Proposed Rule 2017 and Later Model Year	**)**	**Docket Nos.**
Light-Duty Vehicle Greenhouse Gas Emissions	**)**	**EPA-HQ-OAR-2010-0799; FRL-9495-2**
and Corporate Average Fuel Economy Standards	**)**	**NHTSA–2010–0131**

Comments of Consumer Groups:

Consumer Federation of America, Arizona Consumers Council, Arizona PIRG, CALPIRG, CoPIRG, Citizens' Utility Board of Oregon, Consumer Action, Consumer Assistance Council, Consumer Federation of the Southeast, Consumers for Auto Reliability and Safety, Chicago Consumer Coalition, Florida Consumer Action Network, Illinois PIRG, Iowa PIRG, Maryland PIRG, Massachusetts Consumers' Coalition, Massachusetts Consumers Council, MASSPIRG, New Jersey PIRG, U.S. PIRG, Utility Consumer Action Network, Virginia Citizens Consumer Council, Wisconsin Consumers League, WISPIRG

February 13, 2012

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List of Exhibits

A LANDMARK POLICY SUPPORTED BY AN UNPRECEDENTED CONSENSUS

Seven Presidents have declared the goal of reducing U.S. dependence on oil, but little progress has been made. Statements at the public hearings held by the National Highway Traffic Safety Administration (NHTSA) and the Environmental Protection Agency (EPA) on the recently proposed auto standards for 2017-2025 indicate a remarkable shift in the policy landscape with the emergence of an unprecedented consensus in support of fuel economy standards that would double the efficiency of cars and trucks in less than two decades and dramatically reduce oil consumption and imports.

- Public witnesses say and consumer advocates present survey and behavioral evidence that consumers want and will pay for more fuel efficient vehicles.
- Automakers and auto workers say they can and will manufacture those vehicles.
- National security experts and environmentalists say the nation will benefit from the standards.
- The only stakeholder that does not seem "to get" it is the National Automotive Dealers Association.

Over the course of a decade, the growing public concern about gasoline and its burden on household budgets drove a policy consensus in support of higher standards. This consensus includes not only almost all of the stakeholders in the industry, but it also crosses the federal and state levels, all branches of government, and both political parties.

These comments and the attached Technical Appendices explain why the standards have earned such widespread support and why the concerns of the dealers, genuine though they may be, are unfounded. We present over a dozen reasons that the standards will benefits consumers, the economy, national security, and the environment.

The future of the auto industry lies in developing and delivering more fuel efficient vehicles. The future of the American economy lies in using energy much more efficiently. The proposed standards will help to ensure that the U.S. auto industry and the U.S. economy successfully negotiate the transition. These comments show that because these fuel economy standards are the most important energy policy in a quarter of century, they deserve the remarkable national consensus support they have received.

CONSUMER GROUP COMMENTERS AND APPROACH

The Consumer Federation of America (CFA) and 23 of its member groups appreciate the opportunity to submit comments on the proposed standards for cars and light duty trucks. As summarized in Exhibit S-1, we have been actively involved in this important area of energy policymaking at both the federal and state levels. Over the past seven years, CFA has issued dozens of reports on the technology, auto market behavior and consumer economics of auto fuel economy, as well as conducted numerous surveys on consumer attitudes about gasoline consumption and fuel economy standards.

CFA has analyzed the economics of fuel economy and monitors the development of fuel economy standards in an effort to ensure that policymakers set a standard that is good for consumers and the nation. These comments build on that background and incorporate several of the early analyses as technical appendices. The comments launch from and focus on the key factors that impact the consumer, but also reflect the factors that affect the industry and the conditions that Congress has required the agencies to take into account in the rulemaking. The following list summarizes the analyses we have conducted to reach the conclusion that the proposed standards will benefit consumers. The Roman numerals identify the section in the technical appendix in which data is presented addressing each issue.

Exhibit S-1: CFA Research on Fuel Economy

Research Papers:

The Consumer Benefits of the Proposed Fuel Economy Standards: A Preliminary Assessment, January 2012
Setting the Record Straight on Increasing Fuel Economy Standards, 06/28/11. (PDF)
Will Policymakers Get Serious About Ending Our "Addiction to Oil" by Supporting 60 MPG Fuel Economy Standards Report, 5/31/11. (PDF)
Gasoline Prices and Expenditures Report, 03/16/11. (PDF)
Public Support for a 60 Mile Per Gallon Fuel Economy Standard, 09/28/10. (PDF)
Setting the Next Round of Fuel Economy Standards: Consumers Benefit at 60 Miles Per Gallon, 09/02/10 (PDF)
U.S. Oil Market Fundamentals and Public Opinion Report, 05/18/10. (PDF)
Shifting Fuel Economy into High Gear, 11/24/09 (PDF)
A Boom for Big Oil – A Bust for Consumers: An Analysis of Policies to Meet American Energy Needs, 09/16/08. (PDF)
Fuel Economy and Auto Sales: Automakers and the National Highway Traffic Safety Administration Ignore Market Signals, 08/04/08. (PDF)
Ending America's Oil Addiction: A Quarterly Report on Consumption, Prices and Imports First Quarter, 2008, 04/21/08. (PDF)
A Consumer Analysis of the Adoption of the California Clean Cars Program in Other States: Arizona, 03/12/08. (PDF)
A Step Toward s Brighter Energy Future: Policymakers Break the Logjam, But Vigorous Implementation Is Crucial, 12/18/07. (PDF)
A Consumer Analysis of the Adoption of the California Clean Cars Program in Other States: New Mexico, 11/21/07. (PDF)
No Time to Waste: America's Energy Situation is Dangerous, But Congress Can Adopt New Policies to Secure Our Future, 10/30/07. (PDF)
Technology, Cost and Timing: An Analysis of Competing Congressional Proposals to Raise Fuel Economy Standards, 07/26/07. (PDF)
Florida's Stake in the Fuel Economy Battle: An Analysis of the Economic, National Security and Environmental Impacts of Florida's Fuel Consumption and Increasing Federal Fuel Economy Standards, 07/25/07. (PDF)
Big Oil v. Ethanol: The Consumer Stake in Expanding the Production of Liquid Fuels, 07/23/07. (PDF)
Still Stuck in Neutral: America's Continued Failure to Improve Motor Vehicle Fuel Economy, 07/17/07 (PDF)
Too Little, Too Late: Why the Auto Industry Proposal to Go Low and Slow on Fuel Economy Improvements is Not in the Consumer or National Interest, 07/12/07. (PDF)
Greater Fuel Economy Gains in Senate Commerce Bill than Auto Industry Proposal, 06/18/07 (PDF)
Rural Households Benefit More from Increases in Fuel Economy, 06/13/07. (PDF)
National Cost-Benefit Analysis of Increasing Fuel Economy by 10mpg Over 10 Years, 06/04/07 (PDF)
Stuck In Neutral: America's Failure to Improve Motor Vehicle Fuel Efficiency 1996-2005, 11/13/06 (PDF)
Time to Change the Record on Oil Policy, 08/08/06 (PDF)
A Blueprint for Energy Security: Addressing Consumer Concerns about Gasoline Prices and Supplies by Reducing Consumption and Imports, 05/25/06. (PDF)
50 by 2030: Why $3.00 Gasoline Makes the 50 Mile per Gallon Car Feasible, Affordable and Economic, 05/08/06. (PDF)
2006 Best and Worst Fuel Economy Ratings, 02/27/06. (PDF)
The Impact of Rising Prices on Household Gasoline Expenditures, 09/01/05 (PDF)

National Random Sample Surveys:

CFA Surveys Reveal Record Public Concern About Gas Prices and Dependence on Oil Imports, 03/16/11. (PDF)
National Survey Shows that Most Consumers Support 60 MPG Fuel Economy Standards by 2025, 09/28/10. (PDF)
Americans Strongly Support Cutting Oil Consumption, Increasing Fuel Economy Standards to 50 MPG, 05/18/10. (PDF)
Large Majority of Americans Remain Concerned About Gas Prices and Oil Imports, 11/24/09. (PDF)
Despite $1.90 Pump Price, a Large Majority of Americans Remain Concerned About Gas Prices and Oil Import Dependence, 02/03/09. (PDF)
Consumers Want Fuel Economy They Can't Find, 04/21/08. (PDF)
New CFA Report: Consumer Energy Costs Skyrocket; Strong Support for Congressional Action, Poll Shows, 10/30/07. (PDF)
Americans Alarmed About Dependence on Oil Imports and Resulting High Gas Prices and Funding Terrorism, 05/21/07. (PDF)
Consumers Still Greatly Concerned About Better Gas Mileage and Oil Imports Despite Falling Gas Prices, 11/13/06. (PDF)
New Report Shows Nearly Three-Quarters of Americans Concerned About Future Gas Prices, 09/01/05. (PDF)

Comments and Testimony:

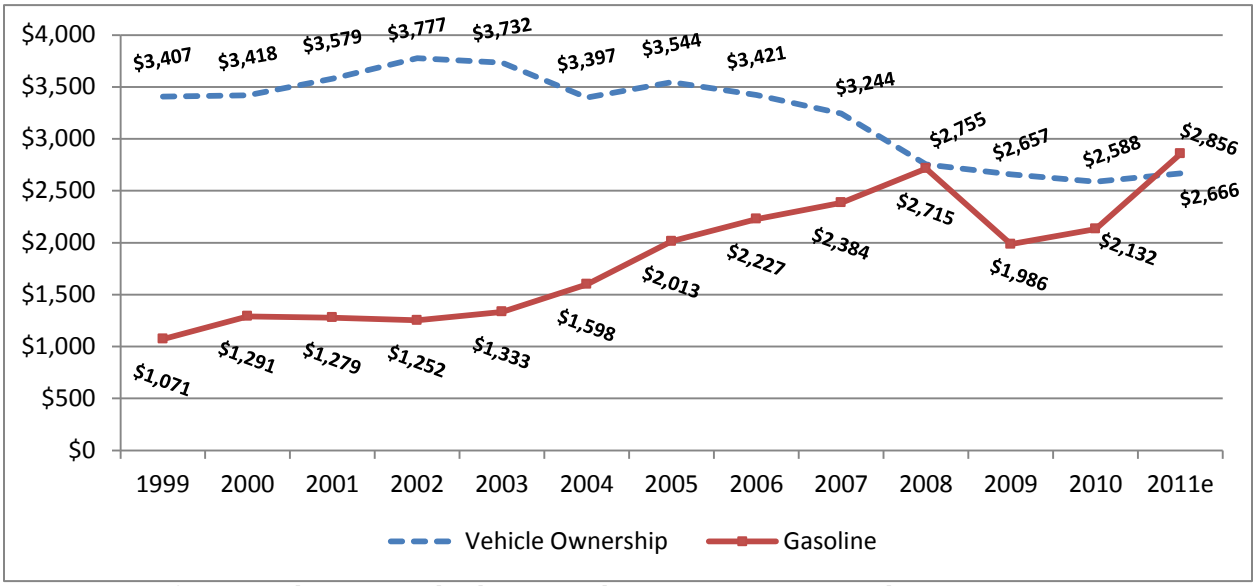
Testimony of Dr. Mark Cooper on the American Energy Initiative before the House Energy and Commerce Committee, 03/17/11 (PDF)
CFA's Comments on Fuel Economy Labels to NHTSA, 11/22/10. (PDF)
Comment of the Consumer Federation of America, In the Matter of Notice of Upcoming Joint Rulemaking to Establish 2017 and Later Model Year Light Duty Vehicle GHG Emissions and CAFE Standards, Docket ID No. EPA-HQ-OAR-0799, Docket ID No. NHTSA-2010-0131, October 29, 2010
Testimony of Jack Gillis to the EPA and NHTSA on Revisions and Additions to Motor Vehicle Fuel Economy Label, 10/21/10. (PDF)
CFA Comments on NHTSA's Proposed Rule Establishing Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 11/30/09 (PDF)
Testimony of Dr. Mark Cooper to the EPA on Establishing Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 10/21/09 (PDF)
Consumer Groups' Comments on Tire Efficiency Consumer Information Rulemaking, 8/21/09. (PDF)
Consumer Groups' Comments to FTC Regarding Fuel Economy Advertising Guidelines, 06/26/09 (PDF)
Comments and Technical Appendices of the Consumer Federation of America, on the National Highway Traffic Safety Administration Notice of Proposed Rulemaking; Docket No. NHTSA 2008-0089, RIN 2127-AK29; Average Fuel Economy Standards, Passenger Cars and Light Trucks; Model Years 2011-2015, July 1, 2008

I. Consumer Reality: Gasoline prices and household expenditures
II. Consumer Attitudes: Polls on concerns about gasoline prices and attitudes about fuel economy standards
III. Consumer Behavior: Shifts in vehicle purchases
IV. Consumer Pocketbook Impact: Cash flow, net savings and payback periods
V. National Cost Benefit: Direct and indirect consumer welfare gains, national economic and security benefits, environmental and health benefits, cost of technology and implementation
VI. Technology Assessment: Technological availability and functioning of the standard
VII. Automaker Ability & Incentive: Ability to adapt to new technologies
VIII. Policy Goals & Analysis: Legal mandates and analytic approaches

I. CONSUMER REALITY: CONSUMERS NEED MORE FUEL EFFICIENT VEHICLES

Over the past decade, gasoline prices have gyrated wildly around a strong upward trend. Exhibit S-2 shows the average annual expenditure on vehicle ownership (new and used vehicles) compared to the expenditure on gasoline, as reported in Bureau of Labor Statistics' annual Consumer Expenditure Survey.

EXHIBIT S-2: AVERAGE ANNUAL EXPENDITURES ON VEHICLE OWNERSHIP AND GASOLINE (CURRENT $)



Source: Energy Information Administration data base on gasoline prices; Consumer Expenditure Survey, various years. 2011 estimate based on Energy Information Administration data base on gasoline prices and trends. A short-run elasticity of demand is included in the projections of -.244, based on the elasticity of household demand implicit in the CES data for 1997 – 2009.

- Gasoline prices set a record high in 2011 averaging $3.53 per gallon. The average price for January 2012 was the highest on record for the month of January.
- Household gasoline expenditures set a record last year, reaching an average of over $2,850 per year.

Rising gasoline prices have changed the structure of the cost of driving. Ten years ago, the average cost of owning a vehicle was the largest single component of the cost of driving. Today, the average cost of owning a vehicle has come down approximately 20% and the cost of gasoline has tripled.

- In 2011, the cost of gasoline will equal or exceed the cost of owning the vehicle for the first time.
- In 2011, gasoline expenditures were 40 percent higher than expenditures on home energy (electricity, natural gas and heating oil); ten years ago, they were 13% lower.

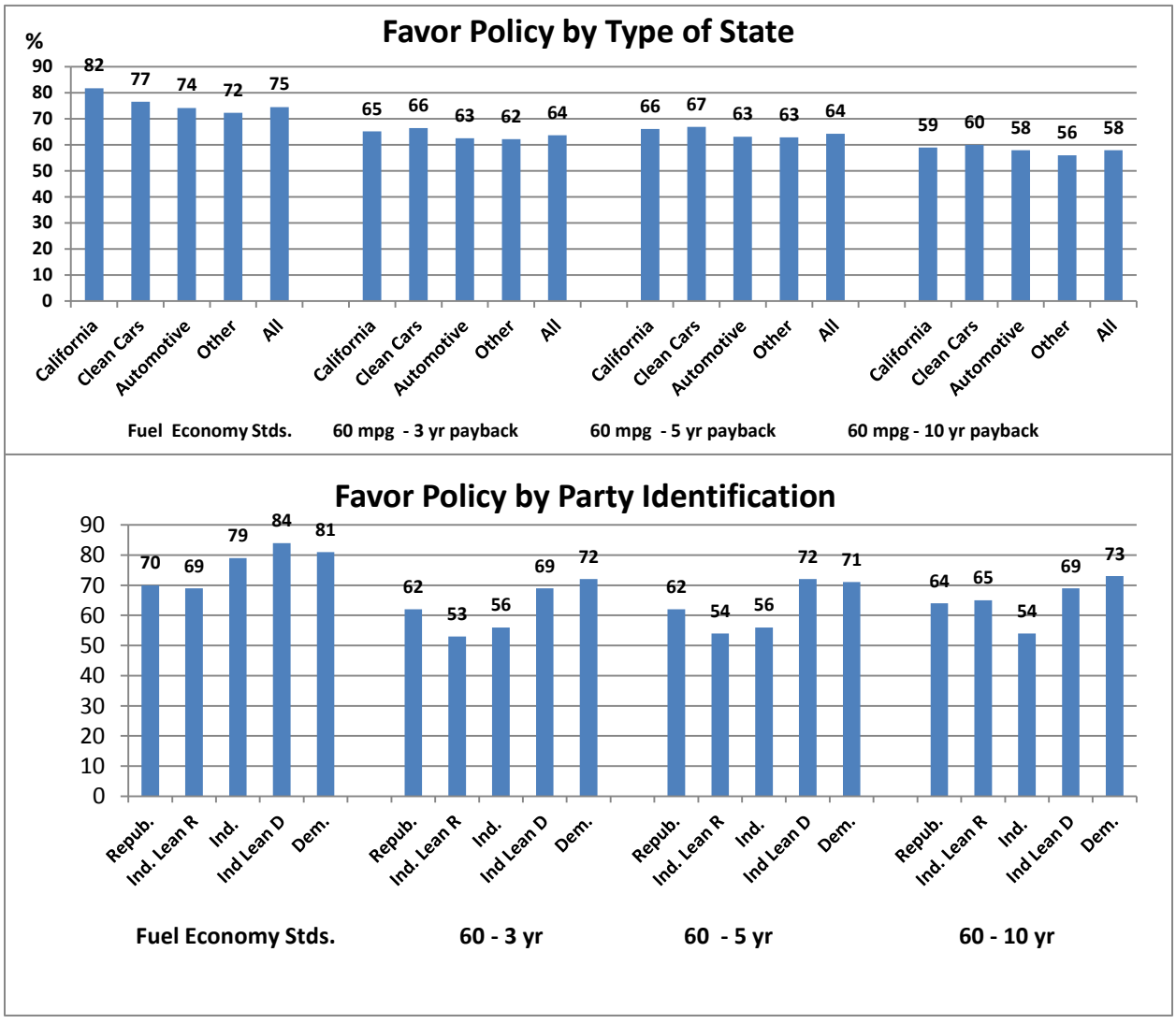
II. CONSUMERS ATTITUDES: CONSUMERS WANT MORE FUEL EFFICIENT VEHICLES AND SUPPORT FUEL ECONOMY STANDARDS.

Given the burden on household budgets and the continuing problem of oil vulnerability, it is not surprising to find that 75 percent or more of respondents to our public opinion polls:

- are concerned about gasoline prices and dependence on Mid-East oil;
- think it is important to reduce oil consumption; and,
- support higher fuel economy standards as a good way to do so.
- In fact, almost two-thirds of the respondents support a 60 mile per gallon standard with a payback period of 3-5 years and think it will be good for automakers.

Exhibit S-3 shows widespread support for fuel economy standards that are even higher than those proposed by NHTSA-EPA in a national random sample poll of over 2000 respondents. Substantial majorities support standards across different types of states and the political spectrum, even with payback periods of ten years.

EXHIBIT S-3: SUPPORT FOR A 60-MPG STANDARD



Source: National Survey Shows that Most Consumers Support 60 MPG Fuel Economy Standards by 2025, 09/28/10.

III. Consumer Behavior: Consumers have shown they are willing to pay for more fuel efficient vehicles

Consumers don't just say they want more fuel efficient vehicles--they have shown they are willing to buy them. Looking at the total light duty markets (cars and light trucks) between 2004, the year when the worst price increases began, and 2011, the market shares of:

- cars increased from 48% to 59% of all vehicles,
- 4-cylinder engines increased from 28% to 48%,
- the use of variable transmissions and the number of gears has increase dramatically, and
- sales of small and mid-sized SUVs increased by more than one-third to almost 21% of all vehicles sold, while large SUVs dropped by 70% to less than 2% of vehicles sold.

Looking at cars only,

- hybrids increased from less than 1% of cars sold to more than 6%, but
- small cars remained constant at 47% of all cars sold.

IV. Consumer Pocketbook Impact: The proposed fuel economy standards will provide significant consumer cost savings

The impact of the standards on consumers can be measured in a variety of ways – pocketbook cash flow, vehicle net benefit, and simple payback periods. By every consumer impact measure, the standards deliver substantial benefits to consumers.

- As Exhibit S-4 shows, for the typical consumer who purchases a new auto that complies with the 2025 standard with a five year auto loan, the higher fuel economy lowers the cost of driving from the first month because the reduction in gasoline expenditures is greater than the increase in the monthly payment to cover the cost of fuel saving technology.
- At the end of the auto loan, the consumer will have saved an average of about $800.
- By the tenth year, the vehicle will have generated an average of over $3,000 in savings, which means resale values are likely to be much higher, by $1,000 to $2,000.
- Simple payback periods for new cars are less than three years; for new trucks, it will be less than two.

V. National Cost Benefit: Higher fuel economy standards deliver large and diverse benefits

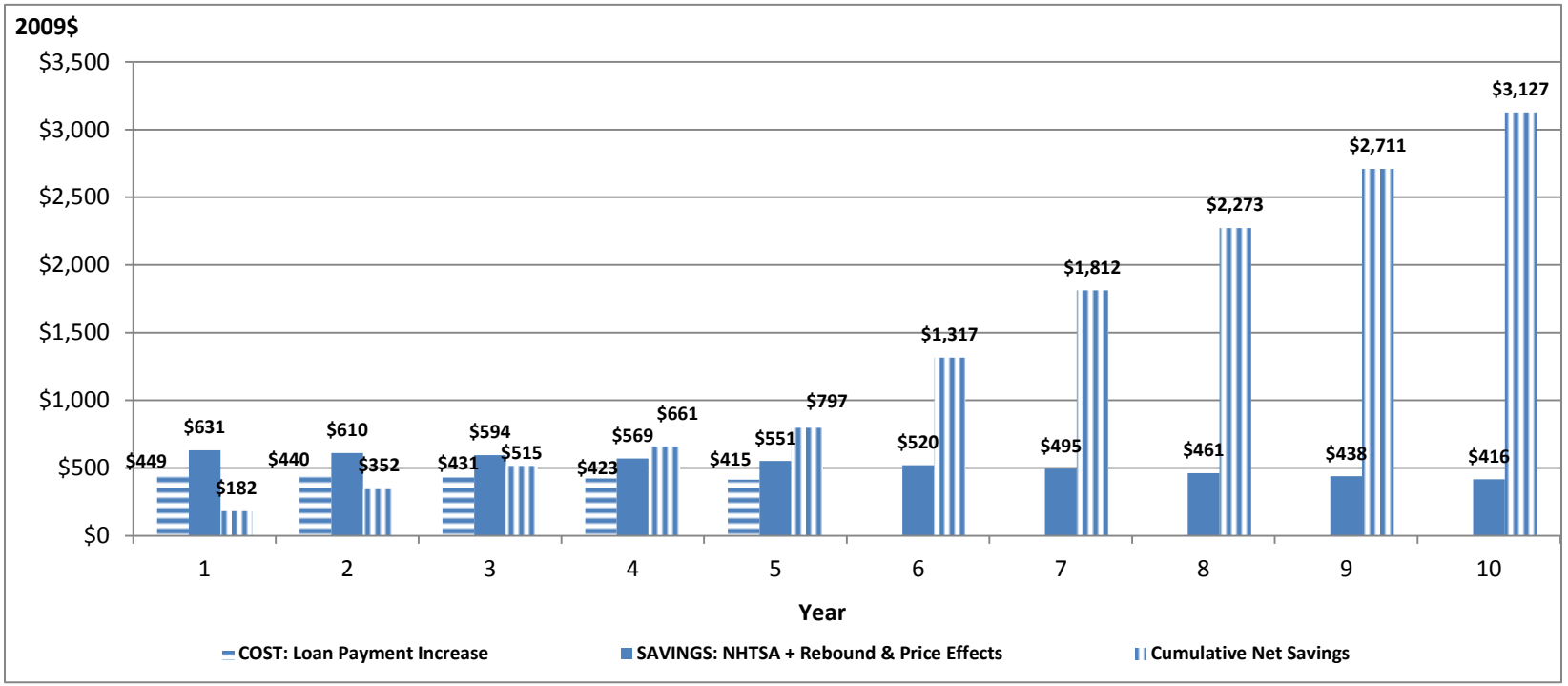
Exhibit S-5 shows CFA's estimates of national benefits and costs.

- The total discounted national benefits are close to $600 billion, a value that is well over three times the cost.
- Higher fuel economy standards are primarily a consumer benefit program, with consumer savings of close to $500 billion, over 80 percent of the total national benefits.

Indirect national security and economic benefits will be just over $40 billion (about 7 percent of the total) and include progress on major national public policy goals, such as:

- reducing oil consumption and imports by almost 4 billion barrels and cutting the balance of payments deficit by $370 billion,
- which will produce a major boost to domestic economic growth by driving down the price of oil by $0.25 per gallon, lowering vulnerability to oil price shocks, and reducing the need for national security expenditures.
- Environmental and public health benefits will be almost $60 billion (just over 10 percent of the total).

