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Automobile and Light Truck Fuel Economy: The CAFE Standards

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SUMMARY

One of the least controversial provisions of the Energy Policy and Conservation Act of 1975 (P.L. 94-163) established corporate average fuel economy (CAFE) standards for new passenger cars. As oil prices rose, there was little expectation that manufacturers would have any difficulty complying with the standards. However, oil prices softened and the demand for small cars diminished. In response to petitions from manufacturers facing stiff civil penalties for noncompliance, the National Highway Traffic Safety Administration (NHTSA) relaxed the standard for model years 1986-1989.

The current standard is 27.5 mpg for passenger automobiles and 20.7 mpg for light trucks, a classification that also includes sport utility vehicles (SUVs). An attempt in the 102nd Congress to raise CAFE proved too controversial and was dropped from omnibus energy policy legislation before it could pass (Energy Policy Act of 1992, P.L. 102-486). The Clinton Administration supported greater fuel efficiency, but indicated in 1993 that an increase in the CAFE standards was not the option likeliest to be embraced first. In 1994, the National Highway Traffic Safety Administration (NHTSA) issued a notice of proposed rulemaking to explore raising the CAFE standard for light-duty trucks. Congress included language in the FY1996-FY2001 DOT Appropriations (P.L. 104-50, P.L. 104-205, P.L. 105-66, P.L. 106-69, and P.L. 106-346) prohibiting the use of appropriated funds for any rulemaking on CAFE, effectively freezing the standards. However, the Senate conferees to the FY2001 appropriations insisted upon a study of CAFE by the National Academy of Sciences (NAS). That study, released on July 30, 2001, concluded that it was possible to achieve a more than 40% improvement in light truck and SUV fuel economy over a 10-15 year period at costs that would be recoverable over the lifetime of ownership.

There were sharp differences in the House and Senate CAFE proposals. On July 12, 2001, the House Subcommittee on Energy and Air Quality adopted an amendment in markup to H.R. 2587 that called for a reduction of 5 billion gallons in light-duty truck fuel consumption over the period of model years (MYs) 2004-2010. This proposal came to the House floor on August 1, 2001 as part of H.R. 4. An amendment to establish a combined passenger car and truck CAFE of 27.5 mpg by MY2007 was defeated 160-269. The NAS study, released two days earlier, figured prominently in the debate. On March 13, 2002, the Senate, debating its own comprehensive energy bill, voted (62-38) for an amendment to charge NHTSA with development of new CAFE standards. The Senate then approved an amendment (56-44) to freeze "pickup trucks" at the current light truck standard of 20.7 mpg. On September 19, the conferees agreed to the House-passed goal of saving 5 billion gallons, but shifted the window to MY2006-MY2012. The 107th Congress adjourned without taking final action on the bill.

In late November 2002, it was reported that the Administration was reviewing a NHTSA proposal to boost the CAFE of light-duty trucks by 1.5 mpg by 2007. Depending upon the disposition of this proposal, CAFE might, or might not, be included in any new energy legislation introduced in the 108th Congress.

MOST RECENT DEVELOPMENTS

In late November 2002, it was reported that the Bush Administration was reviewing a draft proposal by the National Highway Traffic Safety Administration (NHTSA) to boost the Corporate Average Fuel Economy Standard (CAFE) for light duty trucks by 0.5 miles per gallon (mpg) for each of model years (MYs) 2005-2007 – a total of 1.5 mpg by MY2007. The Administration review of the NHTSA draft proposed rulemaking is under review by the White House Office of Information and Regulatory Affairs.

The 107th Congress adjourned without enacting comprehensive energy legislation (H.R. 4). There had been sharp differences in the CAFE provisions between the House and Senate versions of the legislation, H.R. 4. The House bill, passed on August 1, 2001, included a provision calling for a reduction of 5 billion gallons in light-duty truck fuel consumption over the period of model years (MYs) 2004-2010. The provision would also have required the National Highway Traffic Safety Administration (NHTSA) to develop a weight-based system for establishing fuel-efficiency standards. The Senate began debate on comprehensive energy legislation at the end of February 2002. Senators Kerry and McCain reached a compromise to propose a combined fleetwide average of 36 mpg by MY2015. However, on March 13, 2002, the Senate voted (62-38) for an amendment offered by Senators Levin and Bond to charge NHTSA with development of new CAFE standards. The Senate went on to approve an amendment (56-44) from Senator Miller to freeze "pickup trucks" (to be defined by the Secretary of Transportation) at the current light truck standard of 20.7 mpg. This language was in the final version of the Senate energy bill when it passed April 25, 2002 (88-11). On September 19, the conferees agreed to the House-passed goal of achieving 5 billion gallons, but shifted the window to MY2006-MY2012.

There are expectations that energy legislation will be introduced shortly after the 108th Congress convenes. Depending upon the Administration's disposition of the NHTSA proposal under review, CAFE might, or might not, be a part of any new legislation. If NHTSA formally issues a notice of proposed rulemaking to raise CAFE, it may defuse pressure for any further congressional action affecting CAFE at this time.

