May 14, 2004

Mr. Stephen R. Kratzke
Associate Administrator for Rulemaking
National Highway Traffic Safety Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

Comments on Reforming the Automobile Fuel Economy Standards, Advanced Notice of Proposed Rulemaking, Docket 2003-16128

Dear Mr. Kratzke:

Public Citizen appreciates the opportunity to comment on the National Highway Traffic Safety Administration's (NHTSA) proposal to modify the structure of the Corporate Average Fuel Economy (CAFE) program.

Over the past two decades, NHTSA has failed to meet its obligation under the Energy Policy and Conservation Act (EPCA) to set maximum feasible fuel economy standards for both cars and trucks. The nations is once again experiencing the results of this neglect, with record gas prices, shortages and a vulnerability to severe and sudden oil shocks. Any modification of the CAFE program should increase overall fleet fuel economy in order to reduce energy consumption and pollution, and to enhance highway safety by removing the incentive now given to automakers to build heavier, more dangerous vehicles in the absence of effective regulation. Rather than improve fuel economy, manufacturers have opted to produce increasingly heavy vehicles and powerful engines.

Current fuel economy regulation has proven ineffective as the average fuel economy of the vehicle fleet has stagnated since the late 1980s, and the gap between average vehicle economy and what technology makes feasible and economical grows increasingly wide. The two-tiered CAFE program for passenger cars and light trucks divides the vehicle fleet with erroneous or obsolete distinctions that fail to accurately reflect the actual utility of different vehicles. In addition, the bifurcated program, which sets fleet average economy standards at 27.5 miles per gallon (mpg) for passenger cars and 20.7 mpg for light trucks, allows auto manufacturers to "game" the system and design the maximum amount of vehicles so as to fall into the "light trucks" category, in order to take advantage of the pathetically low standard.

The current incentive given to auto manufacturers to build light trucks has aggravated highway safety risks by promoting vehicles that are more prone to rollover than passenger cars due to their higher center of gravity. Moreover, the proliferation of light trucks has increased risks to other vehicle occupants as well because of the elevated height, rigid design, and greater

mass of light trucks as compared to passenger cars, which make light trucks far more deadly in two-vehicle crashes.

Additional Materials Appended to Comments

- A list of people mentioned in documents sent by NHTSA on August 25, 2003, in response to Public Citizen's FOIA request dated July 11, 2003;
- Calendar entries from documents sent by NHTSA on August 25, 2003, in response to Public Citizen's FOIA request dated July 11, 2003;
- Meetings cited in emails from documents sent by NHTSA on August 25, 2003, in response to Public Citizen's FOIA request dated July 11, 2003; and
- Selected list of Harvard Center for Risk Analysis funding sources during the time in which John Graham was Director of the Center.

In a recent article, Dr. Jeffrey Runge, Administrator of NHTSA, stated that issuance of rollover-related safety standards had been delayed because the agency "was preoccupied by rules required by Congress after the Firestone tire scandal." ("SUVs Blamed for Rise in Traffic Deaths in 2003," *USA Today* (May 6, 2004)). This statement directly contradicts NHTSA's budgetary submissions to Congress for the past few years, as well as Congressional testimony by the agency, and disregards the millions of dollars in dedicated funding made available to NHTSA under the 2000 Transportation, Recall Enhancement, Accountability and Documentation (TREAD) Act.

More to the point in this context, however, we note that Dr. Runge personally, and many high-level officials of NHTSA, including counsel and rulemaking staff, devoted substantial agency resources to the "CAFE reform" project, even in the face of *de minimus* funding for CAFE. As discussed below, we seriously question the project's merit and value. Tremendous good could be done by simply raising fuel economy standards, and fixing safety hazards that plague the current-day vehicle fleet. The agency should look first to its real obligations under the law, set fuel economy for all vehicles at the "maximum feasible level," and cease contorting its statutory obligations to make room for SUVs and other heavy vehicles to continue to grow in weight and size, and to lag on both safety and fuel economy.

Bedrock Principles for Any Changes to the Fuel Economy Program

Overall, the core principles to guide and constrain any changes to NHTSA's fuel economy program are as follows:

1. NHTSA should not proceed further on this structural rulemaking without proposing actual standards. This is required to make any changes transparent and to fulfill the agency's basic obligations under the Energy Policy and Conservation Act. Anything else denies the public the opportunity to comment meaningfully on the rulemaking and subverts NHTSA's statutory duty to set fuel economy standards at the maximum feasible level.

2. The Energy Policy and Conservation Act requires NHTSA to set maximum feasible fuel economy standards. NHTSA must not ignore this obligation. NHTSA must act now to address America's growing oil dependence by making progress towards increasing combined passenger car and light truck fuel economy to 40 miles per gallon within a decade, which is technically feasible and economically practicable.

3. Increasing vehicle fuel economy can be undertaken while improving vehicle safety, U.S. manufacturing employment, and consumer choice.

4. Vehicle safety is an important consideration in and of itself. NHTSA should use its legal authority to improve vehicle safety standards and address important public safety considerations.

5. NHTSA's reliance on studies that relate increased safety to increased vehicle weight is inappropriate in light of the serious flaws in those studies. A large body of evidence suggests that other factors besides vehicle weight have critical implications for vehicle safety, particularly vehicle design. NHTSA should remedy its failure to incorporate the findings of studies that address the critical role played by factors such as design and size in vehicle safety.

6. If NHTSA does move forward with a proposal for structural changes, at the very minimum they must be accompanied by a mechanism to guarantee that NHTSA will not worsen the status quo on fleet fuel economy. NHTSA should require automakers to continue to meet the existing light truck standard or any later increased standard as a backstop to protect against any erosion of the truck fleet fuel economy resulting from any modifications.

7. Weight-based standards should not be used as the foundation for reforming CAFE standards. Weight-based standards would create incentives to add weight or sell more heavy vehicles, resulting in lower fuel economy and increased oil dependence. Moreover, weight-based standards reduce or totally eliminate incentives to use cost-effective technologies, such as high-strength steel, aluminum and other materials, to increase fuel economy in heavy vehicles.

8. NHTSA should change the current vehicle class definitions to prevent manufacturers from classifying vehicles clearly being used primarily for passenger transport as "light trucks," including crossover vehicles, SUVs, and minivans. The simplest such system would require the combined fleet of vehicles under 10,000 pounds gross vehicle weight to meet a single fleet average standard.

9. NHTSA should modify the CAFE program to include all vehicles with a gross vehicle weight rating between 8,500 and 10,000 pounds. Including these vehicles while maintaining existing performance is feasible and compelling on the basis of energy conservation and reduced fuel costs for users of such vehicles, including farmers and small businesses.

NHTSA Should Not Proceed on the Structural Rulemaking without Improving Fuel Economy Standards for All Vehicles

It is inappropriate and misleading for NHTSA to propose structural changes to the CAFE program without proposing actual fuel economy standards. In order to make any changes transparent, the agency should propose a fuel economy standard before proceeding further on proposed structural changes to CAFE.

Anything other program of action denies the public the opportunity to comment meaningfully on the rulemaking and avoids NHTSA's statutory duty to set fuel economy standards. NHTSA does not even guarantee that a retooled fuel economy system must improve overall fuel economy and reduce petroleum consumption, despite the fact that this is the entire purpose of the CAFE program. Any of our comments regarding potential structural changes to the CAFE program are made with extreme reservation due to the lack of actual proposed standards. An abstract exercise is always merely an exercise — the real measure remains in the statutory criteria laid out by Congress that served as a sufficient and effective guide in the early years of the program.

NHTSA Must Act Now to Increase Vehicle Fuel Economy and Address America's Growing Oil Dependence

Any reform to the way that NHTSA sets fuel economy standards must include an increase in those standards to significantly expand fuel conservation to reduce oil dependence. The EPCA requires the agency to set maximum feasible fuel economy standards; NHTSA must not ignore this obligation.

NHTSA Cites a Deeply Flawed Analysis as its Only Major Source Concerning the Economic Impact of an Increase in Fuel Economy

In indicating the supposedly damaging potential economic consequences from increases in fuel economy, NHTSA twice refers to an Energy Information Administration (EIA) analysis of the negative consequences of raising light truck CAFE 0.6 mpg per year in the period 2007 through 2025. But a ream of other research has shown that increases in vehicle fuel economy are compatible with improvements in vehicle safety, healthy U.S. manufacturing employment, and robust consumer choice.

NHTSA cites the EIA study as predicting 100-350 lbs. annual light truck weight reductions from a 0.6 mpg increase in fuel economy, but this implies improbably low vehicle weights in the future. However, the EIA document submitted to the docket (2003-16128-59) nowhere makes this claim. The document instead predicts that a 0.6 mpg increase in light truck fuel economy would result in trucks in 2025 being 76 lbs. heavier than they are today and 157 lbs. lighter than would be predicted in 2025, without such a fuel economy increase.

The EIA document submitted to the docket does make numerous erroneous claims about the consequences of more stringent fuel economy standards. EIA claims that manufacturers would pay fines rather than meet CAFE standards if they were increased 0.6 mpg annually, but there is strong historical evidence that this would never happen. Currently, only smaller companies that import a limited number of luxury vehicles pay any CAFE fines; and no major or domestic auto manufacturer has ever paid fines. Moreover, EIA suggests that manufacturers will not even meet the current 2005 increase in light truck fuel economy, from 20.7 mpg to 21.0 mpg, which is preposterous given the small increment of increase and the amount of caution NHTSA exercised to ensure that its fuel economy standards are achievable.

In addition, EIA does not explain other findings from its analysis that NHTSA cites, such as Gross National Product (GDP) and job losses. Moreover, if an analysis by EIA of proposed CAFE amendments to the Energy Bill, released in March 2002, is any indication, EIA modeling of increases in fuel economy suffer from several fundamental flaws. These flaws include: 1) current energy consumption is assumed to be economically ideal, yet global warming, oil dependence and other crucial factors indicate that this is far from the case; 2) the benefits of low fuel consumption after three years of a vehicle's life is ignored, meaning the costs re-couped in lower fuel consumption beyond that extremely short time horizon are ignored (average vehicle life is typically estimated at more than 10 years, and is growing as vehicle technologies become more resilient); and 3) reduction in oil consumption is perversely implied to be economically harmful to the economy, when the impetus for such reductions could actually stimulate economic growth along more sustainable pathways, and save consumers money, increasing their disposable income for other goods.

All of the Administration's analysis also utterly omits consideration of the practical consequences of the agency's devastating decision to extend fuel economy credits for dual fuel vehicles, which will both decimate oil savings and depress the overall fuel economy of the light truck fleet.

Any Consideration of Structural Changes Must Be Accompanied by a Mechanism To Guarantee that NHTSA Will Not Worsen the *Status Quo* on Fleet Fuel Economy

The agency should require automakers to continue to meet the existing light truck standard or any later increased standard as a backstop to protect against any erosion of the truck fleet fuel economy resulting from any modifications. NHTSA argues that standards could be adjusted to prevent or respond to a decline, but the history of CAFE rulemaking shows that this will not happen. Moreover, the agency has not articulated any basis for making such an adjustment.

Beyond integrating a "backstop" into any restructured CAFE program to prevent deterioration of fleet fuel economy, any set of standards should incorporate an automatic adjustment mechanism to ensure that projected fleetwide fuel economy increases are realized regardless of changes in the vehicle fleet mix.

Vehicle Safety is an Important Consideration In and Of Itself

Public Citizen is particularly concerned by the perverse incentive automakers are given by the CAFE structure to produce increasing numbers of light trucks. The light truck population has exploded over the past decade and, in addition to costing American families more at the pump and escalating damage caused to the environment, SUVs and pickup trucks pose greater safety risks to their occupants and others on the road. SUVs have 2.5 times the rollover fatality rate compared to passenger car occupants who experience rollover, and pickup occupants are slightly less than twice as likely to die in a rollover as the occupants of a passenger car.[1]

Moreover, the elevated height, more rigid design, and increased weight of light trucks compared to passenger cars make them especially deadly in two-vehicle crashes. In frontal collisions with a full-size pickup, for example, the passenger car driver is *eight times* more likely to die than the pickup driver. And when a passenger car is struck in the side by another passenger car, the driver of the struck vehicle is eight times more likely to die than the driver of the striking vehicle. But when the striking vehicle is an SUV, the car driver has a *22 times* greater fatality risk than the driver of the SUV.[2]

In addition to the dismal fuel economy standard applied to light trucks, vehicles with a Gross Vehicle Weight Rating (GVWR) above 8,500 lbs. *are not subject to CAFE requirements at all.* Therefore, automakers are encouraged to invest in marketing and development of their largest light trucks, further degrading fuel savings, damaging the environment, and exacerbating highway safety risks. Some vehicles, such as the Ford Expedition, weigh in at just above the line (8,600 lbs GVWR), making it likely that the weight of these vehicles is targeted to just escape the need to meet fuel economy standards.

NHTSA should use its existing and considerable legal authority to improve vehicle safety standards and address important public safety considerations. Please see "Comments on NHTSA Technical Report," at the end of these comments, for further articulation of Public Citizen's concerns regarding vehicle weight and safety.

Using Weight-Based Standards as the Foundation for Reforming CAFE Standards Would Harm Safety and Encourage Gaming

We view agency's new proposal to arrange CAFE to make "room for" the burgeoning fleet of monstrous pickup trucks and SUVs with tremendous skepticism. Essentially, the Administration is proposing to re-design the fuel economy program to protect the industry's SUV and pickup fleet "cash cows" at the expense of safety and fuel economy. This unfortunate diversion has absorbed resources from all over the government, and much of its public proposal appears indifferent, or even hostile, to the core motivations behind the law as enshrined in statute.