EXHIBIT S-4: CONSUMER POCKETBOOK BENEFITS OF NEW CARS MEETING THE 2025 STANDARD FAR EXCEED THE COSTS

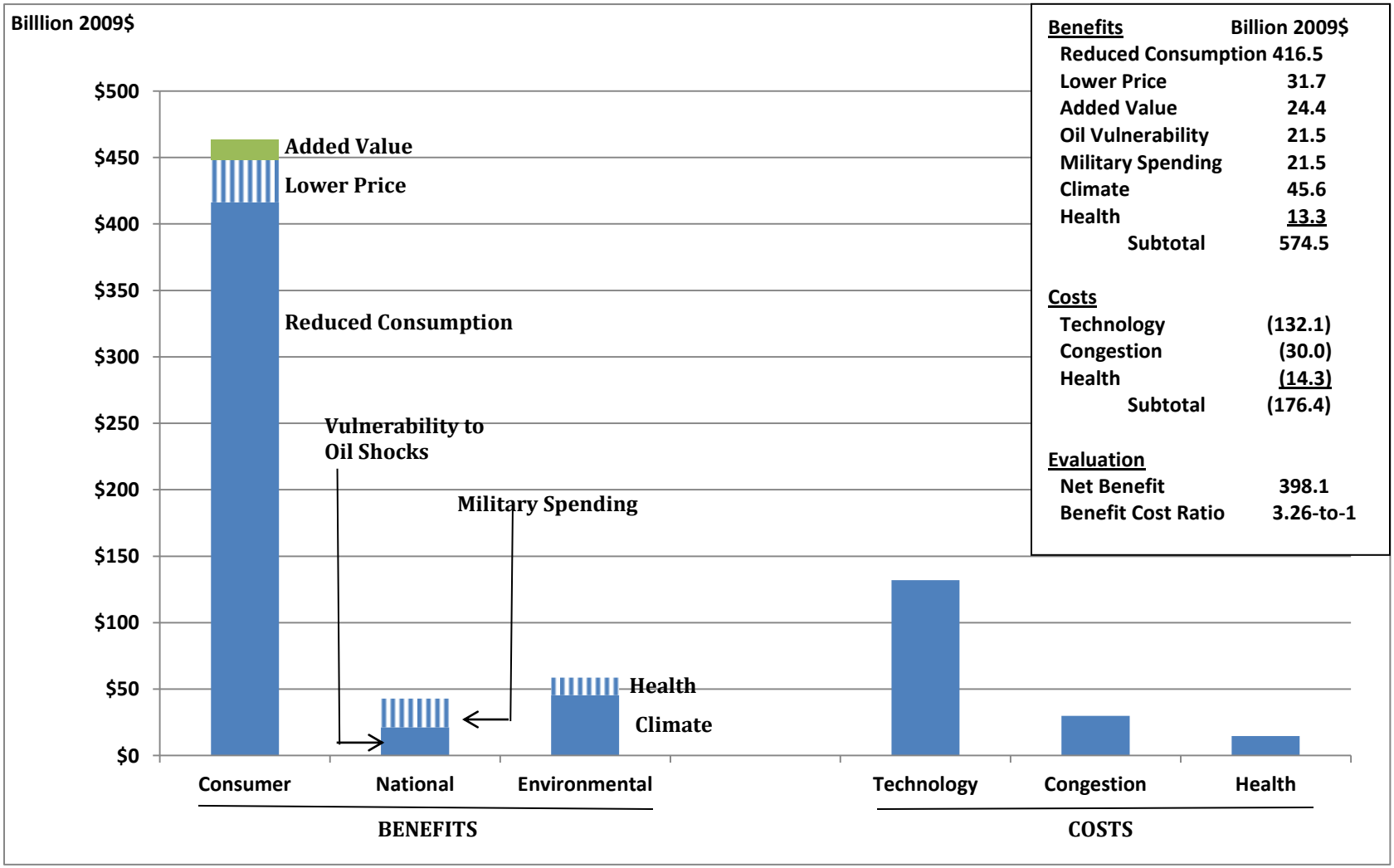


CONSUMER POCKETBOOK ANALYSIS ASSUMPTIONS

Vehicle Attributes		**Economic**		**Financial**	
Vehicle type	Cars	Incremental cost	$2026	Loan period	5- Years
MPG 2025	56	Gasoline cost 2025/gallon	$3.53	Interest rate	5%
Base year 2016 mpg =	38	Inflation rate	2%		
Onroad adjustment factor	0.8	Discount rate	3%		
Onroad mpg 2025	44.8				
Onroad mpg base year 2016	30.4				

Source and notes: Office of Regulatory Analysis and Evaluation National Center for Statistics and Analysis, *Preliminary Regulatory Impact Analysis Corporate Average Fuel Economy for MY 2017-MY 2025, Passenger Cars and Light Trucks,* November 2011. CFA pocketbook savings calculated without subtracting the rebound effect and adding the benefit of a $025 per gallon reduction in the cost of gasoline.

EXHIBIT S-5: CUMULATIVE BENEFITS AND COSTS OF PROPOSED FUEL ECONOMY STANDARDS: CARS AND TRUCKS, 3% DISCOUNT



Source and notes: Office of Regulatory Analysis and Evaluation National Center for Statistics and Analysis, *Preliminary Regulatory Impact Analysis Corporate Average Fuel Economy for MY 2017-MY 2025 , Passenger Cars and Light Trucks,* November 2011, Tables 13, VIII-27b, Consumer Benefits include effect of $31.6 billion based on a valued of $0.25/gallon. National benefits include reduced military spending valued at $0.17 per gallon.

Exhibit S-6 presents the full range of cases and scenarios considered by the agencies. It plots the costs (on the x-axis) and the benefits (on the y-axis) for the eight different target levels considered with each target level evaluated at discount rates of 3% and 7%. It also shows the results of the sensitivity analyses that were conducted at the 3% discount rate. In all, there are 28 cases/scenarios shown. The Exhibit also includes a break even line. If a case/scenario falls above the line, the benefits exceed the costs.

- In every sensitivity analysis conducted by the agencies, no matter how extreme the assumptions, the benefits exceed the costs.
- The exhibit makes it clear that the benefits are likely to exceed the costs by a wide margin. Even under the most extreme assumption – i.e. that consumer pocketbook savings are only one-quarter of the base case calculation, the benefits are almost twice as large as the costs at the 3% discount rate.

VI. TECHNICAL ASSESSMENT OF THE STANDARDS: THE STANDARDS ARE CONSUMER AND AUTO INDUSTRY-FRIENDLY

The proposed rule recognizes the need to keep the standards in touch with reality in several important ways.

- The standards are set at a moderately aggressive level that is clearly beneficial and achievable.
- The cost estimates are consistent with the results of independent analyses of technology costs made over the past decade.
- The proposed standards are consistent with the rate of improvement that the auto industry achieved in the first decade of the fuel economy standard setting program.

The new approach to setting standards is consumer-friendly and facilitates automaker compliance.

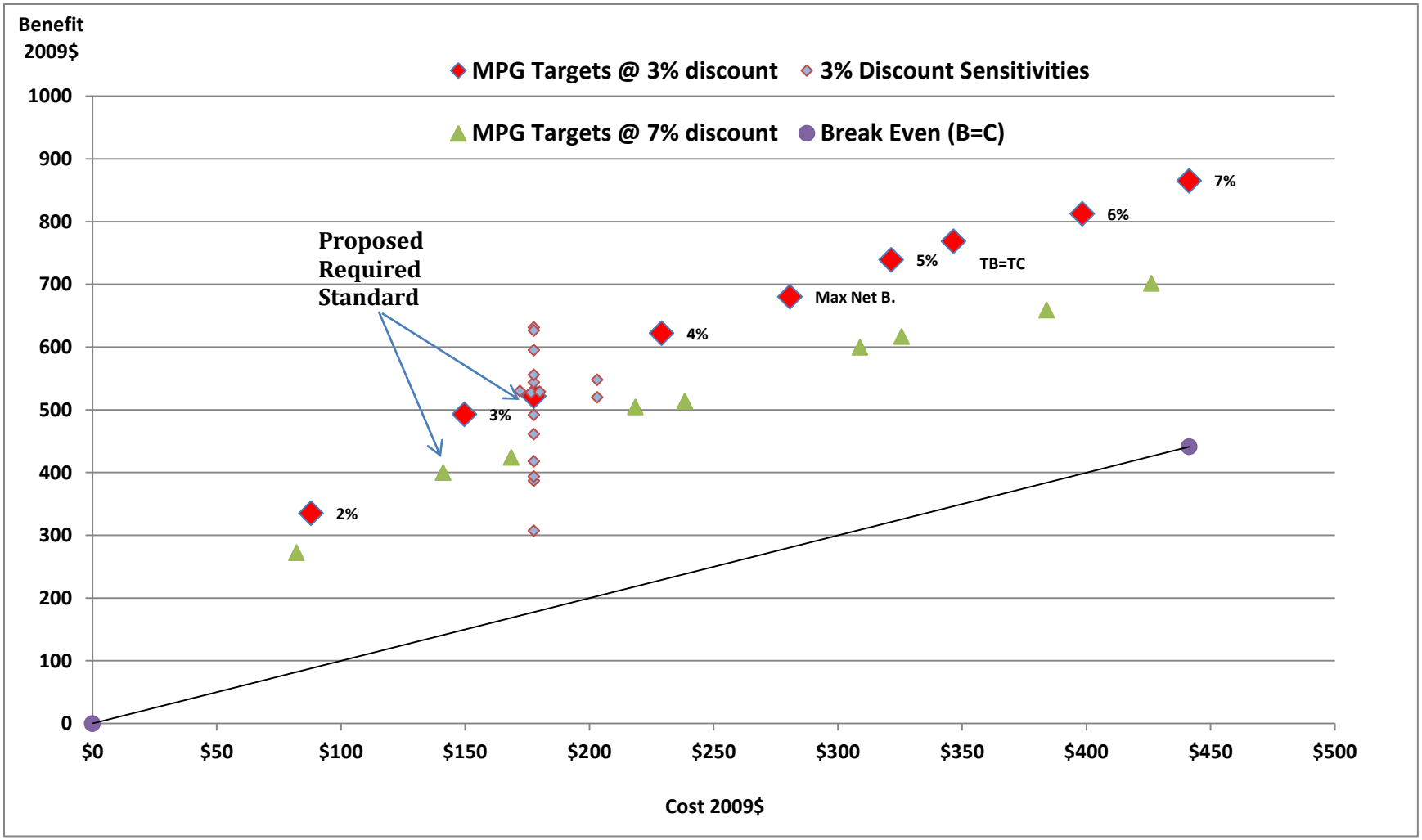
- The attribute-based approach ensures that the standards do not require radical changes in the types or size of vehicles consumers drive; so, the full range of choices will be available to consumers.
- The standards do not require dramatic shifts in power train technologies or reductions in weight and offer flexibility and incentives for new technologies, and include a mid-term review.
- The setting of a coordinated national standard that lays out a steady rate of increase over a long time period gives consumers and the industry certainty and time to adapt to change.

VII. AUTOMAKER INCENTIVES: THE AUTO INDUSTRY HAS STRONG INCENTIVES TO COMPLY WITH THE STANDARDS

Globalization of the auto industry means it is no longer possible to be a successful automaker without being able to compete globally.

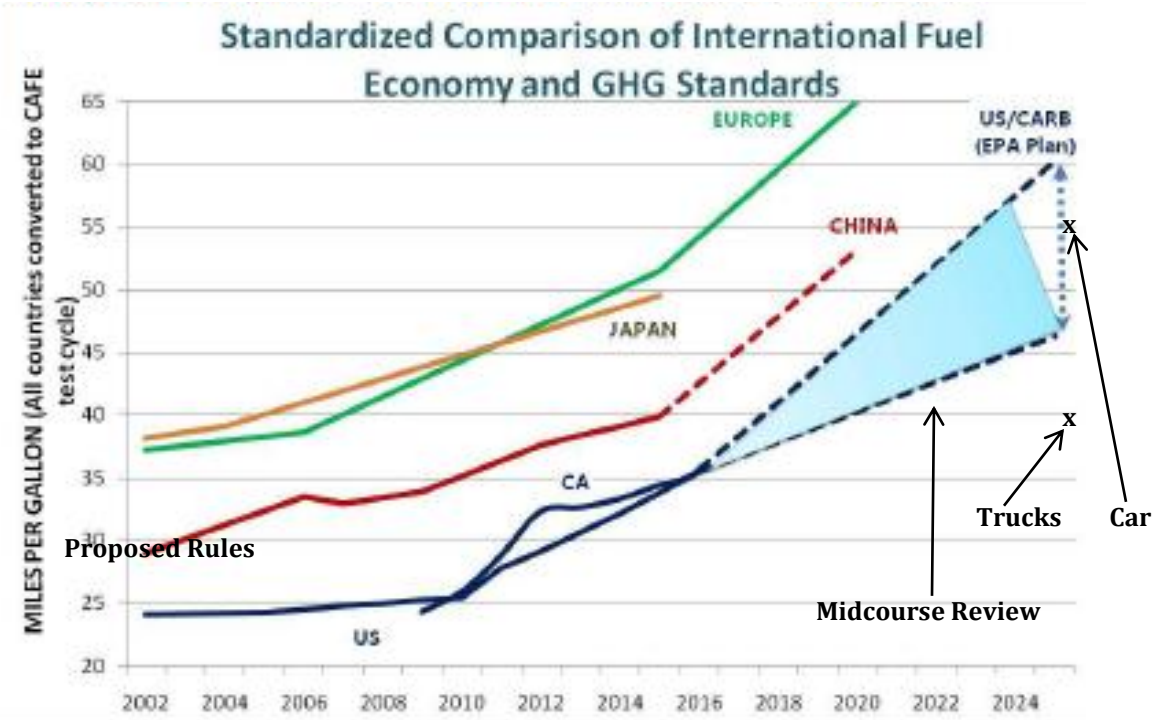
- As shown in Exhibit S-7, the proposed standard brings U.S. standards up to international levels.
- The proposed standard reduces the supply-side risk of introducing new fuel savings technologies and triggers competition around fuel economy.

EXHIBIT S-6: NHTSA NATIONAL COST BENEFIT ANALYSIS SHOWS THE 2025 STANDARD IS A MODERATE, MID-RANGE TARGET



Source: Office of Regulatory Analysis and Evaluation National Center for Statistics and Analysis, *Preliminary Regulatory Impact Analysis Corporate Average Fuel Economy for MY 2017-MY 2025, Passenger Cars and Light Trucks,* November 2011, Table 2 and Table X-12c.

EXHIBIT S-7: COMPARISON OF PROPOSED STANDARD WITH INTERNATIONAL STANDARDS



Source: Feng An, Robert Early and Lucia Green-Weiskel, *Global Overview of Fuel Economy and Motor Vehicle Emission Standards: Policy Options and Perspectives for International Cooperation* (The innovations Center for Energy and Transportation, United Nationals Commission on Sustainable Development, May 2011, Background Paper No. 3).

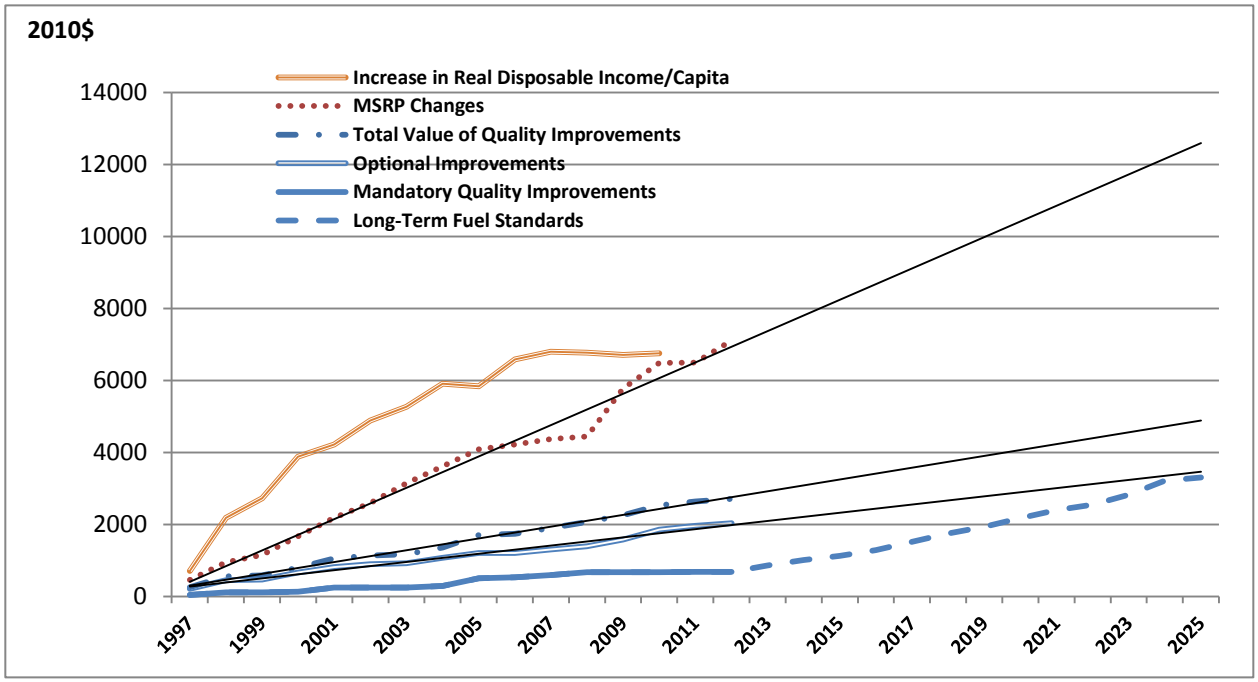
Automakers know they can sell quality. As shown in Exhibit S-8, according to statistics compiled by the Bureau of Labor Statistics, which is responsible for the Producer Price Index,

- over the past fifteen years, automakers have added three times as much value (and cost) with optional improvements in quality than mandatory (safety and environmental) improvements.
- The overall increase in MSRP tends to track closely to the increase in real disposable income.
- The cost increases that the long-term standards will require over the next 15 years are well below the cost of quality improvement over the past 15 years.
- Unlike most other quality additions, fuel economy improvements deliver pocketbook savings to consumers.
- In today's market, fuel economy is a major determinant of vehicle quality that the market can easily absorb.
- Automakers adjust MSRP and discounts and auto financing in response to much larger changes in affordability.

Concerns about a negative impact of the standards on consumers and the auto market are unfounded, even in the case of low income consumers because they rest on faulty assumptions that are contradicted by the above analysis.

- When the costs of driving go down, vehicle ownership becomes more affordable, so output and employment in the industry will expand.

EXHIBIT S-8: THE INDUSTRY ROUTINELY MAKES COSTLY QUALITY IMPROVEMENTS
(Bureau of Labor Statistics Analysis of Quality Changes for Vehicles)



Source: Bureau of Labor Statistics, Quality Changes for Motor Vehicles, various years; Consumer Price Index data base; Sources: Office of Regulatory Analysis and Evaluation, *Regulatory Impact Analysis, Corporate Average Fuel Economy,* 2011, 2012-2016, 2017-2025.

- Households with income below $20,000 made up approximately 22 percent of all households in 2010, but they accounted for only 2 percent of the money spent on new vehicles.
- Gasoline expenditures are a much bigger problem for these households. In 2010, households with incomes below $20,000 spent 7.3 times as much on gasoline as they spent on new car payments.
- Low-income households are much more involved in the used car market, in which we see an increase in supply of vehicles and lower prices as the standards accelerate the fleet turnover.

VIII. NHTSA AND EPA HAVE SERIOUSLY UNDERESTIMATED THE BENEFITS OF THE STANDARDS

There are both quantitative and qualitative flaws in the agency analysis that must be corrected. The analyses presented in the attached Technical Appendices reflect our independent calculation of the costs and benefits which includes corrections of the flaws in the underlying agency analyses. At the outset, we want to stress that neither the standards nor the cost benefit analyses are perfect, but the perfect must not be the enemy of the excellent. Increasing the fuel economy of the vehicle fleet to the levels proposed by the standards represents such major progress towards important national policy goals and the approach taken by the standards is so well crafted that we believe it is of the utmost importance to adopt the standards and move vigorously to implement them. Our primary concern is that the agencies have underestimated the

value of the standards in several important ways. Even with the flaws, the benefits of the standards are shown to far outweigh the costs, but it is important for the final rule to correct the flaws we identify.

- NHTSA will be issuing final rules periodically over the next decade and a half, and the agencies will jointly conduct a mid-course review in a decade; the errors should not be allowed to become engrained in the analytic structure.

While the current standards are well within the frontier of what is technologically feasible and economically practicable (which are two key standards that in the authorizing legislation for NHTSA), over time, the standards may move closer to the frontier.

- As the fuel economy standards rise, they will be closer to the economic margin, which will make it more important for the agencies to get it right, so that future rules do not demur from setting standards that are in the public interest because benefits have been underestimated.

The agencies need to articulate the analytic justification for the standards more clearly and forcefully. The Preliminary Regulatory Impact Analysis contains a lengthy discussion of what has been called the "efficiency gap" or the "efficiency paradox" for several decades. In many ways, this discussion is far superior to earlier discussions in the sense that it recognizes there are both supply-side and demand-side factors that may cause the market for new autos to underinvest in fuel economy technologies. The "efficiency gap" is identified by the economic/engineering analysis, where, under reasonable and realistic assumptions about cost and value, there are many technologies available that would produce substantial net benefits to consumers if they were included in the new vehicles. The failure of the auto market to include these technologies raises the question of why, in a capitalist economy, where markets are presumed to be efficient, so much economic value is left unrealized. The answer, as we have pointed out in the all of the recent rulemakings dealing with the fuel economy of light duty vehicles is that there are market imperfections that suppress investment in fuel efficient technologies.

Our earlier analyses are summarized in Exhibit S-9. The imperfections

- affect both the demand side and the supply-side of the light duty vehicle market,
- go well beyond the problems of externalities and information problems, and
- include significant market structural conditions, transaction costs and behavioral factors.

The fact that the market has begun to move in the right direction is encouraging. The fact that it has taken almost a doubling of the cost of gasoline in real terms to get it to move is testimony to the strength of the barriers to optimal investment in fuel economy in the market. In spite of the fact that the agency discussion of market imperfections is incomplete, the agencies conclude, correctly, that the base case analysis should be the pillar on which the choice of a standard rests. We agree with that conclusion. The agencies treat the base case with a 3% discount rate as the starting point for the sensitivity analysis.

We do not agree with the decision to conduct a "fudge" factor analysis that arbitrarily slashed the size of the efficiency gap and the magnitude of consumer welfare gains. The analysis offers no empirical justification for doing so. Moreover, the general discussion of consumer welfare combined with the traditional sensitivity analysis has already addressed the underlying uncertainties. Uncertainties about the price of gasoline, the cost and effectiveness of technologies, the value of externalities are already incorporated in the sensitivity analysis. The "fudge" factor analysis is unnecessary and double counts uncertainty.

There are several flaws in quantitative analysis that cause the agencies to seriously underestimate the value of higher fuel economy standards. We have pointed out these flaws in past

analyses.

- The base case price of gasoline is too low. The Energy Information Administration has recently raised its estimate of gasoline prices by an average 30 cents per gallon.

EXHIBIT S-9: CLOSING THE EFFICIENCY GAP IN THE AUTO MARKET

IMPERFECTIONS IN THE AUTO MARKET

Supply side
Agency
Quality
First Cost Sensitivity
Profitability of Models
Advertising

Demand-side
Preferences
Perceived Quality
Low Priority
Information Problems
Lack of Information
Inability to Analyze
Economic Constraints
Short Time Horizon
Lack of Resource

Choices Available

Choices Made

First Cost Sensitivity

Implicit Discount Rate

Source: Comment of the Consumer Federation of America, on National Highway Traffic Safety Administration Notice of Proposed Rulemaking; Docket No. NHTSA 2008-0089, RIN 2127-AK29; Average Fuel Economy Standards, Passenger Cars and Light Trucks; Model Years 2011-2015, July 1, 2008.

IMPERFECTIONS ADDRESSED BY STANDARDS

Traditional Neoclassical Economics

Societal Failures	**Structural Problems**
Externalities	Scale
Information	Bundling
	Cost Structure
	Product Cycle
	Availability

New Institutional Economics

Endemic Flaws	**Transaction Costs**	**Behavioral Factors**
Agency	Sunk Costs, Risk	Motivation
Asymmetric Information	Risk & Uncertainty	Perception
Moral Hazard	Imperfect Information	Calculation
		Execution

Comments of the Consumer Federation of America, Proposed Rulemaking to Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, Environmental Protection Agency 40 CFR Parts 86 and 600, Department of Transportation 49 CFR Parts 531,633, 537, et al., November 28, 2009

- The rebound effect should not be included in the consumer pocketbook analysis.
- The rebound effect in the national cost-benefit analysis should be smaller.
- Oil has a strategic and security value that must be reflected in the analysis.

Significant macroeconomic benefits of greater fuel economy have been ignored.

- A "price effect" must be included that recognizes that the reduction in U. S. gasoline consumption lowers the world price of crude substantially. This is a true (consumption) externality and the agencies have estimated its value at $0.30 per gallon, but failed to include it in the analysis.
- A GDP multiplier must be included that recognizes increases in national output and employment that result from reducing imports and puts more purchasing power in consumer pockets. The estimation of this type of GDP multiplier is a routine practice in policy analysis, and the agencies have calculated its value to be hundreds of billions of dollars but failed to include them in the analysis.

Exhibit S-10 summarizes the key issues that should be addressed, giving a sense of how important they are expressed as a percentage of the total national benefit in the bases case NHTSA-EPA analysis.

- We believe that the base case analysis underestimates the benefits by at least 20 percent. In dollar terms, that is over $100 billion.
- Since the total cost of adding the fuel economy technologies necessary to meet the standard is only $132 billion and the calculated benefits are in the range of $500 billion, this underestimation of benefits is substantial.
- Inclusion of the GDP multiplier alone could raise the estimated benefits substantially.

EXHIBIT S-10: UNDERESTIMATION OF BENEFIT IN THE NHTSA-EPA ANALYSIS

	Consumer Pocketbook	National Total
Rebound Effect	10%	5%
Price Effect	5%	5%
Resale Value	+	na
Deflating Loan Payments	6%	
Military Value	na	4%
Economic Multiplier	na	+
Price of Gasoline	5%	5%
Total	26+%	19+%

The estimates of benefits presented above include the first five factors, but not the last two. Therefore, although our estimates of consumer and national benefits are higher than the agencies, the actual benefits are likely to be even higher.

THE EMERGENCE OF A NATIONAL POLICY CONSENSUS

The reality of soaring consumer expenditures on gasoline and the response by consumers in the marketplace provides the context for the dramatic shift in public policy and the growth of a political consensus over the first decade of the 21st century. Although the gasoline price spike of 2000-2001 proved to be a blip, compared to later developments, it got the attention of the public and policy makers.

At least since the National Academy of Sciences concluded in 2002 that technologies exist to dramatically increase fuel economy at manageable costs, the public policy debate has been about how far and how fast the fuel economy of the vehicle fleet can be raised. In the early 2000s, California exercised its authority under the Clean Air Act to propose new standards to cut emissions from automobiles, which have the effect of also increasing fuel economy. When 13 states and the District of Columbia adopted the Clean Cars Program, they created a market that ranks in the top five in the world and gave a big push to raising standards.[1] The automakers could not ignore such a market.

The much more dramatic price spikes of the middle of the decade moved concerns about gasoline consumption to center stage, so much so that President Bush made a dramatic statement about it in his 2006 State of the Union Address by declaring "here we have a serious problem: America is addicted to oil, which is often imported from unstable parts of the world. The best way to break this addiction is through technology."[2] Democrat and Republican legislators, federal and state policy makers as well as all three branches came together to support a significant increase in fuel economy standards.

In response, Congress, with Republican majorities in both houses, enacted the Energy Independence and Security Act of 2007 (EISA). The law, which both the Bush administration and the Obama administration moved quickly to implement, reformed and improved the approach to standards and restarted the process of setting standards, after almost three decades in which the fuel economy standards program had been essentially dormant.

