

Driving Towards a New Energy Future



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Executive Summary

Legislation to increase Corporate Average Fuel Economy (CAFE) standards for cars and trucks was included in the Senate energy bill (H.R. 6) that was passed in June of this year, marking the first time in over thirty years that either House of Congress has passed an increase in CAFE standards. The Senate CAFE would raise gas mileage standards for cars and trucks from 27.5 miles per gallon (mpg) and 22.2 mpg respectively to 35 mpg by 2020. This would save Massachusetts consumers \$519 million dollars at the pump in 2020, reduce oil consumption by 24,324 barrels per day in 2020 and having global warming emissions

equivalent to taking 294,230 cars off the road in 2020.

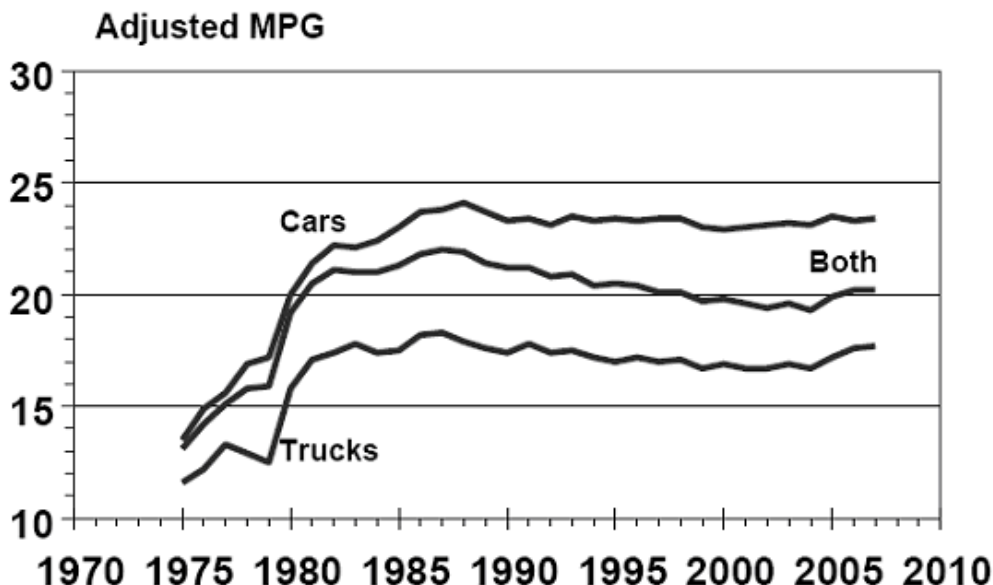
Nationwide the savings would be even more significant. In 2020, the Senate fuel economy legislation would reduce our national oil consumption by 1.2 million barrels per day, save consumers \$26.5 billion dollars and have the global warming emissions reductions equivalent to taking 14 million cars off the road. Increasing CAFE standards is one of the biggest steps we can take to reduce our dependence on foreign oil, improve our national security and move us on the path towards a new, clean, energy future.

America is Too Dependent on Oil

The United States is too dependent on oil. This dependence threatens our national security, environment and pocketbooks. Holding only two percent of the world's oil reserves, the U.S. consumes a quarter of the world's petroleum.¹ Our heavy reliance on oil to fuel transportation vehicles takes a heavy toll on the environment. Emissions from cars are a major source of air pollution like smog and ozone and are a leading source of global warming pollution. Consumers pay for our inefficient vehicles with increased prices at the pump. Gasoline prices have been steadily on the rise for the last five years. In 2003, a gallon of regular gasoline averaged \$1.56; today the average is almost twice as high, rising to \$3.11.²

In the last twenty years there has been a dramatic shift in the American vehicle fleet towards larger less efficient vehicles. Today, sports utility vehicles (SUVs) and light trucks account for almost half of all light duty vehicle sales.³ Despite the development of new technologies like hybrids, the average fuel economy of both cars and SUVs has stagnated. Congress and the Bush administration, however, have failed to increase federal fuel economy standards (except for a minor increase in light truck fuel economy). For model year 2007 new cars and light trucks average just 20.2 miles per gallon (mpg), the same as model year 2006, and five percent below the model year 1987 peak of 22.1 mpg (Figure A).⁴

Figure A. Adjusted Fuel Economy by Model Year (Annual Data), 1975-2007



Source: U.S. EPA, *Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2007*, July 2007.

