and thus not subject to regulation as wastes under Subtitle C of RCRA. The proposed rule would also establish specific regulatory criteria for determining whether or not hazardous secondary materials are recycled legitimately.

The comment period for the proposed rule was scheduled to end on January 26, 2004. However, a public commenter (the National Paint and Coatings Association) has requested that EPA extend the comment period by 30 days, noting that it (and other organizations) is working to respond to several other important EPA rulemaking proposals whose comment periods overlap with that of this proposal. This commenter also noted that the comment period for this proposed rule extends over the holiday season, which additionally impacts their ability to fully review the proposal and formulate a comprehensive set of comments.

EPA believes this request is reasonable. EPA also notes that this rule is not subject to any statutory or judicial deadlines. We are therefore extending the comment period for this proposal until February 25, 2004.

How and to Whom Do I Submit Comments?

You may submit comments electronically, by mail, or through hand delivery/courier. To ensure proper receipt by EPA, identify the appropriate docket identification number in the subject line on the first page of your comment. Please ensure that your comments are submitted within the specified comment period. Comments received after the close of the comment period will be marked ''late.'' EPA is not required to consider these late comments.

Electronically. If you submit an electronic comment as prescribed below, EPA recommends that you include your name, mailing address, and an e-mail address or other contact information in the body of your comment. Also include this contact information on the outside of any disk or CD–ROM you submit, and in any cover letter accompanying the disk or CD–ROM. This ensures that you can be identified as the submitter of the comment and allows EPA to contact you in case EPA cannot read your comment due to technical difficulties or needs further information on the substance of your comment. EPA's policy is that EPA will not edit your comment, and any identifying or contact information provided in the body of a comment will be included as part of the comment that is placed in the official public docket, and made available in EPA's electronic public docket. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment.

Your use of EPA's electronic public docket to submit comments to EPA electronically is EPA's preferred method for receiving comments. Go directly to EPA Dockets at *http://www.epa.gov/edocket,* and follow the online instructions for submitting comments. To access EPA's electronic public docket from the EPA Internet Home Page, select ''Information Sources,'' ''Dockets,'' and ''EPA Dockets.'' Once in the system, select ''search,'' and then key in Docket ID No. RCRA–2002–0031. The system is an ''anonymous access'' system, which means EPA will not know your identity, e-mail address, or other contact information unless you provide it in the body of your comment.

Comments may be sent by electronic mail (e-mail) to *rcra-docket@epamail.epa.gov,* Attention Docket ID No. RCRA–2002–0031. In contrast to EPA's electronic public docket, EPA's e-mail system is not an ''anonymous access'' system. If you send an e-mail comment directly to the Docket without going through EPA's electronic public docket, EPA's e-mail system automatically captures your e-mail address. E-mail addresses that are automatically captured by EPA's e-mail system are included as part of the comment that is placed in the official public docket, and made available in EPA's electronic public docket.

You may submit comments on a disk or CD–ROM that you mail to the mailing address identified in the following paragraph. These electronic submissions will be accepted in WordPerfect or ASCII file format. Avoid the use of special characters and any form of encryption.

By Hand Delivery or Courier. Deliver your comments to: OSWER Docket, EPA West Building, Room B102, 1301 Constitution Avenue, NW., Washington, DC., Attention Docket ID No. RCRA–2002–0031. Such deliveries are only accepted during the Docket's normal hours of operation (8:30 a.m. to 4:30 p.m. Monday through Friday, excluding legal holidays).

Dated: December 16, 2003.

Matt Hale,

Acting Director, Office of Solid Waste.

[FR Doc. 03–31868 Filed 12–24–03; 8:45 am]

BILLING CODE 6560–50–P

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 533

[Docket No. 2003–16128]

RIN 2127–AJ17

Reforming the Automobile Fuel Economy Standards Program

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Advance notice of proposed rulemaking.

SUMMARY: This document seeks comment on various issues relating to the corporate average fuel economy (CAFE) program. In particular, this document seeks comments relating to possible enhancements to the program that will assist in furthering fuel conservation while protecting motor vehicle safety and the economic vitality of the auto industry. The agency is particularly interested in improvements to the structure of the CAFE program authorized under current statutory authority. The focus of this document is to solicit comment on the structure of the CAFE program, not the stringency level for a future CAFE standard.

DATES: Comments must be received on or before April 27, 2004.

ADDRESSES: You may submit comments [identified by DOT DMS Docket Number 2003–16128] by any of the following methods:

- *Web Site: http://dms.dot.gov*. Follow the instructions for submitting comments on the DOT electronic docket site.
- *Fax:* 1–202–493–2251.
- *Mail:* Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL–401, Washington, DC 20590–001.
- *Hand Delivery:* Room PL–401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC, between 9 am and 5 pm, Monday through Friday, except Federal Holidays.
- *Federal eRulemaking Portal:* Go to *http://www.regulations.gov*. Follow the online instructions for submitting comments.

Instructions: All submissions must include the agency name and docket number or Regulatory Identification Number (RIN) for this rulemaking. For detailed instructions on submitting comments and additional information on the rulemaking process, see the

Public Participation heading of the Supplementary Information section of this document. Note that all comments received will be posted without change to *http://dms.dot.gov* including any personal information provided. Please see the Privacy Act heading under Regulatory Analyses and Notices.

Docket: For access to the docket to read background documents or comments received, go to *http://dms.dot.gov* at any time or to Room PL–401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC, between 9 am and 5 pm, Monday through Friday, except Federal Holidays.

FOR FURTHER INFORMATION CONTACT: For non-legal issues, call Ken Katz, Lead Engineer, Fuel Economy Division, Office of Planning and Consumer Standards, at (202) 366–0846, facsimile (202) 493–2290, electronic mail *kkatz@nhtsa.dot.gov*. For legal issues, call Otto Matheke, Office of the Chief Counsel, at (202) 366–5263, electronic mail *omatheke@nhtsa.dot.gov*.

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I. Background

Congress enacted the Energy Policy and Conservation Act (EPCA Pub. L. 94–163) during the aftermath of the energy crisis created by the oil embargo of 1973–74. The Act established an automotive fuel economy regulatory program by adding Title V, ''Improving Automotive Efficiency,'' to the Motor Vehicle Information and Cost Saving Act. Title V has been amended from time to time and codified without substantive change as Chapter 329 of title 49, United States Code. Chapter 329 provides for the issuance of average fuel economy standards for passenger automobiles and automobiles that are not passenger automobiles (light trucks).

Congress established a statutory corporate average fuel economy standard applicable to passenger automobiles, and NHTSA has from time to time amended that statutory standard. The Secretary of Transportation has the authority to change the standard if it no longer represents the ''maximum feasible'' standard consistent with the criteria set forth in the statute.[1] Pursuant to that authority, the Secretary amended the passenger car standard with regard to model years (MYs) 1986–1989 to address situations in which, despite manufacturers' good faith compliance plans, market conditions rendered the statutory standard impracticable and infeasible.[2] Since 1990, the CAFE standard for passenger automobiles has been 27.5 miles per gallon (mpg).

Congress did not establish by statute a CAFE standard for light trucks. Instead, Congress directed the Secretary to consider appropriate CAFE standards applicable to a light truck fleet, or alternatively, to classes of light trucks, and to establish CAFE standards at least 18 months prior to the start of each model year. The first light truck fuel economy standards were established for MY 1979 and applied to light trucks with Gross Vehicle Weight Ratings (GVWR) up to 6,000 pounds. Beginning with MY 1980, NHTSA raised this GVWR ceiling to 8,500 pounds.

In 1977, NHTSA issued regulations indicating which vehicles should be subject to the CAFE program and establishing the distinction, imbued throughout the statute, between passenger and non-passenger automobiles (42 FR 38362). These regulations reflect the vehicle fleet prevalent at that time, and in particular, sought to distinguish between vehicles primarily designed for the transport of passengers and those designed for the transport of cargo. To some extent, that distinction was meant to reflect a difference between personal transportation and that designed for commercial, agricultural or recreational activity. The regulations accordingly attempt to define vehicles by the type of use to which they were generally put in the mid-1970s (in part in accordance with whether they were usually built on passenger car or truck platforms).

In 1994, the agency departed from its past practice of considering light truck standards for one or two model years at a time and published an Advance Notice of Proposed Rulemaking (ANPRM) in the **Federal Register** outlining NHTSA's intention to set standards for some, or all, of the model years from 1998 to 2006 (59 FR 16324, April 6, 1994).

On November 15, 1995, the Department of Transportation and Related Agencies Appropriations Act for FY 1996 (Pub. L. 104–50) was enacted. Section 330 of that Act provided:

> None of the funds in this Act shall be available to prepare, propose, or promulgate any regulations * * * prescribing corporate average fuel economy standards for automobiles * * * in any model year that differs from standards promulgated for such automobiles prior to enactment of this section.

This prohibition applied to both passenger automobiles and non-passenger automobiles, and language continuing the prohibition was included in the Appropriations Acts for each of FYs 1997–2001.

While the Department of Transportation and Related Agencies Appropriations Act for FY 2001 (Pub. L. 106–346) contained a restriction on CAFE rulemaking identical to that contained in prior appropriation acts, the conference committee report for that act directed that NHTSA fund a study by National Academy of Sciences (NAS) to evaluate the effectiveness and impacts of CAFE standards (H. Rept. No. 106–940, at p. 117–118).

The NAS submitted its preliminary report to the Department of Transportation on July 30, 2001. The final report was released in January 2002. The report concludes that technologies exist that could significantly increase passenger car and light truck fuel economy within 15 years, while maintaining vehicle size, weight, utility, and performance. However, their development cycles—as well as future economic, regulatory, safety and consumer preferences—will influence the extent to which these technologies could lead to increased fuel economy in the U.S. market. Recognizing the many trade-offs that must be considered in setting fuel economy standards, the committee took no position on what the appropriate

[1] In setting CAFE standards, the statute directs the Secretary to consider technological feasibility, economic practicability, the effect of other government regulations on fuel economy and the nation's need to conserve energy.

[2] To date, the agency has not considered whether a more stringent fuel economy standard than 27.5 mpg might better represent the ''maximum feasible'' level for the passenger car fleet. By statute, NHTSA was prohibited from considering any change between MYs 1996 and 2004.

CAFE standards should be for future years.

The NAS found that to minimize financial impacts on manufacturers, their suppliers, their employees and consumers, sufficient lead-time (consistent with normal product life cycles) should be given when considering increases in CAFE standards. The report stated that there are advanced technologies that could be employed, without negatively affecting the automobile industry, if sufficient lead-time were provided to manufacturers. In the NAS'' view, the selection of future fuel economy standards will require uncertain and difficult trade-offs among environmental benefits, vehicle safety, cost, energy independence, and consumer preferences.

All but two members of the NAS committee concluded: ''the downweighting and downsizing that occurred in the late 1970s and early 1980s, some of which was due to CAFE standards, probably resulted in an additional 1300 to 2600 traffic fatalities in 1993.'' (NAS, pp. 3, 111.) Specifically, the Committee concluded, ''to the extent that the size and weight of the fleet have been constrained by CAFE requirements' those requirements have caused more injuries and fatalities on the road than would otherwise have occurred.'' (NAS, p. 29). The NAS also suggested that changing the CAFE regulatory program to one based on vehicle attributes, such as weight, could eliminate the current CAFE program's encouragement of ''downweighting'' or the production and sale of more small cars. In addition, ''credit trading'' would also reduce costs. (NAS, pp. 5, 113)

In a letter dated July 10, 2001, Secretary of Transportation Norman Y. Mineta asked the House and Senate Appropriations Committees to lift the restriction prohibiting agency expenditures for the purposes of considering CAFE standards. The Department of Transportation and Related Agencies Appropriations Act for FY 2002 (Pub. L. 107–87), which was enacted on December 18, 2001, contained no provision restricting the Secretary's authority to prescribe fuel economy standards. NHTSA began work towards the establishment of light truck CAFE standards, and has since set standards applicable to light trucks for MYs 2004 through 2007 (68 FR 16868).

The Department has also focused on improvements to the fuel economy program. In February 2002, Secretary Mineta asked Congress ''to provide the Department of Transportation with the necessary authority to reform the CAFE program, guided by the NAS report's suggestions.'' On February 7, 2002, the agency issued a Request for Comments (67 FR 5767) seeking, in addition to data on which to base an analysis of appropriate CAFE standards for light trucks for upcoming model years, comments on possible reforms to the CAFE program. In particular, the agency sought input on possible reforms that could enhance fuel economy, protect occupant safety, advance fuel-efficient technologies, and obtain the benefits of market-based approaches. In the rulemaking establishing light truck CAFE standards for MYs 2005–2007, the agency restated its intention to pursue the potential for such reforms.

The agency is also issuing, along with this notice, a request for comments seeking information on future product plans and other matters to assist in assessing the potential impacts of any changes to the CAFE program.

II. Why CAFE Reform?

There are four prominent criticisms of the light truck CAFE program. They relate to energy security, traffic safety, economic practicability, and modernization of the definition and classification of light trucks.

First, concern has been raised that the energy-saving potential of the CAFE program is hampered by the current regulatory structure. The difference between the fuel economy standards for passenger cars and light trucks (27.5 mpg and 20.7 mpg, respectively in 2004) encourages vehicle manufacturers to offer vehicles classified as light trucks for purposes of CAFE. In addition, the CAFE program currently applies to vehicles with a gross vehicle weight rating (GVWR) of less than 8,500 lbs, encouraging manufacturers to offer products with a GVWR larger than this limit. Reconsideration of these classification rules may encourage the development of a relatively more fuel efficient fleet of vehicles.

CAFE reform may also encourage more companies to pursue strategies to comply with established CAFE standards instead of paying fines for non-compliance. Some manufacturers regularly pay penalties rather than comply with the standards. To date, the U.S. Treasury has collected over $600 million in CAFE penalties, averaging more than $33 million in the past ten years. A different CAFE system might induce more vehicle manufacturers to innovate with fuel-saving technologies rather than pay fines for noncompliance.

Second, concern has been raised that the current light truck CAFE standards could create safety risks by encouraging vehicle manufacturers to achieve greater fuel economy by downweighting their light truck offerings. As the NAS report and a more recent NHTSA study have found, downweighting of the light truck fleet, especially those trucks in the low and medium weight ranges, creates more safety risk for occupants of light trucks and all motorists combined. However, both studies also suggest that if downweighting is concentrated on the heaviest light trucks in the fleet there could be a small fleetwide safety benefit. An alternative CAFE system may allow more energy savings while protecting and enhancing the safety of the motoring public.

As recommended by the NAS Report, NHTSA has updated its 1997 size and safety study and placed this updated report in the docket for technical comment. The NHTSA study considered the historical fatality statistics of model year 1991–1999 vehicles to find the average fatality increase per 100-pound reduction. This ''fatality increase per 100-pound reduction'' does not mean the effect of literally removing 100 pounds from a specific vehicle. It is the average increase in the fatality rates of 1991–99 models weighing W–100 pounds curb weight relative to other 1991–99 models weighing W pounds curb weight, given drivers of the same age/gender, and accounting for a variety of other factors.

In cars weighing [3] 2,950 pounds or more, overall fatality rates increased by an average of 1.98 percent per 100-pound weight reduction. If this percentage effect were applied to the baseline of all calendar year 1999 crash fatalities in the U.S. it would be equivalent to an increase of 216 fatalities per year. In cars weighing less than 2,950 pounds, the average increase in the fatality rate per 100-pound weight reduction was 4.39 percent, equivalent to 597 fatalities per year.

The findings were similar for light trucks. In light trucks weighing less than 3,870 pounds, the average increase in the fatality rate per 100-pound weight reduction was 2.90 percent, equivalent to 234 fatalities per year. In light trucks weighing 3,870 pounds or more, the average increase in the fatality rate per 100-pound reduction was 0.48 percent, equivalent to 71 fatalities per year.[4]

The study also found that trucks, starting with those weighing around 5,000 pounds (this number is an approximate arithmetic mean of the possible safety break points identified in

[3] The weights in the size and weight study are curb weights, whereas those in the context of CAFE standards are gross vehicle weights.