Congressional action significantly improved the approach to standard setting in several ways. For example, by requiring NHTSA to set an attribute-based standard, the incentive to downsize the fleet is reduced. Authorizing several forms of flexibility promotes efficiency in meeting the standard. Incentives encourage development of new technologies. The momentum for higher standards was reinforced by the courts and legal action. A Supreme Court decision upholding the authority of the U. S. Environmental Protection Agency (EPA) to regulate greenhouse gasses as a pollutant strengthened federal authority. The federal government supported the Clean Cars program and the courts upheld state authority.

The Obama Administration has used Executive Branch authority to improve the overall process. The White House issued an executive order that required EPA and NHTSA to coordinate with each other and the California Air Resources Board--coordination that immediately led to increases in the standard that will save consumers over $35 billion in the 2012-2015 period alone. The ongoing effort to set a long-term standard responds to the oft repeated observation that the auto industry needs time to adapt.

---

[1] The Clean Cars states (Arizona, Connecticut, Washington D.C., Florida, Maine, Maryland, Massachusetts, New Jersey, New Mexico, New York, Oregon, Rhode Island, Vermont, and Washington). account for 40% of U.S. registered vehicles (Bureau of the Census, **STATISTICAL ABSTRACT OF THE UNITED STATES** http://www.census.gov/compendia/statab/2006/transportation/motor_vehicle_registrations/) making the market larger than all markets except the rest of the U.S.,, the European Union and Japan,

[2] "Here we have a serious problem: America is addicted to oil, which is often imported from unstable parts of the world. The best way to break this addiction is through technology," he said, adding that technological advances will help achieve a "great goal: to replace more than 75 percent of our oil imports from the Middle East by 2025."
http://articles.cnn.com/2006-01-31/politics/sotu.energy_1_oil-prices-oil-imports-big-oil?_s=PM:POLITICS

TECHNICAL APPENDIX:

This technical appendix provides explanations for and elaborations of the main conclusions presented in the consumer groups comments. It is divided into three parts. Part I discusses the consumer issues. Part II discusses the cost benefit analysis. Part III discusses how the proposed standards affect the industry structure. For each part we attach excerpts from comments in earlier proceedings that provided evidentiary support for the key conclusions.

PART I: CONSUMER EXPENDITURES, ATTITUDES AND BEHAVIORS

I. CONSUMER REALITY

Gasoline Prices and Expenditures

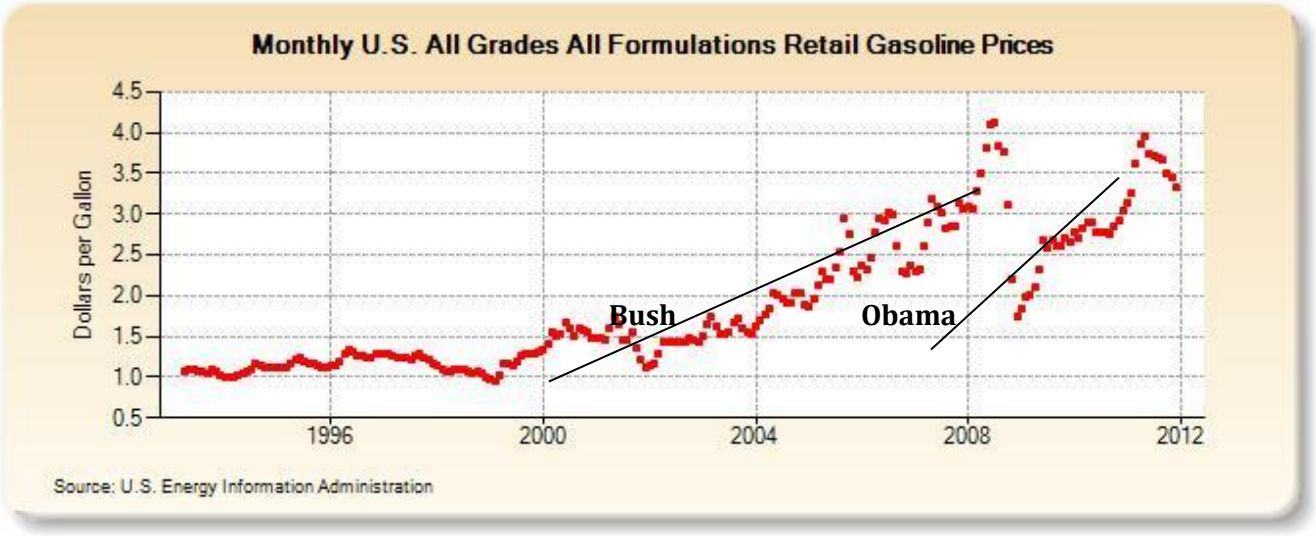
Seven Presidents have declared the goal of reducing U.S. dependence on oil, but little progress has been made. Statements at the public hearings held by the National Highway Traffic Safety Administration (NHTSA) and the Environmental Protection Agency (EPA) on the recently proposed auto standards for 2017-2025 indicate a remarkable shift in the policy landscape. An unprecedented consensus has emerged in support of fuel economy standards that would double the efficiency of cars and trucks in less than two decades and dramatically reduce oil consumption and imports.

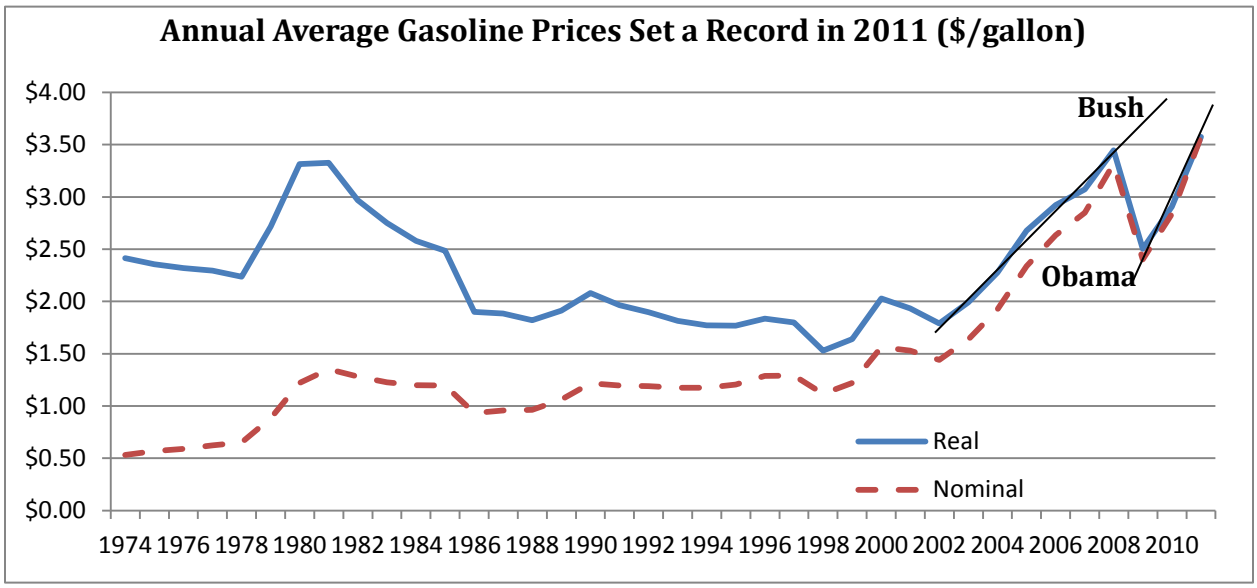
- Public witnesses say and consumer advocates present survey and behavioral evidence that consumers want and will pay for more fuel efficient vehicles.
- Automakers and auto workers say they can and will manufacture those vehicles.
- National security experts and environmentalists say the nation will benefit from the standards.
- The only stakeholder that does not seem "to get" it is the National Automotive Dealers Association.

Examination of the recent history of gasoline prices and household expenditures on gasoline provides a real world explanation for the importance ascribed to higher fuel economy standards by the public witnesses at the hearings (see Exhibit I-1). Over the past decade, gasoline prices have gyrated wildly around a strong upward trend that has been particularly troubling for consumers. Prices spike unexpectedly, taking a huge bite out of the household budget, then decline, leaving consumers to worry about the inevitable next price spike. They cannot afford the gasoline price increases and they cannot plan their household budgets.

- Gasoline prices set a record high in 2011 averaging $3.53 per gallon.
- The average price for January 2012 was the highest on record for the month of January.

EXHIBIT I-1: RECORD GASOLINE PRICES





Source: Energy Information Administration, Petroleum Database for price of gasoline. Bureau of Labor Statistics for Consumer Price Index.

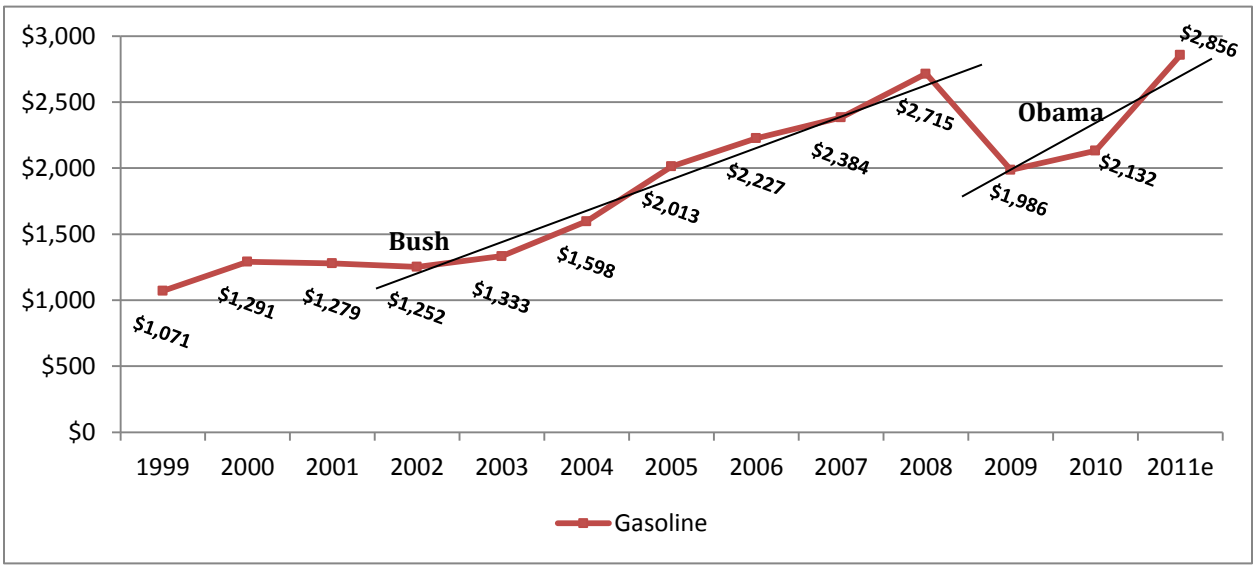
Gasoline is now one of the larger items in the household budget. We estimate that in 2011, households spent about $2850 on gasoline, the highest level in U.S. history, measured in current and nominal dollars (See Exhibit I-2).

- In fact, with the exception of the recession years (2001-2002, 2009-2010), household expenditures on gasoline have set records each year in the past decade in nominal and real dollars.
- In 2011, gasoline expenditures were 40 percent higher than expenditures on home energy (electricity, natural gas and heating oil); ten years ago, they were 13% lower.

These Exhibits highlight the fact that both the Bush Administration and the Obama Administration confronted this pattern of increasing and increasingly volatile gasoline prices. No other American president or Congress, since the Carter era, had faced this situation. The stress that gasoline prices placed on consumer pocketbooks set the context for the adoption of new policies to

re-invigorate the setting of fuel economy standards for automobiles.

EXHIBIT I-2: AVERAGE ANNUAL EXPENDITURES ON GASOLINE (CURRENT $)



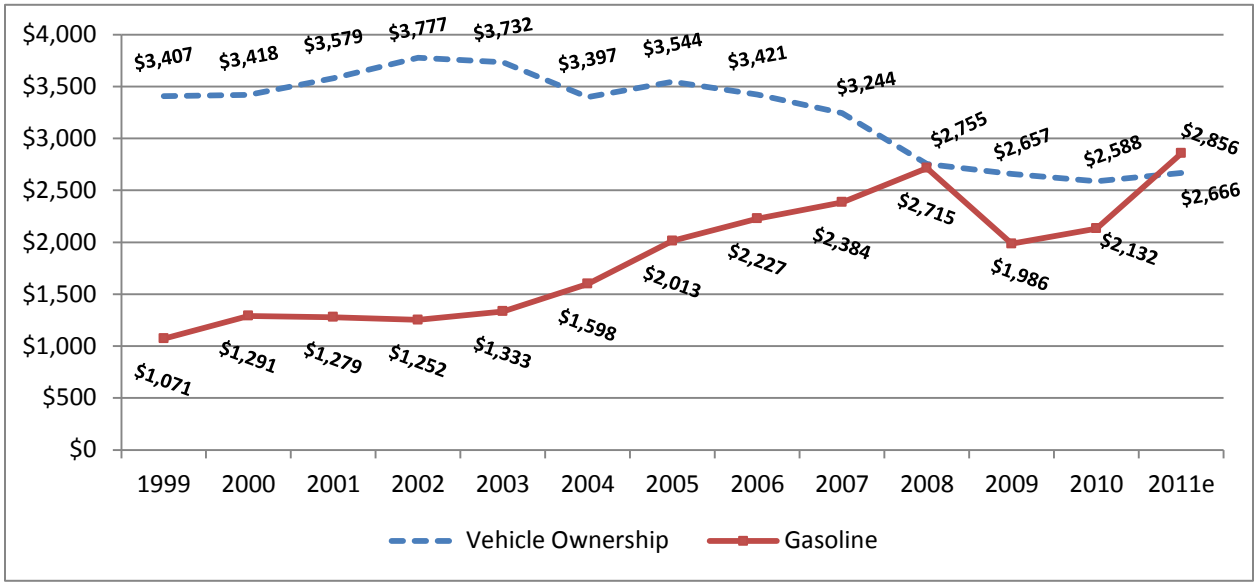
Source: Energy Information Administration data base on gasoline prices; Consumer Expenditure Survey, various years. 2010 and 2011 estimate based on a short-run elasticity of demand -.244, based on the elasticity of household demand implicit in the CES data for 1997 – 2009. The price of gasoline for 2011 is set at $3.53.

The Cost of Driving

Rising gasoline prices have changed the structure of the cost of driving, as shown in Exhibit I-3. Ten years ago, the average cost of owning a vehicle (new and used) was the largest single component of the cost of driving. Today, the average cost of owning a vehicle has come down approximately 25% and the expenditures on gasoline has more than doubled.

- Ten years ago, the average cost of owning a vehicle was the largest single component of the cost of driving, about three times as high as the cost of gasoline.
- In 2011, household expenditures on gasoline will equal or exceed the cost of owning the vehicle for the first time.

EXHIBIT I-3: AVERAGE ANNUAL EXPENDITURES ON VEHICLE OWNERSHIP AND GASOLINE (CURRENT $)



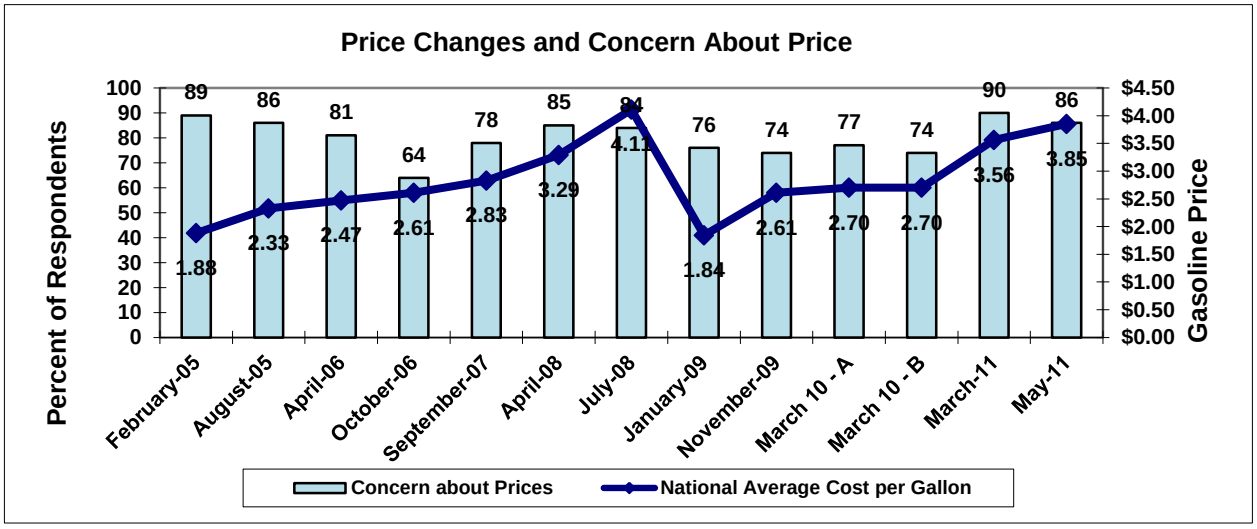
Source: Energy Information Administration data base on gasoline prices; Consumer Expenditure Survey, various years. 2011 estimated based on Energy Information Administration data base on gasoline prices and trends. A short-run elasticity of demand is included in the projections of -.244, based on the elasticity of household demand implicit in the CES data for 1997 – 2009.

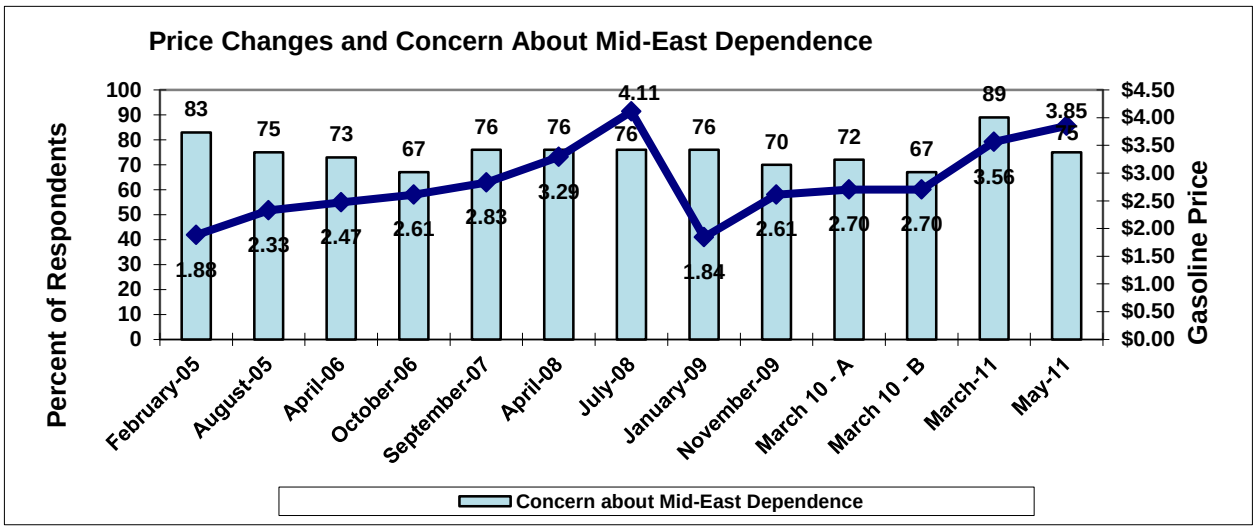
II. CONSUMER ATTITUDES

Concerns about Gasoline

Public statements at the hearings are one piece of evidence of consumer concerns about gasoline consumption and support for fuel economy standards. Our surveys of consumer attitudes over the past six years, which encompasses the worst of the price spikes, provide systematic evidence in support of those statements. The respondents support policies to reduce oil consumption by increasing the fuel economy of the vehicle fleet. Exhibit II-1 shows responses to a standard question CFA has asked on concerns about gasoline prices and Mid-East oil dependence for the past six years.[3]

EXHIBIT II-1: TRENDS IN PRICES AND CONSUMER CONCERNS





Source: National Survey Shows that Most Consumers Support 60 MPG Fuel Economy Standards by 2025, 09/28/10.

[3] Thinking about the NEXT FIVE YEARS, how concerned, personally, are you about the following issues? Please use a scale of 1 to 5, where 1 means no concern and 5 means great concern.
(1) No concern (1), (2), (3), (4), (5) Great concern (5), DON'T KNOW (99)
Gasoline prices
U.S. dependency on Mid-Eastern oil

We find that consumers express a great deal of concern about prices and Mid-East imports. Even when prices were around $2.00 per gallon, approximately three quarters of the respondents expressed concern about prices. With prices above $3.50 per gallon, when we last surveyed consumers, the concern had grown to 86%.

Concern about Mid-East oil dependence has generally been somewhat lower, but never less than two-thirds of respondents and stood at three-quarters in the most recent survey. With Iran and the U.S. playing a deadly game of cat and mouse in the Straits of Hormuz, through which one-fifth of the world's oil passes, we suspect the concern would be greater if the question was asked today.

In the last 2011 survey, we doubled the sample size so we could examine whether attitudes were different in different groups of states.[4] Exhibit II-2 shows that there is very little difference in concern about gasoline prices or Mid-East oil dependence across the states. There are no statistically significant differences between the four groups of states. Approximately 80%-90% of respondents express concern about prices. Approximately 75%-80% of respondent express concern about dependence on Mid-East imports.

Importance of Reducing Oil Consumption

Concerns about gasoline prices and Mid-East oil dependence translate into support for the reduction of U.S. oil and gasoline consumption. In the most recent survey, we asked several questions about this issue. We asked separate questions about whether it is a good idea, in general, to reduce gasoline consumption.[5] Then we asked how important increases in fuel economy are in accomplishing the goal of reduced consumption.[6]

As shown in Exhibit II-3, we found high levels of support for the proposition that reduced oil consumption is important and that increased fuel economy is important in accomplishing that goal.

- Over 80% of respondents think it is important to reduce oil consumption (about 60% strongly agree).

---

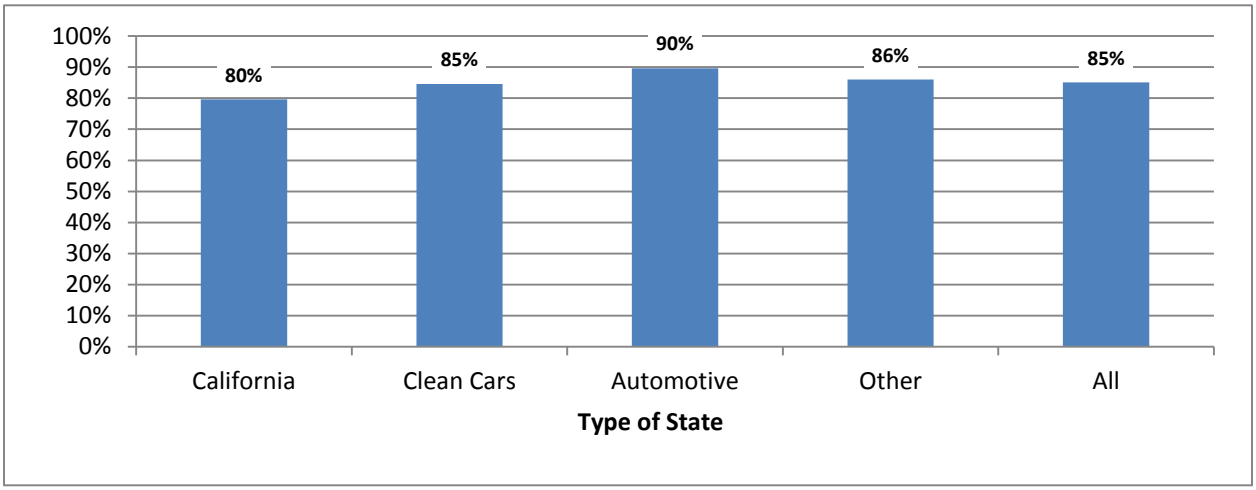
[4] We have identified four categories of states. California is not only the largest state in the nation, but it has also been a leader in the effort to address concerns about the environmental impact of automobiles. California does not regulate fuel economy, but it does regulate emissions from vehicles. Standards that reduce pollution from auto tailpipes often have the effect of increasing fuel economy. The double sample yields just under 200 respondents in California. California's leadership role was reinforced by thirteen states (and the District of Columbia) who have adopted the 2016 tail pipe emission standards authored by California. These fourteen jurisdictions (plus California) are the "Clean Cars States." In our double sample, there are over 500 respondents in the "Clean Cars States" other than California. Michigan, Ohio and Indiana are identified as automotive states. They have a level of employment in the automobile manufacturing industry that is at least twice as large as the fourth ranked state, and five to ten times as high as the national average. These are states where automobile production is a uniquely important part of the economy. In our double sample, there are 200 respondents in the "Automotive States." All respondents who do not reside in states that fall into one of the above three categories are categorized as "other States." In our sample, there about 1100 respondents

[5] How important is it to you that the country reduces its consumption of oil? Is it . . .
(1) Very important, (2) Somewhat important, (3) A little important, (4) Not at all important
99 DON'T KNOW

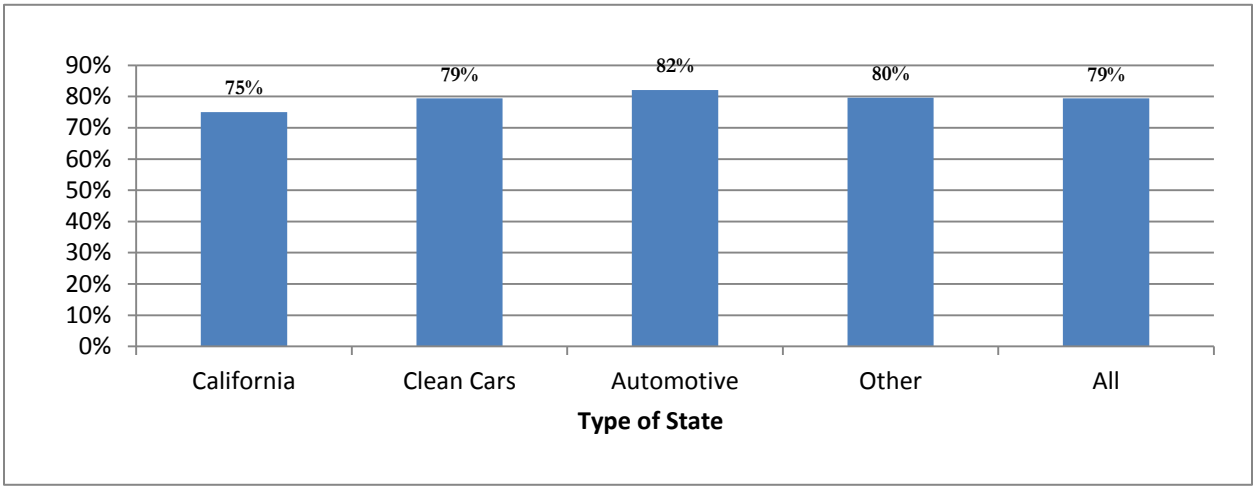
[6] How important is it to you, in order to limit oil consumption, that the fuel economy of motor vehicles increases? Is it. .
(1) Very important, (2) Somewhat important, (3) A little important, (4) Not at all important
99 DON'T KNOW