We strongly oppose any move towards weight-based standard that creates incentives to add weight or sell more heavy vehicles, resulting in lower fuel economy, increased oil dependence, and increased highway safety risks. The weight-based system proposed in the ANPRM may provide an incentive to reduce the weight of the heaviest vehicles, and this is the

most cost-effective way to reduce weight in the vehicle fleet. However, a weight-based fuel economy standard would still establish lower requirements for heavier vehicles, giving automakers a strong incentive to add weight to most of their vehicle fleet. Increases in vehicle weight can exacerbate rollover fatalities and create more dangerous crashes by contributing to vehicle aggressivity.

Moreover, weight-based standards may reduce or eliminate incentives to use cost-effective technologies, such as high-strength steel, aluminum and other materials, to increase fuel economy in heavy and lighter vehicles alike.

Moreover, such a standard would structure an entire system around a fallacy. There is no reason why the current relationships between vehicle weight, fuel economy and safety outcomes cannot change with future, and more intelligent, vehicle designs and technologies. Recent research by Dynamic Research, Inc. (DRI) shows that when vehicle weight is reduced while vehicle size is kept constant, *fatalities decline*.[3] Therefore, it is critical that any system of allocation and goals for fuel economy does not freeze the possibilities offered by these types of win-win solutions.

Simply increasing the standard for light trucks and including all light trucks between GVWR 8,500 to 10,000 lbs. would save oil and incur safety benefits that are likely better than those that could result from a weight-based system. Under a substantial increase, the historical record shows that the heaviest vehicles are likely to get lighter and the lightest vehicles will stay the same, or even increase in weight and size as it becomes easier for the fleet as a whole to reach the fuel economy target. Achieving these goals must govern any changes in the fuel economy program, as the statute requires it.

Proposed Size-Based Standards Should Not Be Derived from Weight-Based Standards

In addition to a weight-based standard, NHTSA also proposes a size-based standard — and size is an attribute which recent research such as the DRI study indicates is positively correlated with safety[4] — but the agency‘s proposal is simply derivative of the proposed weight-based standard. We find this unacceptable for consideration. If a size-based CAFE standard is truly under consideration by the agency, that consideration must include research on the influence of vehicle size changes *independent of vehicle weight*, and must be accompanied by specific proposed new standards for vehicle fuel economy.

NHTSA’s Reliance on Studies that Relate Increased Safety to Increased Vehicle Weight is Inappropriate in Light of the Serious Flaws in those Studies

Public Citizen has serious concerns regarding the agency’s use of flawed research, particularly the 2003 NHTSA technical report authored by Charles Kahane, which inaccurately portrays vehicle weight as the overwhelming predictor of vehicle safety. A large body of evidence suggests other factors besides vehicle weight have critical implications for vehicle safety. NHTSA should remedy its failure to incorporate the findings of studies that address the critical role played by factors such as design and size in vehicle safety. (These studies have been submitted to the Administration in response to previous requests for public comment.)

We are very concerned by the Kahane study due to its methodological flaws, problematic assumptions, and unexplained, implausible results. The study looks at the wrong issue: vehicle size and design, not weight, actually matter most for safety. Weight can harm both safety and fuel economy. Kahane confounds vehicle size and weight, making no attempt to model the influence of weight changes independent of size. Moreover, there is no connection between the assumptions in the study and the historical record of manufacturer decisions regarding how to improve fuel economy, which was achieved 85 percent through the use of technology.

For further Public Citizen comments on the flawed Kahane technical study, please see the next section "Comments on NHTSA Technical Report."

NHTSA Should Design Vehicle Standards to Assure that Manufacturers Are Not Able to "Game" the System and Undermine Fuel Economy Goals

Almost any attribute-based fuel economy system — as well as almost any system that maintains the passenger car/light truck division — is vulnerable to "gaming" by the auto industry, in which minor changes are made on certain vehicle models with the specific purpose of landing these vehicles in a less stringently regulated vehicle category. The simplest system that would effectively prevent "gaming" would require the combined fleet of vehicles under 10,000 pounds GVWR to meet a single fleet average standard. Such a combined fleet also gives manufacturers more flexibility in their product mix and design decisions.

Differently Regulated Fleets Should Be Defined by Primary Utility, Not Peak Performance or Irrelevant Characteristics

The best solution to preventing gaming of the fuel economy standards is to have one standard for all light-duty vehicles under 10,000 lbs. GVWR. However, if NHTSA chooses to continue different passenger car and light truck standards, we urge the agency to follow the clear Congressional intent of such distinctions. The EPCA conference report, which the agency references in this ANPRM, noted that

> The passenger automobile category would exclude vehicles not manufactured primarily for transportation of individuals—such as light duty trucks, mobile homes, and multipurpose vehicles not manufactured ***primarily*** for transportation of individuals" [emphasis added].

The credibility of the CAFE program is currently severely undermined by the fact that highly popular SUVs and pickup trucks are now employed *overwhelmingly* as passenger vehicles, but are still subject to the exceptionally weak standard that was originally developed for vehicles used primarily as cargo-carrying commercial vehicles. In addressing this situation, it is critical that that *primary* utility, and not peak performance, be the basis for any revised vehicle fleet distinctions. Otherwise, the distinctions are relatively meaningless, since peak performance is rarely, if ever, needed by most consumers.

NHTSA should follow the example of recent efforts to bring fuel economy regulation and vehicle fleet distinctions more in-line with Congressional intent. Senator Richard Durbin (D-IL) introduced legislation in the 108th Congress, the Automobile Fuel Efficiency Improvements Act (S. 794), which would have both raised fuel economy standards as well as redefined passenger and non-passenger automobiles (i.e. light trucks). The Durbin legislation would have required NHTSA to adopt, through a public rulemaking process, the definition established by the Environmental Protection Agency (EPA) for medium duty passenger vehicles.[5] This definitional change would appropriately put SUVs and minivans in the same category as passenger cars for purposes of fuel economy regulation.

Public Citizen believes that pickup trucks should also be subject to appropriate and meaningful rules requiring improved fuel economy. Farmers and small business owners who need the towing and hauling capacity of pickups should not be denied the cost savings of more fuel efficient vehicles, especially since today's economy technologies can preserve these performance characteristics. We note that the agency should apply the "maximum feasible standard" to this vehicle category as well — the relative stringency of this standard has the same purpose as that which applies to passenger vehicles. Moreover, because of the harmonic averaging applicable to gas mileage gains, improvements for these vehicles would potentially contribute more to oil savings targets than upgrades to the passenger vehicle standard.

Re-defining "passenger vehicle" to address primary use is more consistent with the statute, would enhance manufacturer flexibility and better comport with Congressional intent

The statute, 49 U.S.C. § 32901 (a)(16), defines "passenger automobile" as "an automobile that the Secretary decides by regulation is manufactured primarily for transporting not more than 10 individuals, but does not include an automobile capable of off-highway operation than the Secretary decides by regulation — (A) has a significant feature (except 4-wheel drive) designed for off-highway operation; and (B) is a 4-wheel drive automobile or is rated at more than 6,000 pounds gross vehicle weight."

The Secretary has interpreted this statutory definition at 49 CFR§ 523.4, defining a "passenger automobile" as "any automobile (other than an automobile capable of off-highway operation) manufactured primarily for use in the transportation of not more than 10 individuals." NHTSA also promulgated a definition for light truck in the subsequent section, which has proven far too open for manufacturer abuse, as more and more of the new vehicles produced each year worm their way into the light truck category. In particular, NHTSA should eliminate the now-notorious "flat-floor" provision (49 CFR § 523.5 (a)(5)), which has been used to categorize vehicles like the PT Cruiser, clearly a passenger vehicle, as a light truck. Many of the aspects of this definition are also hostile to safety goals, as they encourage manufacture of vehicles with high ground and axle clearances, making vehicles more aggressive in crashes with cars.

To assist the public in more fully evaluating this question, NHTSA must collect and publish detailed information about which provisions in the regulations are used to classify vehicles as light trucks by make/model and percentage of new vehicles sold. Such information is critical so that interested parties may learn about the use of the regulatory provisions in terms of

their real-world consequences for the composition and safety of the vehicle fleet and for overall fuel consumption.

NHTSA should also consider reform of the regulatory definition of passenger vehicle to encompass those vehicles below 6,000 pounds GVWR that are primarily used to transport people. A new definition of "passenger vehicle" to include such vehicles would undoubtedly and appropriately cover many SUVs, minivans, cross-over vehicles, and possibly some extended cab pickup trucks. Moreover, under the statute at 49 U.S.C. 32902, NHTSA could set a new fuel economy standard for this more consolidated fleet at 27.5 mpg, with an intermediate phase-in of between 26.0 mpg and 27.4 if necessary, *without facing any possible objection under 49 U.S.C. § 32902(c)(2)*. This is an action that NHTSA could take now to address long-stagnant standards and wasted opportunities for improvement, and such a change would better conform to Congressional intent than the current loopholes, which permit large portions of the new vehicle fleet to be essentially unregulated for fuel economy purposes.

CAFE Should Include All Vehicles with a Gross Vehicle Weight Rating between 8,500 and 10,000 Pounds

Public Citizen strongly supports a modification of the CAFE program to include all vehicles with a gross vehicle weight rating between 8,500 and 10,000 pounds. Including these vehicles while maintaining existing performance is feasible and is compelling on the basis of energy conservation and reduced fuel costs for farmers and small businesses.

In limiting the fuel economy program to vehicles with GVWR less than 8,500 lbs., the agency has distorted good public policy and market preferences, giving manufacturers the perverse incentive to "super-size" their vehicle fleet even further. Researchers at the Environmental Protection Agency estimate that light trucks of GVWR between 8,500 and 10,000 lbs. reduce overall light truck fleet fuel economy by four percent.[6] A hike in the light truck CAFE standard to cover vehicles up to 10,000 lbs. would finally provide automakers an incentive to concentrate any down-weighting in their heaviest vehicles, which would contribute to reducing light truck aggressivity and save lives.

The numbers of the heaviest vehicles also continue to increase because of the special tax deduction for light trucks above 6,000 lbs. GVWR purchased by business owners and the self-employed. Qualified buyers of these mammoths get an initial tax write-off of up to $25,000, and then get an additional deduction of 30 percent of the vehicle's cost. And this is on top of five-year depreciation of vehicle value that buyers are able to write off if the vehicle is ostensibly purchased for business transportation.

For example, a Range Rover carries the price tag of about $72,000, but the tax deductions can effectively reduce its cost by over $20,000 over the course of five years.[7] The deductions further encourage the degradation of safety, air quality, and oil savings, and artificially inflate consumer demand for these vehicles. The agency's analysis should recognize the perverse incentives provided by such tax breaks as a part of its analysis in justification of extending the coverage of the CAFE program to include vehicles up to 10,000 lbs.

Flaws and Omissions Plague NHTSA's Reliance on Misleading Safety Studies

Public Citizen welcomes an opportunity to comment for this record on the recent technical report by National Highway Traffic Safety Administration ("NHTSA") researcher Charles Kahane, *Vehicle Weight, Fatality Risk and Crash Compatibility of Model Year 1991-99 Passenger and Light Trucks*, a revision of an earlier 1997 NHTSA report, also authored by Kahane. The new study, like the former one, examines the effects of hypothetical changes in vehicle weight upon fatalities. While we applaud the agency's increased investigation of vehicle compatibility — not just in this report but in other NHTSA studies as well — we are very concerned about this study's methodological flaws, problematic assumptions, and unexplained, implausible results.

The key flaws in the new study:

1) Kahane's study confounds vehicle size and weight, making no attempt to model the influence of weight changes independent of size despite the fact that other researchers continue to demonstrate the feasibility of such modeling and its importance in making reasonable police decisions.
2) The study looks at the wrong issue: size and design, not weight, actually matter most for safety. Moreover, new high-strength materials could change the relationship of size and weight in the future, altering both safety and fuel economy outcomes.
3) There is no connection between the hypothetical assumptions in the study and the actual historical record on manufacturer decisions regarding how to improve fuel economy, which was achieved 85 percent through the use of technology.
4) The study's conclusions steer us in the wrong direction: Weight can actually harm both safety and fuel economy. Lax fuel economy standards — which currently only apply to vehicles weighing under 8,500 lbs. — have allowed automakers to increase vehicle weight and acceleration over the past decade, with devastating effects for both safety and the environment, rather than devote efficiency gains to improving fuel economy.

This latest study is of particular concern given that the original 1997 study was given political weight far outstripping its utility or value, and it appears from the agency's ANPRM that its successor will be at least a partial basis for new agency rulemaking. Kahane's 1997 study was heavily promoted by the auto industry and was badly misused in the National Academy of Sciences' (NAS) 2002 report on passenger vehicle fuel economy. The NAS Report was, in turn, often quoted by the auto industry and members of Congress as a reason to oppose improvements in fuel economy standards, even though the NAS specifically acknowledged that the Kahane study was not a good tool for predicting future outcomes.

The New Study and the 1997 Study Confuse Weight with Size

The most critical flaw of the new Kahane study is its confusion of size and weight, a confusion embedded in the study's design and methodology. Throughout, the report uses size terminology to describe vehicles of varying weights, and no attempt is made to analyze the influence of weight changes *independent* of vehicle size. Yet, widely available recent research indicates that vehicle size, not weight, is a strong indicator of vehicle risk.

