

**Fueled by Crisis:
U.S. Alternative Fuel Policy, 1975-2007**

by

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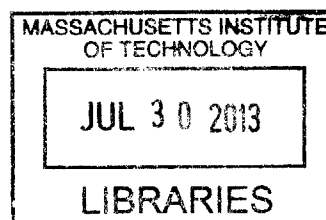
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ABSTRACT

This dissertation investigates the policy-making process that led to three “crash programs” for alternative fuels after energy shocks in the 1970s and early 2000s: (1) the proposed Energy Independence Authority in 1975-1976, (2) the Synthetic Fuels Corporation in 1979-1980, and (3) the revised Renewable Fuel Standard in 2007. These were massively ambitious programs, with enormous budgets and unachievable technological goals. What makes them truly puzzling, though, is that they were major policies that emerged without major advocates. Although various interest groups and constituencies supported the development of alternative fuels, neither the powerful industry lobbies (oil, coal, corn, ethanol) nor the public interest groups (environment) had previously advocated for interventions of this scope and scale.

This presents a fundamental empirical puzzle for public policy scholars, as it contradicts our understanding of the drivers of policy change. Typically, the policy process literature portrays radical policy change as resulting from the strategic efforts of interest or advocacy groups during a window of opportunity. Here, however, radical policy change occurred in the absence of lobbying or advocacy efforts. What explains this phenomenon? How do we account for the creation of these programs? What conditions and sequence of decision-making led to these policy outcomes?

This dissertation develops an alternative model of “politician-driven policy-making.” Public alarm over a deepening national crisis is the catalyst for this process. It gives rise to two coupled mechanisms: “bidding up,” in which the President and Congress compete for leadership during the crisis, and “signing on,” in which interest groups and minority Congressional groups bargain and often bandwagon with the legislative proposals.

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CHAPTER 1: INTRODUCTION

Technological policies can be no better than the decision-making processes used to arrive at them.

- Patrick Hamlett¹

Introduction: The Puzzle of Radical Change

Crises may be the best of times for bold policy change – “grand opportunities,” in the words of Charles Lindblom² - but they are the worst of times for crafting good policy. This dissertation explores this tension by tracing the policy-making processes leading to “crash programs” for alternative fuels in the wake of oil shocks in the 1970s and mid-2000s. The programs emerging from these periods tended towards grandiosity, with massive budgets and wildly over-optimistic technological timelines and targets. It is not without some basis that they have been derided as “irrational” and “boondoggles.” And indeed, they proved unsuccessful in their goals of catalyzing industries for synthetic fuels (in the 1970s) and advanced biofuels (in the 2000s).

What is remarkable about these policies, though, is not so much their overzealous goals as the fact that these dramatic industrial policies were produced by the U.S. political system *even though not a single actor pushed for them*. Although various interest groups and political constituencies supported the development of alternate energy technologies., neither powerful industry lobbies (oil, coal, corn) nor public-interest groups (environment, in particular) advocated for government policies of the grand scope and scale that actually emerged. Far from pushing for expansive policies, the key interest

¹ Hamlett, Patrick W. 1987. “Technological Policy Making in Congress: The Creation of the U.S. Synthetic Fuels Corporation.” In: *The Unfulfilled Promise of Synthetic Fuels: Technological Failure, Policy Immobilism, or Commercial Illusion*. Eds. Ernest J. Yanarella and William C. Green. New York: Greenwood Press, 53-69.

² Braybrooke, David and Charles E. Lindblom. 1963. *A Strategy of Decision: Policy Evaluation as a Social Process*. New York: The Free Press of Glencoe.

groups were largely taken aback when the legislative proposals were announced. *These were, in short, major policies that emerged without major advocates.*

This development presents a fundamental empirical puzzle for public policy scholars. Typically, scholars envision radical policy change resulting from the advocacy or lobbying efforts of key groups or constituents at a time of crisis. Here, however, radical change emerged at a time of crisis despite the absence of lobbying or advocacy efforts. What explains this development? That is, how do we account for the creation of these radical programs? What sequence of decision-making processes led to these policy outcomes? In short, why do we get radical change without radical advocacy?

The Existing Consensus: Advocating for Change and Change from Advocacy

The policy process literature contends that radical policy change occurs when advocates in the policy subsystem take advantage of a window of opportunity – for example, in the wake of a crisis – to redefine an issue, mobilize public attention, thrust an issue onto the national agenda, and thereby push for their preferred policies. Indeed, the three major models of policy change all posit that strategic advocacy is a core driver of policy change after crisis. The Multiple Streams (MS) model, offered by Kingdon, suggests that policy entrepreneurs opportunistically attach their solutions to salient problems and thus generate support.³ The Punctuated Equilibrium Theory (PET) advanced by Baumgartner and Jones argues that advocates seek to expand a given issue and their preferred solutions to Presidential-Congressional “macropolitics” by issue

³ Kingdon, John W. 1995. *Agendas, Alternatives, and Public Policies* [2nd Edition]. New York: Harper Collins.

framing, group mobilization, and venue-shopping.⁴ In the Advocacy Coalition Framework (ACF) suggested by Sabatier et al., advocates can “skillfully exploit” a systemic shock to tip the balance of power among participants in policy-making, thereby bringing new beliefs and information into the decision-making process.⁵ Although the three models differ in their proposed processes and internal causal logic, each has at its core the notion that advocates *from within the policy subsystem* are the actors that bring about radical policy change.

An Alternative Approach: Politician-Driven Policy Making

This dissertation develops an alternative model: “politician-driven policy-making.” In this model, policy proposals arise not from the strategic, self-interested maneuvering of entrepreneurs in the energy policy subsystem, but from a competition among the macropolitical actors – in the American case, the President versus Congress, the Senate versus the House of Representatives, the Senate Energy Committee versus the Banking Committee, and so on – to seize leadership and “do something big” during a sustained energy crisis. After initially modest responses by Congress, the White House introduces a transformative proposal that sets high stakes for this competition.

In all three cases in this dissertation, the White House’s policy formulation process is critical in explaining the scale of the alternative fuel commercialization plans. These proposals were developed by ad hoc working groups in the White House rather than by formal interagency processes. The staffers drafting the proposals were often

⁴ Baumgartner, Frank R. and Bryan D. Jones. 1993. *Agendas and Instability in American Politics*. Chicago: University of Chicago Press.

⁵ Sabatier, Paul A. 1988. “An Advocacy Coalition Framework of Policy Change and the Role of Policy-Oriented Learning Therein.” *Policy Sciences* 21(2): 129-68.

relatively new to energy issues. Due in part to limited familiarity with the challenges of energy technology commercialization, they tended to draft unfeasibly ambitious technological goals.

Congress has an opportunity to reign in these costly and over-ambitious goals. But it strives to meet – or even beat – the President’s goals *if* the crisis atmosphere is sustained. Combined, executive-legislative rivalry systematically leads to the expansion of policy objectives. As for interest groups, they played a lagged role in this process rather than taking a leading role in proposing policy options. They negotiated for favorable provisions given the plans that had been produced by the President and Congress. In the process, their support validated and gave legitimacy to the technological goals that had been proposed by politicians’ offices, preventing the programs from being reined in. *In sum, the radical energy policies of the 1970s and 2000s emerged and evolved through a political competition between the President and Congress to demonstrate that they were “doing something” about a crisis, with interest groups bargaining and often (though not always) eventually bandwagoning as a way to stay at the table.* In contrast to current approaches, this argument directly challenges the notion that advocates are the key to radical policy change. It suggests that intra-elite leadership competition is the source of bold policy innovation.

Scope and Methods

This model of policy-making was developed inductively from three detailed case studies using a combination of within-case process tracing and cross-case comparisons. The cases examine three radical energy policies of the 1970s and 2000s, specifically:

(1) the Energy Independence Authority (EIA), which was a \$100 billion financing corporation proposed unsuccessfully by Gerald Ford in 1975 and 1976; (2) the Synthetic Fuels Corporation (SFC), an \$88 billion quasi-governmental corporation introduced by Jimmy Carter in 1979 and passed in 1980; and (3) the revised Renewable Fuel Standard (RFS2), a 36 billion gallon biofuels mandate initiated by George W. Bush in 2007 and passed by Congress at the end of that year. These cases arguably represent the three most significant governmental attempts to catalyze the commercialization of alternative fuels.

I generate data for this project from four sources. First, I rely on extensive archival materials collected from the Gerald Ford Presidential Library, Jimmy Carter Presidential Library, the Nelson Rockefeller Papers at the Rockefeller Archive Center, Donald Rumsfeld's papers from his archival website, the ExxonMobil Collection at University of Texas, Austin, the Sierra Club Collection at University of California, Berkeley, and the Friends of the Earth Collection at University of Colorado, Boulder. Second, I conducted approximately 90 semi-structured interviews – including Congressional and senior White House aides, lobbyists, environmentalists, technologists, and journalists – which complemented the archival data from the historical cases (EIA, SFC) and provided the primary data for the contemporary case (RFS2). Third, I evaluated Congressional hearings over the proposed legislation. Lastly, I draw from contemporary journalist accounts of the policies.

Preview of the Dissertation

The theory, methods, and case studies in the dissertation are developed as follows. *Chapter Two engages in greater detail with theories of radical public policy change.*

The first half of the chapter reviews and critiques the mainstream policy process theories. It describes how each of the major contemporary theories – the Multiple Streams (MS) model, Punctuated Equilibrium Theory (PET), and the Advocacy Coalition Framework (ACF) - conceptualizes and explains non-incremental policy change. Although each emphasizes a distinct sequence of mechanisms, all three posit that major policy changes occur when “policy entrepreneurs” take advantage of endogenous shocks to push for their preferred policies. However, these opportunistic advocates were absent in the three cases of crash energy programs in this dissertation. These cases therefore constitute a challenge to conventional theories of policy change.

The second half of the theory chapter presents an alternative model of policy-making that captures the dynamics of these cases. As I described, this is a model of “politician-driven policy-making,” in which over-ambitious technological fixes are driven not by skillful police entrepreneurs, but by a political competition among high-level political actors to “do something big” during a crisis. Public alarm over a deepening national crisis is the catalyst for this process. It gives rise to two coupled mechanisms: “bidding up,” in which the President and Congress compete to show their bold leadership, and “signing on,” in which interest groups and minority Congressional groups bargain and often bandwagon with the legislative proposals. This section of the chapter describes each stage of the policy-making sequence, grounding it in the literature on agenda-setting, policy formulation and legitimation, and interest group influence.

Chapter Three explains research methodology and design. The methods sections in most qualitative political science dissertations are short and perfunctory – perhaps 3-5 pages reviewing case selection and making claims about generalizability. This methods

section is an entirely different enterprise. It maps out a strategy for theory-building from case studies in political science, directly taking on Timothy McKeown's challenge that "a philosophy of science that took seriously the task of prescribing wise practices for constructing theories would be quite refreshing and genuinely helpful."⁶ I begin by reviewing the current literature on qualitative methodology and discussing its deficiencies in guiding theory-building research. The research strategy that I develop here incorporates conventional qualitative methods – namely, process-tracing and small-N comparisons – into a dynamic process of discovery that iterates between sampling, data collection, analysis, and theory development. McKeown's discussion of "folk Bayesian" approaches provides an epistemological anchor for this approach. This approach is invaluable for explaining empirical puzzles, identifying omitted variables, and tracing complex causal mechanisms.

Chapters Four, Five, and Six include the empirical case studies. Each chapter covers a single case of a major alternative fuel commercialization initiative, tracing how the policy emerged and evolved in response to an energy crisis. The cases are organized chronologically. *Chapter Four discusses the Energy Independence Authority (EIA)*. The EIA was a \$100 billion quasi-governmental energy financing corporation with a strong focus on synthetic fuels commercialization. It was pushed by President Gerald Ford in 1975 and 1976, although never passed by Congress. The concept for the EIA emerged from Vice President Nelson Rockefeller's Domestic Council staff. In a fascinating case of White House policy formulation, it was drafted by one of the young staff members and entrepreneurially – and controversially – promoted by Rockefeller within the

⁶ McKeown, Timothy J. 2004. "Case Studies and the Limit of the Quantitative Worldview." In David Collier and Henry Brady, eds., *Rethinking Social Inquiry: Diverse Tools, Shared Standards*. Lanham, MD: Rowman & Littlefield, 2004, 162.

administration. Alan Greenspan, then chairman of the Council of Economic Advisors, called it “inappropriate” but begrudgingly acknowledged that “its appeal, especially its political appeal, is its central virtue.” Against the advice of his economic advisors, President Ford went ahead with the plan. But by this time he announced the EIA proposal in a September 1975 speech, the crisis atmosphere of the first oil shock had dissipated, and the plan fell on deaf ears in Congress. This case thus illustrates not only the dynamics of White House policy formulation, but also the importance of sustained crises in carrying through large energy programs.

Chapter Five analyzes the Synthetic Fuels Corporation (SFC). The SFC was an \$88 billion quasi-governmental energy financing corporation, funded by the windfall profits tax on oil companies. It was intended to spur the commercial development of synthetic fuels (“synfuels”). In early 1979, as the second oil crisis was deepening, the House and Senate had competed to increase incrementally larger synfuels programs: the House Banking Committee introduced a narrow \$2 billion plan, the House floor passed a broader \$3 billion plan, and the Senate Banking Committee began to consider a \$5 billion plan. President Carter dramatically raised the stakes of synfuels policy with the \$88 billion financing corporation proposal, announced in July 1979 in his famous “malaise” speech. The plan had been hastily drafted by the White House and Treasury. After several months of acrimonious debate, Congress passed a phased \$88 billion program in January 1980. The SFC case demonstrates the bidding up that occurs not only between the White House and Congress, but also between the chambers of Congress. It also illustrates the relative unimportance and lagged nature of interest groups’ advocacy. Only the coal industry even reluctantly supported it, largely following the coal-state

members of Congress. Environmental groups stridently opposed large-scale synfuels production, citing the environmental impacts of coal production, carbon dioxide emissions, and water use. The oil industry staunchly opposed the plan, arguing that they could reach the production targets without governmental intervention.

Chapter Six examines the 2007 Renewable Fuel Standard (RFS2). The RFS is a volumetric blending mandate, requiring certain volumes of biofuels to be blended into the U.S. petroleum supply each year. The original RFS, passed in 2005, mandated 7.5 billion gallons of ethanol by 2012. The revised RFS, passed just two years later in 2007, dramatically raised the mandate to 36 billion gallons of biofuels by 2022, including a sub-mandate for 16 billion gallons of cellulosic ethanol that experts agree is impossibly high. This increase in the RFS goals was initiated by President George W. Bush's proposal in the 2007 State of the Union for a 35 billion Alternative Fuel Standard. His goal was purposefully chosen to be aggressive; a little-known provision of the President's plan was a \$1/gallon alternative compliance mechanism that turned the mandate into the functional equivalent of a gasoline tax, such that it was never intended to be a true mandate. Congress, however, not only removed that provision, but they bumped up the President's goal to a 36 billion RFS. In addition, the legislation contained modifications intended to improve the plan's environmental impact, including the 16 billion gallon cellulosic carve-out. Some of the changes reflected the intra-Congressional politics, as different committees in Congress sought to claim jurisdiction over the legislation. Other changes reflected interest group influence. Although the corn, ethanol, and environmental groups had concerns about this massive increase in the RFS, they bargained for favorable provisions and ultimately legitimated the goals. In sum, the

story of the RFS2 is one of competition for ‘leadership’ on alternative energy issues in the mid-2000s, at a time when energy concerns were high on the American political agenda. The case also demonstrates the lagged influence of interest groups.

Chapter Seven concludes the dissertation by reviewing its main arguments and scholarly contributions. Most directly, this research contributes to three branches of literature: the theoretical literature on policy-making processes, the empirical literature on federal energy policy, and the methodological literature on qualitative research methods.

