Consumer Federation of America

1620 I Street, N.W., Suite 200 * Washington, DC 20006

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

Dr. Mark Cooper
Director of Research

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A HISTORIC MOMENT IN U.S. ENERGY POLICY

With the Senate having passed the first major increase in fuel economy standards in 20 years and the House about to take up similar legislation, the question for policy makers is not *whether* to increase CAFE standards, but *how much* and *how quickly*.

Answering these questions is a complex task, in part because a number of proposals are on the table, and in part because estimating the impact of specific policies depends on assumptions about how regulators and auto manufacturers will react to any new policy.

To assess the options before policymakers, this paper examines four policies that have been put forward: the President's proposal in the State of the Union address; the Markey-Platts bill (H.R. 1506) in the House; the Senate energy bill (H.R. 6); and the Hill-Terry bill (H.R. 2927), which is supported by the auto industry and similar to a Pryor-Levin-Bond amendment that was introduced in the Senate, but never brought to a vote.

The proposals differ along three critical dimensions: targets, timing, and the handling of flexible fuel vehicles.

- In his State of the Union address, President Bush called for a dramatic reduction in gasoline consumption by 2017 that was based on "an *assumption* that on average, fuel efficiency standards for both light trucks and passenger cars are increased 4 percent per year."[1]

- The Markey-Platts bill in the House is similar to the President's proposal. It mandates an increase in the average fuel economy from the current 25 miles per gallon (mpg) to 35 mpg in 2017, with future increases of 4 percent per year thereafter.

- The Senate energy bill sets a target of increasing fuel economy to 35 mpg by 2020, with subsequent increases that are the maximum feasible.

- The Hill-Terry bill calls for increases in average fuel economy to no less than 32 mpg or no more than 35 mpg by 2022. The Hill-Terry bill also extends the flexible fuel vehicle (FFV) credit from 2010 to 2020.

The flexible fuel vehicle credit has a major impact on fuel economy because flexible fuel vehicles are given credit for oil savings whether or not they actually use alternative fuels. The credit is capped at 1.2 mpg for each auto manufacturer. The President did not address the FFV credit and neither the Markey-Platts nor Senate energy bill extends the credit.

The resulting mix of targets, timing, and flexible fuel credits creates a complex set of policy alternatives (see Exhibit 1). It is obvious that the President's proposal, the Markey-

[1] Available at www.whitehouse.gov/stateoftheunion/2007/initiative/neergy.html, p. 2.

Platts bill, and the Senate energy bill require higher savings targets sooner than the Hill-Terry auto industry bill.

Exhibit 1: Policy Alternatives

	TARGET	TIMING	FLEXIBLE FUEL VEHICLE CREDIT EXPIRATION
President 4%			
Primary target	4%/year	2017	2010
Subsequent progress	N/A		
Markey-Platts			
Primary target	35 mpg	2018	2010
Subsequent progress	4%/year	after 2018	
Senate Energy			
Primary target	35mpg	2020	2010
Subsequent progress	Maximum Feasible	after 2020	
Hill-Terry			
Primary target	32 minimum 35 maximum	2022	2020
Subsequent progress	Capped at 35mpg		

To assess the difference in fuel savings between these policies, this paper uses the President's proposal as a baseline. It is a useful baseline, not only because the President proposed it, but also because the National Highway Traffic Safety Administration (NHTSA) prepared a series of analyses of potential fuel economy improvement policies, one of which was a 4 percent scenario that is quite close to the President's general statement.[2] While there are many problems in NHTSA's cost-benefit analysis, a study by the National Academy of Sciences from 2002 shows that the basic physical quantities[3] are sound, including fuel economy increase, gallons of gasoline saved, and investment costs to achieve these savings.

METHODOLOGY

To compare policies that are under consideration we assume that each of the alternatives achieves steady progress (sometimes called ratable progress). We assume that without legislation, we would remain stuck in neutral (after the slight increase in trucks), which is what has happened for the past two decades.[4] We then calculate the cumulative effect of the increase in mileage for each proposal. We express the resulting cumulative fuel savings as a percentage of the President's proposal.

[2] National Highway Traffic Safety Administration, *CAFÉ Compliance and Effects Modeling System (Documentation Draft, 5/26/06).*

[3] These are discussed in *A Consumer Pocketbook and National Cost-Benefit Analysis of "10 in 10": Increasing Cafe Standards 10 Miles Per Gallon Over Ten Years Will Save Consumers Money And Help Cure the National Oil Addiction* (Consumer Federation of America, June 2007), available at: http://www.consumerfed.org/pdfs/CFA_Cost-Benefit_Analysis_of_10_in_10,_June_07.pdf

[4] Consumer Federation of America, *Stuck in Neutral: America's Failure to Improve Fuel Efficiency: 1996-2005* (November 2006), available at: http://www.consumerfed.org/pdfs/Stuck_in_Neutral.pdf

We look at two time periods to assess the policies. The first ends in 2017, which is the target year for the President's proposal. The second ends in 2022, which is the target year for the auto industry proposal.