[4] The increase is not statistically significant, since the study provides an interval estimate from -1.06 to +1.64 percent.

the study) and including those that were heavier, would have actually reduced fatalities by a small amount if their weights were reduced. Therefore, as cars and trucks increased in size, the severity of the safety impacts due to weight reduction lessens and eventually disappears. For vehicles above a certain weight, weight reduction may produce safety benefits.[5]

The NHTSA study approach is retrospective, and not necessarily predictive of the future, since it examines a specific group of model year 1991–99 vehicles, often in relation to the other vehicles on the road, in calendar years 1995–2000. The study does not examine a reduction of 100 pounds in a specific vehicle, but rather the effect of a vehicle mix shift resulting in the average vehicle fleet being 100 pounds lighter. For light trucks, a change in the sales mix to certain vehicles (*e.g.*, minivans) could reduce weight, improve fuel economy and be safer for society overall. Even within vehicle classes we already see the potential for overall safety improvements (*e.g.*, crossover SUVs are lighter, more fuel efficient, and appear to be safer for society overall than larger SUVs).

It is important to note that the configuration of light vehicles, particularly the height of their center-of-gravity (CG), also has an impact on safety. In particular, vehicles with a higher CG are more likely to be involved in rollover crashes than vehicles with a lower CG. About one-third of all light vehicle occupant deaths involve rollover. More than half of all single vehicle crashes resulting in fatalities involve a rollover event. Fatalities in rollover crashes accounted for 82 percent of the total fatality increase in 2002. In 2002, 10,666 people died in rollover crashes, up 5 percent from 10,157 in 2001. The number of persons killed in SUVs that rolled over rose 14 percent. Sixty-one percent of all SUV fatalities involved rollovers.

The NAS found that ''technologies exist that, if applied to passenger cars and light trucks, would significantly reduce fuel consumption within 15 years (NSA, pp. 3). NAS also noted that technology changes require very long lead times to be introduced into product lines. Under the current regulatory structure, rapid increases in the light truck CAFE standard could have substantial safety and economic consequences. An analysis performed by the Energy Information Administration (EIA), based on their National Energy Modeling System (NEMS), indicates that if the light truck CAFE standard were increased by 0.6 mpg annually under the current system starting with MY 2008 (0.6 mpg was the rate of increase for the last two MYs of the recently published MY 2005–2007 CAFE light truck rule), average light truck weight would be reduced by about 100 pounds annually over the MY 2010–2015 period, about 200 pounds annually over the MY 2016–2020 period, and more than 350 pounds annually by MY 2025. Moreover, the study suggests that most of the weight reduction would occur in the small and medium end of the weight range. The EIA analysis and NHTSA's updated safety study together suggest that highway fatalities could increase significantly if such increases in CAFE standards for light trucks are implemented under the existing program.

A third reason for considering CAFE reform relates to the adverse economic impacts that may result from such future increases in the stringency of CAFE standards. The EIA analysis predicts that a sustained gradual increase in the light truck standard (0.6 mpg per year from 2007 to 2025) would increase the cost of light trucks, reduce real Gross Domestic Product (GDP), and reduce employment. The incremental cost of light duty trucks is predicted to rise steadily for the entire forecast period through 2025, ultimately reaching a price increase of $720 (in constant 2001 dollars), although the rate of increase slows over time. The loss in real GDP grows over time. By 2015, real GDP is predicted to be $15 billion smaller, which represents a loss of 0.1 percent when compared to the reference case. By 2025, the loss in GDP is predicted to be $19 billion (−0.10 percent). Viewed over the entire forecast period, the sum of the discounted changes (billions of dollars discounted at 7 percent from 2004 through 2025) in real GDP totals a loss of $84 billion, which represents a loss of approximately 0.6 percent of the reference case value of real GDP over the 2004–2025 period. Non-agricultural employment, under such a scenario, would decline in 2015 by 86,000 jobs compared to no increase in light truck CAFE standards. This adverse effect would attenuate in the long run as fuel savings from tighter CAFE standards induce some employment gains and the economy adjusts to a new steady-state equilibrium. By 2025, the net employment loss in the non-agricultural sector is 16,000 jobs.

Although the NEMS model is useful as a long term forecasting tool, the model is a simplified representation of the macro-economy and its projections are subject to considerable uncertainty. NEMS is a generalized model that treats all manufacturers identically. Other approaches, such as the technology model used by NHTSA in its recent 2005–2007 light truck rulemaking, rely heavily on detailed manufacturer-specific data. Models of this type have advantages for analyzing the effects of short-term modest increases in CAFE standards, while the NEMS approach is more useful for analyzing longer-term increases in CAFE standards. When longer-term analysis of significant increases in CAFE standards is required, current differences in manufacturer capabilities become much less relevant. In addition, NEMS' ability to estimate macroeconomic ''feedbacks'' from long run increases in CAFE standards is useful.

Table 1 provides data on light truck manufacturers in the U.S. market, their sales volumes, and market shares by vehicle type.

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[5] This new study explores the relationship between vehicle size, crash compatibility and vehicle weight for 1991 through 1999 light vehicles. The study finds that weight reductions in passenger cars and most light trucks increase the risk of fatalities significantly more than previously thought. However, the results are not uniform over the entire weight range of trucks and cars. Reducing the weight of lighter cars and trucks results in more fatalities than down-weighting heavier cars and trucks.

Table 1
U.S. Sales, Market Share, and Production Data for Major Light Truck Manufacturers*

Mfg.		Total	<3,100 lb	3,101 to 3,400 lb	3,401 to 3,700 lb	3,701 to 4,000 lb	4,001 to 4,300 lb	4,301 to 4,600 lb	4,601 to 4,900 lb	>4,901 lb	North American Built	Domestic Content
GM	Sales	2,412 K	41 K	88 K	101 K	256 K	188 K	390 K	363 K	985 K	100 %	90 %
	Share	30 %	16 %	15 %	13 %	26 %	12 %	32 %	44 %	55 %		
Ford	Sales	2,060 K	59 K	106 K	285 K	118 K	410 K	493 K	237 K	352 K	98 %	81 %
	Share	26 %	23 %	18 %	36 %	12 %	27 %	40 %	28 %	20 %		
DCX	Sales	1,772 K	0	178 K	70 K	293 K	575 K	172 K	140 K	344 K	100 %	79 %
	Share	22 %	0 %	31 %	9 %	30 %	38 %	14 %	17 %	19 %		
Toyota	Sales	747 K	117 K	16 K	198 K	162 K	50 K	66 K	43 K	95 K	59 %	37 %
	Share	9 %	46 %	3 %	25 %	16 %	3 %	5 %	5 %	5 %		
Honda	Sales	336 K	29 K	109 K	0	0	149 K	49 K	0	0	64 %	46 %
	Share	4 %	7 %	19 %	0 %	0 %	10 %	4 %	0 %	0 %		
Nissan	Sales	287 K	0	35 K	5 K	121 K	114 K	12 K	0	0	69 %	40 %
	Share	4 %	0 %	6 %	1 %	12 %	8 %	1 %	0 %	0 %		
Isuzu	Sales	79 K	0	6 K	5 K	42 K	18 K	8 K	0	0	78 %	47 %
	Share	1 %	0 %	1 %	1 %	4 %	1 %	1 %	0 %	0 %		
Hyundai	Sales	83 K	0	0	83 K	0	0	0	0	0	0 %	1 %
	Share	1 %	0 %	0 %	10 %	0 %	0 %	0 %	0 %	0 %		
Suzuki	Sales	51 K	6 K	10 K	35 K	0	0	0	0	0	46 %	15 %
	Share	1 %	2 %	2 %	4 %	0 %	0 %	0 %	0 %	0 %		
Kia	Sales	97 K	0	30 K	17 K	0	0	0	50 K	0	0 %	0 %
	Share	1 %	0 %	5 %	2 %	0 %	0 %	0 %	6 %	0 %		
BMW	Sales	39 K	0	0	0	0	0	31 K	0	8 K	100 %	35 %
	Share	>1 %	0 %	0 %	0 %	0 %	0 %	3 %	0 %	>1 %		
VW	Sales	11 K	0	0	0	0	10 K	0	0	1 K	0 %	1 %
	Share	>1 %	0 %	0 %	0 %	0 %	1 %	0 %	0 %	>1 %		
Total		7,974 K	252 K	578 K	799 K	992 K	1,514 K	1,221 K	833 K	1,785 K		

* Sales data from NHTSA's CAFE Database for MY 2002. Percent North American Built are data from 2002 calendar year from Automotive News 2003 Market Data Book. Domestic content percentages were calculated using AALA Reports and sales data from NHTSA's CAFE Database for MY 2002. All weight ranges listed in the table signify curb weights.

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As stated by NAS, the current structure of the CAFE program favors manufacturers with a product mix dominated by small light trucks and disfavors manufacturers with a full line of light trucks or those with a product mix that is dominated by heavier trucks. The potentially adverse effects of tighter light truck CAFE standards on the economic vitality of the auto industry can be seen by ranking vehicle manufacturers by their current CAFE averages and their average fuel economy ratings within weight classes. The fuel economy data in Table 2 suggest that reform toward a weight-class system will affect both domestic and foreign manufacturers. For example, within weight classes, GM vehicles generally rank high in overall fuel economy, while DaimlerChrysler vehicles do not rank high in several heavier weight classes. Similarly, Honda ranks high in the weight classes where it has substantial volume while Toyota products do not rank as high in fuel economy in several weight classes. These data are only for one model year but such trends are likely to continue in the near term. In the long run, all manufacturers will have sufficient lead time to make new product offerings under a reformed system.

The vulnerability of full-line firms to tighter CAFE standards does not arise primarily from poor fuel economy ratings within weight classes. Their overall CAFE averages are low compared to manufacturers that produce more relatively light vehicles because their sales mixes comprise a much larger quantity of bigger and heavier vehicles. For example, within given weight classes, the average fuel economy average of GM vehicles weighing in excess of 3,400 lbs. curb weight is actually greater than Toyota's. Yet, Toyota's overall fuel economy average, across all weight classes over 3,400 lbs., is greater than GM's due to the fact that Toyota sells more vehicles in the lower weight classes than GM does and because GM's market share in the three heaviest classes is so large. An attribute-based (weight and/or size) system could neutralize disparate impacts on full-line manufacturers that could result from a sustained increase in CAFE standards. NHTSA seeks comment on these economic concerns, which ultimately relate to the economic practicability of more stringent light-

truck CAFE standards. We also seek comment on potential reforms that could reduce or eliminate these adverse economic effects.

TABLE 2

Manufacturer	<3,100 lb.	3,101 to 3,400 lb.	3,401 to 3,700 lb.	3,701 to 4,000 lb.	4,001 to 4,300 lb.	4,301 to 4,600 lb.	4,601 to 4,900 lb.	>4,901 lb.	Overall mpg
GM	29.8	25.7	23.1	24.7	21.2	20.3	19.6	18.0	19.9
Ford	28.8	24.8	23.0	20.0	21.1	19.6	19.1	17.5	20.3
DaimlerChrysler	N/A	25.5	19.5	21.1	22.3	20.6	18.1	16.9	20.4
Toyota	29.0	28.3	22.6	23.4	20.5	19.3	18.0	17.8	22.1
Honda	29.7	27.8	N/A	N/A	24.0	22.6	N/A	N/A	25.3
Nissan	N/A	26.2	24.3	20.6	19.5	19.0	N/A	N/A	20.7
Isuzu	N/A	22.4	22.5	21.2	20.7	19.5	N/A	N/A	21.0
Hyundai	N/A	N/A	24.5	N/A	N/A	N/A	N/A	N/A	24.5
Suzuki	23.3	22.4	21.4	N/A	N/A	N/A	N/A	N/A	21.8
Kia	N/A	23.3	23.0	N/A	N/A	N/A	19.8	N/A	21.4
BMW	N/A	N/A	N/A	N/A	N/A	20.3	N/A	17.5	20.2
VW	N/A	N/A	N/A	N/A	20.6	N/A	N/A	20.0	20.6
Total	29.0	25.7	22.7	22.1	21.6	20.1	19.1	17.7	20.6

Light Truck Fuel Economy (mpg) by Weight Class (lbs.) for MY 2002

A fourth reason for considering CAFE reform is to modernize the definitions and classifications of light trucks within the program. The markets for, and designs of, cars and light trucks have changed substantially since the inception of the CAFE program in the late 1970's. The existing CAFE program creates a bright line distinction between passenger and non-passenger automobiles (light trucks) and that distinction—found in both the statute and subsequent rulemakings—reflects the vehicle fleet prevalent in the 1970's.

Since then, the American public has resoundingly responded to the development of new types of vehicles, such as minivans and sport utility vehicles (SUVs). As compared to traditional passenger cars, these multipurpose vehicles are better able to satisfy the demand for family transportation, cargo carrying capability and recreational use. The market for traditional pick-up trucks has also expanded, giving rise to a broader variety of sizes, performance abilities and uses.

The market suggests that while some light trucks may be used primarily to transport passengers, their ''peak use or value'' capability (towing boats, hauling heavy loads, etc.) may be a critical factor in the purchase decision. In other words, a consumer may require substantial towing capability only periodically, but nevertheless may base his purchasing decision on a vehicle's ability to meet that peak need rather than his daily needs. The motor vehicle market has thus developed a demand for vehicles capable of cross-servicing traditional needs—that is, for vehicles capable of transporting people and cargo, for vehicles capable of servicing personal transportation needs as well as recreational and commercial ones, and for vehicles capable of substantial performance, even if such performance is only needed periodically.

While minivans, SUVs and pick-up trucks dominated the market of the 1990s, ''crossover'' vehicles are an emerging motor vehicle trend. Many of these vehicles reverse some of the adverse consequences of the past vehicle fleet. As previously mentioned, they tend to be smaller, lighter, potentially more fuel efficient and designed with lower centers of gravity than the more traditional light trucks of the 1990s.

Any potential reforms to the CAFE system should be considered in light of their ability not only to enhance fuel economy but also to ensure the economic well-being and safety of the American public. In considering CAFE reforms, our aim is to develop a CAFE program consistent with, and not in any way adverse to, our economic and safety objectives.

III. Comments to Date on CAFE Reform

In February 2002, NHTSA issued a request for comments (RFC) seeking information, views and data regarding future fuel economy standards and potential changes to the CAFE program. Published in the **Federal Register** on February 7, 2002 (26 FR 5767; Docket No. 2002–11419), the RFC requested comments on the recommendations in the National Energy Policy, the conclusions found in the NAS report on fuel economy, and the technical, economic and regulatory obstacles to improvements in fuel economy. The RFC sought to elicit comments on possible reforms to the CAFE program, as it applies to both passenger cars and light trucks, with an eye toward protecting passenger safety, advancing fuel-efficient technologies, and obtaining the benefits of market-based approaches.

We have received comments relating to CAFE reform both in response to the RFC and in response to our Notice of Proposed Rulemaking to establish light truck fuel economy standards for MYs 2005–2007.[6] (Docket No. 2002–11419, Notice 2) Many argued for a variety of amendments to the current system and others argued against any form of reform—whether through revisions to the current regulatory scheme or more fundamental changes in the way corporate average fuel economy is measured and applied.

While we have considered these comments, the original RFC was quite general and the comments received tended to focus on the various alleged shortcomings of the current program—

[6] We received comments from, amongst others, Public Citizen, Insurance Institute for Highway Safety (IIHS), Sierra Club, American Council for an Energy-Efficient Economy (ACEEE), Union of Concerned Scientists (UCS), Alliance to Save Energy (Alliance) and Coalition for Vehicle Choice (CVC), the Recreation Vehicle Industry Association (RVIA), Japan Automobile Manufacturers Association, Inc. (JAMA), National Truck Equipment Association (NTEA), National Automobile Dealers Association (NADA), Association of International Automobile Manufacturers, Inc. (AIAM), Alliance of Automobile Manufacturers (AAM), and Rubber Manufacturers Association (RMA). Manufacturers filing comments included General Motors (GM), Daimler Chrysler (DC), Ford Motor Company (Ford), Toyota Motor Corporation (Toyota), American Honda Motor Company (Honda) and Nissan North America (Nissan). A number of individuals also provided comments—Marc Ross from the University of Michigan both individually (Ross) and in conjunction with Tom Wenzel from the Lawrence Berkeley National Laboratory (Wenzel and Ross) and a class from Harvey Mudd College Engineering Department; Professor Patrick Little, Hans Meyer, Leryn Gorlitsky, Naomi Tomimatsu, Jordan Kwan, Anna Olson, Chris Holcomb, and Carman Ng.

or the generic admonishment against CAFE reform—and not on specific potential options or the various findings necessary to adopt them. This document, while not espousing any particular form of reform, seeks more specific input on various options set forth in an effort to adapt CAFE to today's vehicle fleet.

