Crisis and Stasis:
Thirty Years of Fuel Economy Policy

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Fall 2007

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Energy conservation has recently returned to the national policy agenda to a degree that hasn't been seen since the oil shocks of the 1970s. The explanations for this are many, but perhaps the greatest single factor in the resurgence of conservation policy is the price of petroleum, which has lingered near record highs since 2003. The factors contributing to these sustained highs include ongoing instability in the Middle East and other oil-producing regions, and stagnation of U.S. oil and gas discovery and production paired with continued growth in U.S. and global demand. (Energy Information Administration [EIA] 2007) Some commentators also contend that worldwide production may have peaked in the last several decades, and that remaining reserves will become increasingly difficult and expensive to exploit. Beyond the markets, a growth in environmentalist sentiment stemming from concern over increasing evidence of human-driven climate change has also helped push conservation back into serious consideration by policymakers.

Congress is currently considering several bills that rework and update corporate average fuel economy (CAFE) standards, the automobile gas-mileage standards that have formed a key pillar of U.S. energy policy since 1975. This paper will examine the creation and implementation of the original standards, look at the major policy changes on the table, and attempt to explain why the policies look like they do in light of the forces and players driving transportation energy policy, with an emphasis on the changes in the policy and regulatory environments between the 1970s and today.

The Original CAFE Standards

On the eve of the Arab oil embargo of the early 1970s, the already poor fuel efficiency of the American new car fleet was in steady decline, dropping from an average of 15.5 miles per gallon (mpg) in 1960 to 12.2 mpg in 1973. (National Highway Traffic Safety Administration [NHTSA] n.d.-a) When crude oil prices more than quadrupled in real terms from 1973 to 1974 (EIA 2007), Congress passed the Energy Policy and Conservation Act of 1975 (EPCA), which, among other measures, established the CAFE standards for passenger cars, which aimed to double the fuel efficiency of the new car fleet over

the next decade. The main regulatory authority was lodged with the Department of Transportation in the NHTSA. (NHTSA, 2007)

Legislative Framework and Implementation

The key fuel-consumption measure of EPCA established CAFE standards for passenger automobiles, requiring that average fuel economy gradually increase to 27.5 mpg by model year 1985. (Hereafter, all references to an automobile's or fleet's "year" can be assumed to refer to model year, which is generally the calendar year following the actual production of a car model.) NHTSA has the discretion to amend the standard above 27.5 or below 26.0 mpg, though such amendment requires Congressional acceptance under which either house can theoretically torpedo the amendment by simply disapproving within 60 days. Yacobucci & Bamberger note (2007a, p. 3) that the dubious constitutionality of such a "one-house veto" make this disapproval unlikely ever to be exercised. However, no Transportation Secretary has ever tested it by shifting the passenger car standard beyond its narrow statutory limits.

Transportation has far broader powers in setting the mileage for larger vehicles. In what was at the time an unremarkable provision, the statute (49 U.S.C.A. § 32901, 2005) defined a "passenger automobile" as

> an automobile that the Secretary decides by regulation is manufactured primarily for transporting not more than 10 individuals, but does not include an automobile capable of off-highway operation that the Secretary decides by regulation—
>
> (A) has a significant feature (except 4-wheel drive) designed for off-highway operation; and
>
> (B) is a 4-wheel drive automobile or is rated at more than 6,000 pounds gross vehicle weight.

Regulation of such "non-passenger automobiles" is still within Transportation's purview, but the act provided no specific mileage figure to be reached. Instead, the standard is left to an NHTSA rulemaking process by which the mileage should be the "maximum feasible average fuel economy level that the Secretary decides the manufacturers can achieve in that model year," where the Secretary is directed to consider "technological feasibility, economic practicability, the effect of other motor vehicle standards of the Government on fuel economy, and the need of the United States to conserve energy." (49 U.S.C.A. § 32902, 2005) This part of the statute was intended to cover "light trucks"—pickups, vans, and the proto-SUVs that were just then coming on the market—which in 1975 composed only a tenth of the new vehicle fleet and were far more likely to be used for hauling bricks or hay than groceries and toddlers

(Gerard & Lave 2003, p. 3). The upper limit for the class was initially established at a gross vehicle weight of 6,000 pounds (vehicles beyond this weight being exempted from mileage standards), which in 1980 increased by regulation to 8,500 pounds. For 1979, NHTSA set separate standards for two- and four-wheel drive trucks of 17.2 and 15.8 mpg, respectively, gradually increasing them to a unified average of 20.2 mpg for 1991. (NHTSA 2004)

With the mileage standards in place, the task falls to the Environmental Protection Agency to calculate the domestic and imported fleet averages for each manufacturer. (The distinction between domestic and imported fleets was intended to keep domestic manufacturers from adding their badges to more efficient vehicles built abroad simply to increase their fleet efficiency. This distinction exists only for passenger cars, not light trucks.) (NRC, 2002, p. 10) The actual CAFE formula is a simple weighted average, in which each model's production volume (in numbers of units) is divided by that model's mileage according to an EPA measurement scheme. Each manufacturer then divides their total production by the sum of the weighted averages for all their models, to arrive at a fleet average in terms of miles per gallon. (49 U.S.C.A. § 32904, 2005)

