Securing America's Future Energy

Issue Brief

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Oil Savings from the Proposed 2017–2025 Fuel Economy Standards

On October 13, 2010, the Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) published a Notice of Intent (NOI) entitled *2017 and Later Model Year Light Duty Vehicle GHG Emissions and CAFE Standards*.[1] The NOI declares the agencies' intent to issue regulations that will require automakers to increase fuel efficiency and decrease greenhouse gas (GHG) emissions in the light-duty vehicle fleet between model years (MYs) 2017 and 2025.[2] Just six months earlier, the agencies had issued a joint rulemaking that effectively tightened light-duty vehicle fuel economy standards from 27.5 miles per gallon (MPG) today to approximately 35.5 MPG, while reducing GHG emissions, by 2016.[3] The new proceeding therefore expands on those recently established requirements.

Increased vehicle efficiency is one of the most effective tools for decreasing the petroleum intensity of our economy, thereby enhancing economic and national security. Moreover, the design of the new standards has the potential to help support the adoption of electric vehicles (EVs) and plug-in hybrid electric vehicles (PHEVs). These

1 Environmental Protection Agency and the National Highway Traffic Safety Administration, Department of Transportation, *2017 and Later Model Year Light Duty Vehicle GHG Emissions and CAFÉ Standards; Notice of Intent*, 75 Fed. Reg. 62,739 (Oct. 13, 2010) ("Notice of Intent") available at www.regulations.gov/search/Regs/contentStreamer?objectId=0900006480b6de8a&disposition=attachment&contentType=pdf.

2 *Id.* at 62,739.

3 Environmental Protection Agency and the National Highway Traffic Safety Administration, Department of Transportation, *Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule*, 75 Fed. Reg. 25,324 (May 7, 2010) available at www.regulations.gov/search/Regs/contentStreamer?objectId=0900006480ae8a38&disposition=attachment&contentType=pdf.

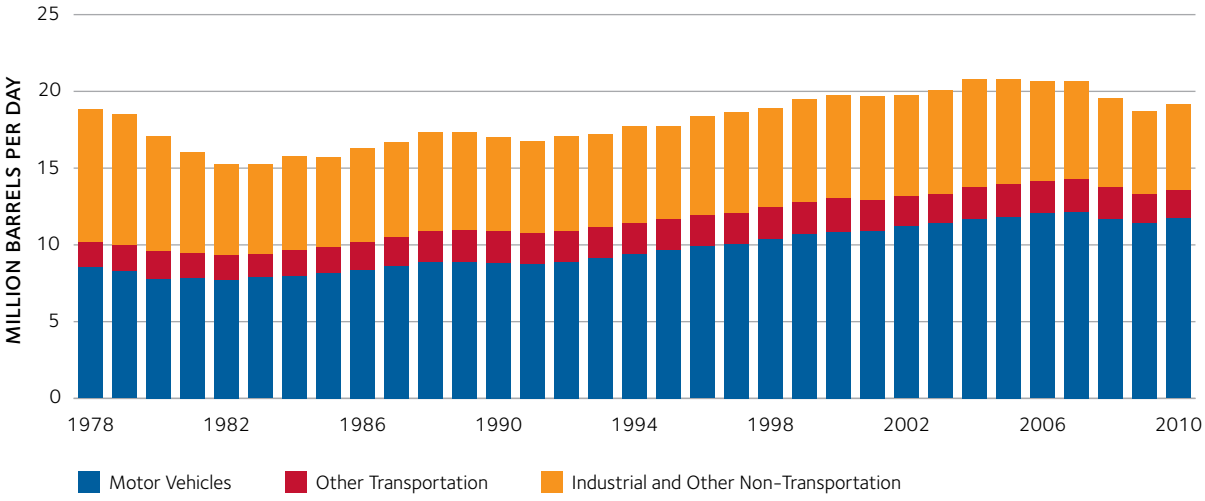
vehicles use significantly less liquid fuel than traditional vehicles with internal combustion engines. In fact, EVs use no liquid fuel at all. Both represent transformative automotive technology that should be a key part of our energy future.

The NOI identified four different levels by which the agencies could tighten the standards between 2017 and 2025, the cost of each standard on a per-vehicle basis, and a technology pathway that might be adopted by automakers to meet each of the standards. It also identified the potential reduced total cost of ownership for the typical vehicle produced in MY 2025 subject to each of the different standards. This issue brief explains the importance of increasing fuel economy standards, presents the potential oil savings from different standards in greater detail than calculated by EPA and NHTSA, and then identifies other important issues that EPA and NHTSA should address as part of the rulemaking process.

I. The Importance of Fuel Economy

Just under 40 percent of total U.S. primary energy demand is met by oil,[4] giving it an economic significance unmatched by any other fuel. In 2010 alone, American businesses and consumers spent more than $700 billion on gasoline, diesel and other refined petroleum products.[5] This expenditure represents approximately 5 percent of the nation's total gross domestic product.[6]

FIGURE 1 · U.S. OIL CONSUMPTION



Note: Allocation of 2010 Total Consumption is Estimated.

Source: U.S. Bureau of Economic Analysis; BP plc., Statistical Review

4 BP Statistical Review of World Energy 2010, at 41.

5 Energy Information Administration (EIA), Short Term Energy Outlook (STEO), and Weekly Petroleum Status Report; Securing America's Future Energy, *Transportation Policies for America's Future: Strengthening Energy Security and Promoting Economic Growth*, at p. 5 (2011).

6 United States Bureau of Economic Analysis, National Economic Accounts, Current and Real Dollar GDP.

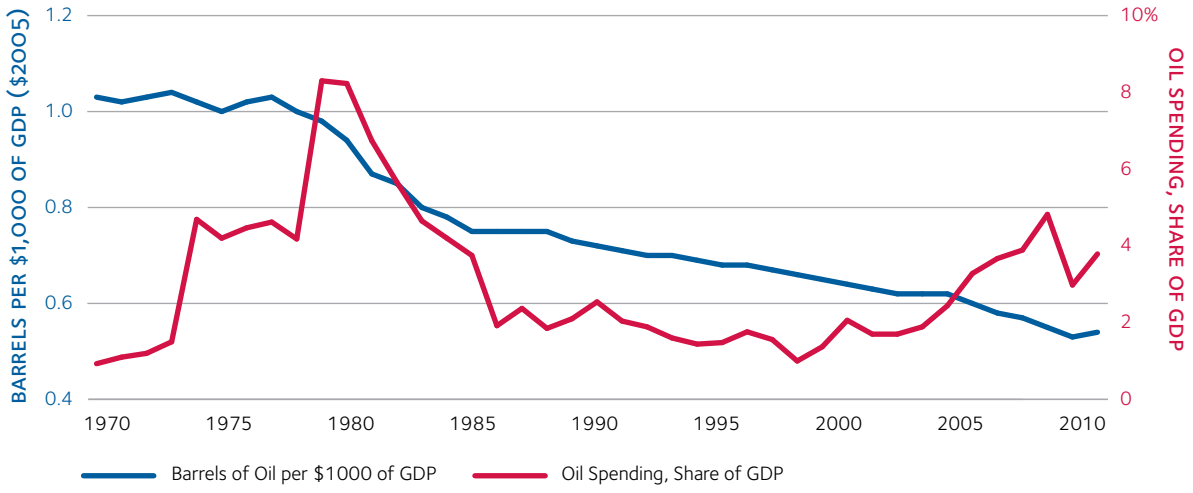
Researchers at the Oak Ridge National Laboratories have studied the costs of oil dependence.[7] They have calculated the cost to the economy of: 1) paying oligopolistic prices for oil and the resulting loss of consumer surplus and reduction in gross domestic product; 2) the misallocation of resources as the result of sudden price changes; and 3) excess wealth transfers to foreign oil suppliers as a result of a non-competitive oil market.[8] Their studies estimate the combined damage to the U.S. economy from oil dependence between 1970 and 2009 to be $4.9 trillion in current dollars.[9] For 2009 alone, the cost was nearly $300 billion—about $1,000 for every man, woman, and child in America.[10]

Moreover, sending approximately $1 billion abroad each day to pay for expensive oil drains our economic resources and strengthens countries that are often hostile to U.S. interests. Oil dependence also constrains our foreign policy and forces the United States military to accept the responsibility of securing the world's oil supply.[11]

Seventy percent of the oil we use in the United States—14 million barrels per day (MBD)—is consumed in the transportation sector, more than is consumed by any other nation's entire economy.[12] Moreover, the cars and trucks that form the core of our surface transportation system are almost completely dependent on petroleum, with no readily available substitutes.

