Union of Concerned Scientists
Citizens and Scientists for Environmental Solutions

fact sheet

Vehicle Safety and Emissions

California's vehicle global warming regulation will result in large environmental benefits, without any negative effects on vehicle size, weight, or safety. In fact, the technology already exists to reach California's goals while maintaining safety and a wide variety of vehicle choices, without changing vehicle weight. Even more technology is available to save lives on California's highways, but automakers are crying wolf instead of providing consumers safe vehicle choices today.

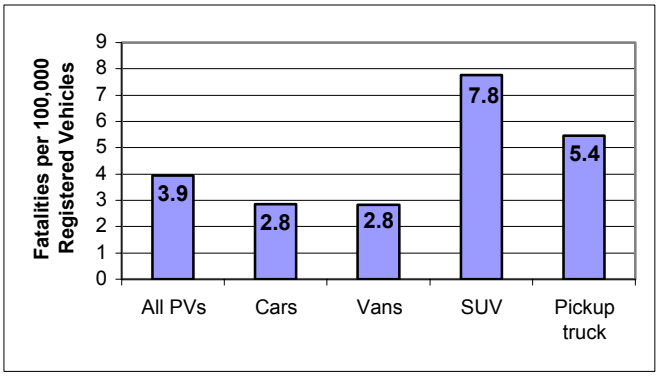
Opponents of the regulation are saying that this law will ban sales of SUVs. But, this is simply not true. The law prohibits any mandate for reductions in vehicle weight or a ban on the sale of any type of vehicle. Further, the relationship between vehicle type and safety is not so simple when you look at the facts about vehicle size, weight, and safety—there is nothing simple about the physics of a crash.

SUVs are not safer than cars

Despite the claims of the auto industry and its allies, SUVs and pickup trucks are not safer than cars. In some cases they are among the most dangerous vehicles on the road today due to design choices made by automakers. The most recent analysis by the National Highway Traffic Safety Administration (NHTSA) found that, in 2003, drivers and passengers in sport utility vehicles (SUVs) were 11% more likely to die in an auto accident than people in cars.[1] The primary driver behind this statistic is the tendency of SUVs to be involved in single vehicle, rollover accidents.

Rollover Risk

- Occupants of an SUV were nearly three times as likely as occupants of a car to die in a rollover accident, in 2003.[2]
- SUVs are more likely to roll over than other vehicles on the road because of their propensity to "fishtail" and their higher center of gravity.
- When SUVs rollover, they fail to provide occupants adequate protection from ejection and "roof crush."



Fatalities in Single Vehicle Rollover Crashes (2003)[3]

Vehicle Aggressivity

In addition to posing a higher risk to their occupants, SUVs and pickups pose a higher risk to drivers in other vehicles in the event of an accident.[4] The propensity of a vehicle to cause fatalities in a collision is called *aggressivity*. SUVs are 2-2.5 times more aggressive than the average midsize car and large pickups are more than 3.5 times more aggressive.[5]

The high aggressivity of SUVs and pickups stems from three primary sources[6]:

- SUVs and pickups are, on average, heavier than the average car and, therefore bring more force to an accident.

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- SUVs and pickups tend to be stiffer than most other vehicles, acting like battering rams and forcing other vehicles to absorb much of the crash energy instead of doing their fair share.
- SUVs and pickups are, on average, taller than the average car and tend, in an accident, to strike a car higher, negating many of a car's safety features.

Vehicle design is the key to safety

Being in a vehicle that is taller, heavier, and stiffer may create an illusion of safety, but the fact is that these are not vehicle design attributes that determine safety – either for the driver of the vehicle or others on the road. In fact, lighter and softer, unibody designs can lead to safer SUVs. This can be seen in the safety records of unibody SUVs like the Jeep Grand Cherokee, the Lexus RX 300, and the Honda CR-V,[7] as well as newer designs like the Volvo XC90 and the Honda Pilot.

The keys to vehicle safety are improving design and maintaining size. Weight is a negative characteristic.[8]

- Increasing vehicle weight poses a high risk to occupants of other vehicles in the event of a crash, resulting in an increase in overall fatalities.
- While unnecessary under California's regulations, vehicle weight reductions, made holding vehicle size constant, are expected to save lives.
- Smarter vehicle design can provide better maneuverability, crash avoidance ability, and safety features, reducing the fatality risk of both vehicle occupants and occupants of a vehicles it collides with.

Rather than cry wolf about California's global warming regulations, the auto industry should put existing technologies to work to save lives on California's highways. Some of the technologies automakers are leaving on the shelf or offering only as expensive options are:

- Improved roof supports to avoid roof crush
- Effective seat belt use reminders and rollover activated seat belt pretensioners
- Electronic stability control systems to stop a vehicle from fishtailing
- Rollover-deployed window curtain airbags
- Front and rear crumple zones and lower bumpers
- High strength steel and aluminum

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[1] NHTSA, 2004, *2003 National Assessment of Motor Vehicle Crashes*, August.
[2] *ibid*.
[3] *ibid*.
[4] Ross, Marc and Tom Wenzel, 2002, *An Analysis of Traffic Deaths by Vehicle Type and Model*, Washington DC: American Council for an Energy Efficient Economy, March.
[5] Summers, S., A. Prasad, W. Hollowell. 2001. "NHTSA's Research Program for Vehicle Aggressivity and Fleet Compatibility." Proceedings of the 17th International Conference on Enhanced Safety of Vehicles. Amsterdam, Netherlands. June.
[6] Friedman, David, 2003, *Building a Better SUV: A Blueprint for Saving Lives, Money, and Gasoline*, Cambridge, MA: Union of Concerned Scientists, September.
[7] Wenzel, T., M. Ross, "An Analysis of Vehicle Risk by Type and Model." Briefing to NHTSA on July 23, 2003.
[8] Van Auken, R.M. and J.W. Zelner, 2004, *A Review of the Results in the 1997 Kahane, 2002 DRI, 2003 DRI, and 2003 Kahane Reports on the Effects of Passenger Car and Light Truck Weight and Size on Fatality Risk*, Torrance, CA: Dynamic Research, Inc., March.