Manufacturers who do not comply with a given fleet standard are subject to a penalty of $5.50 per 0.1 mpg below the standard, multiplied by the manufacturer's fleet production volume for that year. Thus a carmaker with an average passenger fleet economy of 26.5 mpg (ten units below the standard) and production of 300,000 cars would be subject to a fine of ($5.50 * 10) * (300,000) = $16,500,000. However, the law also provides for a credit scheme under which manufacturers can "bank" a year's extra fuel economy, at a one-for-one rate, against years when they are not in compliance. These credits must be used within three years (past or future) of a non-compliant model year, and cannot be moved among fleets or manufacturers. In practice, according to the NHTSA, only European manufacturers have faced the noncompliance penalties, which they seem to regard more as a tax to enter the U.S. market, with most major domestic and Asian carmakers having never incurred or paid fines. (NHTSA, 2004; Yacobucci & Bamberger 2007b, p. 3)

The CAFE statute also contains provisions for manufacturers with extremely low production volume, "alternative fuel vehicles" (i.e., those that primarily use fuels other than gasoline or diesel), and

various administrative minutiae, none of which has so far proved significant as the law was actually implemented.

Early Outcomes

On the whole, the CAFE standards succeeded—or, according to more skeptical commentators like Singer & Crandall (2007), at least went along for the ride—in its basic goal of doubling the average fuel economy of American cars within a decade. From an average of 13.6 mpg in 1975, new passenger car fuel economy actually beat the statutory requirement by 1985, reaching 27.6 mpg that year (NHTSA, 2004); even with light trucks included, that year's overall fleet average was 25.4 mpg. Both averages continued to increase for a few more model years, to initial peaks, respectively, at 28.8 mpg for passenger cars in 1988, and 26.2 mpg for the whole fleet in 1987. Once this initial goal was achieved, however, the standards stalled in their effectiveness, and combined fleet economy leveled out and then dropped throughout the late 1980s and 1990s.

Looking solely at fleet characteristics, this is most clearly attributable to the light truck's ever-growing chunk of the market: according to the NHTSA, the light-truck segment made up less than a tenth of the new car fleet in 1979. At the height of fuel economy in 1987, they were about one third of the market. By the end of the 1990s light trucks were nearly half of the new cars sold, and in 2004 actually made up 52% of the new car market, a number which does not include the growing segment of the market for passenger vehicles that outweighed the NHTSA's 8,500-pound regulatory limit. (See Table 1b in Appendix A; NHTSA, 2007) The growth of the light truck segment reflects a blurring of the categories in place when CAFE was first adopted. In its 2002 assessment of the effectiveness of CAFE standards, the National Research Council found that "the distinction between a car for personal use and a truck for work use/cargo transport has broken down, initially with minivans and more recently with sport utility vehicles . . . and cross-over vehicles. The car/truck distinction has been stretched well beyond the original purpose." The result was combined fleet economy that dropped below 25 mpg in 1994 and stayed there for another decade, despite a steady increase in passenger-car economy to nearly 30 mpg through the 1990s, though the standards stayed at 27.5. The regulatory requirement for light trucks never broke 20.7 mpg, only 3.5 mpg more than when the standards were first introduced.

Fuel Economy Standards Fall Out of Favor

The stagnation of fuel economy did not go unrecognized by Congress, but in an atmosphere that increasingly favors deregulation, CAFE's proponents (generally Democrats from non-automaking states) have been unable to legislate major changes to the standards. A number of energy bills, in Congresses under the Reagan presidency through that of the younger Bush, contained updates to CAFE, but these changes generally never even made it far enough to be vetoed. Moreover, though the NHTSA had statutory authority to change aspects of the standards (especially those relating to light trucks), since the early 1980s it has been hamstrung by administrations and legislators from making meaningful changes.

While the high oil prices of the early 1970s had been central to the adoption of fuel economy standards, the rules were also crafted and adopted at a time when the automobile industry's influence in Washington was at a low ebb, which Perl and Dunn (2007) see as significant "in view of how strongly and successfully the auto industry resisted CAFE increases in subsequent years." (2007, p. 6) They argue that the industry's "inability to stop CAFE was due to a combination of economic and political circumstances that was very rare in US politics." (p. 6) Among these circumstances were the industry's tarnished image after its fights against new requirements for safety and emissions-control equipment; President Ford's inability to advocate on their behalf (because of both the circumstances of his succession and the fact that Michigan was his former Congressional constituency); the post-Watergate election of larger Democratic majorities "eager to assert their policy leadership" on both foreign and domestic issues; and a rare break by the United Auto Workers Union from the position of the manufacturers on the overall question of fuel economy (which the unions supported in return for job-protection measures that ensured separate calculation of foreign and domestic fleet economies). When it came to implementation, Jimmy Carter's election put a strong advocate for conservation and regulation in the White House, and the auto industry bailouts that began during his administration made domestic manufacturers far more malleable than normal on regulatory issues. (Perl & Dunn, 2007, pp. 6–8) When gas prices shot up still further during the Iranian Revolution in 1979–80, the industry was already well on its way to achieving the initial goals of the standards, and under Carter the NHTSA issued a Notice of Proposed Rulemaking to further boost mileage requirements.