The United States has made genuine progress toward advancing energy security since we first became aware of the risks posed by oil dependence in the early 1970s. Most importantly, observed

FIGURE 2 · OIL CONSUMPTION IN THE UNITED STATES



Source: Environmental Protection Agency; BP plc., Energy Information Administration, United States Bureau of Economic Analysis

7 *See, e.g.*, David L. Greene & Sanjana Ahmad, *Costs of U.S. Oil Dependence: 2005 Update*. Oak Ridge National Laboratory Technical Report ORNL/TM-2005/45 (February 2005).

8 *Id.* at 7-17.

9 *See* U.S Department of Energy, Office of Energy Efficiency and Renewable Energy, Fact of the Week, The Costs of Oil Dependence (July 19, 2010), available at www1.eere.energy.gov/vehiclesandfuels/facts/2010_fotw632.html.

10 *Id.*

11 *See* Electrification Coalition, *The Electrification Roadmap*, pp. 23-31 (2009).

12 Annual Energy Outlook 2010; BP Statistical Review of World Energy 2010.

vehicle fuel economy has improved by more than 110 percent, from 13.6 MPG in 1974 to 28.8 MPG in 2009 (although much of that progress was made between 1975 and 1986).[13] The petroleum intensity of the economy has been reduced by nearly 50 percent over the same period, meaning that we have double the level of economic activity for every barrel of oil that we consume.

Improved transportation fuel efficiency has been critically important in enhancing our economic and national security. To the extent that the high and volatile cost of oil harms our economy, the harm is reduced when the volume of oil we consume, and the oil intensity of our economy, is reduced as well. Although we have faced serious challenges as a nation over the past several decades as a result of our dependence on oil, they would have been more serious without the progress we have made in reducing the oil intensity of our economy. Nevertheless, because we appear to be in an era of sustained higher oil prices, continued improvements in fuel economy are particularly important to ensure that our expenditures on oil, remain at sustainable levels.

Securing America's Future Energy (SAFE) believes that the deployment of EVs and PHEVs to replace petroleum-powered vehicles in our light-duty vehicle (LDV) fleet represents the best long-term solution to the dangers posed by oil dependence. Yet, substantial electrification of our transportation system will take decades to achieve. We will continue to rely substantially, even dominantly, on liquid transportation fuels to power our transportation system for many years to come, exposing our nation to profound economic and national security risks. The best way to reduce the risks while that transformation is taking place is to further reduce the petroleum intensity of our economy by improving the fuel efficiency of our nation's petroleum-based LDV fleet.

II. Fuel Economy Background

In the wake of the 1973–74 oil embargo, President Ford proposed a comprehensive energy program in response to his concern that "Americans [were] no longer in full control of [our] own national destiny when that destiny depends on uncertain foreign fuel at high prices fixed by others."[14] He was concerned that "higher energy costs compound both inflation and recession,"[15] and stated that "dependence on others for future energy supplies is intolerable to our national security."[16]

In response to the energy crisis and President Ford's proposals—which included a call to increase fuel economy by 40 percent within five years[17]—Congress in 1975 passed significant energy legislation intended to reduce the consumption of oil in the United States and achieve

13 *See* NHTSA, Historical Passenger Car Fleet Average Characteristics, available at www.nhtsa.gov/cars/rules/CAFE/HistoricalCarFleet.htm; NHTSA Summary of Fuel Economy Performance at 4 (April, 2010).

14 President Ford's Address to the Nation on Energy and Economic Programs, January 13, 1975, available at www.presidency.ucsb.edu/ws/index.php?pid=4916#axzz1LzuQgGEd.

15 *Id.*

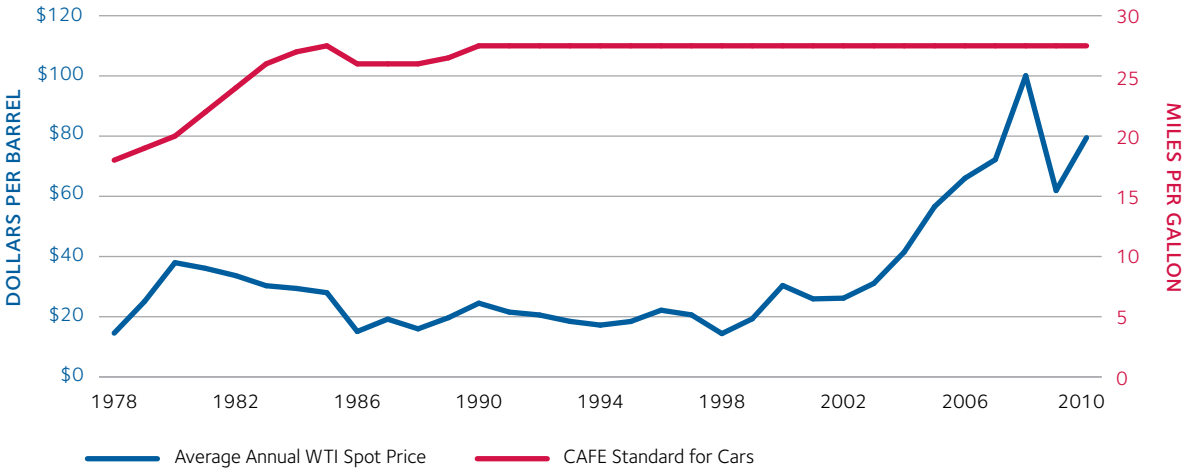
16 *Id.*

17 *Id.*

"energy independence."[18] The Energy Policy and Conservation Act (EPCA)[19] included several groundbreaking policies, including the establishment of the Strategic Petroleum Reserve and corporate average fuel economy (CAFE) standards.[20] That their intent was focused solely on reducing oil consumption is quite clear. While advocating establishment of the CAFE requirements, President Ford also advocated deferring tightening of automobile emission standards for five years so that automakers could focus on improving fuel economy by 40 percent over that time period.[21]

EPCA directed the Department of Transportation (DOT)—NHTSA specifically—to develop and enforce automobile efficiency standards to take effect in 1978.[22] When the standards first took effect in 1978, the fuel economy of the average car on the road in the United States was 14.3 MPG,[23] and the fuel economy of the average new car sold in the United States was 19.9 MPG,[24] a level that exceeded the new legal requirement by almost 2 MPG. (The fuel economy for new domestic cars was 18.7 MPG as compared to 27.3 MPG for imports.) The new CAFE standards required that fleet efficiency be 18 MPG in 1978, 19 MPG in 1979, 20 MPG in 1980, and 27.5 MPG in 1985.[25] NHTSA was to establish specific standards for the interim years 1981-1984.[26]

FIGURE 3 · CAFE STANDARDS AND THE PRICE OF CRUDE



Source: Energy Information Administration

18 President Ford's Statement on the Energy Policy and Conservation Act, December 22, 1975, available at www.presidency.ucsb.edu/ws/index.php?pid=5452&st=energy&st1=independence#axzz1LzuQgGEd.

19 Energy Conservation Policy Act, P.L. 94-163, 89 Stat. 874 (1975) (EPCA).

20 *Id.* See Summary of Energy Policy Conservation Act at thomas.loc.gov/cgi-bin/bdquery/z?d094:SN00622:@@@L&summ2=m&%7CTOM:/bss/d094query.html%7C.

21 President Ford's Address Before a Joint Session of the Congress Reporting on the State of the Union, January 15, 1975, available at www.presidency.ucsb.edu/ws/index.php?pid=4938&st=energy&st1=pollution; President Ford's Address to the Nation on Energy and Economic Programs, January 13, 1975 available at www.presidency.ucsb.edu/ws/index.php?pid=4916&st=energy&st1=pollution.

22 EPCA § 301.

23 U.S. Energy Information Administration / Monthly Energy Review April 2011, at 17, Table 1.8 (2011) available at www.eia.doe.gov/totalenergy/data/monthly/pdf/sec1_17.pdf.

24 U.S. Department of Transportation, National Highway Traffic Safety Administration, Automotive Fuel Economy Program Annual Update Calendar Year 2004, at p. 14, Table II-4 (2004) available at www.nhtsa.gov/DOT/NHTSA/Vehicle%20Safety/CAFE/2004_Fuel_Economy_Program.pdf; US. Department of Transportation, National Highway Traffic Safety Administration, Fuel Economy and Annual Travel for Passenger Cars and Light Trucks: National On-Road Survey, at p. 12, Table 2-1 (May 1986), available at www-nrd.nhtsa.dot.gov/Pubs/806971.PDF.

