

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.

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.

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.