STATEMENT OF CLARENCE M. DITLOW
DIRECTOR, CENTER FOR AUTO SAFETY
On Reforming the Corporate Average Fuel Economy (CAFE) Standards
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Mr. Chairman and members of the Committee, thank you for the opportunity to testify on the safety aspects of Corporate Average Fuel Economy (CAFE) standards for passenger cars and light trucks. The Center for Auto Safety (CAS) is a consumer group founded in 1970 that works to improve motor vehicle safety, fuel economy and quality.

CAS has supported and testified in favor of stringent motor vehicle fuel economy standards since the first hearings held by Congress in 1974 on what became the Energy Policy and Conservation Act (EPCA). Our position on safety and fuel economy has been constant over time: the technology exists to improve both the safety and fuel economy of motor vehicles.

In 1971, CAS criticized the original VW Beetle as one of the most unsafe vehicles ever built and pointed out that it didn't have to be that way. It no longer is. The 2001 new Beetle is about 25% more fuel efficient than the old Beetle and is dramatically safer in both NHTSA frontal and IIHS offset crash tests.

The Beetle is not alone. Prior to CAFE, there were many models that weighed less than 2,000 pounds. The only vehicle under 2,000 pounds today is the Suzuki Vitara, which is an SUV. The 1,800 pound Civic of the mid-1970's now weighs 2,600 pounds and gets 40-mpg versus 32-mpg. The Civic went from failing NHTSA 35-mph crash tests to getting 5 stars. The Pinto got replaced by the Escort; the Chevette by the Nova. All get better fuel economy and all are safer.

Overall, except for rollover performance, the inherent safety of passenger cars built to meet the 27.5 mpg CAFE standard is twice that of the older, heavier, more guzzling cars of the 1970's.[1] Yet, despite the talk about the possibility that fuel economy might compromise safety, neither the auto industry nor the government has made safety a real priority then or now. We were not pushing the safety technology

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[1]The fatality rate of passenger cars in crashes with other cars or in single vehicle, non-rollover crashes in 1999, per registered vehicle, is half that of passenger cars in 1979. Rollover safety is a function of a vehicle's handling and stability, its roof strength, and its restraint performance, not its weight.

envelope in the mid-1970's and we are not pushing it now.

When one considers road transportation generally, the disparity in the weights of vehicles is much more important to occupant safety than the average weight of all vehicles sharing the road. Furthermore, specific design features that affect the inherent safety of individual vehicles and their compatibility when they collide, often play a more important role than the weights of the individual vehicles. In the passenger car fleet, the disparity in vehicle weight has decreased dramatically.

Cars with inertia weights less than 2,500 pounds made up 10.8% of the 1975 new car fleet but only 2.6% of the model year 2000 cars. In contrast, passenger cars over in the 4,500 pound weight class and above made up 50% of the 1975 new car fleet but only 0.9% of the 2000 model new cars.

The decline in full-size car weight is not due to introduction of SUV's since the market share of 4,500 pound and heavier passenger cars had dropped below 1% by 1985. Since adoption of CAFE, small passenger cars got heavier while large passenger cars got lighter with the biggest growth in the new car fleet coming in the middle with 3,500 pound cars going from 12.5% of the new car fleet in 1975 to 51.9% in 2000. The net effect has been a safer passenger car fleet, particularly when one considers improved safety technology built into passenger cars.

Advances in fuel economy technology have lead to a gain in overall fleet from 1980-2000 from 22.5 to 24.0 even though the average weight of the fleet went up from 3,227 pounds to 3,868 pounds during that time frame. Improvements since 1980 are particularly significant since the easy technology gains of going from carburetors to fuel injection, from engine modifications to catalysts for emissions control, from 3-speed to 4-speed transmissions, and the down weighting of the large cars had already occurred. Attached to my testimony are examples of particular vehicles since 1980 that have used more technology to improve fuel economy or maintain fuel economy while upsizing. For example, the Toyota Corolla had a 25% improvement despite a 10% gain in weight Despite going from 5,000 to 5,500 pounds, the GMC Suburban increased its CAFE by 27% from 14.3 to 18.1 mpg through modest drivetrain improvements including going from a 3-speed automatic to a 4-speed lockup. Despite going from a 5.7L to a 5.3L engine, the Suburban's horsepower went from 165 to 265.