After that point, the unique confluence of circumstances no longer favored CAFE. Ronald Reagan arrived in the White House with a strong ideological commitment to deregulation and the limitation of government intervention. Reagan, whom Perl and Dunn (2007, p. 9) describe as "openly hostile to CAFE," in the first months of his administration announced more than 30 deregulatory actions aimed at the auto industry, among them the cancellation of the Notice of Proposed Rulemaking issued under Carter. In 1985 his administration rolled back the passenger CAFE standard to 26.0 mpg, the minimum permissible under the law, and this relaxed standard stayed in place through model year 1989. Neither Reagan's Transportation Department nor that of the first President Bush made any move towards seriously reconsidering light truck economy rules. (President Bush's Transportation Secretary, Andrew Card, was such a friend of the auto industry that he went on to head its trade association and that of General Motors before returning to the Washington as Chief of Staff for President Bush the younger.) (Freedman, 1998; Leibovich, 2005)

Also contributing to CAFE's eclipse, oil prices returned to more manageable levels. Though they never returned to the very low levels where they had been before the embargo, by 1985 they had dropped, in real terms, to their lowest point since late 1973. (EIA, 2007) Except for a brief spike during the first Gulf War, they hovered around those levels for nearly 15 years. Relieved of this economic pressure, car buyers were less likely to value fuel efficiency over other features. Automakers responded with larger and more powerful vehicles, especially concentrating their marketing efforts on vehicles in the more profitable light truck category. (NRC, 2002, p. 10) Though manufacturers were making technical progress that increased engine efficiency and reduced drag and friction, they preferred to employ these improvements for boosting power, size, and acceleration than for improving fuel economy. (NRC, 2002, p. 3) At the same time, an early academic study of CAFE's outcomes linked smaller cars with an increase in auto-related deaths (Crandall & Graham, 1989), putting causal blame squarely on the mileage standards. Though later studies looking at longer time periods did not bear out this conclusion (NRC, 2002, p. 3; Ahmad & Greene, 2006), the idea of a safety/economy tradeoff became established in the popular mind, and that specter continues to be raised by fuel economy's opponents.

The return of a Democrat to the White House did little for CAFE, in part because conservation was never a central piece of Bill Clinton's policy agenda, as it was for Carter. Though he did promote and sign clean-air and greenhouse-gas legislation related to automobiles, Clinton's major nod in the direction of reduced fuel consumption was a public-private research effort called the Partnership for a New Generation of Vehicles, which aimed to build an 80 mpg family car within a decade. However, the partnership actually put no requirements on automakers to produce anything the research might come up with. (George W. Bush cancelled the program in 2002, before any demonstration models were built.) (Perl & Dunn, 2007, 9–10)

More importantly, Clinton's election was soon followed by the 1994 Republican sweep of Congress, bringing an emphasis on smaller government and increasing the pace of deregulation. The new Republican majority, along with powerful auto-state Democrats, sided consistently with the automakers and their unions (now on the same side) in blocking even the hint of updated standards or rule changes. (Freedman, 1998, p. 552) This opposition took place both outright, on authorizing legislation (blocking energy bill riders to raise CAFE), and more stealthily, by way of appropriations bills. In 1995, House Majority Whip Tom DeLay inserted a provision into the transportation appropriations bill that forbade the Department of Transportation from any spending to study or propose regulatory increases to fuel economy standards, while also reducing the department's appropriation by $2 million; the prohibitions remained in transportation appropriations through 2001. (Hager, 1995; Perl & Dunn, 2007) Though it persudaed Congress to drop the appropriations straitjacket on the Department of Transportation, the George W. Bush administration largely continued the overall policy direction on fuel economy, instead advocating an energy policy centered on encouraging expanded domestic fossil-fuel production. Unsurprisingly, overall fleet mileage continued to creep downward, as SUVs gained market share and total miles driven also grew. The one notable change under Bush was a new NHTSA rule on light trucks in 2006, which increased the weight limit of the class to 10,000 lbs, introduced optional "attribute based" size measures (described in the next section), and mandated a mileage increase to 24 mpg by 2011, with compliance voluntary until then. (Yacobucci & Bamberger, 2007b, p. 2)

Proposed Revisions to CAFE Standards

By 2006, however, a change in the policy landscape had become apparent. Circumstances were again aligning that favored a major revision to the fuel economy standards—at least an increase of the mileage figures, if not changes to the fundamental policy structure. A graphic indicator of the changing atmosphere was the May 15, 2006, cover story of *CQ Weekly,* detailing a new energy proposal by Mississippi Senator Trent Lott, which included an expansion of the administration's CAFE rulemaking authority, along with a homey acknowledgment by the senator of the need for action on conservation policies: "The chickens are going to come home to roost on all of us if we don't do something." (Bettelheim, 2006, p. 1298) A few months later, Alaska Senator Ted Stevens was in the news with his own proposal to hike CAFE. (Raju, 2007; Yacobucci & Bamberger, 2007b, p. 7) For these two legislators, committed Republicans with long records in the battle against regulation and long histories of advocating for commercial interests at almost every turn, even *not undercutting* CAFE legislation was a new stance—and both were actually going on record with new proposals of their own. Stevens' bill, in fact, proposed new passenger car standards of 40 mpg, despite the fact that he "voted against mandating something similar as part of the 2005 energy policy law"; the senator also began to voice concern about the impacts of global warming, though in the past he routinely opposed efforts to regulate greenhouse gas emissions. (Raju, 2007) For reasons discussed in a later section, the tide of energy policy had clearly shifted in a fundamental way, and it seems that for the first time in a generation, a major revision to CAFE standards will likely make it to the president's desk.