In order to provide a fair comparison, we make uniform assumptions across the policies. For example, we assume steady progress consistent with the goals of each policy. It is possible to argue that some approaches are more prone to slippage than others because there are more loopholes or "off ramps," but that is a difficult process to model. The assumption of steady progress seems a more reasonable basis on which to compare policies. We apply this principle to continuing improvements. That is, the auto industry proposal does not hit its targets until 2022, while the other three proposals hit their targets earlier (2017-2020). Unlike the auto industry approach, none of the other policies explicitly caps progress at its target level. Therefore, in the reference case, we assume continuous progress until 2022 for all policies. As a test case, we assume a cap in the target year of each policy, unless otherwise stated by the policy.

Modeling the impact of extending the flexible fuel vehicle loophole is tricky. To keep the analysis clear and simple, we assume a jump in fuel economy to meet the standard in the year the loophole closes, although automakers might ramp up the fuel economy of vehicles to avoid paying fines if they could not make the large change in the year the credit expires. For purposes of the base case, we assume that the availability of the credit reduces the achieved fuel savings by one-half the maximum allowable credit – or .6 mpg off the fleet average. As alternative test cases, we also model a scenario in which the maximum credit (1.2 mpg) is assumed to reduce the fuel savings and a case in which there is no loss of fuel savings.

THE ENERGY POLICY COMPARISONS

Exhibit 2 shows the base case scenario for the improvement in fuel economy in the five policy alternatives. There are five alternatives because the auto industry proposal provides for a range of outcomes – a minimum of 32 and a maximum of 35 mpg by 2022. Note that the achieved starting fuel economy is set at 24.9, reflecting the "loss" of .6 mpg due to the FFV credit. Also note that there are different step-ups for the FFV credit expiration. The step up occurs in 2010 for the President, Markey-Platts, and Senate Energy, in contrast to the step-up in 2020 under the auto industry proposal.