BACKGROUND AND ANALYSIS

The Arab oil embargo of 1973-1974 and the tripling in the price of crude oil brought into sharp focus the fuel inefficiency of U.S. automobiles. New car fleet fuel economy had declined from 14.8 miles per gallon (mpg) in model year 1967 to 12.9 mpg in 1974. In the search for ways to reduce dependence on imported oil, automobiles were an obvious target. The Energy Policy and Conservation Act (P.L. 94-163) established corporate average fuel economy (CAFE) standards for passenger cars for model years 1978-1980 and 1985 and thereafter. The CAFE standards called for essentially a doubling in new car fleet fuel economy, establishing a standard of 18 mpg in model year (MY) 1978 and rising to 27.5 by MY1985. (Interim standards for model years 1981-1984 were announced by the Secretary of Transportation in June of 1977.) EPCA also established fuel economy standards for light duty trucks, beginning at 17.2 mpg in MY1979, and currently 20.7 mpg. (The CAFE standards are summarized in **Table 1**.)

Compliance with the standards is measured by calculating a sales-weighted mean of the fuel economies of a given manufacturer's product line, with domestically produced and imported vehicles measured separately. As originally enacted, the penalty for non-compliance was $5 for every 0.1 mpg below the standard, multiplied by the number of cars in the manufacturer's new car fleet for that year. Civil penalties collected from 1983-1998 totaled roughly $475 million.

Table 1. Fuel Economy Standards for Passenger Cars and Light Trucks: Model Years 1978 Through 2002
(miles-per-gallon)

Model year	Passenger cars	Light trucks[1]		
		Two-wheel drive	Four-wheel drive	Combined[2,3]
1978	[4]18.0	—	—	—
1979	[4]19.0	17.2	15.8	—
1980	[4]20.0	16.0	14.0	([5])
1981	2.0	[6]16.7	15.0	([5])
1982	24.0	18.0	16.0	17.5
1983	26.0	19.5	17.5	19.0
1984	27.0	20.3	18.5	20.0
1985	[4]27.5	[7]19.7	[7]18.9	[7]19.5
1986	[8]26.0	20.5	19.5	20.0
1987	[9]26.0	21.5	19.5	20.5
1988	26.0	21.0	19.5	20.5
1989	[10]26.5	21.5	19.0	20.0
1990	[4]27.5	20.5	19.0	20.2
1991	[4]27.5	20.7	19.1	20.2
1992	[4]27.5	—	—	20.2
1993	[4]27.5	—	—	20.4
1994	[4]27.5	—	—	20.5
1995	[4]27.5	—	—	20.6
1996	[4]27.5	—	—	20.7
1997	[4]27.5	—	—	20.7
1998	[4]27.5	—	—	20.7
1999	[4]27.5	—	—	20.7
2000	[4]27.5	—	—	20.7
2001	[4]27.5	—	—	20.7
2002	[4]27.5	—	—	20.7

[1]Standards for MY 1979 light trucks were established for vehicles with a gross vehicle weight rating (GVWR) of 6,000 pounds or less. Standards for MY 1980 and beyond are for light trucks with a GVWR of 8,500 pounds or less.

[2]For MY 1979, light truck manufacturers could comply separately with standards for four-wheel drive, general utility vehicles and all other light trucks, or combine their trucks into a single fleet and comply with the standard of 17.2 mpg.

[3]For MYs 1982-1991, manufacturers could comply with the two-wheel and four-wheel drive standards or could combine all light trucks and comply with the combined standard.

[4]Established by Congress in Title V of the Act.

[5]A manufacturer whose light truck fleet was powered exclusively by basic engines which were not also used in passenger cars could meet standards of 14 mpg and 14.5 mpg in MYs 1980 and 1981, respectively.

[6]Revised in June 1979 from 18.0 mpg.

[7]Revised in October 1984 from 21.6 mpg for two-wheel drive, 19.0 mpg for four-wheel drive, and 21.0 mpg for combined.
[8]Revised in October 1985 from 27.5 mpg.
[9]Revised in October 1986 from 27.5 mpg.
[10]Revised in September 1988 from 27.5 mpg.

Source: Automotive Fuel Economy Program, Annual Update, Calendar Year 2000, appearing in full at: [http://www.nhtsa.dot.gov/cars/problems/studies/fuelecon/index.html#TOC]

When oil prices rose sharply in the early 1980s, smaller cars were selling well, and it was expected that manufacturers would have no difficulty complying with the standards. However, oil prices had declined by 1985. Sales of smaller cars tapered off as consumers began to place less value on fuel economy and gasoline cost as an input in the overall costs of vehicle ownership. In response to petitions from manufacturers facing stiff civil penalties for noncompliance, the National Highway Traffic Safety Administration (NHTSA) relaxed the standard for model years 1986-1989, but it was restored to 27.5 in MY1990. The Persian Gulf War in 1990 caused a brief spike in oil prices, but it also demonstrated that it was unlikely that the United States or many of the producing nations would tolerate a prolonged disruption in international petroleum commerce. As a consequence, U.S. dependence upon imported petroleum, from a policy perspective, was considered less of a vulnerability.

It was also becoming apparent that reducing U.S. dependence on imported oil would be extremely difficult without imposing a large price increase on gasoline, or restricting consumer choice in passenger vehicles. Many argued that the impacts of such actions upon the economy or the automotive industry would be unacceptable. Meanwhile, gasoline consumption, which fell to 6.5 million barrels per day (mbd) in 1982, averaged nearly 8.4 mbd in 1999, and has been peaking at roughly 9.0 mbd during the summer of 2002.