Theoretically, its core innovation is the model of politician-driven policy-making. This sequence of policy-making – with public officials “bidding up” proposals during a crisis, and interest groups contingently “signing on” to the technological goals – has not previously been identified in the public policy literature. This model departs from mainstream explanations of policy change in several important ways. First, it pushes back on conventional views of interest group influence. There is a widespread view in both the scholarly and popular literature that interest group politics are a driving force behind inefficient and distortionary public policies. Yet under conditions of crisis, when there is widespread public attention to an issue, interest group influence is significantly constrained. This gives senior leaders a wider purview in setting the policy agenda. Interest groups’ influence comes in only in the latter stages of policy-making; groups bargain to make marginal legislative changes but, in doing so, validate the headline goals.

Second, this model emphasizes the role of feedback, adaptation, and contingency in policy development. This is a dynamic process, rather than a static pluralist process in which groups compete for predetermined outcomes. Policy evolves over time, and expansive goals emerge as leaders compete for dominance in a sequential fashion. Third,

my theory integrates both macro- and micro-processes of policy-making. John Kingdon has argued that, “Seeds come from many places. Why they germinate, grow, and flourish is much more interesting than their origins.”⁷ This study argues that if we are to understand specific policy outcomes, then we need to explain both the seeds themselves, as well as the conditions and pathways of their growth. There are numerous ways that a policy response to a crisis could be crafted – different technologies, different policy instruments, different goals, funding levels, and timelines could all be selected for the mix – and is only by combining the micro-foundations of policy formulation with the macro-processes that drive their adoption that we fully account for policy outcomes.

Empirically, this dissertation provides original and richly detailed accounts of the three most ambitious attempts to launch alternative fuel industries in the United States. It provides the first case studies of both the Energy Independence Authority and the Renewable Fuels Standard. The RFS case is expected to be particularly useful for policymakers and advocates, since it remains highly controversial. As for the Synthetic Fuels Corporation case, this is the first comprehensive analysis of how and why the Carter administration developed the proposal. Previous studies of the SFC have focused almost entirely on the legislative politics. Given the importance of the President’s proposal in setting the stakes of synfuels policymaking, this research fills an important void. Overall, not only is this work historically important, but at a time when energy issues are perennially on the policy agenda, it offers scholars and policymakers insight that can be used to orient future policy initiatives and academic research agendas.

Methodologically, this dissertation maps out an approach for inductive theory-building from political science case studies. In the last decade, after the publication of

⁷ Kingdon, *Agendas*, 77.

King, Keohane, and Verba's *Designing Social Inquiry*, the literature on qualitative political science methods has taken a decisive turn towards statistically-based standards for inference. The result is that research design and case selection have been emphasized, while data interpretation and analysis have been neglected. I expect that the approach described here will be a useful guide for graduate students in political science, who are encouraged to investigate empirical puzzles but not given sufficient guidance on developing raw data into theoretical propositions.

Ultimately, this research promises to be of interest to scholars and practitioners alike. By identifying patterns and sequences of decision-making, it suggests avenues for making policy-making more responsive to science and technology assessments. And by developing an empirically rich and theoretically innovative account of politician-driven policy change, the research opens up a new agenda for research on policymaking during national crises.

CHAPTER 2: THEORIES OF POLICY CHANGE

INTRODUCTION

The energy programs in this dissertation – the Energy Independence Authority (EIA), Synthetic Fuels Corporation (SFC), and Renewable Fuel Standard (RFS2) – represent rapid, radical extensions of the government’s hand into industry and finance. They are a curious policy output from the American political system, which was deliberately designed to resist the capricious extension of governmental powers.⁸ In a political system where “[s]eldom does one need to worry about the U.S. Congress making hasty or quick decisions,” how do we account for the abrupt creation of these costly crash programs?⁹ This chapter reviews how the policy process literature has conceptualized and explained major policy change. Finding these theories deficient for explaining the dynamics behind the case studies in this dissertation, I develop an alternative model of major policy change. It roots radical change in politicians’ responses to crisis, rather than in the strategic entrepreneurship of interest groups or government experts. The core mechanism of this “politician-driven policy-making” is the competition between the President and Congress to show forceful leadership during a crisis.

The canon of contemporary policy process literature includes Kingdon’s Multiple Streams (MS) model, Baumgartner and Jones’ Punctuated Equilibrium Theory (PET), and Sabatier’s Advocacy Coalition Framework (ACF). All three theories emphasize that stability and incrementalism characterize most of the policy landscape most of the time,

⁸ As Charles O. Jones explained, “the Framers were more concerned about preventing tyranny than they were about facilitating policy development ... [and] were willing to live with the consequences of protracted action, even if it meant stalemate, in order to avoid despotism.” Jones, Charles O. 1984. *An Introduction to the Study of Public Policy* [3rd Edition]. Belmont, CA: Wadsworth Publishing Company, 6. italics removed.

⁹ Wright, John R. 1996. *Interest Groups and Congress: Lobbying, Contributions, and Influence*. Boston: Allyn and Bacon, 38.

but that major change can occur when an exogenous shock creates an opportunity for policy entrepreneurs.¹⁰ At the core of their explanations is an account of groups mobilizing after a shock. Although the three theories emphasize different mechanisms of mobilization, “policy scholars seem to agree that the behavior of pro-change groups is a necessary condition for major event-related reforms.”¹¹

How well do these theories account for the crash alternative fuel programs in this dissertation? The cases of the EIA, SFC, and RFS do confirm the importance of crises - specifically, oil shortages and price spikes - in shifting federal attention to alternative fuels and catalyzing policy change. But the emphasis on group behavior and strategic advocacy simply does not fit these cases. *On the contrary, these were major programs that emerged without major advocates in the policy subsystem.* That is, the proposals for the crash programs did not come from interest groups, minority advocacy coalitions, or other actors embedded in the energy policy subsystem. Many of the powerful interest groups – even those that would receive the greatest financial boost from the crash programs – had serious reservations about the programs when initially proposed. Environmental and consumer groups were not predominantly supportive of these costly (and potentially dirty) energy supply programs, either. Moreover, many governmental economists and energy experts were strongly opposed to the scale of the programs.

These cases suggest an alternative mechanism of major policy change. The creation of these programs is driven by a competition among politicians to “do something” during a crisis – not by the strategic policy entrepreneurship of interest

¹⁰ Howlett, Michael and Ben Cashore. 2007. “Re-visiting the New Orthodoxy of Policy Dynamics: The Dependent Variable and Re-Aggregation Problems in the Study of Policy Change.” *Canadian Political Science Review*. 1(2): 50-62.

¹¹ Nohrstedt, Daniel. 2008. “The Politics of Crisis Policymaking: Chernobyl and Swedish Nuclear Energy Policy.” *The Policy Studies Journal* 36(2): 260.

groups, experts, or other members of long-standing policy subsystems. Interest groups do play a critical role in validating the policy proposals and enabling the seeds of policy change to take root. But this is a lagged role, not a driving role as is envisioned in the theoretical literature (or for that matter, popular media coverage of energy policy, which often portrays energy policymaking as dominated by “Big Oil,” “King Coal,” or “the powerful ethanol lobby”).

In this chapter, I develop this argument as follows: First, I review the existing theoretical literature on the policy process, with a particular eye towards how the MS, PET, and ACF models account for major policy change. Second, I explore the deficiencies of these theories in the cases of crash alternative energy program. The case of the Synthetic Fuels Corporation has already been identified by other scholars as particularly anomalous, and I will discuss how these scholars sought to use the SFC case for theory development. Third, I advance an alternative model of policy-making that better accounts for the political and analytical dynamics observed in these cases. It is a model that integrates insights from disparate strands of scholarship: organizational decision-making, Presidential agenda-setting, the role of science and expertise in policy-making, and the political determinants of environmental policy. Lastly, the chapter concludes with a statement of how this model contributes to the literature.

THEORIES OF POLICY CHANGE: CRISIS + GROUP MOBILIZATION

This section reviews how major policy change is characterized by the policy process literature. In the 1960s and 1970s, scholars portrayed policy making proceeding

through a sequence of stages. In the 1980s and early 1990s, scholars grew dissatisfied with this rigidly stylized stages heuristic, as well as an emphasis on incrementalism in policy-making. This gave rise to the trio of MS, PET, and ACF theories that attempted to account for both stability and change in policy over longer periods of time. These theoretical approaches continue to dominate the policy process literature today.

Here I briefly introduce the mid-century roots of the policy process literature in order to contextualize the contemporary theories. I then lay out the concepts and mechanisms in each of the MS, PET, and ACF approaches before summarizing how they, as a group, explain policy change. While there are significant differences in the mechanisms that they emphasize, all three have a model of major policy change that couples a crisis with the strategic response of advocates from the policy subsystem. In short, a crisis can shake up the policymaking agenda, creating an opportunity for policy entrepreneurs to push for change.

Early theories: Incrementalism, Stages, and Subsystems

The MS, PET, and ACF policy process theories represent responses to mid-century theories that portrayed the policy-making process as linear, incremental, and closed. There are three lines of this earlier theory that are particularly valuable for contextualizing the contemporary theories. First, are theories of *incrementalism*. In his seminal 1959 article, “The Science of Muddling Through,” Charles Lindblom observed that public-policy making rarely proceeds by the traditional model of identifying goals

and conducting a rational means-end analysis.¹² Means and ends are often not distinct. Analysis is limited. Policies are deemed “good” when they attract broad support, not when they are most economically efficient. The result is that policy emerges from an incremental, evolutionary process in which public officials build on existing policies rather than developing dramatically new policies.

Second, during the mid-20th century, scholars began to divide the policy-making process into discrete *stages*: problem detection, agenda setting, policy formulation, legitimation, implementation, and evaluation. This heuristic grew out of work by Harold Laswell in the 1950s and was authoritatively formalized by Charles O. Jones and James Anderson in the late 1970s.¹³ Its great innovation was that it focused on process rather than institutions (agencies, president, congress, judiciary). Breaking the process into stages also gave researchers manageable segments of analysis, leading to rich literatures on agenda-setting and policy implementation in particular. Yet the stages heuristic also had limitations. Most obviously, it portrayed the process as linear and problem oriented.¹⁴ Sabatier offers a more comprehensive critique, pointing out that it is not a causal model, is not descriptively accurate, and is overly legalistic and top-down.¹⁵

Third, from the 1950s through the 1980s there was a strong analytical emphasis on the concentration of policy-making among *subsystems* of specialists in government agencies, lobbies, and Congress. The groups were known variously as policy subsystems,

¹² Lindblom, Charles E. 1959. “The Science of “Muddling Through”” *Public Administration Review* 19(2): 79-88.

¹³ Laswell, Harold D. 1956. *The Decision Process: Seven Categories of Functional Analysis*. College Park, MD: Bureau of Governmental Research, College of Business and Public Administration, University of Maryland; Jones, Charles O. 1977. *An Introduction to the Study of Public Policy*. Belmont, CA: Duxbury; Anderson, James. 1979. *Public Policy Making* [2nd Edition]. New York: Holt, Rinehart, and Winston.

¹⁴ Scharpf, Fritz W. 1997. *Games Real Actors Play: Actor-centered Institutionalism in Policy Research*. Boulder, CO: Westview Press.

¹⁵ Sabatier, Paul A. 1991. “Toward Better Theories of the Policy Process.” *PS: Political Science and Politics* 24 (2): 147-56.

subgovernments, iron triangles, policy whirlpools, and policy networks.¹⁶ Eventually these tight structural terms were loosened with terms like policy communities and issue networks.¹⁷ (Or as Charles Jones described that in the case of energy policy-making, “the cozy little triangles ... had become sloppy large hexagons.”¹⁸) Nevertheless, the consensus remained that “[m]ost policymaking in the United States involves problem solving by stable, semiautonomous policy subsystems.”¹⁹

The emphasis on incrementalism, stages, and subsystems gave way in the 1980s and 1990s to more dynamic theories of the policy process. The new theories sought to explain radical change as well as incrementalism, and they rejected the linearity and rationality of the stages heuristic. Nevertheless, as they tended to focus on some stages (problem identification, agenda-setting) and not others (implementation, assessment), they do retain a flavor of the stages heuristic. In addition, the MS, PET, and ACF theories all retain the policy subsystem as their core unit of analysis.

I now turn to this canon of contemporary approaches, with particular attention to how each theory explains non-incremental policy change. They share enough in common

¹⁶ Griffith, Ernest. 1961. *Congress, Its Contemporary Role* [3rd Edition]. New York: New York University Press; Redford, Emmette S. 1969. *Democracy in the Administrative State*. New York: Oxford University Press; Hamm, Keith. 1983. “Patterns of Influence Among Committees, Agencies, and Interest Groups.” *Legislative Studies Quarterly* 8: 379-426; Gais, Thomas L., Mark A. Peterson and Jack L. Walker. 1984. “Interest Groups, Iron Triangles, and Representative Institutions in American Government.” *British Journal of Political Science* 14(2): 161-185; Walker, Jack L., Jr. 1991. *Mobilizing Interest Groups in America: Patrons, Professions, and Social Movements*. Ann Arbor: University of Michigan Press; Ripley, Randall and Grace Franklin. 1982. *Bureaucracy and Policy Implementation*. Homeland, IL: Dorsey Press.

¹⁷ Heclo, Hugh. 1978. “Issue Networks in the Executive Establishment.” In *The New American Political System*. Anthony King, Ed. Washington, DC: American Enterprise Institute.

¹⁸ Jones, Charles O. 1979. “American Politics and the Organization of Energy Decision Making.” *Annual Review of Energy* 4: 99-121, 105.

¹⁹ Kash, Don E. and Robert W. Rycroft. 1984. *U.S. Energy Policy: Crisis and Complacency*. Norman, OK: University of Oklahoma Press. p. 21. On subsystems in energy policy-making, see also: Davis, David Howard. 1982. *Energy Politics* [3rd Edition]. New York: St. Martin’s Press.

that there have been calls to merge them into a single, unified framework.²⁰ But each branch of theory highlights a distinctive slice of processes and participants.

Multiple Streams

The Multiple Streams (MS) model was developed by John Kingdon in *Agendas, Alternatives, and Public Policies* (1984, 1995) to explain how policy problems and solutions rise and fall in prominence.²¹ It is based on Cohen, March, and Olson's "garbage can model" of organizational decision-making, which posits that decisions depend on a churning mix of problems, solutions, participants, and decision opportunities.²² In Kingdon's formulation, this became three largely independent streams – problems, policies, and politics – flowing through the policy-making system.

The *problem* stream represents the issues to which people in and around government are paying serious attention. Indicators, events or crises, and program feedback determine what is in the policy stream at a given time. The *politics* stream refers to macro-political conditions: national mood, partisan control, interest group pressures, election results. The *policy* stream consists of the "primeval soup" of ideas and policy proposals floating around in the policy community. The government's agenda is essentially determined by the problem and politics streams, while the specification of alternatives comes out of the policy stream.

²⁰ Schlager, Edella. 2007. "A Comparison of Frameworks, Theories, and Models of Policy Process." In Paul A. Sabatier, ed., *Theories of the Policy Process*. Boulder, CO: Westview Press; Real-Dato, Jose. 2009. "Mechanisms of Policy Change: A Proposal for a Synthetic Explanatory Framework." *Journal of Comparative Policy Analysis* 11: 117-43.

²¹ Kingdon, John W. 1995. *Agendas, Alternatives, and Public Policies* [2nd Edition]. New York: Harper Collins.

²² Cohen, Michael D., James G. March, and Johan P. Olsen. 1972. "A Garbage Can Model of Organizational Choice." *Administrative Science Quarterly* 17(1): 1-25.

In the MS model, policy change occurs when the three streams converge and problems are coupled with solutions. Rarely does this happen through a rational problem-solving process, as described by the stages heuristic. Rather, “advocates lie in wait in and around government with their solutions at hand, waiting for problems to float by to which they can attach their solutions, waiting for a development in the political stream they can use to their advantage.”²³ Kingdon described this in terms of a surfing metaphor: “policy entrepreneurs” surf the problems and politics streams, ready to paddle when a swell of opportunity comes along.²⁴ Opportunities are created by changes in the problem stream (such as a disaster, accident, or other “focusing event”) or the politics stream (such as a change of administration or shift in national mood). These open a brief “policy window,” at which point the skillful policy entrepreneur can attach their solution and merge the three streams.

