No. 08-17378

IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CENTRAL VALLEY CHRYSLER-JEEP, INC., ET AL.
Plaintiffs - Appellants

AND

THE ASSOCIATION OF INTERNATIONAL AUTOMOBILE MANUFACTURERS,
Plaintiff - Intervenor,

V.

JAMES N. GOLDSTENE, in his official capacity as Executive Director of the California Air Resources Board
Defendant - Appellee.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF CALIFORNIA
THE HONORABLE ANTHONY W. ISHII
USDC EASTERN DISTRICT OF CALIFORNIA/DOCKET NO. 1:04-CV-06663 AWI GSA

INSURANCE INSTITUTE FOR HIGHWAY SAFETY BRIEF *AMICUS CURIAE* IN SUPPORT OF APPELLANTS

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February 13, 2009

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

CENTRAL VALLEY CHRYSLER-JEEP, INC., ET AL. *Plaintiffs - Appellants* v. JAMES N. GOLDSTENE *Defendant-Appellee*.	* * * * * * * * * *	**No. 08-17378**

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MOTION FOR LEAVE TO FILE A BRIEF *AMICUS CURIAE*

1. The Insurance Institute for Highway Safety (the Institute) hereby respectfully moves for leave to file a brief *amicus curiae* in support of appellants in this case. The Institute is a nonprofit research and communications organization dedicated to reducing the property and human losses resulting from motor vehicle crashes.

2. All parties have consented to the Institute's participation as an *amicus*.

3. The Institute offers the following reasons in support of its Motion.

4. The Institute has conducted research on vehicle crashworthiness and the relationships between vehicle size, weight and occupant injuries.

5. Institute research on these issues has been cited extensively in rulemaking on issues involving motor vehicle safety and fuel economy.

6. The Institute believes that its research will afford the Court objective information pertinent to this case.

7. Wherefore pursuant to Rule 29 the Institute moves for leave to file the accompanying brief *Amicus Curiae.*

Respectfully submitted,

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February 13, 2009

* Application for admission to practice before this Circuit is pending.

CORPORATE DISCLOSURE STATEMENT OF *AMICUS CURIAE* INSURANCE INSTITUTE FOR HIGHWAY SAFETY

Pursuant to Fed. R. App. P.26.1, *Amicus Curiae* states as follows:

Amicus Insurance Institute for Highway Safety, Inc., states that it is a nonprofit organization incorporated under the laws of the District of Columbia.

Amicus Curiae has not issued shares to the public nor does it have any parent corporation, subsidiaries or affiliates that have issued shares to the public.

Dated: February 13, 2009

Respectfully Submitted,

Michele Fields
Attorney for *Amicus Curiae*
Insurance Institute for Highway Safety

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Identity and Interest of *Amicus Curiae*

The Insurance Institute for Highway Safety (the Institute) is a nonprofit research and communications organization, supported by U.S. motor vehicle insurers, that identifies ways to reduce motor vehicle crashes and crash losses. The Institute has been a leader in researching the relationships between vehicle size, weight, and occupant protection in crashes. These relationships have important implications for fuel economy regulations. For over 20 years, the Institute has submitted its research findings on fuel economy and safety in comments to federal rulemakings on corporate average fuel economy (CAFE) standards and federal motor vehicle safety standards.[1] Institute representatives have testified, by invitation,

[1] Insurance Institute for Highway Safety, Comment on Intent to Prepare Environmental Impact Statement for Fuel Economy Program, Docket No. 89-19, Notice 3 (Jan. 7, 1991); Insurance Institute for Highway Safety, Comment on Light Truck Average Fuel Economy Standards, Model Years 2005-07, NHTSA-2002-11419, Notice 2 (Feb. 12, 2003); Insurance Institute for Highway Safety, Comment on National Academy of Sciences Study and Future Fuel Econ. Improvements, Model Years 2005-2010, Docket Number NHTSA 2002-11419 (May 8, 2002); Insurance Institute for Highway Safety, Comment on Passenger Automobile Average Fuel Economy Standard for Model Year 1990 Docket No. FE-88-01; Notice 5 (Dec. 28, 1992); Insurance Institute for Highway Safety, Comment on Passenger Automobile Average Fuel Economy Standards, Model Years 1987-1988, Docket No. FE-85-01, Notice 4 (Mar. 24, 1986); Insurance Institute for Highway Safety, Comment on Proposed Changes to Average Fuel Economy Targets for Light Trucks, Model Years 2008-11, Docket No. NHTSA-2005-22223 (Nov. 29, 2005); Insurance Institute for Highway Safety, Comment on Proposed Increases in Fuel Economy Standards for Passenger Cars and Light Trucks

before congressional committees considering changes in the federal fuel economy standards regarding the potential implications of more stringent fuel economy standards on motor vehicle safety.[2] In addition, the Institute's President, Adrian K. Lund, served on the National Academy of Sciences Committee to Review the Effectiveness and Impact of Corporate Average Fuel Economy Standards. Among other things, the Committee reviewed implications of existing and future fuel economy standards on motor vehicle safety.[3]

Model Years 2011-15, Docket No. NHTSA 2008-0089 (June 27, 2008); Insurance Institute for Highway Safety, Comment on Reform of the Automobile Fuel Economy Standards Program, Docket No. NHTSA-2003-16128 (Jul. 13, 2004).