A brief review of the comments relating to CAFE reform already received follows:

A. Attribute-Based Standards

Our request for comments sought information on adopting an attribute-based system under which fuel economy standards would be tied to some vehicle attribute or attributes rather than having one fixed standard for passenger automobiles and another for light trucks. With some notable exceptions, many commenters supported adopting attribute-based fuel economy standards.

While private citizens generally favored attribute-based standards, a number of interest groups did not. Manufacturers and trade associations viewed them with caution. Public Citizen, Sierra Club, ACEEE, and UCS expressed concern that an attribute-based system may give manufacturers an incentive to increase production of vehicles in the attribute class with the lowest fuel economy. If an attribute system were to be used, ACEEE opposed weight-based standards and recommended consideration of an interior volume-based system stating that weight-based standards would provide automakers with an incentive to add mass to trucks in order to lower the fuel economy requirements for those vehicles. Professor Patrick Little suggested consideration of attributes that more accurately reflect likely usage of a vehicle, such as a ratio of unenclosed cargo space to passenger seating, in order to properly distinguish between passenger vehicles and light trucks and to avoid minivan/SUV loopholes that would incorrectly place these vehicles in the light truck category.

Other commenters favored an attribute-based system. IIHS favored a system of fuel economy requirements indexed to weight, although it commented that the CAFE structure must be modified to ensure that increased fleet fuel economy does not come about through weight reductions of the lightest, least safe vehicles or through increased sales of those vehicles. The organization stated that such a system would remove downweighting as a means of compliance and force the use of new technologies. IIHS also suggested that an attribute system could be established requiring each automaker to meet a manufacturer-specific, production-weighted average derived from the specific combination of vehicle types/weights sold by the automaker. This could be accomplished, according to IIHS, by the agency determining the target fuel economy for each vehicle weight, with the sum of any manufacturer's deviations from the target having to be zero or negative.

Carman Ng suggested that an attribute-based system could include power to weight ratio, number of cylinders, coefficient of drag, maximum recommended load, engine type, fuel sources, and number of passengers as attributes to be considered because these attributes can be measured quantitatively and avoid the gray areas of qualitative judgment. The Coalition for Vehicle Choice advised caution, arguing that there are no universal ''bright lines'' along which vehicles may be grouped.

DaimlerChrysler and Toyota objected to adoption of an attribute-based system, arguing that no method discussed as of that time is superior to the current system. Toyota added that a weight-based system, wherein lighter vehicles would be required to meet a more stringent standard than heavier vehicles, would result in ''up-weighing'' and increased fuel consumption. Ford and Nissan indicated that a weight based attribute system would be more equitable than the current system because vehicle weight directly correlates to vehicle fuel consumption. Ford also stated that it continues to believe that uniform industry fuel economy standards are inefficient and unfairly penalize full line manufacturers.

GM did not support use of a weight based attribute system, but both GM and Ford stated that a well-designed attribute-based system would be an improvement in that it would make sales mix less of a factor in meeting the standards. GM further indicated that a weight-based system would promote safety by removing incentives to remove weight.

Honda stated that there were several advantages to a size-based system as opposed to a weight-based system, including preserving incentives for fuel economy improvements through use of lightweight materials and improved vehicle packaging, less susceptibility to erosion of overall fleet economy, and safety. AIAM did not favor a weight or attribute-based system but believes that whatever system is chosen should be competitively neutral. In general, while some manufacturers believed a weight-based system had merit, there was considerable concern that the uncertainties of such a system might have untold effects.

B. Increasing GVWR Limit on Vehicles Subject to CAFE Standards

An issue relating to classification is the size of vehicles subject to CAFE. We noted in the RFC that one aspect of the growth in the light truck fleet has been the appearance of increasing numbers of large SUVs whose GVWR is above the current CAFE upper weight limit of 8,500 pounds. We asked commenters to provide us with views and data relating to raising the CAFE limit to the statutory maximum of 10,000 pounds GVWR to include larger vehicles in the light truck fleet. There was a general split between consumer groups and industry on whether expanding the scope of the CAFE program to encompass larger trucks is advisable.

Public Citizen supported the expansion. Citing the GVWRs of several larger SUVs as alleged examples of how manufacturers made the vehicles just large enough to escape regulation, Public Citizen argued that both safety considerations and the need to conserve energy dictated that larger vehicles should be subject to CAFE. Similarly, the ACEEE, 20/20 Vision, and Sierra Club also supported expanding the CAFE program's coverage to reach these larger vehicles, arguing that many of the large SUVs and pickup trucks are used as passenger vehicles (ACEEE). Chris Holcomb states that expanding CAFE would increase safety as manufacturers would discontinue production of vehicles at the high end of the weight range due to an inability to make them fuel efficient.

With the exception of Honda, manufacturers did not support the expansion. They argue that most trucks in this category are domestically built to meet a special need for the commercial consumer needing heavy-duty pick-up truck capabilities for heavy cargo or passenger (more than six passenger) load. They stated that only a small fraction of these vehicles are SUVs and many of them were purchased to tow heavy loads.

General Motors argued that raising the maximum GVWR for CAFE would severely damage domestic manufacturers and exacerbate the problems and inequities created by the CAFE program. Moreover, GM attacked the premise that these large vehicles should be considered because they are passenger vehicles by noting that models within the 8,500–10,000 pound segment have ''sisters'' or twins with

equivalent passenger carrying capability in the under 8,500 pound category. GM stated that customers interested in passenger capacity would not be interested in the heavier models, which cost more to purchase and operate and that the heavier vehicles are used and purchased by consumers needing features found only in these vehicles.

DaimlerChrysler opposed the expansion on the basis that it would not produce a demonstrable benefit. According to DC, the market segment involved is so small that no significant fuel savings would be realized by including large vehicles in the CAFE fleet. In DC's view, such action would only serve to lower the truck fleet fuel economy average.

The AAM, Ford, NTEA, and RVIA echoed the views of GM and DC. These organizations argued that expansion of the CAFE program into the heavier weight category would be unwarranted and unwise. Large vehicles, according to the Alliance, meet consumer needs and including these large vehicles in the CAFE fleet would force manufacturers to stop producing them or otherwise compromise the characteristics making them desirable to consumers.

C. Vehicle Classification

The agency's request for comments observed that the tremendous changes in the light truck market compelled reexamination of the definitions of light trucks and passenger automobiles. We asked commenters to provide suggestions for modifications of the vehicle classification scheme now used in the CAFE program. In particular, we requested that commenters identify characteristics that would help delineate the differences between passenger automobiles and trucks and the pros and cons of various classification schemes.

Public interest groups responding to this request were highly critical of the existing classification scheme, particularly the ''flat floor'' provision allowing vehicles (such as the PT Cruiser and many minivans) to be classified as light trucks based on the ability to enlarge their cargo carrying capacity by physically changing their passenger carrying ability into cargo carrying ability. The ACEEE and Sierra Club object to the ''flat floor'' provision, but without offering any specific recommendations for a new definition.

Public Citizen also criticized the current classification scheme and offered its view that the light truck class should be restricted to vehicles with significant off-road characteristics, such as a very high ground clearance, or more commercial ''truck-like'' qualities, such as the ability to carry or tow their own weight. In Public Citizen's view, the truck category should be limited to vehicles that are used commercially rather than lighter truck-like vehicles that may also serve as personal transportation.

Vehicle manufacturers and industry trade groups generally offered an opposite view—the existing classification system provides appropriate differentiation between passenger and non-passenger automobiles. This judgment is based on the view that the expansion of the light truck market has stemmed solely from consumer demand for more versatile and larger vehicles. DaimlerChrysler indicated that moving truck-like ''passenger vehicles,'' such as SUVs and minivans, from the truck fleet to the car fleet would require making the car standard less stringent or result in the elimination of an entire category of vehicle that consumers obviously value.

Alternatively, in its response to the RFC, DC indicated that an attribute-based approach to segment the fleet might have advantages.[7] However, DC indicated that no classification system was ideal and all systems would have their own set of rewards and drawbacks.

Ford supported the existing scheme in response to the request for comments. According to Ford, light trucks, including SUVs, are purchased and used for different reasons than passenger automobiles. Ford stated that the utility and corresponding differences between passenger automobiles and light trucks should be carefully considered before implementing any vehicle classification modifications. Ford argued that removing SUVs, minivans, and multi-activity vehicles from the truck fleet and adding them to the car fleet, or even creating a third category would negatively impact both the car and truck CAFE compliance, and might also have negative safety consequences.

GM similarly stated that no change in the system of vehicle classification is necessary. Although some vehicles have been introduced that combine various car-like and truck-like features, GM believes that the distinction between passenger automobiles and trucks has not been removed.

Toyota stated that all manufacturers should be subject to the same set of standards for any given category, class, fleet or similar set of vehicles regulated under any type of CAFE program. Further, Toyota argued that NHTSA should not restructure the current CAFE system in such a way that would provide a disincentive for companies to achieve greater fuel economy than required.

Honda stated that SUVs and vans should be removed from the truck fleet. In addition, Honda asserted that large pick-up trucks are often used for work purposes, but adds that any exemption criteria, with respect to pick-up trucks, should include a minimum bed width and length. AIAM commented that weight or size based systems could either be incorporated into a continuous function or market segment classes in an attempt to reconcile the truck/passenger car distinction.

A number of individuals also responded to this question. Jordan Kwan suggested dividing the fleet into a separate and third category to include SUVs, minivans and extended cab pick-up trucks as light trucks used primarily for transporting passengers. Hans Meyer states that the classification of light trucks should be further broken down into subcategories by separating SUVs and minivans from pick-up trucks. He argues that manufacturers would have to improve the fuel efficiency of SUVs rather than use more fuel-efficient pick-up trucks to raise the average and suggests using passenger-seating space as a measurement to differentiate between the subclasses.

D. Credit Availability

The RFC also sought comments on the possibility of manufacturers being allowed the opportunity to trade fuel economy credits—either with each other or by averaging their own credits across different classes of their own vehicles. The use of credits in these ways was not well received by public interest groups, while industry generally viewed it favorably.

The Sierra Club outright opposed these uses of credits citing automakers' history of ''gaming'' the current credit program. ACEEE, Little, Gorlitsky, and Ng stated that cross-class averaging should not be permitted. Public Citizen suggested that any initial system should be designed conservatively so as not to create unexpected loopholes and was opposed to linking credits to a broader greenhouse gas reduction registry or credit system. The group was also concerned that allowing such uses of credits could jeopardize the effectiveness of penalties.

Some industry members and trade groups believe credit averaging and

[7] However, in its comments to the light truck NPRM, DC was more cautious of any effort to reform the CAFE program, stating: ''No method to modify CAFE that has been described in the literature or discussed in the political debate is clearly superior to the current CAFE system in ensuring energy savings or a fair distribution of tasks.''

trading would improve the CAFE program by offering manufacturers a means of dealing with unexpected conditions and events. For example, AIAM noted that credit averaging between classes and between companies could provide manufacturers with increased compliance flexibility in dealing with unanticipated market shifts. AIAM also argued that a broad credit trading system would provide a strong incentive for manufacturers to earn credits through voluntary fuel economy improvements since there would be a strong likelihood that buyers would exist for the earned credits.

DaimlerChrysler and Toyota supported credit trading for the same reasons. In addition, Honda believes that credit trading between companies in other sectors of the market would increase competitive bidding and pricing of the credits. However, Ford opposed a credit trading system on the basis that such a system would likely cause a transfer of wealth from domestic full line manufacturers to foreign companies.

Although GM expressed reservations about NHTSA's authority to permit credit trading, the company indicated that a broad credit trading system would prompt all manufacturers to exceed CAFE standards. Nissan and Honda both applauded the flexibility that a broad-based credit-trading program would introduce into the CAFE program. Nissan believed that credit trading would encourage innovation by allowing manufacturers the ability to risk the use of new technologies.

E. Two-Fleet Rule

Under what is known as the ''two-fleet rule,'' manufacturers must, for CAFE purposes, place their domestically manufactured vehicles and non-domestically manufactured vehicles in separate fleets. Commenters, especially domestic manufacturers, generally expressed the view that the elimination of the two-fleet rule would not have major impacts on manufacturer actions. More specifically, the Alliance of Automobile Manufacturers suggested that this scheme might have encouraged the sourcing of non-domestic parts. Foreign manufacturers and trade associations generally believe the two-fleet rule is outdated and may constitute a trade barrier.

F. Separate Standards for Cars and Light Trucks

All public interest groups and individuals who commented believe that separate standards for cars and light trucks do not have any practical value under the CAFE standards. Sierra Club, ACEEE, IIHS, and PIRG called for the elimination of separate standards and advocated combining passenger automobiles and light trucks into a single class. IIHS suggested a single CAFE standard indexed to weight and cargo capacity. Public Citizen recognized that the car and truck fleets might not be combined absent Congressional authority, but stated that the loophole could be closed by substantially increasing the fuel standards for light trucks. If the rule is not eliminated, Public Citizen recommended utilizing a different set of criteria in distinguishing passenger automobiles from light trucks, such as ground clearance, four-wheel drive capacity, and/or tow weight.

G. Uniform Percentage Increase

While not addressed specifically in the RFC, the NAS study discussed a Uniform Percentage Increase (UPI) approach that would require every manufacturer to increase its current CAFE level by a specific percentage. Toyota, AIAM and AIADA opposed any efforts to adopt a uniform percentage improvement format. Toyota argued that UPI encourages manufacturers to ''rush to the bottom'' and violates that concept of ''same vehicle, same standard.'' AIAM stated that a system that is fair and equitable to all manufacturers is one that applies the same standards to all manufacturers at the same time. AIADA argued that the UPI approach penalizes auto manufacturers who historically have made the greatest commitments to improving fuel economy.

Similarly, the Alliance and DaimlerChrysler asserted several negatives to a UPI approach including penalizing manufacturers for early CAFE improvements, not accounting for fleet mix changes, focusing only on new vehicles, not affecting consumer behavior, and impacting manufacturers differently.

IV. The EPCA and CAFE Reform

In its January 2002 report, the NAS suggested a number of reforms, including: applying an attribute-based system to a combined car and light truck fleet, creating a credit trading program between manufacturers, and eliminating the two fleet rule for foreign and domestic content. The agency does not believe that the EPCA provides it with the authority to implement such reforms. However, on February 1, 2002, Transportation Secretary Norman Mineta wrote a letter to Congress requesting the necessary authority to reform the CAFE program, guided by the NAS report's suggestions. While Congress has not yet provided such express statutory authority, there have been legislative proposals that would require the agency to consider the NAS report when establishing CAFE standards.

Unlike many statutes, the EPCA is a particularly prescriptive one. It contains a number of provisions providing specific definition and structure to the CAFE program. We set forth below those aspects of any CAFE program we tentatively believe to be required by the EPCA. However, we seek comment on whether the EPCA provides us with more or less authority to implement potential reforms to the CAFE program.

Our review leads us to believe that the language and structure of the EPCA requires that we state any CAFE standard in terms of ''miles per gallon,'' that a CAFE standard for a class of any particular model year be considered as an ''average,'' and that we apply a single standard for all passenger automobiles. The statute provides more flexibility to establish classes of vehicles within the light truck category than is the case with passenger automobiles.

The statute defines ''fuel economy'' in Section 32901(10) as the average number of miles traveled by an automobile for each gallon of gasoline used. The fuel economy of individual vehicle models is measured in accordance with procedures established pursuant to Section 32904(c).[8] For passenger automobiles, but not light trucks, Section 32904(c) commands that testing and measurement procedures be the same as used in 1975. This data is then used to derive a manufacturer's average fuel economy level for each fleet. For passenger automobiles, Section 32904(a)(1)(B) requires use of a formula that results in derivation of the harmonic sales weighted average of a manufacturer's fleet. For light trucks, Section 32904(a)(1)(A) provides that a manufacturer's average fuel economy shall be calculated pursuant to a formula established by regulation.[9]

[8] Credit, penalty and alternative fuel incentive provisions are all predicated on the use of miles per gallon as a basic measure of fuel use. Because the statutory scheme relies on mpg as a basic unit of measure, we tentatively believe that any standard should either rely on mpg or be readily converted to a mpg measurement.

[9] The House Report for the Cost Savings Act suggests that Congress, while not mandating it, expected that a similar procedure would be used for light trucks: ''Average fuel economy (except when used with non-passenger automobiles) is a production-weighted average of the fuel economy of the manufacturer's entire production of passenger automobiles in a model year (subject to the special rules for imports). It is intended that the rules of the Secretary would provide for a similar computation for each class of non-passenger automobile.''