Research by Dynamic Research, Inc. (DRI), using data and logistic regression methods similar to those in Kahane's most recent study, shows that when vehicle weight is reduced while vehicle size is kept constant, *fatalities decline* — just the opposite of Kahane's conclusions about the effects of vehicle weight. DRI demonstrates that reductions in wheel-base and track-width — both metrics of vehicle *size* — have the overall effect of increasing fatalities. DRI concludes that while a fleet-wide, 100-lb. average reduction in vehicle weight would reduce annual fatalities by about 800, the corresponding track-width and wheel-base reductions that accompany weight reductions, in the Kahane study results in an increase in fatalities of 839.[8]

Vehicle size, for which wheel-base and track-width are metrics, has historically correlated with vehicle weight; in general, lighter vehicles have tended to also be shorter and narrower than heavier vehicles. But, as DRI proves, *this correlation is not inherent*. The advent of improved vehicle designs, including smaller engines; light, high strength steel and composites, and other innovations, is redefining the relationship between vehicle weight and size.

These findings by DRI add to a record of research going back thirty years or more that consistently demonstrates that weight and size, while closely associated in the data, actually have a divergent effect on safety. For example, two of the major themes of the 1974 Third International Congress on Automotive Safety were "Big Car/Small Car Interactions," and "Future Vehicle Mix and Automotive Safety." At the conference, several researchers — including first Administrator of NHTSA William Haddon Jr., M.D., and future Insurance Institute for Highway Safety president Brian O'Neill — noted in the paper "Relationship Between Car Size, Car Weight, and Crash Injuries in Car-to-Car Crashes" that:

> For vehicles using the same roads these relationships suggest a crashworthiness design concept for intervehicular crashes that regards increases in vehicle *size* as *primarily protective*, and increases in vehicle *weight* as *primarily hostile*, indicating the desirability of relatively sizeable but not heavy vehicles (emphasis added).[9]

Because Kahane does not distinguish between vehicle weight and size, Kahane's conclusions regarding vehicle weight reductions and increased highway fatalities show only correlation, and not causation, as the study claims in several places. Kahane's continued failure to analyze vehicle weight independent of vehicle size makes this study's results dubious at best, and is scientifically irresponsible given the political impact of his similarly flawed 1997 study.

NHTSA itself demonstrated the compatibility of high fuel economy and superior vehicle safety in the Research Safety Vehicle (RSV) program of the 1970s. After investing many millions of dollars into the program, NHTSA successfully produced in 1977 vehicles that achieved the 1985 fuel economy standard of 27.5 mpg while also offering 50 mph crash protection[10] — better than any vehicle on the road today. The current NHTSA rhetoric and flawed research, like the Kahane studies, completely ignore the documented achievements of the RSV program.

The Kahane Study Ignores Highly Significant Differences in Vehicle Design

Auto industry defenders often argue that fuel economy standards' impact on safety is a matter of "simple physics."[11] The Kahane study echoes these misleading and simplistic characterizations. For example, Kahane exaggerates the role of the principle of conservation of momentum in determining occupant safety.[12] Momentum conservation requires that, in crashes with a more massive vehicle, a less massive vehicle experiences greater deceleration than the more massive vehicle. Employing simply momentum conservation to extrapolate occupant safety in crashes, however, ignores critical issues such as structural interaction between the vehicles including height differences, relative vehicle rigidity or "crushability," the maintenance of occupant safety space in respective vehicles, the performance of safety technology such as air bags, etc. Kahane claims that a heavier vehicle is "physically, intrinsically safer than the light vehicle."[13] Yet in fact, heavier vehicles are by no means "intrinsically" superior in safety to light vehicles. In addition to confusing weight and size, the study also fails to adequately consider highly significant differences in vehicle manufacturing quality and design.

For example, Kahane's study examines the influence of vehicle manufacturer ("nameplate") and new vehicle price on the fatality rates of pedestrians, bicyclists and motorcyclists. Kahane found many of the nameplate variables were statistically significant, "indicating large differences between nameplates in pedestrian fatality rates."[14] These variables, however, did not appear to be dependent on vehicle weight, at least for crashes with pedestrians, bicyclists, and motorcycles, because factoring in these variables did not change the coefficient on weight.[15]

However, Kahane inexplicably fails to analyze the influence of the vehicle nameplate on fatality rates in crashes with other vehicles, immobile objects, etc. Such an omission casts doubts on the credibility of the study's results. If Kahane found statistically significant nameplate variables for certain types of crashes, *why did he not include these variables in the analyses of all crash types?* Why did he not use these variables in the analyses of vehicle-to-vehicle crashes, vehicle-to-immobile object crashes, etc.? Perhaps the reason is that the influence of these variables, which do not appear to depend on vehicle weight, would seriously undermine the study's positive correlation between weight and safety.

Kahane claims that the differences between the pedestrian fatality rates of different nameplate vehicles "undoubtedly have much more to do with the 'image' of the nameplates than any intrinsic quality of the cars," that more prudent drivers purchase "brands with a reputation for prudent drivers."[16] However, a significant population of "prudent" drivers are the elderly, and they are more susceptible to injury. Moreover, many researchers like Marc Ross, of the University of Michigan, and Tom Wenzel, of Lawrence Berkeley National Laboratory, believe that differences in vehicle nameplate are not just the result of "self selection," but that vehicle manufacturing, and hence differences in vehicle "quality" or design, are essential factors that profoundly influence vehicle fatality rates. The key concept is that high "quality" vehicles also contain better crash prevention and crashworthiness design, meaning that nameplate is not a mere "self-selection" correlation, but is causal in that it influences crash likelihood and occupant survival.

Make-model specific studies of vehicle fatality trends have shown that, historically, similarly weighted vehicles have had highly disparate safety effects for both their own occupants and the occupants of other vehicles on the road.[17] For example, driver death rates in some smaller passenger cars are lower than driver death rates in some heavier SUVs and other light trucks.[18]

Ross and Wenzel recently found that, while some vehicle classes are, overall, more risky than others, there were also statistically significant differences in risk among vehicles in the same class. Their research strongly suggests that vehicle quality and safety design, which vary throughout each vehicle class, play a large role in overall risk. The range of risk within each vehicle type indicates that a vehicle's overall safety is not dictated by mere weight, and that manufacturers determine safety through sound or inadequate engineering choices. Moreover, Ross and Wenzel conclude that, in terms of Corporate Average Fuel Economy (CAFE)-related weight decreases, the "argument that the low weight of cars with high fuel economy has resulted in many excess deaths is unfounded."[19]

Kahane's approach of arbitrarily categorizing vehicles along a 100-lbs.-difference axis washes out the effect of safety design. For example, if the Honda Civic, an extremely popular and safe car, is part of the sample in the initial category, but the comparison group is comprised of another, inferior make/model that weighs 100 lbs. less, safety outcomes would be dramatically downgraded. Yet the change in outcomes is far more the result of better safety design in the Civic than the 100-lb. reduction in weight in the comparison class of vehicles.

Weight Kills

Although the myth that a heavy vehicle offers better occupant protection is rhetorically reinforced by the Kahane study, vehicle weight is actually a poor predictor of occupant safety. The recent DRI study, which isolates changes in vehicle size from changes in vehicle weight, indicates that as vehicle weight increases, so do fatalities, contradicting the Kahane study's conclusions. In the DRI analysis, each fleet-wide, 100-lb. increase in vehicle weight induces an increase of about 800 annual fatalities.[20]

These findings by DRI support decades of NHTSA research on aggressivity showing that weight can raise the level of violence in crashes between two large, heavy vehicles. Because heaviness is often correlated positively with stiffness and negatively with rollover propensity for light trucks, the overall effect is that large, heavy vehicles offer little or no safety advantage to their occupants and are far more dangerous to others on the highway. Kahane's assertion that "heavier vehicles tend to be more crashworthy and less crash-prone" is inaccurate.[21] For example, the subcompact Volkswagen Jetta has just as low a driver death rate as a massive Chevrolet Suburban, indicating that the Jetta makes up at least partially for its small size with superior agility and crash avoidance.[22]

Despite the risks associated with greater vehicle weight, the vehicle fleet continues to get heavier year after year. Detailed EPA data on vehicle trends and weight changes, covering more than a decade, show a considerable up-weighting in vehicles, particularly in the light truck fleet. This up-weighting is possible because annual fuel and engine economy gains from regular

technological improvements to vehicles (a gain of approximately 1.9 mpg each year) have not been used, or required to be used, to meet federal fuel economy standards. Even without fancier technological advances, automakers experience a steady increase in their fuel economy, yet the absence of meaningful federal rules allows them to funnel such advances into bulking up weight, acceleration and horsepower, inflicting new harm on both safety and the environment.[23]

2003 Kahane Study's Compatibility Section Contradicts Conclusions on Vehicle Weight

The most striking section of Kahane's new study addresses vehicle compatibility. Its conclusions and methods significantly contradict the other findings in the report. Kahane finds a "statistically significant association between the driver's fatality risk in the struck car and the difference in the heights-of-force of the striking and struck vehicles."[24] The study's support for weight-independent metrics such as "height-of-force" and "frontal rigidity" is crucial because it completely undercuts Kahane's other contentions that vehicle weight is the predominant factor in vehicle safety. Moreover, these findings support the establishment of a federal regulation regarding a vehicle aggressivity metric.

In collisions between light trucks and passenger cars, Kahane finds that 80 percent of the fatalities are the car occupants.[25] In collisions between vehicles of *the same weight*, the study indicates that when a pickup strikes a passenger car on the left side, the fatality risk of the car driver is about 80 percent higher than if the striking vehicle were another car.[26] "In other words," Kahane writes, "it was almost twice as dangerous, on a per-mile basis, to be hit on the left side by a pickup truck as by a car of the same weight as that pickup truck."[27] Furthermore, if the striking vehicle is an SUV, the fatality risk rises *130 percent.*[28]

On average, in all two-vehicle crashes involving vehicles of equal weight, Kahane finds the pickup trucks are much more aggressive than passenger cars, increasing the fatality risk of the car occupant by about 40 percent, while SUVs are even more aggressive, increasing the fatality risk by almost 70 percent.[29]

These results are roughly consistent with other aggressivity and compatibility research by American and foreign researchers. Ross and Wenzel recently completed a study for the Department of Energy of driver death rates grouped by both vehicle type and model. They found that while the safest mid-size cars were as safe as the safest SUVs, "SUVs impose a greater risk on drivers of other vehicles than do all types of cars." Pickup trucks, a vehicle category that is on average larger, heavier and stiffer than passenger cars, have a *combined* risk to their drivers and the occupants of other vehicles that "is much higher than that for other vehicle types."

Research by European researchers points to factors other than mass as the keys to understanding vehicle compatibility. In reporting on a 2001 study of frontal impact compatibility, researchers from Britain's Transportation Research Laboratory wrote that "it is clear that although mass has an effect on stiffness, which affects intrusion, the most important factor is structural interaction."[30] Australian researchers recently reported that "good vehicle geometry is the key factor in developing a heavy vehicle that is crash compatible with the average car fleet."[31] And the International Harmonization Side Impact Working Group recently

reported that "research data shows that mass has a lesser effect on injury measures than geometry."[32]

The Kahane study's compatibility findings — in agreement with a large body of compatibility research — suggest that the overwhelming influence on fatality risks are factors in vehicle design besides weight, and that the significance of these factors dwarfs the influence of weight, by itself, on the results. In fact, fatality risks associated with light trucks can be reduced significantly *without changing the weight of the light trucks*. Using Kahane's own regression coefficients to estimate the effect of replacing pickup trucks and SUVs with mid-sized or large cars and minivans of comparable weight shows that such a change would save approximately *3,400 lives*.[33]

It is worth noting that the compatibility section is the only part of the study which divides vehicles by design "class" rather than weight class — and does so with considerable overbreadth (*e.g.*, it does not distinguish between truck-based SUVs and car-based, or crossover SUVs).

With such an important discrepancy in his findings, it is incomprehensible why Kahane still gives vehicle weight such an excessive status in the report. His choice to do so suggests an unfortunate programmatic schizophrenia in the agency's positions on safety and weight.

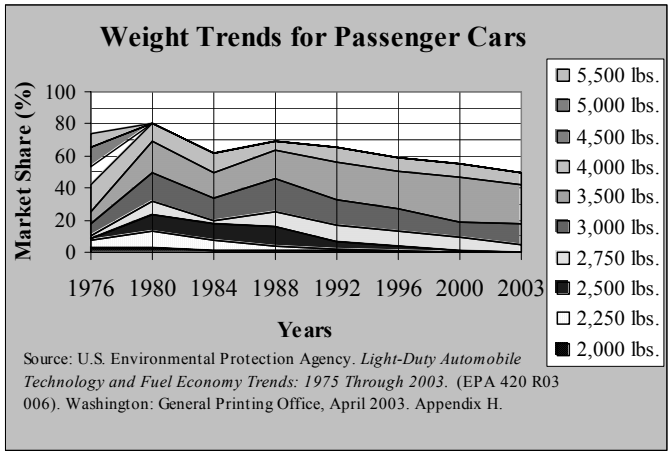
Kahane's Study Fails to Reflect Historical Record on Impact of Fuel Economy Standards

Not only does the new Kahane study, like the first, falsely imply significant adverse safety impacts from vehicle weight reductions, but the study erroneously suggests that fuel economy standards have resulted in significant across-the-board vehicle weight reductions. The 100-lb. weight reductions that Kahane tries to study in his hypothetical formula are *completely arbitrary and in no way reflect real-world data about the impacts of CAFE. There are no data showing that fuel economy standards in fact caused across-the-board reductions of 100 lbs,. or any other amount.*

Citing the Kahane study as proof that CAFE standards hurt safety, as the NAS report did with the first Kahane study, is profoundly misleading: No link between Kahane's assumptions and the actual historical impacts of CAFE on vehicle weight was ever asserted or established by the studies. Kahane did not even try to make a connection — the original study used 1993 data and the updated study uses data from 1991 through 1999, years in which there was *no increase in federal fuel economy standards.* In fact, the 1985 standard of 27.5 mpg for cars was in effect throughout the period, and did not change from 1990 to 1999. In addition, the light truck standard of 20.7 mpg did not change during this same period.