Over the last two decades, highway fatalities have gone down nearly 20% while travel has increased by more than 40%. This is a reduction of more than 50% in fatalities per mile traveled over twenty years. During the same period, pedestrian fatalities went down by one-third, and motorcycle

fatalities went down by half. There were no particular safety innovations or design changes that would have affected these fatalities, but motorcycle registrations decreased from 5.4 million in 1979 to 3.8 million in 1999. Increased helmet use accounts for some of the reduction in motorcycle fatalities. Passenger car and LTV occupant fatalities were down about 10%. That reduction was mostly in single-vehicle, non-rollover crashes and in crashes between two passenger cars. The following Table shows some basic motor vehicle fleet and crash statistics.

Some Basic U.S. Motor Vehicle Statistics	1979	1999
Registered Motor Vehicles	144 M	212 M
(Percent Passenger Cars/Percent LTVs)	(72%/20%)	(59%/35%)
(# Passenger Cars/# LTVs	104 M/28 M	125 M/74 M
Vehicle Miles Traveled	1.5 billion	2.7 billion
People Killed as Passenger Car Occupants	27,788	21,164
People Killed as Light Truck and Van Occupants	7,119	10,647
Pedestrians and Pedalcyclists Killed	9,021	5,981
Heavy Truck (> 10,000 lbs.) Occupants Killed	1,087	936
Motorcycle Riders Killed	4,679	2,284

Table – A comparison of selected U. S. motor vehicle statistics over the last twenty years.

The reduction in light vehicle occupant fatalities is a result of a number of factors including a substantial increase in safety belt use, the almost universal installation of airbags in recent model light motor vehicles, and the implementation of the dynamic side impact standard. Rollover fatalities have decreased modestly in passenger cars. Rollover fatalities have increased dramatically in pickup trucks and SUVs, consistent with the comparative growth in the number of these vehicles in the fleet. Overall, fatalities in rollovers of pickups and SUVs have more than doubled.

These data suggest several conclusions that will help in considering the potential impact of future changes in vehicle fuel economy on safety. The major increase in LTVs used as substitutes for passenger cars in the vehicle fleet has kept the number of light vehicle occupant fatalities from falling as much as other crash statistics. The increased use of LTVs as substitutes for private passenger vehicles has produced at least 2,000 additional rollover fatalities annually.

The greater number of LTVs in the U.S. fleet has increased passenger car occupant fatalities in

crashes with LTVs by more than 50 percent while passenger car occupant fatalities in crashes with other passenger cars decreased by nearly 50 percent. The consequence is that light vehicle occupant fatalities in two-vehicle crashes went down only about 10 percent while fatalities in single-vehicle crashes went down more than 25 percent from 1979 to 1999. This reduction was driven by a 45 percent reduction in passenger car single-vehicle crash fatalities. Two-vehicle crashes would have killed nearly 1,000 fewer people without the major increase in LTVs as passenger car substitutes.

More even-handed regulation of LTVs used as passenger vehicles, in relation to passenger cars, should slow or even reverse these trends in increased occupant fatalities.

If the disparity in weights between passenger cars and light trucks becomes wider, either because of the design and marketing practices of the auto makers or because of continuing regulatory policies that differentially affect cars and light trucks, fatalities in these types of two-vehicle crashes will continue to increase relative to other types of automotive casualties. Reducing this weight disparity will have a salutary impact on casualties in two-vehicle crashes.

No more than one out of four light vehicle occupant fatalities would be influenced by changes in vehicle weight to improve fuel economy. Furthermore, the effect on weight disparity on these fatalities is marginal – almost certainly less than the effect on fatalities of the major increase in LTVs in the fleet. Had light vehicle occupant fatalities in two-vehicle crashes decreased to the same degree as single vehicle crash occupant fatalities (other than from rollovers), the effect would have been roughly 2,000 fewer fatalities (less than 5 percent of the total in 1999).

Some crash losses are fundamentally dependent on the weights of the vehicles involved while others are not. Clearly, in two-vehicle crashes, occupants of the lighter vehicle are at a disadvantage. This effect has been seriously exacerbated with the introduction of large numbers of LTVs into the U.S. vehicle fleet, not only because of the LTVs' greater average weight, but because of their stiffer structure that is higher off the ground than passenger car structures. Just like large cars posed more of a hazard to small cars until they were down sized, so do large SUV's pose a hazard to small SUV's and pickups as well as small cars. In the 2000 model year, large SUV's weighing an average 5,439 pounds comprised 5.5% of the new passenger vehicle (cars, trucks and vans) while small SUV's were nearly 1,800 pounds lighter at 3,670 pounds with 2.3% of the new passenger vehicle fleet. Just as large cars lost nearly 1,400 pounds in weight from 5,142 pounds to 3,792 pounds between 1975 and 2000, large SUVs should go on a diet to lose a

similar amount of weight with a net resultant gain in fleet safety.