According to Yacobucci and Bamberger's overview (2007b) of the several CAFE proposals making their way through the 110th Congress, there is little fundamental departure in most of the bills from the underlying framework established in 1975, aside from an increase in the mileage targets. However, given the recognition since then of the contribution of the light truck standards to the overall fuel economy picture (NRC, 2002, p. 3), several of them contain redefinitions of the light truck class, with some even eliminating the car/truck distinction altogether. Most of the other proposed changes are ancillary to the central mileage requirements, such as redefinitions of the units of measurement, tie-ins with emissions standards elsewhere in the regulatory structure, and the possible establishment of a market for carbon credits. But as became clear with the light truck provisions, seemingly minor points can have

major impacts on later implementation and outcomes. Below is a brief summary, following Yacobucci and Bamberger (2007b) unless otherwise noted, of the major policy options currently under consideration.

Combining passenger and light-truck standards. Elimination of the distinction between passenger cars and light trucks under the CAFE standards. This would likely take the form of defining any vehicle under 8,500 (or 10,000) lbs as subject to the same standards, regardless of other characteristics like four-wheel drive or passenger capacity.

Redefinition of automobiles and trucks. Preserve, but redefine, the distinction between cars and trucks. Some configurations would combine cars and light trucks, but create a class of "work trucks" for heavier pickups or cargo vans clearly unsuitable for passenger use, which would be excluded from strict CAFE requirements. Some proposals also contain standards or rulemaking authority for medium-duty trucks (those between 10,000 and 26,000 lbs).

Mandated increases in CAFE standards. Requirements for numerical or percentage increases in mileage. Several proposals mandate an annual percentage increase over the previous year's standards, while others simply require manufacturers to reach a certain target mileage by a particular year, with no intermediate targets. The standards may be for cars, trucks, or a combined standard.

Changes to NHTSA regulatory authority. Additional flexibility or constraint on NHTSA standard-setting beyond the 1.5 mpg it commands under the current policy regime. This could be through the granting of greater latitude in mileage, in either direction, before Congressional approval is required, or allowing the NHTSA to set standards or targets for time periods longer than the single model year currently permitted. Also, it could redefine the criteria NHTSA may use in rulemaking for "maximum feasible economy" for light trucks, in the direction of either lesser or greater flexibility. Some proposals also allow greater distinctions within the passenger fleet, and differential standards among manufacturers.

Attribute-based standards. Authorizes (or in some cases requires) the consideration of new distinctions other than weight among classes of vehicles, most likely by way of a "footprint" (a formula based on both width and length of wheelbase) or other measures of physical size, and would allow NHTSA to set differential standards based on these distinctions. McManus (2007) finds that such distinctions would especially benefit U.S. carmakers, who could quickly make gains at a lower marginal

cost than many foreign competitors who already build fairly efficient fleets. If CAFE increases are inevitable, it seems likely that Detroit would support such a reconfiguration, while foreign manufacturers would oppose it—such was the scenario in 1990, when it briefly seemed that new clean-air rules would require large mileage increases. (Pytte, 1990, p. 164)

Credit trading. A structure for manufacturers to buy or trade credits for mileage in excess of the requirements, to compensate for fleets that don't meet the standard. Unlike in the current form of this system, credits may be traded across manufacturers or across fleets (i.e. excess passenger credits may be used for meeting light truck standards, or shared between domestic and foreign fleets). Sen. Ted Stevens' proposal would go further, allowing manufacturers to sell excess credits into larger carbon credit trading markets (or buy offsets from them), effectively creating a distributive policy out of a regulatory one, in Lowi's categories (1964/1995).

Tie-in with emissions standards. To allow comparison with EPA greenhouse gas standards, some proposals would require standards to be expressed "both in terms of miles per gallon and grams per mile of carbon dioxide." (Yacobucci & Bamberger, 2007b, p. 16) Few of the early proposals contained such a provision, but after a federal appeals court ruled in November 2007 that the NHTSA must take emissions into account in setting light truck standards, it now seems probable that the final legislation will contain an explicit provision relating to carbon dioxide and other pollutants. (Maynard, 2007) In addition, two other bills are currently before Congress that would limit greenhouse gas emissions from cars and trucks (among other sources). Both require the EPA to establish emissions regulations that, in effect, would be equivalent to increasing CAFE to 42 mpg and 26 mpg for cars and light trucks, respectively.

There may be deeper motives at work in this class of proposals than merely limiting emissions. According to a House Energy and Commerce Committee staffer who has witnessed recent internal debates (L. Muñoz, personal communication, December 3, 2007), these measures are likely the expression of a turf battle between EPA and NHTSA, with the committee leadership preferring to delegate authority to the latter, which is seen as more responsive to the committee (and thus to Detroit, who have a stalwart advocate in the committee chair, John Dingell of Michigan). EPA, being a higher profile entity in the Executive branch, tends to be more independent and less susceptible to industry influence. So we may

view these proposals as part of an effort by other lawmakers to attempt break a subsystem equilibrium (Redford, 1969, pp. 102–3) that has been established among the Energy and Commerce committee, the NHTSA, and auto manufacturers. (A different view of this situation will be discussed in the analysis section, below.)

Other options. Many of the proposals are part of broad energy bills that contain a range of other energy provisions not explicitly related to automobiles, but which may complicate the final act's passage; that is mostly beyond the scope of this paper. However, among the auto-related provisions that may add complexity to or otherwise interact with CAFE standards are measures to provide automakers incentives for producing "flex fuel," dual-fuel, or hybrid vehicles. Hand in hand with these incentives would be sizable production targets for "alternative" fuels such as biodiesel and corn-based and cellulosic (non-corn) ethanol. According to Leo Muñoz, the Congressional staffer watching the deliberations (personal communication, December 3, 2007), production targets have a whole other set of interests lining up for and against them than do CAFE standards—essentially industrial agriculture supporting ethanol's expansion, and oil interests and many environmentalists opposing it, although there are also regional shadings within that debate that complicate the picture still further.