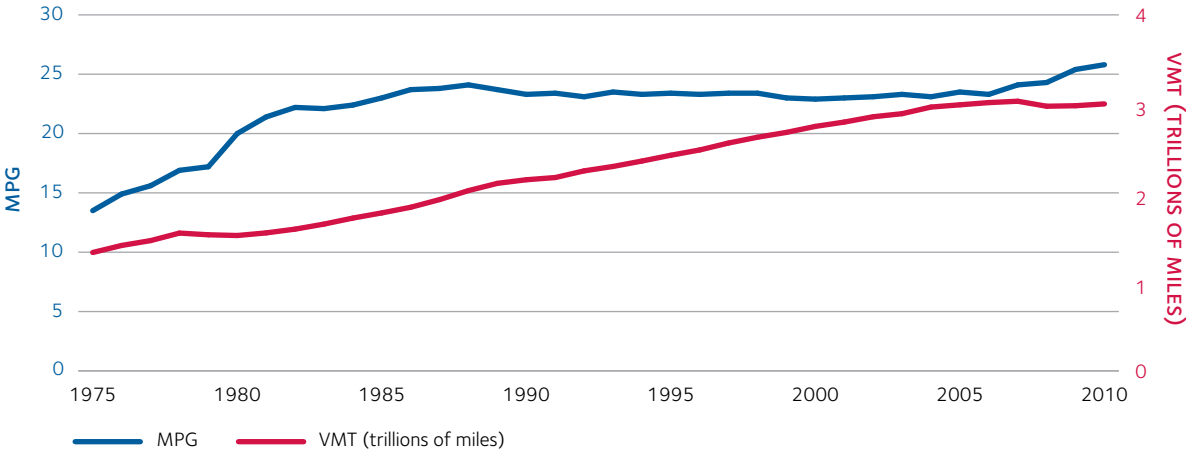
25 EPCA § 301.

26 *Id.*

In response to these initial fuel economy requirements, the actual average mileage of all new cars improved from 12.9 MPG in 1974,[27] prior to passage of EPCA, to 27.6 MPG in 1985.[28] More importantly, however, petroleum consumption and the petroleum intensity of the economy fell sharply, though not all of the reductions came from the transportation sector. In 1973, the U.S. economy consumed 17.3 MBD of oil, 1.04 barrels of oil for every $1,000 (2005) of gross domestic product generated. Twelve years later, in 1985, it was consuming only 15.7 MBD, 0.75 barrels of oil for every $1,000 (2005) of GDP. This represented a decrease in consumption of 1.6 MBD, and a 29 percent reduction in the oil intensity of the economy.[29]

Improved oil intensity helped reduce America's vulnerability to the world oil market. The fewer dollars spent on oil, relative to the size of the economy, the less susceptible the nation was to economic damage from volatile and rising prices. Moreover, during the period from the late 1970s through the mid-1980s, the petroleum intensity of the economy improved, and the oil consumed by the transportation sector declined, without a meaningful change in vehicle miles travelled. This means that to the extent that oil savings achieved during that time period was achieved by the transportation sector, it was largely the result of better fuel economy and not people driving less.

FIGURE 4 · FUEL ECONOMY AND VEHICLE MILES TRAVELLED, 1975–2010



Source: National Highway Traffic Safety Administration, Environmental Protection Agency

Despite the progress made in improving fuel economy through the mid-1980s, Congress and the Reagan and Bush administrations declined to increase the standards further after 1985, and in fact weakened them for a few years in the 1980s in response to complaints that automakers would otherwise face large penalties for failing to meet the standards.[30] Congress considered tightening the standards as part of the Energy Policy and Conservation Act of 1992, but the policy was unable to gain

27 Brent Yacobucci and Robert Bamberger, Congressional Research Service, Automobile and Light Truck Fuel Economy: The CAFE Standards, at CRS-2 (2008) available at assets.opencrs.com/rpts/RL33413_20080507.pdf.

28 U.S. Department Of Transportation, National Highway Traffic Safety Administration, Summary of Fuel Economy Performance, at p.3 (Apr. 28, 2011) available at www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/2011_Summary_Report.pdf.

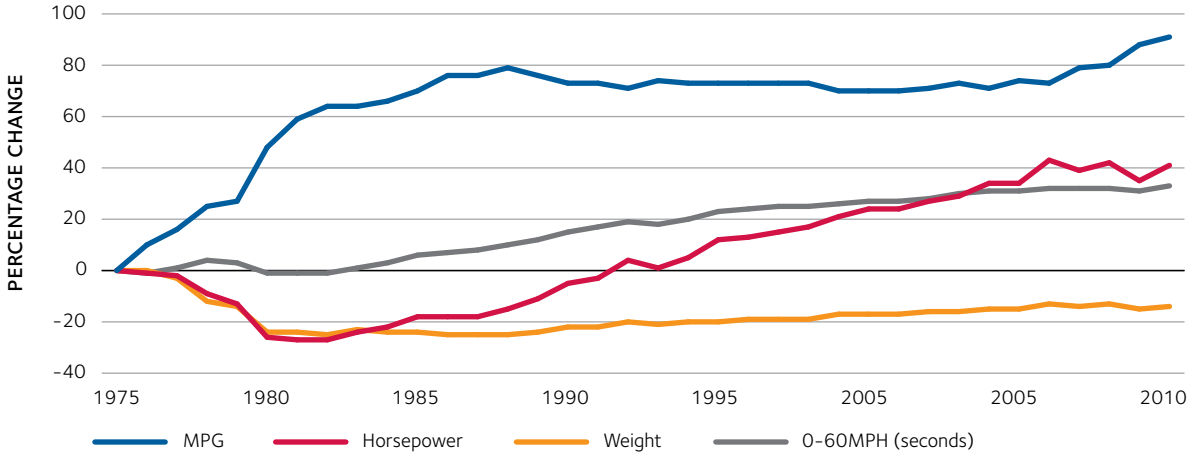
29 U.S. Bureau of Economic Analysis; BP plc., Statistical Review of World Energy 2010.

30 Robert Bamberger, Congressional Research Service, Automobile and Light Truck Fuel Economy: The CAFE Standards, at CRS-2, CRS-3 (2002) available at ncseonline.org/NLE/CRSreports/03Jan/IB90122.pdf.

sufficient support.[31] In 1994, NHTSA, under President Clinton, issued an advanced notice of proposed rulemaking in which it announced its intention to tighten fuel economy standards for MYs 1998–2006.[32] In response, each year between fiscal years 1996 and 2001 Congress prohibited NHTSA from to preparing, proposing, or promulgating any regulations that would increase fuel economy standards.[33]

In fact, the government's decisions not to tighten fuel economy standards did not stymie technical progress, and engines and vehicles did become more efficient even as fuel economy standards remained unchanged. However, the increases in efficiency were used to increase vehicle weight and improve vehicle performance instead of reducing fuel consumption. Vehicle weight, horsepower and acceleration all rose substantially once oil prices fell and fuel economy standards stopped rising in the mid-1980s (Figure 5).

FIGURE 5 · CHANGE IN VEHICLE PERFORMANCE OR CHARACTERISTICS, 1975–2010



Source: Environmental Protection Agency

Following the sharp rise in oil prices between 1998 and 2000, Congress in 2001 directed the National Academy of Sciences (NAS) to examine the effectiveness and impacts of fuel economy standards.[34] The NAS issued a report in 2002 that recognized that "[t]he CAFE program has clearly contributed to increased fuel economy of the nation's light-duty vehicle fleet"[35] since 1980, and concluded that "[t]echnologies exist that, if applied to passenger cars and light-duty trucks, would significantly reduce fuel consumption within 15 years."[36] In response to a direct request from Secretary of Transportation Mineta, Congress also allowed the prohibition on the expenditure of funds for fuel economy issues to expire at the end of fiscal year 2001.[37]

31 *Id.* at CRS-3.

32 National Highway Traffic Safety Administration, Department of Transportation, Advanced Notice of Proposed Rulemaking: Light Truck Average Fuel Economy Standards, Model Years 1998-2006, 59 Fed. Reg. 16,324 (April 6, 1994), available at http://frwebgate3.access.gpo.gov/cgi-bin/TEXTgate.cgi?WAISdocID=t5GS4e/3/1/0&WAISaction=retrieve.

33 Department of Transportation and Related Agencies Appropriations Act, 1996, Sec. 330, 109 Stat. 457 (PL 104-50); Department of Transportation and Related Agencies Appropriations Act, 1997, Sec. 323, 110 Stat. 2951 (PL 104-205); Department of Transportation and Related Agencies Appropriations Act, 1998, Sec. 322, 111 Stat. 1425 (PL 105-66); Department of Transportation and Related Agencies Appropriations Act, 2000, Sec. 321, 113 Stat. 986 (PL 106-69); Department of Transportation and Related Agencies Appropriations Act, 2001, Sec. 320, 114 Stat. 1356 (PL 106-346).