Kingdon’s policy entrepreneurs can be found in many places. They may be politicians, bureaucrats, analysts, activists, academics, or lobbyists. But, notably, they exist within the domain of a subsystem or “policy community.” Also, they are defined as “people who are willing to invest resources of various kinds in hopes of a future return in the form of policies they favor” – that is, they are strategic and policy-oriented.²⁵ Their objectives can include protecting bureaucratic turf, advancing economic or electoral interests, promoting ideology, or even personal aggrandizement.

²³ Kingdon, *Agendas, Alternatives, and Public Policies*, 165.

²⁴ Kingdon’s surfing metaphor was based on the comments of one of his interviewees, who said, “As I see it, people who are trying to advocate change are like surfers waiting for the big wave.” The concept has been further developed by: Boscarino, Jessica E. 2009. “Surfing for Problems: Advocacy Group Strategy in U.S. Forestry Policy.” *Policy Studies Journal* 37(3): 415-34.

²⁵ Kingdon, *Agendas, Alternatives, and Public Policies*, 143.

How well does this model capture the creation of alternative fuel crash programs? The complex and fluid policy-making system described by the MS model does at first glance seem to capture much of the big picture patterns: oil crises briefly thrust energy policy on the national agenda, and the commercialization of alternative fuels was hastily seized upon by policymakers as a solution. *But the departure point is that these lack classic policy entrepreneurs.* Although there were proponents of biofuels and synfuels, no one had been advocating for enormous quasi-governmental financing corporations (in the cases of the Energy Independence Authority and Synthetic Fuels Corporation) or massively expanded blending mandates (in the case of the updated Renewable Fuel Standard). Within the governmental offices that introduced these proposals, which is to say the Ford, Carter, and Bush administrations, there were indeed individuals who developed and staunchly backed these crash programs. But in at least two of the cases (the EIA and the RFS2), these internal advocates were new to energy issues – quite the opposite of being policy entrepreneurs from the policy subsystem. These individuals operated very much in a problem-solving mode, conducting their own analyses and only partially dipping into the existing policy stream. Thus, the core mechanism of change in the MS model is absent in these crash energy programs.

Punctuated Equilibrium Theory

Punctuated Equilibrium Theory (PET) was introduced by Frank Baumgartner and Bryan Jones in *Agendas, Instability, and American Politics*.²⁶ Baumgartner and Jones borrowed the language of early evolutionary biology theory to describe the episodic

²⁶ Baumgartner, Frank R. and Bryan D. Jones. 1993. *Agendas and Instability in American Politics*. Chicago: University of Chicago Press.

nature of American policy-making,²⁷ in which long periods of stability are occasionally punctuated by abrupt change. They map out two opposing mechanisms to explain this pattern: negative feedbacks, which reinforce status quo stability, and positive feedbacks, which can unleash a “swell of politics” that results in major institutional reform and policy change.

During the long periods of stability, which characterize most policies most of the time, policy-making is dominated by subsystems or “policy monopolies.” Such a delegation is necessary in order for the government to simultaneously attend to multiple policy areas.²⁸ Policy leaders, parties, and other macropolitical actors have limited attention, and they will continue to delegate policy-making to the experts in the subsystem as long as an issue remains low on the decision agenda. Since the subsystems resist new policy understandings (images) and new participants and institutional settings (venues), policy change remains incremental.²⁹

During periods of punctuation, however, positive feedbacks take over and create a cascading demand for change. At the heart of the process is “issue definition,” which in turn affects group mobilization and conflict expansion. Issue definition is a “purposive process” that is carried out by policy entrepreneurs who are not favored by the prevailing

²⁷ PET was originally devised in the context of the American political system, but it has since been applied to a wide array of countries.

²⁸ This piece of the PET’s micro-foundations was eventually developed into a theory of information processing, attention, and policy choice. See: Jones, Bryan D. and Frank R. Baumgartner. 2005. *The Politics of Attention: How Government Prioritizes Problems*. Chicago: University of Chicago Press; Jones, Bryan D. and Frank R. Baumgartner. 2012. “From There to Here: Punctuated Equilibrium to General Punctuation Thesis to a Theory of Government Information Processing.” *Policy Studies Journal*. 40(1): 1-19.

²⁹ Because these equilibria are not static, some scholars have suggested that the theory might more accurately be called “Punctuated Incrementalism.” See: Prindle, David. 2012. “Importing Concepts from Biology into Political Science: The Case of Punctuated Equilibrium.” *Policy Studies Journal* 40(1): 21-43.

subsystem.³⁰ It is key to explaining both stasis and change: “Issue definition ... is the driving force in both stability and instability, primarily because issue definition has the potential for mobilizing the previously disinterested.”³¹ Thus, according to the PET, policy entrepreneurs create new issue definitions to mobilize previously apathetic groups and expand the conflict to other policy venues.

Eventually an issue attracts sufficient attention and can no longer be contained within the policy subsystem. Political parties may try to leverage this for electoral advantages (“the major intrusions of governmental power – and the major attempts to roll it back – have been organized not by interest groups linked to government in policy subsystems, but by political parties,” write Baumgartner and Jones). In Congress, jurisdictional battles may also break out, as entrepreneurial congressmen seek to expand their influence into issue areas that will provide political payoff. The end result of such a swell of politics is major institutional reforms that re-structure the policy subsystem and lead to a new equilibrium.

The direction of reforms depends on whether these sweeping demands are negative or positive: a “tide of criticism” versus a “wave of enthusiasm.” This has implications for what is demanded of policymakers: “Criticism of experts encourages political leaders to pay more attention to the details of policymaking within specialized policy communities, whereas enthusiasm leads political leaders to delegate power to experts.”³² And in turn, this leads to different institutional legacies. When issues are swept onto the Congressional agenda in a “wave of enthusiasm,” the policy response

³⁰ Mintrom, Michael and Phillipa Norman. 2009. “Policy Entrepreneurship and Policy Change.” *Policy Studies Journal* 37(4): 649-667.

³¹ Baumgartner and Jones, *Agendas, Instability, and American Politics*, 16.

³² Baumgartner and Jones, *Agendas, Instability, and American Politics*, 84.

tends to be the creation of new institutions. When it's a "tide of criticism," the response is the dissolution or alternation of existing institutions.³³

It is worth noting that PET emphasizes sweeping demands for change and underspecifies the micro-determinants or drivers. It does not explain the conditions, catalysts, or thresholds that determine whether positive or negative feedbacks dominate at a given time. Issue definition may be thought of as purposive, but PET pays little attention to the micro-foundations of who does it and what causes it to take off or not. The role of the policy entrepreneur, while noted, is underdeveloped and somewhat downplayed. As for crises and exogenous shocks, Baumgartner and Jones sometimes portray them as important catalysts of positive-feedback processes, but the original formulation of PET strongly emphasizes broader societal and ideational shifts, chiding that "[d]ramatic events, such as Three Mile Island ... often come to symbolize the entire process of change to which they merely contribute."³⁴

How well does PET explain the punctuations that led to the creation of major alternative energy program? The phenomena of conflict expansion, macro-political intervention, and jurisdictional battles within Congress certainly seem to fit. But there are three important ways in which these cases depart from the PET's model. First and foremost, these cases do not provide evidence of purposive issue definition. The PET's core driver of issues expansion and group mobilization is just flat out missing. Second, the PET's predictions about policy outcomes – i.e. that a "tide of criticism" tends to lead to the dismantling of institutions – was contradicted in these cases. The proposals for the EIA, SFC, and RFS2 were responses to a tremendous public outcry about the energy

³³ Baumgartner and Jones, *Agendas, Instability, and American Politics*, 100.

³⁴ Baumgartner and Jones, *Agendas and Instability in American Politics*, 242.

status quo. In these cases, mobilizations of criticism resulted in institutional creation or strengthening, not dismantling. Third, in these cases, the lack of reliable scientific and technological assessments profoundly affected the decision-making. Although this is a minor assumption within the PET's framework, the PET literature assumes that policymakers are deluged with information, thereby omitting a critical variable. For these three reasons, the PET model does not fit the creation of these crash energy programs.

Advocacy Coalition Framework

The Advocacy Coalition Framework (ACF) was developed to model how policy analysis and learning can shape the policy process over decadal time scales. Paul Sabatier introduced the framework in a 1988 article, building off of Hugh Hechlo's view of policy change as the product of large-scale societal change and the strategic interaction of policy elites.³⁵ He more comprehensively developed the ACF theory in a 1993 book with Hank Jenkins-Smith, *Policy Change and Learning*, and has been continually refining and expanding it ever since.³⁶

The ACF takes the policy subsystem as the unit of analysis. Each subsystem is made up of two to four competing advocacy coalitions, comprised of:

people from a variety of positions (e.g. elected and agency officials, interest group leaders, researchers) who share a particular belief system – that is, a set of basic values, causal assumptions, and problem perceptions – and who show a non-trivial degree of coordinated activity over time.³⁷

³⁵ Sabatier, Paul A. 1988. "An Advocacy Coalition Framework of Policy Change and the Role of Policy-Oriented Learning Therein." *Policy Sciences* 21(2): 129-68; Hechlo, Hugh. 1974. *Social Policy in Britain and Sweden*. New Haven: Yale University Press.

³⁶ Sabatier, "Toward Better Theories"; Sabatier, Paul A. and Hank C. Jenkins-Smith. 1993. *Policy Change and Learning: An Advocacy Coalition Approach*. Boulder, CO: Westview Press; Sabatier, Paul A. 2007. *Theories of the Policy Process* [2nd Edition]. Boulder, CO: Westview Press; Weible, Christopher M., Paul A. Sabatier, Hank C. Jenkins-Smith, Daniel Nohrstedt, Adam Douglas Henry and Peter deLeon. 2011. "A Quarter Century of the Advocacy Coalition Framework: An Introduction to the Special Issue." *Policy Studies Journal* 39(3): 349-360.

³⁷ Sabatier, "An Advocacy Coalition Framework," 139.

The coalition's beliefs are divided into three tiers: core normative beliefs, core policy beliefs (e.g. proper scope of governmental activity), and "secondary aspects" (e.g. the instruments and information needed for policy implementation). The core normative and policy beliefs of coalitions are deep and durable. The secondary aspects are moderately easy to change through learning over time.

The ACF posits two pathways for policy change: (1) learning, which primarily affects secondary beliefs, and (2) changes in the structure of the subsystem, which can affect core beliefs as minority coalitions rise in power. Major policy change is mainly this latter type, and it is attributed to perturbations that shake up the subsystem. In the initial formulation of the ACF, the perturbations were broad, macro-level changes in socio-economic conditions or political administration, and the subsystem response was mechanical. Revised versions of the ACF broadened to include endogenous coalition disruptions as well as abrupt "focusing events" that "attract public attention, highlight policy vulnerabilities, failures or neglect, and bring new information into the policy process ... [and] has the potential to tip the balance among policy participants, providing the potential for major policy change."³⁸ Moreover, the ACF began to echo the strategic elements of Kingdon's policy entrepreneurs, recognizing that "perturbations provide an opportunity for major policy change, but such change will not occur unless that opportunity is skillfully exploited by proponents of change, that is, the heretofore minority coalition(s)."³⁹

³⁸ Sabatier, Paul A. and Christopher M. Weible. 2007. "The Advocacy Coalition Framework: Innovations and Clarifications." In Paul A. Sabatier, ed., *Theories of the Policy Process* [2nd Edition]. Boulder, CO: Westview Press, 204.

³⁹ Sabatier, Paul A. and Hank C. Jenkins-Smith. 1999. "The Advocacy Coalition Framework: An Assessment." In Paul A. Sabatier, ed., *Theories of the Policy Process*. Boulder, CO: Westview Press, 148.

How well does the ACF capture the dynamics of major policy changes for alternative fuels? The ACF was developed to explain changes over periods of 10 years or more, largely with a focus on policy learning. It is helpful in exploring the information and learning that from the 1970s to the 2000s shaped important trends in energy policy (perhaps akin to Kingdon's policy stream). The Ford and Carter administrations, despite their ideological differences, both grasped for quasi-governmental financing corporations as a solution to energy crises. These were seen as an innovative policy instrument during the 1970s, but they fell out of fashion after the debacle of the SFC in the mid-1980s. By the 2000s, market-based mechanisms that did not "pick winners" were seen as the most efficient policy instrument. President Bush's original proposal for an Alternative Fuel Standard, which evolved into the RFS2, was based on these market principles.

The ACF is not successful, however, in explaining the creation of specific programs like the EIA, SFC, and RFS2, despite its incorporation of focusing events and strategic advocacy. The subsystem and advocacy coalition dynamics identified by the ACF fundamentally do not capture what happened in these cases. No coalitions (dominant or minority) had been proponents of radical commercialization programs before they suddenly appeared as legislative proposals. To the contrary, these crises mobilized a rush of people who were not usually involved in the energy policy subsystem to involve themselves in energy policymaking – giving the cases a stronger outsider element than predicted by this theory. In all three cases, many of the individuals who were principally involved in drafting the White House policy proposals were new to energy issues. Thus, the ACF's explanation of policy change fits poorly with these case studies.

Summary

Each of these contemporary theories of policy change delineates a distinct causal pathway of policy change. Yet they share core assumptions about the policy system. They focus on policy elites, taking the policy subsystem as the unit of analysis and the source of policy ideas. They attribute incremental change to intra-system dynamics, including learning. And they attribute most non-incremental change to the coupling of exogenous shocks (focusing events, crises, elections, etc.) and the skillful, opportunistic maneuvering of policy advocates and entrepreneurs.

This dissertation does not claim that these theories “have it wrong” in general. The MS, PET, and ACF theories have each stimulated a robust branch of empirical literature, with scores of studies confirming the hypothesized patterns of problem surfing, punctuations, policy learning, minority coalition mobilizations, etc. Yet their view of major policy change does not adequately capture the processes leading to “crash programs” for alternative fuels in the wake of oil shocks. The group-oriented mobilization and strategic advocacy processes described by these theories simply were not evident in the cases of the EIA, SFC, and RFS2.

Similar criticisms have been voiced by other energy policy scholars, who have observed the unusual policy-making dynamics for federal alternative energy policy. The case of the SFC, in particular, has been identified as a deviant case of legislative policy-making. Patrick Hamlett called it a “counterintuitive” case because even though it was opposed by the full spectrum of interest groups, from oil companies to environmentalists. He writes, “the thrust of political pressures in the synfuels case was so strong in support

of the new technology that opponents were outmatched through the process.”⁴⁰

Mohammed Ahrari argued that “[t]he making of synfuels policy ... is a textbook study in [the] irrationalities of politics.”⁴¹ He used the SFC case to develop a “majoritarian-ambivalent” model of policy-making, in which normally ambivalent legislators, caught in the heat of a crisis, vote for policies that they would normally not support. Most recently, Peter Grossman looked at five energy crises over the 1970s-2000s to develop a model of “deflective action,” in which it is rational for legislators to vote for technological fixes, no matter how infeasible, under conditions of sustained energy shocks.⁴²

These theoretical developments are incredibly instructive, and I incorporate them into the model that I develop below. Their weakness, though, is that they focus almost entirely on the final stage of legislative politics. They gloss over the process of policy formulation, and they tend to exclude the influences of the President and interest groups. These are among the contributions of my model of crisis-driven policy-making, to which I now turn.

AN ALTERNATIVE, POLITICIAN-DRIVEN MODEL OF CHANGE

This section presents the model of “politician-driven policy-making” that led to radical policy proposals for alternative fuels after the oil shocks of the 1970s and 2000s.

⁴⁰ Hamlett, Patrick W. 1987. “Technological Policy Making in Congress: The Creation of the U.S. Synthetic Fuels Corporation.” In Ernest J. Yanarella and William C. Green, eds., *The Unfulfilled Promise of Synthetic Fuels: Technological Failure, Policy Immobilism, or Commercial Illusion*. New York: Greenwood Press, 67.

⁴¹ Ahrari, M.E. 1987. “A Paradigm of “Crisis” Decision Making: The Case of Synfuels Policy.” *British Journal of Political Science* 17(1): 74.

⁴² Grossman, Peter Z. 2012. “The Logic of Deflective Action: U.S. Energy Shocks and the US Policy Process.” *Journal of Public Policy* 32(1): 33-51.