[2] Hearing on CAFE Standards Before the Senate Comm. on Commerce, Sci. & Transp., 107th Cong. (Jan. 24, 2002) (statement of Adrian K. Lund, Insurance Institute for Highway Safety). On the web at www.iihs.org/laws/testimony/pdf/testimony_akl_012302.pdf. See also, Hearing on Safety & Fuel Economy Before House Comm. on Commerce, Subcomm. on Energy & Power, 104th Cong. (Jul. 24, 1995) (statement of Brian O'Neill, President, Insurance Institute for Highway Safety); Hearing on Proposals to Increase Fuel Economy Before House Comm. on Energy & Commerce, Subcomm. on Energy & Power, 102nd Cong. (Apr. 17, 1991) (statement of Brian O'Neill, President, Insurance Institute for Highway Safety); Hearing on Fuel Economy and Safety Before House Comm. on Energy & Commerce, Subcomm. on Energy & Power, 101st Cong. (Oct. 1, 1990) (statement of Brian O'Neill, President, Insurance Institute for Highway Safety).

[3] National Academy of Sciences, Effectiveness and Impact of Corporate Average Fuel Economy (CAFE) Standards, National Academy Press (2002). On the web at www.nap.edu/openbook.php?isbn=0309076013.

The Institute's supporters have a humanitarian and financial interest in reducing the deaths and injuries from motor vehicle crashes. Because the Institute is concerned that the state regulations at issue in this case conflict with the federal CAFE standard in a way that would likely increase the risk of serious injury in motor vehicle crashes, it supports the Appellants.

Summary of Argument

The preemption doctrine exists to protect national standards from interference from state and local authorities. It guarantees business that it will be accountable to one authority with respect to matters the federal government has seen fit to regulate. The preemption doctrine is critical to the solution of public health problems because it allows the uniform application of regulations to address issues of health and safety that do not respect political boundaries. If it were not for preemption, the difficult decisions about balancing competing national interests would be made through a haphazard patchwork of conflicting law.

The Institute's position is that the laws of physics limit both the gains that can be made using current technology to improve air quality and our efforts to protect people in crashes. Crash safety should be a consideration in how the balance is struck between programs to improve air quality and protect people in crashes. Physics dictates that vehicle weight and size will

always matter in a crash. Researchers in the private, public, and nonprofit sectors have demonstrated the relationship between vehicle size and weight and crash injuries. Simply put, California's regulation encourages production of smaller, lighter vehicles leading to increased traffic fatalities and undermines federal efforts to reconcile fuel economy and safety.

ARGUMENT

I. Public Health Requires a National Energy Policy that Promotes Both Vehicle Safety and Energy Savings

A. *Background*

This case is about the impacts of motor vehicles on public health. It involves striking a balance between programs to improve the quality of the air and programs to reduce deaths and injuries resulting from vehicle crashes. These are national problems requiring national solutions.

In 1966, Congress enacted the National Traffic and Motor Vehicle Safety Act[4] which created the predecessor of the current National Highway Traffic Safety Administration (NHTSA) and tasked it with adopting and enforcing national standards to reduce the deaths and injuries resulting from motor vehicle crashes. For decades, the Institute has been studying the effects of the Federal Motor Vehicle Safety Standards (FMVSS) and it has been in the forefront of efforts to push the envelope on crash safety

[4] 15 U.S.C. 1381 *et seq.*

technology on all fronts. Some of the most significant recent improvements in vehicle crashworthiness have been the result of Institute crashworthiness evaluations that are published widely and have encouraged manufacturers to compete aggressively in the safety marketplace. In the mid 1990s, when the Institute began evaluating frontal crashworthiness, about half of the 80 vehicles that were tested earned marginal or poor ratings. More were rated poor than good. Manufacturers responded by changing the designs of their vehicles to improve crashworthiness. The result has been an improvement in vehicle safety.

By 2006 eighty-eight of the 106 then current passenger vehicle designs the Institute evaluated earned good ratings. None received a poor rating, and only two of the 106 designs were rated marginal. Seventy-two vehicles earned the Insurance Institute for Highway Safety's *TOP SAFETY PICK* award for 2009. This is more than double the number of 2008 recipients and more than 3 times the number of 2007 winners. *TOP SAFETY PICK* recognizes vehicles that do the best job of protecting people in front, side, and rear crashes based on good ratings in Institute tests. Winners also have to have electronic stability control (ESC), which research shows significantly reduces crash risk. For the first time ever, winners represent every class of vehicle the Institute tests except microcars. These

improvements are the result of voluntary decisions made by manufacturers, not government regulation. Significantly, many of these improvements also increased vehicle weight, with the implication that these vehicles consumed more fuel than necessary without them.[5] If manufacturers are forced to make fuel economy their highest priority, they will not be able to continue to compete aggressively to improve vehicle crashworthiness because of the weight penalty.

Congress addressed the air pollution problem in 1970 with the Clean Air Act.[6] Subsequent amendments specifically allow California to regulate the level of air pollutants generated by motor vehicles. With Environmental Protection Agency approval, the Clean Air Act allows states to adopt air pollution standards identical to the California standards, and this administration has signaled its desire to approve the California standard.[7]

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[5] NHTSA has noted that, "there are several safety improvements being made voluntarily. Some of these are for marketing purposes and others are to do better on government or insurance industry tests involving vehicle ratings. Likely voluntary safety improvements will add 11.75 pounds or more (5.34 kg or more) compared to MY 2003 installations." Light Trucks, Average Fuel Economy; Model Years 2008-2011; Proposed Rules, 70 *Fed. Reg.* 51414, 51453 (Aug. 30, 2005).