The EPCA expressly permits the implementation of different CAFE standards for differing classes of non-passenger automobiles (light trucks), but contains no evident corollary provision for passenger automobiles. Instead, embedded throughout the statute's terminology are references to a unified standard for passenger cars. The passenger car standard is established by statute. For non-passenger automobiles, Section 32902(a) directs the Secretary to establish average fuel economy standards and authorizes the establishment of different standards for different classes of these vehicles.

In light of these statutory constraints, the following sections present alternatives in three major areas for which the agency believes it clearly has the authority to implement reforms to the CAFE system: (1) Revising the structure of light truck standards to create differing classes of light truck CAFE requirements; (2) revising the vehicle classification definitions for determining whether a vehicle is a light truck or passenger car for CAFE purposes; and (3) increasing the weight limit for vehicles covered by CAFE standards from 8,500 lbs. GVWR to 10,000 lbs. GVWR. Although each option is presented separately on its own merits, the agency could consider combinations of various reforms. The impacts of various combinations have not been analyzed at this time. However, the agency welcomes comments regarding combinations of reforms.

V. The Structure of Light Truck Standards

In this section, two structural reforms for light truck standards are discussed. The first divides light trucks into two or more classes based on vehicle attributes. The second is an attribute-based ''continuous-function'' system, such as that discussed in the NAS report. In the discussion below, we have chosen measures of vehicle weight and/or size to illustrate the possible design of an attribute-based system. However, we also seek comment as to the merits of other vehicle attributes as the basis of an attribute-based system.

An attribute-based standard for light trucks based on vehicle weight is worthy of serious consideration for several reasons. First, a weight-based standard, by applying more stringent standards to lighter trucks, would reduce or eliminate the incentive for manufacturers to comply through downsizing, downweighting, or through offering for sale more products at the lighter end of the weight spectrum. These CAFE compliance strategies can increase safety risks and, depending on their application, could have safety implications if used with light trucks in the future. Second, a weight-based standard would provide a level playing field for manufacturers who choose a product mix tilted toward the low, middle, or heavy end of the light truck spectrum. Finally, a weight-based standard would provide an alternative basis for establishing ''maximum feasible levels'' of fuel economy, since the top performing vehicles within each weight class could, subject to mitigating factors (*e.g.*, acceleration capability and towing capacity), serve as a starting point for an analysis of the ''maximum feasible level'' of average fuel economy achievable by manufacturers competing in each weight class. Without the structure provided by weight classes, the determination of a ''maximum feasible level'' must be geared to the overall fleet.

The Japanese government is already using a simple weight-based standard to reduce fuel consumption in the transportation sector of the Japanese economy. There are eight weight classes in the Japanese system, which encompasses both cars and light trucks. Average fuel economy targets are set within each weight class, and the targets are more stringent for the lighter weight classes and less stringent for the heavier weight classes. The targets for gasoline-powered passenger vehicles were set for 2010 and represent about a 23% improvement in fuel economy compared to the 1995 baseline. Fuel economy targets are selected by a ''top runner'' method, whereby the targets for each weight class are established in part based on the best performing vehicle in that weight class. The original system was established without any opportunity for a multi-class manufacturer to average compliance across classes, as is the case in the present U.S. system (where manufacturers can ''offset'' under-compliance in one vehicle class on a one-for-one basis with over-compliance in the other). However, more recently the Japanese system was modified to allow ''offsets'' on a two-for-one basis: credits earned by a better-than-required fuel economy performance in one weight class are discounted by 50% when applied to compensate for worse-than-required performance in another weight class.

There are two basic objections to a weight-based system. The first objection is that such a system will increase the cost of compliance to manufacturers and consumers by removing the substitution of lightweight materials as a compliance strategy. Although this objection is theoretically valid, the NAS—after examining a wide range of CAFE compliance strategies—did not find the substitution of lightweight materials to be one of the more cost-effective strategies. Thus, it is not clear how important this objection will be for near-term regulatory policy.

The second objection is that a weight-based standard might not reduce fuel consumption because it will permit or cause light trucks to become larger and heavier over time. Consumers may demand larger light trucks and/or manufacturers may offer heavier light trucks if they are regulated less stringently. If more light trucks are offered in the heavier weight classes, it is theoretically possible that the overall fuel economy of the fleet would not increase significantly or might even decline under a weight-based standard. In order to prevent such an outcome, some have suggested that a weight-based standard must be accompanied by an overall fuel economy target for the entire light-truck fleet.

Although some of the fuel savings under a weight-based standard may be offset by ''upsizing'' or ''weight creep,'' it would not be wise to reject a weight-based standard on the basis of this argument alone. First, over time, the relative stringency of the standards for different weight classes can be adjusted or new weight classes created in order to dampen or eliminate any incentives to ''upsize'' into the less stringent class. Second, it is instructive to note that the Japanese government did not accompany their weight-based standards with a binding target for the entire fleet of new vehicles. It is too early to draw firm conclusions from the Japanese experience, but the early evidence suggests that the overall fuel economy of the Japanese fleet improved about 5% from 1995 to 2000, despite some upsizing trends in that fleet. Third, while vehicle manufacturers can be expected to make small, strategic adjustments in the weights of products that happen to be on the border between two weight classes, it is doubtful that they would make a vehicle significantly heavier (and possibly more expensive)—beyond what consumers demand—simply to be classified in a slightly more permissive weight class. Light truck manufacturers know that product design decisions must be made on the assumption that a particular design will be produced for at least 4 to 8 years and they know that fuel economy standards—and definitions of weight classes—could be changed during the life of a product. Finally, any strategic behavior by vehicle manufacturers would be much greater under the

current CAFE system than under a Japanese-style, weight-based standard because the compliance incentive to ''upsize'' from cars to light trucks is quite large (27.5 mpg versus 20.7 mpg in model year 2004) now and would be lessened by the creation of multiple classes of light trucks.

Although the Japanese system uses vehicle weight as the key attribute, a measure of vehicle size, such as ''shadow'' (defined as exterior length multiplied by vehicle width), warrants further examination. A size-based standard would reduce or eliminate any incentive to downsize vehicles, thus contributing to safety. Vehicle width contributes to a vehicle's stability (thereby reducing rollover risk) while vehicle length provides ''crush space'' for occupant protection. However, the empirical relationships between size and safety are less well known than the relationships between weight and safety. We seek further comments on the relative merits of a size versus weight-based approach.

A key question for attribute-based class systems is whether a manufacturer should be permitted to count superior fuel economy in one class to compensate for less-than-required fuel economy in another class. The EPCA does not directly address this issue, and the legislative history with regard to it is ambiguous. The EPCA conference committee report suggests (at p. 159) that Congress either intended that credit trading be disallowed between passenger automobiles and non-passenger automobiles or that it be disallowed between established classes of non-passenger automobiles:

> ''Any credit earned under this provision by exceeding an average fuel economy standard applicable to passenger automobiles may only be applied against a civil penalty assessed for failure to comply with an average fuel economy standard applicable to passenger automobiles. With respect to non-passenger automobiles, any credit earned under this provision may only be applied to automobiles of the same class for which the credit was earned.

The reference to ''the same class'' may imply a Congressional intent to limit credits to the particular class of non-passenger automobiles. The statute itself, however, appears to use the term more precisely to distinguish between passenger automobiles and non-passenger automobiles. Section 32903(e) states that:

> Credits for a manufacturer of automobiles that are not passenger automobiles are earned and applied to a model year in which the average fuel economy of that class of automobiles is below the applicable average fuel economy standard under section 32902(a) of this title, to the same extent and in the same way as provided in this section for passenger automobiles.

The phrase ''that class of automobiles'' appears to refer to those that are not passenger automobiles, rather than to different classes of non-passenger automobiles.

When enacted in the 1970s, the EPCA anticipated averaging among classes, or 1-to-1 credit averaging. More recent credit trading constructs, however, may advance the goals of the EPCA in ways not directly anticipated during that time. For example, a credit system like the one employed by the Japanese could advance the energy conservation objectives of the statute (by encouraging over-compliance due to the 2-to-1 ratio in credits), while providing valuable compliance flexibility to vehicle manufacturers.

Proponents of discounting credits, such as the Japanese averaging system described above, argue that discounts are beneficial because they guarantee greater fuel savings than would occur without discounting. In the Japanese example, only half the fuel economy in excess of a standard may be used to offset vehicles that would not otherwise meet the standard. The remaining half would effectively be applied to greater fuel economy. As a consequence, to the extent that manufacturers make use of averaging, the overall level of fuel economy they achieve will be greater with discounts than without, other things equal.

Opponents of discounting point out that discounting effectively functions as a tax on averaging. As such, it will reduce the amount of averaging that would otherwise take place and diminish the cost savings that averaging could provide. The magnitude of the deterrent effect of a discount is directly related to its magnitude.

The general trend in Federal averaging programs in environmental regulation is away from discounting credits. For example, the Environmental Protection Agency typically mandates discounts on averaging and trading programs only in special cases, such as to account for uncertainties in how credits are calculated or enforced. Comments on the merits of different options for averaging across vehicle classes, as well as comments on whether NHTSA has the statutory authority to consider such options, are requested.

Below we discuss in more detail a range of different attribute-based standards. We seek comment on each system presented with regard to practical considerations, such as lead-time, potential approaches to a phase-in and the treatment of credits and penalties during a transition period. We seek comment on potential ideas that would discourage or preclude the possibility of manufacturers' increasing the weight and size of their vehicles under each system, which could actually lower fleet fuel economy and—if concentrated at the high end—have negative safety implications. We also seek comments on whether other measures of vehicle utility, such as payload capacity, interior volume, number of designated seating positions, towing capacity, etc., could be utilized as attributes, and how each of these systems would possibly operate.

A. Two or More Classes of Light Trucks

With the exception of different standards for 2-wheel vs. 4-wheel drive trucks, to date the agency has not attempted to create differing classes of light trucks. The creation of two or more light truck classes might have many benefits. The use of multiple classes might allow standards to better reflect the fuel economy potential of different vehicle types. Minivans, for example, tend to have greater fuel economy than SUVs, and many SUVs have greater fuel economy than pickup trucks. A system with multiple light truck classes could distinguish between these types of vehicles and more closely align them with their real-world use and performance.

One possible approach would be to divide light trucks into two weight or size classes, one above and one below the vehicle weight identified in NHTSA's updated size and safety study as the point where weight reductions begin to produce fleet-wide or net safety benefits. The light trucks having an attribute that is above this weight ''break point'' (or a comparable size ''break point'' derived from the weight ''break point'') would be subjected to a relatively more challenging (but still feasible and practicable) fuel economy standard than the other class of trucks. This would provide some incentive to downweight or downsize these larger vehicles to improve their fuel economy, and as a result, may improve the overall safety of the light vehicle fleet. This approach would appear to achieve some of the same objectives as the continuous function weight-based system suggested by the NAS committee.

In determining possible classes under a weight-based or a size-based system, an analysis was performed to attempt to identify analogous classes under both systems. This analysis attempted to identify a logical safety plateau for size that coincides with the weight safety plateau in a two-class system. The results show a good correlation between

size and weight. However, there are no absolute matches between vehicles in each of the size or weight classes. This is largely due to vehicles with a somewhat smaller size having the same or greater weight than larger vehicles. These vehicles are generally SUVs that are designed to be very capable in off-road situations in addition to their utility for carrying people and cargo.

Under a weight-based scenario, it appears that a logical break point would be at a vehicle curb weight of above 4,900 pounds. This is consistent with the approximate safety plateau weight (5,085 lbs.) reported in NHTSA's updated size and safety study regarding the point at which weight reduction would have safety benefits.[10] Setting the break point at this weight also enables multiple configurations of some vehicles to stay within the same weight class, providing manufacturers with flexibility in meeting the potential standard that could be established for this class. This weight is based on the composition of the MY 2002 light truck fleet and may need to be adjusted depending on the composition of the light truck fleet in future model years. The break point of 4,900 pounds was chosen because vehicles weighing in excess of that weight appear to be the ones most likely to be used for commercial and agricultural purposes. If the break point was raised to 5,085 lbs., many vehicles designed for commercial and agricultural purposes would be lumped together with vehicles generally designed for carrying passengers in a lower weight class. Including many of these vehicles weighing in excess of 4,900 lbs. in a lower weight class could remove any incentive manufacturers may have to downweight or downsize these larger vehicles to improve their fuel economy, and as a result, possibly improve the overall safety of the light vehicle fleet.

Vehicles with curb weights above 4,900 pounds include the heaviest SUVs. They also include the heavier full-size pickup trucks, such as those with a larger cab and those with long cargo beds, and long-wheelbase cargo and passenger vans. If manufacturers choose to reduce the weight of these heavier light trucks to achieve higher fuel economy, there might be an overall improvement in the safety and compatibility of the light-duty fleet.

[10] The interval estimate of the safety break point in the NHTSA study ranges from 4,224 to 6,121 pounds. The range suggests considerable uncertainty regarding the exact location of the safety break point in MY 1991–1999. Setting the upper weight class at over 4,900 pounds is well within this range.

Under a size-based scenario, the analysis looked at a measure of vehicle ''shadow'' (length multiplied by width in square inches) as the size parameter. We determined a logical safety break point to be a size of at least 16,001 square inches. As noted, this break point is derived from the weight break point. This class of vehicles would include the biggest SUVs, but not necessarily all of the vehicles in the over 4,900 lb GVWR weight class. It would also include all full-size pickup trucks and all full-size cargo and passenger vans. These vehicles appear to be the ones most likely to be used for commercial and agricultural purposes and generally have lower fuel economies than other light trucks.

Another approach to refining the light truck CAFE program would be to create multiple classes of light trucks based on vehicle weight or size. Such a system might increase fuel savings by giving regulators the ability to set different standards for vehicles with different capabilities. A multiple size class system recognizes that some vehicles must, to fulfill their functions as trucks, be large and use more fuel. Such a system would create a variety of classes, each aimed at a particular segment of the light truck fleet.

An example of a multiple class system can be found in Japan. The Japanese government has implemented fuel economy standards pursuant to the Law Concerning the Rational Use of Energy. With regard to light trucks, the Japanese have established fuel economy performance targets for eight classes of gasoline-fueled trucks. These eight classes are divided by vehicle weight and range from small cars (under 1,547 lbs) up to large trucks (above 3,342 lbs).

The lightest two classes each encompass 125 kilogram (275 lb.) intervals, while the largest 6 classes encompass 250 kilogram (551 lb.) intervals. Standards are set by identifying a ''top runner''—a vehicle with the best fuel economy performance within a particular segment—and requiring the sales weighted average of all vehicles within that segment to meet the top runner's performance at a future date. If a manufacturer exceeds the performance required in a certain segment, it earns credits that may be applied to offset a failure to meet the requirements in another segment. However, any credits used in this fashion are discounted by 50% before they are applied.

The ''top runner'' concept emphasizes the technological feasibility of achieving fuel economy within a certain class. While NHTSA must also consider other factors such as economic practicability and safety when establishing CAFE standards, the Japanese concept of creating various classes of light trucks might be employed. In determining possible classes under a weight-based or a size-based system, an analysis was performed to attempt to identify logical classes. This analysis attempted to identify a logical safety break point for both weight and size in a four- and five-class system based on available data for MY 2002 light trucks.

The agency has attempted to separate vehicles into possible classes with those having similar utility, function and capability. In arriving at the possible weight and size classes, NHTSA took into consideration all available information regarding the future light truck market and took measures to assure that new vehicles would be placed in appropriate classes. NHTSA is well aware that many of the attributes of the MY 2002 fleet may change by MY 2008, with some of these vehicles being discontinued and others being newly introduced into the market.

The agency is also considering defining either a weight-based, multi-class system or a size-based, multi-class system. Each system incorporates the safety break point discussed in the two-class system described above (4,900 lbs. or comparable size), and then creates either three or four additional classes.

Under a four-class system, the possible weight classes are (1) up to 3,400 pounds curb weight; (2) from 3,401 pounds to 4,300 pounds curb weight; (3) from 4,301 pounds curb weight to 4,900 pounds curb weight; and (4) above 4,900 pounds curb weight. In a five-class system, the second weight class could be broken out into two separate weight classes: (i) from 3,401 pounds to 3,900 pounds curb weight and (ii) from 3,901 pounds to 4,300 pounds curb weight.

The class of light trucks up to 3,400 pounds curb weight would comprise almost all car-based SUVs, many small pickup trucks powered by 4-cylinder engines with standard cabs and short beds, and some smaller SUVs with off-road capability. As a class, these vehicles had an average fuel economy of 26.6 mpg based on the MY 2002 fleet.