In this model, major policy change emerges from a competition between the President and Congress to “do something big” during a sustained crisis. The story is one of radical policy formulation in the White House – often by administration staff who come from outside the energy policy subsystem – and the subsequent legitimation and institutionalization of these overambitious proposals by Congress and interest groups.

Figure 1 maps out this process of policy-making. It is initiated by a crisis (in these cases, an oil shock) and involves two reinforcing mechanisms: first, *Bidding Up*, which comprises an initial Congressional proposal, a transformative Presidential proposal, and a final Congressional response; and, second, *Signing On*, which refers to the lagged bargaining and bandwagoning of interest groups. The results can be costly and ineffective “crash programs” that no one actually wanted in the first place.

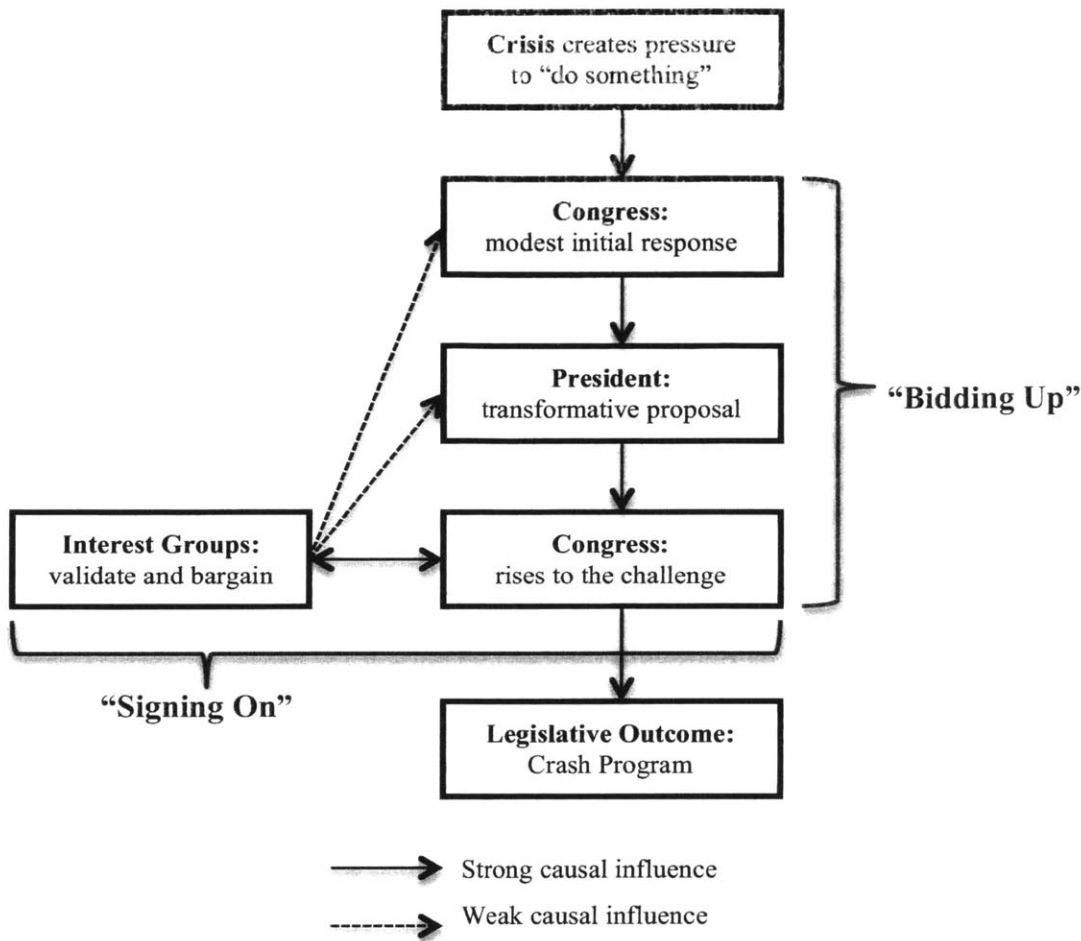


Figure 1: Politician-Driven Policy-Making

This is not a deterministic process in which initial events lead inevitably to particular outcomes. Rather, it is a potential sequence that, if sustained, can produce seemingly irrational policies. In two of the cases in this dissertation (the Synthetic Fuels Corporation and the Renewable Fuel Standard), the crisis atmosphere was sustained and the sequence was completed. In the case of the Energy Independence Administration, oil prices stabilized and the crisis atmosphere dissipated, leading Congress to ignore the President’s costly proposal.

This model shares several broad elements with the MS, PET, and ACF approaches, including exogenous shocks, issue expansion, policy streams, and

jurisdictional battles. But there are two fundamental ways in which this model departs from the orthodox policy process theories. First, regarding policy entrepreneurship, the MS, PET, and ACF models posit that major policy change happens when subsystem policy entrepreneurs opportunistically leverage crises to push for their own preferred policies. My model contends that, far from playing this kind of driving role, key interest groups can be neutralized by the crisis atmosphere. The strategic importance of the issue attracts such great attention that the channels of influence may be more closed than normal. Their influence is therefore lagged and relatively limited. They bargain to marginally adjust the legislative proposals under consideration, and in doing so they (in many cases) come to validate the politically-derived technological goals.

Second, this model takes seriously the origins of policy proposals. The dominant policy process literature disregards these micro-foundations. “Seeds come from many places,” writes John Kingdon. “Why they germinate, grow, and flourish is much more interesting than their origins.”⁴³ Frank Baumgartner and Brian Jones similarly state: “The question “Where does policy come from?” is interesting but misleading. There is usually a surfeit of policy ideas in society.”⁴⁴ What these cases show, however, is that if we want to explain specific policy outcomes – rather than just the timing of major policy change – then the sources of the policy proposals do matter. There are many policies that could have been seized upon in these crises. Neither policy instruments nor targets were predetermined. Policies are not plucked from a generic stream of ideas swirling through society; they are crafted by individuals. The presidential proposals behind the EIA, SFC, and RFS2 profoundly reflected the analytical and scientific backgrounds of the staff

⁴³ Kingdon, *Agendas, Alternatives, and Public Policies*, 77.

⁴⁴ Baumgartner and Jones, *Agendas and Instability*, 11.

members who drafted the plans. The Congressional modifications to these policies reflect specific, sequential calculations and negotiations. It can take a tremendous amount of investigative research to track down the individuals who were involved in these decisions. But doing so leads to rich – and empirically accurate – explanations of the actors and processes that drove policy outcomes.

The rest of this chapter is devoted to explaining each stage of the model in greater detail. Each mechanism is briefly described, situated in the literature, and illustrated with the cases in this dissertation. Although I inductively developed this model from my empirical research, here I seek to show how it knits together insights from many branches of the American politics and public policy literature. This includes the literature on crises and focusing events, Presidential agenda-setting, Congressional coalition-building, interest group influence, information politics and the use of policy analysis, and the politics of energy and environmental regulation.

Crisis as Catalyst

[A]lmost by definition, the important issues facing the Congress are formed by national and world affairs. Critical and controversial political decisions, furthermore, can only be made when social pressures for decision are intense. Only then can signals from the polity be adequate for evaluation of the political consequences, and only then would a prudent politician be compelled to make a hazardous choice.

- Daniel Dreyfus⁴⁵

This sequence of policy-making is initiated by a crisis that puts acute pressure on policy-makers to “do something” – and fast. The cases in this dissertation specifically involve prolonged and pronounced spikes in oil prices. “If you trace the rise of oil prices, you’ll see a direct translation into the political rush to do something,” declared a

⁴⁵ Dreyfus, Daniel A. 1976. “The Limitations of Policy Research in Congressional Decisionmaking.” *Policy Studies Journal* 3: 269-274.

government analyst who was involved in energy policy-making from the 1970s through the 2000s.⁴⁶ These price spikes differ in speed and, to some extent, complexity; the oil shocks in the 1970s developed within months and were solely focused on oil prices, while the shock in the 2000s built over years and was tied not only to energy prices but also food and corn prices. *What they have in common, though, is that these crises involve clear harms and risks that affect a wide swath of the country.* Similar crises and policy responses are likely to be found in other areas of public policy, including homeland security, financial sector stability, food safety, product safety, and environmental health.

It is important to distinguish these widespread crises from the “focusing events” that serve as the exogenous shocks in most models of policy change. Focusing events are typically more discrete, localized, and temporally bounded – for example, disasters, accidents, protests, or political events.⁴⁷ Peter Grossman called these “micro shocks.” This model instead involves “macro shocks.”⁴⁸ They may be initiated by a specific political event (e.g. the OPEC oil embargo) or natural disaster (e.g. Hurricane Katrina), but the precipitating event matters less than the subsequent large-scale and longer-term market disruptions.⁴⁹

⁴⁶ Personal communication, 1/24/12

⁴⁷ Birkland’s definition: “A focusing event is an event that is sudden; relatively uncommon; can be reasonably defined as harmful or revealing the possibility of potentially greater future harms; has harms that are concentrated in a particular geographical area or community of interest; and that is known to policy makers and the public simultaneously.” Birkland, Thomas A. 1998. “Focusing Events, Mobilization, and Agenda Setting.” *Journal of Public Policy* 18(1): 54.

⁴⁸ Grossman, “The Logic of Deflective Action.”

⁴⁹ To the extent that the market impact is mediated by historical policies, existing infrastructure, and initial public reactions, it is a fair question whether these are really the “exogenous shocks” that they are typically portrayed to be. For example, the 1979 crisis is almost everywhere portrayed as being an “oil shock” that was “caused” by the 1978 Iranian Revolution. The Revolution did, of course, lead to disruptions of oil supply. But these disruptions were short-lived, as Saudi Arabia rushed to increase its production in response. Their disproportionate crisis-level impact in the U.S. was due, at least in part, to the oil price controls that the Nixon administration had instituted in 1973, which propped up oil demand and contributed to increasing dependency on oil imports. In addition, the panicked response of consumers – topping up their tanks and so forth – greatly exacerbated what might otherwise have been a moderate disruption.

The macro scale of these crises diminishes the role of policy entrepreneurs in setting the policy agenda. As a crisis escalates, it can give rise to what Charles Jones described as a “dramatic surge of public concern” and a clamoring for government action.⁵⁰ This is what thrusts the issue onto the national agenda. It is a form of macropolitical expansion – i.e., an expansion of an issue from subsystem politics to the macropolitics of the president and congress – that is fueled by public alarm rather than by strategic issue definition and group mobilization. As oil prices rise, people get frustrated. As short-term supply shocks turn into summer gasoline lines, winter oil shortages, and painfully strained household budgets, people get downright angry and panicked. The result is grassroots demand that policy-makers take action to solve the crisis. And “a public, however indistinct and ill-informed, [has] to be satisfied.”⁵¹

Yet while the public may demand bold action, they are often agnostic about what that action should be. In surveys of voter policy preferences, for example, Patrick Egan finds that “[w]hen a status quo policy is perceived as failing to solve a serious problem, considerable numbers of voters just want change.”⁵² In a sense, this provides legitimation for policies before they are even formulated – reversing the usual sequence and giving policy-makers considerable leeway in what they choose as a policy response.⁵³ It is a dynamic that was illustrated during the 1979 energy crisis in a frank memo from Eliot Cutler of the OMB: “The frustration and uncertainty ... that has gripped

⁵⁰ Jones, Charles O. 1974. “Speculative Augmentation in Federal Air Pollution Policy-Making.” *The Journal of Politics* 36(2): 438-464. This starkly contrasts with Baumgartner and Jones’ view: “Our evidence suggests that mass mobilizations and public opinion reactions often occur late in the issue development process, after many of the most important jurisdictional battles,” such that “the opinions of the mass public often react to, rather than precede, elite-level political bargaining.” (1993, 248-249)

⁵¹ Jones, “Speculative Augmentation,” 450.

⁵² Egan, Patrick J. 2011. ““Don’t Just Stand There; Do Something!” When Ideology Yields to a Desire for Change.” Working Paper, New York University.

⁵³ Jones, “Speculative Augmentation.”

the country has produced an environment in the Congress in which any answer is an attractive one – even if it’s wrong.”⁵⁴

To summarize, policy-makers are charged to “*do something, anything*” about a crisis. What this means is that while they are pressured to act quickly and boldly, their policy response need not address the dimensions of the problem that most concern the public. In the case of energy shocks, although public concern about gasoline prices puts energy on the national agenda, and although sustained public attention is needed to carry out major energy legislation, the resulting policies did not address gasoline prices. In fact, rather than lowering consumer energy costs, the accelerated alternative fuel commercialization programs that are launched during energy crises are likely to increase costs in the short term (whether directly through higher per-gallon costs of alternative fuels or indirectly through federal program expenditures).

“Bidding Up” – Political Competition to Signal Leadership

Once a crisis heaves an issue onto the national agenda, it can set off an intense competition for leadership among the macropolitical actors. The competition cuts across multiple dimensions of governance – President v. Congress, Senate v. House, Energy Committee v. Environment Committee – regardless of partisan control.⁵⁵ When all eyes are focused on an issue, everyone wants to demonstrate their decisive leadership.

⁵⁴ Memo, Eliot Cutler to Jim McIntyre and Stu Eizenstat. June 12, 1979. “Synthetics and Energy Supply.” Stuart Eizenstat Collection, Box 286, Folder 9. Jimmy Carter Presidential Library.

⁵⁵ As Peter Grossman observes in his model of legislative response to energy shocks: “Party considerations are not entirely absent in this model ... but a striking feature of shock-induced legislation is the overwhelming support it tends to receive when the issues is still salient ... transcending party bounds” (“The Logic of Deflective Action,” 35).

This political competition can profoundly affect both the scope and scale of policy proposals. Committees craft their bills in such a way to claim jurisdiction over an issue, constraining the choice of policy instruments, regulated parties, or agency oversight. Technological fixes are favored because they are highly visible and easily understood, regardless of whether they are feasible. Targets and funding levels are chosen to score political points and are often based on back-of-the-envelope arithmetic rather than based on rigorous policy. And the scale of policy proposals can rise through incremental one-upmanship, leading in extreme cases to brazen bidding wars. Patrick Hamlett evocatively described this dynamic in the case of synfuels policy-making in 1979: “The appearance of aggressive, creative energy leadership became a political prize sought after by each house of the Congress and by the White House, in effect “bidding up” the programmatic and financial stakes of whatever energy program emerged in 1980.”

This “bidding up” mechanism is at the heart of “politician-driven policy-making.” It is this competitive dynamic – rather than demands from the public or interest groups – that generates these stunning crash programs. The bidding up process involved three major stages: (1) an initial Congressional response, (2) a transformative Presidential proposal, and (3) a final Congressional response. As a problem emerges, there are hearings and modest responses in Congress. As the crisis escalates, the White House steps in with radically ambitious proposal. And if a crisis atmosphere is sustained, Congress steps up to meet or beat those proposals (although it often tried to stretch out timelines or phase the funding as a way of compensating for excessively large programs). I now turn to explaining each of these stages in greater detail.

Congress: Initial Response

The first stage of bidding up begins in Congress. Legislators want to be seen as responsive to their constituents' concerns, and, as a shock escalates into a crisis, they gradually increase their level of response. Peter Grossman's model of "deflective action" is precisely focused on this dynamic. The name of the model reflects that "effectiveness is not nearly as important to the legislators as deflected criticism or "blame" avoidance."⁵⁶ Grossman predicts that as a crisis persists, legislators will progress through three stages of response: first, rhetorical engagement with the issue, which often involves assigning blame; second, expression of legislative intent, which may be purely symbolic; and third, legislative action. "As the outcry of constituents mounts, it is assumed that anything less than an apparently purposeful effort towards a "solution" will be difficult to defend," argues Grossman. In the case of sustained energy shocks, he posits that legislators will reach for technological fixes, "no matter how far fetched," because they have the appearance of solutions.