Exhibit 2
Base Case

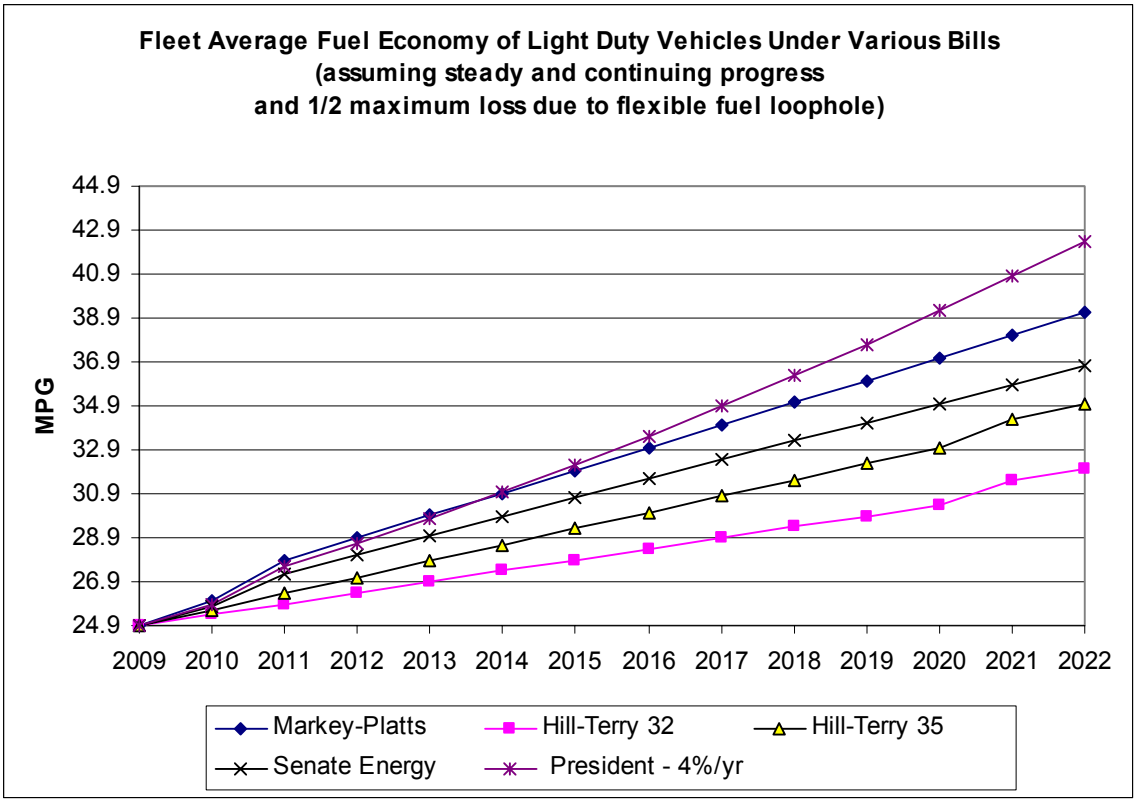
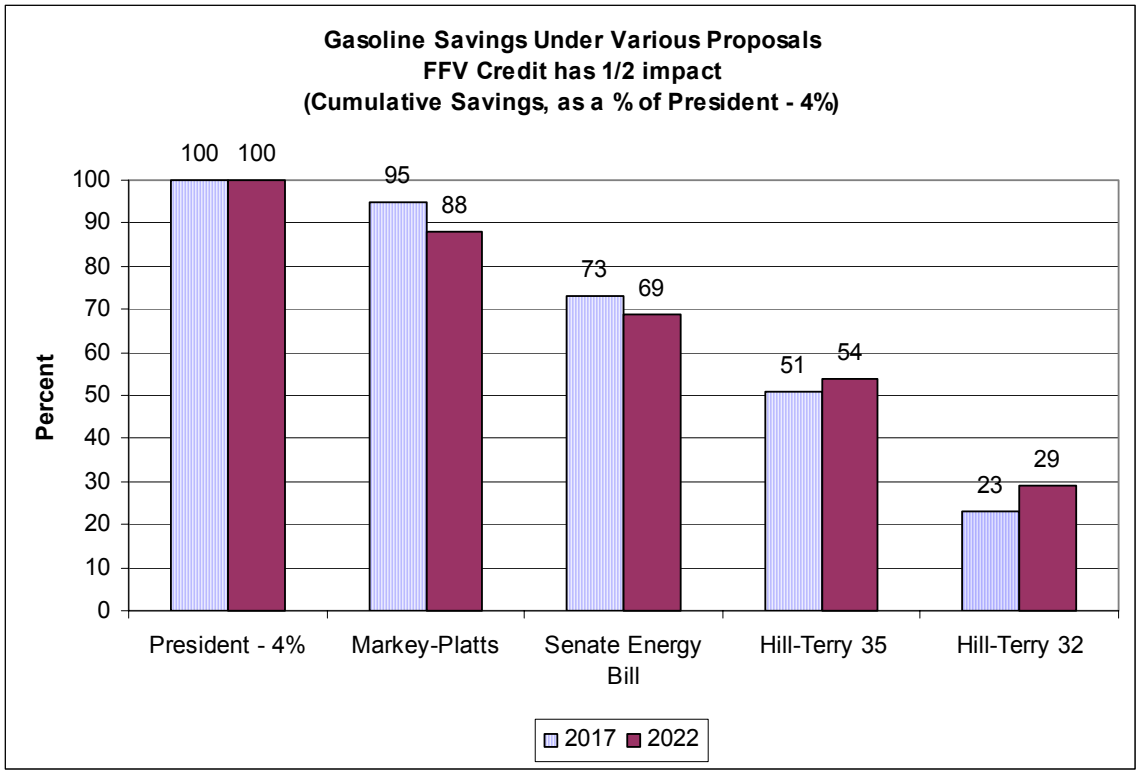


Exhibit 3 shows the level of gasoline savings across the five policy scenarios, using the President's 4 percent as the base.[5] Under the base case assumption, Markey-Platts achieves about 90 percent of the President's proposal, while the Senate energy bill achieves about 70 percent. If the maximum were achieved under the auto industry proposal, it would achieve about half of the President's proposal. If the minimum under the auto industry proposal were achieved, it would achieve about a quarter of the President's proposal.

[5] The appendix shows the detailed scenarios for the test cases.

Exhibit 3:



The test cases do not change the picture much; certainly not with respect to the broad order of magnitude differences between the policies (see Exhibit 4). If the flexible fuel vehicle credit is assumed to have a larger impact on the actual fuel savings, the auto industry proposal, which extends that loophole for a decade, looks somewhat worse. If the flexible fuel vehicle credit is assumed to have no impact on the actual fuel savings, the auto industry proposal, which extends that loophole for a decade, looks somewhat better. If the plans that do not cap future savings fail to sustain progress past their initial target date, the auto