The 3,401 pounds to 4,300 pounds curb weight class would comprise many small- to medium-sized 2WD SUVs, most minivans, medium-sized crossover vehicles, small pickup trucks powered by 6-cylinder engines with extended cabs and long beds, some full-size pickup trucks with standard cabs and short beds, and medium-sized cargo and passenger vans. As a class, these vehicles had an average fuel economy of 22.0 mpg based on the MY 2002 fleet.

This weight range can be broken down into two additional weight classes. These separate weight classes would be from 3,401 pounds to 3,900 pounds curb weight and from 3,901 pounds to 4,300 pounds curb weight. The lighter weight class would comprise mostly smaller SUVs, medium-sized crossover vehicles and 2WD small pickup trucks. As a class, these vehicles would have an average fuel economy of 22.6 mpg based on the MY 2002 fleet.

The higher weight class would mostly comprise medium-sized 2WD SUVs, the larger minivans, 4WD small pickup trucks, some full-size pickup trucks with standard cabs and short beds, and medium-sized cargo and passenger vans. As a class, these vehicles would have an average fuel economy of 21.8 mpg based on the MY 2002 fleet.

The 4,301 pounds to 4,900 pounds curb weight class would comprise many medium-sized 4WD SUVs, some medium-sized 2WD SUVs, a few larger minivans including those with 4WD, medium-sized pickup trucks, some full-size pickup trucks with standard cabs and short beds, some with 4WD, and some short-wheelbase cargo and passenger vans. As a class, these vehicles would have an average fuel economy of 19.7 mpg based on the MY 2002 fleet.

As noted above, vehicles with curb weights above 4,900 pounds include the heaviest SUVs and the heavier full-size pickup trucks, such as those with larger than the standard cab and those with long cargo beds, and long-wheelbase cargo and passenger vans. As a class, these vehicles would have a MY 2002 average fuel economy of 17.7 mpg.

Under a size-based scenario, the analysis looked at exterior vehicle ''length times width'' (sq. in.) as the size parameter. It appears that a logical safety break point is vehicles that have a size above 16,000 sq. in. (111 sq. ft.) As a class it appears that these vehicles would have an average fuel economy of 18.3 mpg based on the MY 2002 fleet. This size delineation generally corresponds to the distinction between vehicles weighing less and more than 4900 lbs.

Under a 4-class system, the possible size classes are (1) up to 12,450 sq. in. (86.5 sq. ft.); (2) from 12,451 sq. in. to 14,500 sq. in. (86.5 sq. ft. to 100.7 sq. ft.); (3) from 14,501 sq. in. to 16,000 sq. in. (100.7 sq. ft. to 111 sq. ft.); and (4) greater than 16,000 sq. in. (112 sq. ft. or more). Under a 5-class system, the second size class could be broken out into two separate size classes (i) from 12,451 sq. in. to 13,100 sq. in. and (ii) from 13,101 sq. in. to 14,500 sq. in.

The up to 12,450 sq. in. size class would comprise almost all car-based SUVs and many smaller SUVs that have very capable off-road ability, such as Jeep Wranglers. As a class, these vehicles would have an average fuel economy of 23.8 mpg based on the MY 2002 fleet. In comparing the smallest size class to that of the lightest weight class, one may have expected the average fuel economy for each class to be much closer. The lower average fuel economy associated with the smallest size class is largely caused by the inclusion of some small, heavy SUVs in this class. Many of those same vehicles would reside within heavier weight classes under a possible weight-based system.

The 12,451 sq. in. to 14,500 sq. in. size class would comprise the vast majority of the personal use SUV and crossover market, all small and medium-sized pickup trucks (except those with ''crew cabs'') and minivans with smaller wheelbases than those in the next largest size class. As a class, these vehicles would have an average fuel economy of 20.9 mpg based on the MY 2002 fleet.

This size class can be broken down into two additional size classes. As discussed earlier, these separate size classes would be from 12,451 sq. in. to 13,100 sq. in. and from 13,101 sq. in. to 14,500 sq. in. The smaller size class would comprise mostly smaller personal use SUVs, and many of the smaller pickup trucks. As a class, these vehicles would have an average fuel economy of 22.4 mpg based on the MY 2002 fleet. The larger size class would comprise the vast majority of the medium-sized personal use SUV and crossover market, the remaining small and medium-sized pickup trucks (except those with ''crew cabs''), and minivans with smaller wheelbases. As a class, these vehicles would have an average fuel economy of 20.7 mpg based on the MY 2002 fleet.

The 14,501 sq. in. to 16,000 sq. in. size class would comprise many full-sized SUVs (*i.e.*, those without extended wheelbases), many larger minivans, some large crossover vehicles, some medium-sized pickup trucks with ''crew cabs,'' and all medium-sized cargo and passenger vans. As a class, these vehicles would have an average fuel economy of 20.8 mpg based on the MY 2002 fleet. Although it is logical to expect the 14,501 sq. in. to 16,000 sq. in. size class to have a lower CAFE than the next smallest size class, it's instructive to note that this size class is comprised of a large quantity of minivans that possess relatively high fuel economies. Because CAFE is a sales-weighted average, the MY 2002 average fuel economy for this class is not unexpected.

The 16,001 sq. in. and up size class would comprise all full-size pickups, all full-size cargo/passenger vans, and the largest of the full-size SUVs (*i.e.*, those with extended wheelbases). As a class, these vehicles would have an average fuel economy of 18.3 mpg based on the MY 2002 fleet.

Although these possible weight and size classes exhibit a fair correlation between classes, especially in regards to the overall quantity of vehicles in each relative class, there are no absolute matches between vehicles in each of the relative classes. This is largely due to vehicles with smaller sizes weighing more than other vehicles in the same size class. Specific examples include some of the larger minivans, some luxury imported SUVs, and some small off-road capable SUVs (*i.e.*, Wrangler, Rodeo Sport).

The above discussion focused on two, three and four category class systems with specific boundaries. There is no reason that systems with more categories, or different category boundaries cannot be considered. The agency invites comment on both the number of classes in a system and the delineation of categories within a classification system.

While it has advantages, a multiple class weight or size-based classification system may also present some disadvantages. Because the CAFE standard for each class would likely decrease as the weight or size of the vehicles in each class increased, the system might encourage manufacturers to increase vehicle weight or size at or near each upper boundary. This ''size or weight creep'' could result in increased overall fuel consumption. The agency notes that a size-based system might be less susceptible to that problem. Further, if manufacturers are unable to average credits between classes, a system with many classes would lack the flexibility of one with a single class or just two classes.

B. Functional Attribute-Based System

1. Weight-Based Standard

It is possible that future CAFE standards could be based on a continuous function relating one or more attributes to fuel economy. The NAS report suggested the adoption of a fuel economy standard that decreases as vehicle weight increased. One of the principal advantages of a weight-based system, according to the NAS, is that it removes the incentive to reduce vehicle

weight to improve fleet fuel economy, and thereby helps to improve safety.

A simple weight-based standard could be based on a relationship in which fuel consumption (gallons per mile) varies with respect to curb weight. Compared to a single value standard, a simple weight-based standard could discourage manufacturers from complying by reducing vehicle weight or reduce the incentive that exists under the current program. However, NHTSA's updated size and safety study suggests that fleet-wide safety is unlikely to be compromised—and may actually be enhanced—by modest reductions in the weight of vehicles of curb weight greater than approximately 5,000 pounds. Such considerations led the NAS to suggest a standard that would be weight-based below 4,000 pounds and fixed for vehicles weighing above 4,000 pounds.[11] This concept is illustrated in Figure 1.

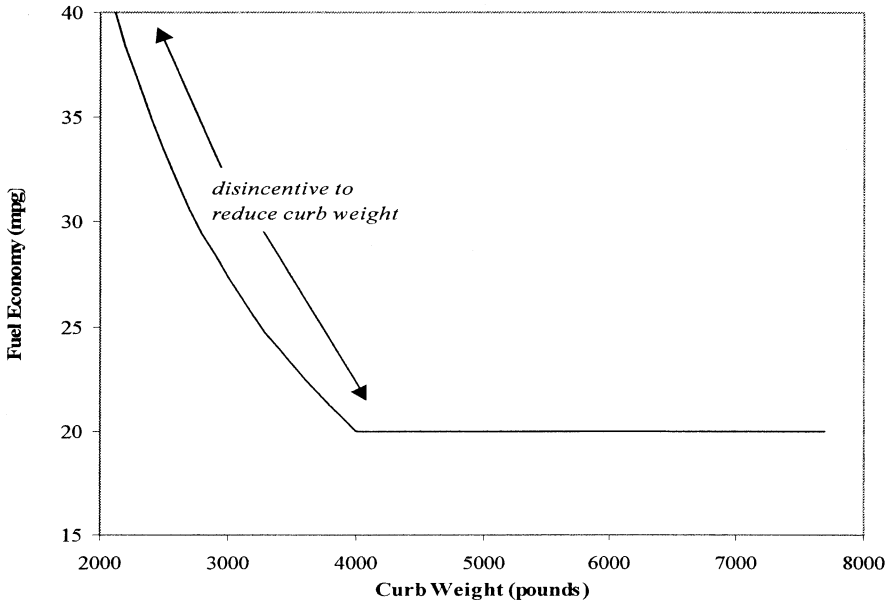

Figure 1. NAS E-CAFE Standard (mile per gallon basis)

As observed by the NAS, while limiting the incentive to reduce the weight of lighter vehicles, this approach would create ''a strong set of incentives to improve the fuel economy of the heaviest vehicles.'' (NAS, p. 108) As is true under the current fixed-value CAFE system, the E-CAFE standard would not discourage weight reduction as a compliance strategy above this 4,000-pound break point.

Using the NAS E–CAFE concept as a model, we have considered how such a weight-based standard might be applied to the light truck fleet. We considered a similarly discontinuous function with a fixed value at curb weights over 5,000 pounds. However, our analysis is focused on light trucks alone, rather than light trucks and cars together. For illustrative purposes, we used the prevailing standard for passenger cars, 27.5 mpg, as a constant at the lower end of the truck weight range. Because this function involves discontinuities near which behavior might be distorted, we also examined a continuous function (in this case, a logistic function) that approaches limits equal to the constant-value segments of the discontinuous function.

To better understand the implications of these two potential standards, we used data for the MY 2002 fleet and adjusted the constants for each function until the stringency as applied to the overall industry was equivalent to the stringency under the baseline standard (*i.e.*, a constant-value standard of 20.7 mpg). The individual data points plotted in Figure 2 show the curb weights and fuel economies of different light truck models sold in MY 2002. The dashed line shows the constant-value 20.7 mpg standard applicable in MY 2002. The two solid lines show weight-based standards that would have been equivalent in stringency (*i.e.*, that given the same mix of vehicles, would have resulted in the same net fines required) to the constant-value 20.7 mpg standard. The cross-marked solid line shows a standard modeled on the NAS E–CAFE approach and an underlying linear dependence of fuel consumption on curb weight. The unmarked solid line shows a standard that uses an underlying logistic dependence of fuel consumption on curb weight. While these examples both originated from statistical analysis of the MY 2002 data, because a CAFE standard fulfills a prescriptive rather than descriptive purpose, there is no a priori reason any attribute-based standard for a future model year would need to fit the historical data.

[11] It should be noted that the 4,000 lb. break point identified by NAS is not based on the updated NHTSA size and safety study, and that the point selected by NAS reflects a system that combines both cars and light trucks into a single category. Therefore, that break point might not be appropriate under the system considered here.

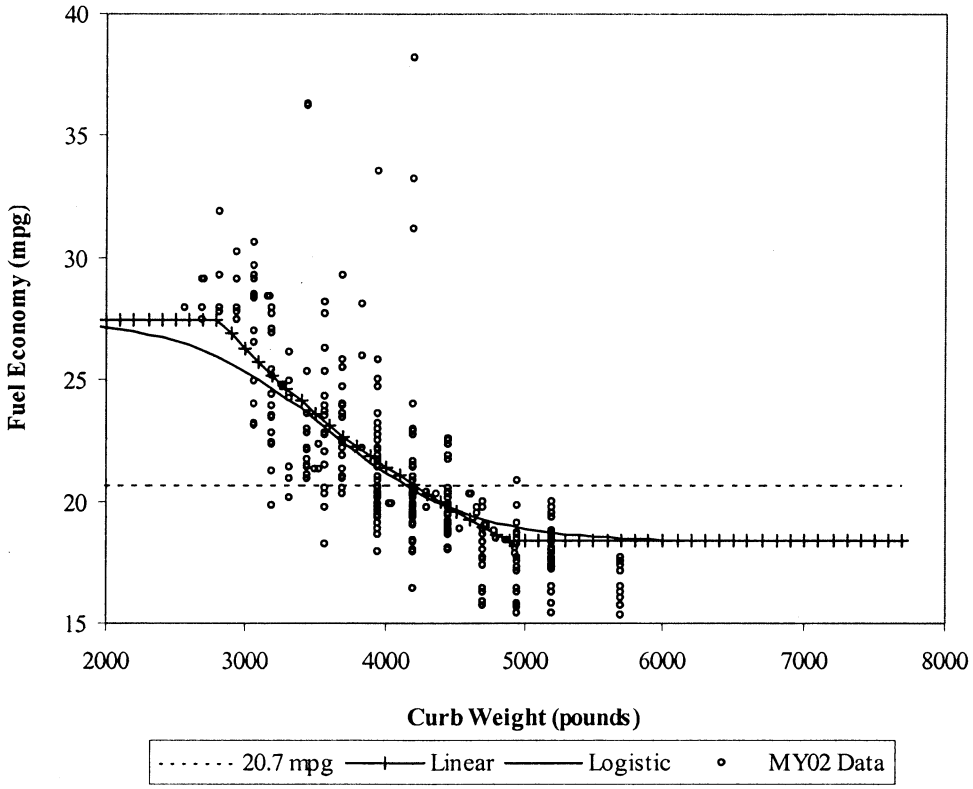

Figure 2. Weight-Based Standards

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A primary concern with any attribute-based standard is the impact that such a standard could have on safety. Because fuel economy is heavily influenced by vehicle weight, the current standard for light trucks provides an incentive to reduce vehicle weight throughout the entire range of light trucks. Agency analysis indicates that safety would likely be preserved or even improved if such weight reductions were applied primarily to heavier light trucks. Therefore, the weight-based standards considered here would introduce a disincentive to reduce the weight of vehicles with curb weights below 5,000 pounds, but would also provide an incentive to reduce the weight of heavier vehicles.

A weight-based standard would have different impacts on different manufacturers based on the characteristics of their respective fleets. Depending on the uncertain economics and market implications of weight increases for vehicles below 5,000 pounds, a weight-based standard could possibly induce manufacturers to increase the weight of these vehicles and inhibit substantial increases in fuel economy. Nevertheless, the existence and extent of this effect will depend on the precise level of stringency that is established in future rulemaking, which will set the CAFE standard at the ''maximum feasible'' level subject to the existing statutory criteria.

2. Size-Based Standards

Vehicle size, expressed as ''shadow,'' may present an alternative measure for a similar system. A size-based CAFE standard would help to hold size, rather than weight, constant while improving fuel economy. While the relationship between weight and safety has been more fully reviewed (and generally focuses on the effects of vehicle incompatibility), using shadow as a measure may encourage manufacturers to build vehicles with greater rollover resistance.

In order to evaluate the possibility of using a size-based system, we performed a similar analysis to that described above for weight-based standards. Consistent with the class-based approach discussed above, we considered standards that assumed or approached a constant value for all trucks whose ''size'' or shadow was greater than 111 square feet (16,000 square inches) in order to preserve neutrality with respect to downsizing as a compliance strategy for the largest vehicles. We also limited this standard to a maximum of 27.5 mpg for the smallest vehicles. As we did for weight-based standards, the agency considered both a discontinuous (piecewise linear) standard and a continuous (logistic) standard.

After developing these formulas, we then applied them to the MY 2002 model year in a fashion similar to that shown above for the weight-based standards. Using model year 2002 data, both standards were constructed to provide industry-wide stringency equivalent to the baseline constant-value standard of 20.7 mpg. These size-based standards are shown graphically in Figure 3, where the MY 2002 CAFE standard of 20.7 mpg is represented by a dashed line.