34 House Report No. 106-940, at 117-18.

35 National Research Council, Effectiveness and Impact of Corporate Average Fuel Economy (CAFE) Standards, National Academy Press, at 3 (2002).

36 *Id.*

37 Department of Transportation, National Highway Traffic Safety Administration, Light Trucks, Average Fuel Economy; Model Years 2008–2011; Proposed

TABLE 1 · CORPORATE AVERAGE FUEL EFFICIENCY STANDARDS SINCE MY 1978 (MPG)

MY	Cars	Trucks	MY	Cars	Trucks
1978	18.0	-	1998	27.5	20.7
1979	19.0	-	1999	27.5	20.7
1980	20.0	-	2000	27.5	20.7
1981	22.0	-	2001	27.5	20.7
1982	24.0	17.5	2002	27.5	20.7
1983	26.0	19.0	2003	27.5	20.7
1984	27.0	20.0	2004	27.5	20.7
1985	27.5	19.5	2005	27.5	21.0
1986	26.0	20.0	2006	27.5	21.6
1987	26.0	20.5	2007	27.5	22.2
1988	26.0	20.5	2008	27.5	22.5
1989	26.5	20.5	2009	27.5	23.1
1990	27.5	20.0	2010	27.5	23.5
1991	27.5	20.2	2011	30.2	24.1
1992	27.5	20.2	2012	33.3*	25.4*
1993	27.5	20.4	2013	34.2*	26.0*
1994	27.5	20.5	2014	24.9*	26.6*
1995	27.5	20.6	2015	36.2*	27.9*
1996	27.5	20.7	2016	37.8*	28.8*
1997	27.5	20.7			

* Figures for 2012–2016 are estimates based on projected mix of vehicle sales, as explained in Section IV.

Source: Environmental Protection Agency

With the imprimatur of the NAS, the expiration of Congressional prohibitions on the executive branch's consideration of increasing fuel economy standards, and rising gasoline prices, there was some progress towards increasing fuel economy standards in the early years of the George W. Bush administration. The growing popularity of SUVs in the 1990s resulted in their penetration into the LDV marketplace in a manner and at a level never contemplated at the time CAFE standards were first established. Combined with a sharp rise in oil prices in the late 1990s and a growing awareness of and concern about vehicle emissions, there was a similar realization that SUVs were consuming more oil per vehicle than cars and more oil cumulatively than ever contemplated.[38] Once the appropriations rider that prohibited NHTSA from working on CAFE standards expired at the end of FY 2001, NHTSA began the process of increasing fuel economy standards for light-duty trucks, ultimately increasing them beginning in MY 2005.[39]

Rules, 70 Fed. Reg. 51,413 at 51,419 (Aug. 30, 2005).

38 "SUV Popularity Lowers Overall Fuel Efficiency," Seattle Daily Journal of Commerce (Oct. 11, 1999) available at www.djc.com/news/enviro/10059224.html.

39 Department of Transportation, National Highway Traffic Safety Administration, Light Trucks, Average Fuel Economy; Model Years 2008–2011; Proposed Rules, 70 Fed. Reg. 51,413 at 51,421 (Aug. 30, 2005).

III. SAFE's 2006 Recommendation & the Energy Independence and Security Act of 2007

In its 2006 report, entitled *Recommendations to the Nation on Reducing U.S. Oil Dependence*,[40] SAFE, under the auspices of its Energy Security Leadership Council (ESLC), recommended that increased fuel economy standards serve as the centerpiece of a series of policies—which also included increased domestic oil production—to enhance the nation's economic and national security. Specifically, ESLC recommended that:

- NHTSA be directed to revise the CAFE regulatory structure by establishing size-based and/or attribute-based standards for passenger automobile fuel efficiency, while also increasing reliance on market mechanisms such as those that allow the banking and trading of compliance credits;

- NHTSA tighten fleet-wide fuel economy standards by 4 percent each year over a period of several years and be allowed to establish multi-year compliance periods;

- NHTSA be allowed to slow the pace of fuel efficiency improvement if it determined that the 4 percent default requirement: was technologically unachievable; could not be achieved without materially reducing the overall safety of the passenger car fleet; or if there was clear and convincing evidence that the default standard was not cost-effective after taking into account the total social, economic, and geopolitical value of reduced gasoline consumption to the United States; and

- Light-duty trucks be subject to the current regulatory regime through its expiration in 2012, at which time they would be merged into a single LDV fleet with the goal of maintaining the 4 percent improvement target for the combined fleet thereafter.[41]

In the year after ESLC's report was issued as oil prices rose, there was intensified interest in fuel economy standards. This culminated in the passage of the Energy Independence and Security Act of 2007 (EISA),[42] which, to a significant extent, incorporated SAFE's recommendations. Most importantly, it required that beginning with MY 2011, fuel economy standards be increased so that they would reach a combined average of 35 MPG by MY 2020.[43] President Bush signed EISA into law on December 19, 2007.[44]

40 Securing America's Future Energy, *Recommendations to the Nation on Reducing U.S. Oil Dependence* (2006).

41 *Id.*

42 Energy Independence and Security Act of 2007 (EISA), Public Law No. 110-140, 121 Stat. 1492 (2007).

43 EISA at §102(2a).

44 The White House, Office of the Press Secretary, Fact Sheet: Energy Independence and Security Act of 2007: *President Bush Signs Energy Bill To Improve Fuel Economy And Reduce Oil Dependence*, December ay 19, 2007, available at georgewbush-whitehouse.archives.gov/news/releases/2007/12/20071219-1.html.

IV. New Fuel Economy Regulations for 2012–2016

Throughout the mid-2000's, increased pressure also was placed on the federal government to tighten fuel economy standards by the state of California. In 2005, California sought a waiver from EPA under the Clean Air Act that would allow it to regulate vehicle greenhouse gas emissions. The waiver was denied in 2008. On May 2, 2008, NHTSA issued a proposed rule to increase fuel economy standards for MYs 2011–2015.[45] The Bush Administration, however, decided not to issue the new standards in light of the stress the recession was placing on the automakers.[46]

On January 21, 2009, California appealed the denial of its waiver. On January 26, 2009, President Obama signed a memorandum directing EPA to assess whether denial of California's waiver application was appropriate.[47] That same day he directed NHTSA to issue fuel economy standards for MY 2011 by the end of March, 2009, and to reevaluate the appropriate fuel economy standards for future years.[48] On May 19, 2009, President Obama announced the development of a National Fuel Efficiency Policy.[49] To improve fuel economy and reduce GHG emissions, he directed EPA and NHTSA to work together to establish consistent requirements that would reduce GHG emissions pursuant to EPA's authority under the Clean Air Act and tighten fuel economy standards pursuant to NHTSA's obligation under EISA.[50] Moreover, the federal government agreed to allow California to establish greenhouse gas tailpipe emission standards, and California agreed that if the forthcoming federal standards were as tight as California's standards, California would treat compliance with the federal standards as compliance with its own standards.[51] On June 30, 2009, EPA granted the waiver to allow California to regulate vehicle greenhouse gas emissions beginning with MY 2009.[52]

On April 1, 2010, NHTSA and EPA issued joint final rules establishing separate standards for GHG emissions and fuel economy for MY 2012–2016 LDVs.[53] The rules are designed so that, generally speaking, automakers are meeting a single goal.[54] The new requirements are attribute-based, meaning that the actual emission and fuel economy requirements are functions of the attributes of vehicles that are sold. Each manufacturer's fuel economy and GHG emission requirements, therefore, will vary from year to year based not only on the increasing stringency of the regulatory

45 Notice of Proposed Rulemaking entitled *Average Fuel Economy Standards, Passenger Cars and Light Trucks; Model Years 2011–2015*, 73 Fed. Reg. 24352 (2008).

46 Statement From the U.S. Department of Transportation, January 7, 2009, available at www.dot.gov/affairs/dot0109.htm.

47 Memorandum for the Administrator of the Environmental Protection Agency (January 26, 2009) available at www.whitehouse.gov/the-press-office/california-request-waiver-under-clean-air-act.

48 The White House, Office of the Press Secretary, Presidential Memorandum, Fuel Economy, (January 26, 2009) available at www.whitehouse.gov/the_press_office/Presidential_Memorandum_Fuel_Economy/.