There were highly controversial attempts to significantly raise the CAFE standards on passenger cars in the early 1990s. One proposal included in omnibus energy legislation was so controversial that it contributed to the Senate's inability in 1991 to bring the bill up for debate on the floor.

NHTSA typically established truck CAFE standards 18 months prior to the beginning of each model year, as EPCA allows. However, such a narrow window permitted NHTSA to do little more than ratify manufacturers' projections for the model year in question. In April 1994, the agency proposed to abandon this practice and issued an Advance Notice of Proposed Rulemaking inviting comment on what level that standards might be established for trucks for MY1998-MY2006. The following year, however, after a change in congressional leadership, Congress included language in the FY1996 Department of Transportation Appropriations to prohibit expenditures for any rulemaking that would make any adjustment to the CAFE standards. Identical language was included in the appropriations and spending bills for FY1997-FY2000. An effort to pass a sense of the Senate amendment that conferees on the FY2000 DOT Appropriations should not agree to the House-passed rider for FY2000 was defeated in the Senate on September 15, 1999 (55-40). The rider also appeared in the FY2001 DOT Appropriations (H.R. 4475) approved by the House Committee on Appropriations May 16, 2000, and approved by the House May 19, 2000. However, as is detailed later, the conferees reached a compromise to drop it.

Refocusing on Fuel Economy: SUVs, OPEC, and Kyoto

Recent developments have focused fresh attention on the CAFE standards and fuel economy in general. The sharp increase in crude oil and gasoline prices that began in 1999 has brought into higher relief the continuing loss of market share of passenger cars to the larger, multi-purpose sport utility vehicles (SUVs) that are subject to the less stringent light-truck fuel economy standard. A 1996 study conducted for the Department of Transportation found that consumers valued the larger vehicles for their versatility and roominess, and the availability of four-wheel drive. The increasing market share of these vehicles, combined with their lower average fuel economy, has contributed to a lowering in overall average fuel economy since the mid-1980s.

Table 2. Domestic and Import Passenger Car and Light Truck Fuel Economy Averages for Model Years 1978-2000

(in MPG)

Model Year	Domestic			Import			All cars	All light trucks	Total fleet
	Car	Light Truck	Com-bined	Car	Light[1] truck	Com-bined			
1978	18.7	—	—	27.3	—	—	19.9	—	—
1979	19.3	17.7	19.1	26.1	20.8	25.5	20.3	18.2	20.1
1980	22.6	16.8	21.4	29.6	24.3	28.6	24.3	18.5	23.1
1981	24.2	18.3	22.9	31.5	27.4	30.7	25.9	20.1	24.6
1982	25.0	19.2	23.5	31.1	27.0	30.4	26.6	20.5	25.1
1983	24.4	19.6	23.0	32.4	27.1	31.5	26.4	20.7	24.8
1984	25.5	19.3	23.6	32.0	26.7	30.6	26.9	20.6	25.0
1985	26.3	19.6	24.0	31.5	26.5	30.3	27.6	20.7	25.4
1986	26.9	20.0	24.4	31.6	25.9	29.8	28.2	21.5	25.9
1987	27.0	20.5	24.6	31.2	25.2	29.6	28.5	21.7	26.2
1988	27.4	20.6	24.5	31.5	24.6	30.0	28.8	21.3	26.0
1989	27.2	20.4	24.2	30.8	23.5	29.2	28.4	20.9	25.6
1990	26.9	20.3	23.9	29.9	23.0	28.5	28.0	20.8	25.4
1991	27.3	20.9	24.4	30.1	23.0	28.4	28.4	21.3	25.6
1992	27.0	20.5	23.8	29.2	22.7	27.9	27.9	20.8	25.1
1993	27.8	20.7	24.2	29.6	22.8	28.1	28.4	21.0	25.2
1994	27.5	20.5	23.5	29.6	22.0	27.8	28.3	20.7	24.7
1995	27.7	20.3	23.8	30.3	21.5	27.9	28.6	20.5	24.9
1996	28.1	20.5	24.1	29.6	22.2	27.7	28.5	20.8	24.9
1997	27.8	20.2	23.3	30.1	22.1	27.5	28.7	20.6	24.6
1998	28.6	20.5	23.3	29.2	22.9	27.6	28.8	21.1	24.7
1999	28.0	---	---	29.0	---	---	28.3	20.9	24.5
2000	28.5	---	---	28.3	---	---	28.5	21.2	24.7

[1]Light trucks from foreign-based manufacturers.
NOTE: Beginning with MY1999, the agency ceased categorizing the total light truck fleet by either domestic or import fleets.

Other pressures have had less to do with energy security and more to do with environmental objectives. The Kyoto Agreement would have required the United States to achieve a 7% reduction from1990 levels of carbon dioxide emissions, which implied a

significant reduction in gasoline consumption, among other elements. Preferring to forestall any state or federal regulation, General Motors, Ford, Chrysler and Toyota announced on February 4, 1998, that they would produce cars in MY1999 with engine and catalytic converter technologies that would achieve lower emissions. In early November 1998, the California Air Resources Board (CARB) voted to reclassify SUVs 8500 pounds or less as passenger cars and hold those vehicles to California emission standards beginning in MY2004. Ford Motor announced in late July 2000 that it would improve the fuel economy of its SUV model line by 25% over a five-year period. Other manufacturers echoed similar intentions.