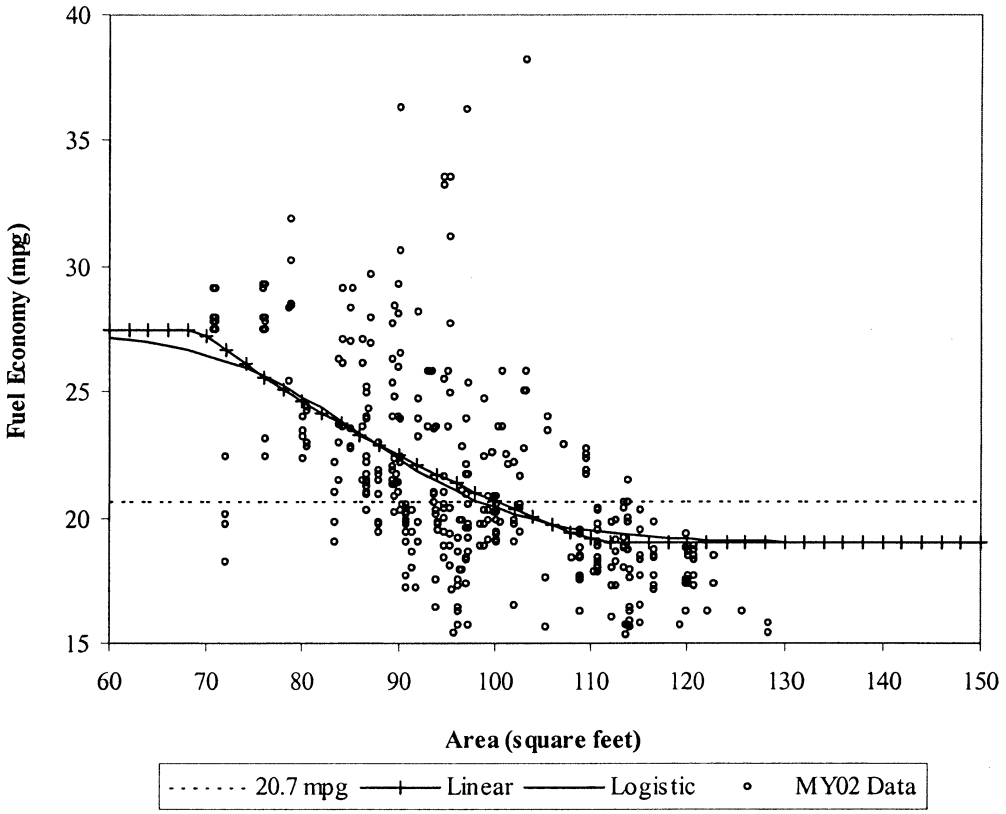

Figure 3. Size-Based Standards

Figure 3. Size-Based Standards

Analogous to the weight-based standards shown in Figure 3, the size-based standards shown in Figure 3 would introduce a disincentive to reduce the size of most vehicles of size less than approximately 110 square feet. Because of the relationships between size, weight, and fuel economy, NHTSA expects that this would provide a more positive safety incentive than a constant-value function due to the fact that, given similar height and weight, a larger vehicle usually provides greater occupant self-protection than the smaller vehicle.

A size-based standard would also entail similar concerns regarding the potential that fuel savings would be lower than expected because manufacturers would increase the size of many smaller vehicles (below 110 square feet). As under either a constant-value or weight-based standard, though, NHTSA would address this concern through the normal process of regularly updating light truck standards.

3. Mixed Attribute-Based Standards

Because weight-based and size-based standards would likely have different safety and economic implications, we also considered standards defined by functions of both weight and size. The first approach we considered was based on a functional form suggested in a recent report by Argonne National Laboratory.[12] This form begins with a linear dependence of fuel consumption (in gallons per mile, or gpm) on curb weight, but then provides ''extra credit'' for ''weight-efficient'' vehicles—that is, vehicles with curb weights that are not unusually heavy relative to their sizes. Table 3 and Figure 4 show how such a mixed standard might appear if applied to the light truck fleet at a level of overall stringency equivalent to a 20.7 mpg constant-value CAFE standard.[13]

TABLE 3.—WEIGHT-BASED STANDARD (MPG) WITH ''EXTRA CREDIT'' FOR ''WEIGHT EFFICIENCY''

Curb weight (lb)	Area (square feet)									
	60	70	80	90	100	110	120	130	140	150
2000	33.5	32.7	32.2	31.9	31.6	31.3	31.1	30.9	30.8	30.7
2500	30.3	29.5	28.9	28.4	28.1	27.8	27.6	27.4	27.2	27.1
3000	27.9	27.0	26.3	25.8	25.4	25.1	24.9	24.7	24.5	24.3
3500	26.1	25.0	24.3	23.8	23.3	23.0	22.7	22.5	22.3	22.2

[12] Argonne National Laboratory, ''Examining the Potential for voluntary Fuel Economy Standards in the United States and Canada'' Argonne, IL, October 2002.

[13] The standard shown is of the following form: gpm = a*(b*CW-c)*[d-e*CW/(f*A-g)], where CW is curb weight, A is area, and a, b, c, d, e, f, and g are constants.

TABLE 3.—WEIGHT-BASED STANDARD (MPG) WITH "EXTRA CREDIT" FOR "WEIGHT EFFICIENCY"—Continued

Curb weight (lb)	Area (square feet)									
	60	70	80	90	100	110	120	130	140	150
4000	24.7	23.5	22.7	22.1	21.7	21.3	21.0	20.8	20.6	20.4
4500	23.7	22.3	21.4	20.8	20.3	19.9	19.6	19.3	19.1	18.9
5000	22.9	21.4	20.4	19.7	19.2	18.7	18.4	18.1	17.9	17.7
5500	22.3	20.6	19.6	18.8	18.2	17.8	17.4	17.1	16.9	16.7
6000	21.9	20.1	18.9	18.0	17.4	16.9	16.6	16.3	16.0	15.8
6500	21.7	19.6	18.3	17.4	16.7	16.2	15.8	15.5	15.2	15.0
7000	21.6	19.3	17.9	16.9	16.2	15.6	15.2	14.9	14.6	14.3
7500	21.7	19.1	17.5	16.4	15.7	15.1	14.7	14.3	14.0	13.8
8000	22.0	19.0	17.2	16.1	15.3	14.7	14.2	13.8	13.5	13.2

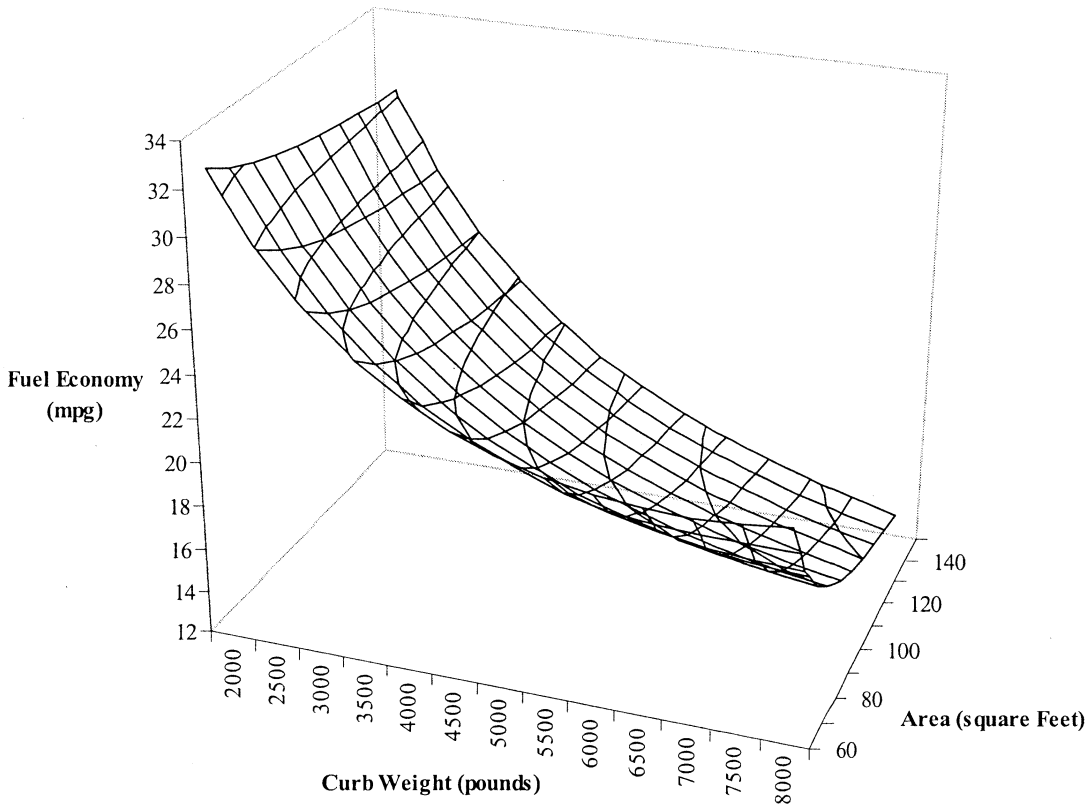

Figure 4. Weight-Based Standard with "Extra Credit" for "Weight Efficiency"

Figure 4. Weight-Based Standard with "Extra Credit" for "Weight Efficiency"

Similar to the weight-based standard shown in Figure 2, this standard would generally discourage weight reduction as a compliance strategy. This standard would also generally discourage size reduction, though not as strongly as the size-based standard shown in Figure 3.

Depending on the specific constants chosen, the standard could theoretically encourage compliance through weight reduction rather than other means (such as powertrain efficiency) for some vehicles. For the function shown in Figure 4, this would occur for vehicles that are simultaneously smaller than 70 square feet and heavier than 7000 pounds. Manufacturers may opt to reduce the weight of such vehicles in order to take advantage of a lower standard at lighter vehicle weights. However, such vehicles would be both smaller and heavier than all of the vehicles in the current U.S. fleet. Thus, further weight reduction appears to be an unlikely compliance strategy. Additionally, reducing the weight of such heavy vehicles would most likely improve highway safety.

The mixed standard would also discourage weight reduction as a compliance strategy even for vehicles with curb weights well above 5,000 pounds and, as mentioned above, would not strongly discourage size reduction. At low curb weights (less than 3,000 lbs.) and small sizes, this standard would impose class targets that exceed the existing 27.5 mpg standard for passenger cars.

We also considered a mixed standard that would combine the logistic weight- and size-based standards shown in Figure 2 and Figure 3, respectively. This approach is illustrated by the standard shown in Table 4 and Figure 5. Like the standard shown in Table 3 and Figure 4, this standard has a gradual "bowl" shape over most of the relevant region.

However, this logistic standard approaches an upper limit of 27.5 mpg limit at low curb weights and sizes as well as a lower limit at high curb weights and sizes.[14]

TABLE 4.—LOGISTIC WEIGHT- AND SIZE-BASED STANDARD (MPG) WITH "EXTRA CREDIT" FOR "WEIGHT EFFICIENCY"

Curb weight (lb)	Area (square feet)									
	60	70	80	90	100	110	120	130	140	150
2000	27.5	27.5	27.4	27.3	27.2	27.1	27.1	27.1	27.1	27.1
2500	27.5	27.4	27.2	26.9	26.6	26.5	26.4	26.4	26.4	26.4
3000	27.4	27.3	26.8	26.1	25.5	25.2	25.0	25.0	25.0	25.0
3500	27.3	27.0	26.1	24.8	23.6	23.0	22.7	22.7	22.7	22.6
4000	27.2	26.6	25.3	23.1	21.4	20.6	20.3	20.2	20.1	20.1
4500	27.1	26.3	24.5	21.9	19.8	18.9	18.5	18.4	18.4	18.4
5000	27.1	26.2	24.2	21.2	19.0	18.0	17.7	17.5	17.5	17.5
5500	27.0	26.1	24.0	21.0	18.7	17.7	17.3	17.2	17.1	17.1
6000	27.0	26.1	23.9	20.9	18.6	17.5	17.2	17.0	17.0	17.0
6500	27.0	26.1	23.9	20.8	18.5	17.5	17.1	17.0	17.0	16.9
7000	27.0	26.1	23.9	20.8	18.5	17.4	17.1	17.0	16.9	16.9
7500	27.0	26.1	23.9	20.8	18.5	17.4	17.1	17.0	16.9	16.9
8000	27.0	26.1	23.9	20.8	18.5	17.4	17.1	17.0	16.9	16.9

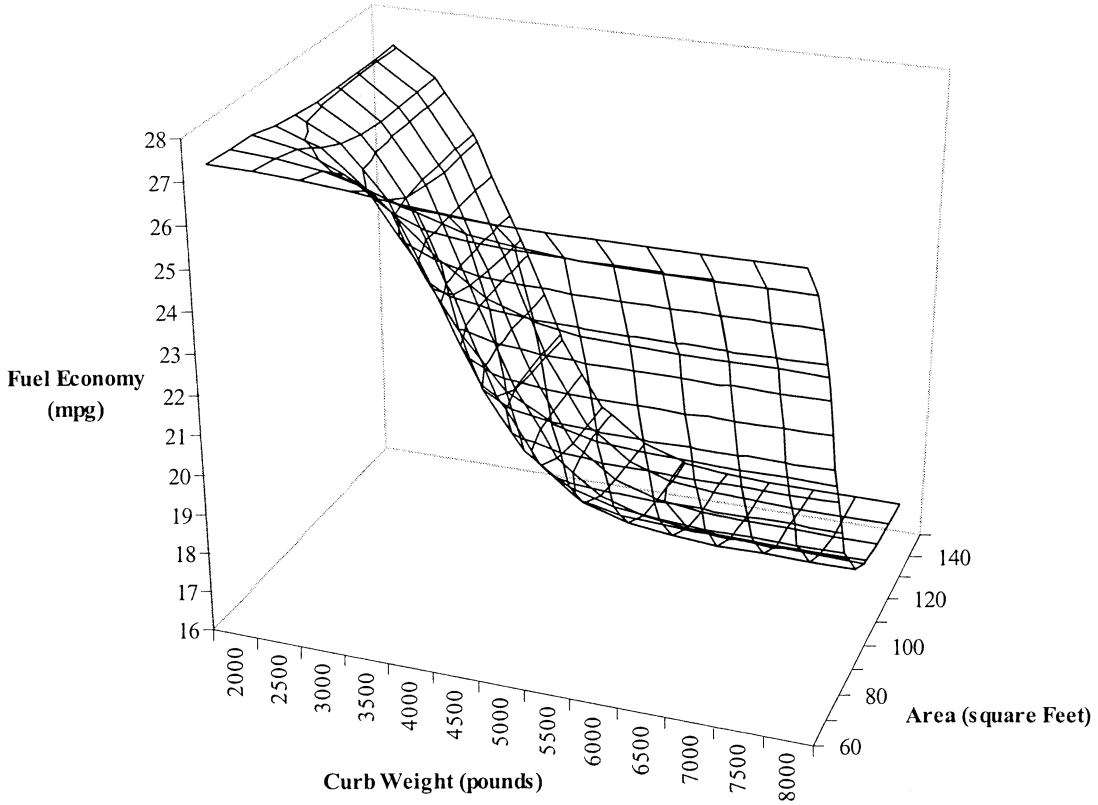

Figure 5. Logistic Weight- and Size-Based Standard

Figure 5. Logistic Weight- and Size-Based Standard

Similar to the standard shown in Figure 4, this standard would discourage both weight and size reduction. However, the logistic weight- and size-based standard shown in Figure 5 would more clearly focus this disincentive on those vehicles for which such reductions would most likely entail safety penalties. This standard would remain neutral with respect to

[14] Approximately 16.8 mpg for an overall stringency equivalent to a constant-value standard of 20.7 mpg.

size and weight reduction as a compliance strategy for the largest vehicles. For the smallest vehicles, this standard would be constrained by the constant-value standard for passenger automobiles.

C. Fixed Attribute System

A variant of the functional attribute system described above is a ''fixed'' attribute system.[15] The key difference is that, under a fixed attribute system, the relevant vehicle attribute(s) are ''fixed'' for each manufacturer at the levels reflecting that manufacturer's fleet mix in some prior (''reference'') model year. For example, each manufacturer's vehicle weight mix might be ''fixed'' for as long as the standard remains in place.[16] The manufacturer would, of course, be free to vary the attribute levels in subsequent years, but its CAFE target in any future year would continue to be based on its vehicle attribute level in the reference year. A fixed attribute system would, in essence, ''lock in'' a corporate fleet's reference-year attribute (*e.g.*, weight or size) for the purpose of regulation. This approach was devised to address the potential for upsizing/weight-creep that could occur in a functional weight-based system.