A Proven Success

In response to the Arab oil embargo of the early 1970s, Congress implemented the first miles per gallon standards in 1975 to protect consumers from high gasoline prices and supply vulnerability resulting from U.S. dependence on foreign oil. The drafters of the successful oil savings law recognized that the only way to reduce dependence on foreign oil was to reduce oil demand, requiring cars and light trucks to nearly double miles per gallon averages to 27.5 and 22.2 mpg, respectively by 1990. As a result, cars today use 2.8 million barrels of oil per day less than they would have under the old fuel economy standards and have significantly reduced global warming emissions.⁵ Unfortunately Congress has not updated the standards since 1975.

Increased fuel efficiency is achievable now, with existing technology. A 2002 National Academy of Sciences (NAS) report concluded that automakers could use existing technology to increase the

fuel economy of their fleets to 37 mpg over the next decade while improving safety and maintaining performance.⁶ The NAS study was conducted when gasoline prices were significantly lower and without considering hybrid technology, so it is likely that they would find that even further gains are possible. The Union of Concerned Scientists has shown that we can achieve 40 mpg within ten years.⁷

If every vehicle simply achieved the same fuel economy as the most efficient vehicle in its size class they would go 48 percent farther on a gallon of gasoline.⁸ This would be equivalent to an average of 44 mpg today.

Once a leader in new technology, the United States now sees itself being outpaced by others. The fuel economy standard for the European Union and Japan is 40 mpg today, while China's mandate will be above 35 mpg by 2009.⁹

The Senate Solution

For two decades CAFE standards have remained unchanged as Congress and Presidential administrations were blocked from raising standards by the auto industry and their allies. At the same time American auto manufacturing jobs continue to decline and American auto share is reduced because foreign manufacturers make the fuel efficient vehicles that American consumers want.

With gas prices skyrocketing, our national security compromised by our

dependence on foreign oil and increased concern about global warming, it has become apparent that an updated fuel emission standard is needed more now than ever. For example, former CAFE opponent, Senator Barbara Mikulski (D-Md) said on the Senate floor: "And now, after 20 years, I firmly do believe it is time for a change."¹⁰ The Senate agreed, passing an energy bill that included CAFE provisions that mandate that we achieve 35 mpg fleetwide by 2020.

Findings

As shown in Table 1, assuming that the mandate in the Senate CAFE legislation is achieved and that each states' gasoline usage remains constant as a percentage of national use, we found that the Senate CAFE legislation would save Massachusetts consumers \$519 million dollars at the pump in 2020, reduce oil consumption by 24,324 barrels per day in 2020 and would have reductions in greenhouse gas emissions equivalent to taking 294,230 cars off the road.

Nationwide the savings would be even more significant. The Senate bill would reduce our national energy consumption by 1.2 million barrels per day in 2020, save consumers \$26.5 billion dollars and reduce the global warming pollution by the equivalent of taking 14 million cars off the road. Increasing CAFE standards is one of the biggest steps we can take to

reducing our dependence on foreign oil, improving our national security and moving us on the path towards a new, clean, energy future.

The ten states that will have the largest consumer savings if the Senate CAFE legislation are adopted are: California, Texas, Florida, New York, Illinois, Ohio, Michigan, Pennsylvania, Georgia and North Carolina. California alone would save over \$3 billion in 2020 under the Senate plan.

Congress should act now to pass an energy bill that includes the Senate CAFE legislation along with a strong renewable electricity standard, and efficiency provisions to save consumers money, reduce our dependence on foreign oil and make a down payment on the fight against globally warming.