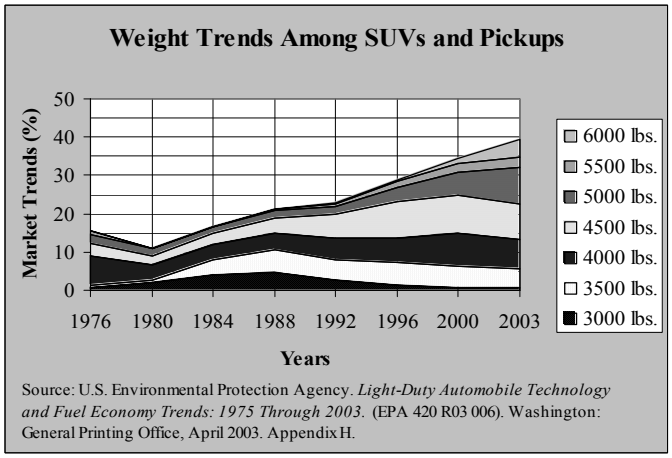
EPA data show that the weight of the car vehicle fleet has not uniformly shifted downward under CAFE. There has also been no "explosion" of tiny cars, as opponents of CAFE predicted that there would be. Instead, there has been consolidation in the weight of the car fleet, with the smallest vehicles — those generally below 2250 lbs. — discontinued, and the largest cars — those above 4500 lbs. — reduced in weight by 1000 lbs. or more. However, as the car fleet consolidated in weight, SUVs and pickups have increased both their market presence and average weight.

The Market Share of the Smallest New Passenger Cars Dwindled Away as Passenger Cars Consolidated around the 3,000-3,500 lbs. Weight



Source: U.S. Environmental Protection Agency. *Light-Duty Automobile Technology and Fuel Economy Trends: 1975 Through 2003.* (EPA 420 R03 006). Washington: General Printing Office, April 2003. Appendix H.

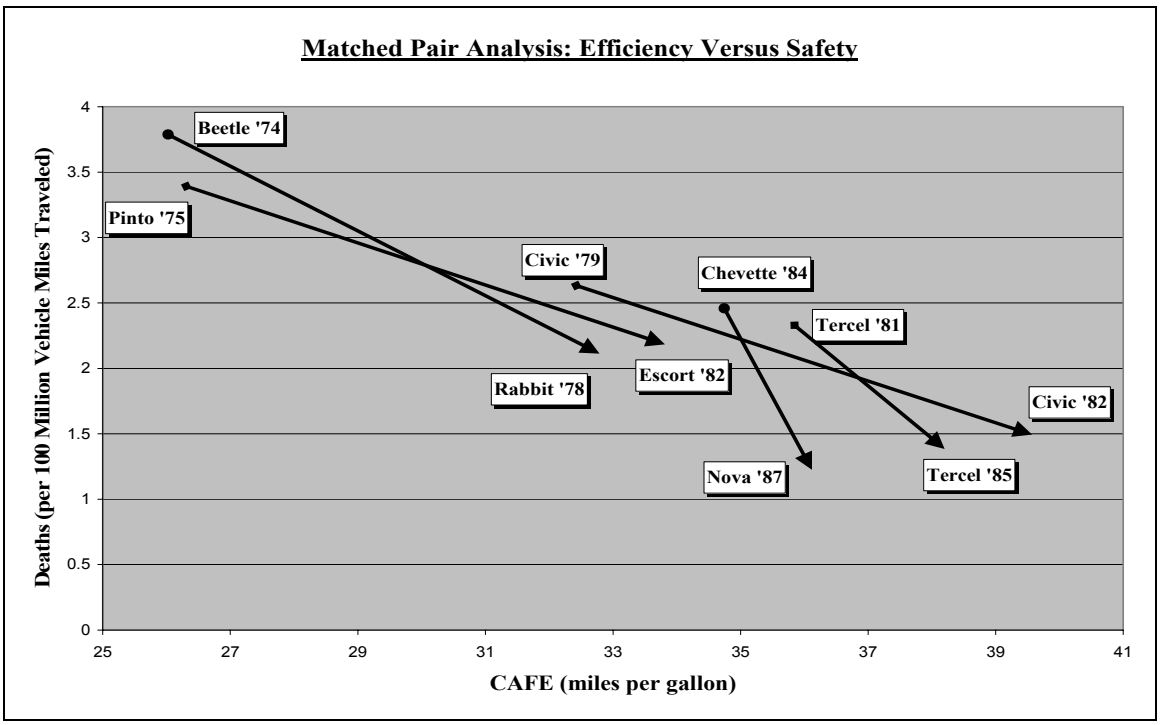
SUVs and Pickups, in Comparison, Have Become both More Numerous and Heavier[34]



Source: U.S. Environmental Protection Agency. *Light-Duty Automobile Technology and Fuel Economy Trends: 1975 Through 2003.* (EPA 420 R03 006). Washington: General Printing Office, April 2003. Appendix H.

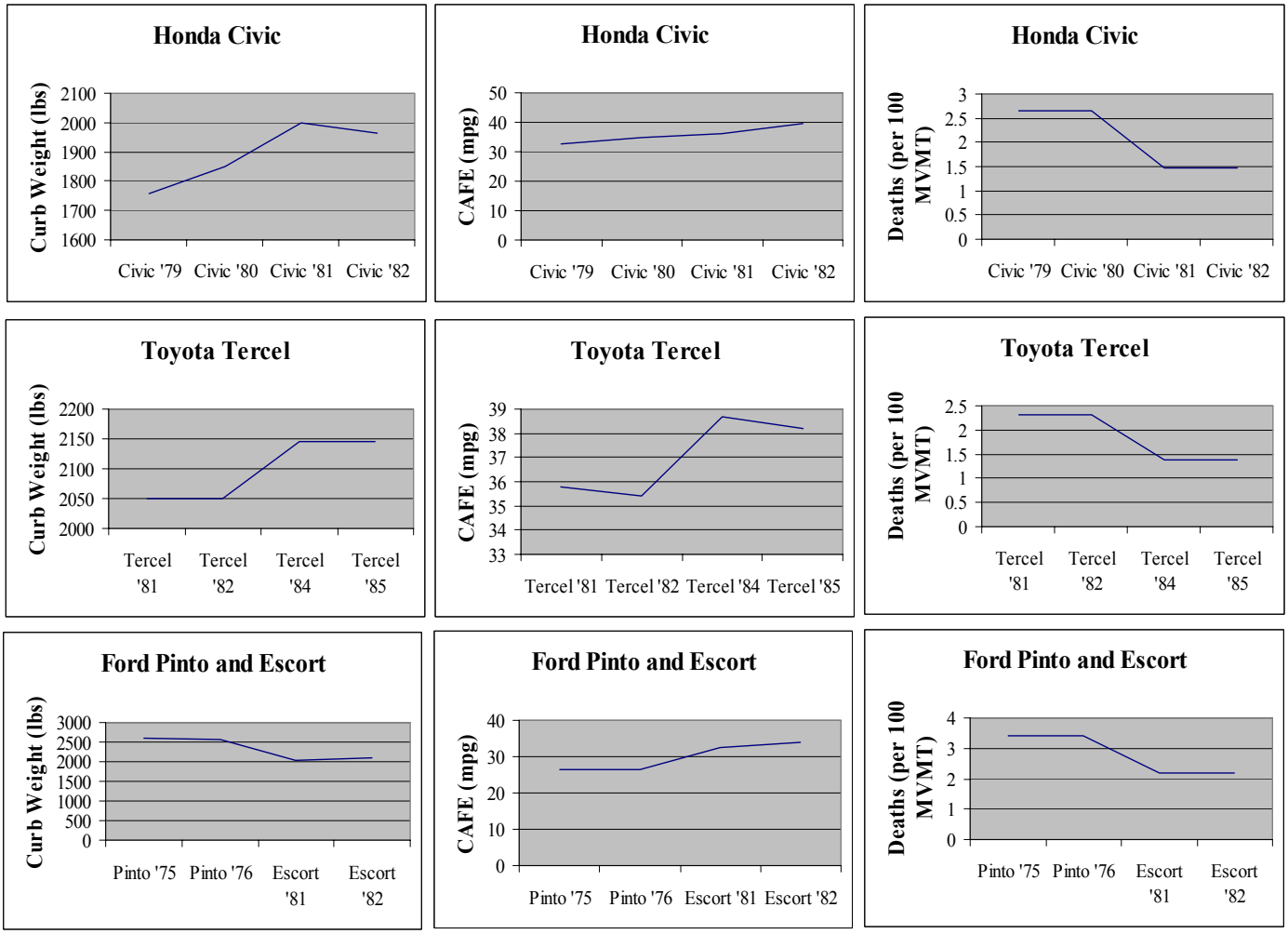
As the above graphs shows, since 1976, the market share for new cars weighing 3,000-3,500 lbs. nearly doubled, rising from a 15-percent to a 37-percent share of the total market in 2003. Meanwhile, at just over 10 percent in 2003, the market share of new cars weighing 2,000-2,750 lbs. is half of what it was in 1976.[35] However, the market share of new SUVs and pickup trucks has almost tripled since 1976, and the market share of the largest SUVs and pickups (5,000-6,000 lbs.) has increased by *552 percent*. The average light truck weight has increased from 4118 lbs. to 4511 lbs., and the average passenger car weight has increased from 3192 lbs. to 3433 lbs.[36]

Scare tactics by CAFE-hostile groups like the Competitive Enterprise Institute (CEI) do not stand up to the facts: Examination of fleet weight trends demonstrate that there has been no long-term increase in small, light vehicles; in fact, quite the opposite has occurred. A Department of Energy study found that *85 percent of fuel economy improvements since the 1975 CAFE law was passed have been made through technology, not vehicle weight reductions*.[37] Moreover, overall fleet fuel economy is at a 20-year low.[38]



Despite the implications the Kahane study attempts to make, in reality improvements in vehicle safety have often come hand-in-hand with improvements in fuel economy. Data prepared by Clarence Ditlow of the Center for Auto Safety compares matched pairs of the same model, showing simultaneous improvements in both fuel economy and safety, when compared to the pre-CAFE vehicle, for a selection of popular smaller vehicles.

Real-world examples demonstrate that the interaction between vehicle weight and safety is far more complex than Kahane's study attempts to suggest. Many of the vehicles actually increased in weight in comparison to pre-CAFE levels, as in the three popular models depicted below. Under CAFE, vehicles such as the Honda Civic went from failing government crash tests to having best-in-class crash ratings *while improving fuel economy and gaining 800 lbs.*



It is profoundly fraudulent to treat the Kahane studies as the NAS did, as an annual, cumulative accounting of the lives lost from CAFE. The historical picture tells us that as technology for fuel economy advanced, there was no steady loss of weight or size among cars. The effect of CAFE on vehicle weight, is not, in fact, cumulative from year to year, but shifts along a technology horizon that controls the cost-effectiveness of technological versus weight-related options for improving fuel economy.

Because there are literally dozens of on-the-shelf, yet unused, technologies that have been developed to improve fuel economy today, it is very likely that any changes in weight would only be cost-effective in the heaviest vehicles in the fleet, where they would provide the most "bang for the buck"—which is precisely the case when auto manufacturers reduced the weight of their heaviest vehicles to meet the 1985 CAFE standard of 27.5 mpg. And weight reductions among the heaviest vehicles improves safety for all other vehicles on the highway. Safety improvements should also be an essential part of any re-design to improve fuel economy, producing a win-win for people and the environment.

The Kahane Study Supports Weight Reduction Among Heavy Light Trucks, Contradicting Its Assertions Regarding Weight

Even with its highly questionable methodology and inexplicable inconsistencies, Kahane's study does not support *reducing* CAFE standards. In fact, while critics of CAFE standards — like CEI — will most certainly seize upon and exaggerate Kahane's dubious correlation between vehicle weight and safety, even Kahane's study indicates that reducing the weight of the largest light trucks would increase safety:

- In collisions with passenger cars, Kahane found that for light trucks weighing more than 3,870 lbs., each 100-lb. weight reduction led to a *0.68 fatality reduction.*
- In collisions with other light trucks, he found that for light trucks weighing more than 3,870 lbs., each 100-lb. weight reduction led to a *1.50 fatality reduction.*[39]

Even industry apologist and CEI consultant[40] Leonard Evans, a former GM engineer, admits that decreasing the weight of the *heaviest* light trucks does not increase fatalities, and that "pick-up trucks and SUVs, had, on the average, higher fatality rates than MY 1996-99 passenger cars or minivans of comparable weight."[41]

Thus, there is a widespread agreement that weight reduction in heavier SUVs and pickups reduces highway fatalities. Also, weight reduction in the heaviest vehicles is the most cost-effective approach for manufacturers to reduce weight in their fleet if it is necessary for compliance with new fuel economy standards. While vehicle incompatibility and light truck aggressivity involve many vehicle design and size factors and is not simply a question of vehicle mass, reducing the mass differential between heavy light trucks and passenger cars would be a positive step towards mitigating the serious harm of vehicle incompatibility for the heaviest vehicles.[42] And when such vehicles are redesigned to reduce weight, other safety factors such as structural incompatibility and roof strength can be improved as well.

