



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.