Under a fixed attribute system, each manufacturer's overall effective CAFE for any given model year is determined by the CAFE standard and the mix of vehicles it produced in some prior (''reference'') model year. For any given model year subject to a fixed-attribute standard, each manufacturer's effective CAFE target is independent of the mix of vehicles it produces. If, for example, manufacturer A produced a lighter vehicle mix than manufacturer B in the reference year, it would be subject to a more stringent effective CAFE than manufacturer B, even if manufacturer B chose a lighter vehicle mix than manufacturer A in a subsequent model year. Thus, compared to a functional attribute system, a fixed attribute system provides a somewhat different set of incentives. If, for example, weight is the relevant attribute, a fixed attribute system provides a relatively greater disincentive to increase (and relatively greater incentive to decrease) weight and than under a functional attribute system.

Given the relationship between weight and fuel economy, a fixed-attribute weight-based system such as that described above would, like the current system, provide an incentive to reduce vehicle weight throughout the range of light trucks. As discussed previously, the risk of adverse safety impacts caused by the current CAFE system could be mitigated by focusing weight reduction on some comparatively heavy vehicles, and discouraging weight reduction on some comparatively light vehicles. One possible means of focusing this incentive on the vehicle weight range in which weight reduction is the most compatible with safety considerations would be to apply a safety-based adjustment when calculating the CAFE level that would be required under a fixed-attribute system. For example, if weight reduction is expected to compromise overall safety when applied to vehicles below 5,000 pounds, but not when applied to vehicles above 5,000 pounds, the fixed-attribute CAFE level required of a given manufacturer could be adjusted using a ''safety adjustment factor'' that is based on that manufacturer's distribution of vehicle weights (*e.g.*, the fraction and average weight of that manufacturer's light trucks having curb weights above 5,000 pounds). The implications of such an adjustment would depend on each manufacturer's product mix. The Agency invites comment on how a practical fixed-attribute system should be designed and implemented, including both advantages and disadvantages.

VI. Definitional Changes to the Current Vehicle Classification System

In the EPCA, Congress created the basic distinction between passenger automobiles and non-passenger automobiles. Section 32901(16) defines a ''passenger automobile'' as an ''automobile that is manufactured primarily for transporting not more than 10 individuals, but does not include an automobile capable of off-highway operation that the Secretary decides by regulation—(A) has a significant feature (except 4 wheel drive) designed for off-highway operation; and (B) is a 4-wheel drive automobile or is rated at more than 6,000 pounds gross vehicle weight.'' This definition effectively divides the class of automobiles subject to CAFE into passenger and non-passenger automobiles (light trucks).

In December 1976, the agency promulgated a Notice of Proposed Rulemaking to further define the distinction between passenger and non-passenger automobiles for purposes of the CAFE program.[17] The agency reviewed the legislative history and concluded that Congress intended that passenger automobiles be defined as those used primarily for the transport of individuals and that all other vehicles would fall within the category of non-passenger automobiles. The agency pointed to the relevant text in the EPCA conference reports (H. Rept. 94–700):

> The passenger automobile category would exclude vehicles not manufactured primarily for transportation of individuals—such as light duty trucks, mobile homes, and multipurpose vehicles not manufactured primarily for transportation of individuals.

The agency then determined that, based on the nature of the vehicle fleet in the mid-1970s, it could best differentiate between vehicles built primarily to transport people from those built primarily for utilitarian purposes by focusing on whether the vehicle was built on a passenger car chassis versus a truck chassis. The agency also acknowledged, however, that this approach would not always achieve the distinction it was trying to create.

The agency issued regulations creating a specific classification scheme, which has served to distinguish between passenger car fleets and light truck fleets throughout the lifespan of the CAFE program. In 49 CFR 523.3, the agency defined what constitutes an ''automobile'' subject to the CAFE program. That provision includes automobiles weighing 6,000 lbs. GVWR or less and vehicles having a GVWR between 6,000–10,000 lbs. that the NHTSA Administrator has determined may feasibly be subject to the CAFE program. Feasibility is determined with regard to whether the vehicles are used substantially in the same way as other vehicles subject to the CAFE program and whether including those vehicles will result in significant energy conservation.

As part of that regulation, the NHTSA Administrator determined that vehicles satisfying the criteria for passenger automobiles set forth in 49 CFR 523.4 and certain vehicles satisfying the criteria for light trucks set forth in 49 CFR 523.5, except for their GVWR, would be considered automobiles for purposes of CAFE. The Administrator further determined that light trucks should be subject to the CAFE program if they have a basic frontal area of 45 square feet or less, have a curb weight

[15] DeCicco, John. ''Use a Vehicle-Based Approach, but Lock-In Each Company's Target.'' American Council for an Energy-Efficient Economy. 1992. This paper uses the example of a uniform percentage increase (UPI) to implement this approach. UPI is not an essential feature of this approach. NHTSA welcomes comments on alternative ways to implement this approach.

[16] The reference year could be modified periodically to reflect changing trends in the vehicle fleet.

[17] We note that the NPRM makes clear that one of the purposes of the classification scheme adopted was to encourage manufacturers to reduce the weight of their larger passenger cars. As the NAS report found, this weight reduction has had a negative impact on motor vehicle safety.

of 6,000 pounds or less and have a GVWR of 8,500 pounds or less.

In 49 CFR 523.4, the agency defined a passenger automobile as ''any automobile (other than an automobile capable of off-highway operation) manufactured primarily for use in the transportation of not more than 10 individuals.'' Under this definition, the remaining vehicles—the non-passenger or light truck category—not only includes vehicles capable of off-highway operation, but also includes other vehicles that are not manufactured primarily for transporting individuals. Therefore, a pickup truck that does not have features designed for off-highway operation is, because it is manufactured for carrying cargo, a light truck for CAFE purposes.

The agency's definition of a light truck (49 CFR 523.5) is substantially more detailed and sets up the parameters of what constitutes a vehicle capable of off-highway operation or other utilitarian uses. The regulation provides that an automobile is capable of off-highway operation if it has 4 wheel drive or if its GVWR is more than 6,000 pounds and it meets at least four out of five specified geometric measures (approach angle, break-over angle, departure angle, running clearance and front and rear axle clearance). The agency also included as light trucks vehicles designed to perform at least one of the following: (1) Transport more than 10 persons; (2) provide temporary living quarters; (3) transport property on an open bed; (4) provide greater cargo-carrying than passenger-carrying volume; or (5) permit expanded use of the automobile for cargo-carrying purposes or other non-passenger-carrying purposes through the removal of seats by means installed for that purpose by the automobile's manufacturer or with simple tools, such as screwdrivers and wrenches, so as to create a flat, floor level, surface extending from the forward most point of installation of those seats to the rear of the automobile's interior.

As discussed above, the regulatory scheme was adopted before the emergence of a more versatile vehicle fleet designed to accommodate today's consumer preferences. The regulation predated the widespread influx of minivans and SUVs. It did not anticipate the development of a market for vehicles that could easily be transformed to serve a variety of functions and which also provide basic passenger transportation needs. Nor did the regulation anticipate the emerging class of ''cross-over vehicles,'' containing aspects of both passenger and non-passenger automobiles.[18]

The application of the regulation to the current vehicle fleet (designed with the regulatory distinctions in mind) less clearly differentiates between passenger cars and light trucks than it did in the 1970s. Many vehicles produced today, while smaller than many other passenger cars, qualify as light trucks because they have been designed so that their seats can be easily removed and their cargo carrying capacity significantly enhanced.[19] Other vehicles, while appearing no different than counterpart passenger automobiles, qualify through having designs that meet four out of five geometric criteria set forth in 49 CFR 523.5. And yet other vehicles are designed in such a way that they can be easily transformed from passenger carrying motor vehicles to motor vehicles with open cargo beds without the use of substantial tools.

We recognize that any system of distinctions will drive vehicle design and result in its own set of ambiguities and ultimately may lead to unintended results as vehicle designs continue to evolve. We seek input on whether amendments to the current classification regulation can be made to better clarify the distinction between passenger automobiles and non-passenger automobiles in light of the current and emerging motor vehicle fleet.

[18] In developing the regulation, the agency struggled with defining pickup trucks constructed on passenger car frames. Pickups built on passenger car frames were to be considered light trucks, because, from a design perspective, they ''have much less passenger carrying capacity and much more property carrying capacity than the passenger cars from which they are derived.'' This passage seems to suggest that, when issuing the regulation, the agency intended that a vehicle should be considered a non-passenger automobile unless it clearly was designed primarily for the transportation of people rather than cargo (42 FR 38362, 38367).

[19] In a letter dated March 21, 2000 to Gerald Plante (and published on the agency's Web site), the agency considered whether the flat floor provision was intended to permit vehicles to be classified as light trucks if their seats are folded into a flat floor, rather than removed to create a flat floor. The agency considered the vehicles under consideration when the regulatory provision was first issued and determined that the regulation did not anticipate that vehicles would be classified as light trucks by virtue of folding seats. This was based, in part, on the fact that seats that folded into a vehicle floor were found only in station wagons using a car chassis. Contemporary minivans are built on their own chassis and are not derived from either a car or a truck. If the resulting cargo area is indicative of a dual use beyond simply carrying passengers, it may not matter if the seats fold or are removable. Were we in the future to permit the folding of seats to create a flat floor to serve as the basis for classifying vehicles as light trucks, the enhancement of the cargo carrying capabilities of the vehicle must be significant, just as it would were the seats removed.

Possible approaches to updating the classification rules are set forth below. In seeking comments on these alternatives, the agency recognizes that any successful classification scheme must adequately account for the tremendous variety of needs that are served by light vehicles. Some need only carry one or two persons to work, while others must be able to carry large, relatively heavy loads. While some light trucks may be used primarily to transport passengers, their ''peak use'' or ''peak value'' (*e.g.*, towing boats, hauling heavy loads) may require substantial performance capabilities. In considering potential changes to the classification definitions, we intend to preserve the ability of consumers to obtain vehicles that meet their needs, while providing competitive equity among vehicle manufacturers, improving vehicle safety, and enhancing fuel economy.

We expect to receive comments both with regard to the concepts set forth below and with regard to some of the practical necessities that might accompany any amendments to the classification regulations. These would include any necessary lead-time, possible approaches to phasing-in new definitions and the treatment of credits and penalties during the transition period.

A. Vehicle Classification Using a Single Attribute

The definitions contained in 49 CFR 523.5 provide multiple methods of classifying a vehicle as a light truck. Alternatively, the agency could define a particular vehicle attribute as that most appropriate to distinguish between light trucks and passenger cars. Such a system has the advantage of being simple to apply and could help to avoid criticism that manufacturers can ''game'' the classification system by taking advantage of certain features, such as the flat floor provision, to include vehicles in their light truck fleet that are otherwise classified as passenger cars. In considering attributes that may be used, we must be cognizant of the need to choose distinctions that would continue to serve consumer choices, and thus would discourage any incentive to design vehicles just beyond the minimum necessary to be classified as a light truck.

We have considered two attributes, which could be used to distinguish between the light truck and passenger car fleets: vehicle curb weight and interior volume. To employ this type of classification system, the agency would need first to determine that a vehicle with either curb weight or interior

volume above a specified minimum is not one manufactured primarily for transporting not more than ten individuals.[20] If curb weight were used as the determining factor in deciding whether to classify a vehicle as a passenger car or light truck, based on MY 2002 fleet and available information on MY 2003–2004 vehicles, the agency believes that a curb weight of approximately 3,700 pounds could serve as a possible minimum curb weight to classify vehicles as light trucks. MY 2002 data shows that all minivans and mid-size SUVs have curb weights of at least 3,700 pounds.

In examining the MY 2002 CAFE data, the agency found that there are two main types of passenger cars that might be classified as light trucks if the minimum curb weight was established at 3,700 pounds: large sedans and ''exotic'' sport cars. There are also several types of light trucks that might be classified as passenger cars if the minimum curb weight was established at 3,700 pounds: small unibody SUVs, small ladder-on-frame SUVs, and some small pickups.

Interior volume presents another possible approach to using a single attribute to distinguish between passenger cars and light trucks. The agency used three methods for determining an interior volume measurement: (1) For cars with trunks, interior volume may be defined as the passenger compartment volume plus trunk volume; (2) for station wagons, SUVs, and crossover vehicles, interior volume may be defined as the volume enclosed within the combined passenger and cargo area; (3) for pickup trucks, interior volume may be defined as the interior volume of the cab plus twice the cargo bed volume.

In examining the MY 2002 fleet and available information on MY 2003–2004 vehicles, we believe that an interior volume measure in the range of 130–135 cubic feet could serve as a possible minimum interior volume to classify vehicles as light trucks. In examining the MY 2002 CAFE data, the agency found that there are two main types of passenger cars that might be classified as light trucks under such a system: large sedans and large station wagons. The agency also found that there are two main types of light trucks that might be classified as passenger cars: small two-wheel drive unibody SUVs and small two-wheel drive ladder-on-frame SUVs.[21]

B. The Flat Floor Provision

The current regulation classifies as a light truck any vehicle with readily removable seats that, once removed, leave a flat floor level surface extending from the forward most removable seat mount to the rear of the vehicle. The flat floor provision originally was based on the agency's determination that passenger vans with removable seats and a flat load floor were derived from cargo vans (42 FR 38367; July 28, 1977) and should be classified as trucks. Because these passenger vans were derived from cargo vans, the agency distinguished them from station wagons—which also had large flat areas with their seats folded—and were based on a car chassis.

In the preamble to the final rule establishing the 1983–1985 fuel economy standards, NHTSA responded to a request from Chrysler to revise the definition of light truck to assure that future compact passenger vans would be classified as light trucks. At that time, we indicated that the regulations classify large passenger vans as light trucks based on the ability of passenger van users to readily remove the rear seats to produce a flat, floor level cargo-carrying space (45 FR 81593; Dec., 11 1980). It is believed that this decision contributed to the development of the minivan market.

Many contemporary minivans are built on their own individual chassis or platform. Most of these vehicles are available only as passenger vans without any cargo variant. While they may be trucks in their own right, they do not necessarily share a common chassis or platform with cargo trucks. However, because minivans have removable seats and a flat floor, they have traditionally been classified as trucks for fuel economy purposes.[22] As the agency's recently updated size and safety study shows, minivans are among the safest vehicles on the road. In fact, the study found that large 4-door cars and minivans had the lowest overall fatal crash involvement rates per billion vehicle miles during the years studied (1991–1999).

We recognize that the flat floor provision may be essential to the minivan market and that many cross-over vehicles, which carry significant numbers of passengers while sporting a lower center of gravity than more traditional SUVs, are classified as light trucks as a result of the flat floor provision. We are concerned that the elimination of the flat floor provision may deter the emerging fleet of crossover vehicles and significantly impair the minivan market.

However, we also believe the program would benefit if the flat floor definition reflected more accurately those vehicles serving significant cargo carrying, recreational or utilitarian use, as opposed to those more generally classified as passenger cars. We have accordingly considered potential approaches to modifying the flat floor provision.

One such approach might be to establish a minimum flat floor length that vehicles must meet to be classified a light truck. A possible minimum length is 60 inches. Other potential approaches might include: (1) restricting the class of light trucks relying on the flat floor provision to those of a certain minimum level of interior volume, (such as 75 to 80 cubic feet) and (2) premising the flat floor provision on having a certain ratio of cargo space to passenger carrying space. The minimum flat floor length and the range for the minimum level of interior volume are offered as possible values because currently designed light trucks that have flat floor lengths and interior volumes above those values have ladder-on-frame designs, which are more closely associated with traditional light truck design and are generally designed for off-road use. Light trucks with flat floor lengths and interior volumes below these possible minimum values are generally those with unibody designs, which resemble passenger cars in size and shape and possess very limited off-road capability. A range for the possible minimum level of interior volume, rather than an absolute value, is provided due to the current mixture of unibody and ladder-on-frame designed light trucks within this range. These possible minimum values will be reassessed in light of the comments received from manufacturers and others.

We encourage specific comments on the possible revisions set forth above, and any other comments that would assist NHTSA in refining this part of the light truck regulatory definition.

[20] The application of this concept might result in the substitution of a minimum curb weight or interior volume for the various definitions contained within 49 CFR 523.5(a). Of course, a vehicle meeting the other statutory criteria addressing vehicles capable of off-highway operation, as defined in 49 CFR 523.3(b), might continue to qualify as a light truck.

[21] Vehicles that are either four-wheel drive or have a gross vehicle weight above 6000 pounds are light trucks if they also have a significant feature (as defined by agency regulations) designed for off-highway operation (§ 32901(a)(16)). Four-wheel drive SUVs, regardless of their weight, would be classified as light trucks if they had features which NHTSA deemed to be indicative of design for off-road use.