EXHIBIT II-2: CONSUMER GASOLINE CONCERNS ACROSS THE STATES

Gasoline Prices



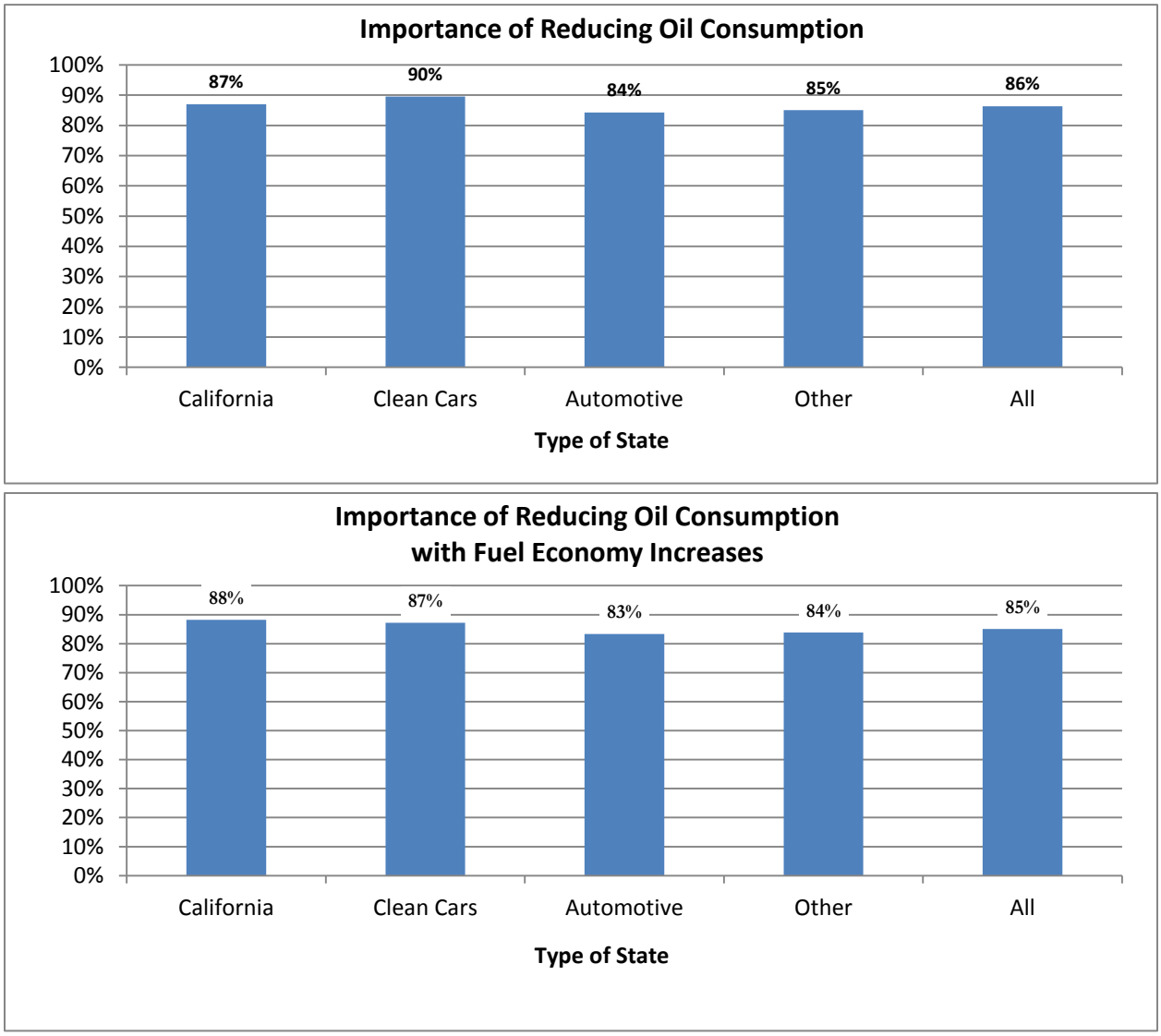
Mid-East Oil Dependence



Source: National Survey Shows that Most Consumers Support 60 MPG Fuel Economy Standards by 2025, 09/28/10.

- The importance of reducing oil consumption through fuel economy increases receives similar levels of agreement.
- The differences between respondents in the various types of states are small.

EXHIBIT II-3: REDUCING OIL IMPORTS



Source: National Survey Shows that Most Consumers Support 60 MPG Fuel Economy Standards by 2025, 09/28/10.

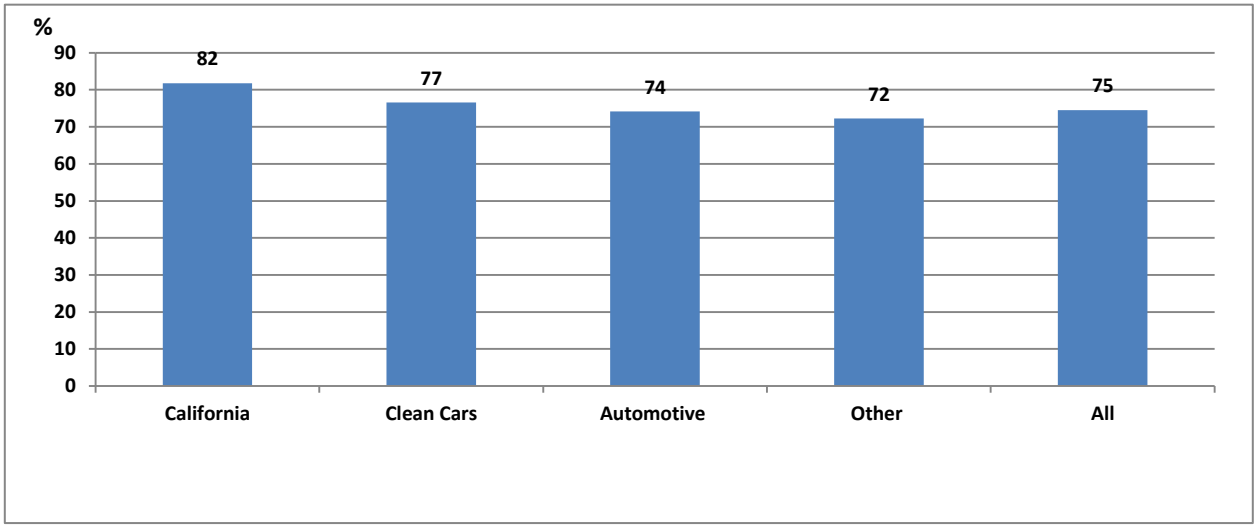
SUPPORT FOR FUEL ECONOMY STANDARDS

In order to gauge support for fuel economy standards over the years, we have asked questions in a number of ways. A question on general support for fuel economy standards typically receives the most positive response.[7] As Exhibit II-4 shows, three quarters of the respondents express support for fuel economy standards. The support is somewhat higher in California and the

[7] Do you support or oppose the federal government requiring auto companies to increase the fuel economy of the vehicles they manufacture? Would you say you…
(1) Support strongly, (2) Support somewhat, (3) Oppose somewhat, (4) Oppose strongly
99 DON'T KNOW

"Clean Cars states."

EXHIBIT II-4: GENERAL SUPPORT FOR FUEL ECONOMY STANDARDS



Source: National Survey Shows that Most Consumers Support 60 MPG Fuel Economy Standards by 2025, 09/28/10.

In the last 2011 survey, in addition to the general question about support for fuel economy standards, we also respondents asked whether they support a standard of 60 miles per gallon (see Exhibit II-5).[8] For the latter question, we asked about support depending on how long the fuel saving technology would take to pay for itself. We asked about a 3-year, 5-year and 10-year payback period.[9] The specific target of 60 mpg is supported by over 60% of respondents with payback periods of three and five years. This support remains in the high 50% range with a ten year payback period.

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[8] The federal government has recently required automobile manufacturers to increase the fuel economy of their motor vehicle fleets from an average of 25 miles per gallon today to 35 miles per gallon by 2016.
Do you think the government should increase this standard to an average of 60 miles per gallon by 2025?
01 YES
02 NO
99 DON'T KNOW

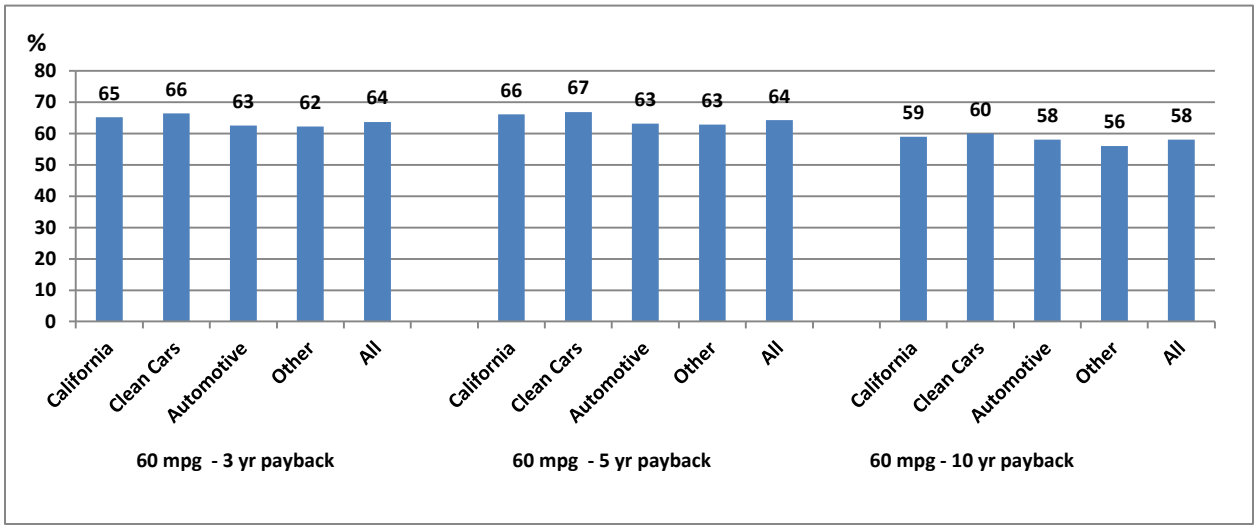
[9] Now suppose increases in the fuel economy of motor vehicles increased their purchase price but reduced the cost of using them. If these price increases were offset by reduced gasoline costs over the following time periods, would you favor or oppose these fuel economy increases?
Would you favor strongly, favor somewhat, oppose somewhat or oppose strongly?
(1) Favor strongly, (2) Favor somewhat, (3) Oppose somewhat, (4) Oppose strongly
99 DON'T KNOW
A. 3 years
B. 5 years
C. 10 years

Using a payback period to assess fuel economy is actually a fairly "demanding" approach, since most consumers purchase autos with loans that last a relatively long period (with the majority being 5-year loans). In the auto loan framework, the relevant comparison is the cash flow. When a consumer buys a vehicle with more fuel saving technology, the cost of the vehicle increases and the monthly loan payment goes up. However, monthly expenditures on gasoline go down, since the consumer can drive as far on less gasoline. If the savings on gasoline exceed the increase in the loan payment, the consumer is better off from the beginning.

Our public opinion polling provides some insight into the consensus that has developed in support of higher fuel economy standards. In our most recent poll, in addition to conducting analysis of subgroups of respondents defined by the state in which they live, we used the large sample to examine subgroups defined by the extent to which they perceived gasoline as a concern and their political identification. For political identification, we used the standard self-identifications – Republican, Leans Republican, Independent, Leans Democrat, Democrat. For the measure of the intensity of concern, we created a four point scale that reflected the level of concern about gasoline and imports.

- Approximately 11% of the respondents said they were concerned about neither gasoline prices nor Mid-East dependence.
- Approximately 8% of the respondents said they had some concern about both of these issues.
- Approximately 25% of the respondents said they are greatly concerned about one of these issues.
- Finally, about 56% of the respondents are greatly concerned about both of these issues.

EXHIBIT II-5: SUPPORT FOR A 60-MPG STANDARD AND STATE INVOLVEMENT IN EMISSION SETTING EMISSIONS STANDARDS

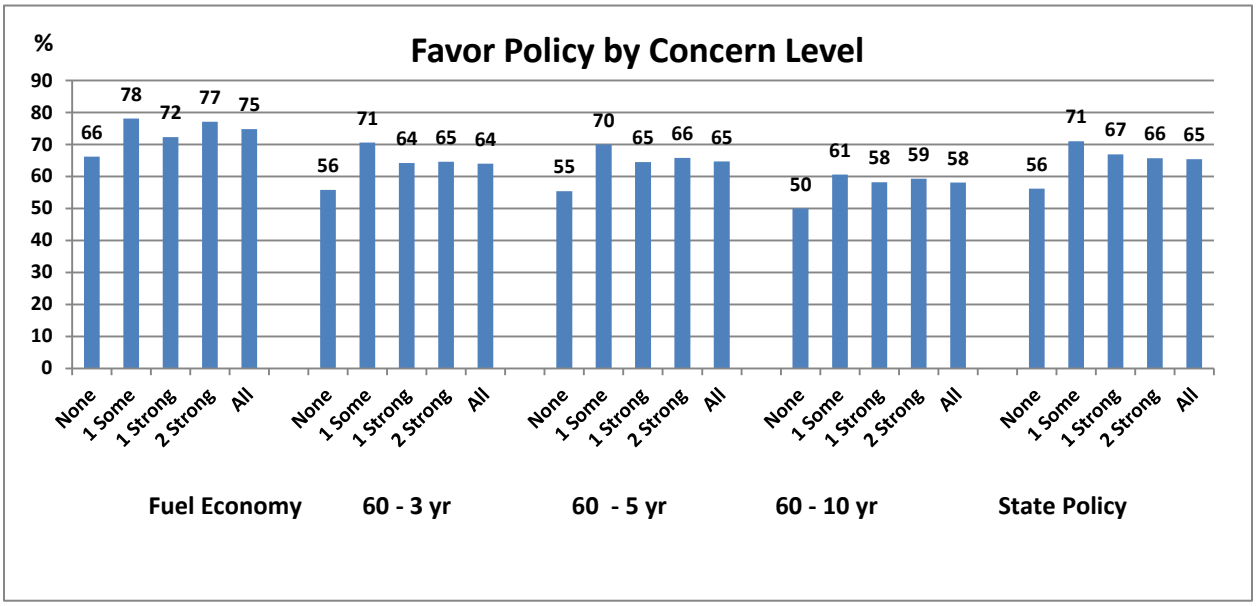


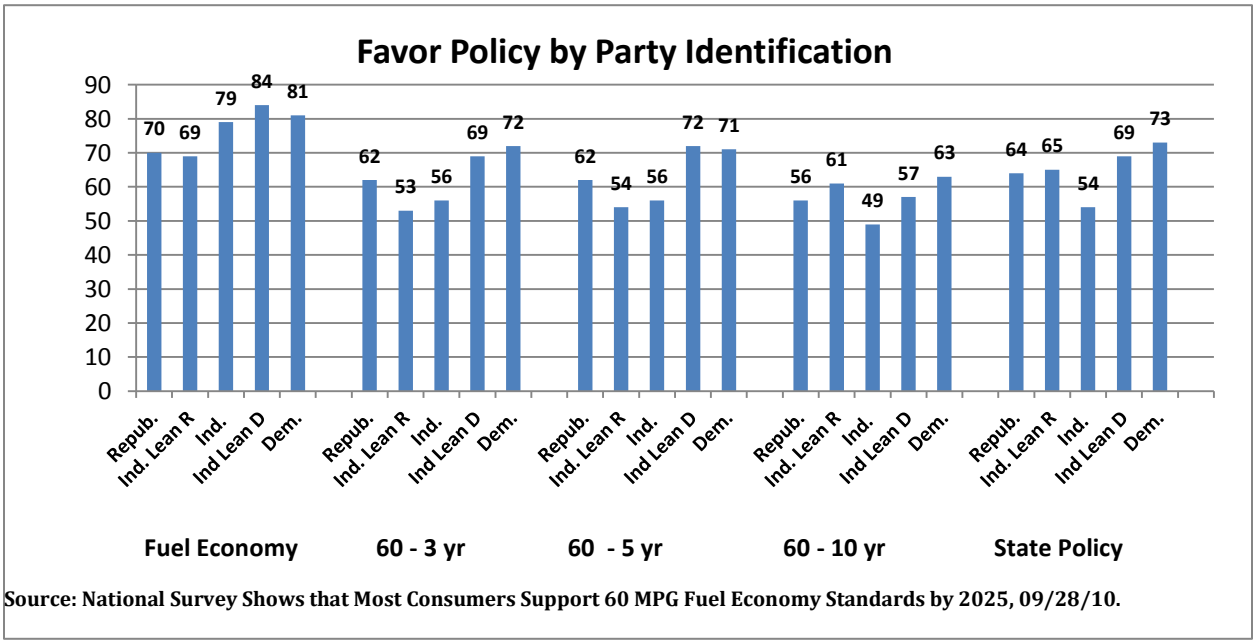
Source: National Survey Shows that Most Consumers Support 60 MPG Fuel Economy Standards by 2025, 09/28/10.

Exhibit II-6 presents the results across levels of concern and political orientation for both the general question on support for fuel economy standards and the question about a 60-MPG standard. When the respondents are broken down by their level of concern, we find that those who express no concern about prices or Mid-East oil dependence are less likely to support fuel economy standards in general and at all levels of payback. About two-thirds of those who express concerns about prices or Mid-East oil dependence, support fuel economy standards. About 60% of these respondents favor fuel economy standards, even with a 10-year payback. Respondents who have concerns are also more likely to support continued state involvement in setting policy in this area. Close to 60% of respondents with any concern about price or Mid-East oil dependence support a 60 MPG standard with a 10-year payback.

Responses across categories of political identification are also informative. Although those who are self-identified as Democrat or leaning Democrat are clearly more supportive of the policy, in every case, a majority of those who are Republican or lean Republican also supports the policy. Among Democrats or those who lean Democrat, over 80% favor the fuel economy standards, and 70% favor a 60 mpg standard with a 3 or 5 year payback, and 70% favor continued state involvement. Among those who are Republican, two-thirds support the general concept of fuel economy standards, and over half support the 60 mpg level. Continuing state involvement in standard setting receives the same level of support as 60 mpg with a 3 year payback.

EXHIBIT II-6: SUPPORT FOR FUEL ECONOMY STANDARDS



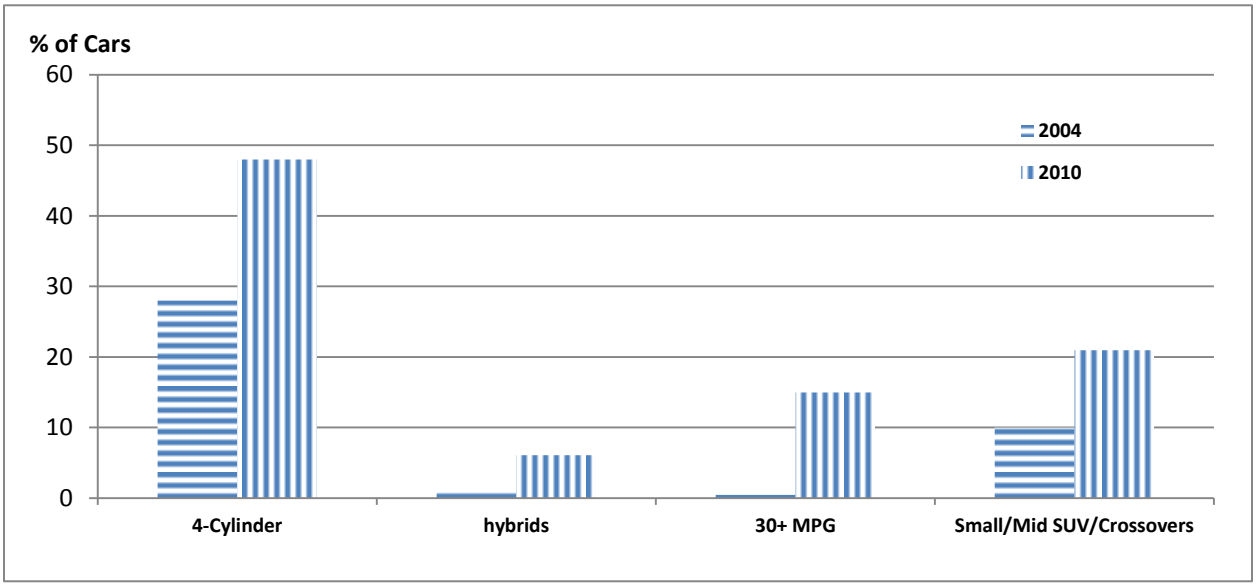


Source: National Survey Shows that Most Consumers Support 60 MPG Fuel Economy Standards by 2025, 09/28/10.

III. CONSUMER BEHAVIOR

Consumers have also demonstrated a concern about fuel economy with a willingness to change their vehicle purchasing pattern. Exhibit III-1 uses 2004 as the base year of vehicle purchases for comparison with recent years because prices began to spike and began to gyrate around the upward trend in 2004.

EXHIBIT III-1: SHIFTING PURCHASING PATTERNS



	2004	2010
Cars		
Avg. # Cylinders	5.12	4.74
% 4-Cylinder	50	67
% 6 Cylinder	41	26
% 8 Cylinder	7	5
Average mpg	28.8	32.9

	2004	2010
SUVs		
Avg. # Cylinders	6.4	5.68
% 4-Cylinder	11	30
% 6 Cylinder	56	56
% 8 Cylinder	32	14
Average mpg	21.0	25.8

Source: Environmental Protection Agency, *Light Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975through 2010,* November 2010, Tables 4, 13, 16, Appendix J.

Between 2004 and 2010, the percentage of all cars sold that had 6-cylinders dropped from 41% to 26%, while the percentage of 4-cylinder cars increases from 50% to 67%. In the SUV category, the percentage of 8-cylinder SUVs dropped from 32% to 14% while the percentage of 6-cylinder SUVs increased from 11% to 30%.

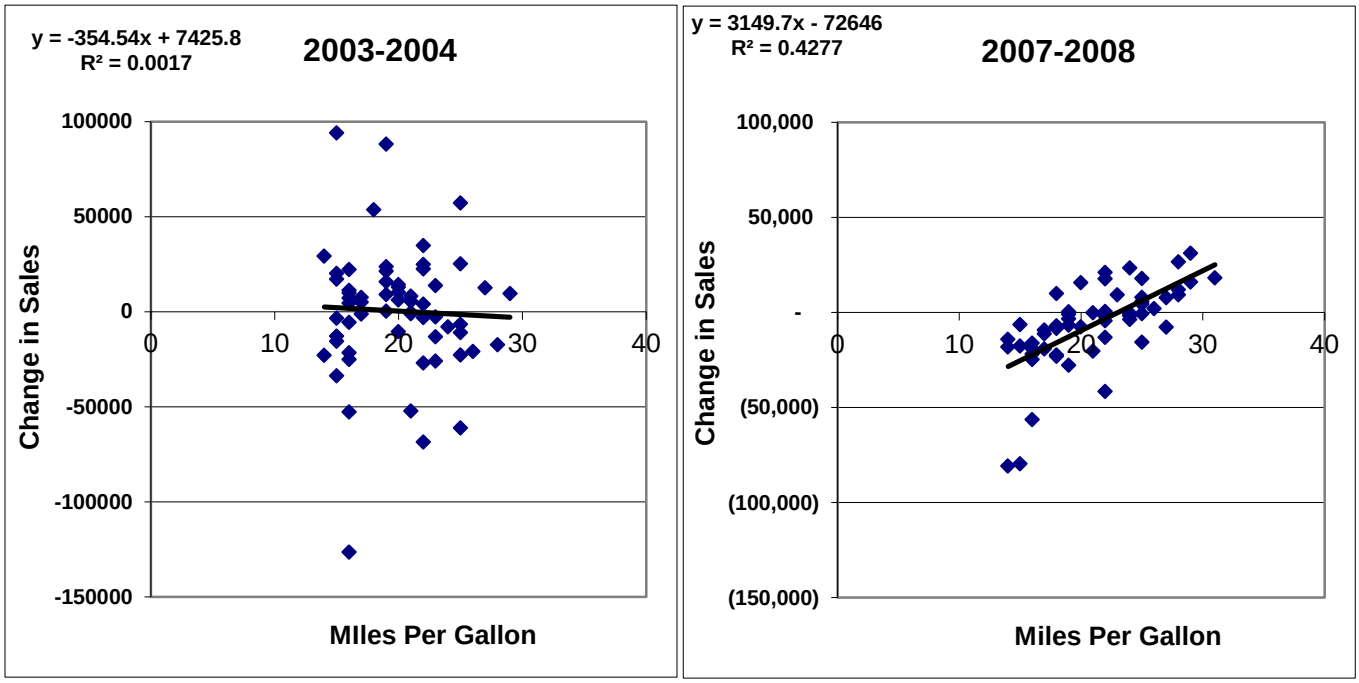
For new cars, average fuel economy increased by 4 mpg between 2004 and 2010. Three quarters of that (3 mpg) was due to the increase in the fuel economy of the vehicles. One-quarter (1 mpg) was due to the shift from six-cylinder to four cylinder cars.

For SUVs, average fuel economy increased by 4.75 mpg between 2004 and 2010. Of that,

2.75 mpg was due to the increase in the fuel economy of the vehicles and 2 mpg was due to the sharp decline in 8-cylinder market share and the sharp rise in 4-cylinder market share (likely people shifting from 8 to 6 and from 6 to 4).

Exhibit III-2 presents a statistical analysis that captures the shift in auto market behavior. It shows that fuel economy became a significant driver of sales over the course of the decade. Attachment A, an excerpt from our 2009 comments weaves the three themes discussed in this part together. Our earlier econometric analysis and the analysis of others shows that consumer behavior reflected this shift but that auto makers were slow to notice or understand it and react to the changing market.[10]

EXHIBIT III-2: YEAR –OVER-YEAR CHANGES IN SALES REFLECT YEAR-OVER-YEAR CHANGES IN FUEL ECONOMY,



Sources and Notes: top 50 models matched year-over year.