Methodology

Oil Savings

The Union of Concerned Scientists (UCS) estimates that we would save 1.2 million barrels of oil each day in 2020 if the CAFE provisions in the Senate energy bill are enacted.¹¹ This report assumed that each state's gasoline use would remain constant as a percentage of national use, as determined from gasoline use data for 2005 from the U.S. Department of Transportation's Federal Highway Administration.¹²

Consumer Savings

Each barrel of oil contains 42 gallons, which yields 19.7 gallons of gasoline.¹³ To calculate the consumer savings by

state, we multiplied each state's oil savings (in barrels per day) by 19.7 to determine the gallons of gasoline saved per day. We then multiplied that by 365 days a year to determine annual oil savings in gallons. We took the current price of gasoline for each state as reported by the American Automobile Association (AAA) on November 14th, 2007 and multiplied it by the state's annual gasoline savings in gallons.¹⁴

Greenhouse Gas Reductions

The Energy Information Administration (EIA) assumes that consuming one gallon of gasoline releases 19.56 pounds of carbon dioxide into the atmosphere

directly from the tailpipe.¹⁵ We multiplied the estimated oil savings (in gallons) by 19.56 pounds per gallon to determine the carbon dioxide tailpipe emission reductions. We divided by 2000 to get the tailpipe emission reductions in tons.

Emissions Equivalency Reductions

EPA estimates that the average passenger car on the road in 2000 emitted 11,450 pounds of carbon dioxide annually.¹⁶ To determine the emissions equivalency, we divided the estimated carbon savings in pounds by 11,450 pounds per car.

Table 1. 2020 Annual State-by-State Oil, Consumer and Emissions Savings Under the Senate CAFE Provision

	Annual Oil Savings in 2020 (Barrels Per day)	Annual Oil Savings in Millions of Gallons in 2020	2007 Gas (Regular) Prices Average	Statewide Savings in millions in 2020	Annual Tailpipe CO2 Emissions Avoided in 2020 (Tons)	Emission Reductions Equivalent (Average Cars)
Alabama	22,470	161.6	\$3.03	\$490	1,580,166	276,012
Alaska	2,566	18.2	\$3.19	\$58	177,683	31,036
Arizona	24,151	171	\$3.00	\$512	1,672,495	292,139
Arkansas	12,488	88.4	\$3.03	\$268	864,798	151,056
California	136,243	964.7	\$3.40	\$3,281	9,435,143	1,648,060
Colorado	18,543	131.3	\$3.10	\$408	1,284,144	224,305
Connecticut	14,050	99.5	\$3.22	\$320	973,015	169,959
Delaware	3,832	27.1	\$3.01	\$82	265,390	46,356
Dist. of Col.	1,263	8.9	\$3.08	\$28	87,444	15,274
Florida	74,230	525.6	\$3.15	\$1,658	5,140,607	897,923
Georgia	43,719	309.6	\$3.05	\$945	3,027,616	528,841
Hawaii	4,511	31.9	\$3.32	\$106	312,370	54,563
Idaho	5,367	38	\$3.09	\$118	371,703	64,926
Illinois	44,393	314.3	\$3.19	\$1,003	3,074,296	536,995
Indiana	27,816	197	\$3.14	\$619	1,926,353	336,481
Iowa	14,047	99.5	\$3.12	\$311	972,812	169,924
Kansas	10,241	72.5	\$3.10	\$225	709,184	123,875
Kentucky	19,257	136.4	\$3.05	\$415	1,333,573	232,939
Louisiana	20,316	143.9	\$2.99	\$431	1,406,958	245,757
Maine	6,278	44.5	\$3.15	\$140	434,749	75,939
Maryland	23,149	163.9	\$3.04	\$498	1,603,147	280,026
Massachusetts	24,324	172.2	\$3.01	\$519	1,684,467	294,230
Michigan	42,718	302.5	\$3.23	\$977	2,958,332	516,739
Minnesota	23,356	165.4	\$3.09	\$512	1,617,454	282,525
Mississippi	14,204	100.6	\$3.00	\$302	983,674	171,821
Missouri	27,832	197.1	\$2.98	\$586	1,927,402	336,664
Montana	4,218	29.9	\$3.19	\$95	292,127	51,027
Nebraska	7,221	51.1	\$3.20	\$164	500,104	87,354