[22] EPA also classifies minivans as light duty trucks for emissions purposes as derivatives of trucks.

C. Open Cargo Bed

49 CFR 523.5(a)(3) provides that a vehicle that transports property on an open bed is a light truck. However, this section contains no minimum dimension for how small an open bed may be before a vehicle can no longer be classified as a truck on that basis. Some new vehicle designs include relatively small open cargo beds or cargo beds that transform easily into passenger carrying compartments.[23] While these vehicles are designed for transporting cargo as well as people, it may be possible to differentiate between those more likely to be used in utilitarian fashion by specifying a minimum dimensional requirement for the cargo bed.

The Society of Automotive Engineers (SAE) Recommended Practice J1100, for example, provides a means for calculating the cargo volume of open bed trucks. The SAE formula (V5) uses a standard measure of the interior length of the bed, the interior width of the bed (width at floor plus width at wheelhouse divided by two), and the height of the cargo area (from the cargo floor to the uppermost point on the side of the bed). Measured in this fashion, most small ½ ton pickup trucks in today's market have a cargo volume of approximately 40 cubic feet. A number of truck configurations, particularly those with ''crew cabs,'' have smaller beds whose cargo volumes are approximately 30 cubic feet.

Using SAE Recommended Practice J1100 it is also possible to calculate the cargo area of open bed trucks. According to the cargo volume calculation specified in J1100, the area of an open cargo bed can be obtained by multiplying the interior length of the bed by the interior width of the bed. Measured in this fashion, most small ½ ton pickup trucks in today's market have a cargo area of approximately 3,500 square inches. A number of truck configurations, particularly those with ''crew cabs,'' have smaller beds whose cargo areas can be as small as 3,100 square inches.

The agency seeks comment on whether cargo volume, cargo area, or some other measure, might be an appropriate means for determining when an open bed vehicle should be classified as a car or a truck and what minimum dimensions should be used to differentiate between passenger cars and light trucks. We also invite comment on what cubic foot or square inch minimum could be specified for cargo carrying capability that would still provide manufacturers with sufficient design flexibility to build open bed vehicles that meet certain market needs, including vehicles with ''crew cabs'' or other extended cabs, necessary to provide both passenger carrying and cargo carrying capability. We are also interested in comments addressing other measurement criteria that would enable vehicles with ''crew cabs'' and extended cabs to be classified as light trucks.

D. Off-Highway Operation

Congress directed that the characteristics of vehicles capable of off-highway operation be established through regulations promulgated by NHTSA. 49 CFR 523.5(b) sets out the definition of an automobile capable of off-highway operation. Following the definition contained in § 32901 of Chapter 329, the regulation considers an automobile as being capable of off-highway operation if it has either 4-wheel drive or a GVWR above 6,000 pounds and meets four out of five characteristics.

The characteristics are: (A) an approach angle of not less than 28 degrees; (B) a break-over angle of not less than 14 degrees; (C) a departure angle of not less than 20 degrees; (D) a running clearance of not less than 20 centimeters; and (E) front and rear axle clearances of not less than 18 centimeters each. As NHTSA observed in the Notice of Proposed Rulemaking introducing these criteria, the dimensions were derived from examining the characteristics of off-road vehicles manufactured in the mid-1970's (41 FR 55368, 55371; December 20, 1976).

Four-wheel drive, found almost exclusively on larger trucks when the CAFE program was established, is now found on vehicles of all shapes and sizes. As technological advances have made four-wheel drive more suitable for use on smaller vehicles and easier for drivers to use, it is now appearing more frequently on sedans and station wagons as well as light trucks.[24] Some of these vehicles are classified as passenger cars for CAFE purposes while others have been classified as light trucks. As applied to passenger cars, four-wheel drive is intended to improve on-road performance in adverse weather and these vehicles do not have sufficient ground clearances for off-highway use. By itself, four-wheel drive is now far less indicative of whether a vehicle is likely to be used off-highway than it was when EPCA was enacted.

In the current fleet of utility vehicles that are classified as trucks for CAFE purposes because of their off-road attributes, the physical characteristics of the vehicles vary significantly. Approach angles, for example, vary from approximately 26 to 72 degrees. Departure angles range from approximately 14 to 42 degrees, while break-over angles range from 14 to 27.5 degrees. Axle clearances, for both axles and running clearance, also vary substantially.[25] Changing the definitions of the angles might serve to distinguish better the characteristics of vehicles currently used off-road from those currently used primarily on the public roads. Doing so, however, might also create the incentive to build vehicles meeting the new dimensions. Because amended dimensions are likely to lead to vehicles with higher centers of gravity, altering them might generally increase rollover risks and additional harm due to rollover crashes.

A different approach might be to modify 49 CFR 523.5(b) to provide that vehicles meeting certain individual qualifying criteria, or certain combinations of them, be classified as a light truck. For example, a vehicle that meets both the approach and departure angle criteria and any two out of the remaining three criteria (break-over angle, axle clearance or running clearance) might be less likely to be derived from a car. Having sufficiently large approach and departure angles are important for off-road vehicles when navigating steep and uneven terrain. Four-wheel drive vehicles derived from passenger cars are more likely to meet either the approach angle or departure angle criteria, but less likely to meet both.

VII. Expanding the Application of the CAFE Program

As noted above, beginning with MY 1980, the NHTSA Administrator determined that the CAFE program should include vehicles with a GVWR of up to 8,500 pounds. Some groups have espoused increasing the application of the CAFE program to the statutory limit of 10,000 lbs. GVWR to

[23] For example, the Subaru Baja is an open bed vehicle that is built on the same platform as the Subaru Outback wagon. Although the Baja has all-wheel drive, it does not meet the criterion for classification as an off-road vehicle. It is classified as a truck on the basis of having an open bed slightly less than three and one-half feet long.

[24] A number of manufacturers, including Audi and others, produce four-wheel drive performance cars. At least one manufacturer, Subaru, exclusively produces four-wheel drive passenger cars. In recent years, Volvo produced a two-wheel and four-wheel drive station wagon where the two-wheel drive version was classified as a car and the four-wheel drive model was classified as a truck.

[25] Not surprisingly, vehicles with extreme off-road capability—such as the Hummer H1—are at the upper range of these dimensions, while utility vehicles aimed more for on-road use are at the lower end of the range of these dimensions.

include some of the larger SUVs that have entered the market in recent years. During this time, a small number of vehicles classified as SUVs have been of sufficient GVWR to be beyond the reach of the CAFE program. These very large SUVs account for approximately 10% of the total number (approximately 500,000) of vehicles with a GVWR between 8,500 and 10,000 pounds, and less than 1% of all SUVs. Sales of these very large SUVs have remained stable over the last several years. Including additional vehicles within the CAFE program requires a finding that doing so is feasible and that it would significantly enhance energy conservation.

This document presents two potential options under which vehicles with a GVWR of up to 10,000 lbs. could be included under the CAFE program. One option would be adopting the definition established by EPA for medium duty passenger vehicles (65 FR 6698, 6749–50, 6851–6852) for use in the CAFE program. The definition applies to a heavy-duty vehicle with a gross vehicle weight rating of 8,501 to 10,000 pounds that is designed primarily for the transportation of persons. However, medium duty passenger vehicles (MDPV's) do not include vehicles that:

1. Are ''incomplete trucks''; or
2. Have a seating capacity of more than 12 persons; or
3. Are designed for more than 9 persons seated rearward of the driver's seat; or
4. Are equipped with an open cargo area of 72 inches in interior length or more, or a covered box not readily accessible from the passenger compartment that is 72 inches or more in interior length.

This definition would essentially make SUVs between 8,500 and 10,000 lbs. GVWR subject to CAFE, while continuing to exclude most medium- and heavy-duty pickups and most medium- and heavy-duty cargo vans that are primarily used for agricultural and commercial purposes. The inclusion of these larger SUVs in CAFE could help reduce petroleum consumption. In addition, public policy directed towards reducing the weight of these vehicles may help address vehicle incompatibility and thus improve safety.

A second option would be to make all vehicles between 8,500 and 10,000 lbs GVWR subject to CAFE standards. Since the majority of trucks in this weight class are pickup trucks, the agency is concerned about the impacts this might have on farmers and small businesses, and in particular, the potential adverse impacts on the cost and utility of these vehicles. The agency nonetheless invites comments on this reform alternative, as well as the option to cover a more limited set of vehicles with a GVWR between 8,500 and 10,000 lbs.

VIII. Conclusion

The current structure of the CAFE program was created in the 1970s. It reflects efforts made to distinguish between vehicles prevalent at the time and bearing little resemblance to today's motor vehicle market or the current and emerging vehicle fleet. The Congressional ''freeze'' imposed during much of the 1990s prohibited the agency from reviewing the efficacy of the regulations defining passenger cars and light trucks, or the manner in which the CAFE program is structured. The current structure of the CAFE program encourages the development of vehicles that are larger and heavier, and which may have higher centers of gravity. Thus, the CAFE program may contribute to the two principal vehicle safety problems on the road today: vehicle compatibility and rollover.

Through this document, the agency intends to begin a public discussion on potential ways, within current statutory authority, to modernize the CAFE program and to make it more consistent with our public policy objectives. The agency has set forth a number of possible concepts and measures, and invites the public to present additional concepts not presented here. This discussion is not intended to address the stringency of proposed CAFE standards in the future, but rather the basic structure of the CAFE program. The agency is interested in any suggestions towards revamping the CAFE program in such a way as to enhance overall fuel economy while protecting occupant safety and the economic vitality of the auto market.

IX. Public Participation

Interested persons are invited to comment on this advance notice of proposed rulemaking. It is requested, but not required, that two copies be submitted to the Office of Docket Management, Room PL–401, Nassif Building, 400 Seventh Street, SW., Washington, DC 20590.

All comments must be limited to 15 pages in length. Necessary attachments may be appended to those submissions without regard to the 15-page limit (49 CFR 553.21). This limitation is intended to encourage commenters to detail their primary arguments in a concise fashion.

Written comments to the public docket must be received by April 27, 2004.

All comments received before the close of business on the comment closing date will be considered and will be available for examination in the docket at the above address before and after that date. To the extent possible, comments filed after the closing date will also be considered. However, the rulemaking action may proceed at any time after that date.

NHTSA will continue to file relevant material in the docket as it becomes available after the closing date, and it is recommended that interested persons continue to examine the docket for new material.

Those persons who wish to be notified upon receipt of their comments in the docket should enclose, in the envelope with their comments, a self-addressed stamped postcard. Upon receiving the comments, the docket supervisor will return the postcard by mail.

Copies of all comments will be placed in the Docket for this advance notice of proposed rulemaking in the Office of Docket Management, Room PL–401, Nassif Building, 400 Seventh Street, SW., Washington, DC 20590.

X. Regulatory Analyses and Notices

Executive Order 12866 and DOT Regulatory Policies and Procedures

NHTSA has considered the potential impacts of this advance notice of proposed rulemaking under Executive Order 12866 and the Department of Transportation's regulatory policies and procedures. The Office of Management and Budget reviewed this document under E.O. 12866, ''Regulatory Planning and Review.'' This document has been determined to be significant under the Department's regulatory policies and procedures.

This document seeks comment on potential changes to the agency's regulations relating to Corporate Average Fuel Economy, including potential changes to vehicle classification and to the fuel economy standards applicable to those vehicles. The agency could take a variety of regulatory actions regarding these issues. Further, this agency has not identified any regulatory actions sufficiently likely to warrant calculation of possible benefits and costs. If NHTSA were to initiate rulemaking and develop a rulemaking proposal, the agency would calculate the costs and benefits associated with the specific proposal and place its analysis in the docket for that proposal. The agency would also conduct the various other rulemaking analyses required by applicable statutes and Executive Orders.

NHTSA will reassess this rulemaking in relation to the Executive Order, the DOT Regulatory Policies and Procedures, the Regulatory Flexibility Act, the Unfunded Mandates Reform Act of 1995 and other requirements for analyzing rulemaking impacts if, after using the information received in response to this advanced notice, the agency decides to issue a proposal to amend its current regulations. To that end, the agency solicits comments, information, and data useful in assessing the impacts of making the potential changes discussed in this document.

Privacy Act

Anyone is able to search the electronic form of all submissions received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (Volume 65, Number 70; Pages 19477–78) or you may visit *http://dms.dot.gov.*

Issued: December 22, 2003.

Stephen R. Kratzke,

Associate Administrator for Rulemaking.

[FR Doc. 03–31890 Filed 12–22–03; 3:44 pm]

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DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 533

[Docket No. 2003–16709]

RIN 2127–AJ26

Reforming the Automobile Fuel Economy Standards Program; Request for Product Plan Information

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Request for comments.

SUMMARY: The purpose of this request for comments is to acquire information regarding vehicle manufacturers' future product plans to assist the agency in analyzing possible reforms to the corporate average fuel economy (CAFE) program which are discussed in a companion notice published today. The agency is seeking information that will help it assess the effect of these possible reforms on fuel economy, manufacturers, consumers, the economy, motor vehicle safety and American jobs.

DATES: Comments must be received on or before April 27, 2004.

ADDRESSES: You may submit comments [identified by DOT DMS Docket Number 2003–16709] by any of the following methods:

- Web Site: *http://dms.dot.gov*. Follow the instructions for submitting comments on the DOT electronic docket site.
- Fax: 1–202–493–2251.
- Mail: Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL–401, Washington, DC 20590–001.
- Hand Delivery: Room PL–401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal Holidays.
- Federal eRulemaking Portal: Go to *http://www.regulations.gov*. Follow the online instructions for submitting comments.

FOR FURTHER INFORMATION CONTACT: For non-legal issues, call Ken Katz, Lead Engineer, Fuel Economy Division, Office of Planning and Consumer Standards, at (202) 366–0846, facsimile (202) 493–2290, electronic mail *kkatz@nhtsa.dot.gov*. For legal issues, call Otto Matheke, Office of the Chief Counsel, at (202) 366–5263, electronic mail *omatheke@nhtsa.dot.gov*.

SUPPLEMENTARY INFORMATION:

I. Introduction

In a companion document, an advanced notice of proposed rulemaking, published today in the **Federal Register**, NHTSA is seeking comments relating to possible enhancements and reforms to the CAFE program that will assist in furthering fuel conservation, while protecting motor vehicle safety and American jobs. To assist the agency in analyzing possible reforms to the CAFE program, in addition to the questions found in the body of the advanced notice of proposed rulemaking, NHTSA has included a number of additional questions, found in an appendix to this notice, directed primarily toward vehicle manufacturers.

The appendix requests information from manufacturers regarding their product plans from MY 2003 through MY 2012, and the assumptions underlying those plans. The agency would appreciate answers that are as responsive as possible so that the agency can analyze the impact of the reforms on the entire industry. Because some of the possible reforms may change the distinction between passenger cars and light trucks, the agency is requesting data from manufacturers for both their passenger car plans AND their light truck plans.

In an attempt to assure conformity in data submittal and to assist manufacturers with supplying information to the agency regarding their product plans from MY 2003 through MY 2012, NHTSA has developed spreadsheet templates for manufacturers' use. These templates are the preferred format for data submittal, and can be found on the agency's CAFE website at: *http://www.nhtsa.dot.gov/cars/rules/CAFE/rulemaking.htm*. The Appendix also includes sample tables that manufacturers should refer to when submitting their data to the Agency.

II. Public Participation

Interested persons are invited to comment in response to this request for comments. It is requested, but not required, that two copies be submitted to the Office of Docket Management, Room PL–401, Nassif Building, 400 Seventh Street, SW., Washington, DC 20590.

Your comments must be written and in English. To ensure that your comments are correctly filed in the Docket, please include the docket number of this document in your comments. All comments must be limited to 15 pages in length. Necessary attachments may be appended to those submissions without regard to the 15-page limit (49 CFR 553.21). This limitation is intended to encourage commenters to detail their primary arguments in a concise fashion.

Written comments to the public docket must be received by April 27, 2004.

All comments received before the close of business on the comment closing date will be considered and will be available for examination in the docket at the above address before and after that date. To the extent possible, comments filed after the closing date will also be considered. However, the rulemaking action may proceed at any time after that date. NHTSA will continue to file relevant material in the docket as it becomes available after the closing date, and it is recommended that interested persons continue to examine the docket for new material.

Please submit two copies of your comments, including the attachments, to Docket Management at the address given above under **ADDRESSES**.

Comments may also be submitted to the docket electronically by logging onto the Dockets Management System website at *http://dms.dot.gov*. Click on