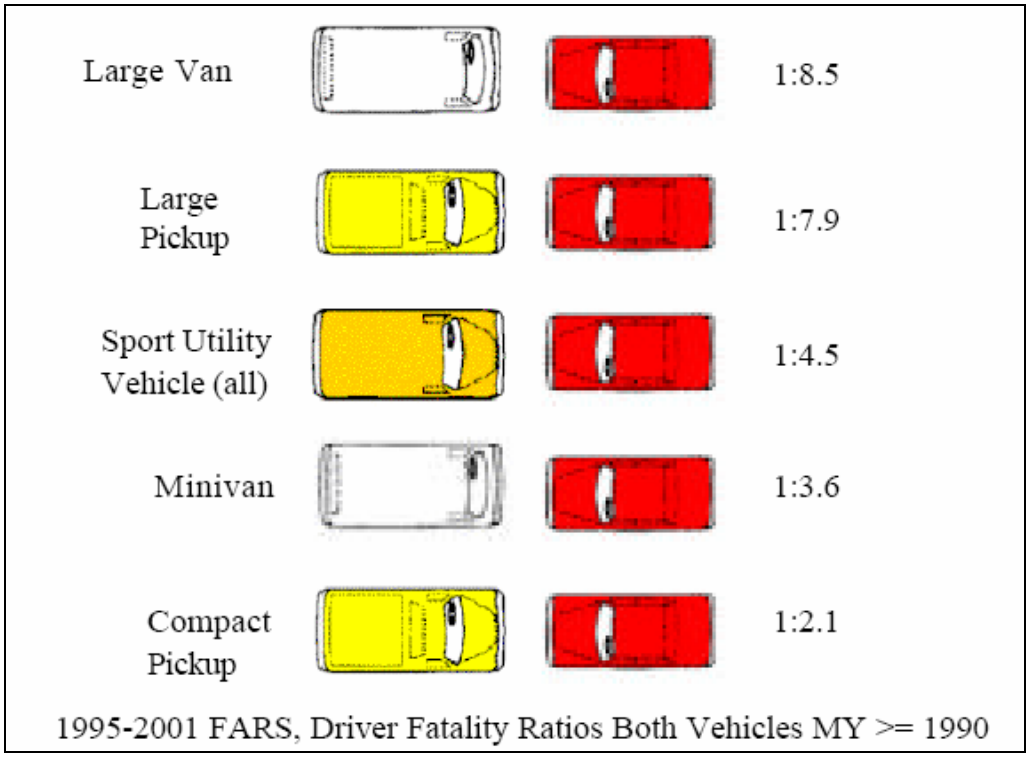
Although admitting that light trucks have higher fatality rates than passenger cars, Evans has tried to argue that light truck aggressivity is not a risk for passenger car occupants. Evans has recently asserted that SUVs do not pose an increased risk to passenger car occupants because if that were true, the ratio of car drivers killed in two-vehicle crashes (including both cars and light trucks) to the number killed in single-car crashes would have increased, and it has not:

> if the growth in SUVs led to large increases in fatality risk to drivers from car-SUV crashes, the number of car drivers killed in two vehicle crashes would increase relative to the number killed in single car crashes…No such trend has occurred.[43]

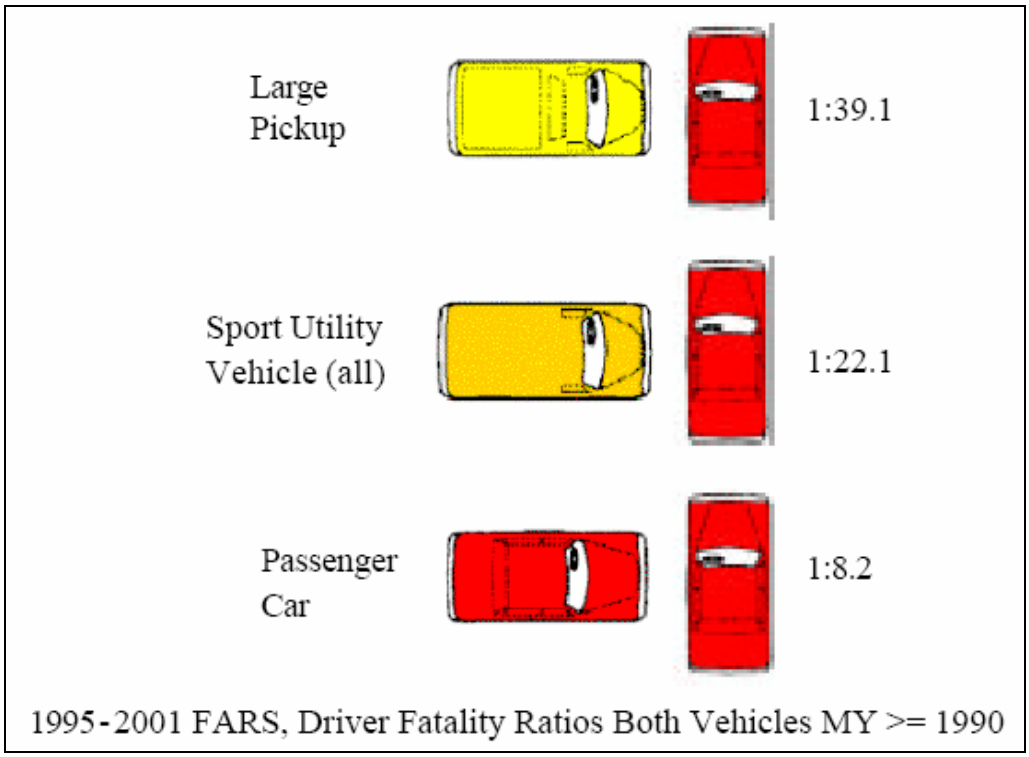
However, in such a proposal — after adjusting for the increasing number of light trucks on the road — if car-to-car crash fatalities declined but fatalities from light truck-to-car collisions increased, the increased fatalities from light trucks running into cars might be washed out by improvements in car-to-car crash safety. It is far more accurate when analyzing vehicle

incompatibility to look at the driver fatality ratios for crashes between light truck-to-car crashes and car-to-car crashes.

As the graphic below illustrates, drivers of passenger cars face increased fatality risks in frontal crashes with *any* type of light truck compared to if they crashed with another passenger car instead. In frontal collisions with compact pickups, for example, passenger car drivers die at twice the rate of the compact pickup drivers. In frontal collisions with a full-size pickup, the passenger car driver is *eight times* more likely to die than the pickup driver. Note that these crashes only include vehicles of model year 1990 or more recent and drivers between the ages of 26 and 55.



A passenger car driver also suffers acutely elevated fatality risks when being struck in the side by a light truck as compared to if they were struck instead by another passenger car. In side impact crashes between two passenger cars, the driver of the struck vehicle has eight times the fatality risk of the driver of the striking vehicle. However, when a passenger car is being struck in the side by an SUV, the car driver has a *22 times* greater fatality risk than the SUV driver. And when a passenger car is struck in the side by a large pickup truck, the car driver is almost *40 times* more likely to die than the pickup driver.[44] The aggressivity of light trucks is undeniable.



Although reducing the weight of heavy SUVs is supported by the problematic Kahane study and would save lives, it is unlikely that more stringent CAFE standards would result in significant weight reductions across the vehicle fleet — despite endless jeremiads from CAFE-hostile groups like CEI. Indeed, the most erroneous aspect of Kahane's analysis is the overall focus on vehicle weight as the über safety factor, strongly forwarding the implication that fuel economy standards result in general vehicle weight reductions, which is false. Rather, weight reduction, which is expensive, is limited to the heaviest vehicles from which the most weight can be taken most easily, and this improves safety overall in the vehicle fleet. [45]

Kahane's Study is Fraught with Omissions and Inconsistencies

Beyond the major confusions and contradictions of the Kahane study we have already addressed, there are numerous other problematic omissions and inconsistencies in the methodology and results.

Kahane omits from his study significant vehicle populations, perhaps because their inclusion could have undermined his findings. Heavy-duty, 200/300-series pickup trucks — as well as full-sized vans — are not included in the study, despite the fact that NHTSA research demonstrates that these vehicles are the most aggressive vehicles on the road.[46] Moreover, Kahane omits all two-door passenger cars, despite the fact that this means excluding *one quarter* of passenger cars. The vast majority of two-door cars are not sports or muscle cars. In addition, this leads to the exclusion of two-door SUVs, many of which, like the Ford Explorer Sport, are appallingly rollover-prone and cheaply made. With these kind of important omissions, it is unlikely that Kahane's study accurately reflects the passenger vehicle population.

Not only does the study omit important vehicle populations, but the way Kahane has calculated the amount that different vehicle types are driven may radically skew his safety results. In his 1997 study Kahane assumed that lighter cars are driven more than heavier cars, at least partially because younger drivers tend to buy lighter cars and younger drivers drive more than older drivers. In this new study, however, Kahane uses information from the National Automotive Sampling System (NASS) to calculate that vehicle miles traveled (VMT) by heavier vehicles is higher than for lighter vehicles.[47]

The notion that VMT increases by increased vehicle weight is not just unintuitive, but contradicts other large pools of odometer information, such as the California Smog Check. The California data indicate that, outside of import luxury cars, VMT increases with each successively *lighter* vehicle class — a conclusion similar to Kahane's 1997 study but opposite to the 2003 Kahane study.

While the California data may or may not be representative of national vehicle trends, they indicate a highly significant dissimilarity with Kahane's new study. Applying the 2003 Kahane study's assumptions regarding different vehicle classes' VMTs to the 1997 Kahane study — without applying any of the other revisions Kahane made in his new study — nearly doubles the car fatality rates of the 1997 study for most car crash types, making them approximately the same as the fatality rates found in the 2003 study.[48] If in the 2003 study Kahane is incorrectly assuming that heavier vehicles are driven more miles than lighter vehicles, the supposedly higher fatality risks of lighter vehicles compared to heavier vehicles would be artificially inflated.

Another idiosyncrasy in the Kahane study is the finding that weight reductions in passenger cars and light trucks result in increased pedestrian fatality rates. It is not only unintuitive but unconvincing that lighter vehicles could be significantly more deadly to pedestrians than heavier vehicles. While Kahane suggests that, in the case of lighter passenger cars, such an abnormality may be due to vehicle geometry or driving behavior, he calls the finding "surprising" and admits significant uncertainty concerning the cause.[49] In addition, Kahane does not even attempt to explain how weight reductions in light trucks would *increase* pedestrian fatalities. Such statistically significant aberrations suggest that there is a problem with Kahane's data set or methodology, or both.

In addition, there are many inconsistencies in the way vehicle fatality rates change from one crash situation to another. For example, the correlation between vehicle weight reductions and increasing fatality rates that Kahane asserts should mean that, as the weight differential increases between two vehicles, the fatality rate increases. But the fatality rates in the study are not consistent. According to the study, reducing by 100 lbs. the weight of a passenger car results in a higher fatality rate if it is involved with a light-duty truck than if it is involved with a heavy-duty truck.[50] This makes no sense, and it suggests that Kahane's results are not, as he states, "linear and additive."[51]

CEI Misrepresents Record on CAFE Court Rulings

CEI frequently cites 1992 and 1995 court rulings, which it claims demonstrate the "bias by the agency [NHTSA] against the evidence of CAFE's lethal effects."[52] This is disingenuous, however, since CEI ultimately lost the line of the CAFE cases they rely so heavily upon. In order to prevent misrepresentation of this judicial record, a description of the cases follows:

In the 1990 case *CEI v. NHTSA*, CEI challenged tougher fuel economy standards for passenger cars for model years 1987-89, claiming that the standards did not reflect safety considerations. The D.C. Circuit Court of Appeals held that NHTSA's standards were not arbitrary and capricious. The Court stated:

> Petitioners claim that NHTSA acted arbitrarily and capriciously in underestimating the significance of the effect of CAFE standards on vehicle size and safety. They claim that the size-safety relationship is so strong and direct that NHTSA should have lowered its standards to the levels manufacturers would have achieved without CAFE constraints. We disagree. The factual record before the agency on the size-safety CAFE question is sufficiently equivocal that it was not arbitrary or capricious for NHTSA to conclude that, on balance, the CAFE standards as set would not have adverse safety consequences.[53]

Another case was brought in August 1988 when, at the behest of the auto industry and CEI, NHTSA initiated a rulemaking proceeding on whether *to reduce* the CAFE standards for model years 1989 and 1990 (passenger car statute on fuel economy permits NHTSA to temporarily lower standards by 1.5 mpg for passenger cars as an emergency measure). The agency subsequently lowered the standard for 1989 to 26.5 mpg, but left the question open as to the standard for model year 1990. In May 1989, NHTSA closed proceedings on the 1990 standard, leaving the requirement at 27.5 mpg.

CEI, in a case decided in 1992, *CEI v. NHTSA*, challenged NHTSA's termination of reconsideration of the 1990 passenger car standard, arguing that NHTSA had failed to consider safety impacts of maintaining the standard of 27.5 mpg. On a record with limited NHTSA analysis on the safety question, a conservative court criticized the agency on the grounds that NHTSA needed to better address the safety impacts in its rulemaking record and remanded the rulemaking to the agency for further consideration.[54]

Following the remand, NHTSA reopened the rulemaking in October 1992 to request comments on whether it should lower the 1990 standard and about the potential safety effect of changing the rule. *Because there was no significant effect on safety that was demonstrated in the record submitted by auto manufacturers, the agency terminated the rulemaking without any further action***.** This led to the 1995 case *CEI v. NHTSA*, in which the Court of Appeals stated that "No manufacturer suggested that lowering the MY 1990 CAFE Standard would affect its production or sale of cars, and no other commenter provided evidence that a standard of 27.5 mpg would cause any manufacturer to increase the price of larger, safer cars."[55]

The Court held that, in terminating the rulemaking, NHTSA's decision was rooted in the agency's rulemaking record, it would not harm safety, and it was not arbitrary or capricious:

> The record adequately supports the NHTSA's conclusion that maintaining the 27.5 mpg CAFE standard for MY 1990 would not significantly affect the safety of the motoring public…. NHTSA reasonably concluded from the evidence before it that the MY 1990 CAFE standard did not cause automobile manufacturers either to downsize or to refrain from upsizing their cars.[56]

The Importance of a Balanced Approach to Questions Regarding Fuel Economy and Safety

The most recent Kahane study is so beset with flaws and unexplained inconsistencies that its conclusions are highly dubious at best. Instead of promoting the myth that vehicle weight is the most important determinant of vehicle safety, NHTSA should invest more resources in investigating vehicle size, design, and other crucial safety factors. Moreover, the agency should examine the actual historical effects of the diverging car/truck vehicle fleet and the proliferation of light trucks. The real story is that the last decade's lax CAFE standards have allowed manufacturers to ramp up sales of their most rollover-prone, aggressive vehicles, thus gravely degrading the overall safety of the American highway.