[6] 42 U.S.C. 7544(2).

[7] Memorandum of President Barack Obama to the Environmental Protection Agency, January 26, 2009. On the web at http://www.whitehouse.gov/the_press_office/California_Request_for_Waiver_Under_the_Clean_Air_Act/

In response to the Arab oil embargo of 1973-74, in the following year, Congress passed the Energy Policy Conservation Act (EPCA),[8] establishing minimum requirements for corporate average fuel economy (CAFE). CAFE is the sales weighted average fuel economy (miles per gallon) of a manufacturer's fleet of passenger vehicles and light trucks in any given model year. NHTSA also administers the CAFE program.

In the 1970s and early 1980s, vehicle manufacturers greatly reduced the size and weight of their vehicles to reduce fuel consumption and meet the new CAFE requirements. Vehicle downsizing compromised safety because, smaller and lighter vehicles are less protective of their occupants than larger, heavier vehicles when similarly equipped and designed. In a report from the National Academy of Science, it was estimated that 1300 to 2600 motor vehicle crash deaths occurred in 1993 because vehicles were smaller and lighter than the pre-CAFE fleet.[9] Research by NHTSA and the Institute demonstrating the adverse safety consequences of downsizing vehicles to improve fuel economy has played an important role in subsequent legislative and regulatory deliberations on proposed changes to the CAFE standard.[10]

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[8] 49 USC 32901-19.
[9] National Academy of Sciences, note 3, *supra*.
[10] Average Fuel Economy Standards for Light Trucks Model Years 2008-2011; Final Rule, 71 *Fed. Reg*. 17565, 17574 (Apr. 6, 2006).

In this case, the court will decide whether the EPCA's preemption provision applies to state regulation of greenhouse gas emissions. Because carbon dioxide is a byproduct of burning gasoline, a greenhouse gas standard is a *de facto* fuel consumption standard. By placing CAFE standards under the authority of the Secretary of Transportation, with the express mandate to adopt fuel economy standards taking into consideration "the effect of other motor vehicle standards of the Government on fuel economy,"[11] Congress ensured that safety would not be left out of the debate.

In recognition of this safety tradeoff, NHTSA has abandoned an overall average fuel economy standard in favor of a vehicle-attribute standard that separates fuel economy and safety. NHTSA's vehicle-attribute standard indexes the fuel economy requirements to the size of the vehicle. Each manufacturer is subject to a different average fuel economy, depending on the mix of vehicles it sells. Vehicle downsizing is not a strategy for meeting more stringent fuel economy requirements under size-indexing. This new CAFE strategy requires that advanced technology be used to boost fuel economy and assures that vehicles of all sizes are as fuel economical as feasible. The National Academy report showed that very large increases in

[11] 49 U.S.C. 32902(f).

fuel economy are possible without downsizing, if the advanced technology available is used to increase fuel economy rather than vehicle power or other attributes.

In contrast to NHTSA's action, the California regulation would perpetuate a version of the old CAFE rule; the limit on carbon emissions is structured so that vehicles of all sizes are held to the same fuel economy standard; a single, overall vehicle fleet average of carbon emissions is used rather than indexing the requirement to vehicle size. The easiest, cheapest, and quickest way for automakers to meet a significant reduction in an overall fleet average of carbon emissions is to downsize to reduce fuel consumption. That would, in effect, trade much of the recent improvements in safety for the increased fuel economy.

In effect, the California emissions standard makes an end run around the careful balance of safety and fuel economy that NHTSA incorporated into the new CAFE standard. The California regulation will encourage the production, sale, and use of significantly smaller and lighter vehicles than would be needed to meet the federal CAFE standards. An inevitable consequence will be an increase in motor vehicle crash deaths and injuries. The California regulation does not take crashworthiness into consideration and sharply conflicts with NHTSA's policy to promote both fuel economy and vehicle safety as reflected in the Reformed CAFE standard.

B. *The Physics of Car Crashes*

A key determinant of a vehicle's fuel consumption is its weight, which in turn is related to vehicle size. Lightweight vehicles are small vehicles. Thus, because fuel consumption is related to vehicle weight, it is related also to size. Light/small vehicles consume less fuel than heavy/large vehicles, but they also provide less occupant protection in crashes.[12]

To illustrate the role of vehicle weight in the physics of crashes, consider a head-on collision between two cars. If the two vehicles are of unequal weights, the heavier vehicle will drive the lighter vehicle backward during the crash. Thus, in a head-on collision when both vehicles are traveling at 30 mph and one vehicle weighs twice as much as the other, the passenger compartment of the lighter vehicle will be decelerated from 30 to 0 mph and then accelerated backward to 10 mph. The sudden speed change during the crash will be 40 mph for the lighter vehicle, but the heavier vehicle will experience a speed change of only 20 mph. Because of the greater speed change, the occupants of the lighter vehicle will experience much higher forces than the occupants of the heavier vehicle and, therefore, will be exposed to a greater injury risk.[13]