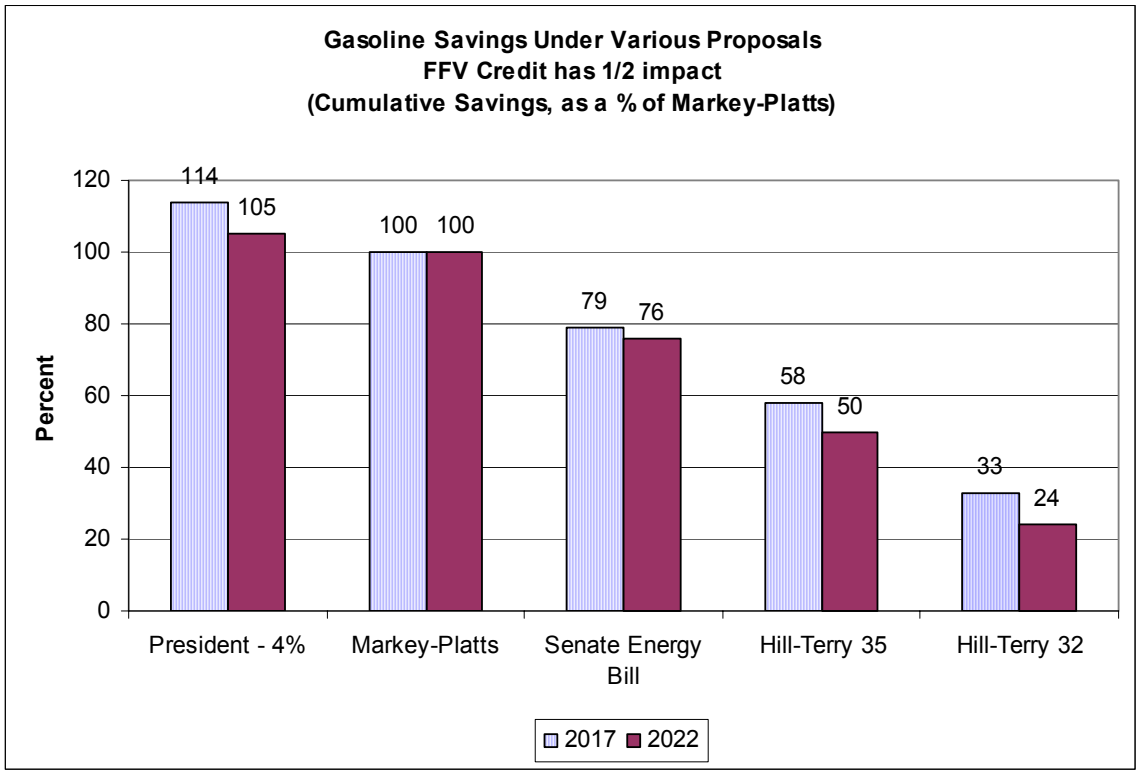
Exhibit 4: Reference and Test Cases

	2017					2022				
	Pres. 4%	Markey Platts	Senate Energy	Auto Ind 35	32	Pres. 4%	Markey Platts	Senate Energy	Auto Ind. 35	32
Base case	100	95	73	51	23	100	88	69	54	29
0 FFV Impact	100	92	72	58	35	100	86	72	58	35
Max FFV Impact	100	91	69	45	24	100	93	72	35	11
Post-Target Cap	100	95	72	48	23	100	99	85	65	37

industry alternative fares a little better. Overall, the auto industry proposal would achieve no more than one-half and probably only one-quarter of the savings of the President's 4 percent proposal.

Since the immediate options that are likely to be taken up by the House are Markey-Platts and the auto industry proposal (Hill-Terry), we can express the base case finding as a percentage of Markey-Platts (see Exhibit 5). By its target date, the auto industry proposal leaves at least one-half and probably three-quarters of the fuel savings that would be achieved by Markey-Platts unrealized.

Exhibit 5:



IS MORE FUEL SAVINGS BETTER?

It is quite clear that the auto industry proposal achieves much lower savings than the other three proposals. However, the fundamental question is whether more energy savings is better. Our conclusion is that, from both a consumer and national policy point-of-view, the answer is a resounding yes!

NHTSA's Cost-Benefit Analysis

One obvious place to start is with NHTSA's cost-benefit analysis. NHTSA estimated that the 4 percent scenario would achieve 110 billion gallons of gasoline savings. Having concluded that the auto industry proposal fails to achieve between one-half and three-quarters of that total, the nation would consume between 55 and 82.5 billion more gallons of gasoline under the auto industry proposal than the 4 percent per year proposal, which translates to 1.3 to 2 billion additional barrels. At $2.75 per gallon, which is a conservative estimate of the price of gasoline going forward, the added consumer expense would be between $150 billion and $225 billion under the auto industry proposal. The greenhouse gas emissions would be between 770 million and 1.1 billion tons greater. In contrast, Markey-Platts achieves well over 90 percent of the 2017 savings.

It is extremely important to note that in the NHTSA analysis, the total cost to the auto industry of achieving the 110 billion gallon savings in the 4 percent 2017 scenario was about $112 billion dollars. Assuming gasoline at $2.75 per gallon, the total savings to consumers of just over $300 billion swamps the cost to the auto industry by 3 to 1. Ironically, even under an absurdly low assumed cost of gasoline (NHTSA assumed only $1.50 per gallon), irresponsibly low assumptions about the national security and environmental cost of gasoline (NHTSA assumed $.11 per gallon) and several other extremely cautious assumptions, NHTSA still found that the 4 percent 2017 scenario was cost-justified. That is, the benefits exceeded the costs.