Grossman's model explores how electoral considerations push individual legislators to ratchet up their responses to a growing crisis.⁵⁷ Legislative decision-making is further complicated by the politics within Congress, as chambers and committees vie for jurisdiction and influence. These battles over committee jurisdiction "are about power and influence in their rawest forms. They are about property rights over public policies."⁵⁸ Numerous committees hold hearings, introduce bills, and generally try to

⁵⁶ Grossman, "The Logic of Deflective Action," 35.

⁵⁷ "[T]he legislator is facing a multi-stage game in which she plays against a potential opponent for her seat ... [and] can only surmise whether an action will be viewed negatively by constituents, and might be used against her." (Grossman, "The Logic of Deflective Action," 36.)

⁵⁸ King, David C. 1997. *Turf Wars: How Congressional Committees Claim Jurisdiction*. Chicago: University of Chicago Press, 11. On the topic of jurisdictional battles, see also: Jones, Bryan D., Frank R.

stake a claim over a salient issue – whether or not it has historically fallen under their purview. As Charles Jones explained in the case of the first oil shock, this rush to stake claims over crisis policy-making can create a scene of “confusion bordering on chaos:”⁵⁹

In Congress ... practically every committee found that it had some claim to energy policymaking ... The titles of the subcommittees speak for themselves. Whereas only three had *energy* in their titles in 1973, nine did in 1975. My count shows twenty-three committees and fifty-one subcommittees dealing with some aspect of energy by 1976.

On the one hand, this crowded scene can lead to an early “bidding up” of the policy response, because introducing a bigger proposal is one way to signal strong leadership and attract media attention. Such an initial, incremental bidding up was most apparent in the case of the Synthetic Fuels Corporation, when “synfuels fever” swept over Capitol Hill. Over May-June 1979, the Congressional proposals for synthetic fuels were bumped upwards from \$2 billion (House Banking Committee) to \$3 billion (House floor) to \$5 billion (Senate Energy Committee). On the other hand, these early increases in program size are tempered by the fact that major programs entail high costs and attract many critics. Thus, initial Congressional proposals may involve some bidding up, but the truly massive proposals came from the White House.

President: Introduces Transformative Proposal

The second stage of the bidding up mechanism is the President’s introduction of a radical policy proposal. After a flurry of Congressional hearings and proposals, the President steps in with a plan that dramatically raises the stakes of the policy response. Richard Vietor, in his longitudinal study of U.S. energy policy, observed as much when he said that “crash programs” require two conditions: “a perception of severe energy

Baumgartner, and John C. Talbert. 1993. “The Destruction of Issue Monopolies in Congress.” *American Political Science Review* 87(3): 657-71.

⁵⁹ Jones, “Introduction To The Study of Public Policy,” 104-105.

shortages and the personal commitment from a politically effective President.”⁶⁰ The importance of presidential leadership was certainly borne out in all three cases in this dissertation. The White House introduced proposals that were on the order of five to ten times as ambitious as the Congressional proposals, utterly transforming the scale of energy policy-making.

In understanding this stage of the process, there are two branches of literature that are particularly germane. These are the literatures on White House policy formulation and Presidential influence in agenda-setting. In other words, this means how the President’s legislative program is developed and how effectively it is pushed in Congress. Here I briefly discuss how these branches of scholarship relate to my theoretical model.

Understanding how the White House develops its policy proposals is critical if we want to understand the substance, rather than just the timing, of radical policy change. “The sources of policy formulation does matter,” argues Andrew Rudalevige, “for it has a bearing on the information the president receives concerning issues and options.”⁶¹ A key theme in this literature is that over the last fifty years White House policy-making has become increasingly “centralized” – i.e. brought into the direct control of the White House rather than delegated to the Cabinet.⁶² Policy development has essentially been divided into two tracks: priority policies are centralized in the White House, and ordinary policies are initiated by executive agencies and coordinated by the OMB.⁶³ Thus “the

⁶⁰ Victor, Richard H.K. 1984. *Energy Policy in America Since 1945: A Study of Business-Government Relations*. Cambridge: Cambridge University Press, 329.

⁶¹ Rudalevige, Andrew. 2002. *Managing the President's Program: Presidential Leadership and Legislative Policy Formulation*. Princeton, NJ: Princeton University Press, 3.

⁶² Edwards, George C. III and Stephen J. Wayne. 1985. *Presidential Leadership: Politics and Policy Making*. New York: St. Martin's Press; Rudalevige, “*Managing the President's Program*”; Wayne, Stephen J. 2006. “Presidential Leadership of Congress: Structures and Strategies.” In James A. Thurber, ed., *Rivals for Power: Presidential-Congressional Relations*. Lanham, MD: Rowman & Littlefield, 59-83.

⁶³ Wayne, “Presidential Leadership of Congress.”

president's chief policy aides have dominated the policy-making process ... [and they] in turn, have depended on their assistants" – at least for these priority policies.⁶⁴ The implication is that, ironically, the most pressing national policies may be coordinated and even drafted by staff without deep and substantive issue-area expertise.

This was certainly borne out in the three case studies in this dissertation. None of these programs were formulated through a formal interagency process. And it was never the energy agencies – the Energy Research and Development Administration (ERDA) under Ford, the Department of Energy (DOE) under Carter and Bush – that initiated the crash program proposals, although they were often tasked with selling them on Capitol Hill. This was true even in the Ford and Carter administrations, which had been “outspoken advocates of Cabinet government.”⁶⁵ Rather, these proposals were drafted and championed by odd corners of the administration. The EIA came from Vice President Rockefeller's office. The SFC proposal came at the last minute from entrepreneurial staff in the Domestic Policy office, the Treasury, and the OMB. The RFS2 precursor (the Alternative Fuel Standard) was developed by young staff in the Treasury and the Council of Economic Advisors and coordinated by the National Economic Council. The staff members involved in these efforts were largely lawyers and economists who were under the gun to come up with a dramatic alternative fuels program. Although they consulted with energy experts, they were not themselves energy experts. This likely contributed to an unwarranted optimism about the prospects of new fuel technologies, as well as a focus on providing financing and market incentives rather than removing infrastructural and technical barriers to commercialization.

⁶⁴ Edwards and Wayne, “*Presidential Leadership*,” 258.

⁶⁵ Rudalevige, “*Managing the President's Program*,” 50.

After policy formulation, the second relevant branch of literature relates to the president's agenda-setting influence in Congress. By this stage of "bidding up," we are of course talking about policy formulation, not simply agenda-setting. But this literature remains highly relevant because these two processes are often deeply intertwined during a crisis. Problems and solutions are worked out simultaneously. Thus, when the president announces a crash program, he is making a statement about the scale of the crisis as well as the appropriate policy response.

On the one hand, the conventional wisdom has been that the president is the most significant actor in setting the national policy-making agenda. Baumgartner and Jones conclude that "no other single actor can focus attention as clearly, or change the motivations of such a great number of other actors, as the president."⁶⁶ The president's influence is especially pronounced during a national crisis, which may be due to the "rally round the flag" effect.⁶⁷ This influence can extend beyond setting the agenda to setting the precedent for policy proposals: "It seems clear ... that the president's legislative initiatives almost invariably receive congressional attention and agenda space – and that the scope and content of the president's program will frequently form the backbone of national policy debate(s)."⁶⁸

On the other hand, many scholars have pointed out that the president's agenda-setting influence is constrained by several factors, including Congress's prior agenda.⁶⁹

Ashlie Delshad's research is particularly compelling. In a study of agenda-setting on

⁶⁶ Baumgartner and Jones, "Agendas and Instability," 241.

⁶⁷ Wayne, "Presidential Leadership."

⁶⁸ Rudalevige, "Managing the President's Program," 3.

⁶⁹ Edwards, George C. III and Andrew Barrett. 1998. "Presidential Agenda Setting in Congress." Paper presented at the annual meeting of the American Political Science Association, Boston; Edwards, George C. III and B. Dan Wood. 1999. "Who Influences Whom? The President, Congress, and the Media." *The American Political Science Review* 93(2): 327-344; Eshbaugh-Soha, M. 2005. "The Politics of Presidential Agendas." *Political Research Quarterly* 58(2): 257-68.

biofuels, she shows that the president's apparent effect on the Congressional agenda is eliminated by including exogenous factors (corn and food prices) and public salience in the model.⁷⁰ Indeed, in line with her findings, alternative fuels were thrust on the agenda in these cases by exogenous crises and public alarm.

To summarize this stage of bidding up: the President's proposal transforms the scale of the policy response. The literature on White House policy formulation suggests that crisis policies will be formulated by the president's policy advisors and their staff rather than by experts in the agencies – and indeed, that is what came to pass. My own assertion is that this is partly responsible for the massively overambitious technological goals. The take-aways from the literature on presidential influence in Congress do not apply quite as clearly. The crisis and public pressure are what put energy and alternative fuels onto the national agenda. Nevertheless, the president's singular ability to focus attention and define the terms of the policy debate was evident.

Congress: Rises to the Presidential Challenge

The third stage of the bidding up mechanism is Congress's response to the president. If the crisis has stabilized, then Congress will not carry through with a large, costly policy response. This is what happened in the case of the EIA. But if the crisis is sustained, then Congress mobilizes to meet – or even beat – the President's proposal. Rather than rejecting the expensive and technologically ambitious goals set by the President, Congress institutionalizes them.

⁷⁰ Delshad, Ashlie B. 2012. "Revisiting "Who Influences Whom?" Agenda Setting on Biofuels." *Congress & The Presidency* 39(2): 177-198.

In exploring this stage of bidding up, it is instructive to return to Grossman's model of legislative behavior during crisis. Ultimately, his model explains why the conditions of sustained crisis make it rational for a legislator to support seemingly irrational policies. If a legislator "does not agree to radical policies that others are advancing at a time of crisis, she will be perceived as not doing enough, and, as a consequence, she will risk losing votes to someone who will advocate for such a solution."⁷¹ Mohammed Ahrari made similar observations in his model of "ambivalent-majoritarianism," which was developed from the case of the Synthetic Fuels Corporation:

According to this paradigm, decision making under crisis conditions involving a domestic policy is made by a larger-than-usual (i.e., a crisis) coalition of legislators. The policy formulated by this coalition is quite controversial and might not have been passed under 'normal' conditions. The crisis coalition comprises legislators who remained ambivalent about the correctness, feasibility, and even rationality of this policy, but voted for it only as a response to a crisis.⁷²

This does not mean, of course, that this happens without a fight. The crash energy programs in this dissertation were tremendously controversial, and Congress did push back on the scale of the goals by phasing the funding or extending the timelines by several years. For example, in the SFC case, President Carter proposed an \$88 billion program and Congress passed a phased \$88 billion program, with only the first \$20 billion phase actually authorized. In the RFS case, President Bush proposed a 35 billion gallon program over 10 years and Congress passed a 36 billion gallon program over 15 years. Numerous other modifications were also added as the proposals worked their way through Congress, sometimes at the behest of interest groups, sometimes to build coalitional support. Nevertheless, while these changes had significant regulatory

⁷¹ Grossman, "The Logic of Deflective Action," 42.

⁷² Ahrari, "A Paradigm."

implications, politically they went under the public radar. *The key point is that the high level quantitative goals were met or exceeded.*

“Signing On”- Building Support

The model thus far has proceeded through the intertwined stages of agenda-setting, policy formulation, and (partly) policy legitimation with nary a mention of interest groups. The reason is simple: during a deepening national crisis, interest groups do not play a significant role in identifying problems and proposing solutions. They do, however, marginally influence policy-making by bargaining, lobbying, and providing technical information to legislators during the final stage of “bidding up.” Similarly, Congressional groups also engage in negotiating and cutting deals to get their interests represented. The basic idea is that the Congressional leadership will make concessions in order to get these various groups to “sign on” to the overall legislation.

This lagged, supporting mechanism is the topic of this section, and I will review its application to both interest groups and Congressional groups. There are two takeaways to highlight. First, although this bargaining can profoundly affect the financial and environmental impact of legislation, it does not appear to affect the high-level goals. The President’s proposal continues to set a powerful precedent. Second, the policy preferences of interest groups and their ‘patrons’ in Congress are not always the same. Environmentalist members of Congress do not always have the same priorities as environmental groups. Coal-state members do not always have the same priorities as the coal industry. Thus, the influence of a Congressional constituency does not always represent the indirect influence of related interest groups.

Interest Groups: Bargaining and Validating

Crises are portrayed by the policy process literature as creating tremendous opportunities for policy entrepreneurs, including interest groups. These opportunities are presumed to be largely concentrated in early stages of policy-making (agenda-setting and policy formulation). The cases in this dissertation, however, suggest quite the opposite. Crises catalyze a policy-making process in which interest group influence is heavily dampened, not strengthened. Moreover, the influence that does occur is relegated to the latter stages of policy-making, when legislation is marginally adjusted to secure votes.

This finding, while contrary to the policy process literature, is consistent with the interest group literature, which contends that crises tend to reduce interest group influence. During a period of crisis, the public is attentive and engaged, the issue has high salience and visibility, and policy debates turn on broad national concerns instead of narrow technical questions. These are precisely the conditions that minimize interest group influence in Congress.⁷³ R. Douglas Arnold explains that legislators will tilt their attention towards constituents' demands rather than interest groups when an issue's "general ... benefits are ... salient to substantial numbers of constituents."⁷⁴ Moreover, the acceleration of decision-making, combined with the rush of new actors into an issue-area, means that all groups have less access to and time with legislators.⁷⁵ And with more committees staking claims on an issue, there are even more legislators to gain access to –

⁷³ For an authoritative if slightly outdated review, see: Smith, Richard S. 1995. "Interest Group Influence in the U.S. Congress." *Legislative Studies Quarterly* 20(1): 89-139. For more on the role of public awareness and salience during crises, see: Schattschneider, Elmer E. 1960. *The Semisovereign People: A Realist's View of Democracy in America*. New York: Holt, Rinehart, and Winston; Arnold, R. Douglas. 1992. *The Logic of Congressional Action*. New Haven: Yale University Press; Rauch, Jonathan. 1994. *Demosclerosis: The Silent Killer of American Government*. New York: Public Affairs.

⁷⁴ Arnold, *The Logic of Congressional Action*, 142

⁷⁵ Berry, Glyn R. 1974. "The Oil Lobby and the Energy Crisis." *Canadian Public Administration* 17: 600-635.

many of whom do not ordinarily work on the topic. This creates an organizational challenge and stretches groups thin at a time when they might be struggling to react quickly in the wake of a crisis.⁷⁶ Interest groups that are publicly blamed for a crisis, such as the oil industry during oil shocks, may find themselves particularly marginalized. In sum, not only do interest groups have less access to public officials, but they are also likely to receive less preferential treatment when an issue has high public salience.

Interest groups influence is thus dampened during a crisis. The mega-proposals are instead initiated by the President and bid up by Congress. Once these proposals are on the table, though, interest groups do have a chance to respond in several possible ways. One line of response is outright opposition. For example, the oil industry adamantly opposed all three programs in this dissertation, while environmental groups steadfastly opposed the 1970s synfuels policies. (Conceivably, groups could similarly respond with enthusiastic support, although none of the case in this dissertation exhibit this. These programs, when first proposed, were generally unpopular with business and environmental interests alike. Even the industries that would benefit from subsidized commercialization programs had reservations about the speed and scale of these policies, as well as their scope of governmental intervention in the market).

Second, a more common response was bargaining and eventual bandwagoning. Interest and advocacy groups sought to protect their interests and push their agenda as best they could *given the proposals in Congress*. This contingent strategizing brings to mind John Chubb's unorthodox assertion that interest group behavior should be thought of as a dependent variable:

⁷⁶ Schlozman, Kay Lehman and John T. Tierney. 1986. *Organized Interests and American Democracy*. New York: Harper & Row.