During the Clinton Administration, the Congress was chary of committing the United States to the Kyoto Agreement, pending further decisions about the participation of developing nations, and how the agreement would be enforced. However, on March 27, 2001, Environmental Protection Agency Administrator Christine Todd Whitman indicated that the Bush Administration had "no interest" in any further negotiations on implementing the Kyoto Protocol. On February 14, 2002, the President proposed his own plan to reduce the growth in emissions.

CAFE in Congress (1994-2000): Freezing the Standard

Months prior to the midterm elections in 1994, NHTSA published a notice of possible adjustment to the fuel economy standards for trucks before the end of the decade. The following year, however, the House-passed version of H.R. 2002, the FY1996 Department of Transportation Appropriation, prohibited the use of appropriated funds to promulgate any CAFE rules; the Senate version did not include the language, but it was restored in conference. The House and Senate approved the conference report, and the bill became law (P.L. 104-50) on Nov. 15, 1995. Much the same scenario occurred in the second session of the 104th and the first session of the 105th: A similar rider was passed by the House and not by the Senate, but included by the conferees and enacted. This scenario occurred again in the second session. The prohibition was included in the version of the FY1999 appropriations passed by the House (H.R. 4328) in July 1998, but not in the Senate version (S. 2307); it was finally included in the omnibus spending bill at the end of the 105th Congress (P.L. 105-277). The prohibition was reported from the House Appropriations Committee in the FY2000 DOT Appropriations (H.R. 2084) and passed by the House on June 23, 1999. However, the growth in gasoline consumption and the size of the light-duty truck fleet were concerns cited behind introduction in the Senate of an amendment to the bill expressing the sense of the Senate that the conferees should not agree to the House-passed rider for FY2000. The amendment, sponsored by Senators Gorton and Feinstein was defeated in the Senate on September 15, 1999 (55-40) and the prohibition was once again enacted into law (P.L. 106-69).

On May 16, 2000, the House Committee on Appropriations voted to include the rider in the FY2001 DOT Appropriations (H.R. 4475). An effort to strip the language was expected when the bill reached the House floor; however, there was none, and the bill, with the rider, passed the House on May 19, 2000 (395-13). Following its passage in the Senate, Senator Gorton introduced a motion to instruct the Senate conferees to not accept the House rider. After debate, the motion was altered to instruct the conferees to accept the House rider in return for agreement to authorize a study by the National Academy of Sciences (NAS), in

conjunction with DOT, "to recommend, but not to promulgate without approval by a Joint Resolution of Congress, appropriate corporate average fuel efficiency standards." In addition to the factors required by statute to be weighed in determining maximum feasible CAFE levels, the motion was to require the study to consider the impacts of any proposed CAFE standard on vehicle safety and on effects on employment in the automotive sector and to analyze potentially disparate effects of revised standards across the sector. The motion was agreed to, followed by clarification, it applied only to the FY2001 appropriation. The conferees were successful, and the language was included in the appropriations bill signed into law on October 23, 2000 (P.L. 106-346).

Legislation was introduced in the 104th Congress (H.R. 2200), the 105th Congress (S. 286, H.R. 880), and the 106th Congress (S. 147) that would freeze the current CAFE standards. Unlike the annual prohibition on rulemaking that has been included in the FY1996-FY2001 appropriations, these bills would have maintained the CAFE standards at the level in force at the time of enactment unless superseded by a subsequent act of Congress. None of these bills received further congressional attention.

The Freeze Is Thawed: CAFE in the 107th Congress

A second summer of high gasoline prices, coupled with a heightened awareness that the nation is experiencing problems with many fuels and on many fronts, has built support for reconsideration of the CAFE standards in the 107th Congress. For the first time since FY1996, the FY2001 House DOT appropriations did not include a rider prohibiting expenditures on CAFE rules, and legislation (H.R. 2587) reported out of committee in July 2001 that would require the automotive industry and NHTSA to achieve fuel savings.

Past Role of CAFE Standards. The effectiveness of the CAFE standards themselves has been controversial. Since 1974, domestic new car fuel economy has roughly doubled; the fuel economy of imports has increased by roughly one-third. Some argue that these improvements would have happened as a consequence of rising oil prices during the 1970s and 1980s. Some studies suggest that the majority of the gains in passenger car fuel economy during the 1970s and 1980s were technical achievements, rather than the consequence of consumers' favoring smaller cars. Between 1976 and 1989, roughly 70% of the improvement in fuel economy was the result of weight reduction, improvements in transmissions and aerodynamics, wider use of front-wheel drive, and use of fuel-injection. The fact that overall passenger car fleet fuel economy remained comparatively flat during a period of declining real prices for gasoline also suggested that the CAFE regulations have contributed to placing some sort of floor under new-car fuel economy.

General criticisms of raising the CAFE standards have been that, owing to the significant lead times manufacturers need to change model lines and because of the time needed for the vehicle fleet to turn over, increasing CAFE is a slow and inefficient means of achieving reductions in fuel consumption. Further, it is argued that the standards risk interfering with consumer choice and jeopardizing the health of a recovered domestic automotive industry. Opponents of raising CAFE usually cite fears that higher efficiency will likely be obtained by downsizing vehicle size and weight, raising concerns about safety.

Proponents of a CAFE increase have argued that boosting the standards might bring about the introduction of technological improvements that do not compromise features that consumers value, but which would otherwise not be added because these improvements do add to the cost of a new vehicle.