Even though NHTSA finds the 4 percent scenario cost justified, its extremely low gasoline price and externality value of gasoline, along with several other assumptions, seriously underestimates the value to the nation. We have conducted an analysis with more realistic assumptions:

- The price of gasoline at $2.50 - $3.00;
- The external value adder at $1-$2 per gallon;
- Discount rates of 3 percent and 7 percent; and
- A "rebound" effect of 10 percent and 20 percent.

Instead of a cost-benefit ratio of 1.05 to 1, we found cost-benefit ratios closer to 2-to-1 or 3-to-1 (see Exhibit 6). In dollar terms, instead of net present value benefits of about $120 billion, compared to costs of $110 billion, we find net present value benefits between $200 and $400 billion compared to the same costs.

Exhibit 6:
National Cost-Benefit Analysis of the 4% Scenario under Various Assumptions about Gasoline Prices, Externality Adders, Discount Rates, and Rebound Effects

	NHTSA	ALTERNATIVE ASSUMPTIONS			
Price of Gasoline	$1.50	$2.50	$3.00	$2.50	$3.00
Value of Externalities	.11	1.00	2.00	1.00	2.00
Total Social Cost of Gasoline	$1.61	3.50	5.00	3.50	5.00
Rebound Effect	20%	20%		10%	
Value of Gasoline Savings (Billion $)					
Discount Rate 3%	N/A	243	347	270	385
7%	120	203	290	225	322
Cost-Benefit Ratio					
Discount Rate 3%	N/A	2.13	3.04	2.37	3.38
7%	1.05	1.78	2.54	1.98	2.82

The Consumer Pocketbook Test

Although some opponents of increasing CAFE act as if the auto companies bear the financial burden of increased technology costs, it is ultimately the consumer who will be required to cover the cost. We have also looked at the critical question of what would happen to consumer pocketbooks if the auto industry costs for achieving this increase in fuel economy were passed on to consumers in the cost of the vehicles, as we expect the costs would be. The fundamental question is "will the consumer be better off for having done so?" To answer this question, we take a strict consumer view. Since most consumers finance their auto purchases, we ask, "What impact does the increase in initial cost to achieve higher fuel efficiency have on the total out-of-pocket monthly cost the consumer pays when the fuel savings are factored in?"

Consumers borrow to buy vehicles and pay off an auto loan at a fixed, short-term rate. For the consumer, it is straightforward to calculate the monthly payment the consumer would incur when buying the car and the monthly gasoline bill the consumer would pay to drive it.

We calculate two consumer pocketbook tests:

1) The out-of-pocket test compares the increase in loan payments to the amount saved due to reduced gasoline consumption over the life of the loan. This ignores the fact that when consumers sell or trade their new autos, they might be able to recover the cost of fuel efficiency in that sale price. We could assume the consumer will retire the remainder of the auto loan when they retire (sell) the car, using the sale to pay off the loan. Higher gasoline

mileage can fetch higher resale or trade-in values. With fuel efficiency becoming more important, this is becoming more likely. Thus, we remain convinced that from a consumer point-of-view, the relevant analysis involves a period at least as long as the length of the loan and perhaps longer.

2) The life of the vehicle test includes the gasoline savings over a ten year period, which is assumed to be the life of the vehicle.

To conduct the analysis, we use a 7 percent auto loan rate, which is available today[6] with a five-year loan life. Well over half of all new auto loans are five years or longer.[7] Because consumers tend to drive their newer cars more, the gasoline savings are estimated based on 15,000 miles per year driven in the first year (which is the basis for Environmental Protection Agency (EPA) and NHTSA calculations), declining by 1,000 miles per year. As fuel efficiency becomes a greater concern, the use of more efficient vehicles is likely to grow, making this a conservative assumption.

To achieve the 35 mpg average, we assume an average investment of $1,600 per vehicle.

Under these logical assumptions, increases in fuel efficiency pay for themselves (see Exhibit 7). The savings in the monthly gasoline bill are larger than the increase in the cost of the vehicle. If the consumer keeps the vehicle past the period of the loan, or captures the value of future fuel savings when the car is sold or traded in, the payoff would be quite large.

Exhibit 7: Consumer Analysis of Reformed CAFE: All Households

	GASOLINE PRICE	
	$2.50	**$3.00**
Loan Payment Increase	$1909	$1909
Life of Loan		
Fuel Cost Savings	$2073	$2487
Net Savings	$164	$578
Life of Vehicle		
Fuel Cost Savings	$2900	$3480
Net Savings	$991	$1571

Source and Assumption: see text.