Current Status of CAFE Proposals

H.R. 6, an energy bill that was one of the first pieces of legislation passed by the 110th Congress, left the House without any CAFE provisions attached, and several other energy measures passed by the House have similarly not contained CAFE language. In the Senate, however, H.R. 6 has served as the main vehicle for fuel economy measures, and the version passed by the full Senate in June 2007 contained a number of the provisions discussed above. Namely, it would combine the passenger and light truck standards in 2011, and require that combined fleet to reach a CAFE of 35 mpg by 2020. (Yacubucci & Bamberger, 2007a) H.R. 6 is currently in House-Senate conference, and the fact that an agreement was announced by Speaker Barbara Pelosi and Energy and Commerce committee chair John Dingell in late November 2007 (Broder & Maynard, 2007; Hebert, 2007) suggests that CAFE, and the energy legislation it is part of, will be quickly shepherded to a floor vote by House leadership. It is unclear how the House

version will mesh with the Senate's energy bill, what the White House reception will be, or if a veto could be overcome.

CAFE through the Years: Crisis, Groups, and Incremental Change

Of the several explanatory models we have studied, perhaps none explains the overall arc of CAFE policy as well as Charles Lindblom's theory (1959) of incrementalism. Kingdon, however, notes that the explanatory power of this model my be better applied to the "generation of alternatives" (2003, p. 82) than to the reasons for a policy finding its way onto the agenda: "an old alternative—known to specialists, and discussed and refined at length by analysts—pops up on and disappears from policy agendas. The content of the idea is quite stable; its appearance on the agenda is not. Similarly, actual enactments into law might be quite small, gradual, and incremental." (p. 83) The underlying structure of CAFE has changed very little since its inception, and even the current round of CAFE negotiations are notable more for the novelty of their appearance in newspapers than for any significant change in their content. The core of the policy is the same now as when it was written (and as when it was administratively gutted in the 1980s and 1990s and voted down several times in between). Still, how do we explain fuel economy's sudden emergence onto the policy agenda 30 years ago, and its reappearance now? Lindblom's method may actually have more explanatory power in this regard than Kingdon gives it credit for.

Why Now? Similarities to, and Differences from, 1975

As noted earlier, a number of factors have recently come together that make the possibility of increased CAFE standards appear more likely now that they have for nearly 30 years. The most obvious similarity with the bill's original passage is the historically high price of oil, which is in fact higher now, in inflation-adjusted terms, than at any point before the Iranian Revolution (EIA, 2007). Beyond that, the country again has a weak Republican chief executive facing a restive Democratic majority eager for legislative victories—although it would be difficult to argue that the disparity in prestige and power is as great as in Ford's presidency. Moreover, the balance of power in the 94th Congress was far more heavily Democratic than today, rendering the threat of veto nearly meaningless. Similarly, while the automobile industry's credibility is again not great on regulatory issues (on CAFE, for instance, Detroit's trade groups

are repeating many of the same dire warnings of job loss, highway carnage, and consumer choicelessness as in 1975, while the foreign manufacturers who embraced fuel economy and innovation are steadily eclipsing them in market share), its reputation is probably not as poor as when it was leading the charge against seatbelts and catalytic converters. So we are left with oil prices as the major common point between then and now.

At both points in history, Congress was faced with an issue of great domestic significance—chokingly high gas prices, which palpably affect the daily lives of their constituents—the causes of which were complex, indistinct, and largely beyond their ability to affect. How does Congress solve a gas crisis, or respond to a call for something like "energy security"? They can't call OPEC and demand that they open their spigots; new domestic oil production would take years to come online and even then would supply only a fraction of the country's needs; oil price controls would greatly distort a market that is in any case largely determined elsewhere. However, Congress does have the ability to reduce domestic consumption, and one of the easiest ways to do this is by mandating increases in fuel efficiency. This is easily measured—miles per gallon—on individual vehicles as well as across the entire fleet. The technology to achieve it—through making cars smaller, lighter, and smoother-rolling—is widely available and easy to understand (NRC, 2002, pp. 3–4). And even if increases in fuel economy take years to come to fruition and even longer to significantly affect fuel consumption in the aggregate, the program has a low administrative overhead and progress is trivial to track in the interim.

CAFE legislation is an almost textbook case of Lindblom's "Successive Limited Comparison" or "branch method" at work. He writes of the first stage of this method that "selection of value goals and empirical analysis of the needed action are not distinct from one another but are closely intertwined," and of the second, "since means and ends are not distinct, means-end analysis is often inappropriate or limited." (1959, p. 81) CAFE was likely not the best way even of reducing domestic consumption—economists point to a gas tax, "guzzler tax," or more elegant creations such as the "feebate" (Greene, et al., 2005) as more efficient—but it was administratively and politically expedient, given the structure of Congress and the Executive branch. The NHTSA already existed, and already governed automobiles. The

EPA already dealt with what came out of cars' tailpipes. Why not add energy regulation to their portfolios?

In the 2007 version of the debate, we are confronted with a new problem in addition to an unkind and ever more crowded oil market: growing evidence of humankind's responsibility for global warming. We find, however, that this is probably linked to the consumption of fossil fuels, to which the economy of the entire globe is also tied, unfortunately. Another seemingly insoluble problem, but in this case we already have a weapon in our legislative arsenal: CAFE standards.