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[12] B. O'Neill, The Physics of Car Crashes and the Role of Vehicle Size and Weight in Occupant Protection, 12 *Physical Medicine and Rehabilitation.: Sate of the Art Reviews*. 23 (Feb. 1998).
[13] *Id.*

Vehicle weight plays a protective role not only in crashes with other vehicles but also in many single-vehicle crashes. This is because when heavier vehicles strike a roadside obstacle, they are more likely to deform or move the obstacle than lighter vehicles. As a result the heavier vehicles will decelerate less rapidly, so their occupants will be less likely to be injured.[14]

Separate and apart from weight, vehicle size also is an important factor in occupant safety. Larger vehicles typically have more exterior structure, and this structure plays an important role in occupant protection by acting as "crush space," buckling and bending to absorb the crash energy, thereby allowing restrained occupants to be decelerated within their compartments, or "safety cages," which need to be strong. Longer crush spaces allow occupant compartments to decelerate at lower rates, reducing the crash forces that reach those within. Thus, larger exterior vehicle dimensions are important factors in protecting people in a crash.

II. Decreases in vehicle size and weight adversely affect safety

A. *Compliance with federal safety standards does not eliminate make/model differences in crashworthiness.*

There is a common misperception that because all vehicle manufacturers are held to the same federal motor vehicle safety standards, new vehicles are comparable with respect to safety. Federal motor vehicle

[14] National Academy of Sciences, note 3, *supra*.

safety standards do not make all vehicles equally safe. As long as vehicles differ in weight and size, physics dictates that there will be differences in crashworthiness. Even though modern vehicles have many more safety features and are designed to meet more stringent federal motor vehicle safety standards than vehicles made in the 1970s, the fatality rates for small cars are still more than double the rates in large cars.[15]

It is also a common misperception that vehicles of smaller size and weight of a downsized fleet might be involved in fewer crashes because they are more maneuverable and therefore can avoid crashes more easily. Whether smaller vehicles are more maneuverable or not, insurance crash data show that they are not less likely to be involved in crashes. After controlling for key factors like age and sex of driver, population density of garaging location, for example, the collision claims rates for cars classified as "minis" and "small"(like the Honda Civic) are more than 25 percent higher than the collision claims rates of cars classified as very large. Collision claims are insurance claims filed for crash damage to the insured vehicle. Thus, the reduced crashworthiness of smaller vehicles is not offset by a reduction in crashes.

[15] The rate for vehicles weighing between 3,500 and 4,000 lbs. was 93 deaths per million registered vehicles in 1995-99 models for calendar years 1996-2000. The comparable figure for vehicles weighing less than 2,500 lbs. was 181 (Analysis on file with Insurance Institute for Highway Safety).

B. *Both projected and actual death rates increase as vehicle size and weight decrease.*

Due in part to the federal fuel economy standards, passenger cars in 1993 were, on average, 700 pounds lighter than they were in 1976, and light-duty trucks were 300 pounds lighter. A 1997 NHTSA report estimated that each 100-pound decrease in car weight was associated with a 1.13 percent increase in fatality risk in crashes in calendar year 1993.[16] That report was superseded by a new report in 2003.[17] (NHTSA found methodological problems with the 1997 study that resulted in consistent underestimation of the adverse safety impact of downsizing.)[18]

For the 2003 report, NHTSA looked at model year 1991-99 vehicles during calendar years 1995-2000. Using registration and crash data, NHTSA calculated the crash fatality rates per billion miles by vehicle weight, vehicle type, driver age and gender, location (urban/rural), and other vehicle, driver, and environmental factors. It found that for the lighter light trucks and vans (LTVs), heavier cars, and especially lighter cars, fatality rates increased as weights decreased. Table 1 summarizes NHTSA's

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[16] NHTSA, Relationships between Vehicle Size and Fatality Risk in Model Year 1985-93 Passenger Cars and Light Trucks, NHTSA Publication DOT HS 808 570 (1997).

[17] NHTSA, Vehicle Weight, Fatality Risk and Crash Compatibility of Model Year 1991-99 Passenger Cars and Light Trucks, NHTSA Publication DOT HS 809 662 (2003).

[18] *Id*. at vii.

findings with respect to death rates per billion miles by vehicle size, 1996-99 models during 1996-2000.

Table 1. Death rates by body style

Body style	Size	Curb weight range (lbs.)	Death rate
Cars 4-door	Very small	1,950-2,274	11.6
	Small	2,208-2,878	7.8
	Midsize	2,566-3,567	5.3
	Large	3,035-4,819	3.3
Minivans		3,354-4,819	2.8
SUVs 4-door	Small	2,636-3,437	5.7
	Midsize	3,476-4,484	6.7
	Large	4,332-5,899	3.8
Pickups	Lighter	2,625-4,178	6.8
	Heavier	3,404-5,268	4.1

NHTSA also recalculated its 1997 estimation of the likely consequences in the event of a crash of reducing the unladen weight of different classes of vehicles by 100-lbs. and found the downsizing would cost from about 250 to 1,500 lives per year (as much as twice that many fatalities if the reduction were 200-lbs.). Occupants of the lightest vehicles would bear the largest share of the increases in fatalities. A 100-lb. reduction in the weight of the lightest cars would result in 226 to 715 more deaths each year. However, reducing the heaviest SUVs and pick up trucks by 100 lbs. might not increase crash deaths, and could even reduce them by making them less aggressive and therefore less likely to kill occupants of the

vehicles they strike. Table 2 shows NHTSA's estimated changes in the numbers of driver deaths during 1999 if vehicles had been 100 lbs. lighter.