The increase in the cost of the car to improve efficiency adds just under $32 per month to the cost of the car. Over the course of the full 60 months of the loan, the total increase in payments is $1,909. However, in the first year, when the car is assumed to be driven 15,000 miles, the consumer would use an average of almost 14 gallons per month less gasoline. The consumer would save about $34.50 per month if the price is $2.50 per gallon and $41 per

[6] Payments are calculated using the loan rate calculator at bankrate.com
[7] Consumer Bankers Association, *2006 Automobile Finance Study: Highlights of the 2005 Year-End Data,*

month if the price is $3.00 per gallon. Over the life of the loan, consumers save more in gasoline expenditures than they pay in increased loan payments. Looking to the life of the vehicle, we observe substantial consumer savings in the range of $1,000 to $1,500. Consumers who keep their cars for ten years or capture the value of these efficiency investments will enjoy a big pay-off. Whether it is the initial owner or the second purchaser of the vehicle, society will enjoy the benefits of reduced gasoline consumption over the life of the vehicle.

Rural Americans Will Benefit More from Increases in Fuel Economy

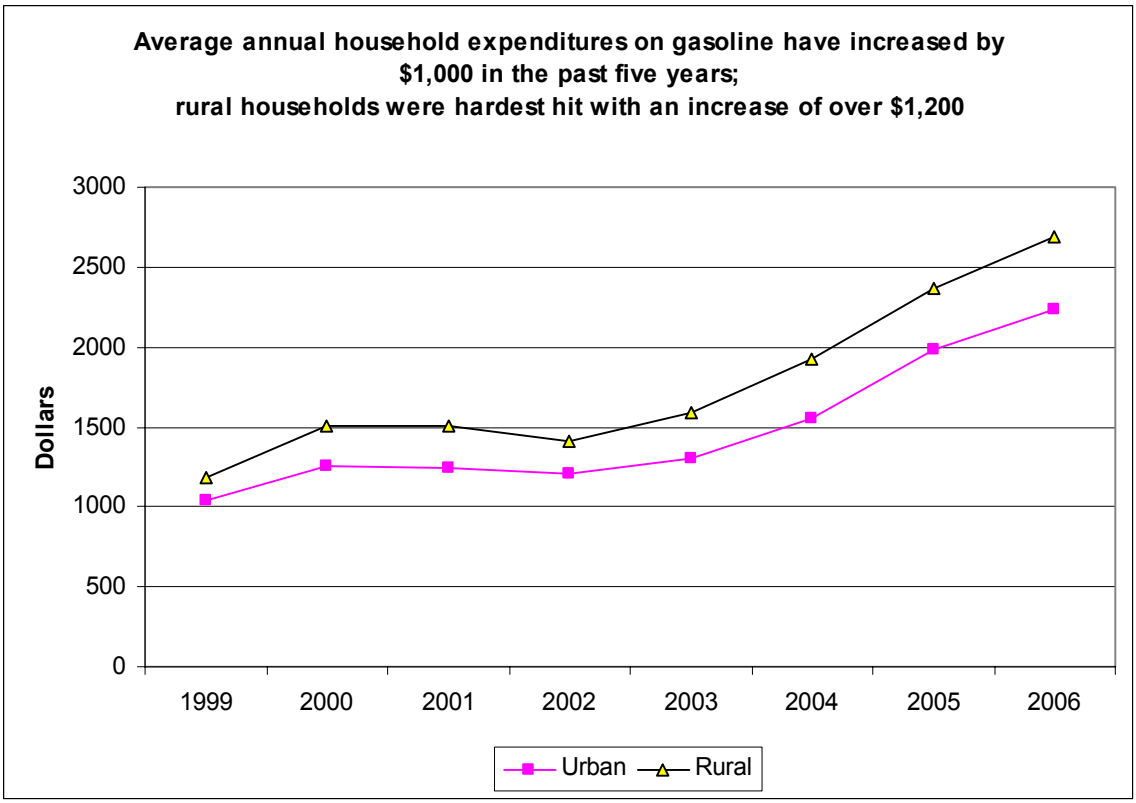
These national average figures obscure a great deal of variation. While consumers have seen their household expenditures increase by more than $1,000 in the past half decade, some groups in society incur much higher expenditures than others. One such group is rural American households.