In looking at outcomes, Lindblom writes, "the test of a 'good' policy is typically that various analysts find themselves agreeing on a policy (without their agreeing that it is the most appropriate means to an agreed objective)." (1959, p. 81) In the National Research Council's 2002 report on CAFE, arguably the most neutral and authoritative assessment of the policy in recent years, the authors more or less acknowledge that nobody is exactly sure whether improved fuel economy is a good thing in the aggregate, but suggest that there are several ways of framing the question that might show that it is:

> The committee believes it is critically important to be clear about the reasons for considering improved fuel economy. Moreover, and to the extent possible, it is useful to try to think about how much it is worth to society in dollar terms to reduce emissions of greenhouse gases . . . and reduce dependence on imported oil. . . . If it is possible to assign dollar values to these favorable effects . . . it becomes possible to make at least crude comparisons between the beneficial effects of measures to improve fuel economy, on the one hand, and the costs (both out-of-pocket and more subtle) on the other. (p. 2)

In the end, the NRC does conclude that CAFE should be raised, although they remain cagey about the amount despite their best attempt at a rational-comprehensive analysis. (p. 5)

Along the way, the original CAFE policy has been modified in various ways, and recently has accreted a number of related proposals that don't necessarily aim toward the same narrowly measured goal of improving fuel economy. Lindblom describes this later evolution of a policy as "a process of mutual adjustment" which, he argues, "often can assure a more comprehensive regard for the values of the whole society than any attempt at intellectual comprehensiveness." (p. 85) In this view, the separate car and truck standards, new provisions for ethanol and flex fuels, and tie-ins with greenhouse gas policy are all expressions of the various and often divergent interests at work here. By parceling out sections of the policy to NHTSA, the Agriculture Department, and the EPA, each with its own set of relationships

with clientele, administration, and Congress, the policy may actually achieve a superior outcome than a more centrally coordinated, narrowly focused one would: "what one agency forgets, another will not; they specialize personnel to distinct points of view. . . . A high degree of administrative coordination occurs as each agency adjusts its policies to the concerns of the other agencies in the process of fragmented decision-making." (p. 86)

Congressional Logic

In Lindblom's model, policies and outcomes seem to be best regarded on a long scale, where the accretion of alternatives and bureaucratic feedback may actually produce a more perfect policy—or at least one with broader practical application. Now let us turn briefly to the legislative process, and look for some explanation as to why CAFE looks the particular way it does. R. Douglas Arnold's theory (1990) of complex group interactions in the legislative process may provide some guidance here.

Given the same fundamental problem that we settled on in the prior section—high gasoline prices—legislators were faced in 1975 with a demand for action from their constituents. The form that such action might take, however, was fairly vague in the popular mind, which for the most part comprised what Arnold calls an "inattentive public," or one that does "not have positions about the policies under consideration," (1990, p. 68) though they may have a stake in it. Many economists' response to the problem was that gasoline demand could be most efficiently brought under control through a gasoline tax. But as Arnold notes about earlier gas tax proposals,

> the political logic was wholly untenable. All the benefits [of conservation] were general, indirect, and later-order, with most occurring far in the future. No legislator would ever profit from a connection to such benefits. The costs, on the other hand, were large, direct, and early-order, and thus fully traceable to legislators' roll-call votes. Furthermore [because it was a tax,] Congress could not even delegate vague authority to the executive in an attempt to break the traceability chain. (p. 73)

In other words, the cost of a seemingly counterintuitive policy would be visibly and evenly dispersed around the country and fairly evenly across industries (a "general cost"), with no palpable benefit, group or general. Who benefits? Nobody. Under the most basic reading of Arnold, this alternative is stillborn.

Fuel economy standards, on the other hand, have a far more concentrated cost, both geographically and industrially—a "group cost," in Arnold's terms (p. 26)—and though the general

benefit is equally as vague as in the case of a conservation tax, when reelection time comes up, a vote on such a policy gave legislators a clear action to demonstrate their commitment to reducing gas prices (or a convenient bludgeon against legislators who voted against it). The concentration of the costs in this case is very interesting: in 1975, the industrial, occupational, and geographic groups that would bear the brunt of the cost were almost completely overlapping. Michigan, and Detroit in particular, paid most of the cost of the policy, though it bled out to other more dispersed groups (like car dealers) to some degree, and was certainly passed on to consumers in general. However, this general cost would have been difficult to discern from other inflationary effects, since most consumers buy cars only once every few years. In terms of the "attentive publics" who had a voice in forming the policy, the loudest opposing voices are again concentrated in Detroit, and in 1975 suffered the dissent of the UAW, who would normally be expected to stand alongside manufacturers on such matters. This fairly dilute opposition was easy enough for coalition leaders to overcome (or rather to allow to vote its interests, getting on record for constituents without tanking the bill), and since the Democratic majority was so large, enactment was then almost assured.

As time went on and gas prices normalized, the inattentive publics' interests turned elsewhere, allowing the policy to go on more or less unchanged for the two decades after its initial goals were reached. It is important to note that even though several CAFE standard increases were defeated, and rulemaking was used to relax the regulations somewhat, there has never been a serious proposal for eliminating the standards or signficantly rolling them back. Even during the deeply anti-government period in which NHTSA's appropriations were constrained, such action was more parliamentary than political—perhaps because NHTSA was just one of dozens of regulatory agencies that were similarly choked. The arguments of CAFE's detractors, based as they were on highly abstracted econometric calculations of safety effects, employment, and consumer utility loss, never proved compelling enough to contemplate ending the program. The argument that seems to resonate the loudest with the public goes something like "they want to take your truck away!" This might get a few people writing letters, but likely not enough to counter the general sense of conservation's essential utility and goodness, and the role of "good gas mileage" in it.