Growth of Light-Duty Trucks and SUVs. What has spurred a new focus on CAFE in the 107th Congress is the growing percentage of the fleet made up of light-duty trucks and sport utility vehicles (SUVs), which are subject to a less stringent CAFE standard than are passenger automobiles. In 1988, light trucks constituted roughly 30% of the vehicle fleet. By 1994, this figure had grown to slightly more than 40% and reached an estimated 45% by 2000. The change is attributable to the burgeoning popularity of mini-vans and SUVs. The share of gasoline consumption by light duty trucks grew at an annual rate of 4.5% from 1985 to 1995 while automobile fuel consumption fell fractionally during the same period. (See also CRS Report RS20298, *Sport Utility Vehicles, Mini-Vans and Light Trucks: An Overview of Fuel Economy and Emissions Standards*.)

On May 1, 2001, Senator Feinstein, joined by three co-sponsors, introduced S. 804. The legislation would raise the CAFE standard for light duty trucks and SUVs to 27.5 mpg – the same standard as for passenger automobiles – by MY2007. Applicability of the standards would also be raised from 8,500 pounds gross vehicle weight (GVW) to include vehicles up to 10,000 GVW. The legislation would also require that the fuel economy of new vehicles acquired by the federal government exceed the baseline for a particular vehicle class by 3 mpg at the end of FY2003, and 6 mpg by the end of FY2005.

Once fully implemented and depending upon the growth in the size of the light truck fleet, it is possible that requiring these vehicles to meet the higher standard could save roughly 1.0 million barrels of oil daily. However, these savings could take nearly 20 years to fully capture; once the 27.5 standard were in effect for MY2007, it would still take an additional 10 years or more before the fleet of older, less efficient trucks and SUVs would be retired.

On July 12, 2001, the House Subcommittee on Energy and Air Quality adopted an amendment in markup on an energy conservation bill (H.R. 2587) that calls for a reduction of 5 billion gallons in light-duty truck fuel consumption over the period of MYs 2004-2010. The provision would also require NHTSA to develop a weight-based system for establishing fuel-efficiency standards. The amendment, introduced by Chairman Barton and Representative Burr, passed by a vote of 29-3. An amendment by Representative Markey that would have established a CAFE of 37.5 for passenger cars and 29.0 mpg for light-duty trucks by MY2011 was withdrawn.

Some members of the subcommittee criticized the provision that was adopted as saving very little fuel; however, Representative Dingell suggested that it was as stringent as he could support, and Chairman Barton emphasized the importance of achieving consensus within the committee on the language. The Chairman referred to the amendment as an "excellent first step." Critics of the proposal suggested it would require a relatively insignificant improvement in fuel efficiency to achieve these savings, with estimates ranging between 1-3 mpg over the period.

The fuel economy provisions of H.R. 2587 were included in H.R. 4, debated by the House on August 1, 2001. An amendment to establish a combined CAFE fleet standard of 27.5 mpg by MY2007 was defeated, 160-269.

The NAS study, released on July 30, 2001, was cited by opponents as well as supporters of the House proposal. The study concludes that it is possible to achieve a more than 40% improvement in light truck and SUV fuel economy over a 10-15 year period at costs that would be recoverable over the lifetime of ownership. The study does suggest that there may be safety consequences if manufacturers opt to meet higher standards by reduced vehicle weight. However, this position is disputed by some, who argue that heavier vehicles may be safer for their occupants, but may be responsible for fatalities when they strike lighter vehicles; and that a lightening of vehicles could reduce fatalities in certain incidents. The study also recommends that any redesign of the CAFE program include a program for trading fuel economy credits among manufacturers, and that CAFE standards should be based on vehicle "attributes," such as weight, rather than basing CAFE standards on whether a vehicle is a car or a truck.

The congressionally mandated NAS study on fuel economy also recommends eliminating the CAFE credits that accrue to manufacturers of dual-fueled vehicles. These vehicles are rarely operated on anything but conventional gasoline, but allow their manufacturers to sell less efficient vehicles overall while still remaining in compliance with the CAFE requirements. Some estimate that the dual-fueled vehicle credit has resulted in an overall reduction of five-tenths to nine-tenths of a gallon in the average efficiency of vehicles sold. H.R. 4, as passed by the House, would extend the credit through MY2008. The bill also includes provisions requiring federal purchase of alternative-fueled vehicles and hybrids, and would require an additional study by the NAS on the "feasibility and effects" of reducing "by a significant percentage" fuel use by automobiles by MY2010. (The current NAS study may be read online at [http://books.nap.edu/html/cafe/].)

In the wake of the terrorist attacks on September 11, 2001, Senate Republicans pressed the Democratic leadership to bring a Senate version of omnibus energy legislation to the floor as soon as possible, arguing for the soonest possible action on legislation that they asserted would enhance U.S. energy security. Debate on a revised version of a bill originally introduced by Senator Bingaman, S. 517, began in late February 2002.

An amendment to that bill proposed to include the language of the National Fuel Savings and Security Act of 2002 (S. 1926) introduced on February 8, 2002, by Senator Kerry, the chair of the Senate Commerce Committee. Major provisions of this legislation relating to CAFE included:

- The Secretary of Transportation, in consultation with the Administrator of EPA, would have "prescribed" standards beginning MY2005 that would achieve a combined CAFE for passenger automobiles and light duty trucks of 35 mpg for MY2013.
- An interim standard would have been established of 33.2 mpg for cars and 26.3 for light trucks, by MY2010. After MY2010, the Secretary would have had the discretion to set a combined standard for cars and trucks.
- If standards were not established 18 months after passage, a series of default standards would have taken effect, raising automobile CAFE to 38.3 mpg

in MY2013 and light trucks to 32 mpg; there would be no combined standard.