- They are more likely to have a vehicle.[8]
- They drive 15 percent more miles.[9]
- They get 6 percent fewer mpg.[10]
- They consume 21 percent more gasoline per year.[11]
- They are more likely to own vehicles that fall into the category of pickup and SUV.[12]
- Over three-quarters of all pickup, SUVs, and vans are used for personal transportation.[13]
- Trucks get 30 percent fewer mpg.[14]
- Trucks are kept on the road 11 percent longer.[15]

As a result of these differences, households in rural America spend 20 percent more on gasoline,[16] have suffered a larger increase in their expenditures on gasoline (see Exhibit 8), and would benefit disproportionately from increasing fuel efficiency. Not only do rural households spend more on gasoline, but because their average income is lower, they spend a larger share of their income on gasoline (5.4 percent for rural households compared to 3.5 percent for urban households).[17]

[8] *Summary of Travel Trends: 2001 National Household Travel Survey*, December 2004, p. 36.
[9] Economic Research Service, U.S. Department of Agriculture, *Amber Waves of Grain,* April 2006.
[10] Id.
[11] Id.
[12] U.S. Census Bureau, *Statistical Abstract of the United States: 2004-2005;* Tables 25 and 1082; *2002 Economic Census: Vehicle Inventory and Use Survey* (December 2004) Table a.
[13] U.S. Census Bureau, *2002 Economic Census: Vehicle Inventory and Use Survey* (December 2004) Table
[14] Energy Information Administration, *Monthly Energy Review, April 2007.*
[15] Office of Highway Policy Information, U.S. Department of Transportation, *Attributes of the U.S. Vehicle Fleet.*
[16] U.S. Bureau of Labor Statistics, Consumer *Expenditure Survey,* various years, 2005 adjusted to 2006 with Energy Information Administration, Gasoline Price database.
[17] U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Expenditure, 1999-2005. 2006* expenditures estimated based on 2005-2006 price increase from Energy Information Administration, U.S. All Grades All Formulations Retail Gasoline Prices.

Exhibit 8: Household Expenditures on Gasoline



Source: U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Expenditure*, 1999-2005. 2006 expenditures estimated based on 2005-2006 price increase from Energy Information Administration, *U.S. All Grades All Formulations Retail Gasoline Prices.*

Since there is no reason to believe that the cost of fuel efficiency would be higher in rural America, the net benefits would be much higher (see Exhibit 9). We also consider the special case of pickup trucks, which are much less fuel efficient than other vehicles. The National Academy of Sciences suggests that increasing their fuel economy by 15 mpg would cost less than $3,000. Assuming a $3,000 cost to raise the fuel economy of pickups from 16 mpg to 30 mpg, we find that the consumer savings would be about five times as large.

Exhibit 9: Consumer Analysis of Reformed CAFE: Rural Households

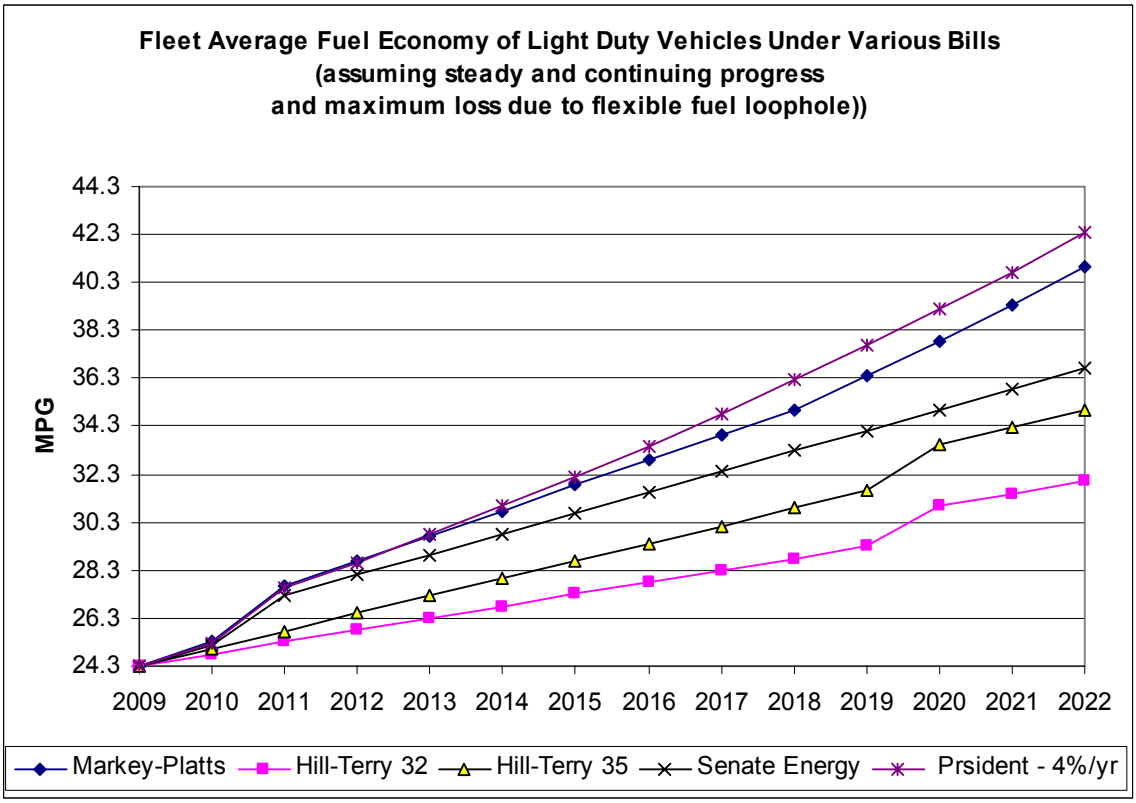
	GASOLINE PRICE	
	$2.50	**$3.00**
FLEET AVERAGE		
Loan Payment Increase	$1909	$1909
Life of Loan		
Fuel Cost Savings	2488	2984
Net Savings	579	1075
Life of Vehicle		
Fuel Cost Savings	3480	4176
Net Savings	1571	2267
PICKUP TRUCKS		
Loan Payment Increase	3565	3565
Life of Loan		
Fuel Cost Savings	4740	5688
Net Savings	1175	2123
Life of Vehicle		
Fuel Cost Savings	9552	11463
Net Savings	5957	7898