Interest group activity should *not* be the exogenous variable in explanations of policy making. The equation should be reversed; the theoretical table should be turned. The influence of private interests should be studied as a dependent variable; the policy needs of the government and the actions of the administration in pursuit of them should become the primary explanatory candidate.⁷⁷

Chubb's argument was developed in the context of energy policymaking in the 1970s, although it applied to bureaucratic rather than legislative policymaking. It raises a critical question: why did groups come to support the legislation despite initial reservations? Some groups reluctantly supported the legislation because they wanted to maintain relationships with members of Congress who supported it. For example, in the case of the SFC, many coal companies were initially wary of crash synfuels programs due to concerns about the volatility and strain it could introduce into coal markets, but they felt they had to support it because coal-state members were supportive. Other groups endorsed policies that they had previously opposed once they negotiated a provision that protected an interest or could otherwise be counted as a different victory. For example, in the case of the RFS2, many environmental groups opposed volumetric mandates and advocated for performance-based standards, but they signed onto the RFS2 legislation after greenhouse gas thresholds were added into the biofuels definitions. The overall mandate was not what they wanted, but since this was the first EPA regulation based on lifecycle greenhouse gas analyses, it was a narrow victory in that respect.

The third way that interest groups can seek to sway policy outcomes is through the provision of scientific and technical information. Specifically, this means assuring legislators that the technology is "ready" and that the production targets are "achievable." In fact, the advanced fuel technologies (synfuels in the 1970s and cellulosic ethanol in the 2000s) had never been commercialized in the U.S., and the politically-derived targets

⁷⁷ Chubb, John E. 1983. *Interest Groups and the Bureaucracy: The Politics of Energy*. Stanford, CA: Stanford University Press, 13.

were outrageously over-ambitious. But undaunted by a lack of empirical evidence, industry continued to give hearty assurances and legitimate the goals.

Interestingly, these assurances were offered sometimes to support the crash programs and sometimes to try to fend them off. An example of the former is that cellulosic ethanol companies overpromised on their technology in order to lock in a mandated market through the RFS. An example of the latter is that oil companies bragged about their synfuels technology to make the point that they could reach commercialization without the SFC. In both cases, though, when there were legislators who were trying to assess whether the goals were realistically (or even conceivably) achievable, these assurances served to validate the politically-derived targets.

Congress: Adjustments to Get the Votes

The mechanism of “signing on” refers both to interest groups and to minority Congressional groups. The inducements offered to members of Congress included adjustments in the text of the alternative fuel legislation— changes in definitions of the fuels, in environmental protections, in sourcing requirements, etc. — as well as funding for additional programs. In the case of the SFC, seven titles were added to the legislation with funding for conservation, solar energy, geothermal energy, and more as a means of building broad-based support for the bill. In the case of the RFS2, Congress “greened” the President’s plan (focusing on biofuels, adding sub-mandates for cellulosic ethanol and biodiesel, redefining sustainable biomass, and adding greenhouse gas thresholds) while simultaneously weakening the mandate (replacing the President’s economic safety valve with an EPA waiver, grandfathering in existing corn ethanol plants). Each of these

modifications had significant implications for the program's impact, although they did not change the headline targets of the programs.

Some have interpreted these modifications as indirect lines of interest group influence. But one of the interesting themes that came out of my interviews was that members' policy priorities did not always perfectly align with the parallel interest groups' priorities. Coal-state members of Congress in the late 1970s were far more supportive of a crash synfuels program than the coal industry, which was already struggling to keep up with demand from the utility sector. Environmentalist members of congress in the 2000s were far more fixated on cellulosic ethanol than the environmental groups, which were advocating for greenhouse gas standards rather than feedstock standards. But as lobbyists from both the coal and ethanol industries told me, "it's hard to say no" when a friend in Congress thinks they're doing you a favor.

Policy Outcomes: Ineffective Crash Programs

The mechanisms of "bidding up" and "signing on" ultimately lead to unrealistically ambitious programs – such as the \$88 billion SFC or the 36 billion gallon RFS2 – that no one wanted at the outset. The scale of the programs is pushed upwards by competitive political pressures, not by purposeful policy entrepreneurship or rational policy analysis. The technological goals and timelines of these programs are vastly over-optimistic. Indeed, although analysis of policy implementation is beyond the scope of this dissertation, it is worth noting that these programs have fallen far short of their objectives. The SFC was ignominiously de-funded in the mid-1980s without producing a single gallon of synthetic crude. As for the RFS2, it is still early in its implementation,

but the mandate for cellulosic ethanol has been slashed by up to 97% every year because cellulosic ethanol is still not commercially feasible.

One of the unfortunate dynamic effects of these ‘crash programs’ is that because there is so much overpromising on the commercial readiness of a technology during Congressional policy-making, the programs may not adequately address the barriers to commercialization. When interest groups promise that a technology is “ready,” then many other innovation policies are allowed to fall off the table. In the short term, the resulting programs do not address the full array of infrastructural, scientific, and market challenges or bottlenecks faced by emerging energy technologies. In the long term, there may be political fall-out from the perception that the commercialization effort was a failure. It may tarnish the reputation of a potentially promising energy technology, which can have a chilling effect on future investment and government policy. In the clear words of John Deutch: “Unrealistic goals inevitably are reversed or ignored and make the public ever more cynical.”⁷⁸

CONTRIBUTION

This chapter has mapped out a sequence of political mechanisms that can lead to radical policy change in the wake of a sustained national crisis. In particular, it shows how the competition for leadership between the White House and Congress can lead to a bidding up of policy proposal and a subsequent legitimation by interest groups. The result is a vastly overambitious program, at a scale beyond what anyone originally thought was desirable or achievable.

⁷⁸ Deutch, John M. 2011. *The Crisis in Energy Policy*. Cambridge, MA: Harvard University Press, 15.

This model of “politician-driven policy-making” is a novel contribution to the literature on the policy process, particularly with regards to the drivers and decision-making sequences that lead to radical policy change. It is a pathway of policy change that has not previously been articulated in this comprehensive way. Scholars have used these anomalous cases to identify isolated pieces of the process: Vietor pointed out the importance of Presidential initiative; Hamlett and Willis described some of the ‘bidding up’ competition between the President and Congress; and Grossman and Ahrari theorized about Congressional coalition-building after a crisis. But this is the first model that integrates these insights, while also building on them with observations about Presidential policy-formulation and lagged interest group influence.

CHAPTER 3: METHODOLOGY

And this is where the central challenge lies: moving from a shapeless data spaghetti towards some kind of theoretical understanding

- Ann Langley⁷⁹

INTRODUCTION

In the last chapter, I described the “puzzle” at the heart of this dissertation: major policies that emerged without major advocates. Students of political science are often counseled to start their research with these empirical puzzles, precisely because deviant cases, empirical anomalies, and unexpected outcomes are rich territory for theory development. Yet the unfortunate truth is that we as a discipline provide students with startlingly little guidance on how to actually go about building theory from case studies. This chapter describes the methodology that I adopted for this purpose. I show how traditional qualitative political science methods (process-tracing and small-N comparisons) can be incorporated into a dynamic, inductive discovery process that iterates between sampling, analysis, and theory-development. This research strategy is not appropriate for all questions and topics, but it is invaluable for explaining empirical puzzles, identifying omitted variables, and tracing complex causal mechanisms.

Although political scientists widely acknowledge these valuable contributions of inductive research – “Inductive field research methods typically lie behind every newly identified variable,” write George and Bennett – the nuts-and-bolts of how to actually do it is rarely discussed. Within the process-tracing literature, for example, Derek Beach and Rasmus Brun Pedersen have recently and pointedly stated: “this inductive, theory-building variant of [process-tracing] is surprisingly neglected, *with to our knowledge no*

⁷⁹ Langley, Ann. 1999. “Strategies for Theorizing from Process Data.” *The Academy of Management Review* 24(4): 691-710.

attempts having been made to show how it is actually done in practice.”⁸⁰ Andrew Bennett and Jeffrey Checkel make a similar critique, observing that “a buzzword problem has arisen, where process tracing is mentioned, but often with little thought or explication of how it works in practice.”⁸¹ On case studies more broadly, Timothy McKeown observed, “a philosophy of science that took seriously the task of prescribing wise practices for constructing theories would be quite refreshing and genuinely helpful.”⁸² Clearly, students of political science have been left with little guidance on how to actually use case studies for theory development.

This is an enormous and unfortunate gap, as the leap from raw data to theory is often far from self-evident. Consequently, in building myself a sturdier foundation for research methods, I scavenged building blocks from other branches of social science inquiry. From the literature on grounded theory – particularly the original, more positivist variant – I drew insights about the constant back-and-forth between data collection and theory development, the emergent nature of research design, the importance of theoretical sampling, and the concept of validity as “adherence to evidence” (all of which will be explained later). From the literature on case studies in management and organizational processes, I picked up an attentiveness to “events” within

⁸⁰ Quoted with permission, with emphasis added, from: Beach, Derek and Rasmus Brun Pedersen. 2011. “What is Process Tracing Actually Tracing? The Three Variants of Process Tracing Methods and their Uses and Limitations.” Paper presented at the American Political Science Association annual meeting, September 1-4, 2011, Seattle, WA, 16. (Note: This paper essentially forms the first chapter in Beach and Pedersen’s forthcoming book, *Process Tracing Methods: Foundations and Guidelines*)

⁸¹ Bennett, Andrew and Jeffrey T. Checkel. February 2012. “Process Tracing: From Philosophical Roots to Best Practices.” Working paper. (Note: This paper will form the first chapter in Bennett and Checkel’s forthcoming book, *Process Tracing in the Social Sciences: From Metaphor to Analytic Tool*.)

⁸² McKeown, Timothy J. 2004. “Case Studies and the Limit of the Quantitative Worldview.” In David Collier and Henry Brady, eds., *Rethinking Social Inquiry: Diverse Tools, Shared Standards*. Lanham, MD: Rowman & Littlefield, 162.

a decision-making sequence. From political sociology, I appropriated the idea of comparing historical cases by looking at them as iterations of societal problem-solving.

This methodological bricolage stays mostly within the bounds of positivist political science.⁸³ I am, after all, conducting within-case process-tracing and cross-case comparisons for the purpose of developing “middle-range” theories of a policy process. However, I embed these conventional methods and goals in a less conventional, interpretivist-inflected research strategy. The word “strategy” is the first signal that my focus is the dynamic process of discovery – leading in the end to a set of cases and observations with strong causal inferences – rather than the rigid *a priori* identification of a research design. I believe that this strategy may be particularly helpful for political science graduate students, who are encouraged to venture into unexplored empirical and theoretical terrain but not given the methodological tools to map and make sense of what they find.

This introductory section has sketched out the outline of my approach. The rest of the chapter explains this approach in greater depth. First, I review the qualitative methods toolbox that I began with from political science: process-tracing and small-N case comparisons. Second, I explain how these fit into my strategy for developing theory from historical cases, which draws heavily on the epistemological – though not the strict

⁸³ To be more accurate, within the philosophy of science this should be characterized as post-positivism. It is standard within political science to speak of positivism, but classical positivism fell out of favor in the late 1960s and 1970s. Post-positivism pursues objective, accurate, and verifiable truths, but it is tempered by an acknowledgement of the limits of human knowledge – as exemplified by the writings of Karl Popper and Thomas Kuhn. As D.C. Phillips argued some twenty years ago: “the term *positivist* ... has ceased to have any useful function – those philosophers to whom the term accurately applies have long since shuffled off this mortal coil, while any living social scientists who ... bandy the term about ... are so confused about what it means that, while the word is full of sound and fury, it signifies nothing.” Phillips, D.C. 1992. *The Expanded Social Scientist's Bestiary: A Guide to Fabled Threats To, and Defenses of, Naturalistic Social Science*. New York: Pergamon.

methodological – approaches of grounded theory and naturalistic inquiry⁸⁴. Third, I review the research design of this dissertation: research questions, case selection, data sources, and data quality issues. Lastly, I conclude with a reflection on the difference between how knowledge is produced and how it is presented within qualitative political science dissertations.

RESEARCH METHODS: PROCESS-TRACING & CROSS-CASE COMPARISONS

My research investigates a policy-making process. It bundles together a series of open-ended, atheoretical questions that are the starting point for inquiry: How were these policy proposals created, negotiated, manipulated, and legitimated? What was the role of different actors (the White House, Congress, federal agencies, interest groups)? When, why, and how did these actors get involved? How and when did they exert influence over the evolving policy proposals? How was their influence mediated and constrained by institutions environment? How was scientific knowledge incorporated into the creation, evaluation, and legitimation of the policy proposals?

In investigating these kinds of causal processes, the political science qualitative methods literature emphasizes a combination of *process-tracing* (which yields inference about causal mechanisms) and controlled *cross-case comparison* (which underlies

⁸⁴ Here I use the term “naturalistic inquiry” to refer specifically to the methodology laid out by Lincoln and Guba in their seminal book on qualitative methods, *Naturalistic Inquiry*. This is not a book that is familiar to most political science students, but it has been widely influential in other social science traditions. Political science students may find it interesting that it has been cited over 28,000 times, which is six times the rate of King, Keohane, and Verba’s *Designing Social Inquiry*. See: Lincoln, Yvonne S., & Guba, Egon. 1985. *Naturalistic Inquiry*. Beverly Hills, CA: Sage; King, Gary, Robert Keohane, and Sidney Verba. 1994. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton, NJ: Princeton University Press.

concept formation and generalization).⁸⁵ This section reviews these two methods, explaining how they are typically operationalized within political science and why this is lacking in guidance for theory-building research. The next section will explain how I incorporated these methods into a more dynamic research strategy.

Process-Tracing

Process-tracing involves the identification of a causal chain of events within a single historical case. While this may appear intuitive, the methodological emphasis of the process-tracing literature has shifted dramatically over time, and even now is in the midst of another wave of refinement. Before explaining how I approached process-tracing within my research, it is useful to provide the context of how process-tracing methodology has evolved.

The concept of process-tracing was originally developed in the field of cognitive psychology. Alexander George brought the concept into political science in the late 1970s, and his early formulations retained a focus on the complex psychological and attentional aspects of political decision-making.⁸⁶ But in the late 1990s and early 2000s, in the wake of Gary King, Robert Keohane, and Sidney Verba's (KKV) aggressive

⁸⁵ George, Alexander L. and Bennett, Andrew. 2005. *Case Studies and Theory Development in the Social Sciences*. Cambridge, MA: The MIT Press, ix: "we emphasize that qualitative research usually involves a combination of cross-case comparisons and within-case analysis using the methods of congruence testing and process-tracing"; Collier, Brady and Henry E. Brady and Jason Seawright. 2011. "Introduction to the Second Edition: A Sea Change in Political Methodology." In Brady and Collier, *Rethinking Social Inquiry*, 10: "[the] small-N comparative approach is truly invaluable in concept formation and in formulating explanatory ideas. ... It is much weaker as a basis for causal inference ... Rather, as is well-known, the key step is to juxtapose this comparative framing with carefully-executed analysis carried out within the cases."

⁸⁶ E.g. George and McKeown's 1985 definition: "The process-tracing approach attempts to uncover what stimuli the actors attend to; the decision process that makes use of these stimuli to arrive at decisions; the actual behavior that then occurs; the effect of various institutional arrangements on attention, processing, and behavior; and the effect of other variables of interest on attention, processing, and behavior." George, Alexander L. and Timothy J. McKeown. 1985. "Case Studies and Theories of Organizational Decision Making." *Advances in Information Processing in Organizations* 2: 35.

emphasis on statistical modes of inference in qualitative research, process-tracing was recast in more narrowly positivist terms.⁸⁷ As a counterpoint to KKV's focus on quantifying causal effects, process-tracing was presented as a scientific means of identifying causal mechanisms. It was redefined in terms of variables: "[process-tracing] attempts to identify the intervening causal process ... between an independent variable (or variables) and the outcome of the dependent variables".⁸⁸ In several major texts, including Brady and Collier's *Rethinking Social Inquiry*, process-tracing was redefined solely in terms of deductive hypothesis-testing. Specifically, this meant constructing precise tests (e.g. Van Evera's four tests: hoop, straw in the wind, smoking gun, doubly decisive⁸⁹) in which "diagnostic" evidence could support or falsify causal hypotheses. In Andrew Bennett's formulation:

Process tracing involves the examination of "diagnostic" pieces of evidence within a case that contribute to supporting or overturning alternative explanatory hypotheses. A central concern is with sequences or mechanisms in the unfolding of hypothesized causal processes. The researcher looks for the observable implications of hypothesized explanations.⁹⁰

A minority of methodological texts from this period acknowledged that process-tracing could also be used for inductive theory-development – but these were cursory

⁸⁷ The canonical qualitative methods texts from this period – Alexander George and Andrew Bennett's *Case Studies and Theory Development in the Social Sciences* and Henry Brady and David Collier (eds.) *Rethinking Social Inquiry* – offer explicit and excellently argued rebuttals to KKV. But in seeking to challenge KKV on its own terms, they advanced qualitative research methods that emphasized causal inference above all other considerations, and that were cast in the positivist terms of dependent and independent variables (as opposed to less probabilistically-oriented terms, such as conditions and outcomes), internal and external validity (as opposed to accuracy and generalizability), etc.

