the private benefits of enhanced fuel economy and incorporate that information in their purchasing decisions. Several commenters noted that consumers are provided clear and substantial information about the fuel efficiency ratings of different vehicles, including information about the operating expenses associated with these fuel efficiency ratings. However, the argument for demand side failure may have less to do with the absence of consumer information about fuel efficiency than with the overall complexity of the vehicle-purchasing decision, the number of other factors of greater salience to consumers, the temporal aspects of ownership and resale, and the difficulty of weighing fuel efficiency differences against other (especially nonmonetary) attributes of vehicles. Rational consumers, cognizant of decision making costs, may use simplified decision rules when purchasing vehicles that give limited, diminished or no weight to fuel