	Annual Oil Savings in 2020 (Barrels Per day)	Annual Oil Savings in Millions of Gallons in 2020	2007 Gas (Regular) Prices Average	Statewide Savings in millions in 2020	Annual Tailpipe CO2 Emissions Avoided in 2020 (Tons)	Emission Reductions Equivalent (Average Cars)
Nevada	9,737	68.9	\$3.16	\$218	674,330	117,787
New Hampshire	6,085	43.1	\$3.01	\$130	421,390	73,605
New Jersey	36,843	260.9	\$2.91	\$759	2,551,425	445,664
New Mexico	8,234	58.3	\$3.13	\$183	570,243	99,606
New York	49,148	348	\$3.25	\$1,132	3,403,593	594,514
North Carolina	38,219	270.6	\$3.09	\$836	2,646,781	462,320
North Dakota	3,155	22.3	\$3.23	\$72	218,458	38,159
Ohio	44,991	318.6	\$3.15	\$1,003	3,115,709	544,229
Oklahoma	16,134	114.2	\$3.08	\$351	1,117,291	195,160
Oregon	13,432	95.1	\$3.16	\$301	930,223	162,484
Pennsylvania	44,450	314.8	\$3.11	\$979	3,078,264	537,688
Rhode Island	3,336	23.6	\$3.06	\$72	231,011	40,351
South Carolina	21,224	150.3	\$2.98	\$447	1,469,829	256,739
South Dakota	3,690	26.1	\$3.17	\$83	255,508	44,630
Tennessee	26,842	190.1	\$3.00	\$570	1,858,839	324,688
Texas	99,600	705.3	\$2.98	\$2,098	6,897,510	1,204,805
Utah	9,014	63.8	\$3.04	\$194	624,234	109,037
Vermont	3,012	21.3	\$3.09	\$66	208,598	36,436
Virginia	34,159	241.9	\$3.00	\$726	2,365,594	413,204
Washington	23,446	166	\$3.26	\$541	1,623,677	283,612
West Virginia	7,244	51.3	\$3.17	\$163	501,658	87,626
Wisconsin	22,148	156.8	\$3.19	\$500	1,533,771	267,908
Wyoming	3,055	21.6	\$3.04	\$66	211,534	36,949
Total	1,200,000	8499.66	\$3.11	\$26,557	83,126,679	14,519,944

Table 2. Ten States with the Largest Consumer Savings

	State-by-State Oil Savings (Millions of Gallons)	2007 Gas (Regular) Prices Averages	Statewide Savings in millions in 2020
California	964.7	\$3.40	\$3,281
Texas	705.3	\$2.98	\$2,098
Florida	525.6	\$3.15	\$1,658
New York	348.0	\$3.25	\$1,132
Illinois	318.6	\$3.15	\$1,003
Ohio	314.8	\$3.19	\$1,003
Michigan	314.3	\$3.11	\$979
Pennsylvania	309.6	\$3.23	\$977
Georgia	302.5	\$3.05	\$945
North Carolina	270.6	\$3.09	\$836

Notes

¹ “Less than 5 percent” based on U.S. Census Bureau, U.S. and World Population Clocks, downloaded from www.census.gov/main/popclock.html, 08 November 2007; petroleum consumption figure obtained from Energy Information Administration (EIA), International Petroleum Consumption (Demand) Monthly and Quarterly Data, “Selected Countries, Total, OECD, Total Non-OECD, and World Total, Most Recent Quarters,” downloaded November 08, 2007 at <http://www.eia.doe.gov/emeu/ipsr/t24/xls>

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³ U.S. Environmental Protection Agency (EPA), *Light-Duty Automotive Technology and Fuel Economy Trends: 1975 Through 2007*, September 2007.

⁴ *Id.*

⁵ National Research Council, *Effectiveness and Impact of Corporate Average Fuel Economy (CAFE) Standards*, 2002.

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¹⁵ Energy Information Administration, *Voluntary Reporting of Greenhouse Gases Program, Fuel and Energy Source Codes and Emission Coefficients*, downloaded from www.eia.doe.gov/oiaf/1605/coefficients.html, 14 November 2007.

¹⁶ U.S. EPA, *Average Annual Emissions and Fuel Consumption for Passenger Cars and Light Trucks*, downloaded 08 November 2007, www.epa.gov/otaq/consumer/f00013.htm.