⁸⁸ George and Bennett. *Case Studies and Theory Development*, 206.

⁸⁹ These four tests were originally described by Stephen Van Evera, and were later elaborated by Andrew Bennett (who connected them with tests of necessity and sufficiency) and David Collier. See: Van Evera, Stephen. 1997. *Guide to Methods for Students of Political Science*. Ithaca, NY: Cornell University Press; Bennett, Andrew. 2011. "Process Tracing and Causal Inference." In Brady and Collier. *Rethinking Social Inquiry*; Collier, David. 2011. "Understanding Process Tracing." *PS: Political Science and Politics* 44(4): 823-30.

⁹⁰ Bennett, "Process Tracing and Causal Inference," 208.

mentions.⁹¹ For example, Van Evera's explanation for how to create theory via process-tracing (which was actually the clearest guidance I could find) read in its entirety: "The investigator traces backward the causal process that produces the case outcome, at each stage inferring from the context what caused each cause. If this backward process-trace succeeds, it leads the investigator back to a prime cause."⁹²

I found this insufficiently instructive. And apparently I was not alone; in what Mahoney has called the "post-KKV era," it appears that the methodology of process-tracing is being revisited and fleshed out more thoroughly.⁹³ There are two current developments that merit particular mention. First, Beach and Pedersen's forthcoming book, *Process Tracing Methods: Foundations and Guidelines*, differentiates between three variants of process tracing: theory testing, theory building, and explaining outcomes. They argue that while all three variants share core ontological assumptions ("deterministic theorization, the use of Bayesian logic to make within-case inferences... and a mechanistic understanding of causation"), they have different implications for sampling, analysis, causal inference, and generalizability.

Second, Bennett and Checkel's forthcoming book, *Process Tracing in the Social Sciences: From Metaphor to Analytic Tool*, lays out criteria for evaluating the quality of process tracing. It is noteworthy that their new definition of process tracing – "the analysis of evidence on processes, sequences, and conjectures of events within a case for

⁹¹ e.g. Mahoney's discussion of process-tracing gives a nod towards theory-development but focuses on hypothesis testing, explaining that it's "less understood." I found this statement to be a curious assessment, given the paucity of methodological literature on inductive process-tracing. I think it reflects Colin Elman's observation about "ubiquity and indifference" – i.e. the ubiquity of qualitative methods belies their lack of serious methodological grounding. See: Mahoney, James. 2010. "After KKV: The New Methodology of Qualitative Research", *World Politics* 62(1): 120-147; Elman, Colin. 2005. "Explanatory Typologies in Qualitative Studies of International Politics." *International Organization* 59(2): 292.

⁹² Van Evera, *Guide to Methods for Students of Political Science*, 70.

⁹³ Mahoney, "After KKV."

the purpose of either developing or testing hypotheses about causal mechanisms that might causally explain the case” – consciously drops the intervening variable framing and expands from hypothesis-testing to theory-building. These two new books promise to be significant steps forward for the practice of process-tracing. My own approach, which I independently developed several years earlier, goes in a slightly different direction, but I think it productively engages with the critiques they raise.

To summarize: process-tracing is an attempt to identify the causal steps within a single case. There are aspects of this methodological approach that I found compelling, and which I adhered to in my own research: the focus on causal mechanisms, the attentiveness to sequence, and the emphasis on “diagnostic” pieces of evidence. However, the literature’s dominant focus on deductive hypothesis-testing meant that I had to fold these features into a different strategy of inquiry.

Small-N Case Comparison

The mainstream qualitative methods literature often emphasizes the coupling of process-tracing and small-N comparisons. The two methods are seen as providing complementary sources of inference: process-tracing for identifying and evaluating causal mechanisms, and case comparisons for advancing contingently generalizable explanations in terms of analytical concepts. For small-N comparisons, the inferential leverage is derived from how the cases are structured in the research design. The methodological literature emphasizes that case comparisons be tightly constructed in order to control and isolate variables (for example, J.S. Mill’s methods of agreement and difference, George and Bennett’s “structured, focused comparisons,” and least and most

likely case selection). To borrow a term from Thad Dunning, this constitutes “design-based inference.”⁹⁴ Case selection becomes the overriding methodological concerns; data analysis and interpretation are treated as mechanistic.

There is an enormous challenge, however, in applying the same rules of design to theory-building research. When a researcher is seeking to identify omitted variables, causal pathways, and scope conditions, the *a priori* determination of cases, concepts, and variables may be neither feasible nor desirable. For these purposes, then, how should cases be selected? And how should within-case and cross-case analysis be sequenced? The literature provides no systematic guidance. To the contrary, as noted by Collier, Brady, and Seawright: “A careful explanation of the specific pathways in which field research produces theoretical insights would represent a genuine contribution to social science methodology.”⁹⁵

That said, the literature does offer fragmented suggestions for theory-building from cases. One line of guidance comes from the rebuttals to KKV. The rigid rules of research design that were laid down by KKV (e.g. don’t select on the dependent variable, don’t pick cases with low or no variance, don’t use the same cases to derive and test theories, etc.) were single-mindedly focused on theory-testing.⁹⁶ Post-KKV methodologists have vigorously pointed out that these rules do not always apply to

⁹⁴ Dunning, Thad. 2010. “Design-Based Inference: Beyond the Pitfalls of Regression Analysis?” In Brady and Collier. *Rethinking Social Inquiry*, 273-311.

⁹⁵ Collier, David and Henry E. Brady and Jason Seawright. 2011. “Critiques, Responses, and Trade-Offs: Drawing Together the Debate.” In Brady and Collier, *Rethinking Social Inquiry*, 131. Note: given the context of this quote, I take “field research” to refer broadly to original, empirical data collection.

⁹⁶ “Our book is about doing empirical research designed to evaluate theories and learn about the world – to make inferences—not about generating theories to evaluate,” King, Keohane, and Verba reflected in a later essay. “If ... our single-mindedness in driving home this argument led us implicitly to downgrade the importance of such matters as concept formation and theory creation in political science, this was not our intention.” 115.

research that aims at identifying omitted variables, explaining deviant cases, and illuminating new areas of empirical inquiry. For example:

- *Selection on the dependent variable*: “in the early stages of a research program, selection on the dependent variable can serve the heuristic purpose of identifying the potential causal paths and variables leading to the dependent variable of interest.”⁹⁷
- *Comparisons across cases with no variation in the dependent variable*: “a no-variance or “low-variance” research design ... can be a good choice in a research domain where basic descriptive information is lacking, and a scholar is using within-case analysis to unearth new information.”⁹⁸
- *Modifying and testing theories on the same cases*: “In a general way all research relies on feedback from empirical work to modify theory and to redirect subsequent inquiry. Yet in case-study designs the feedback loop often operates within the case as well.”⁹⁹

These rebuttals get us part way in defining an alternative research design for theory-building through comparative cases. They suggest (broadly) that a researcher could choose cases based on outcomes of interest, conduct process-tracing to identify variables and causal mechanisms, and compare across cases with similar outcomes. But this is a license, not a manual. These fragments of guidance do not constitute a comprehensive research strategy. How many cases do you need, and how do you decide? Which cases do you start with? How much of the research design should be specified *a*

⁹⁷ George and Bennett, *Case Studies and Theory Development*, 23.

⁹⁸ Collier, Brady, and Seawright, “Critiques, Responses, and Trade-Offs,” 155.

⁹⁹ McKeown, “Case Studies and the Limit of the Quantitative Worldview,” 164.

priori? How should the cases fit together (i.e., do they need to have equal weight in theory-development)? What's the balance and sequencing of within-case analysis and cross-case analysis? What's the relationship between inductive and deductive stages within theory-building? The narrow rebuttals to KKV's rules of case selection do not explore these methodological issues in depth.

A second line of partial guidance comes from the literature on concept formation¹⁰⁰ and typological theorizing.¹⁰¹ Theory-development does not, of course, always involve concept or typology development. For example, this dissertation focuses on identifying previously overlooked causal pathways. But I will highlight two insights from the concept formation literature that I think apply to all theory-building research. One point regards the deeply intertwined relationship between deduction and induction. As John Gerring summarizes, "all deductive approaches to measurement contain an inductive component, and all inductive approaches to measurement contain a deductive component."¹⁰² A second point regards the process of discovery. To quote John Gerring again, concept formation is a "dynamic process" that "owes more to art than to rote technique."¹⁰³ This is similarly reflected in Timothy McKeown's statement that "what guides research is not logic but craftsmanship."¹⁰⁴ That theory-building combines multiple processes – induction, deduction, and creativity – cannot be emphasized enough

¹⁰⁰ e.g., Gerring, John. 1999. "What Makes a Concept Good? A Criterial Framework for Understanding Concept Formation in the Social Sciences." *Polity* 31(3): 357-393; Gerring, John. 2011. *Social Science Methodology: A Unified Framework*. Cambridge: Cambridge University Press.

¹⁰¹ e.g., Lazarsfeld, Paul F. and Barton, Allen H. 1965. "Qualitative Measurement in the Social Sciences: Classification, Typologies, and Indices. In *The Policy Sciences*, ed. Daniel Lerner and Harold S. Laswell. Stanford, CA: Stanford University Press.; Elman, Colin. "Explanatory Typologies in Qualitative Studies of International Politics"

¹⁰² Gerring, John. *Social Science Methodology*, p. 174

¹⁰³ Gerring, John. "What Makes a Concept Good?" p. 389-390.

¹⁰⁴ McKeown, in this passage, was referring specifically to the interpretation of quantitative models. But his point was that even in the most statistically rigorous strains of social science research, i.e. hypothesis-testing using large-N regressions, the nature of research involves craftsmanship, creativity, and common sense rather than pure mechanistic logic.

to students of political science.¹⁰⁵ The iteration of these processes is at the core of my research strategy.

A third line of guidance for theory-building comes from Timothy McKeown's discussion of "folk Bayesian" approaches. The basic notion is that researchers begin with prior models and expectations that are subsequently updated as data is gathered. Rather than constituting a source of bias, "from a Bayesian perspective having a preconception, derived from theory and contextual knowledge, is *necessary* in order to make sense of one's research results." The point is essentially that people are "interactive processors" who intuitively move back and forth between theory and data.

McKeown cautions that this approach is more metaphor than articulated method. This is particularly true in applications to case studies: "In contemporary American political science a Bayesian conception of probability has only recently begun to receive attention ... In the discussion of case-study methodology it has received no attention at all."¹⁰⁶ Nevertheless, while folk-Bayesianism has yet to be formalized, I think it provides an epistemological anchor for incorporating elements of grounded theory and naturalistic inquiry into qualitative political science research.

To summarize, I agree with the mainstream political science literature that small-N case study comparisons are "truly invaluable in concept formation and in formulating explanatory ideas."¹⁰⁷ I am also mindful of the analytical leverage that comes from tightly structured case selection. In this vein, I do appreciate King, Keohane, and Verba's

¹⁰⁵ To quote Kenneth Waltz on creativity: "How are they [theories] made? The best, but unhelpful, short answer is this: "creatively." ...at some point a brilliant intuition flashes...they will convey a sense of the unobservable relations of things." Waltz, Kenneth N. 1979. *Theory of International Politics*. New York: Random House. p.9

¹⁰⁶ McKeown, "Case Studies and the Limit of the Quantitative Worldview," 162.

¹⁰⁷ Collier, Brady, and Seawright. "Introduction to the Second Edition," 10.

argument that “researchers who understand how to evaluate a theory will generate better theories”¹⁰⁸. However, I think that we must go further in providing students of political science with guidance on how to select and proceed with case studies when they are engaged in theory-development rather than strict theory-testing. “[T]he view that we lack systematic procedures for generating novel insights into political phenomena is widely held,” write Brady and Collier. “[But] although no one has an exact formula for being creative, we can certainly identify specific research practices that contribute to creativity.”¹⁰⁹ To this end, in the next section I describe the research practices that I adopted.

RESEARCH STRATEGY: BUILDING THEORIES FROM CASE STUDIES

The experimental science model proceeds from question to hypothesis to prediction to experiment to conclusion. This mechanistic program seldom works for us [political scientists]. Instead we go from question to hypothesis to prediction to data exploration (possibility probe) to revised hypothesis to prediction to larger data exploration to conclusion.

- Stephen Van Evera¹¹⁰

This section presents the strategy that I adopted for developing causal theories from case studies. It embeds mainstream political science methods (process-tracing and small-N comparisons) and goals (middle-range causal theories) in a dynamic and directed process of discovery. The strategy does not proscribe rules for research design; rather it lays out a process of iterating through data, theory, and design to arrive at contingently generalizable causal theories that are deeply grounded in the empirical data. In a sense, it is a tentative attempt to systematize the process captured by Van Evera’s quote above.

¹⁰⁸ King, Gary and Robert O. Keohane and Sidney Verba. “The Importance of Research Design.” In Brady and Collier, *Rethinking Social Inquiry*, 115.

¹⁰⁹ Collier, Brady and Seawright. 2011. “Critiques, Responses, and Trade-Offs,” 130-131.

¹¹⁰ Van Evera, *Guide to Methods*, 105.

The overall model that I present here is a simplification and adaptation of Lincoln and Guba's "flow of naturalistic inquiry." Lincoln and Guba are not familiar names to most students of political science, and those that are familiar with these authors may think this a curious starting point. Their paradigm of "naturalistic inquiry" is emphatically non-positivistic – rejecting the separation of causes and effects, for example – and specifically oriented towards observational fieldwork. Yet the research process that they map out is highly applicable to inductive case study research in political science. At least, I found it was a useful roadmap during my own research, and I hope that my reflections and experiences will be helpful to future students.

The research strategy is presented in Figure 2. The researcher begins with a set of *initial questions, puzzles, and expectations*, derived from prior theory and knowledge. The researcher then cycles repeatedly through four stages: (1) *purposive sampling*, or specifically choosing cases and informants based on what question need to be answered; (2) *simultaneous data collection and analysis* that tries to make sense of the data as it is gathered; (3) *real-time theory refinement*, which means making constant adjustments to working hypotheses in response to incoming evidence; and (4) *emergent design*, which implies re-directing the next round of case selection and sampling based on what is needed for the theory development. This cycle is *iterated until redundancy*, i.e. until the theory is stabilized and the data that is gathered does not significantly change the theoretical conclusions. The end result is a *middle-range causal theory* that is rooted deeply in the empirical data.