Table 2. Effect on fatalities of downsizing by 100 lbs.

Body style	Curb weight (lbs.)	Change in deaths (+/-)
Cars 4-door	Lighter than 2,950	+226 to +715
	2,950 or heavier	+129 to +303
SUVs, pickups, vans	Lighter than 3,870	+59 to +296
	3,870 or heavier	-156 to +241
All vehicles		+258 to +1,555

NHTSA's researchers calculated death rates for vehicles involved in fatal crashes using as its measure all deaths in fatal crashes per billion miles traveled. (NHTSA's rates included all occupants of vehicles involved in single and multiple vehicle crashes and all pedestrian deaths.) Institute researchers calculated death rates using a different measure with similar results. The Institute calculated vehicle death rates by make/model for drivers using driver deaths per million registered vehicle years. A "registered vehicle year" is one vehicle registered for a full year. Tables 3 and 4 compare vehicles with the lowest driver death rates and the highest driver death rates, respectively. Death rates are shown for various crash configurations (multiple vehicle, single vehicle, and rollover) along with an overall death rate for the crash configurations combined. The overall driver

death rates for the midsize and large vehicles shown in Table 3 range from 11 to 19 deaths per million registered vehicle years. None of the 15 vehicles with the lowest driver death rates were mini or small models.

Table 3. Lowest Rates of Driver Death

Fewer than 20 deaths/million registered vehicle years, 2001-04 models, CY 2002-05

			driver death rate by crash type			
			overall	multiple vehicle	single vehicle	rollover
Chevrolet Astro	minivan	very lg.	7	4	4	4
Infiniti G35	luxury car	midsize	11	7	3	0
BMW 7 series	luxury car	very lg.	11	4	7	0
Toyota 4Runner	4WD SUV	midsize	13	4	8	8
Audi A4/S4 Quatro	4 door car	midsize	14	9	4	4
Mercedes E class	Luxury car	large	14	5	9	5
Toyota Highlander	4WD SUV	midsize	14	9	5	5
Mercedes M class	4WD SUV	midsize	14	10	5	0
Toyota Sienna	minivan	very lg.	17	4	13	4
Honda Odyssey	minivan	very lg.	17	8	8	4
Lexus ES 330	luxury car	midsize	18	8	11	6
Lexus RX 330	2WD SUV	midsize	18	15	3	0
Toyota Sequoia	2WD SUV	large	18	7	11	0
Honda Pilot	4WD SUV	midsize	19	7	14	6
BMW X5	4WD SUV	midsize	19	8	11	9

Driver death rates for the worst 16 vehicles in the Institute study ranged from a high of 232 to a low of 146 deaths per million registered vehicle years as shown in Table 4 on the following page. Eleven of the 16 vehicles were small cars, and none were large or very large.

Table 4. Highest Rates of Driver Death

More than 140 deaths/million registered vehicle years, 2001-04 models during CY 2002-05

			driver death rate by crash type			
			overall	multiple vehicle	single vehicle	rollover
Chevrolet Blazer 2 dr	2WD SUV	midsize	232	83	151	134
Acura RSX	2 door car	small	202	80	113	65
Nissan 350Z	Sports car	midsize	193	65	123	74
Kia Spectra hatchback	4 door car	small	191	128	57	41
Pontiac Sunfire	2 door car	small	179	100	77	40
Kia Rio	4 door car	mini	175	105	68	35
Chevrolet Cavalier	2 door car	small	171	93	76	45
Mitsubishi Eclipse	2 door car	small	169	76	94	37
Dodge Neon	4 door car	small	161	107	49	26
Pontiac Grand Am	2 door car	midsize	160	89	65	35
Chevrolet Cavalier	4 door car	small	150	82	68	35
Ford Mustang	sports car	midsize	150	67	83	42
Ford Ranger	4WD pickup	small	150	42	106	77
Mazda B series	2WD pickup	small	147	48	95	78
Mitsubishi Eclipse convertible	sports car	small	146	53	93	33
Mitsubishi Montero Sport	2WD SUV	midsize	146	40	112	75

Table 5 shown on the following page presents the same data grouped according to vehicle body style, and by size within each style. The pattern is unmistakable. There is an inverse relationship between driver death rates and vehicle size in almost every grouping. For example, the driver death rate for the lightest SUVs is much higher than in the heaviest ones (131 compared to 47 driver deaths per million registered vehicle years).

