

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