Instead of updating the Kahane study, NHTSA should have:

1) Used the available historical record on vehicle weight changes under the CAFE program;
2) Distinguished — as did DRI in both 2002 and 2003 — the divergent effects of weight and size within the research model;
3) Conducted a vehicle make/model specific analysis to identify factors that improve safety consistent with improvements in vehicle fuel economy and used "best in class" analysis to highlight its findings;
4) Developed expertise in new vehicle technologies and lightweight, high-strength metals capable of achieving major improvements in fuel economy without weight reduction;
5) Examined opportunities for "win-win" design when analyzing vehicle quality and safety to estimate the likely future impact of CAFE standards;
6) Responded to concerns about safety on the merits, with safety standards for rollover prevention and crashworthiness, as well as vehicle compatibility, that set out non-negotiable baselines for vehicle safety design; and
7) Set more meaningful fuel economy standards for both passenger cars and light trucks.

Basic Questions Concerning the Agency's Motivations for Publishing NHTSA's ANPRM

A critical question regarding NHTSA's proposed rulemaking is why NHTSA is now so interested in changing the CAFE program. NHTSA identifies energy security, traffic safety, economic practicability, and the modernization of the definition and classification of light trucks as the four main areas under which the CAFE program is criticized. However, some of these criticisms seem to be vague, misguided or based on inaccurate research — such as the EIA analysis of CAFE-induced weight reductions and costs. Moreover, the agency gives inadequate attention to the fact that the central purpose of the program is to increase vehicle fuel economy,

thereby conserving oil and reducing American dependence on foreign petroleum. It seems reasonable to ask about NHTSA's motivation to now propose massive structural changes to the program, and particularly so in the context of the many years in which the agency has allowed overall fuel economy to stagnate.

In exploring the agency's incentive for "reforming" the fuel economy program, it may be instructive to examine interagency communication. Based on NHTSA's response to a Freedom of Information Act request submitted by Public Citizen, meetings and other communications between NHTSA and the Office of Management and Budget (OMB) regarding fuel economy and CAFE reform have absorbed a substantial amount of government resources, even long prior to publication of NHTSA's notice.

This intense concentration of energy has resulted a proposal which looks for ways to accept, rather than appropriately challenge, a vehicle fleet comprised of SUVs and pickup trucks, and is therefore a rather stunning example of the Administration's willingness to spend government resources on projects that may have little or no concrete result or benefit – projects that would and should have failed any basic cost-benefit analysis. Yet clear and substantial benefits to fuel economy, and safety, are immediately available should the Administration find the will to meaningfully raise fuel economy standards for both cars and trucks.

It appears that meetings concerning CAFE reform began as far back as the summer of 2001 and included a wide range of government actors, including a high concentration of the highest officials and political appointees. Dr. Jeffrey Runge, Administrator of NHTSA, and John Graham, Administrator of OMB's Office of Information and Regulatory Affairs (OIRA), as well as other high-level officials from NHTSA and OMB and top staff from the Department of Energy, Council of Economic Advisors, the Office of the Vice President, the Environmental Protection Agency, the Council on Environmental Quality, and other agencies attended frequent meetings on the subject, circulating numerous drafts and electronic mails.

The influence of John Graham, Administrator of the OIRA, is of particular importance in terms of the CAFE reform debate. The founder of Harvard's Center for Risk Analysis, which received funding from the auto and oil industries (as shown in a short summary at the end of this document), Graham has held a hostile position on fuel economy regulation since he began writing on the supposed harm caused by CAFE more than a decade-and-a-half ago. Now at OMB, he is asserting a profound influence over the outcome of the Bush Administration's efforts on fuel economy regulations. Indeed, the agency's recent ANPRM regarding light truck fuel economy regulation is completely aligned with Graham's long-held yet inaccurate belief that fuel economy regulation results in significant vehicle weight reduction.

Public Citizen has also attempted to obtain, through the Freedom of Information Act, OMB documentation of contact with NHTSA in the context of fuel economy regulation and the development of attribute-based fuel economy standards. However, OMB has stalled at every opportunity:

- On July 11, 2003, we sent OMB a FOIA request, which on OMB responded with an August 8 request for an extension of time to reply. On September 15, 2003, OMB FOIA Officer Darrell Johnson sent Public Citizen a response which claimed without any justification that Public Citizen's request failed to meet the requirements for the applicability of a fee waiver, and asserted that the majority of the information requested was exempt from FOIA.
- On September 22, 2003, Public Citizen sent OMB an appeal of the agency's rejection of the FOIA fee waiver request. However, on February 16, 2004, we withdrew our September appeal and submitted an even more-narrowly focused FOIA request to OMB, including a request for expedited processing.
- By a letter dated March 10, 2004, Acting Assistant Director for Administration Stephen A. Weigler denied Public Citizen's request for a waiver of fees and stated that OMB would continue processing the request only if Public Citizen agreed to pay search fees exceeding *$27,000* or amended or narrowed the scope of the request.
- On April 9, 2004, Public Citizen appealed the March 10 response.

The following brief analysis of two of Graham's most significant studies of fuel economy regulation and safety is intended to serve as a partial introduction to his research on the issue, and to detail some flaws in the research he conducted on the topic prior to joining the Administration.

Graham's Research Overemphasized Weight as a Determinant of Safety

With echoes of the agency's ANPRM, Graham's previous academic research inaccurately emphasized weight as a safety predictor, claiming that a CAFE-induced weight reduction has had severe consequences.

Graham's first significant paper addressing fuel economy and safety, "The Effects of Fuel Economy Standards on Automotive Safety," co-authored with Robert Crandall in 1989, concludes that CAFE is responsible for an estimated 2,200-3,900 additional occupant fatalities and an additional 11,000-19,500 serious nonfatal injuries for the assumed 10-year life of model year 1989 vehicles.[57] In a second important paper on this subject, "The Safety Risks of Proposed Fuel Economy Legislation," published in *Risk: Issues in Health & Safety* in 1992, Graham estimates that more stringent CAFE standards would result in 1,650 additional fatalities and 8,500 additional serious injuries per year. [58]

Both studies inaccurately used weight as a surrogate for all other physical vehicle attributes, including size attributes such as wheel-base, track, "size" in general, hood length, trunk size, and engine displacement.[59] Similarly, the 1992 paper's safety predictions are based on research that uses vehicle weight as the central independent variable.[60] This is an unfounded assumption: the average passenger car interior volume has increased by less than four percent since 1987, while average car weight has increased by over 14 percent during the same period.[61]

In both the 1989 and 1992 papers, Graham disregards the complexities of vehicle safety design in favor of an over-simplistic approach. Vehicle height, bumper and sill heights, vehicle stiffness, and safety technology like air bags and restraint systems are generally ignored in Graham's articles and yet can significantly reduce vehicle occupant risks. For example, NHTSA estimates that safety belts, air bags, and child restraints saved over *180,000 lives* since the mid-1970s.[62]

Contrary to Graham's conclusions, vehicle weight reduction does not imply greater safety risks. In the 1989 paper Graham and Crandall employ a statistical model from then-GM engineer Leonard Evans that predicts a 500-lbs. average vehicle weight reduction causes about a 14-to-27 percent increase in occupant fatalities. Not only is the use of Evans' model dubious in itself considering his long employment with and well-known sympathy for the auto industry, but many studies have contradicted such a correlation between weight and safety. For example, two recent DRI studies demonstrate that weight reductions actually *reduce* highway fatalities.

Vehicle design, regardless of weight, is also a critical safety factor essentially ignored by Graham. Research performed by Tom Wenzel and Marc Ross show significant ranges of occupant risk among vehicles of similar weights but made by different manufacturers. And safety design technology continues to improve. For example, Honda's Advanced Compatibility Engineering (ACE) safety system allows a vehicle to absorb up to 50 percent more force in a crash and works in multi-vehicle crashes even when the bumpers and frame rails do not line up.[63] The problematic association with vehicle weight and safety is addressed in greater detail above in the discussion of the 2003 NHTSA technical report by Charles Kahane.

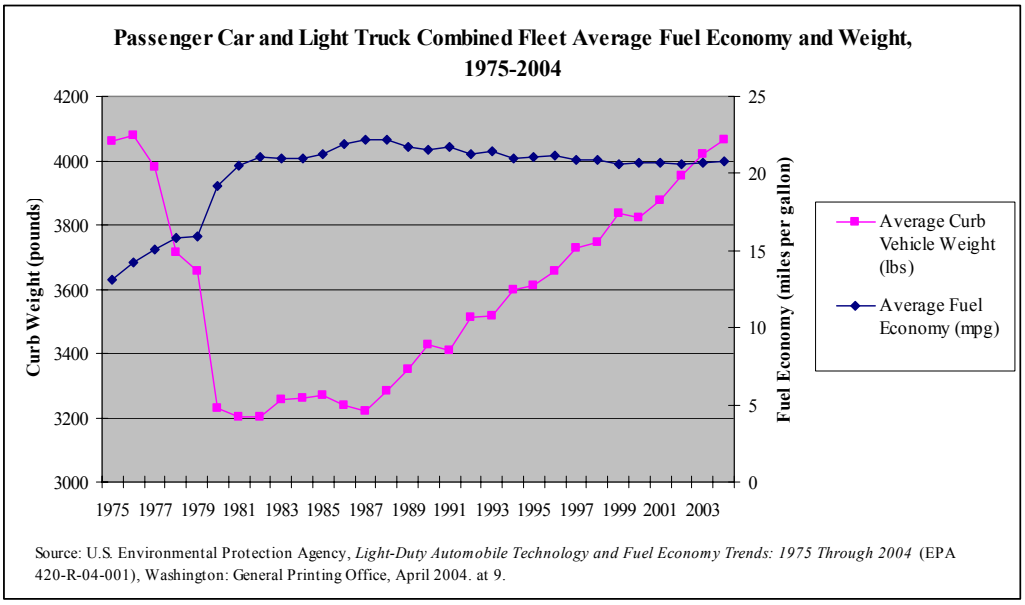
Graham's Assertions Regarding Downsizing Risks are Unfounded

The most critical flaw with both the 1989 and 1992 papers by Graham is that they imply a significant risk of vehicle weight reduction as a result of fuel economy regulation. The 1989 paper estimates that 1989 model year vehicles average 500-lbs. lighter than they would be without CAFE; the 1992 study indicates that a 20-percent increase in fuel economy would cause a 600-lbs. decline in average new vehicle weight. The implication that any future CAFE increases will necessarily induce weight reductions, thus negatively impacting safety, is misleading. Vehicle weight is a poor predictor of occupant risk.

Moreover, CAFE did not historically cause a significant weight reduction on average in the overall vehicle fleet; but instead concentrated weight reductions, where they did occur within the fleet, in the largest and heaviest cars, because expensive re-design to remove weight is most cost-effective in the heaviest vehicles. To the extent that it did occur, reductions in the weight of cars weighing more than 4,000 lbs. did not harm the safety of occupants of these vehicles, and

improved the overall safety of vehicles on the road by creating a convergence in weight towards the middle of the fleet. Passenger car safety has consistently improved over the past thirty years, not degraded. Similar down-weighting for future CAFE increases would also likely be concentrated only in the heaviest vehicles, leading to similar safety gains as to the light truck fleet.

Fuel Economy versus Weight



Source: U.S. Environmental Protection Agency, *Light-Duty Automobile Technology and Fuel Economy Trends: 1975 Through 2004* (EPA 420-R-04-001), Washington: General Printing Office, April 2004. at 9.

Graham's 1992 paper uses NHTSA studies of the safety effects of 100-lbs. reductions in average vehicle weight, despite the fact that such reductions have *no relationship whatsoever* to the historical record. The vehicle fleet's weight has not uniformly shifted downward; instead, only the largest passenger cars changed in proportion to the total car fleet — and that shift has been eclipsed by the expanding light truck population. Passenger cars weights have consolidated around roughly 3,500 lbs., and the proportional distribution of cars by size category today is remarkably similar to the pre-CAFE picture.[64]

Indeed, looking at *average* overall vehicle weight is very misleading: due to the extremely lax standards and stagnation in fuel economy levels for light trucks, the vehicle fleet is, overall, actually getting heavier under the current, *de minimus*, fuel economy regime. Average weight for model year 1987 vehicles was 3220 lbs.; the average weight for 2004 vehicles is 4066.[65]

Despite Graham's predictions — and the claims of anti-CAFE organizations like the Competitive Enterprise Institute — fuel economy regulation has not led to an expansion of the small car population. In fact, cars under 2,500 lbs have virtually disappeared.[66] According to the EPA, the vehicle fleet is currently the heaviest it has been since the 1970s — and that does not even count the very heaviest vehicles, such as Hummers, that the EPA does not include in its analyses.[67]

Eight-five percent of fuel economy improvements have been made through technology, not weight reduction, yet Graham's analyses largely ignore improvements in fuel efficiency technology. The effect of CAFE on vehicle weight — if any — is not, in fact, cumulative from year to year, but shifts along a technology horizon that controls the cost-effectiveness of technological versus weight-related solutions to CAFE.