49 The White House, Office of the Press Secretary, President Obama Announces National Fuel Efficiency Policy, May 19, 2009, available at www.whitehouse.gov/the_press_office/President-Obama-Announces-National-Fuel-Efficiency-Policy/.

50 *Id.*

51 Press Background Briefing on White House Announcement on Auto Emissions and Efficiency Standards by Senior Administration Official, May 18, 2009, available at www.whitehouse.gov/the-press-office/background-briefing-auto-emissions-and-efficiency-standards.

52 Environmental Protection Agency, "California State Motor Vehicle Pollution Control Standards; Notice of Decision Granting a Waiver of Clean Air Act Preemption for California's 2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicles," 74 Fed. Reg. 32,744 (July 8, 2009) available at http://edocket.access.gpo.gov/2009/pdf/E9-15943.pdf.

53 Environmental Protection Agency, Department of Transportation, National Highway Traffic Safety Administration, Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, 75 Fed. Reg. 25,324 (May 7, 2010).

54 *Id.*

requirements, but also based on the attributes of the vehicles that they sell. Accordingly, the agencies estimated fuel economy and GHG emission standards for future years based on a projected mix of vehicle sales, but cannot calculate final requirements until the vehicles are actually manufactured and sold.[55]

The new regulations require automakers to achieve GHG emission reduction targets that would be equivalent to vehicle efficiency of 35.5 MPG by 2016, closer to the ESLC's proposal than the requirements in EISA, assuming that all emission reductions were achieved through improvements in fuel economy.[56] It is important to recognize, however, that some companies will pay penalties rather than meet the standards, some will use of GHG credits for improving air conditioning operations, and other companies will obtain credits for producing flexible fuel vehicles, vehicles that can operate on gasoline or ethanol. Therefore, the actual calculated fuel economy likely will be lower. Based on projected vehicle sales, NHTSA predicts that the average fleet-wide fuel economy calculated for compliance with the statute will rise from 27.6 MPG in MY 2011 to 34.1 MPG in MY 2016 (Table 2).[57]

TABLE 2 · AVERAGE REQUIRED FUEL ECONOMY UNDER FINAL 2012–2016 CAFE STANDARDS BASED ON FORECAST MIX OF NEW VEHICLES SOLD (MPG)

Vehicle Class	2011 (base)	2012	2013	2014	2015	2016
Passenger Cars	30.4	33.3	34.2	34.9	36.2	37.8
Light Trucks	24.4	25.4	26.0	26.6	27.5	28.8
Combined Cars & Trucks	27.6	29.7	30.5	31.3	32.6	34.1

Source: Environmental Protection Agency, National Highway Traffic Safety Administration

At the same time, EPA established GHG emission standards in which the average projected emissions would decline from 295 grams/mile (g/mi) to 250 g/mi of CO_2 equivalent (Table 3).[58] The requirement is expressed in terms of CO_2 equivalent, because automakers can also reduce GHG emissions through improvements in air conditioning systems without affecting fuel economy.

TABLE 3 · PROJECTED FLEET-WIDE EMISSIONS COMPLIANCE LEVELS UNDER THE FOOTPRINT-BASED CO_2 STANDARDS (g/mi)

	2012	2013	2014	2015	2016
Passenger Cars	263	256	247	236	225
Light Trucks	346	337	326	312	298
Combined Cars & Trucks	295	286	276	263	250

Source: Environmental Protection Agency, National Highway Traffic Safety Administration

55 *Id.* at 25,330.
56 *Id.*
57 *Id.* at 25,330-31.
58 *Id.* at 25,331.

SAFE calculated the oil savings that these standards should deliver. SAFE assumed as a baseline forecast fuel economy the higher of the existing legal standard or the actual fuel economy last reported before EISA passed. Accordingly, its analysis captured the savings that were mandated by EISA and implemented through the 2012–2016 rulemaking. SAFE estimated a savings of 495,000 barrels per day in 2016, 1.1 MBD in 2020, and 1.74 MBD in 2025. A more detailed account of the estimated annual savings attributable to the 2012–2016 rulemaking is available at Appendix A.

V. Fuel Economy and GHG Emission Standards for 2017–2025

On May 21, 2010, President Obama directed EPA and NHTSA to tighten GHG emission standards and fuel economy standards for the light-duty fleet for MYs 2017–2025.[59] He directed the agencies to "develop … a coordinated national program under the Clean Air Act and the EISA to improve fuel efficiency and to reduce greenhouse gas emissions of passenger cars and light-duty trucks of model years 2017–2025. The national program should … [be] harmonized with applicable State standards, with the goal of ensuring that automobile manufacturers will be able to build a single, light-duty national fleet."[60] The president directed the agencies to issue a Notice of Intent to develop tighter standards for the MY 2017–2025 timeframe by September 30, 2010.[61]

On October 13, 2010, EPA and NHTSA issued a joint NOI describing their "initial assessment of potential levels of stringency for a National Program for model years 2017–2025," and described the work they were undertaking to refine their initial assessment.[62]

In the NOI, the agencies identified four different scenarios, each consisting of tightening fuel economy and GHG emission standards by a different percentage each year between MY 2016 and 2025 (Table 4).[63]

TABLE 4 · GHG AND MPG EQUIVALENT LEVELS IN MY 2025 ANALYZED FOR SCENARIOS

Scenario	Gram CO_2/mile	MPG-equivalent
3% per year	190	47
4% per year	173	51
5% per year	158	56
6% per year	143	62

59 Presidential Memorandum Regarding Fuel Efficiency Standards, (May 21, 2010) available at www.whitehouse.gov/the-press-office/presidential-memorandum-regarding-fuel-efficiency-standards.

60 *Id.* at Section 2.

61 *Id.*

62 Environmental Protection Agency and the National Highway Traffic Safety Administration, Department of Transportation, *2017 and Later Model Year Light Duty Vehicle GHG Emissions and CAFÉ Standards; Notice of Intent*, 75 Fed. Reg. 62,739 (Oct. 13, 2010) ("Notice of Intent") available at www.regulations.gov/search/Regs/contentStreamer?objectId=0900006480b6de8a&disposition=attachment&contentType=pdf.

63 *Id.* at 62,745.

Source: Environmental Protection Agency, National Highway Traffic Safety Administration

Based on each of the four scenarios, EPA and NHTSA calculated estimated fuel savings and GHG emission reductions. Their analysis suggests that substantial reductions in fuel consumption and GHG emissions can be achieved with the use of advanced technologies. The fuel savings achieved by the four scenarios would range from 0.7 to 1.3 billion barrels over the lifetime of MY 2025 vehicles. GHG emission reductions would range from 340 to 590 million metric tons (MMT).[64]

TABLE 5 · ESTIMATED TOTAL CO_2e AND FUEL REDUCTIONS FOR THE LIFETIME OF MY 2025 VEHICLES

Scenario	Lifetime CO_2e Reduction (million metric tons)	Lifetime Fuel Reduction (billion barrels)
3% per year	340	0.7
4% per year	440	0.9
5% per year	520-530	1.1
6% per year	530-590	1.3

Source: Environmental Protection Agency, National Highway Traffic Safety Administration

TABLE 6 · TECHNOLOGY PENETRATION ESTIMATES FOR MY 2025 VEHICLE FLEET

Scenario	Technology Path	Mass Reduction	Gasoline & Diesel Vehicles	HEVs	PHEVs	EVs
3%/year	Path A	15%	89%	11%	0%	0%
	Path B	18%	97%	3%	0%	0%
	Path C	18%	97%	3%	0%	0%
	Path D	15%	75%	25%	0%	0%
4%/year	Path A	15%	65%	34%	0%	0%
	Path B	20%	82%	18%	0%	0%
	Path C	25%	97%	3%	0%	0%
	Path D	15%	55%	41%	0%	4%
5%/year	Path A	15%	35%	65%	0%	1%
	Path B	20%	56%	43%	0%	1%
	Path C	25%	74%	25%	0%	0%
	Path D	15%	41%	49%	0%	10%
6%/year	Path A	14%	23%	68%	2%	7%
	Path B	19%	48%	43%	2%	7%
	Path C	26%	53%	44%	0%	4%
	Path D	14%	29%	55%	2%	14%

Source: Environmental Protection Agency, National Highway Traffic Safety Administration

64 *Id.* at 62,746.

For each of the scenarios, the agencies identified four "technological pathways" through which the automakers could meet the goals. The pathways emphasized different rates of penetration of different technologies to meet the new standards. As shown in Table 6, Path A focuses on HEVs; Path B focuses on advanced gasoline vehicles and mass reduction (light-weighting); Path C seeks to obtain greater efficiency from advanced gasoline vehicles and mass reduction than Path B; and Path D focuses on the use of PHEV, EV, and HEV technology, relying less on advanced gasoline vehicles and mass reduction.