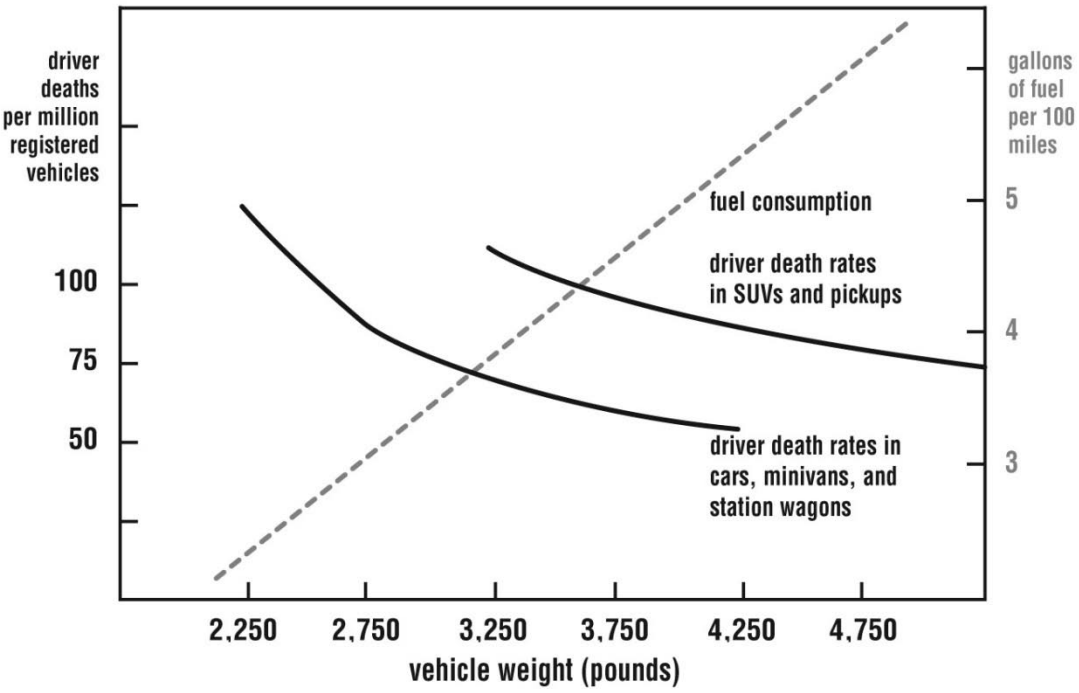
Table 5. Driver death rates by body style group and by size

		overall	multiple vehicle	single vehicle	rollover
Cars (4 door)	mini	148	92	55	32
	small	103	61	42	20
	midsize	71	41	30	14
	large	81	53	27	13
	very large	61	43	19	3
Cars (2 door)	mini	137	75	61	48
	small	134	65	68	37
	midsize	103	50	52	26
Sports cars	mini	107	54	54	26
	small	71	23	48	15
	midsize	115	51	64	31
	large	41	13	28	16
Luxury cars	midsize	33	17	16	6
	large	41	24	17	4
	very large	34	15	19	10
Specialty cars	small	50	37	11	6
Station wagons	small	87	48	38	23
	midsize	51	24	28	12
	large	99	83	11	4
Minivans[19]	large	66	44	21	9
	very large	39	25	14	8
SUVs 4WD	small	77	34	43	29
	midsize	59	20	40	28
	large	47	16	33	23
	very large	76	21	57	47
SUVs 2WD	small	76	40	37	23
	midsize	81	32	51	38
	large	57	20	39	34
Pickups 4WD	small	97	33	64	42
	large	83	27	57	38
	very large	89	19	70	53
Pickups 2WD	small	110	50	59	37
	large	102	38	66	40

[19] The Institute classifies minivans, which typically are built on modified car platforms, as cars rather than trucks.

The Institute has also factored fuel economy directly into its analyses. Figure 1 illustrates the relationships among driver deaths, vehicle weight, and fuel consumption for 1999-2003 model passenger vehicles during 2000-2004.[20] The lightest vehicles have the lowest fuel consumption and the highest death rates. Heavier vehicles have lower death rates and consume more fuel per mile, but the safety benefits of the added weight diminish as vehicles get heavier and heavier (but fuel consumption continues to

Figure 1. Vehicle weight, driver deaths, and fuel consumption



[20] The driver death rates are adjusted to account for some differences in vehicle use patterns and driver demographics may account for some of the death rate differences.

increase). The optimum fleet mix to enhance safety would include fewer of the heaviest vehicles and fewer of the lightest ones.[21]

It is important to note that the fatality rates by vehicle weight in Figure 1 are overall risks, not just the risks after a crash has occurred. This is important because, as noted earlier, it is sometimes claimed that small cars avoid crashes better than larger cars because they are more maneuverable. Fatalities per registered vehicle, as shown in the figure, reflect both the likelihood and the consequences of involvement in serious crashes.

III. California's Carbon Dioxide Regulation Will Undermine the Benefits of NHTSA's Reformed CAFE Standard

A. *CAFE reform is critical to reduce rollover crashes and the size disparity within the vehicle fleet*

NHTSA is the agency tasked with establishing target national fuel economy and safety standards for manufacturers. Two of the four most pressing problems in auto safety identified by NHTSA in 2002 were vehicle rollover and vehicle compatibility. A 2003 NHTSA report identified strategies for addressing these problems. Both reports stressed the importance of CAFE reform to reduce the incidence of rollover and crash fatalities resulting from vehicle incompatibilities.

> The current structure of the CAFE system can provide an incentive to manufacturers to downweight vehicles, increase production of vehicle

[21] NHTSA Final Rule at 17574, note 10 *supra*.