New efficiency and mass-reducing technologies could make substantial contributions towards achievements in both fuel economy and safety. For example, Ford recently produced a partial-aluminum bodied prototype of a Taurus GL weighing 2,000 lbs., compared to the 3,18 lbs. weight of the 1999 Taurus GL. In crash tests Ford reported that the much-lighter car model performed as well or better than the fully steel-bodied Taurus.[68]

Researchers at the American Council for an Energy-Efficient Economy (ACEEE) have used engineering simulation analysis of representative vehicles to design two technology packages — "moderate" and "advanced" — that both enhanced fleet wide safety as well as fuel economy while holding size and performance largely constant. Mass reduction in the ACEEE study is done according to the vehicle's original mass, with the heaviest vehicles losing the most mass. In the ACEE's moderate plan, no mass is taken out of small cars, only about 10 percent is taken out of midsized cars, and 20 percent out of light trucks. The plan would include aerodynamic streamlining, reduced tire rolling resistance, and accessory improvements. High-efficiency, small displacement gasoline engines would be used, along with automatic transmissions that function smoothly without a torque converter, and integrated starter-generators running on a 42 volt electric system, enabling the engine to turn off during idling and other modest hybrid-like capabilities.[69]

The fuel economy improvements resulting from the ACEE plan vary depending on vehicle type, but the estimated fleet wide average improvement is an impressive 47 percent, reached within a 10 to 15 year timeframe.[70] This is about the same rate of percent increase in fuel economy as was studied in Graham's 1992 paper.

While the ACEE proposal involves an average 14-percent weight reduction in the fleet, the weight reduction is done in a way to improve vehicle occupant safety, rather than hinder it as Graham suggests. Because weight would be taken out of vehicles that are currently the most massive, this method of targeted down-weighting serves to help mitigate large vehicle aggressivity by reducing weight disparities within the fleet. In addition, the ACEEE study proposes the use of lightweight materials, such as ultrahigh-strength steels, aluminum and engineering plastics, to allow mass reductions without corresponding size reductions.[71]

Additional Notable Errors and Problematic Assumptions

- **Four-year-out Predictions of Gas and Steel Prices Do Not Necessarily Control Vehicle Design Choices.** Graham and Crandall assume that manufacturers' expectations of fuel prices and steel prices four years in advance of the vehicle's production are most likely — along with CAFE — to influence the engine and vehicle-weight choices for individual vehicle models. Graham and Crandall fail to provide any evidence that manufacturers truly depend on 4-

year-out predictions of gasoline and steel prices. If it was ever true, it certainly is no longer: Ford, for example, conceived, designed, engineered and built its new GT supercar in just 24 months.[72]

- **Outdated Research for Estimating CAFE Compliance Costs.** Graham and Crandall use outdated research – even at the time the study was written – as the basis for their estimates of the prospective economic compliance costs of CAFE. The 1977 Department of Transportation analysis used predates CAFE and therefore lacks real-world perspective on how costs actually accrue. Moreover, it cannot of course take into account the vast improvements in fuel economy technology's efficacy and affordability achieved between the 1970s and late 1980s — let along the technological progress that has occurred since.

- **Contradictory Treatment of the Role of Older Vehicles on Highway Safety.** Graham and Crandall entertain both broad assumptions and contradictory statements when they discuss safety in terms of CAFE's influence on car sales. While they first hypothesize that if CAFE standards curtails car sales and therefore older and predominantly heavier cars stay on the road longer, the risk of having older cars on the road without the variety of safety features initiated in 1969-75 would be negated by the assumed overall improved safety of these heavier, larger vehicles. But further on in the paper, Graham and Crandall contradict their earlier assertion, stating that "the mere retirement of older, less safe cars should have reduced the fatality rate substantially."

- **Passenger Cars and Light Trucks Are Not Analyzed Separately.** Both NHTSA studies used in Graham's 1992 paper to predict the safety consequences of weight changes purport to predict safety for both passenger cars as well as light trucks. However, the studies' risk coefficients are actually based on data from passenger cars alone. This is grossly misleading considering that light truck sales have increased dramatically over the past two decades and are distinctly more rollover-prone and aggressive than passenger cars.

- **Rollover Risk Estimations in no way Reflect Current Vehicle Population or Design.** In the 1992 paper, Graham claims that small, light cars tend to have less directional and rollover stability than large, heavy cars. Yet Graham's analysis completely omits the increased rollover risks inherent to SUVs and pickups. Correction of this flaw alone would considerably change Graham's estimates of the safety impact of increased fuel economy because, of the different risk estimates Graham employs, rollover risk constitutes that most significant supposed risk of lighter vehicles.

Conclusion

If the agency's concern for safety in the context of fuel economy improvements is sincere, it should move quickly to support proposed new safeguards in the areas of rollover and compatibility recently passed by the Senate in Title IV of S. 1072, the highway funding bill. Significant new advances for safety improvements in these areas are both feasible and a moral imperative. Until NHTSA clearly speaks with a pro-safety voice in its testimony before Congress and public and private statements on the bill, any concern for safety expressed in its complex maneuverings to stall vehicle fuel economy are suspect.

The importance of acting soon to raise fuel economy cannot be understated. A meaningful new fuel economy standard, extended to vehicles up to 10,000 lbs., would provide manufacturers with both the incentive and opportunity to comprehensively re-design their vehicles to improve fuel economy and safety at the same time, and would finally put an end to this deeply misleading debate, a debate which has substituted red herring distractions for real solutions and has far too long delayed action for the real public good.

People Mentioned in Documents Sent by NHTSA on August 25, 2003, in Response to Public Citizen's FOIA Request Dated July 11, 2003

Name and "Best Guess" Title, Department, Agency, and/or Organization

- **Bailey, Kameran L.** — Special Assistant to the Chairman, Council on Environmental Quality
- **Bailey, Vickie** — Assistant Secretary on International and Domestic Policy, Department of Energy
- **Barfield, Tiffany L.** — Administrative assistant, Office of Policy Development
- **Bolton, Josh** —Director of the Office of Management and Budget
- **Bowie, Noble** — Director of Office of Planning and Consumer Standards, National Highway Traffic Safety
- *Bowie, Victoria — wife of Noble Bowie and employee of Huhtamaki Americas, a specialty packaging organization. Noble used her email account from home, hence the reference.*
- **Branch, Lisa D.** — Executive Assistant to Chairman, Council of Economic Advisors
- **Chuckerel, Mary M.** — Administrative assistant, Office of Management and Budget
- **Claybrook, Joan** — President, Public Citizen
- **Connaughton, James** — Chair, Council on Environmental Quality
- **Divelbiss, Linda** — Director, Executive Correspondence, National Highway Traffic Safety Administration
- **Dougherty, Elizabeth S.** — Special Assistant to the President for Domestic Policy, Office of Policy Development
- **Dorn, Nancy P.** — Deputy Director, Office of Management and Budget
- **Feather, Peter M.** — (Former Senior Economist, Council of Economic Advisors) Department of Agriculture, Economic Research Service
- **Fisher, Linda** — (Former Deputy Administrator, Environmental Protection Agency. Resigned June 26, 2003)
- **Frankel, Emil** — Assistant Secretary for Transportation Policy, National Highway Traffic Safety Administration
- **Garman, David** — Assistant Secretary for Energy Efficiency and Renewable Energy, Department of Energy
- **Glassman, Jacqueline** — Chief Counsel, National Highway Traffic Safety Administration
- **Graham, John** — Administrator, Office of Information and Regulatory Affairs, Office of Management and Budget
- **Holmstead, Jeffrey** — Assistant Administrator on Air and Radiation, Environmental Protection Agency
- **Howard, John W.** — Chairman of the Special Panel on Appeals (discrimination)
- **Jackson, Michael** — Deputy Administrator, Department of Transportation
- **Kaplan, Joel D.** — Deputy Director, Office of Management and Budget

- **Kirk, Matthew** — Special Assistants to the President for Legislative Affairs (Senate)
- **Knutson, Karen Y.** — Deputy Assistant to the Vice President for Domestic Policy
- **Kolevar, Kevin** — Senior Policy Advisor to the Secretary, Department of Energy
- **Kratzke, Stephen R.** — Associate Administrator for Rulemaking, National Highway Traffic Safety Administration
- **Kroszner, Randy** — Senior Economist, Council of Economic Advisors
- **Lawson, Linda** — Acting Assistant Secretary for Policy, Department of Transportation
- **Lindsey, Larry** — (Former Director of the National Economic Council. Resigned Dec. 6, 2002.)
- **Loper, Brett S.** — Deputy to Associate Director for Legislative Affairs (House), Office of Management and Budget
- **Lundquist, Andrew D.** — Executive Director for National Energy Policy Development, Office of the Vice President
- **Martin, Catherine J.** — Assistant to the Vice President for Public Affairs, Office of the Vice President
- **McNally, Robert C.** — Special Assistant to the President for Economic Policy, Office of Policy Development
- **McSlarrow, Kyle** — Deputy Secretary, Department of Energy
- **Peacock, Marcus** — Associate Director for Natural Resources, Energy and Science; Office of Management and Budget
- **Pizer, William A.** — (Former Senior Economist, Council of Economic Advisors) Part-time Senior Economist, National Commission on Energy Policy; Fellow, Resources for the Future
- **Portney, Paul** — (Former Chair, National Academy of Sciences committee on CAFE) President, Resources for the Future
- **Ruhlen, Stephen S.** — (Former Deputy Assistant for Legislative Affairs, Office of the Vice President) Head of Washington office of JPMorgan Chase
- **Runge, Jeffrey** — Administrator, National Highway Traffic Safety Administration
- **Russell, Jeannie M.** — Staff Assistant, National Economic Council
- **Russell, Richard M.** — Associate Director, Office of Science and Technology Policy
- **Sandberg, Annette** — Acting Administrator, Federal Motor Carrier Safety Administration
- **Shane, Jeffrey** — Under Secretary for Policy, Department of Transportation
- **Shelton, Bob** — Executive Director, National Highway Traffic Safety Administration
- **Stephens, Virginia A.** — Director, White House Task Force on Energy Project Streamlining; and Associate Director of Energy & Transportation, Council on Environmental Quality
- **Stewart, Angela R.** — Executive Assistant, Council on Environmental Quality
- **Szabat, Joel** — Deputy Assistant Secretary for Policy, Department of Transportation
- **Theroux, Richard P.** — Senior Economist, Office of Information and Regulatory Affairs, Office of Management and Budget
- **Toy, Edmond** — Policy Analyst, Natural Resources Branch, Office of Information of Regulatory Affairs, Office of Management and Budget

- **Whitmer, Martin** — Deputy Chief of Staff, Department of Transportation
- **Wolff, Candida P.** — Assistant to the Vice President for Legislative Affairs, Office of the Vice President

Title could not be identified

- **Poche, Michelle** — Department of Transportation
- **White, Sharron R.** — Office of Management and Budget

Title and Department, Agency, or Organization could not be identified

- **Aschmann, Adam**
- **Brown, Yvonne**
- **Jones, Paul**

Calendar Entries from Documents Sent by NHTSA on August 25, 2003, in Response to Public Citizen's FOIA Request Dated July 11, 2003

Note on bold face in brackets: Quotations signify our "best guess" at what someone has written, either due to poor copy quality, bad handwriting, or partial omission of the word. Bracketed words without quotations signify the correct spelling of a word.

Paul Jones		
Date and time	*Subject*	*Locations*
8/14/2001 at 12pm.	White House CAFE Bfg. w/Paul Portney	
10/1/2001 at 4:30pm	Dr. John Graham – Rm.262 OEOB	
12/10/2001 at 4pm	CEQ/CAFE w/Whitmer, Shelton, Bowie	722 Jackson Place
5/10/2002 at 2pm	Frankel/Shane/Lawson/w/David Garman (DO...	
7/15/2002 at 1pm	Briefing for CEQ Meeting w/Jackie/Noble/Bob	
7/16/2002 at 9am	CEQ – 722 Jackson Place – w/Jackie	722 Jackson Place
8/12/2002 at 4:30pm	CAFÉ w/Glassman/Bowie – 722 Jackson Pl.	722 Jackson Place
8/30/2002 at 10:30am	Graham/Glassman – CAFE – 262 OEOB	NHTSA LCR
1/8/2003 at 5pm	Fuel Economy Working Group Mgt w/John Gr…**["Graham"]** Contact: Mary 395- 4852	EEOB Room 248
1/17/2003 at 4pm	CEQ Meeting w/Glassman/Noble	White House
6/9/2003 at 11am	John Graham – CAFE Reform w/Glassman/Pe…**["Peacock"?]**	Room 248

Anonymous		
Date	*Subject*	*Location*
12/10/2001 at 4pm	CEQ/CAFE, 726 Jackson Pl. w/Skelton, Bowie	726 Jackson Place
4/1/2002 at 10am	CAFE Reform – Jackson Rm. WH Conf. Center	White House Conference Center
21/2/2003 at 1pm	Joan Claybrook CAFE Reform Kretzke	
3/19/2002 at 3:30pm	John Graham / drop-by Re: CAFE	
10/5/2002 at 2pm	Frankel/Shane/Lawson w/David Bowie (DOE) – CAFE (Rm. 10222 – Yvonne 64540	Room 10222