Years	Coefficient	R^2
2002-2003	- 297.0	.00
2003-2004	- 354.5	.00
2004-2005	- 1.4	.00
2005-2006	+ 4429.0	.22
2006-2006	+ 1983.0	.07
2007-2008	+ 3149.7	.43

[10] 2010 Models Don't Make the Fuel Economy Grade: New Labels Can Increase Automaker Mileage Performance The Same Way the Crash Test Results Improved Safety Performance, September 15, 2010 http://www.consumerfed.org/pdfs/New-Fuel-Economy-Grades-PR-9-15-10.pdf
Stuck in Neutral:: America's Failure to Improve Motor Vehicle Fuel Efficiency 1996-2005, November 2006http://www.consumerfed.org/pdfs/CAFE_and_Auto_Sales.pdf
STILL STUCK IN NEUTRAL: AMERICA'S CONTINUED FAILURE TO IMPROVE MOTOR VEHICLE FUEL ECONOMY A LOOK AT THE CHANGES IN TOP SELLING MODELS 2005-2007, July 2007
http://www.consumerfed.org/elements/www.consumerfed.org/file/Still_Stuck.pdf

PART II: COST BENEFIT ANALYSIS

IV. CONSUMER POCKETBOOK IMPACT

The impact of the standards on consumers can be measured in a variety of ways – pocketbook cash flow, vehicle net benefit, and simple payback periods. The agencies have offered a number of additions and improvements to their analysis that offer a better consumer perspective on the impact of the policy, although there are still omissions and distortions in the analysis. Our view of the consumer pocketbook impact of the proposed standard is substantially more positive than that offered by the agencies. Because every consumer and national cost-benefit analysis conducted by the agencies shows the proposed standard is in the public interest, our alternative approach to pocketbook analysis is intended to point the agencies in the right direction for future rulemakings-- the mid-term review in particular.

In order to assess the impact of the rule on the consumer pocketbook, we examine how it affects the cash flow of the typical consumer based on the assumptions below.

CONSUMER POCKETBOOK ANALYSIS ASSUMPTIONS

Vehicle Attributes		**Economic**		**Financial**	
Vehicle Type	Cars	Incremental Cost	$2026	Loan period	5- Years
MPG 2025	56	Gasoline 2025/gallon	$3.53	Interest rate	5%
Base year 2016 mpg =	38	Inflation rate	2%		
Onroad Adjustment Factor	0.8	Discount rate	3%		
Onroad mpg 2025	44.8				
Onroad mpg base year 2016	30.4				

We focus on cars in this analysis for two reasons. First, the vast majority of vehicles bought by consumers (as opposed to businesses) are classified as cars, including crossover SUVs. Second, in the proposed standard, the cost-benefit of the standard for trucks is substantially more favorable for purchasers of the vehicles because the standards are set lower and the cost of the technology is lower. Thus, if cars pass the consumer pocketbook test, trucks will.

Typically consumers take out five year loans with a trade in of their old vehicle. For the purpose of this analysis, we model a five year loan for the amount that the fuel savings technology adds to the purchase price of the vehicle. We assume the interest rate is 5 percent and calculate the increase in monthly payments. Since the payments are made in nominal dollars and all of the EPA-NHTSA analysis is conducted in real dollars, we convert the monthly payments to a real basis assuming an inflation rate of 2 percent.

In the consumer pocketbook analysis, we do not subtract the rebound effect, as NHTSA-EPA do. We also add in the effect that the reduction in U.S. gasoline consumption has on the world price of crude oil.

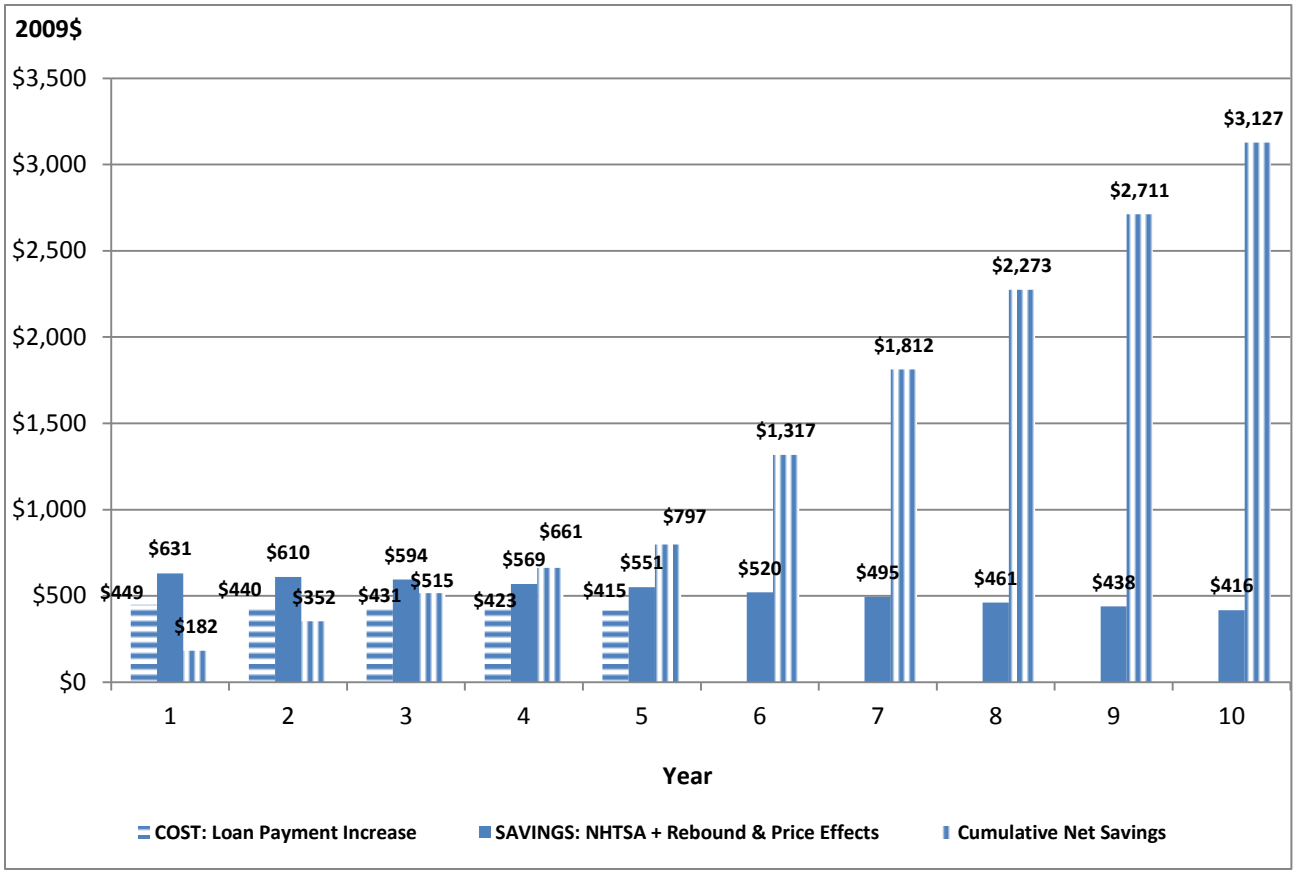
We examine the consumer cash flow position from four perspectives:

- First month – the immediate impact
- Year-5 – end- of the auto loan
- Year-10 – most vehicles are sold or traded in by year 10.
- Year-14 – Point at which half vehicles are off the road.

- The inclusion of fuel savings technology means that the consumer will use less gasoline to drive the same number of miles. We calculate the value of fuel savings by multiplying the number of gallons saved times the pump price of gasoline.

As shown in Exhibits IV-1 and IV-2, CFA has focused its attention on consumer pocketbook analysis. Exhibit IV-1 shows the first ten years of cash flow under the CFA assumptions. Exhibit IV-2 compares the CFA results with the NHTSA results. CFA's estimate of the net consumer savings is about one-third higher than NHTSA because of the different assumptions about the rebound and price effects.

EXHIBIT IV-1: CONSUMER POCKETBOOK BENEFITS OF NEW CARS MEETING THE 2025 STANDARD FAR EXCEED THE COSTS



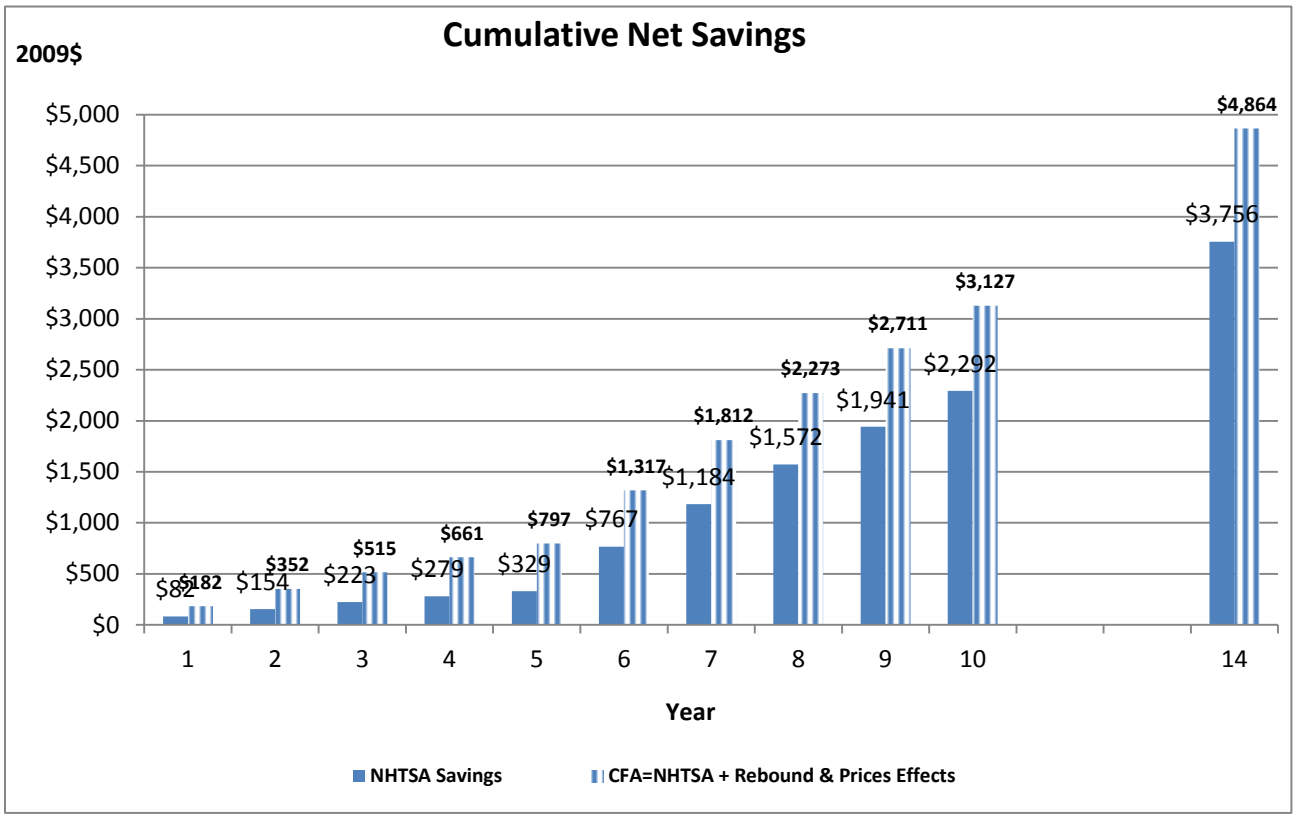
CONSUMER POCKETBOOK ANALYSIS ASSUMPTIONS

Vehicle Attributes		**Economic**		**Financial**	
Vehicle Type	Cars	Incremental Cost	$2026	Loan period	5- Years
MPG 2025	56	Gasoline Cost 2025/gallon	$3.53	Interest rate	5%
Base year 2016 mpg =	38	Inflation rate	2%		
Onroad Adjustment Factor	0.8	Discount rate	3%		
Onroad mpg 2025	44.8				
Onroad mpg base year 2016	30.4				

Source and notes: Office of Regulatory Analysis and Evaluation National Center for Statistics and Analysis, *Preliminary Regulatory Impact Analysis Corporate Average Fuel Economy for MY 2017-MY 2025, Passenger Cars and Light Trucks,* November 2011, CFA pocketbook savings calculated without subtracting the rebound effect and adding $.25/gallon for the price effect.

EXHIBIT IV-2: THE 2025 STANDARD DELIVERS SUBSTANTIAL CONSUMER POCKETBOOK BENEFITS:

2025 CARS AT REQUIRED MPG COMPARED TO 2016 Base Year
(5 %-year Loan @5% Interest, 3% discount rate, 2% inflation)



Source: Office of Regulatory Analysis and Evaluation National Center for Statistics and Analysis, *Preliminary Regulatory Impact Analysis Corporate Average Fuel Economy for MY 2017-MY 2025 , Passenger Cars and Light Trucks,* November 2011, Notes: Costs - Table xx, VMT - Table xx, MPG = 2016, 38, 2025=56, onroad adjustment = .8
CFA pocketbook savings calculated without subtracting the rebound effect and adding $.25/gallon for the price effect.

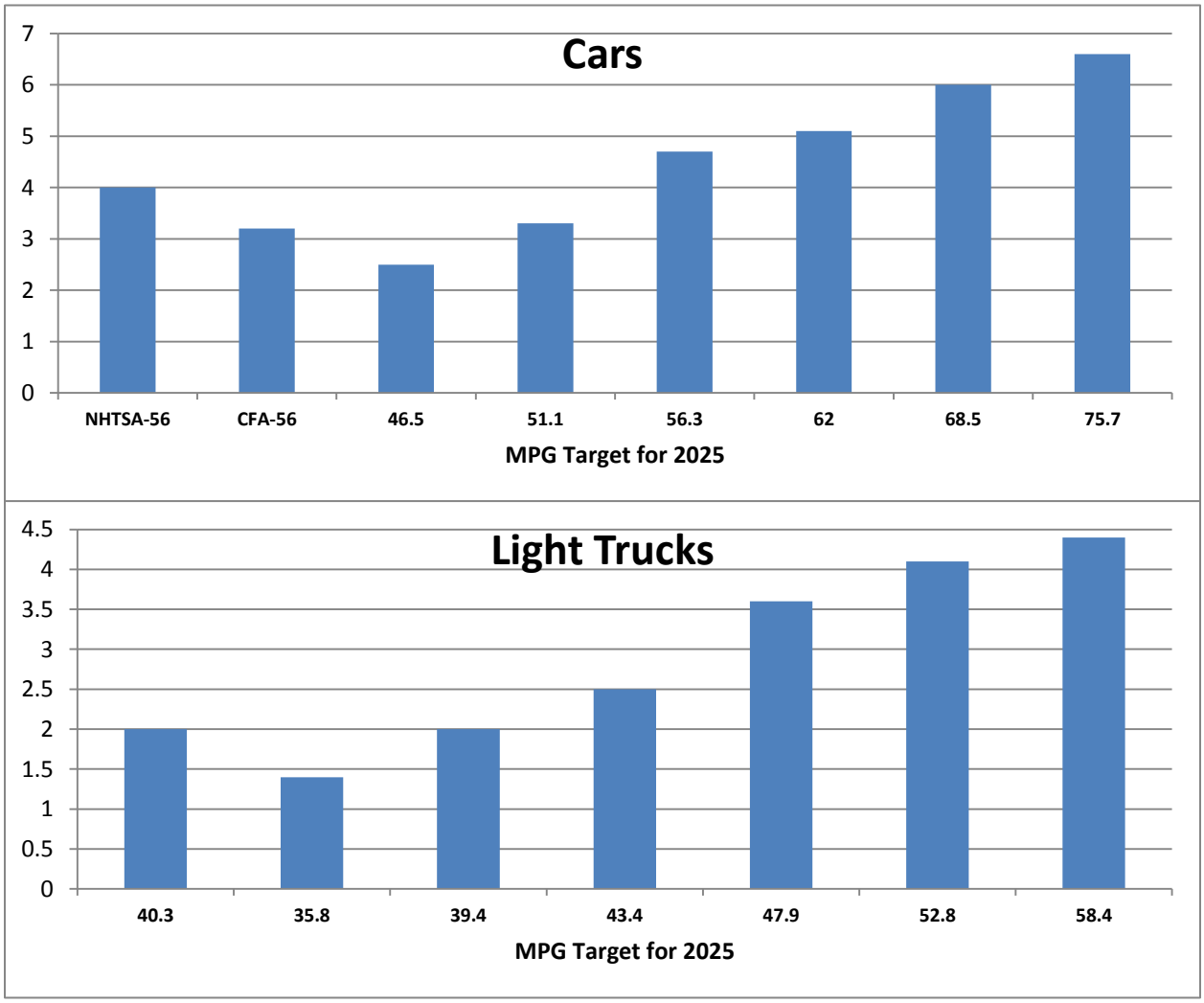
The first two points in time are clearly important to consumers, as they cover the ownership period. The latter two points are included to gain insight into the question of resale value. In the national cost benefit analysis, NHTSA-EPA follow vehicles out through their full 26 year life (with steadily declining percentages surviving). The consumer pocketbook impact is defined by the cash flow during the ownership period and the resale value if the vehicle is sold. The empirical evidence supports the proposition that a part of the future fuel savings of a more efficient vehicle will be captured by the original owner in the resale value (see Attachment A). Because the consumer benefits of the proposed standard are so large, it is not necessary to estimate the additional resale value of fuel efficient vehicles with precision.

The bottom line of the consumer pocketbook analysis is that the proposed standards deliver substantial consumer benefits, beginning from the first month that accumulates over the life of the vehicle to thousands of dollars. Using the ten to 14 year values and combining pocketbook savings and resale value, the consumer savings are likely to be in the $3,000 to $4,000 range.

Exhibit IV-3 shows payback periods for the proposed standard and the alternatives

considered by the agencies. The upper graph focuses on cars and also includes the payback period based on the CFA assumptions. The agencies concluded that the proposed standard had a four year payback for cars. Using CFA's assumptions, we find the payback period is just over three years. The lower graph focuses on trucks. As noted above, the truck standard is less demanding and less costly, so the payback period is about half of the car payback period. Since the CFA arguments for the rebound and price effects would also apply to truck owners, an adjusted analysis would estimate very short payback periods for light trucks. Given the extremely favorable economics of improving truck fuel economy, future policy reviews should evaluate carefully the factors that have led the truck standard to be set at a relatively low level in the current proceeding.

EXHIBIT III-6-3: PAYBACK PERIOD IN YEARS (3% discount rate, 2% inflation)



Source: Office of Regulatory Analysis and Evaluation National Center for Statistics and Analysis, ***Preliminary Regulatory Impact Analysis Corporate Average Fuel Economy for MY 2017-MY 2025, Passenger Cars and Light Trucks,*** **November 2011, Table X-8. CFA pocketbook savings calculated without subtracting the rebound effect and adding $.25/gallon for the price effect.**

V. NATIONAL COST-BENEFIT ANALYSIS

THE BASE CASE ANALYSIS

Exhibit V-1 shows our view of the national cost benefit analysis. Even without the corrections in the underlying analysis discussed below, it is clear that the standards are beneficial. The benefits are three times as large as the costs. Net benefits are in the range of $350 to $400 billion. The vast majority of the benefits are the consumer pocketbook savings – driven by the reduction in expenditures on gasoline discussed in the previous section.

With CFA assumptions find that total national benefits are close to $600 billion, a value that is well over three times the cost.

- Consumer savings from all of the vehicles covered by the new standard will be close to $500 billion, representing over 80 percent of the total national benefits;
- Indirect national security and economic benefits will be just over $40 billion (about 7 percent of the total) and include progress on major national public policy goals, such as
    - reducing oil consumption and imports by almost 4 billion barrels and cutting the balance of payments deficit by $370 billion,
    - This will drive down the price of oil by $0.25 per gallon, lower vulnerability to oil price shocks, and reduce the need for national security expenditures.
    - These are substantial reductions in the drag that oil and gasoline consumption place on the economy.
- Environmental and public health benefits will be almost $60 billion (just over 10 percent of the total).

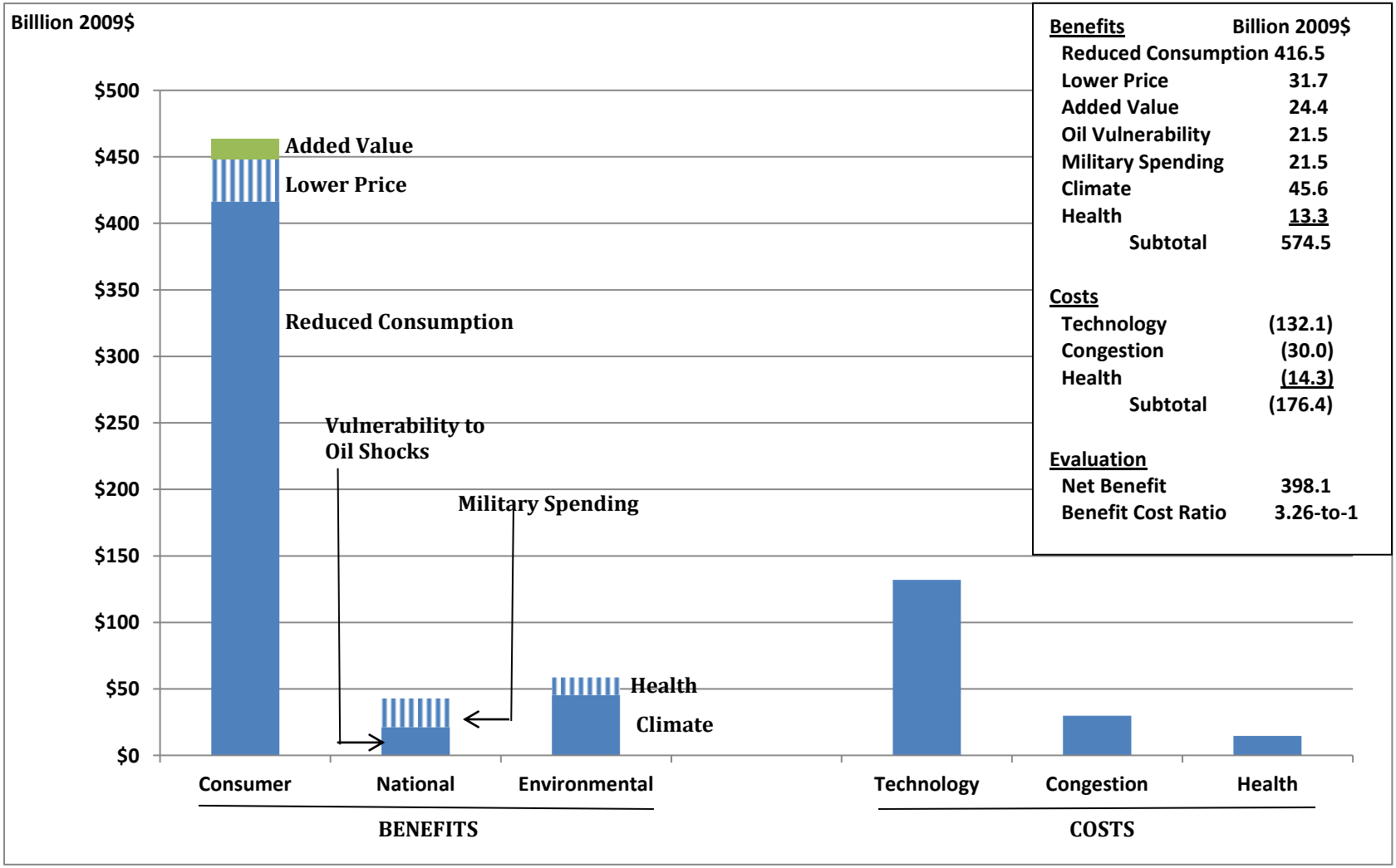
Exhibit V-2 presents the full range of cases and scenarios considered by the agencies. It plots the costs (on the x-axis) and the benefits (on the y-axis) for the eight different target levels considered with each target level evaluated at discount rates of 3% and 7%. It also shows the results of the sensitivity analyses that were conducted at the 3% discount rate. In all, there are 28 cases/scenarios shown. The Exhibit also includes a break even line. If a case/scenario falls above the line, the benefits exceed the costs.

- In every sensitivity analysis conducted by the agencies, no matter how extreme the assumptions, the benefits exceed the costs.

The exhibit makes it clear that the benefits are likely to exceed the costs by a wide margin. Even under the most extreme assumption – i.e. that consumer pocketbook savings are only one-quarter of the base case calculation – the benefits are almost twice as large as the costs at the 3% discount rate.