CONCLUSION

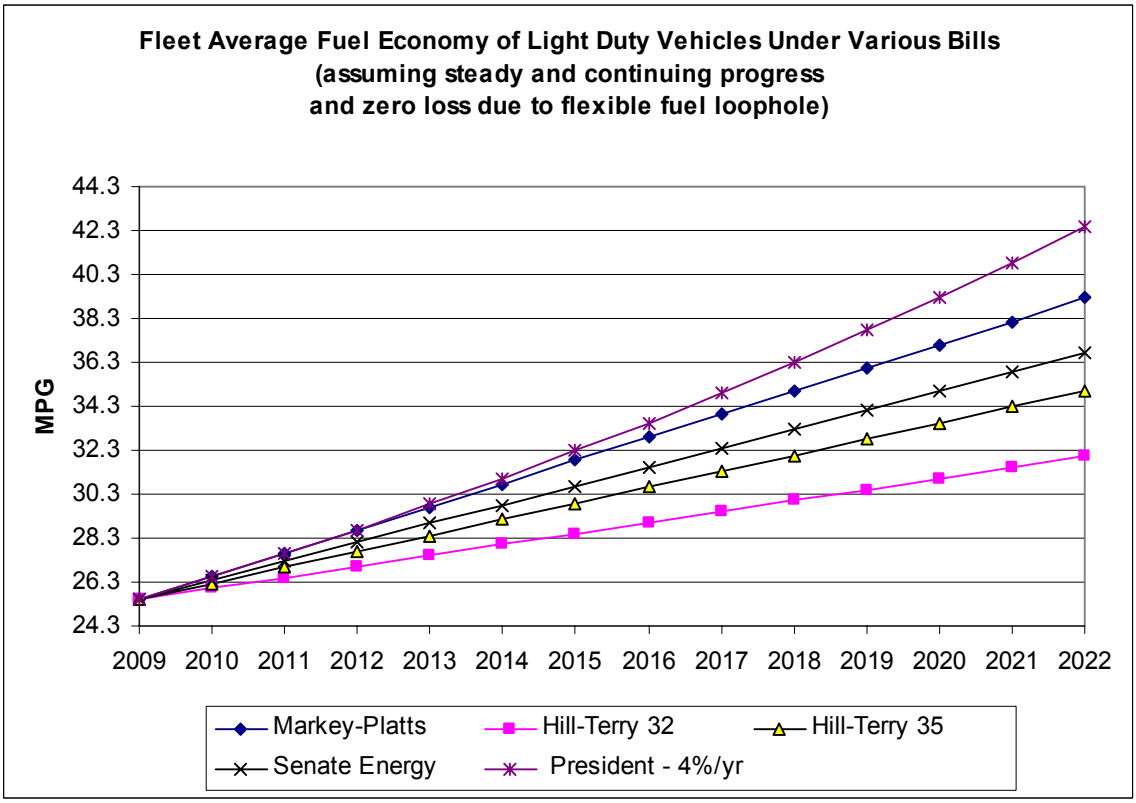
This analysis shows that the auto industry proposal offers fuel economy increases that are far too little and come far too late. Consumers and the nation simply cannot afford this "low and slow" approach to curing the nation's oil addiction. The Markey-Platts bill, which mirrors the President's State of the Union proposal closely, is the best course by far.

APPENDIX: ALTERNATIVE SCENARIOS

MAXIMUM FFV CREDIT LOSS SCENARIO – 1.2 MPG LOSS



FFV CREDIT LOSS SCENARIO – MPG LOSS = 0



CAP SAVINGS AT TARGET SCENARIO, MODERATE FFV LOSS = .6 MPG