	Shelton	
6/9/2003 at 11am	John Graham-CAFE Reform Jackie G/Jeff **["Pemberthen"?]**/Kenvin Colevar **[Kolevar]** (Mary – 395-4852) Room 248	Room 248
6/26/2002 at 4pm	**["Dr."?]** Policy Meeting in Transp. Energy Issues 722 Jackson Place w/Emil	722 Jackson Place
9/10/2002 at 3pm	CEQ Mtg w/John Connaughton (5-2 email) Either JR and or/Jackie 730 Jackson Place	730 Jackson Place
9/11/2002 at 7:15am	A-1 WH **["News"?]** breakfast w/Graham Jeff Homstead (EPA) Re diesels – Rm 262 **["First"?]** **["Drive"?]** to D8T	Room 262
7/16/2002 at 9am	CEQ/CAFE 722 Jackson Place **["(Glassman)"?]**	722 Jackson Place
8/12/2002 at 4:15pm	P-1	
8/12/2002 at 4:30pm	CAFE Mtg w/Glassman 722 Jackson Place Bowie	722 Jackson Place
8/30/2002 at 10:10am	P-1	
8/30/2002 at 10:30am	John Graham/**["Krozner"?]** CAFE Rm 262 OEOB	Room 262
11/4/2002 at 10am	John Graham Jackie Glassman CAFE Working Group Rm 262 (Mary)	Room 262
11/22/2002 at 3pm	Graham/Glassman Bowie – CAFE Room 248 EEOB (Mary 395-4852)	Room 248
1/8/2002 at 5pm	Fuel Economy Working Group w/John Graham EEOB Rm 248 (Mary 395-4852)	Room 248
1/17/2002 at 4pm	Council of Economic Quality **[sic]** w/Glassman/Noble (whats **["head"?]**)	

Jacqueline Glassman		
Date	*Subject*	*Place*
8/27/2002 at 4pm	OMB w/Jeff **[Runge]**	
8/28/2002 at 4:30pm	CAFE briefing	
9/6/2002 at 11am	Café meeting	
9/6/2002 at 3pm	CEA meeting	
9/6/2002 at 3pm	CEA meeting	
9/10/2002 at 8am	CAFE w/Runge	
9/10/2002 at 3pm	CEQ	
11/7/2002 at 4pm	CEQ	
6/9/2003 at 11am	CAFE Reform Mtg. (OMB)	
6/26/2003 at 4pm	OMB re CAFE Reform	

Noble Bowie		
Date	*Subject*	*Location*
6/7/2002 at 10am	CAFE	White House
11/4/2002 at 10am	CAFE Policy	OMB
11/22/2002 at 3pm	CAFE Policy	OMB
1/8/2003 at 5pm	CAFE Policy Group	OMB
1/17/2003 at 3pm	CAFE Reform Policy	CEQ
6/9/2003 at 11am	CAFE Policy	OMB
6/26/2003 at 4pm	CAFE Reform	OMB

Meetings Cited in Emails from Documents Sent by NHTSA on August 25, 2003, in Response to Public Citizen's FOIA Request Dated July 11, 2003

Meeting Date & Time	*Email Content*	*Meeting Location*	*Email Author*	*Email Recipient(s)*	*Email Date*
8/24/2001 at 11:15am	Subject: from Domestic Policy Council Forwarded email, from Tiffany Barfield: Please join Liz Dougherty for a CAFE Reform Meeting	Room 231	Michelle Poche Forwarded email from Tiffany Barfield	Jeffrey Runge Forwarded email recipients: John Graham, Andrew Lundquist, Karen Knutson, William Pizer, Marcus Peacock, Michelle Poche, Kameran Bailey, John Howard, Catherine Martin, Robert McNally, James Connaughton, Brett Loper, Richard Russell, Nancy Dorn, Candida Wolff, Stephen Ruhlen Cc on Forwarded email: Angela Stewart, Elizabeth Dougherty	8/15/2001
8/24/2001 at 11:15am	Forwarded email: I can make the meeting re: Subject: CAFE… I will check with you about travel to OEOB that morning	Room 231	Emil Frankel	Jeffrey Runge Forwarded email recipients: Michelle Poche, Jeffrey Runge, Bob Shelton Cc: Yvonne Brown	8/22/2001
12/10/2001 at 4pm	We are scheduled to meet with CEQ regarding CAFE… I would like to get together on Monday to discuss our ideas…	722 Jackson Place	Martin Whitmer	Jeffrey Runge, Bob Shelton, Noble Bowie	12/6/2001
12/10/2001 at 4pm	Subject: CAFE MEETINGS We are scheduled to meet with CEQ regarding CAFE… In preparation, I would still like to get together at 11:30 Monday morning. We need to have our proposal as well as some options ready to present…	722 Jackson Place	Martin Whitmer	Jeffrey Runge, Bob Shelton, Noble Bowie	12/9/2001
1/4/2001 at 10am	FYI, I received a call from Rich Theroux, a staffer at OMB, indicating that John	Jackson Room, White House Conference Center	Bob Shelton	Jeffrey Runge Cc: Noble Bowie	12/20/2001

	Graham is interested in meeting with us on January 4 to discuss CAFE reform. I think it might be fairly "nut and bolts,"…				
12/20/2001	I attended the National Energy Policy (NEP) meeting yesterday with Emil Frankel and Linda Lawson. The meeting was led by Andrew Lundquest and Karen Knutson of the Vice President's Office. Other agencies in attendance included EPA, DOE, State, and Agriculture. Each Agency gave a short summary of their progress in implementing the NEP recommendations. I gave a short overview of the current status of CAFE and our plans for initiating rulemaking and examining CAFE reforms [WITHHELD (b)(5)] …Emil said that once he is confirmed, he would like you and him to meet with DOE's David Garman…		Noble Bowie	Jeffrey Runge Cc: Bob Shelton	12/21/2001
1/4/2002 at 10am	Subject: CAFE Attached please find a briefing handout on CAFE Reforms that I prepared for the 10am meeting tomorrow with OMB & others. The document incorporates comments I have received from Bob Shelton.		Victoria Bowie	Jeffrey Runge Cc: Noble Bowie	1/3/2002
1/4/2002	Subject: CAFE Reforms – Pros and Cons Paper Attached for your use is a paper that presents the pros and cons of various CAFE reforms. This is essentially what I presented last Friday morning when we met with OMB, but it provides greater detail.		Noble Bowie	Adam Aschmann, Martin Whitmer Cc: Bob Shelton, Jeffrey Runge	1/11/2002
6/26/2002 at 4pm	Subject: Sr. Policy Meeting on Transportation/Energy Issues Jim Connaughton has scheduled a meeting re: the above for June 26, 2002 at 4:00 p.m., CEQ offices, 722 Jackson Place. Principles only. If you have any further questions regarding this meeting, please contact VA Stephens at 395-0801. Please confirm attendance. Thank you. Invitees: Richard Russell, Randy Kroszner, Liz Dougherty Larry Lindsey, Dr. Graham,	CEQ offices, 722 Jackson Place	Roberta Conde	Richard Russell, Lisa Branch, Elizabeth Dougherty, Jean Russell, Mary Chuckerel, Karen Knutson, Sharron White, Joel Kaplan, Virginia Stephens	6/13/2002

	Karen Knutson, Marcus Peacock, Joel Kaplan, Linda Fisher, Jeff Holmstead, Michael Jackson, Jeff Runge, Emil Frankel, Kyle McSlarrow, David Barman, VA Stephens				
7/16/2002 at 1pm	Mon 1:00 w/Jeffrey CAFE …meeting Tuesday morning at CEQ and we thought we should meet with you before that.	CEQ	Jacqueline Glassman	Bob Shelton, Noble Bowie Cc: Jeffrey Runge, Linda Divelbiss	7/12/2002
7/15/2002 at 2:30pm 7/16/2002	Subject: Fwd: RE: Next CAFE Briefing for Emil Forwarded email, Noble Bowie to Yvonne Brown: I would like to give Emil a briefing on CAFE reform alternatives. Forwarded email, Yvonne Brown to Noble Bowie: Availability: July 15 – 10:00-4:30… Forwarded email, Noble Bowie to Yvonne Brown: Please schedule us for the 15th at 2:30 for 1 hour. Forwarded email, Emil Frankel to Noble Bowie: …I now will be out of the office on Monday, the 15th, as well as on the 16th…I would like to suggest that you proceed with the briefing on the 15th, but make it a briefing on CAFE for Joel [Szabat]…and that Joel then accompany Jeff Runge to the CEQ meeting on the 16th, as a substitute for me. V.A. Stephens called me this morning about the CAFE meeting on the 16th…		Jacqueline Glassman Forwarded emails from Emil Frankel, Yvonne Brown, Noble Bowie, Jacqueline Glassman	Jeffrey Runge Forwarded email recipients: Emil Frankel, Yvonne Brown, Jacqueline Glassman, Linda Lawson	7/15/2002
	Subject: DoE – Possible Detail I finally spoke to David Garman this morning [NON-RESPONSIVE] I reminded David Garman that we were going to "institutionalize" and make regular our DOT/Policy and NHTSA – DoE meetings, so that we could discuss issues of common interest in doing this and said that "the ball was in his court." I think that we should persist and arrange another meeting. Let's discuss and decide who takes the initiative for DOT. Finally, anything new on CAFE? Should we discuss again? Anything we should be doing to support your efforts, either on the pending energy		Emil Frankel	Noble Bowie Cc: Jeffrey Runge	8/13/2002

	legislation or, more generally, on CAFE reform?				
9/10/2002 at 3pm	I don't think you need to attend the CEQ meeting today at 3. The only significant issue on the agenda is Congressman Dingell's apparent intent to introduce pro-diesel legislation. Otherwise, the intent is to receive updates on the various activities surrounding the Energy Bill and NHTSA's activities. We will inform the group that we cannot yet reveal the specifics of the light truck rulemaking, but expect it to be ready for publication in early to mid November, and provide a brief overview of the size & safety study. I will attend for Jeff and I expect that Martin and/or Joel will attend also.		Jacqueline Glassman	Emil Frankel Cc: Jeffrey Runge	9/10/2002
11/22/2002 at 3pm	Forwarded email, Noble Bowie to Jacqueline Glassman: …I am on the hook to give a presentation on CAFE reform at the CAFE policy meeting this Friday. Attached is a draft PowerPoint presentation I prepared….Once I incorporate your comments, should I forward it to Scott, Jesse, Sean, and Martin? Forwarded email, Jacqueline Glassman to Noble Bowie:…I'll copy Jeff on this so he can see what we propose to discuss at OMB on Friday afternoon (at 3 pm). I don't think we need to forward it to the whole group upstairs. In general, I think we should limit the number of copies of documents floating around. After Friday's meeting, if the working group decides to follow the path outlined, we can send it to Martin to keep him up to speed on the direction that's being taken.	OMB	Noble Bowie Forwarded emails from Noble Bowie, Jacqueline Glassman	Jeffrey Runge Forwarded email recipients: Noble Bowie, Jacqueline Glassman Cc on Forwarded email: Jeffrey Runge	11/20/2002
	Subject: Re: CAFE Reform ANPRM Briefing Slides		Jacqueline Glassman	Noble Bowie Cc: Jeffrey Runge	1/8/2003
	Subject: CAFEREFROMANPRM2.ppt		Jacqueline Glassman	Jeffrey Runge	1/8/2003
1/14/2003 at 4pm	Is there a CEQ meeting tomorrow at 4:00 on fuel efficiency??? Emil got a call from CEQ indicting this.		Martin Whitmer	Jacqueline Glassman, Jeffrey Runge	1/13/2003
1/17/2003 at 3pm	I'm only aware of one on Friday at 3 at CEQ, although we never received a notice. VA mentioned it at the meeting at OMB last week.		Jacqueline Glassman	Jeffrey Runge	1/13/2003

6/9/2003	Agenda CAFE Working Group June 9, 2003 1. Update on CAFE legislative discussions. 2. Update on stakeholder discussions regarding CAFE reform 3. [(b)(5)] 4. Discussion of the contents of NHTSA's draft ANPRM 5. Timing for completion		Edmond Toy	Noble Bowie Cc: Richard Theroux	6/9/2003
6/9/2003 at 1pm	Subject: Working group meeting… John gave me the "news" yesterday that he wanted us to work on the ANPRM, and he asked that we (NHTSA and OIRA) meet with him late next week to go over it… Any word yet on getting a draft today?	Jackson Room, White House Conference Center	Edmond Toy	Noble Bowie Cc: Richard Theroux	6/6/2003
6/12/2003	Subject: Meeting Thursday We're schedule to meet in John's office next Thursday at 2pm.	John's office	Edmond Toy	Noble Bowie Cc: Richard Theroux	6/6/2003

Selected List of Harvard Center for Risk Analysis Funding Sources

During Graham's tenure as Director, the Harvard Center for Risk Analysis received financial support from a vast number of private corporations and trade associations, as well as a few government agencies and conservative advocacy groups. According to information provided over the phone by staff at HCRA and the Center's Conflict of Interest policy, these lists are "cumulative," showing all HCRA donors. There is no mention of the amount of the donation, or list of companies that support the Center on a regular basis. Therefore, the presence of an entity on this list could represent a single donation or a tradition of ongoing support. These entities provided funding to the HCRA either in the form of restricted or unrestricted grants. Unrestricted grants are sorted by industry.

Unrestricted Grants: List of Donors

Automotive Industry

- **American Automobile Manufacturers Association**
- **Ford Motor Company**
- **General Motors Corporation**
- **The Goodyear Tire & Rubber Company**

Oil & Gas

- **American Petroleum Institute**
- **ARCO (Atlantic Richfield Company) Chemical Company**
- **Ashland Inc. Foundation**
- **BASF**
- **BP America Inc.**
- **Charles G. Koch Foundation**
- **Chevron Research & Technology Company**
- **CITGO Petroleum Company**
- **Exxon Corporation**
- **Mobil Foundation, Inc.**
- **Oxford Oil**
- **Oxygenated Fuels Association**
- **Shell Oil Company Foundation ($15,000 to HCRA)**
- **Texaco Foundation**
- **Unocal**

Endnotes

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