- DOT would have been required to review the difference between rated CAFE and in-use CAFE under "average driving conditions," with the objective of narrowing any differences to no more than 5% by MY2015.
- A system where manufacturers could trade credits for exceeding the standards between cars and trucks, and domestics and imports, would have been established.
- A special identifying label (Green Label Program) would have been created for vehicles that both meet or exceed the CAFE standard and are also certified to have the lowest greenhouse gas emissions for vehicles in its class. A system of green stars would also have been established to denote cars that exceed the standards, and a special gold star for cars exceeding 50 mph and light trucks exceeding 37 mpg. DOT would have studied "social marketing strategies" to acquaint the public to the meaning of these logos.
- Grants and awards would have been provided for various competitions for technical demonstrations and innovation.

A somewhat similar bill (S. 1923), was introduced by Senator McCain, and would have delayed the establishment of higher standards until MY2007, but would have required a combined CAFE of 36 mpg by MY2016. It would have introduced combined standards for cars and trucks in MY2007 and limited the credits that could be traded or purchased. This legislation would also have eliminated the credit for dual-fueled vehicles. As debate on the Daschle amendment to S. 517 commenced in late February, it was reported that Senators McCain and Kerry had reached agreement to seek a combined CAFE of 36 mpg by MY2015. However, on March 13, 2002, the Senate voted (62-38) for an amendment offered by Senators Levin and Bond to charge NHTSA with development of new CAFE standards. The Senate went on to approve an amendment (56-44) from Senator Miller to freeze "pickup trucks"– to be defined by the Secretary of Transportation – at the current light truck standard of 20.7 mpg. Proponents of the amendment argued that subjecting pickup trucks to higher CAFE standards would render these vehicles inadequately powered for farmers and laborers who use these vehicles to haul loads and perform work. Critics of the amendment pointed to the inconsistency of the Senate's maintaining, on the one hand, that the body lacked the expertise to set CAFE standards, but then turning around to freeze pickup trucks at 20.7 mpg. It is not apparent how "pickup trucks" was to be defined. If enacted, the provision could well result in a third category of vehicles, differentiated both from passenger automobiles, and the sort of SUVs and passenger vans that are currently categorized as "light duty trucks."

Reaction in the hours after these votes focused upon the Levin amendment as a defeat for pro-CAFE forces – which it was, in a sense, although the resumption of a role for NHTSA in establishing fuel economy targets could be significant. However, the ramifications of the Miller amendment could prove a potent offset to NHTSA rulemakings, depending upon how much of the light truck fleet comes to be exempted from higher CAFE requirements. The Senate passed S. 517 (88-11) on April 25, 2002, substituting the bill's language for H.R. 4. Shortly before final passage, the Senate voted 57-42 to table an amendment offered by Senators Carper and Specter to require a reduction of 1 million b/d (barrels/day) in transportation sector fuel consumption. The amendment and its proposed reduction in fuel use was perceived by some as an arbitrary target and an indirect way of securing a significant increase in CAFE. Opponents argued that the Senate had already voted

for NHTSA to conduct a rulemaking, and that the Senate had, in the Levin amendment, rejected setting specific targets, whether it be CAFE standards or specific reductions in fuel consumption.

The conference committee instructed staff to see whether a compromise could be worked out by August 30, 2002. On September 19, the conferees agreed to the House-passed savings of 5 billion gallons in light-truck fuel consumption, but it shifted the applicable window to MY2006-MY2012. Both the House and Senate versions of the bill proposed to extend the CAFE credit to manufacturers of dual-fueled vehicles. The maximum annual credit of 1.2 mpg applies to vehicles manufactured through MY2008; that maximum drops to 0.9 mpg during MY2009-MY2012. A Senate-proposed list of expanded criteria to be taken into consideration in setting maximum feasible fuel economy levels was dropped. Also dropped was House language requiring a study of the "feasibility and effects"of reducing fuel use by automobiles "by a significant percentage." The Senate floor amendment capping "pickup truck" CAFE at 20.7 mpg also was not included in any of the House and Senate offers tendered to the conference committee. Conference Committee Chairman Tauzin, in response to criticism that the 5 billion gallon savings was negligible, pointed out that this target was a floor, not a ceiling, and that NHTSA could set future CAFE at levels that would achieve greater savings.

The 107th Congress adjourned without taking final action on the bill.

A NHTSA Proposal Under Review

In late November 2002, it was reported that the Administration was reviewing a draft proposal by the National Highway Traffic Safety Administration (NHTSA) to boost the Corporate Average Fuel Economy Standard CAFE for light duty trucks by 0.5 miles per gallon (mpg) for each of MYs 2005-2007 – a total of 1.5 mpg by MY2007. The Administration review of the NHTSA draft proposed rulemaking is under review by the White House Office of Information and Regulatory Affairs.