> classes that are more susceptible to rollover crashes, and produce a less homogenous fleet mix. As a result, CAFE is critical to the vehicle compatibility and rollover problems.[22]

NHTSA announced as its goal to "identify and implement reforms to the CAFE system that will facilitate improvements in fuel economy *without compromising motor vehicle safety* or American jobs." (Emphasis added.) The final Reformed CAFE standard ties fuel economy standards to specific market segments, replacing the single standard that made it possible for manufacturers to offset larger, low mileage vehicles with smaller, lighter, high mileage vehicles. The result will be across-the-board increases in fuel economy with far less incentives to downsize.

Permitting states to adopt a regulatory scheme for emissions that perpetuates a *de facto* single fuel economy standard is not only inconsistent with the federal Reformed CAFE standard, but undermines it. The Reformed CAFE standard represents a thoughtful balancing of manufacturers needs to operate under a consistent set of rules, their need to respond to consumer demand, and the public's need for safe transportation that does not waste limited fuel resources. In addition, Congress has

[22] NHTSA, Initiatives to Address Vehicle Compatibility (June 2003). On the web at www. nrd.nhtsa.dot.gov/departments/nrd-11/aggressivity/IPTVehicleCompatibilityReport/.

endorsed NHTSA's vehicle attribute system throughout the vehicle fleet by allowing NHTSA to adopt it for passenger vehicles.[23]

B. *The California regulation will reinstate manufacturer incentives to downsize selectively rather than across all classes of vehicles, encouraging manufacturers to use improved engine technologies on performance.*

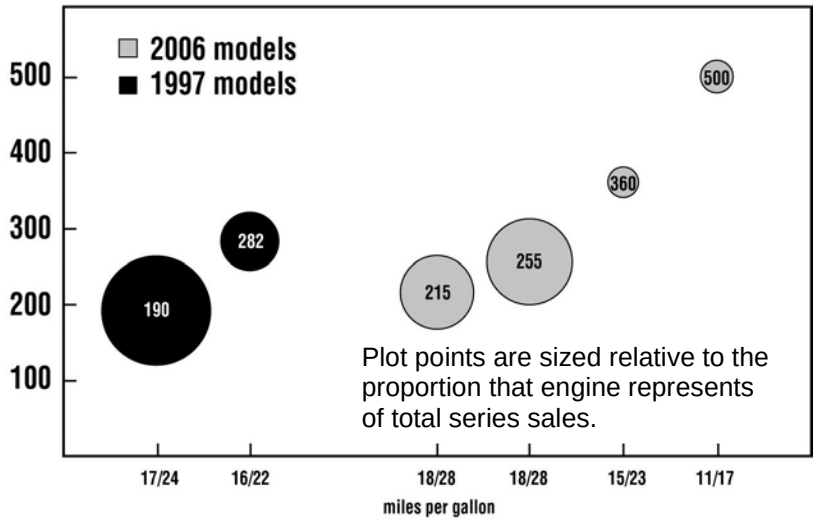
As pointed out earlier in this brief, the National Academy study observed that significant improvements in fuel economy can be achieved without downsizing vehicles if manufacturers use the advanced technology available to them to improve fuel economy rather than to increase vehicle horsepower or for other vehicle attributes. The National Academy report noted that while manufacturers initially used technology to improve fuel economy, by 1985, technology was concentrated on vehicle performance and other attributes. In its final report the Committee found:

> [S]ince 1975, … improvements in [engine] efficiency, drive-trains, and vehicle aerodynamics … could have been used to improve the fuel-economy and/or performance. Looking at the entire light-duty fleet, … between 1975 and 1984, the technology … [was] concentrated on fuel economy. It improved by 62 percent without any loss of performance as measured by 0-60 mph acceleration times. By 1985, light-duty vehicles had improved enough to meet CAFE standards. Thereafter, technology improvements were concentrated principally on performance and other vehicle attributes (including improved occupant protection). Fuel economy remained essentially unchanged while vehicles became 20 percent heavier and 0-60 mph acceleration times became, on average, 23 percent faster.

[23] Energy Independence and Security Act of 2007, Pub. L. 110-140, 121 Stat. 1492, 49 U.S.C. 3201.

To illustrate the trends in vehicle horsepower, the Institute's sister organization, the Highway Loss Data Institute (HLDI),[24] compared vehicle horsepower of 2006 models to the horsepower of 1997 models of the BMW 5 Series, Honda Accord sedans, and the aggregate Chrysler's midsize sedans. The results are shown in Figures 2-4.

Figure 2. BMW 5 Series –Engine Options by Horsepower

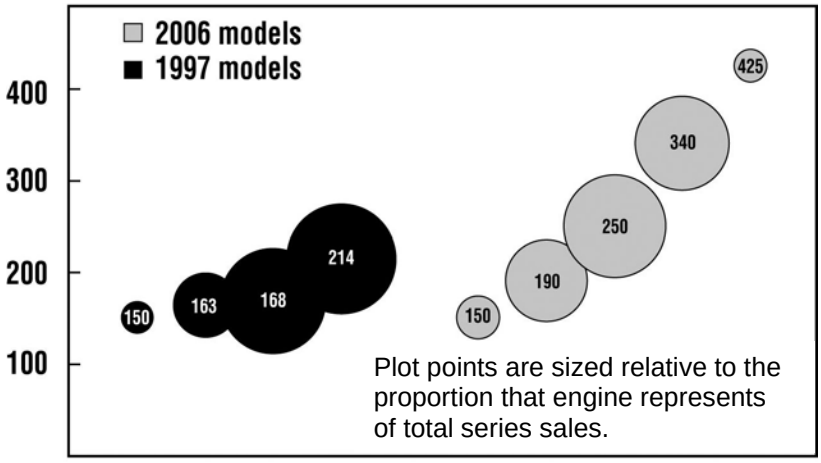


BMW has long competed successfully in the luxury performance car market. HLDI examined the horsepower trend in BMW products and found