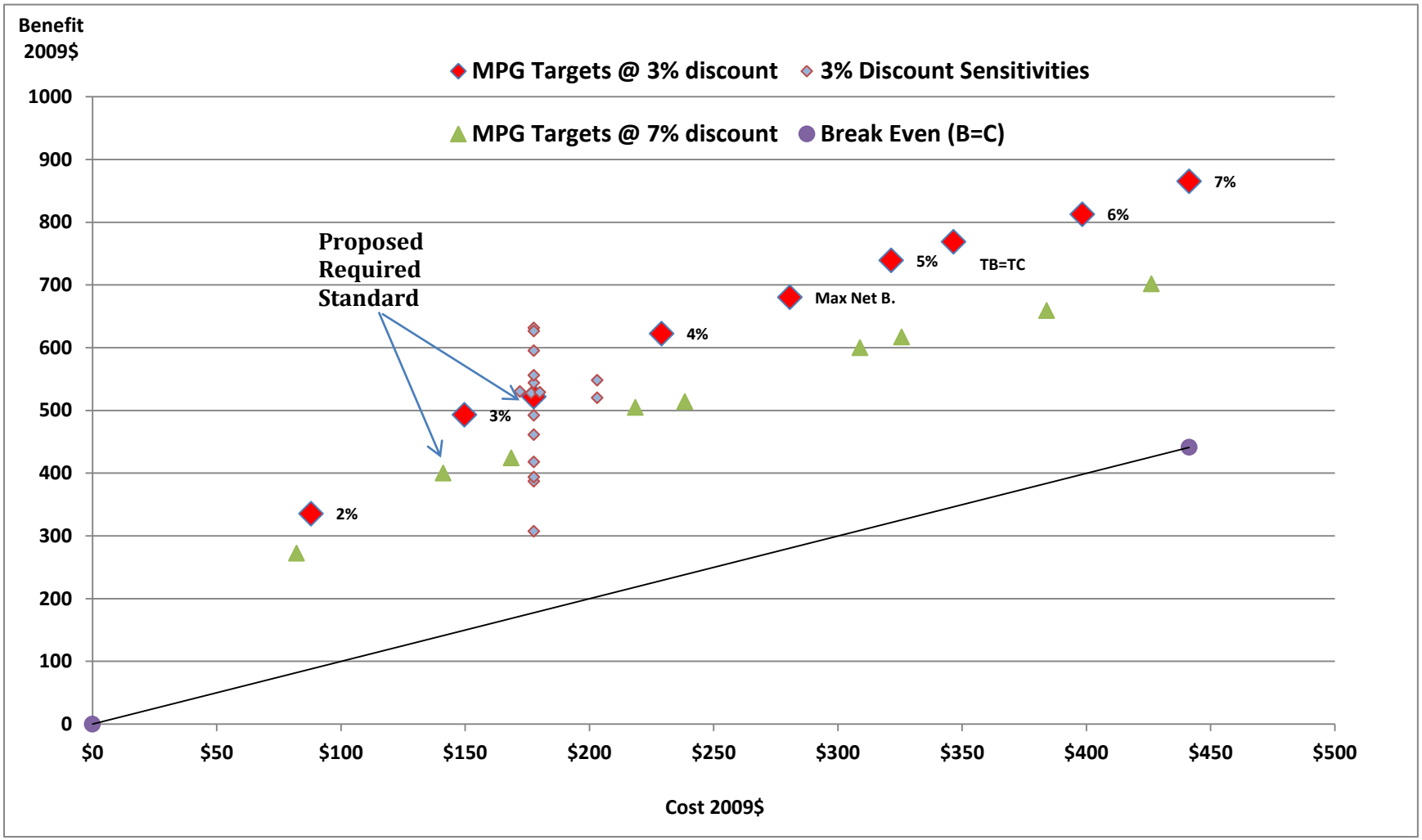
The agencies have presented over two dozen cases and scenarios to assess the level of confidence that policy makers can have in the conclusion of the base case cost benefit analysis. In traditional agency fashion, they present a Monte Carlo simulation of expected outcomes under the full array of alternative assumptions. They conclude that there is a high probability that the outcome of the policy will be positive. The probability that net benefits will exceed zero between now and the mid-term review is 95 percent or more for cars and at least 99 percent for trucks.

EXHIBIT V- 1: THE BENEFITS AND COSTS OF THE PROPOSED HIGHER FUEL ECONOMY STANDARDS: COMBINED CARS AND TRUCKS, 3% DISCOUNT



Source and notes: Office of Regulatory Analysis and Evaluation National Center for Statistics and Analysis, *Preliminary Regulatory Impact Analysis Corporate Average Fuel Economy for MY 2017-MY 2025 , Passenger Cars and Light Trucks,* November 2011, Tables13, VIII-27b, Consumer Benefits include effect of $31.6 billion based on a valued of $0.25/gallon. National benefits include reduced military spending valued at $0.17 per gallon.

EXHIBIT V-2: NHTSA NATIONAL COST BENEFIT ANALYSIS SHOWS THE 2025 STANDARD IS A MODERATE, MID-RANGE TARGET



Source: Office of Regulatory Analysis and Evaluation National Center for Statistics and Analysis, ***Preliminary Regulatory Impact Analysis Corporate Average Fuel Economy for MY 2017-MY 2025, Passenger Cars and Light Trucks,*** **November 2011, Table 2 and Table X-12c.**

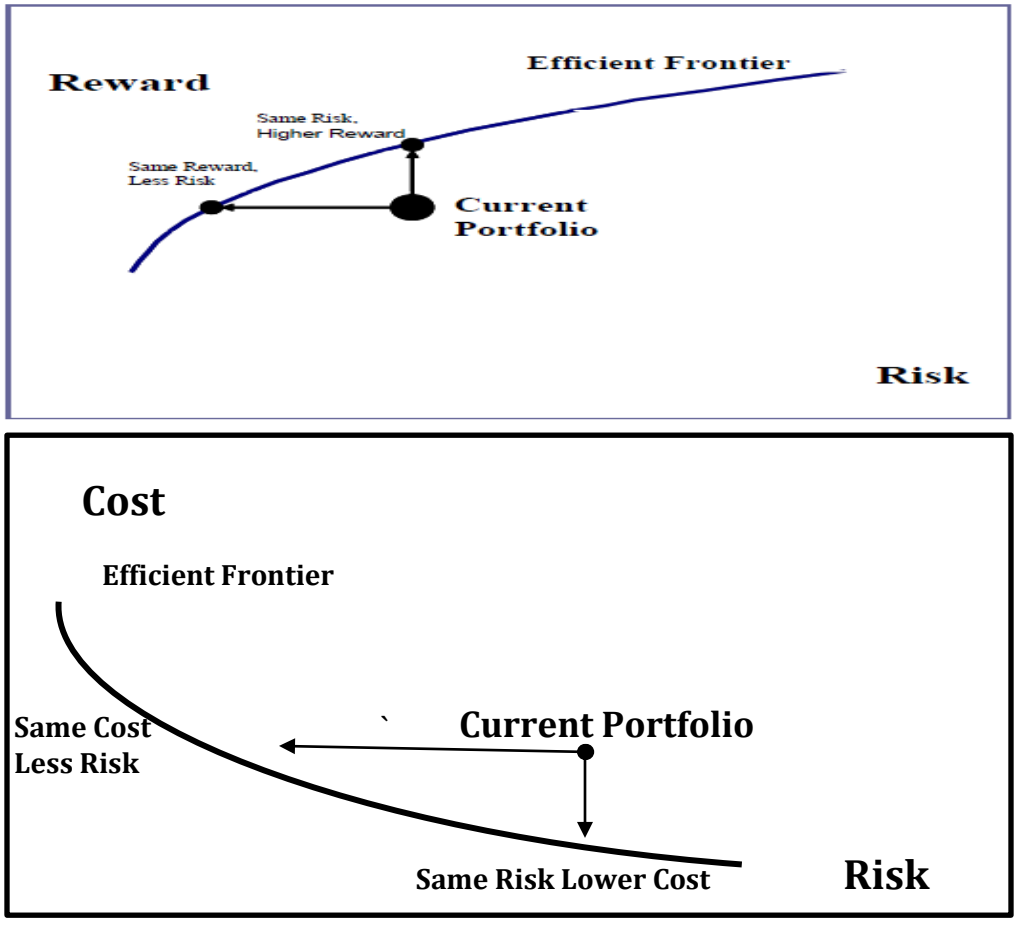
A RISK – HEDGING VIEW OF THE PROPOSED FUEL ECONOMY STANDARDS

In this section, we present a different approach to making a risk assessment. We apply the principles of financial market theory that have been used for over half a century to the proposition of risk hedging in portfolio analysis. Risk analysis allows the decision maker to hedge by creating a portfolio that balances more and less risky assets. In addition to providing a framework of assessing the prudence of the investment in fuel saving technology, the analysis also sheds light on the change in the decision making environment that has created more demand for fuel savings technologies as described in Section III.

Theoretical Background

Financial market theory provides a framework for evaluating the trade-off between performance and risk that has been adapted to the analysis of energy resource acquisition in the electricity sector. The top graph in Exhibit V-3 presents the basic approach from a publication from the National Regulatory Research Institute.[11] Investors want to be on the efficient frontier, where risk and reward are balanced. They can improve their expected returns if they can increase their reward without increasing their risk, or they can lower their risk without reducing their reward.

EXHIBIT V-3: RISK/REWARD, COST/RISK ANALYSIS

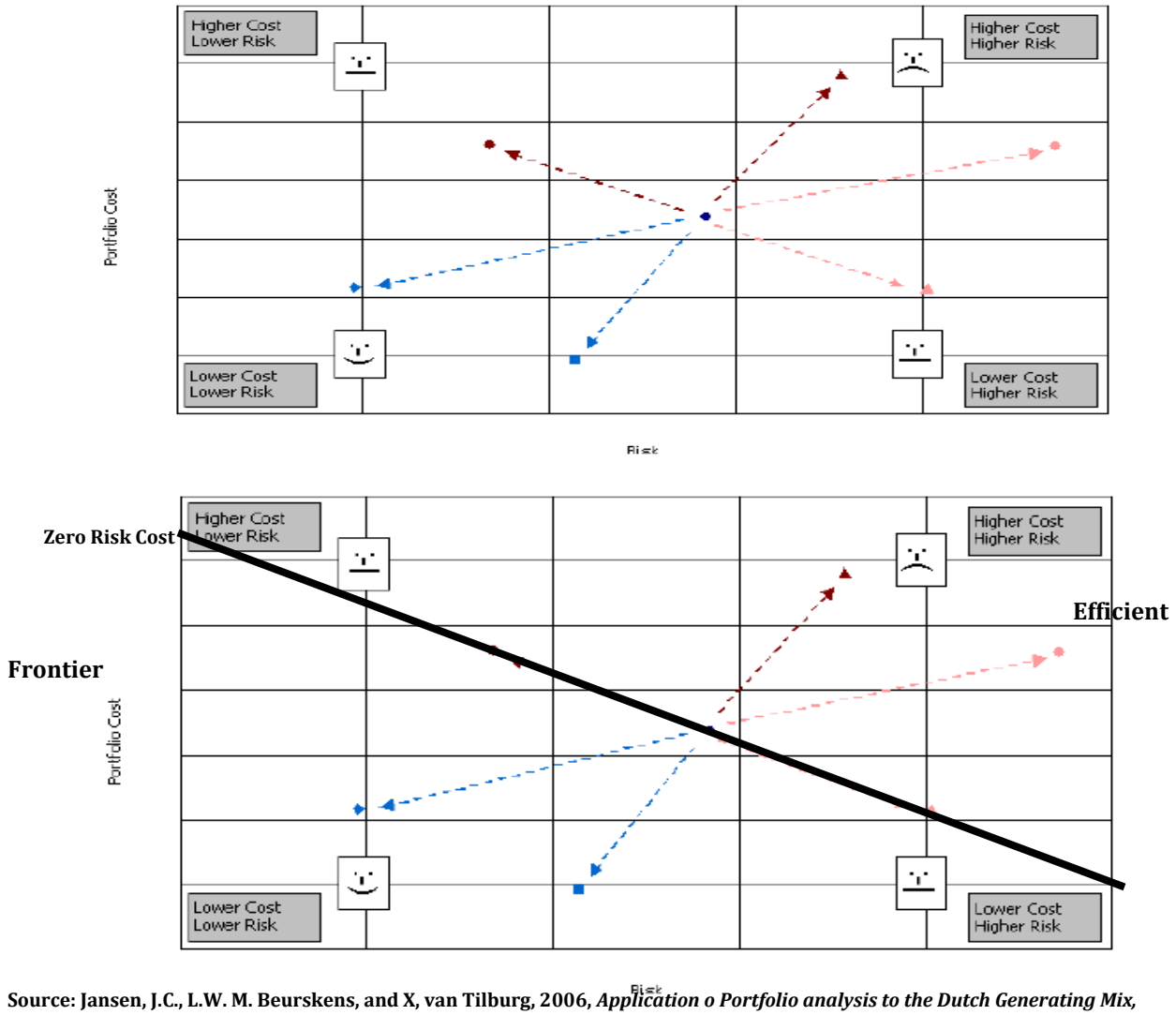


Source: Ken Costello, *Making the Most of Alternative Generation Technologies: A Perspective on Fuel Diversity,* (NRRI, March 3, 2005), p. 12, upper graph.

[11] Ken Costello, Making the Most of Alternative Generation Technologies: A Perspective on Fuel Diversity, (NRRI, March 3, 2005), p. 12.

In applying this framework to the evaluation of energy options, analysts frequently plot cost against risk.[12] Options that would move the portfolio toward the efficiency frontier should be adopted since they embody lower cost and/or risk.[13] The lower graph in Exhibit V-3 shows the cost/risk frontier. In the financial literature, risk is measured by the standard deviation of the reward (the Beta).[14] The upper graph in Exhibit V-4 describes movement in each direction from the initial point. The lower graph in Exhibit V-4, introduces the efficient frontier by identifying the "risk free cost," which is defined as the highest price that is likely to occur, if everything goes wrong.

EXHIBIT V-4: MAPPING THE TERRAIN OF INVESTMENT DECISIONS



Source: Jansen, J.C., L.W. M. Beurskens, and X, van Tilburg, 2006, *Application o Portfolio analysis to the Dutch Generating Mix,* ECN, February, 2006

[12] Source: Jansen, J.C., L.W. M. Beurskens, and X, van Tilburg, 2006, *Application o Portfolio analysis to the Dutch Generating Mix,* ECN, February, 2006,, p. 13 argue for a risk-cost frontier.

[13] Jansen Beurskens, and Tiburg, 2006, Appendix, p. 59, ""the question of whether a tool could be develop for gauging the impact of incremental technology deployment… the use of a (sort of) Sharpe ratio, showing the tangent of the direction a certain portfolio at (or to the right of) the efficient frontier would move into by incremental use of a certain technology."

[14] **The Standard deviation** is a widely used measurement of variability or diversity used in statistics and probability theory. It shows how much variation or "dispersion" there is from the "average" (mean, or expected/budgeted value). A low standard deviation indicates that the data points tend to be very close to the mean, whereas high standard deviation indicates that the data are spread out over a large range of values.

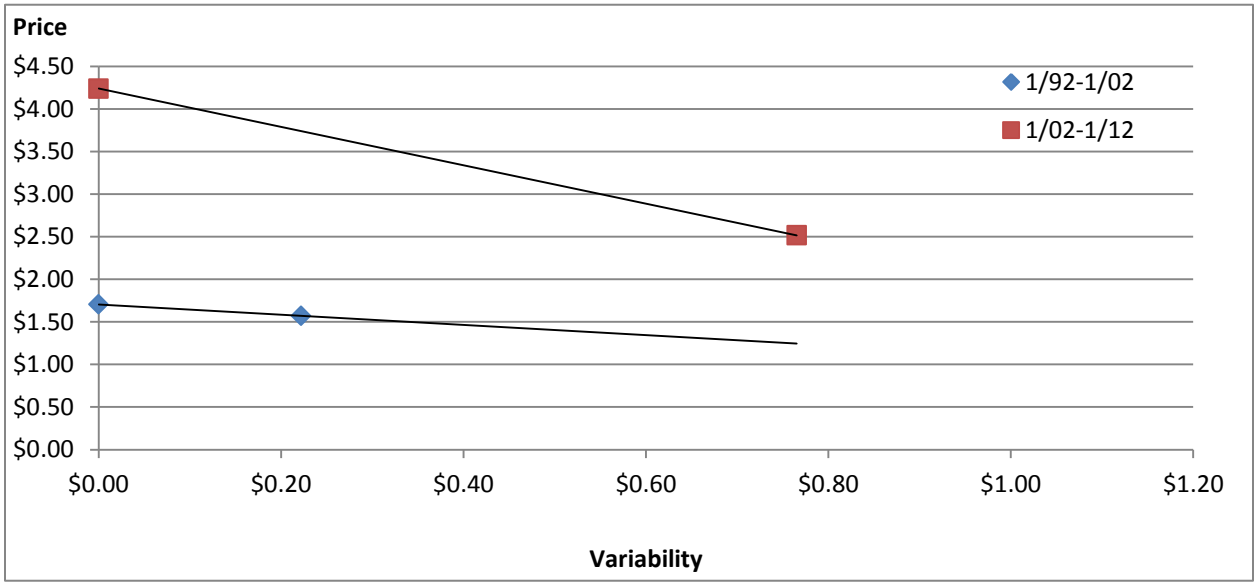
Risk and Price in the Past Two Decades of the Gasoline Market

Exhibit V-5 places the track record of gasoline prices into the risk-cost framework. By contrasting the January 1992-January 2002 period with the January 2002- January 2012 period we gain insight into the transformation of the role of gasoline costs in the auto market that we have discussed above.

We estimate the risk associated with gasoline prices as the rolling average of the 30-day standard deviation of the price. We use the highest cost in the decade as the zero risk price. We plot the average prices at the average standard deviation to identify the risk-price frontier.

Three changes that occurred between the two decades are clear in the Exhibit. The average price increased by 67 percent between the two decades. The highest price increased by 170 percent. Variability of price increased by 250 percent. As we have noted, consumers face a severe challenge. These translate into an average expenditure increase of $750, an increase in monthly variability of expenditures of $50 and an increased in the highest monthly expenditure of over $150.

EXHIBIT V-5: THE TRACK RECORD OF GASOLINE PRICES (2009$/GALLON)

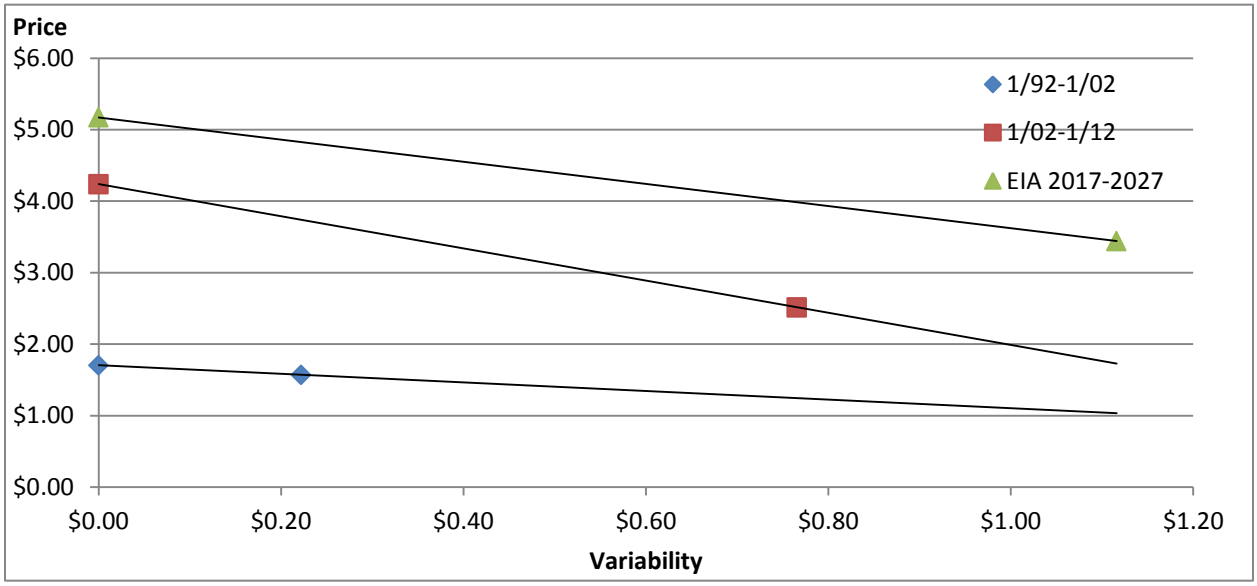


Source: Energy Information Administration, Petroleum data base, gasoline prices.

Exhibit V-6 plots the projected prices used in the analysis by NHTSA-EPA along with the past two decades. Since we do not have daily price projections, we have used the high, middle and low estimates for a decade (2017 -2027) to calculate the variability and the average. The graph suggests that the near future is projected to resemble the recent past, which is reasonable. However, current prices almost as high as the average prices projected for the next decade. This suggests the future price projection is too low. Indeed, the EIA has increased its price projections by $0.30 per gallon.[15]

[15] Energy Information Administration, *Early Release of the Annual Energy Outlook: 2012,* January, 2012.

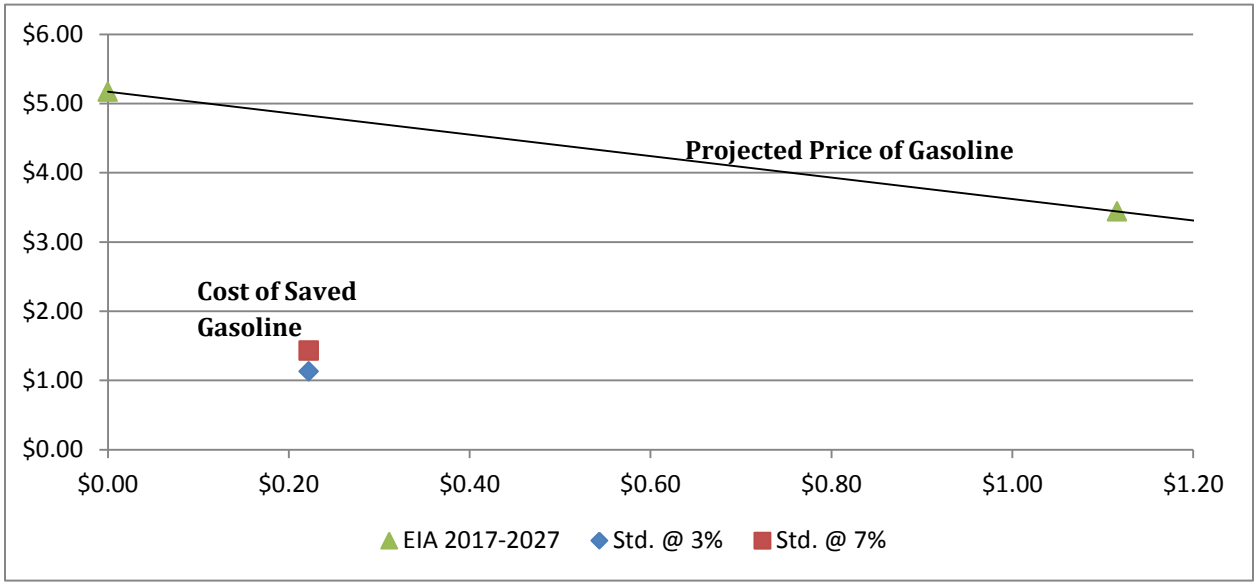
EXHIBIT V-6: PAST AND PROJECTED GASOLINE PRICES AND VARIABILITY



Source: Energy Information Administration, Petroleum data base, gasoline prices. Source: Office of Regulatory Analysis and Evaluation National Center for Statistics and Analysis, *Preliminary Regulatory Impact Analysis Corporate Average Fuel Economy for MY 2017-MY 2025, Passenger Cars and Light Trucks,* November 2011, Table X-12-1.

The primary purpose of this analysis is to gain insight into whether spending money on higher fuel economy is a good investment. Having identified the risk-price frontier, we need to convert the cost of fuel economy into a cost per gallon equivalent (see Exhibit V-7). We know the projected average cost of the technology and we have estimates of variability in terms of both cost

EXHIBIT V-7: RISK HEDGING EVALUATION OF THE PROPOSED STANDARDS: COST OF SAVED GASOLINE V. PROJECTED PRICE OF GASOLINE



Source: Energy Information Administration, Petroleum data base, gasoline prices. Source: Office of Regulatory Analysis and Evaluation National Center for Statistics and Analysis, *Preliminary Regulatory Impact Analysis Corporate Average Fuel Economy for MY 2017-MY 2025, Passenger Cars and Light Trucks,* November 2011, Table X-12-1.

and effectiveness. We can divide these by the number of gallons saved to arrive at an investment cost per gallon. This is known as the cost of saved energy (see Attachment C). In this analysis we still must discount the benefits, since future saved gallons have less value than current saved gallons. Exhibit V-7 shows both 3% and 7% discount rates.

The resulting cost estimates are quite low, in the range of $1.15 to $1.45 per gallon. Fuel economy would appear to be a very good investment. This conclusion is consistent with the Monte Carlo experiment findings. Given that the estimated cost of saved gasoline is about two standard deviations below the mean of the projected price, there is a greater than 97 percent chance that the investment will be positive (i.e. the cost of gasoline will exceed the cost of saved gasoline)

PART III. THE IMPACT OF PROPOSED STANDARDS ON INDUSTRY STRUCTURE

VI. TECHNICAL ASSESSMENT OF THE STANDARDS: THE STANDARDS ARE CONSUMER AND AUTO INDUSTRY-FRIENDLY

This section provides evidence that the proposed standards are likely to be achieved because they recognize the need to keep the standards in touch with reality in several important ways.

- The standards are set at a moderately aggressive level that is clearly beneficial and achievable.
- The cost estimates are consistent with the results of independent analyses of technology costs made over the past decade.
- The proposed standards are consistent with the rate of improvement that the auto industry achieved in the first decade of the fuel economy standard setting program.

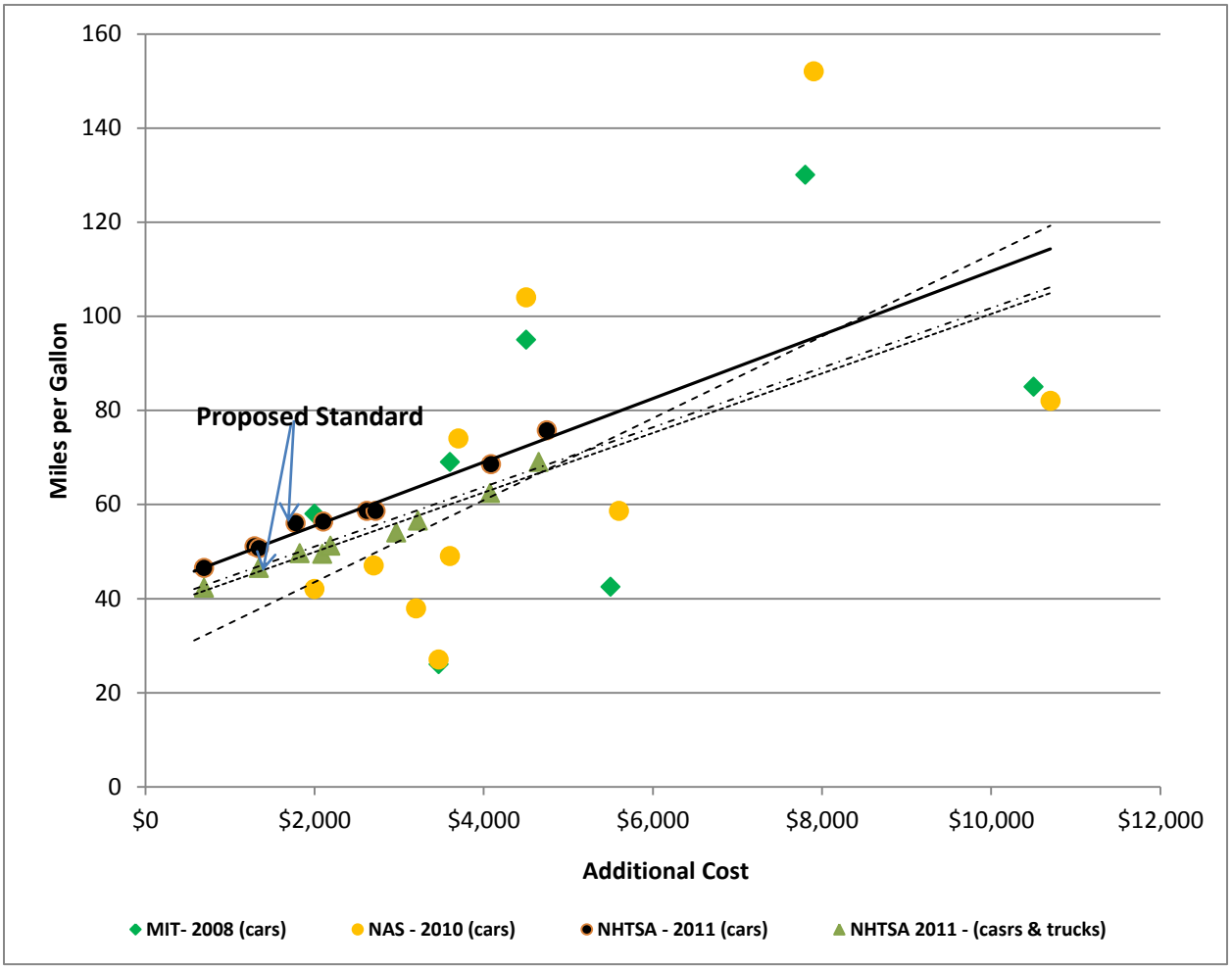
The new approach to setting standards is consumer-friendly and facilitates automaker compliance.