EPA and NHTSA then calculated the financial costs and benefits to consumers of adopting compliant vehicles. The agencies preliminarily estimated that the increased cost of a MY 2025 vehicle would range from $770 to $3,500 depending on the scenario and the technology deployed to achieve the standards.[65] Though these vehicles will cost more up front, they are projected to generate overall savings because they operate on less fuel, less expensive fuel, and/or have lower maintenance costs. The agencies estimated that the net lifetime savings from purchasing and operating a compliant vehicle would range from $5,000 to $7,400, and that the incremental costs of efficient vehicles would have a payback period of between 1.4 and 4.2 years.[66] The agencies noted that the costs reported in Table 7 may not include all relevant costs, and that the data would be analyzed in greater detail as part of the ongoing rulemaking process.[67]

TABLE 7 · PROJECTIONS FOR MY 2025 PRELIMINARY PER-VEHICLE COST ESTIMATES, VEHICLE OWNER PAYBACK, AND NET OWNER LIFETIME SAVINGS

Scenario	Technology Path	Preliminary Per-Vehicle Cost Estimates (dollars)	Payback Period (years)	Net Lifetime Owner Savings (dollars)
3%/year	A	930	1.6	5,000
	B	850	1.5	5,100
	C	770	1.4	5,200
	D	1,050	1.9	4,900
4%/year	A	1,700	2.5	5,900
	B	1,500	2.2	6,000
	C	1,400	1.9	6,200
	D	1,900	2.9	5,300
5%/year	A	2,500	3.1	6,500
	B	2,300	2.8	6,700
	C	2,100	2.5	7,000
	D	2,600	3.6	5,500
6%/year	A	3,500	4.1	6,200
	B	3,200	3.7	6,600
	C	2,800	3.1	7,400
	D	3,400	4.2	5,700

Source: Environmental Protection Agency, National Highway Traffic Safety Administration

65 *Id.* at 62,746.
66 *Id.*
67 *Id.*

VI. Picking an Aggressive Standard to Save Oil

While NHTSA's and EPA's plans may be focused primarily on reducing GHG emissions, it is critical to remember that fuel economy standards were established in the 1970s, in the wake of the first energy crisis, in order to reduce the nation's oil consumption and enhance its energy security. While national priorities related to fuel economy have broadened since then to include concerns about local air pollutants and greenhouse gas emissions, reducing the consumption of oil in order to reduce the economy's oil intensity and vulnerability to the world oil market must remain a first order priority.

In the NOI, the agencies reported the estimated oil savings from improvements in fuel economy for MY 2025 vehicles (Table 5). Those saving will occur over the 15 years that the typical MY 2025 vehicle will remain on the road.

In order to better understand each of the four scenarios outlined in the NOI, SAFE modeled the oil savings that would accrue to the economy over the life of the program—from 2017, when the new standards would first take effect, until 2050, when the typical MY 2025 vehicle is no longer on the road. Rather than report oil saving in billions of barrels over a period of several years, SAFE analyzed them in terms of millions of barrels saved per day attributable to the use of all vehicles manufactured in any model year subject to the rule. This is a more useful metric by which to measure oil savings, because it is consistent with the most common metric for measuring oil consumption. These savings are in addition to the savings already projected due to the increase in fuel economy standards between 2012 and 2016.

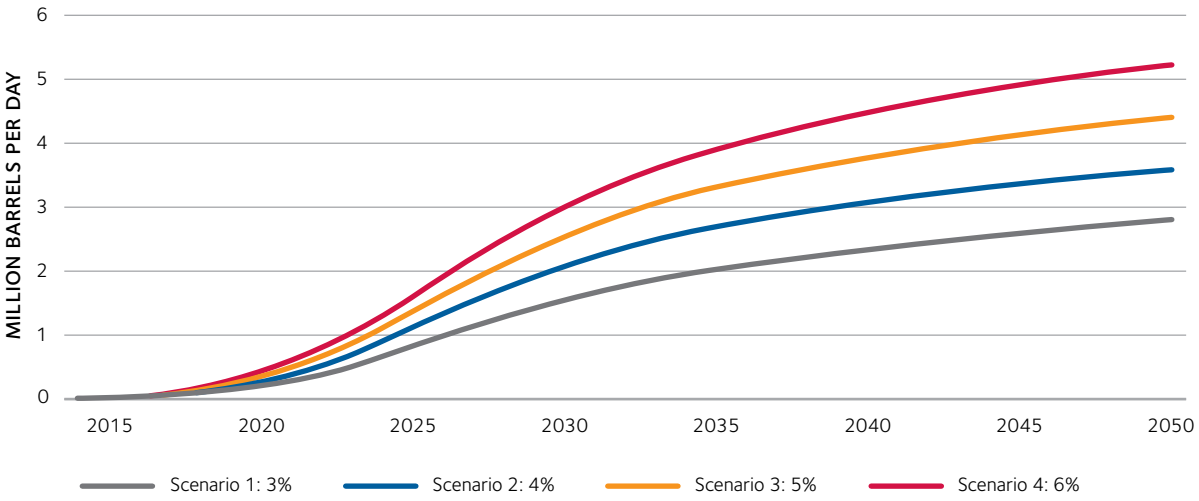
To calculate oil savings, SAFE assumed as a baseline the minimum fuel economy required to comply with current law, which increases the fuel economy of the LDV fleet to an estimated 35.5 MPG in 2016, and leaves it at that level for the future. This is a reasonable approach considering past experience: automakers have historically produced cars that met the fuel economy requirements, but rarely exceeded them.

TABLE 8 · ESTIMATED OIL SAVINGS BY CALENDAR YEAR UNDER EACH OF THE FOUR SCENARIOS IDENTIFIED BY EPA AND NHTSA (IN MILLION BARRELS PER DAY)

Year	Scenario 1: 3%	Scenario 2: 4%	Scenario 3: 5%	Scenario 4: 6%
2017	0.0	0.0	0.0	0.0
2018	0.1	0.1	0.1	0.1
2019	0.1	0.1	0.2	0.2
2020	0.2	0.2	0.3	0.4
2021	0.3	0.4	0.5	0.6
2022	0.4	0.5	0.7	0.8
2023	0.5	0.7	0.9	1.1
2024	0.7	0.9	1.1	1.3
2025	0.8	1.1	1.4	1.6
2026	1.0	1.3	1.7	1.9
2027	1.1	1.5	1.9	2.2
2028	1.3	1.7	2.1	2.5
2029	1.4	1.9	2.3	2.7
2030	1.5	2.0	2.5	3.0
2031	1.7	2.2	2.7	3.2
2032	1.8	2.3	2.9	3.4
2033	1.9	2.5	3.1	3.5
2034	2.0	2.6	3.2	3.7
2035	2.0	2.7	3.3	3.9
2036	2.1	2.8	3.4	4.0
2037	2.2	2.8	3.5	4.1
2038	2.2	2.9	3.6	4.2
2039	2.3	3.0	3.7	4.3
2040	2.3	3.1	3.8	4.4
2041	2.4	3.1	3.8	4.5
2042	2.4	3.2	3.9	4.6
2043	2.5	3.2	4.0	4.7
2044	2.5	3.3	4.1	4.7
2045	2.6	3.4	4.1	4.8
2046	2.6	3.4	4.2	4.9
2047	2.7	3.5	4.3	5.0
2048	2.7	3.5	4.3	5.1
2049	2.7	3.6	4.4	5.1
2050	2.8	3.6	4.4	5.2

Source: SAFE Analysis

FIGURE 6 · OIL SAVINGS BY CALENDAR YEAR UNDER EACH OF THE FOUR SCENARIOS IDENTIFIED BY EPA AND NHTSA



Source: SAFE Analysis

As can be seen in Table 8 and Figure 6 above, each of the four scenarios that the agencies are considering yield substantial oil savings. In 2025 the savings range from 0.8 to 1.6 MBD, depending on the level of increased stringency. Yet, although the regulations would only tighten the standards through MY 2025, the savings increase for years afterwards because: 1) vehicle miles travelled continue to grow; 2) the more efficient cars on the road continue to generate savings over the baseline; and, 3) it takes time for the fleet to turn over and for the relatively inefficient cars already on the road to be replaced by newer and more efficient cars. The savings range from 2.3 to 4.4 MBD in 2040 and 2.8 to 5.2 MBD in 2050. There can be little doubt that aggressive fuel-economy standards represent an important tool for reducing our oil consumption and its attendant risks.