There are expectations that energy legislation will be introduced shortly after the 108th Congress convenes. Depending upon the Administration's disposition of the NHTSA proposal under review, CAFE might, or might not, be a part of any new legislation. If NHTSA formally issues a notice of proposed rulemaking to raise CAFE, it may reduce pressure for Congress to take action at this time.

Improving Fuel Economy: Other Policy Approaches

Two possible approaches to reduce gasoline consumption involve (1) raising the price of gasoline through taxation, or other means, to a level that induces some conservation; and (2) increasing the efficiency of the automobile fleet in use. Of course, a combination of these two broad approaches can be used as well.

Freedom CAR and the Partnership for a New Generation of Vehicles (PNGV) (1993-2002). In late September 1993, President Clinton announced establishment of a government and industry research program, the Partnership for a New Generation of Vehicles (PNGV), that had among its goals development of an environmentally friendly

"Supercar" that would achieve 80 mpg without sacrificing performance, affordability, and safety. The PNGV was an effort to combine the resources and expertise of federal agencies and laboratories with the private sector to reduce U.S. dependence on oil and maintain competitiveness without intervening to alter the market price of fuel. Research and development was to be focused on hybrid electric vehicles, direct-injection engines, fuel cells, and greater use of lightweight materials. Production prototypes of the Supercar were projected to be ready by 2004, a deadline that was appearing unlikely to be met.

On January 9, 2002, the Bush Administration indicated that it would abandon the PNGV in favor of a new initiative to push for development of fuel cells. Research on fuel cells has been a focus of PNGV; of the $127 million provided to the program in FY2002, roughly $40 million was provided for fuel cell research and an additional $20 for hydrogen R&D. Although the Administration promised that the new initiative, called Freedom CAR, would be more aggressive, others expected it would largely operate along the lines of PNGV. However, where PNGV was directed by the Commerce Department, Freedom CAR is administered by DOE.

Price of Gasoline. Owing to higher taxation of gasoline in other nations, Americans enjoy one of the lowest prices for gasoline. As a consequence, the higher prices since 1999 – especially during the summer driving seasons – are experienced in the United States as a much greater increase, in percentage terms, than elsewhere.

Past proposals to raise the price of gasoline to leverage consumers into more efficient vehicles have garnered little support. Owing to the relative price inelasticity of gasoline demand, many believe that the size of the price increase it would take to curb gasoline consumption to any degree would have a damaging effect on the economy of several times greater magnitude. Indeed, analysis of recent research (Plotkin, Greene, 1997, cited in References) suggested that an increase in gasoline taxes would be one-third as effective in achieving a reduction in demand as studies of the 1980s once projected. This is a significant reflection of the place that personal transportation and inexpensive gasoline has assumed in our economy and value system.

Price, however, could be used to at least keep some floor under the cost of gasoline to motorists. For example, some argued during past episodes of high prices that, when prices softened again, the federal government should step in and capture the difference as a tax, and possibly devote the proceeds to developing public transportation infrastructure and incentives. This tax could be adjusted periodically to see that gasoline would not become less expensive than a certain level in real (inflation adjusted) dollars.

Owing to the unpopularity of raising gasoline prices, raising the CAFE standard is more comfortable for some; however, it is a long-term response. Depending upon the magnitude of an increase in gasoline prices, no matter what the cause, a price-induced conservation response is nearly immediate and may grow as consumers initially drive less, and eventually seek out more efficient vehicles.

CAFE and Reduction of Carbon Dioxide Emissions. Vehicles account for one-fifth of U.S. production of CO_2 emissions. Some argue that raising the CAFE standards would be an ineffective or marginal way to reduce emissions of carbon dioxide. On one hand, improvements in fuel economy should enable the same vehicle to burn less fuel to

travel a given distance. However, to the extent that technologies to improve fuel economy add cost to new vehicles, it has been argued that consumers will tend to retain older, less efficient cars longer. It has also been suggested that there is a correlation between improved fuel economy and an increase in miles driven and vehicle emissions. However, vehicle miles traveled have continued to increase in recent years when fuel economy improved only slightly, suggesting that the broader factor is the overall cost of driving, which is tied as well to the price of gasoline. The relationship between where people live and where they work is also a factor.

The Clinton Administration proposed a five-year, $6.3 billion package of tax credits, and reliance on voluntary efforts by individuals and industry, to meet the proposed targets of the Kyoto agreement. Many believed that the Clinton Administration plan would fall well short, largely because carbon emissions are forecast by the Department of Energy to be 34% above 1990 levels by the year 2010. Some urged that Congress disapprove the treaty and sought renegotiation of the targets, arguing that meeting the proposed targets would require possibly crippling taxes and regulations. Others suggested that a significant increase in CAFE requirements would help meet the Kyoto targets and that an increase in CAFE should not wait final dispensation of the agreement. However, as noted earlier, the Bush Administration has removed the U.S. from the Kyoto process in favor of, for example, voluntary commitments on the part of industry.

One interesting development is legislation enacted in July 2002 in California authorizing the California Air Resources Board (CARB) to establish regulations reducing greenhouse emissions from cars, light trucks and non-commercial vehicles. These would apply to MY2009 vehicles. The legislation, which makes California the first state to regulate carbon dioxide emissions, may be challenged. Though the legislation neither sets target reductions nor specifies how they are to be achieved, the assumption is that these reductions could only be achieved by higher efficiency. Consequently, the automobile industry argues that the law infringes on the authority of the federal government to set fuel economy standards.