- The attribute-based approach ensures that the standards do not require radical changes in the types or size of vehicles consumers drive; so, the full range of choices will be available to consumers.
- The standards do not require dramatic shifts in power train technologies or reductions in weight and offer flexibility and incentives for new technologies, and include a mid-term review.
- The setting of a coordinated national standard that lays out a steady rate of increase over a long time period gives consumers and the industry certainty and time to adapt to change.

Exhibit VI-1 shows that the proposed standards are moderate from another point of view the estimate of technology costs. It plots the cost and mile per gallon achieved in comparison to several other recent estimates of the fuel saving cost curve. The Exhibit shows that the proposed standards are moderate in two respects.

- First, the costs curves are consistent with the level of cost estimated by others from similar levels of fuel savings.
- Second, there are much higher levels of fuel savings possible, at higher costs. The proposed standards are in the middle of the pack in the lower end of the range.

EXHIBIT VI-1: THE 2025 STANDARD IS WELL WITHIN THE TECHNOLOGY FRONTIER

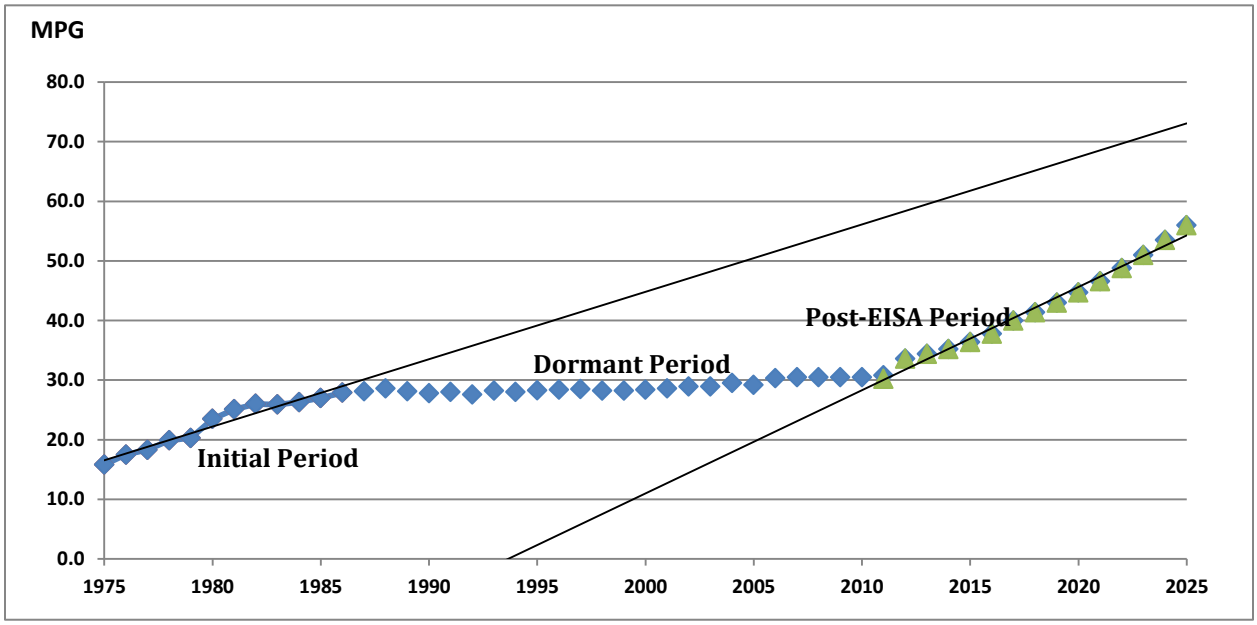


Sources: MIT, 2008; Laboratory of Energy and the Environment, On the Road in 2035: Reducing Transportation's Petroleum Consumption and GHG Emissions Cambridge: July, 2008), Tables 7 and 8; NAS -2010, National Research Council of the National Academy of Science, America's Energy Future (Washington, D.C.: 2009), Tables 4.3, 4.4; NHTSA-EPA 2011;Office of Regulatory Analysis and Evaluation National Center for Statistics and Analysis, *Preliminary Regulatory Impact Analysis, Corporate Average Fuel Economy for MY 2017-MY 2025 , Passenger Cars and Light Trucks,* November 2011, Table 2 and Tables 3, 5.

There are two historical perspectives that suggest the proposed standards are moderate and achievable.

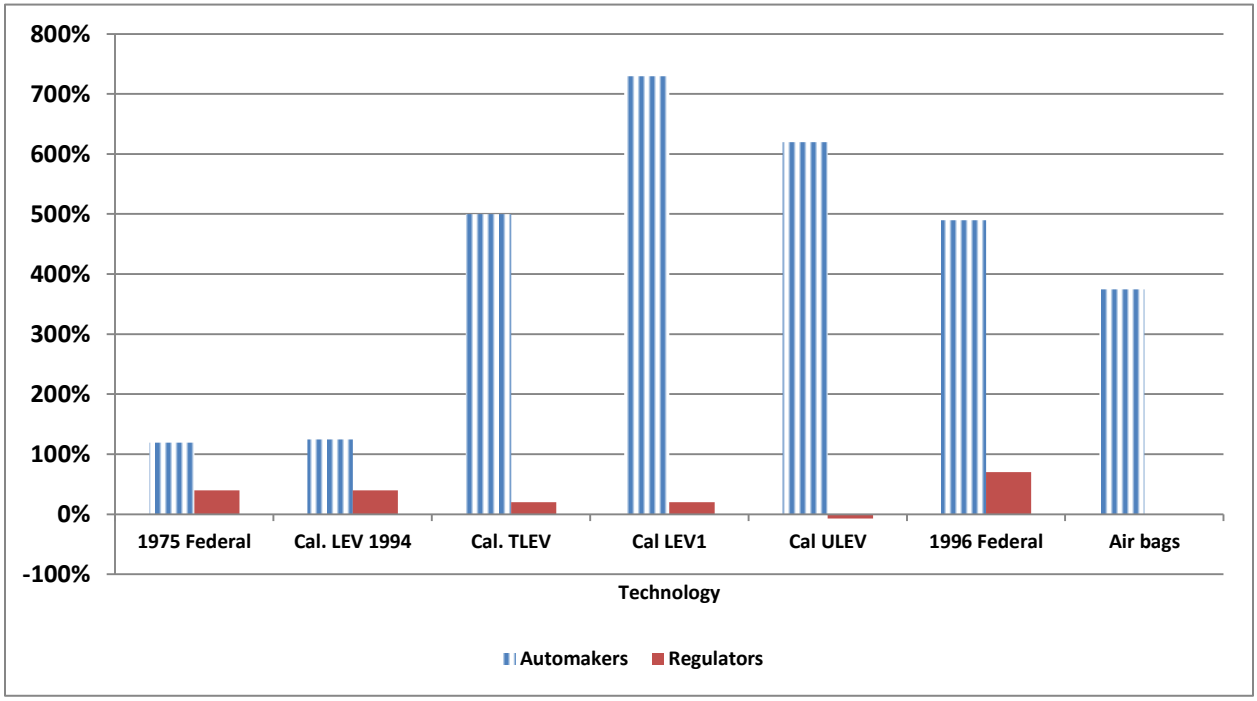
- As shown in Exhibit VI-2, the current proposal sets the standard on a path U.S. to doubling the fuel economy of new vehicles that is consistent with what was accomplished in the first decade of the program, before it went dormant.
- As shown in Exhibit VI-3, there has been a clear tendency for regulators and the industry to substantially overestimate the costs of compliance.

EXHIBIT VI-2: U.S. MPG HISTORICAL AND PROPOSED: THE RATE OF INCREASE IS STEADY AND CONSISTENT WITH PAST EFFORTS TO IMPROVE FUEL ECONOMY



Sources: EIA, Light Duty Automotive Technology, Carbon dioxide Emissions, and Fuel Economy Trends: 1975 Through 2009, November 2009,Table; Office of Regulatory Analysis and Evaluation, Regulatory Impact Analysis, Corporate Average Fuel Economy,2011, 2012-2016, 2017-2025.

EXHIBIT VI-3: ESTIMATED TECHNOLOGY COSTS AS A PERCENTAGE OF ACTUAL COSTS FOR MAJOR FUEL ECONOMY AND PUBLIC SAFETY STANDARDS



Source: Roland Hwang and Matt Peak, *Innovation and Regulation in the Automobile Sector: Lessons Learned and Implications for California's CO_2 Standard,* April 2006, "New auto safety rule comes pre-punctured." Miami News. July 12, 1984. 14A.

The Benefit of Technology Neutral, Product Neutral Long-Term Standards

The current approach to standard setting, which is technology neutral, product neutral and long-term, transforms standards into consumer friendly, procompetitive instruments of public policy.

Long-Term: Setting a high standard for the next fifteen years is intended to foster and support a long-term perspective for automakers and the public, by reducing the marketplace risk of investing in new technologies. The long-term view gives the automakers time to re-orient their thinking, retool their plants and help re-educate the consumer. Consumers need time to become comfortable with the new technologies. The industry spends massive amounts on advertising and expends prodigious efforts to influence consumers when they walk into the show room. By adopting a high standard, auto makers will have to expend those efforts toward explaining why higher fuel economy is in the consumer interests.

Product Neutral: The new approach to standards accommodates consumer preferences; it does not try to negate them. The new approach to standards is based on the footprint (size) of the vehicles and recognizes that SUVs cannot get the same mileage as compacts. Standards for larger vehicles will be more lenient, but every vehicle class will be required to improve at a fast pace. This levels the playing field between auto makers and removes any pressure to push consumers into smaller vehicles.

Technology-neutral: Taking a technology neutral approach to the long term standard unleashes competition around the standard that ensures that consumers get a wide range of choice at that lowest cost possible, given the level of the standard. Today, automakers offer 30 models of electric vehicles. All of the major, mass market automakers are offering electrics using different approaches to power including hybrid, plug ins, hybrid plug in and extended range plug in, and they sell hundreds of thousands of units in the U.S. They are offering vehicles across the full range of models that consumers drive – compacts, sedans, large cars, SUVs and pickups. J.D. Powers and Associates project that there will be 159 models by 2016 and that electric vehicles will account for almost 10% of the market.[16]

There will soon be hundreds of models of electric and hybrid vehicles using four different approaches to electric powertrains (hybrid, plug-in, hybrid plug-in, and extended range EVs), offered across the full range of vehicles driven by American consumers (compact, mid-size family sedans, large cars, SUVs, pickups), by half a dozen mass market oriented automakers. At the same time, the fuel economy of the petroleum powered engines can be dramatically improved at consumer friendly costs and it will continue to be the primary power source in the light duty fleet for decades. Technologies are in hand, or will be soon to get 50 mpg or more in gasoline powered cars.[17]

Placing these data points from the early days of hybrids into an innovation adoption framework, as shown in Exhibit VI-4, one can project millions of units being sold annually by 2025. NHTSA-EPA anticipate hybrid/ electric vehicles comprising at most15% of the fleet. This is not only reasonable, but it suggests that the gasoline engine is not done yet. More efficient engines and

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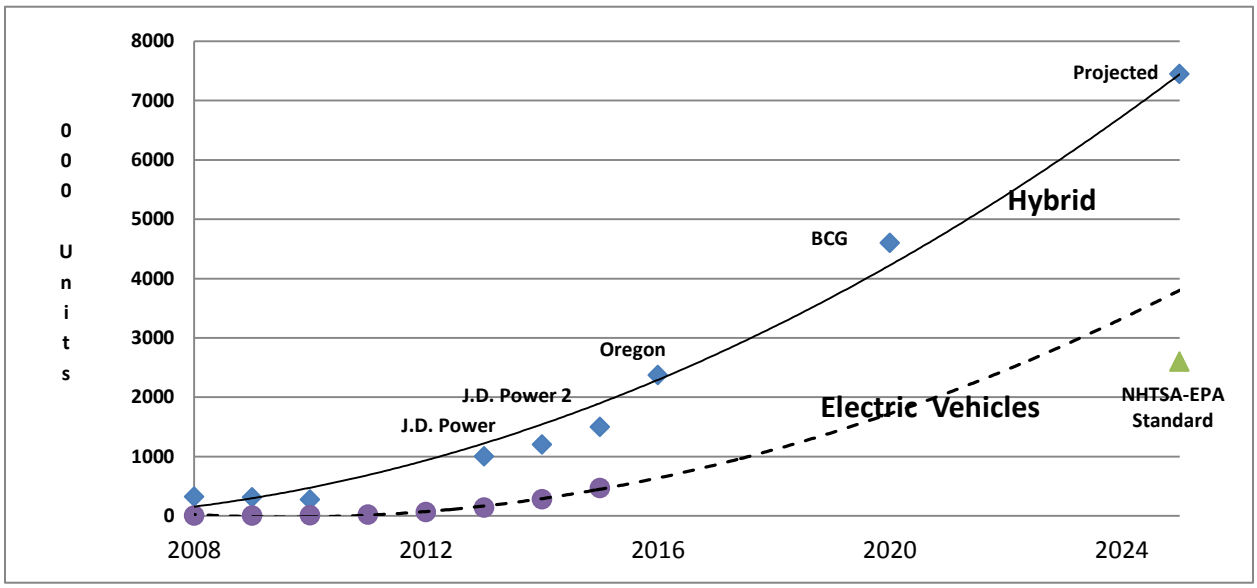
[16] J.D. Power and Associates, Despite Rising Fuel Prices, the Outlook for "Green" vehicles Remains Limited for the Foreseeable Future, April 27, 29011.

[17] Comments of the Consumer Federation of America, Before the Environmental Protection Agency Department of Transportation In the Matter of Notice of Upcoming Joint Rulemaking to Establish 2017 and Later Model Year Light Duty Vehicle GHG Emissions and CAFE Standards, Docket ID No. EPA-HQ-OAR-0799 Docket ID No. NHTSA-2010-0131, http://www.consumerfed.org/pdfs/CFA-NOI-Comments-10-29-10.pdf

transmissions, improvements in body design, rolling resistance and the use of high-strength, lighter materials have allowed gas-powered cars to get over 40 mpg today and compete with hybrids.

EXHIBIT VI-4: THE SHARE OF ELECTRIC VEHICLES PROJECTED TO MEET THE STANDARD IS MODEST

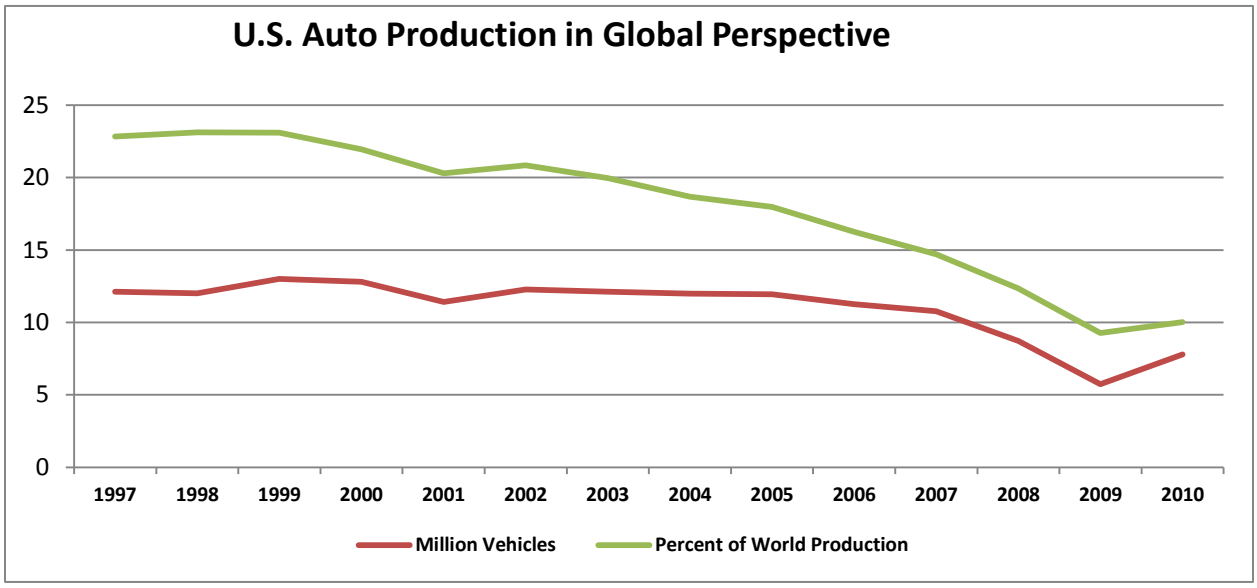


Sources: Rudi Halbirght, Max Dunn, *Case Study: The Toyota Prius, Lessons in Marketing Eco-Friendly Products*, March3, 2010, http://www.hybridcars.com/hybrid-sales-dashboard/... Various years; J.D. Power, ,Mike Omotoso, *Global Alternative Fuel Light Vehicle Sales Forecast,* April 2010; J.D. Power and Associates - 2, *Despite Rising Fuel Prices, the Outlook for "Green" Vehicles Remains Limited for the Foreseeable Future,* April 27, 29011, The Boston consulting Group, *The Comeback of the Electric Car? How Real, How Soon, and What Must Happen Next?,* June 2011, Exhibit 5, from the "steady pace Scenario."

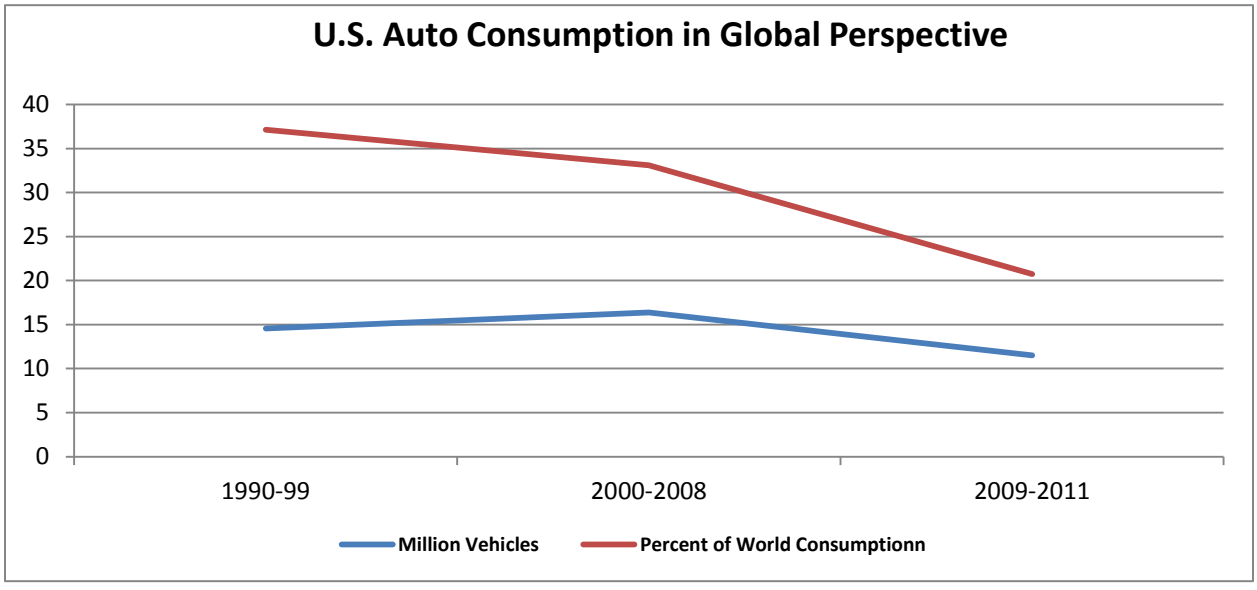
VII. AUTOMAKER INCENTIVES: THE AUTO INDUSTRY HAS STRONG INCENTIVES TO COMPLY WITH THE STANDARDS

Globalization of the auto industry means it is no longer possible to be a successful automaker without being able to compete globally. Exhibit VII-1 shows the share of U.S. new auto production and consumption (sales) in the global auto market. Production and shares declined moderately before the oil price spikes of the 2000s. The decline became precipitous after the price shocks. To compete in the global industry, an automaker must be able to sell globally. To compete globally, an automaker must produce fuel efficient vehicles.

EXHIBIT III-1: THE WORLD AUTO MARKET HAS CHANGED AND THE U.S. AUTOMAKERS MUST ADAPT



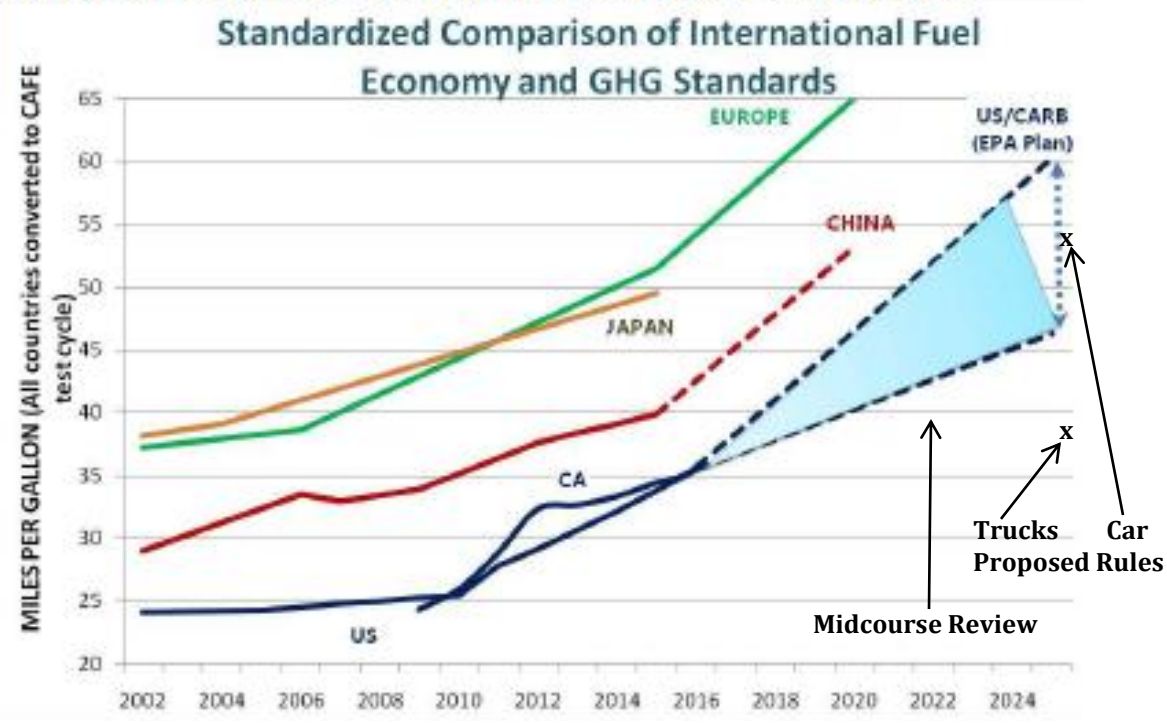
Source: OICA Correspondents Survey, World Motor Vehicle Production by Country and Type, various issues.



Scotiabank Group, Global Auto Report, December 2011.

Exhibit VII-2 shows the proposed standards in relation to the standards in place in other automobile producing and consuming nations. In practical terms, the proposal moves the U.S. into a position that is comparable to the other major car producing/buying nations in the world.

EXHIBIT VII2; COMPARISON OF PROPOSED STANDARD WITH INTERNATIONAL STANDARDS



Source: Feng An, Robert Early and Lucia Green-Weiskel, *Global Overview of Fuel Economy and Motor Vehicle Emission Standards: Policy Options and Perspectives for International Cooperation* (The innovations Center for Energy and Transportation, United Nationals Commission on Sustainable Development, May 2011, Background Paper No. 3)

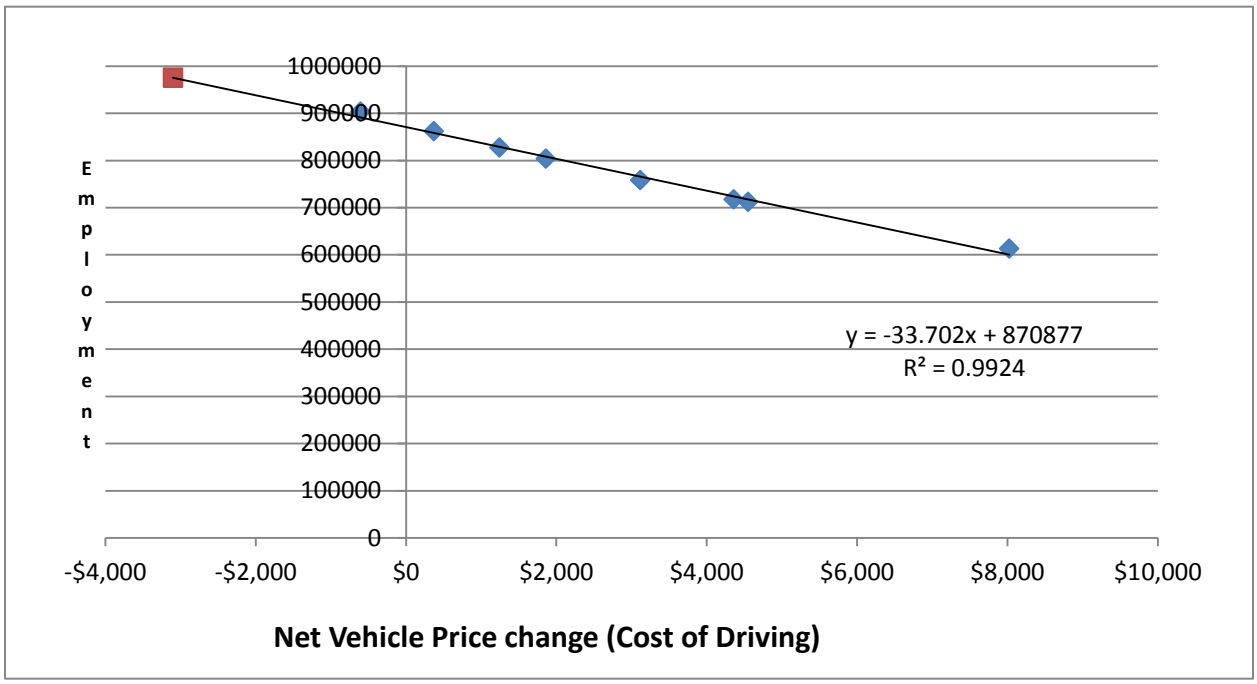
Employment Impacts

A recent study by the Center for Automotive Research (CAR) recognized that changes in cost of driving impacts vehicle sales. That study estimated job losses because it vastly overestimated the increase in the initial cost of new fuel saving technologies and it never considered the value of fuel savings to the consumer (See Attachment B). We have shown that the cost of driving will decline. When it does so, sales increase.