It is well understood that our nation's dependence on oil comes with substantial costs and risks. Oil price spikes have contributed to every recent U.S. recession, and economists at the Department of Energy have calculated that oil dependence has cost our economy about $5 trillion since 1970. Moreover, it constrains our foreign policy and imposes substantial burdens on our military. Given the importance of the oil savings to the nation, SAFE continues to support the most aggressive annual improvement goal supported by credible economic and engineering analysis showing that it is feasible, cost-effective, and would maintain fleet safety. Accordingly, SAFE hopes that Scenario 4, which calls for a 6 percent annual increase in LDV fuel economy, meets that standard.

Because of the importance of these policies and their economic implications, it is critical that the analysis required to support them be based on the best information possible, including that in the most recent fuel economy study by the National Academy of Science,[68] and that the assumptions underlying the rule are both reasonable and well-supported by the administrative record developed in the rulemaking proceeding.

68 National Research Council of the National Academy of Science, Assessment of Fuel Economy Technologies for Light-Duty Vehicles (2010) available at books.nap.edu/openbook.php?record_id=12924&page=R1.

VII. Other Issues

In addition to choosing a level by which to increase the stringency of fuel economy and greenhouse gas emissions standards, there are several other issues the agencies must address. SAFE encourages the agencies to carefully consider each of these issues, the proper determination of which is necessary for a strong and properly calibrated rule.

Upstream Emissions: EPA must determine whether to regulate upstream emissions from LDVs, a particularly significant issue with respect to PHEVs and EVs. At the most fundamental level, the agencies' proceeding is about regulating vehicle emissions, and stated simply, plug-in vehicles have no tailpipe emissions while operating on battery power, though the generation of power to charge them often will produce emissions upstream. Those emissions, however, will vary from utility to utility, hour to hour, and customer to customer. Moreover, the emissions profile of EVs and PHEVs, which, unlike emissions from gasoline powered vehicles, cannot be controlled by the auto manufacturers, and will change over time as the emissions profile of the grid improves. These emissions would seem to be no more the automakers' responsibility than emissions attributable to computers are Dell's and Hewlett Packard's responsibility or emissions attributable to flat panel televisions are Sony's and Samsung's responsibility. SAFE believes that it is inappropriate to hold automakers responsible for emissions that cannot be predicted with any degree of confidence, that will vary from time to time and place to place, and that they cannot control or affect. If, however, EPA decides to regulate upstream emissions from EVs and PHEVs, it also should regulate upstream emissions from all other vehicles so that all vehicles are treated consistently.

Battery Costs: EPA and NHTSA rely on the market's adoption of HEVs, PHEVs, and EVs to meet the range of scenarios to varying degrees. Several of the pathways assume substantial deployment of cars that will rely in whole or in part on large format automotive grade batteries. Given their reliance on these vehicles, the cost of batteries is a critical factor in determining the cost of meeting the standards. As difficult as it is to predict battery costs a year or two from now, it certainly is extraordinarily difficult to predict battery prices a decade into the future. Nevertheless, it is important that any analysis that justifies the choice of a particular standard is as accurate as possible. The assumptions regarding battery costs used by the agencies are detailed in Tables 9 and 10.

TABLE 9 · DIRECT MANUFACTURING COSTS ON A $/KWH-BASIS FOR LARGE CAR HEVS, PHEVS AND EVS (2008 DOLLARS, MARKUPS NOT INCLUDED)

	Direct Manufacturing Cost, MY2020 (100,000 packs/year volume)		Direct Manufacturing Cost, MY2025 (500,000 packs/year volume)	
Application	$	$/kW-hr	$	$/kW-hr
P2 HEV Battery Pack	801	1,214	641	971
PHEV20 Battery Pack	2,916	324	2,333	259
PHEV40 Battery Pack	4,285	238	3,428	190
EV75 Battery Pack	5,847	217	4,678	173
EV100 Battery Pack	7,443	191	5,954	153
EV150 Battery Pack	11,005	175	8,804	140

Source: Environmental Protection Agency, National Highway Traffic Safety Administration, California Environmental Protection Agency, California Air Resources Board

TABLE 10 · DIRECT MANUFACTURING COSTS ON A $/KWH-BASIS FOR SUBCOMPACT HEVS, PHEVS AND EVS (2008 DOLLARS, MARKUPS NOT INCLUDED)

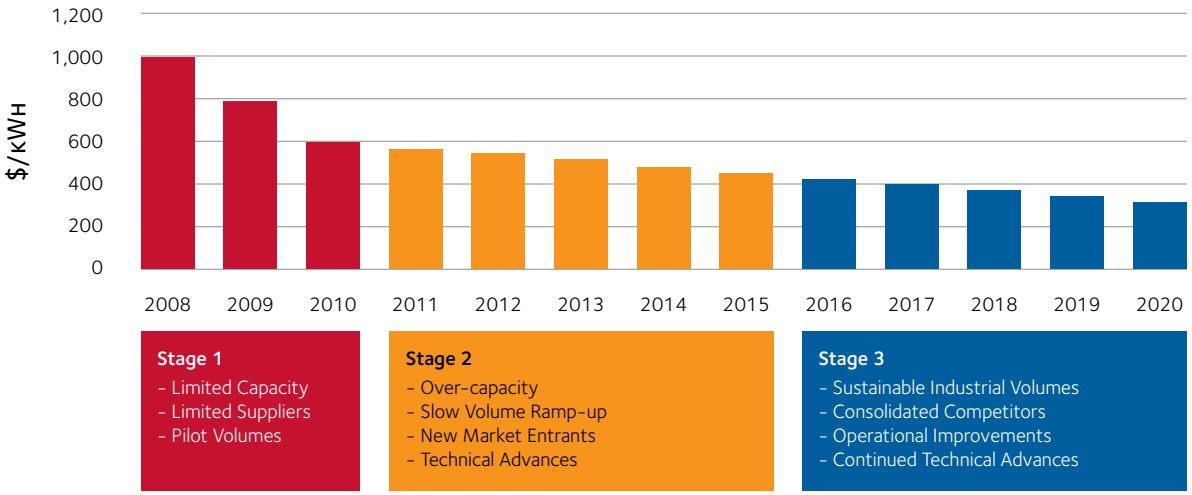
	Direct Manufacturing Cost, MY2020 (100,000 packs/year volume)		Direct Manufacturing Cost, MY2025 (500,000 packs/year volume)	
Application	$	$/kW-hr	$	$/kW-hr
P2 HEV Battery Pack	541	1,177	433	941
PHEV20 Battery Pack	2,187	347	1,749	278
PHEV40 Battery Pack	3,244	251	2,595	201
EV75 Battery Pack	4,013	197	3,211	157
EV100 Battery Pack	5,143	184	4,115	147
EV150 Battery Pack	7,666	170	6,133	136

Source: Environmental Protection Agency, National Highway Traffic Safety Administration, California Environmental Protection Agency, California Air Resources Board

Despite general industry trends that suggest important progress is being made in lowering battery costs, they remain significantly higher, for example, than the goals established by the United States Advanced Battery Consortium. To be sure, there have been reductions in large-format lithium-ion battery prices in recent years. As recently as 2008, EV battery prices were often quoted at $800–$1,000 per kWh of nameplate capacity. During this early market phase, installed capacity was limited, as was the number of suppliers in the market. It is also important to note that supply chain structures contained clear cost inefficiencies that will be overcome with time, experience, and scale.[69]

69 For example, the lithium-ion cells for the first commercially available Chevy Volt PHEVs are being manufactured LG Chem in South Korea. (Reuters, "LG Chem to supply GM Volt batteries," October 22, 2008.) They are then shipped to GM's plant in Brownstown, Michigan, and installed into the final battery packs. The structure and distribution of the lithium-ion cell industry necessitated GM's early approach. However, the company has announced plans to source a portion of Volt cells from LG Chem subsidiary Compact Power beginning in 2012. The Compact Power facility is located in Holland Michigan. (Autoblog.com, "LG Chem to build lithium ion cell factory in Holland, MI," March 14, 2010.)

FIGURE 7 · BATTERY COST REDUCTION PROFILE ($/KWH OF CAPACITY)



Source: PRTM

The U.S. battery industry is currently entering a second phase. Unit prices have already come down to $600 to $750 per kWh. The next five years are likely to be characterized by a highly competitive market stemming from the entrance of multiple battery OEMs with excess capacity. Competition for limited unit demand will result in lower battery prices. After 2015, there will likely be a consolidation of battery suppliers. At the same time, unit demand will ramp up to sustainable levels, generating cost and price benefits from volume-related cost reductions as well as from standardized manufacturing practices and optimized supply chains.