[24] HLDI is a nonprofit research organization that publishes insurance loss statistics on most car, SUV, pickup truck, and motorcycle models on US roads. Sponsored by the automobile insurance industry, HLDI regularly publishes detailed analyses of losses under six insurance coverages — collision, property damage liability, personal injury protection, medical payment, bodily injury liability, and comprehensive (including theft). The database covers more than 150 million individual passenger vehicles, amounting to about 80 percent of all privately insured vehicles on the road. As a result, this is the largest repository of such information in the world.

that in 1997, the BMW 5 Series was offered with two horsepower options, 190 and 282 hp. However, by 2006 the 5 Series has four horsepower options ranging from 215 to 500 hp. That's a 77 percent increase in the maximum horsepower. Fuel economy figures for the 1997 Series 5 were 17/24 for the 190 hp models and 16/22 for the 282 hp models. Clearly engine and technologies that could be used for fuel economy improvement was being used to increase horsepower.

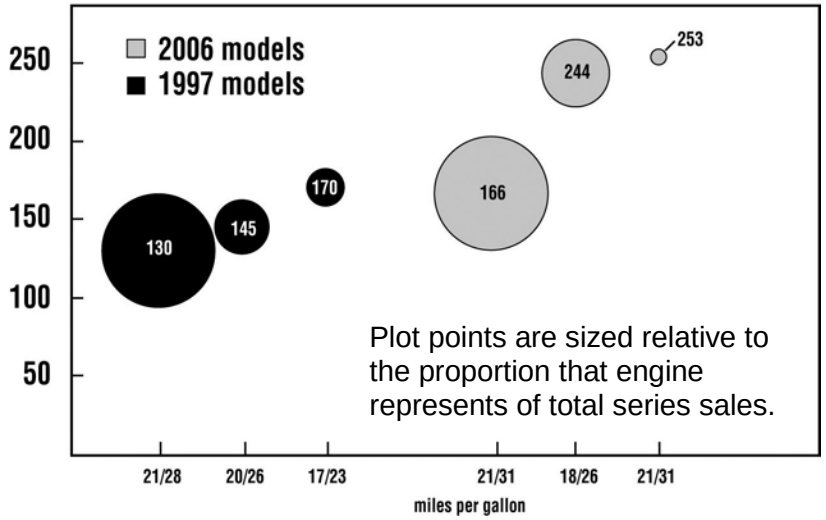
Figure 3. Chrysler sedans –Engine Options by Horsepower



The increases in horsepower were not just occurring in high-performance vehicles. HLDI also looked at the range of horsepower available in Chrysler sedans was relatively small in 1997 (150-214 hp); by 2006, Chrysler offered five engines ranging from 150-425 hp. That is an increase of 99 percent in maximum horsepower.

Finally, HLDI studied the horsepower trend in the Honda Accord, a very popular selling model. Because Honda values its reputation as the "green" automaker, one might expect it to have resisted the inclination to increase horsepower. Not so. In 1997, there were three horsepower options

Figure 4. Honda Accord sedans –Engine Options by Horsepower



for the Accord ranging from 130 to 170 hp while in 2006, the lowest horsepower offered was 166 hp, slightly less than the highest offered in 1997, and the highest offered was 253 hp, a 49 percent increase over the highest offered in 1997.

Figures 3-5 show three automakers with different marketing strategies and market niches that have all strongly favored using technology to increase horsepower. The original CAFE standard did little to influence them to do otherwise because it targeted an average over all vehicle sizes

and attributes. As long as they sold enough vehicles with high mileage to offset those with poor mileage, manufacturers were free to direct improvements in engine technologies to increasing horsepower instead of improving fuel economy. The new attribute-based CAFE standard will push manufacturers to use technology to increase fuel economy rather than to increase horsepower. If permitted to stand, the California rule will conflict with the purpose of the new attribute-based CAFE standard by institutionalizing the old rule of averages.

Conclusion

Motor vehicle regulations that encourage manufacturers to reduce vehicle weight or sell more lightweight vehicles will result in additional deaths and injuries in motor vehicle crashes; will undermine the significant improvements that have occurred over the past three decades in crashworthiness; and will perpetuate a flawed approach to fuel economy that has been significantly by a comprehensive NHTSA regulation that thoughtfully balanced competing interests in safety and fuel economy.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

Pursuant to Fed. R. App. P. 32(a)(7)(C) and Circuit Rule 32-1 for Case Number 08-17378, I, Michele Fields, certify that the attached *amicus* brief is proportionately spaced; has a 14-point typeface; and contains 7,000 words or less as determined by Microsoft Word.

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CERTIFICATE OF SERVICE

I, Michele Fields, hereby certify that, on February 13, 2009, I caused to be served one copy of the foregoing *Amicus Curiae* Brief via Federal Express for next-day delivery to counsel at the following addresses.

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