Light trucks, vans and SUVs pose a significant safety hazard to their own occupants, to passenger car occupants and to pedestrians.

- In crashes between cars and all types of LTVs, the fatality rate for car occupants is four times higher than for LTV occupants.
- On the other hand, LTVs have up to a four times higher rate of involvement in fatal rollover crashes.
- The stiffness of LTVs results in more intrusion into their occupant compartment in crashes into fixed objects as shown by IIHS offset crash tests.
- For vehicles of the same weight, LTVs have a higher fatality rate than passenger cars.
- Because of their height and broad front ends, LTVs are more likely to kill or seriously injure pedestrians than are passenger cars.
- NHTSA has not even begun to seriously address the two primary safety consequences of using LTVs as passenger vehicles: their propensity to rollover and their aggressivity in collisions with cars and people. A few crash tests and some colored stickers are not in any way adequate responses.
- Introduction of LTVs has degraded safety overall because of their excess weight, stiffness and height that makes them very aggressive in collisions and because of their propensity to rollover and seriously injure their own occupants. Making LTVs "lighter, lower and softer" would increase the safety of their own occupants while making them safer for others on the road.
- LTVs will pose an increase threat to passenger cars as they get older and are passed on to younger and more accident prone drivers.

Given the extent auto makers profess concern about auto safety in the debate over CAFE, they should take safety more seriously independent of fuel economy requirements. Until they do, arguments about the nexus between safety and fuel economy have a hollow ring. A number of simple, inexpensive designs and technologies that could have a major impact on safety, independent of fuel economy, remain to be broadly implemented. These include:

- ***Effective safety belt use inducements.*** Currently, 18,000 people die who were not wearing safety belts: 6,000 to 10,000 could be saved by effective belt use inducements.
- ***Stronger roofs for rollover protection.*** Although a majority of casualties of rollovers are still unbelted and ejected, 2,000 belted occupants die annually, mostly because of roof crush. With increased belt

use, the number of casualties from roof collapse and buckling will increase. SUVs that have a GVWR over 6,000 pounds need not even meet the inadequate roof strength standard for passenger cars. A GMC Suburban will not support its own weight if gently lowered onto it's a-pillar without its windshield..

- ***Improved safety belt design and performance.*** This includes belt pre-tensioners that trigger on rollover as well as on frontal and side crashes. An additional 3,000 to 5,000 could be saved by an effective rollover protection system: a strong roof, belt pre-tensioners that trigger on rollover, the interior padding required by a new Federal standard, and window curtain air bags.
- ***Advanced Crash avoidance technologies.*** This includes smart cruise controls, yaw control systems, non-pulsing anti-lock brakes, and drowsy driver warnings. New computer and communications technologies should provide major opportunities to reduce the probability of crashes.
- ***Reduced aggressivity of light trucks and vans.*** More energy absorbing and less rigid front ends, lower heights and reduced weight would save 2,000 lives per year.
- ***Reduced rollover propensity.*** Light trucks and vans can be made safer by lowering their center of gravity, increasing track width and using yaw control systems.

The numbers of actual lives that could be saved by auto manufacturers adopting these technologies and counter measures range from 10,000 to 18,000 per year or far in excess in the number of hypothetical lives lost through adoption of stronger CAFE standards.

Policy makers must recognize that the desirability of increased fuel economy – lower vehicle operating costs, reduced pressure for oil imports and drilling in inappropriate places, and a lesser global warming threat – should not be considered as antithetical to safety. The automobile companies have the capability, if not the will to improve both as they did with automobiles after the first gas crisis. Just as Congress changed the auto industry in 1975 from a can't do industry to a can do industry with the fuel economy standards of the Energy Policy and Conservation Act, Congressional action is once again needed to force fuel economy improvements from an industry that has reverted to can't do. A 40 mpg fleet corporate average fuel economy standard for all passenger vehicles under 10,000 pounds will save fuel and lives by forcing the auto companies to put new technology for safety and fuel efficiency into the vehicles of tomorrow.