The battery cost estimates used by the agencies are among the most optimistic public estimates. Because battery cost accounts for a substantial portion of the total cost of an EV or PHEV (currently up to approximately 35 percent for an EV with a 24 kWh battery and 22 percent for a PHEV with a 12 kWh battery)[70], understating these costs can significantly affect the cost-effectiveness of each of the different levels of stringency the agencies have proposed and alter market uptake scenarios.

Given the rapid evolution in this field, SAFE recommends that the regulating agencies revisit the issue of battery prices when preparing the final rule and adjust their policies to reflect the most up-to-date information then available. In addition, this uncertainty about battery prices over the period of the rulemaking suggests that it may be appropriate to conduct a midstream review of the stringency of the regulations, as discussed below.

70 Electrification Coalition, Fleet Electrification Roadmap, at p.59 (2010).

Discount Rate: EPA and NHTSA used a discount rate of 3 percent to evaluate the benefits to consumers from reduced fuel consumption.[71] This rate appears low, and certainly is below the rate that most consumers would pay on a loan to finance a new vehicle. Several environmental groups requested the use of a lower discount rate "because of the highly imperfect automobile market, with limited information, uncertainty of future gasoline prices, and a limited set of options with regard to fuel economy."[72] However, it should be noted that consumers have clear information about fuel economy on the window of each new car sold. There also are options for consumers who are looking for better fuel economy; there are fuel efficient cars available if consumers want them. If analysts are concerned about the effect of uncertain gasoline prices on purchasing behavior, it would make more sense to assume higher gasoline prices, accurately incorporating all of the externalities currently not priced in a gallon of gasoline, as opposed to lowering the discount rate.

The use of only 3 percent appears inconsistent with the guidance provided to federal agencies by the Office of Management and Budget for use in evaluating the costs and benefits of proposed regulations. OMB Circular A-4 notes that "[a]s a default position, OMB Circular A-94 states that a real discount rate of 7 percent should be used as a base-case for regulatory analysis,"[73] noting that it is "an estimate of the average before-tax rate of return to private capital in the U.S. economy."[74] The circular then states that "[t]he effects of regulation do not always fall exclusively or primarily on the allocation of capital," and that "[w]hen regulation primarily and directly affects private consumption (e.g., through higher consumer prices for goods and services), a lower discount rate is appropriate."[75] It states that the "social rate of time preference," approximated by "the real rate of return on long-term government debt," a rate that has "averaged around 3 percent in real terms on a pre-tax basis"[76] would be an appropriate rate.

The circular then concludes that "[f]or regulatory analysis, [the agency] should provide estimates of net benefits using both 3 percent and 7 percent."[77] Therefore, the agencies should perform analysis using both interest rates, and present the results in the administrative record and the proposed rule.

Market Appeal and Midstream Review: The agencies are considering standards that extend further into the future than any previously established standards, perhaps 14 years from proposal to the final year of the requirements. Meeting these standards will require the wide scale use of new technology regarding which there is substantial uncertainty, particularly with respect to battery prices. Moreover, the cost-effectiveness of the standards is wholly dependent on the price of oil, which is highly volatile and absolutely impossible to predict with any degree of confidence a decade and a half in the future. Finally, over time, the standards should get increasingly difficult, and will get increasingly expensive, to meet, as the easiest and least expensive measures will be taken first, with

71 *Notice of Intent* at 62,746.

72 Environmental Protection Agency and National Highway Traffic Safety Administration, Interim Joint Technical Assessment Report: Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2017-2025, at p. 2-10 (2010).

73 OMB Circular A-4 (2003) available at www.whitehouse.gov/omb/circulars_a004_a-4/#e.

74 *Id.*

75 *Id.*

76 *Id.*

77 *Id.*

more difficult and expensive changes required to meet the increasingly stringent standards later. The car companies are currently expected to incorporate a variety of new, technologies just to meet the 2012 to 2016 standards.

The agencies, with support from the National Academy of Science, believe that these standards are achievable. As stated above, we believe that it is critical that in developing the rule, the agencies redouble their efforts to ensure that the assumptions regarding the cost of new technology are as accurate as possible, and that the calculations are performed properly. It would also be helpful to include a qualitative discussion of the types of changes to vehicles that would be necessary to meet the standards, and a discussion of why the agencies think that these cars will appeal to average consumers. While it is of critical importance that we reduce the nation's oil dependence, it cannot be done at the expense of the auto industry, left with no choice but to build cars that consumers will not buy.

Even assuming that the agencies meet the highest possible standards in the development of the rule, there remains substantial risk regarding what will happen over time regarding the assumptions that underlie the rule. Accordingly, the agencies should incorporate into the rule a subsequent review in several years, at which time the agencies would examine the progress being made under both the 2012-2016 standards and the early years of the new 2017-2025 standards and adjust the requirements if appropriate to do so, given the advances in technology and what occurs in the oil market.

VII. Conclusion

SAFE is a strong supporter of strengthened fuel economy standards, because they reduce the petroleum intensity of the economy, enhancing our economic and national security. In the Notice of Intent, NHTSA and EPA propose aggressive new standards that have the potential to yield the greatest amount of oil savings of any policy ever implemented by the government, as much as 1.6 MBD in 2025, 3.9 MBD in 2035 and 5.2 MBD in 2050, according to SAFE's analysis. SAFE strongly supports the adoption of the most aggressive standards that the agencies can prove are cost-effective, feasible, and safe.

In order that the program remain credible, however, it is important that the rules be well designed and based on the best information available. SAFE hopes that the regulating agencies will fully consider the issues raised in this policy brief prior to preparing the forthcoming Notice of Proposed Rulemaking that is due to be issued in September 2011, and then choose the most aggressive option for which the benefits of the regulations exceed their costs.

Appendix A: Oil Savings From 2012–2016 Fuel Economy Rule

The new regulations require automakers to achieve GHG emission reduction targets that would be equivalent to vehicle efficiency of 35.5 MPG by 2016, assuming that all emission reductions were achieved through improvements in fuel economy. Some companies, however, will pay penalties rather than meet the standards, some will use of GHG credits for improving air conditioning operations, and other companies will obtain credits for producing flexible fuel vehicles. Therefore, the actual calculated fuel economy likely will be lower. Based on projected vehicle sales and NHTSA predicts that the average fleet-wide fuel economy calculated for compliance with the statute will rise from 27.6 MPG in MY 2011 to 34.1 MPG in MY 2016.

SAFE calculated the oil savings that these standards should deliver. SAFE assumed as a baseline the forecast fuel economy the higher of the existing legal standard or the actual fuel economy last reported before EISA passed. Accordingly, its analysis captured the savings that were mandated by EISA and implemented through the 2012–2016 rulemaking. SAFE estimated a savings of 495,000 barrels per day in 2016, 1.1 MBD in 2020, and 1.74 MBD in 2025. A more detailed account of the estimated annual savings attributable to the 2012–2016 rulemaking is presented in Table 11 below.

TABLE 11 · ANNUAL OIL SAVINGS EACH CALENDAR YEAR ATTRIBUTABLE TO THE 2012–2016 RULE (IN THOUSAND BARRELS PER DAY)

	OIL SAVINGS				OIL SAVINGS		
Year	Cars	Light Trucks	Total	Year	Cars	Light Trucks	Total
2012	33	17	49	2032	1,453	790	2,243
2013	82	47	129	2033	1,502	803	2,305
2014	137	88	224	2034	1,544	813	2,358
2015	202	142	344	2035	1,586	824	2,410
2016	282	213	495	2036	1,625	830	2,455
2017	367	287	654	2037	1,665	839	2,505
2018	451	354	805	2038	1,705	849	2,553
2019	539	418	956	2039	1,745	858	2,602
2020	629	475	1,103	2040	1,784	867	2,652
2021	721	527	1,248	2041	1,823	874	2,698
2022	816	576	1,392	2042	1,863	881	2,744
2023	902	615	1,517	2043	1,902	888	2,790
2024	986	648	1,634	2044	1,942	895	2,837
2025	1,065	677	1,742	2045	1,982	902	2,884
2026	1,139	702	1,841	2046	2,022	909	2,931
2027	1,206	725	1,931	2047	2,063	916	2,979
2028	1,259	739	1,998	2048	2,103	924	3,027
2029	1,309	752	2,062	2049	2,144	931	3,075
2030	1,361	767	2,129	2050	2,186	938	3,124
2031	1,410	780	2,190				

Source: SAFE Analysis