The CAR study assumes that each 1 percent change in the "net price" of a vehicle (where net price is the cost of the vehicle minus the change in operating costs) – changes employment by at least 10,000 jobs. The CAR study focused on net cost increases because of its erroneous assumptions. We find that higher fuel economy lowers the cost of driving and the net price of the vehicle, so it should lead to employment increases.[18]As Exhibit VII-3 shows, using the CAR jobs multiplier and our earlier estimate of the lowered cost of driving for cars, we project employment gains of 100,000. Trucks would increase the total substantially. Indirect jobs would equal or exceed the total within the auto industry through a general GDP multiplier (as discussed in Section VIII).

[18] NHTSA-EPA, 2009; National Highway Traffic Safety Administration, Corporate Average Fuel Economy for MY 2012-MY 2016 Passenger Cars and Light Trucks, Preliminary Regulatory Analysis (Washington, D.C.: August, 2009),Table VII8c shows employment gains for the 5% scenario.

EXHIBIT VII-3: EMPLOYMENT IMPACT OF LOWER COST OF DRIVING, CARS ONLY



Sources: Auto Industry Employment Multiplier from Center for Automotive Research, *The U.S. Automotive Market and Industry in 2025* (June 2011), Table 13. Net Price Change from EPA-NHTSA, Environmental Protection Agency & Department of Transportation: In the Matter of Notice of Upcoming Joint Rulemaking to Establish 2017 and Later Model Year Light Duty Vehicle GHG Emissions and CAFE Standards, Docket ID No. EPA-HQ-OAR-0799 Docket ID No. NHTSA-2010-0131, Table 2.

The Industry Can Easily Manage Cost Increases Associated with Improving Fuel Economy

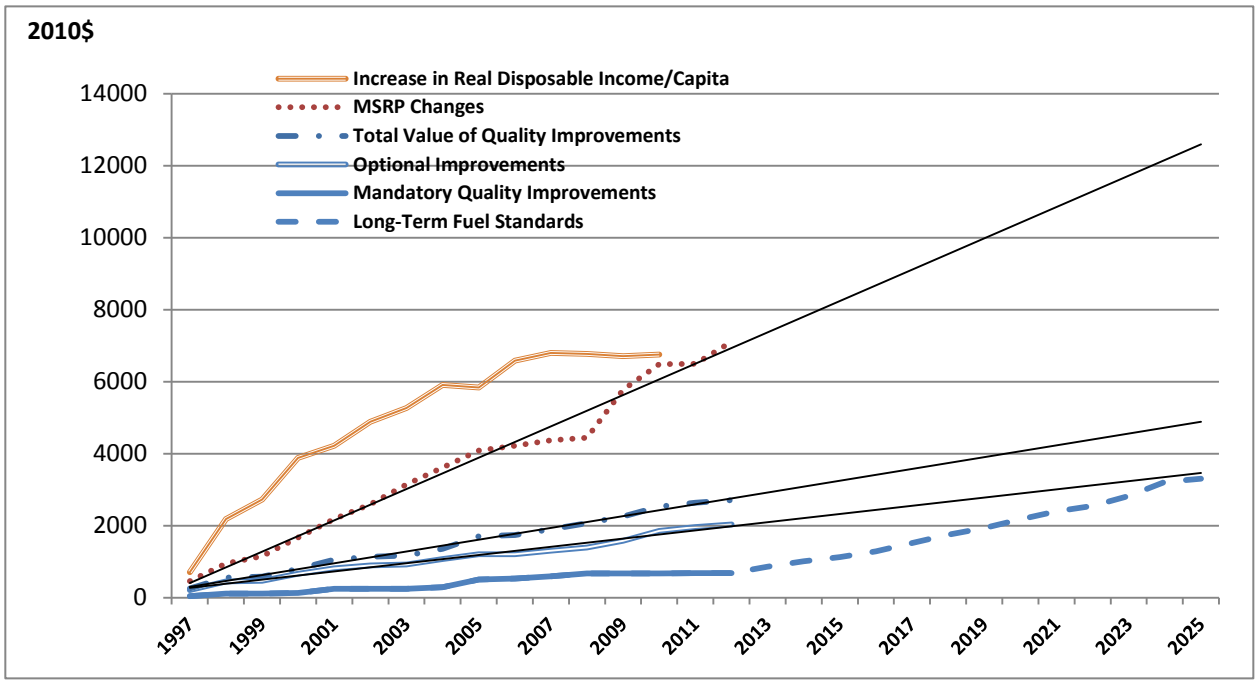
Automakers know they can sell quality. In today's market, fuel economy is a major determinant of vehicle quality that the market can easily absorb. In the context of recent product and pricing changes implemented by auto makers, the proposed fuel economy improvements are modest. As shown in Exhibit VII-4, according to statistics compiled by the Bureau of Labor Statistics, which is responsible for the Producer Price Index,

- over the past fifteen years, automakers have added three times as much value (and cost) with optional improvements in quality than mandatory (safety and environmental) improvements.
- The overall increase in MSRP tends to track closely to the increase in real disposable income.
- Automakers adjust MSRP and discounts and auto financing in response to much larger changes in affordability.

In the context of today's market, the fuel economy increases and their attendant impact on prices should be easy for the market to accommodate.

- The cost increases that the long-term standards will require over the next 15 years are well below the cost of quality improvement over the past 15 years.
- Unlike most other quality additions, fuel economy improvements deliver pocketbook savings to consumers.

EXHIBIT VII-4: GRADUAL IMPROVEMENT IN FUEL ECONOMY CAUSES A SLOW AND STEADY PRICE INCREASES THE INDUSTRY HAS HANDLED QUALITY IMPROVEMENT WITH MUCH GREATER COSTS



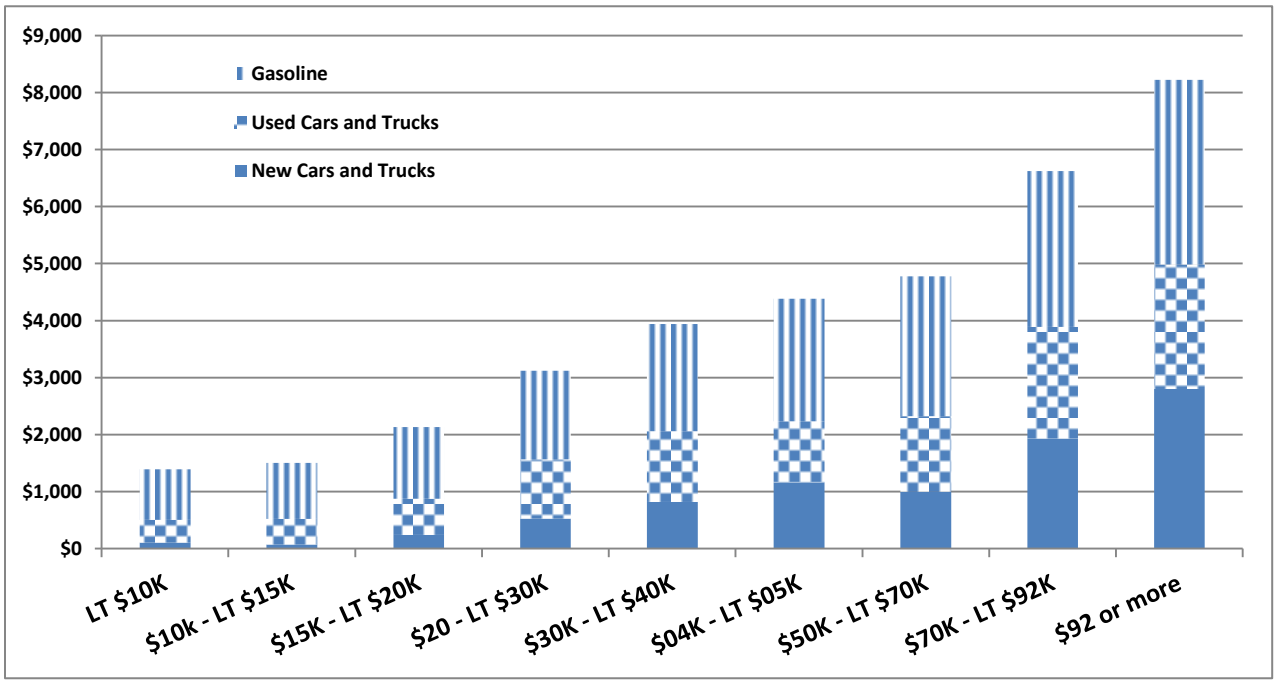
Source: Bureau of Labor Statistics, Quality Changes for Motor Vehicles, various years; consumer Price Index data base; Sources: Office of Regulatory Analysis and Evaluation, *Regulatory Impact Analysis, Corporate Average Fuel Economy,* 2011, 2012-2016, 2017-2025.

Concerns about a Negative Impact of the Standards on Consumers and the Auto Market are Unfounded

The dealers have expressed the concern that the standard will hurt low income consumers, but the above analyses which say higher fuel economy will not harm consumers applies equally, if not more so to low income households, as shown in Exhibit VII-5.

- Households with income below $20,000 made up approximately 22 percent of all households in 2010, but they accounted for only 2 percent of the money spent on new vehicles in 2010.
- Gasoline expenditures are a much bigger problem for these households. In 2010 households with incomes below $20,000 spent 7.3 times as much on gasoline as the spent on new car payments.
- Used cars are much more important to lower income households and in the near term, because the standards will accelerate the turnover of the vehicle fleet and the supply of used vehicles, driving down prices.
- Ultimately, low income households are best served by driving vehicles with the lowest total cost of driving and gasoline expenditures are a key consideration. As the more fuel efficient vehicles age and turn up in the used car market, low income households will gain access to these vehicles.

EXHIBIT VII-5: LOW INCOME HOUSEHOLDS WILL NOT BE HARMED BY THE STANDARD
AVERAGE ANNUAL EXPENDITURES ON KEY COSTS OF DRIVING BY INCOME LEVEL



Source: Bureau of Labor Statistics, Consumer Expenditure Survey, 2010.

VIII. NHTSA AND EPA HAVE SERIOUSLY UNDERESTIMATED THE BENEFITS OF THE STANDARDS

In research reports and technical comments on proposed rules over the past five years, as described in Exhibit S-1 of the comments , the Consumer Federation of America has articulated an analytic framework for assessing the impact of higher fuel economy standards on consumers and the nation. The framework that calls on regulatory agencies to make sure that their evaluation of standards reflects the reality of consumers and the economy. In several areas, the framework used by the federal agencies has improved, although there are still assumptions and approaches with which we disagree.

- The base case price of gasoline is too low. The Energy Information Administration has recently raised its estimate of gasoline prices by an average 30 cents per gallon.
- Significant macroeconomic benefits of great fuel economy have been ignored or mishandled in the base case including:
  - A large rebound effect that is too large and applied in the wrong way.
  - The failure to apply any strategic value to oil as a commodity.
  - A "price effect" recognizes that the reduction in U. S. gasoline consumption lowers the world price of crude substantially.
  - A GDP multiplier that recognizes large gains in energy efficiency, reduced trade deficit and increased consumer spending on goods and services other than gasoline should be included in the analysis and measured in the form of increases in national output and employment.

In the current rulemaking, the points of disagreement are not critical to the ultimate decision for two reasons.

- First, the proposed standards are so clearly in the public interest that correcting the flaws would not make much difference in the final outcome. Every test of cost and benefit and every assumption or scenario, no matter how extreme, shows that the benefits of the proposed standards outweigh their costs by a substantial margin. In the vernacular of daily life, this rule is a "no brainer" that should be adopted.
- Second, while the rule takes a long term view, which is certainly the right thing to do to set energy policy on a stable footing and give the automakers a clear path, the proposed rule also adopts a "midcourse review" to examine whether changes are needed. This strikes a proper balance between the need for certainty and the need to adjust to changed circumstances.

However, over time, particularly with the mid-term review in mind, the points of disagreement could take on more weight in the decision making. As the fuel economy of vehicles rises, incremental benefits become small and incremental costs become larger. It becomes more important to get the cost benefit analysis right. In this context, this section outlines that analytic approach that CFA takes to the analysis. We continue to insist that the analysis be done correctly, so we present our cost benefit analysis with the adjustments that we believe are necessary and have been discussed in earlier proceedings. We eschew a lengthy discussion of where the agencies were at the outset and where they are now, compared to where we think they should be.

Exhibit VIII-1 summarizes the key issues that should be addressed, giving a sense of how important they are expressed as a percentage of the total national benefit in the bases case NHTSA-EPA analysis.

- Our analysis of the base case leads us to conclude that the base case analysis underestimates the benefits by at least 15 to 20 percent. In dollar terms, that is $75 to $100 billion.
- Since the total cost of adding the fuel economy technologies necessary to meet the standard is only $132 billion and the calculated benefits are in the range of $500 billion, this underestimation of benefits is substantial.
- Inclusion of a full measure of the price effect and the GDP multiplier alone could raise the estimated benefits substantially.

EXHIBIT VIII-1: UNDERESTIMATION OF BENEFIT IN THE NHTSA-EPA ANALYSIS EXPRESSED AS A % OF BASE CASE CONSUMER EXPENDITURE SAVINGS

	Consumer Pocketbook	National Total
Rebound Effect	10%	5%
Price Effect	5%	5%
Resale Value	+	na
Deflating Loan Payments	6%	
Military Value	na	4%
Subtotal incorporated in CFA analysis	21%	14%
Economic Multiplier	na	20%
Price of Crude oil	5%	5%
Total	25%	39%

Rebound effect: When U.S. consumers drive vehicles that get more miles to the gallon, they save money on their gasoline bills. They have more money in their pockets to spend. Whether or not they choose to use some of that extra spending money to drive more, they are still better off.[19] From a national cost-benefit point of view, the rebound effect should be subtracted from the fuel savings, but from the point of view of the individual consumer, the analysis must assume that all of the savings increase consumer welfare and that consumers choose to use those savings in a manner that maximizes their individual welfare. For this reason, the rebound effect should be subtracted in the national cost benefits analysis but not the consumer pocketbook analysis.

Price Effect: Because the U.S. accounts for a large share of the total global consumption of gasoline, (over one-fifth), when a fuel economy standard lowers U.S. consumption significantly, it will have several important effects on the world oil market. The largest is known as a consumption externality. When global demand is reduced significantly, it puts downward pressure on prices. NHTSA-EIA put the price effect at a mean value of $0.30 cents per gallon. All consumers will experience the lower price. This is a true externality in the sense that individual consumers cannot see it or count on it as individuals, but if consumers as a group move to a higher level of fuel economy, they all benefit. By acting together, every individual consumer pays less per gallon and has more money to spend on other goods and services. This is a consumer benefit that should be taken into account the consumer pocketbook analysis. Of course, as the price of gasoline goes down,

[19] We have argued that the rebound effect should be taken into account only in the national cost-benefit analysis and then modelled as an income effect, not a price effect. That is, the consumer would devote extra dollars of disposable income to gasoline expenditures reflecting the marginal value of gasoline. This would put the current rebound effect in the range of 5%, which is what more recent studies have found.

consumers may choose to drive more (using more gasoline), so part of the consumption externality is offset and the price effect is reduced. For the purpose of this analysis, we assume that 80% of the price effect turns up in the consumer's pocketbook.[20] This pricing effect lowers the cost of crude oil, which means that the price of all petroleum products declines. We distinguish this from the direct effect on consumer expenditures for gasoline.

GDP Multiplier: In some ways the most egregious flaw in the agency analysis is the failure to include an analysis of the impact that the dramatic increase in fuel economy and reduction in expenditures on gasoline would have on the broader economy. When the cost of an important factor of production goes down or its use becomes much more efficient, we would expect the performance of the economy to improve, and *visa versa*. This is a standard type of analysis that is routinely applied by all government agencies to assess the impact of policies.

These impacts are likely to be particularly important for a factor of production that is pervasive throughout the economy, like oil. Not only is it pervasive but we also import huge quantities, which results in a massive imbalance in our trade position. Moreover, since we run large negative trade balances with the nations from which we purchase oil, their spending on the goods and services we produce does not offset the drain of imports on our economy. Putting more money in consumers' pockets under these circumstances and lowering the total national oil bill can be expected to stimulate economic output.

In fact, the agencies conducted just such an analysis and they found exactly what theory predicts. Increasing the efficiency of the economy, reducing the balance of payments deficit, and providing consumers with hundreds of billions of dollars to spend on goods and service other than gasoline, would increase economic output significantly. EPA explained that "these potential impacts do not represent additional benefits from the regulation. Instead they represent the effects on the U.S. economy as its direct benefits and costs are transmitted through changes in prices in the affected markets, include those for vehicles, and their components, fuel, and the various resources used to supply them."[21] EPA used a widely-known and well respected general equilibrium model to estimate the indirect macroeconomic effects and found that the economy would be larger by about one-quarter of a percent – $44 billion in 2017 – but the impact would grow to almost 1.5% – over $500 billion – by 2050.[22]

There was a great deal of back and forth between EPA and other agencies over the precision of these estimates.[23] We believe that the directionality of the effect of the policy is quite certain and the magnitude is likely to be large. Because the GDP multiplier is real the agencies should include the results of several macroeconomic models for every analysis. Once the practice of including the GDP multiplier by applying macroeconomic models is incorporated into the analysis, careful consideration should be given to the question of what the results mean.

A good argument can be made that the analysis must be careful not to double count. For example, if the model inputs the consumer savings, the technology costs and the price effect as direct effects (which is what EPA did), the increase in the GDP above the net benefit of those three figures is the indirect effect. Subtracting these three figures from the total GDP increase shown in

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[20] The rebound effect of 10% would operate to lower the price effect. The price effect estimated by NHTSA-EIA for national analysis is equal to 8 percent of the average price of gasoline over the cost-benefit period. Rebound effect studies tend to be based on crude aggregate data, which in theory, should take the price effect into account. To be conservative, we use 80% of the price effect in adjusting the calculation of benefits in the consumer pocketbook analysis.

[21] Memorandum: Economy Wide Impacts of Greenhouse Gas Tailpipe Standards, March 4, 2010.

[22] EPA, 2017 Regulatory Impact Assessment, p. 8-39.

[23] Summary of additional interagency working comments received on draft rule under EO 12866 review, 11/04/2011.

the EPA base case analysis yields an indirect GDP multiplier equal to about one-quarter of the base case estimate of consumer expenditure benefits. This has a dollar value of about $125 billion. Applying the multiplier to the economy wide reduction in the price of crude oil, would also have a substantial indirect economic benefit equal to about 5% of the base case consumer expenditure benefits.

The CFA estimates of benefits presented above include the first five factors in Exhibit VIII-1, but not the last two. Therefore, although our estimates of consumer and national benefits are higher than the agencies, the actual benefits are likely to be even higher. The bottom line is that the consumer pocketbook benefits measured in prices paid for petroleum products is likely to be about $100 billion larger. National economic benefits are likely to be about $160 billon larger.

Analytic and Conceptual Issues

The PRIA contains a lengthy discussion of what has been called the "efficiency gap" or the "efficiency paradox" for several decades.[24] As discussed in Attachment C, the "efficiency gap" is identified by the economic/engineering analysis. The "efficiency gap" exists where, under reasonable and realistic assumptions about cost and value, there are many technologies available that would produce substantial net benefits to consumers if they were included in the new vehicles. The failure of the auto market to include these technologies raises the question of why, in a capitalist economy, where markets are presumed to be efficient, so much economic value is left unrealized.

The discussion boils the debate down to two basic positions. On one side is the possibility that the marketplace gets it right. Maybe the value of fuel economy is lower or the costs higher than the engineering/economic analysis claims. On the other side is the possibility that there are imperfections in the market that lead it to miss the mark, imperfections that can be corrected with public policies that allow the net benefits to be realized for consumers and the nation.

In many ways, the discussion in the PRIA is superior to previous analysis of this issue offered by the agencies. The agencies recognize that there are both supply-side and demand-side factors that might cause the market to deviate from the optimum outcome. The analysis underscores the fact that the vast majority of the benefits of the standards are direct consumer welfare benefits. The discussion notes that there are strong arguments and evidence in the literature that support the basic finding of the economic/engineering analysis and the conclusion that standards are an effective policy to address the market imperfections that cause the problem.

It is unfortunate, however, in light of the recognition that the imperfections exist on both sides of the market, the agencies continue to refer to the implicit discount rate that is calculated by comparing market outcomes to economic/engineering valuations, as the "consumer" discount rate. The implicit discount rate is the "market" discount rate. It reflects both the demand-side causes of market failure (some of which may be consumer causes, e.g. behavioral) and the supply-side causes (some of which are behavioral as well). The agencies do not recognize many additional potential causes of market failure including market structural conditions and transaction cost). CFA has provided a broader review of the literature that supports this conclusion in Attachment C.

In spite of the incomplete discussion of the potential causes of market failure, the agencies conclude, correctly, that the base case analysis should be the pillar on which the choice of a

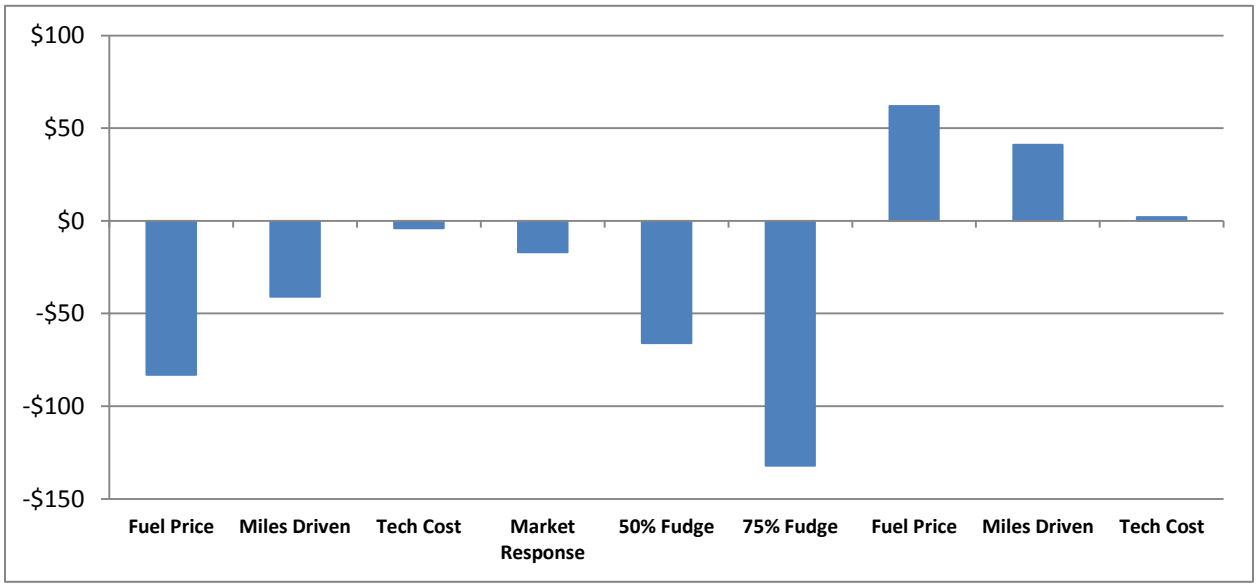
[24] **Office of Regulatory Analysis and Evaluation National Center for Statistics and Analysis**, ***Preliminary Regulatory Impact Analysis Corporate Average Fuel Economy for MY 2017-MY 2025, Passenger Cars and Light Trucks,*** **November 2011,**

standard rests. We agree with that conclusion. The agencies treat the base case with a 3% discount rate as the starting point for the sensitivity analysis. We agree with that conclusion.

We do not agree with the decision to conduct a "fudge" factor analysis that arbitrarily slashed the size of the efficiency gap. The analysis offers no empirical justification for these values and if the proposed rule had been based on or influenced by the decision to reduce the projected benefits by one-quarter and one half, it would be arbitrary and capricious and subject to court challenge.

Moreover, the general discussion of consumer welfare combined with the traditional sensitivity analysis has already addressed the underlying uncertainties (see Exhibit VIII-2). The overall analysis conducted by the agencies suggests that this "fudge" factor analysis is unnecessary. The major factors that are cited as reasons why the size of the real world efficiency gap would be smaller are already taken into account in the sensitivity analysis. These include fuel prices, the rebound effect, the cost of key technologies, and the market driven response case. Moreover, general uncertainty is taken into account with the Monte Carlo simulation analysis. Thus, by including the "fudge" factor analysis that lowers the value of benefits, the agencies distort the picture of the impact of the standards. The agencies are double counting the factors that might reduce the value of the standards by not including a "fudge" factor analysis that increases the benefits.

EXHIBIT VIII-2: RESULTS OF SENSITIVITY ANALYSES (NET BENEFIT, $2009, BILLION, 3% DISCOUNT)



Source: Office of Regulatory Analysis and Evaluation National Center for Statistics and Analysis, ***Preliminary Regulatory Impact Analysis Corporate Average Fuel Economy for MY 2017-MY 2025, Passenger Cars and Light Trucks,*** **November 2011, Table 2 and Table X-12c.**