In 2007, while high gas prices and global warming have again produced a sort of broad-based but vague demand for action from voters, the distribution of costs has changed somewhat. The interests are no longer concentrated in Detroit or even in the U.S.: domestic auto manufacturing now takes place throughout the U.S., by companies based all over the world. This time around, Japanese automakers are lining up with Detroit's Big 3 to press their views. (Stoffer, 2007) Moreover, the policy has grown to affect other groups (agriculture and oil, to name two of the largest) and regions, which will also complicate its passage. In Arnold's model, this points to the necessity of more negotiation and wrangling by coalition leaders in Congress to enact the proposals (1990, p. 15); the fact that the recent CAFE agreement was publicized as a compromise between the Democratic House Speaker and the Energy and Commerce Committee chair, Democrat of Michigan, seems to bear this interpretation out. (Hebert, 2007)

Conclusion

Some form of heightened CAFE legislation seems likely to make its way to the president's desk in coming months, but the question remains whether he will sign it or throw the ball back in Congress's court, to wait for another session and another president. Regardless, this would likely be only the first such fight in coming years. Energy policy will continue to occupy a central place on the policy agenda for the foreseeable future. It will also continue to evolve. Between the ongoing instability in petroleum-producing regions, the link between fossil fuels and global warming, and a growing world's insatiable appetite for oil, non-renewable energy will continue to be pressed on both the supply and demand sides. Novel non-oil fuel sources, like ethanol and biodiesel, bring with them a whole new set of policy questions and tradeoffs, from their production to their distribution to their true economic and fuel value. At the same time, since World War II Americans have built themselves into a landscape that absolutely relies upon the personal automobile.

These problems are immensely complex, and the best solutions may involve much greater sacrifices than Americans (or their legislators) are prepared to contemplate. Arnold's analysis suggests that unless circumstances again happen to line up just so, what we will get from our legislators will be far less than ideal. Lindblom might suggest that this is both unavoidable and not so bad, and that over time a policy will emerge that nobody may like but that everybody can live with.

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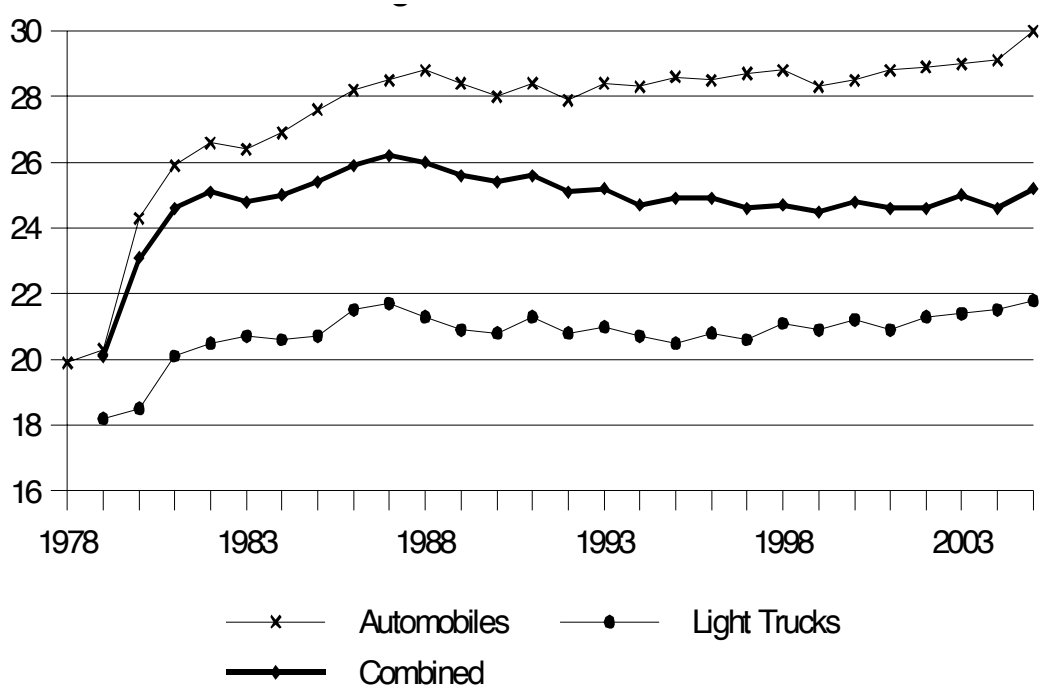
Appendix

Figure 1. Passenger car and light truck fuel economy averages for model years 1978-2005.



Source: U.S. Department of Transportation, National Highway Traffic Safety Administration, *Summary of Fuel Economy Performance*, March 2005.

From Yacobucci, B. D., & Bamberger, R. (2007a). *Automobile and light truck fuel economy: The CAFE standards* (CRS Report No. RL33413). Resources, Science, and Industry Division, Congressional Research Service, Library of Congress.