Historical Note on the CAFE Debate in the 102nd Congress. As an historical note, legislation to boost the CAFE standards last received major attention in the 102nd Congress. One proposal (S. 279) would have abandoned uniform standards but otherwise left the historic infrastructure of the CAFE standards intact. Under S. 279, each manufacturer would have been required to achieve a 20% improvement in passenger car fuel economy by 1996 and 40% by 2001 over its 1988 baseline. The same standard of improvement would have been required of light trucks.

In that same Congress, legislation was being developed to open up the Arctic National Wildlife Refuge (ANWR) for exploration. Proponents of higher CAFE standards predicted that there would be no support for exploration of ANWR without some increase in CAFE. S. 341, omnibus energy legislation reported from the Senate Committee on Energy and Natural Resources in May 1991, would have extended discretion to the Department of Transportation (DOT) to set "maximum feasible" CAFE targets for each manufacturer for MY1996 and MY2002. The DOT would have taken into account application of known fuel-saving technologies, MY1990 as a baseline for performance, sales mix, vehicle interior size, and safety standards. Credits earned could have been traded or held by the manufacturer. When it appeared that the ANWR provisions would almost certainly not survive unless the

CAFE provisions were strengthened, Senator Johnston proposed an amendment in markup that would have had the effect of embracing the goals of S. 279, but over a longer time frame. The amendment was defeated in markup, as was an attempt to append to the omnibus bill the specific targets in S. 279.

The proposal appeared to fail at the combined hands of those who either thought they went too far or not far enough. But the omnibus bill failed to reach the floor; a cloture vote on whether to proceed with it (it became S. 1220) was defeated Nov. 1, 1991. Both CAFE and ANWR provisions were stripped from modified legislation introduced in the second session of the 102nd Congress. With the exception of the riders attached to the DOT Appropriations during the period of FY1996-FY2000, there has been no major legislative focus on CAFE until the 107th Congress.

LEGISLATION

H.R. 4 (Tauzin)

Securing America's Future Energy Act. Includes fuel economy provisions summarized in H.R. 2587 below. Introduced July 27, 2001. Approved by the House, August 1, 2001 (240-189). Senate incorporated S. 517 into H.R. 4 as an amendment, April 25, 2002, and passed H.R. 4 (88-11). In conference.

H.R. 2587 (Tauzin)

Enhance energy conservation, provide for security and diversity in the energy supply for the American people, and for other purposes. Requires the Secretary of Transportation to prescribe fuel economy standards that would require the light-duty truck portion of the new vehicle fleet to achieve an aggregate savings of 5 billion gallons during the period of MYs2004-2010 from the base level of consumption were the standards left unchanged. Introduced July 23, 2001. Reported (amended) by the Committee on Energy and Commerce. H.Rept. 107-162, Part I.

S. 517 (Bingaman)

Energy Policy Act of 2002. As introduced, would, among other provisions, require the Secretary of Transportation, in consultation with the Administrator of EPA, to "prescribe" standards beginning MY2005 that would achieve a combined CAFE for passenger automobiles and light duty trucks of 35 mpg for MY 2013. An interim standard would be established of 33.2 mpg for cars, and 26.3 for light trucks, by MY2010. After MY2010, the Secretary would have the discretion to set a combined standard for cars and trucks. Amended March 13 to require that the Secretary of Transportation issue not later than 15 months after enactment "new regulations setting forth increased fuel economy standards"reflecting "maximum feasible fuel economy levels" consistent with factors set out in the original CAFE legislation (P.L. 94-163); requires release of an environmental assessment of the effects of the standards, authorizes $2 million to carry out this section. Further amended to freeze "pickup truck" CAFE to 20.7 mpg. Introduced March 12, 2001. Senate incorporated this measure in H.R. 4 as an amendment, April 25, 2002, and passed H.R. 4 (88-11). Conferees named during week of June 10, 2002.

S. 804 (Feinstein)

Amends title 49, United States Code, to require phased increases in the fuel efficiency standards applicable to light trucks; to require fuel economy standards for automobiles up to 10,000 pounds gross vehicle weight; to raise the fuel economy of the federal fleet of vehicles, and for other purposes. Introduced May 1, 2001; referred to the Committee on Commerce, Science, and Transportation.

S. 1923 (McCain)

Fuel Economy and Security Act of 2002. Would require the establishment of higher CAFE standards beginning in MY2007 and a combined CAFE of 36 mpg by MY2016. It would introduce combined standards for cars and trucks in MY2007 and would establish a system where manufacturers could trade credits for exceeding the standards between cars and trucks, domestics and imports, but would limit the credits that could be traded or purchased. Would also eliminate the credit for dual-fueled vehicles. Introduced February 7, 2002; referred to Committee on Commerce, Science and Transportation.

S. 1926 (Kerry)

National Fuel Savings and Security Act of 2002. Would require the Secretary of Transportation, in consultation with the Administrator of EPA, to "prescribe" standards beginning MY2005 that would achieve a combined CAFE for passenger automobiles and light duty trucks of 35 mpg for MY2013. If standards are not established 18 months after passage, a series of default standards take effect, raising automobile CAFE to 38.3 mpg in MY2013 and light trucks to 32 mpg. Would establish a system where manufacturers could trade credits for exceeding the standards between cars and trucks, and domestics and imports. Introduced February 8, 2002; referred to Committee on Commerce, Science and Transportation.

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