Tables 1a and 1b
Summary of actual fuel economy performance and sales volume, by category, model years 1978–2006/7

CAFE

MODEL YEAR	TOTAL FLEET	PASSENGER CARS	DOMESTIC	IMPORT	LIGHT TRUCKS	OTHER	CAPTIVE IMPORT
1978	19.9	19.9	18.7	27.3			
1979	20.1	20.3	19.3	26.1	18.2	18.2	
1980	23.1	24.3	22.6	29.6	18.5	17.8	25.7
1981	24.6	25.9	24.2	31.5	20.1	19.6	26.7
1982	25.1	26.6	25.0	31.1	20.5	20.3	26.7
1983	24.8	26.4	24.4	32.4	20.7	20.6	28.4
1984	25.0	26.9	25.5	32.0	20.6	20.6	27.2
1985	25.4	27.6	26.3	31.5	20.7	20.6	27.1
1986	25.9	28.2	26.9	31.6	21.5	21.4	23.3
1987	26.2	28.5	27.0	31.2	21.7	21.7	22.3
1988	26.0	28.8	27.4	31.5	21.3	21.2	22.4
1989	25.6	28.4	27.2	30.8	21.0	20.9	21.8
1990	25.4	28.0	26.9	29.9	20.8	20.8	17.6
1991	25.6	28.4	27.3	30.1	21.3	21.3	20.4
1992	25.1	27.9	27.0	29.2	20.8	20.8	21.0
1993	25.2	28.4	27.8	29.6	21.0	21.0	24.3
1994	24.7	28.3	27.5	29.6	20.8	20.8	0.0
1995	24.9	28.6	27.7	30.3	20.5	20.5	0.0
1996	24.9	28.5	28.1	29.6	20.8		
1997	24.6	28.7	27.8	30.1	20.6		
1998	24.7	28.8	28.6	29.2	21.0		
1999	24.5	28.3	28.0	29.0	20.9		
2000	24.8	28.5	28.7	28.3	21.3		
2001	24.5	28.8	28.7	29.0	20.9		
2002	24.7	29.0	29.1	28.8	21.4		
2003	25.1	29.5	29.1	29.9	21.8		
2004	24.6	29.5	29.9	28.7	21.5		
2005	25.4	30.3	30.5	29.9	22.1		
2006	25.4	29.8	30.1	29.4	22.2		
2007	26.4	31.0	30.5	31.7	22.9		

SALES VOLUME

MODEL YEAR	TOTAL FLEET	PASSENGER CARS	DOMESTIC	IMPORT	LIGHT TRUCKS	OTHER	CAPTIVE IMPORT
1978	11,182,347	11,182,347	9,117,833	2,064,514			
1979	11,912,298	10,747,622	8,683,544	2,064,078	1,164,676	1,164,676	
1980	11,274,924	9,389,820	6,687,791	2,702,029	1,885,104	1,656,070	229,034
1981	10,537,143	8,687,154	6,217,601	2,469,553	1,849,989	1,676,984	173,005
1982	9,700,362	7,752,124	5,442,276	2,309,848	1,948,238	1,879,882	68,356
1983	10,275,599	7,966,753	5,562,787	2,403,966	2,308,846	2,284,370	24,476
1984	14,114,857	10,669,856	7,896,517	2,773,339	3,445,001	3,397,193	47,808
1985	14,574,365	10,795,693	7,735,957	3,059,736	3,778,672	3,716,846	61,826
1986	15,439,944	11,016,850	7,426,980	3,589,870	4,423,094	4,309,308	113,786
1987	14,837,586	10,671,148	6,569,407	4,101,741	4,166,438	4,028,995	137,443
1988	15,299,064	10,694,680	6,569,200	4,125,480	4,604,384	4,508,937	95,447
1989	14,453,323	10,004,974	6,216,306	3,788,668	4,448,349	4,361,371	86,978
1990	12,616,572	8,814,629	5,113,107	3,701,522	3,801,943	3,781,762	20,181
1991	12,587,833	8,529,947	5,093,338	3,436,609	4,057,886	4,044,344	13,542
1992	12,190,552	8,142,792	4,715,619	3,427,173	4,047,760	4,039,709	8,051
1993	13,239,620	8,479,737	5,404,779	3,074,958	4,759,883	4,758,958	925
1994	13,987,632	8,422,592	5,257,594	3,164,998	5,565,040	5,565,040	0
1995	15,144,646	9,433,700	5,952,566	3,481,134	5,710,946	5,710,946	0
1996	13,144,417	7,920,216	5,488,818	2,431,398	5,224,201		
1997	14,481,944	8,383,896	4,935,875	3,448,021	6,098,048		
1998	14,484,512	8,031,441	5,720,154	2,311,287	6,453,071		
1999	15,234,568	8,516,952	5,417,444	3,099,508	6,717,616		
2000	16,579,778	9,246,899	6,218,666	3,028,233	7,332,879		
2001	15,661,962	8,347,254	5,171,182	3,176,072	7,314,708		
2002	16,181,025	8,236,180	5,232,276	3,003,904	7,944,845		
2003	15,715,864	7,893,881	4,128,983	3,764,898	7,821,983		
2004	15,713,660	7,367,238	4,860,054	2,507,184	8,346,422		
2005	15,930,126	7,682,700	5,393,431	2,289,269	8,247,426		
2006	15,273,800	7,602,220	4,894,313	2,707,907	7,671,580		

After MY 1995, the Light Truck Fleet is no longer broken down into "Captive Import" and "Other" categories.
After MY 2005, final EPA data is not fully available

From U.S. Department of Transportation, National Highway Traffic Safety Administration. (2004). *Summary of Fuel Economy Performance*.