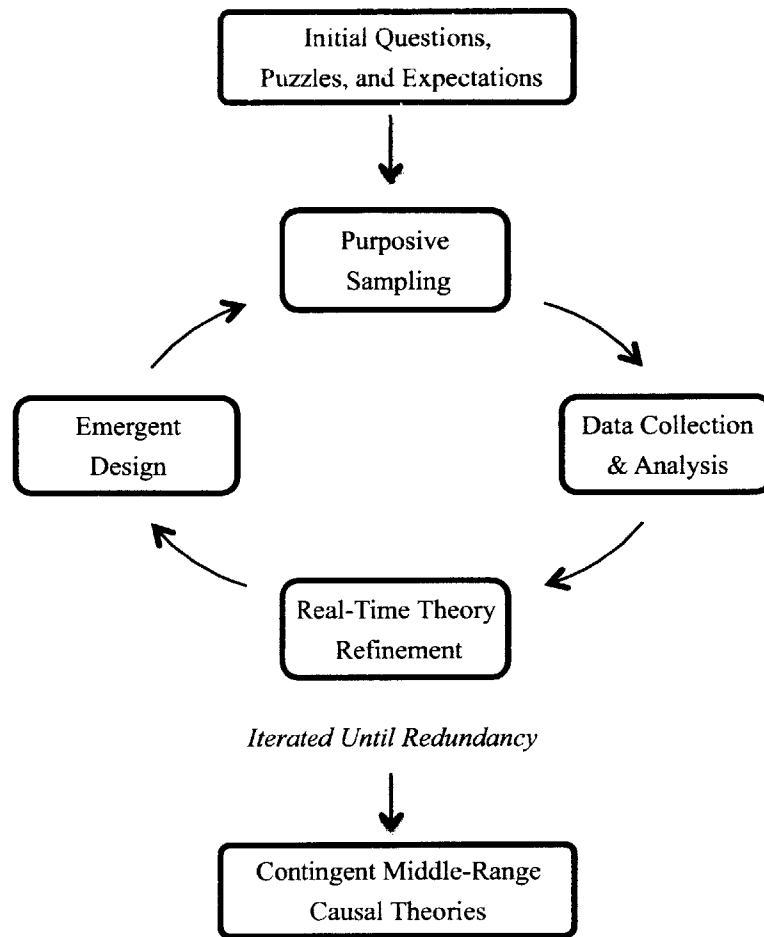


Figure 2: Research Strategy for Theory-Building from Case Studies

In the rest of this section, each of these seven elements will be explored and explained in greater depth, with attention to how process-tracing and case comparisons fit into this flow of research.

Initial Directions

How does a research project begin? Traditional teaching on research design would have us believe that a student hones in on a narrow question, which forms the basis for identifying the appropriate research design, mechanically gathering and analyzing data, and logically arriving at conclusions. But as the opening quote by

Stephen Van Evera captures, this bears little resemblance to the reality of political science research – even for research that purports to be testing hypotheses. Andrew Abbott describes plainly how projects often really begin:

We often come at an issue with only a gut feeling that there is something interesting about it. We often don't know even what an answer ought to look like. Indeed, figuring out what the puzzle really is and what the answer ought to look like often happen in parallel with finding the answer itself.¹¹¹

The departure point for many students, then, is not a cleanly defined research question and tightly structured research design, but a rather motley mix of open-ended questions, feelings that something “isn't right” about a conventional wisdom, hunches that there's more to a story than what's been told, speculations about alternative causes and omitted variables, or interest in understudied areas. These are then corralled into initial working questions and hypotheses¹¹² – which might be thought of as constituting the “preconceptions” in folk-Bayesian approaches.

These questions form the basis for initial case selection and research design. But not everything can be defined up front. For the purposes of inductive theory-building, the research design is an evolving work in progress rather than a static pre-assembled structure of cases and variables. As Abbot explains, “[m]ost research projects advance on all ... fronts at once, the data getting better as the question gets more focused, the methods more firmly decided, and the results more precise.” This is precisely the kind of dynamic research process that I am trying to capture in the next four steps.

Purposive Sampling

¹¹¹ Abbott, Andrew. 2004. *Methods of Discovery: Heuristics for the Social Sciences*. New York: Norton, 83.

¹¹² Note: those working strictly within the paradigms of naturalistic inquiry or grounded theory would refute this statement, arguing instead that the researcher should approach the material without preconceived hypotheses.

“All sampling is done with some purpose in mind,” write Lincoln and Guba.¹¹³

The case selection typically emphasized in small-N studies has a very specific purpose: controlling and isolating variables.¹¹⁴ Deviant cases, extreme cases, typical cases, maximally varying cases, critical cases, politically salient cases, convenient cases – all represent other purposive case selection strategies that are designed to elicit certain kinds of information, enable certain kinds of inferential leverage, or provoke certain kinds of insights.¹¹⁵

The type of purposive sampling that is emphasized within naturalistic inquiry is aimed at rich contextualization rather than generalization; it is not the most productive sampling for the purposes of political science theory-development.¹¹⁶ More instructive is the sampling strategy used by grounded theory methodology. The original formulations of grounded theory by Glaser and Strauss had aims that are strikingly resonant with political science theorizing: systematically turning empirical data into analytical propositions. They emphasize “theoretical sampling,” which means sampling that provides the researcher with the specific types of data needed to continually develop theoretical constructs. As Kathy Charmaz explains it: “Theoretical sampling involves

¹¹³ Lincoln and Guba, *Naturalistic Inquiry*, 200.

¹¹⁴ “Ideally, researchers would like to have the functional equivalent of a controlled experiment, with controlled variation in independent variables and resultant variation in dependent variables,” write George and Bennett, though they acknowledge that “the requisite cases for such research designs seldom exist.” George and Bennett, *Case Studies and Theory Development*, 23-24.

¹¹⁵ For a list of types of purposive sampling, see: Patton, Michael Q. 1980. *Qualitative Evaluation Methods*. Beverly Hills, CA: Sage.

¹¹⁶ “[M]aximum variation sampling will usually be the sampling mode of choice. The object of the game is not to focus on the similarities that can be developed into generalizations, but to detail the many specifics that give the context its unique flavor.” Lincoln and Guba, *Naturalistic Inquiry*, 201.

starting with data, constructing tentative ideas about the data, and then examining these ideas through further empirical inquiry.”¹¹⁷

In plainest terms, this means picking the next round of cases and observations based on what you think you need to know in order to refine the theoretical constructs. This could mean what is needed to understand the context of a case, flesh out a concept, refine a working hypothesis, identify scope conditions – whatever is turning out to be the salient issues in the research. Sampling therefore depends not only on the nature of the research question, but also on the stage of research. This will be discussed in greater length when we get to the element of emergent design.

Simultaneous Data Collection and Analysis

The paradigms of naturalistic inquiry and grounded theory place a strong emphasis on the simultaneity of data collection and inductive data analysis. Lincoln and Guba explain how this operates in observational fieldwork:

On site, the investigator must engage in *continuous* data analysis, so that each new act of investigation takes into account everything that has been learned so far. Inductive data analysis can be performed on a daily basis, so that insights, elements of theory, hypotheses, questions, gaps, can be identified and pursued with the next day’s work.¹¹⁸

This has parallels with the “constant comparative method” developed by Glaser and Strauss, which involves coding data as it gathered and writing frequent memos to record and reflect on emerging theoretical constructs. It is important to note, though, that Lincoln and Guba’s naturalistic inquiry and Glaser and Strauss’s grounded theory methodology are strictly ethnographic, inductive modes of analysis. They seek to develop concepts and theoretical propositions out of patterns in the data without setting

¹¹⁷ Charmaz, Kathy. 2006. *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis*. London: Sage. 102.

¹¹⁸ Lincoln and Guba, *Naturalistic Inquiry*, 209.

prior expectations or hypotheses. It would be a leap to apply these specific analytical techniques to theory-building in political science. Not only do qualitative political scientists tend to rely on different data sources than ethnographic researchers (less observational fieldwork, more archives and elite interviews), but they also emphasize different theoretical goals (less meaning and patterns of action, more causality).

What I mean by simultaneous data collection and analysis, then, is something rather plainer: making sense of evidence as it comes in and integrating it with existing knowledge. With each interview, each site visit, each day in the archives, asking, “What did I see? What did I learn?” Whether we are operating in an inductive or deductive mode of inquiry, it is necessary to engage consistently with the interpretation of new data. Keeping track of this dynamic exploration via memo writing or informal journaling is also recommended.

Real-time Theory Refinement

In the research process mapped out by KKV, the researcher makes a single pass through the data. “Ad hoc adjustments in a theory that does not fit existing data must be rarely used,” and if the theory *is* reformulated, then it must be re-tested on new data.¹¹⁹ The research strategy mapped out here is entirely different. It bears a closer resemblance to folk-Bayesianism, in the sense that as the data comes in, the researcher makes sense of it, make some judgments about its quality, and consequently updates the working explanations and hypotheses.

This does not mean that every observation has a clear theoretical nudge. Qualitative researchers must learn to deal with ambiguity. Informants may give

¹¹⁹ King, Keohane, and Verba, *Designing Social Inquiry*, 21.

conflicting accounts. Documents may be undated, partially illegible, imprecisely worded, ambiguously authored. Access to certain people, places, or archives may not be immediately granted. Holes may remain unfilled in a causal sequence. Puzzles may emerge. These ambiguities may be inevitable, and they do create difficulties in interpreting the theoretical implications of raw data. But the point is that the researcher should be attentive to how the evidence is shaping up in relation to working theories – particular when there is ambiguity and conflict – because this will guide what needs to be resolved by the next round of data collection.

Emergent Design

The principle of “emergent design” means that a research design evolves and unfolds over the course of a research project. This requires a “continuously interacting and interpreting investigator,” whose “succeeding methodological steps are based upon the results of steps already taken.”¹²⁰ As the research proceeds, questions become more focused, salient elements are identified (e.g., conditions, variables, actors, and mechanisms), causal propositions begin to emerge, and new hypotheses are posed.

Emergent design reflects the fact that the key elements of a research design are not always identified and accounted for ahead of time. Ultimately, inference is derived not from the initial design – as Abbott quips, “original research proposals usually turn out to have just been hunting licenses” – but from the structure of cases and observations that have been assembled by the time that a research project is concluded.

¹²⁰ Lincoln and Guba, *Naturalistic Inquiry*, 102.

Iteration to Redundancy

Over the course of a research project, this cycle may be iterated multiple times. In Lincoln and Guba's formulation, "the study goes through several phase in order, first, to get some handle on what *is* salient (that is, what one needs to find out about); second, to find out about it; and third, to check the findings."¹²¹ What is critical to note about this process is that *it is not simply about accumulating more observations*. The researcher may be operating in entirely different modes of inquiry as the research project matures.

This brings to mind the earlier insights from the concept formation literature about the combination of induction, deduction, and inspiration. This might mean going back and forth between within-case process-tracing (identifying causal mechanisms) and cross-case comparisons (forming concepts and generalizations). It might also mean that earlier cases are analyzed differently from later cases. For example, the researcher might use different modes of process-tracing (e.g., according Beach and Pederson's categorizations) at different stages of research. My experience was that early cases proceeded in a more purely inductive mode, while later cases, or portions of cases, proceeded in a more deductive mode.

Overall, the goal is to iterate this cycle until the theories stabilize, such that they are not significantly changed by additional evidence. Lincoln and Guba call this "redundancy," while grounded theorists refer to it as "theoretical saturation." Kathy Charmaz explains it as the point when "gathering fresh data no longer sparks new theoretical insights, nor reveals new properties of ... core theoretical categories."¹²²

¹²¹ Lincoln and Guba, *Naturalistic Inquiry*, 235.

¹²² Note: "categories" are the highest-level theoretical constructs produced by grounded theory. The analogue for political scientists might be variables or causal mechanisms.

In practice, of course, it can be difficult to recognize that this threshold has been passed. Lincoln and Guba realistically observe that “it seems likely that any ... investigation could be continued indefinitely, since it will continually dredge up new questions and insights worth pursuing. Nevertheless, at some point – typically because time or resources have expired – the study is brought to a halt.”¹²³

There is one additional dimension that I would add in regards to comparative case studies. Political scientists who are seeking to develop contingent causal theories must wrestle not only with internal validity – which is what these concepts of “redundancy” and “saturation” are really oriented towards – but also external validity. There may always be the temptation (or the pressure) to add another case in order to see how well a theory travels, explore scope conditions, etc. This is yet one more dimension to juggle when trying to determine whether the research is sufficiently stabilized.

Middle-Range Theories

This research strategy results in contingent generalizations about a casual process. The researcher identifies recurring patterns that operate within certain scope conditions, institutional settings, cultural contexts, and time periods. These are the “middle-range theories” discussed by Robert Merton, spanning the gap between grand theory and raw empiricism, striking a balance between parsimony and contextualization.¹²⁴ The theories may also correspond to the typological theories emphasized by Alexander George and Andrew Bennett – i.e. “contingent generalizations about combinations or configurations

¹²³ Lincoln and Guba, *Naturalistic Inquiry*, 211.

¹²⁴ Merton, Robert. 1968. *Social Theory and Social Structure* [Enlarged Edition]. New York: Free Press.

of variables that constitute theoretical types” – but only if the inductive analysis generates typological categories of cases.¹²⁵

DESIGN OF THIS DISSERTATION

This chapter thus far has mapped out a dynamic strategy for theory-building through case studies. A core principle of this strategy is that the research “design” is continually refined over the course of the research project. The explanatory power of the research is derived not from the *a priori* case selection, but from the body of evidence that is assembled by the end of the research process.

With this principle in mind, I now turn to the cases and data in this dissertation. The goals are to illustrate both the dynamic research process and also the final structure of cases and evidence. First, I discuss the initial investigation that uncovered the empirical puzzle and the real research question. Second, I describe the three case studies, contextualizing them in the overall history of U.S. energy policy. Third, I review the sources of data for each case study and briefly address issues of data quality.

Research Question

This dissertation began as a study of interest group influence in energy policy-making. I was interested in why different alternative fuel technologies (electric vehicles, synthetic fuels, and alcohol fuels) rise and fall in policy prominence. In particular, I set out to explore how this variation was affected by the policy entrepreneurship of interest

¹²⁵ George and Bennett, *Case Studies and Theory Development*, 233.

groups and their strategic use of technical information. Over the first year of research, however, curious things started to bubble up. Lobbyists would wryly comment that they were just as surprised by legislation as everyone else. Government staffers would confide that they were too pressed for time to engage with technical analyses. It became apparent that the major alternative fuel commercialization efforts were often not favored by interest groups – even by the industries that would likely benefit from the programs. These programs thus constituted an empirical anomaly: major programs that seemingly emerged in advance of major advocates. This contradicted our conventional understanding of policy entrepreneurship and the drivers of policy change, and it raised a basic question: if not interest groups, and not government agencies, then who was actually pushing for these crash programs?

This question set the course for a major revision of the research design. I honed in on liquid fuels, dropping electric vehicles. I changed the unit of analysis from macro patterns over decadal time scales (which is the focus of the PET and ACF policy process literatures) to specific pieces of legislation. The process of White House policy formulation came to occupy a central role in my analysis, necessitating unforeseen archival research. Eventually, as the research iterated between synfuels and ethanol, between the 1970s and the 2000s, I came to see a surprising congruence between the creation of the Synthetic Fuels Corporation and the Renewable Fuels Standard. The Energy Independence Authority was added in towards the end of the research as a “shadow case” that deductively investigated the White House dynamics that emerged in the two main cases. I turn now to what these cases contribute to theory-development.

Cases: Differences and Similarities

This dissertation traces how proposals for massive alternative fuels programs emerged and evolved in the wake of oil crises. The two major case studies are the Synthetic Fuels Corporation (SFC) and the revised Renewable Fuels Standard (RFS2), which are the two largest federal initiatives for accelerating the commercialization of alternative fuels. A third case study, the Energy Independence Authority (EIA), was added to explore the dynamics of presidential policy formulation.

At first glance, the SFC and the RFS2 may not appear that similar. The SFC was an \$88 billion quasi-governmental corporation initiated by Jimmy Carter in 1979. The RFS2 is a 36 billion gallon biofuels mandate that grew out of a proposal from George W. Bush in 2007. The two programs involve different fuels (synfuels vs. biofuels), different natural resources (coal vs. corn), and different policy instruments (commercialization subsidies vs. volumetric blending mandates). They were initiated by presidents in different political circumstances; Carter was a first-term Democrat, Bush a second-term Republican. The oil shocks that led to these programs were also quite different. Whereas the 1979 price spike came on suddenly and erupted into gas lines, trucker strikes, and even violence, the 2000s price spike grew over a matter of years and never escalated to that level of public panic.

Nevertheless, there are two critical ways in which the fundamental similarities across these cases advance our understanding of radical policy change. First, the key finding of this dissertation is that these programs emerged from a similar causal sequence of policy-making. As I described in Chapter 2, the spikes in oil prices launched a competition for leadership among macro-political actors. After initial policy responses in

Congress, the White House bid up the stakes with shockingly large alternative fuel programs, and Congress – with the negotiated support of interest groups – ultimately institutionalized rather than pushed back on those goals.

In the third case, the EIA, this sequence was not sustained. This provides a useful opportunity for exploring the scope conditions of this process. The EIA, like the SFC, was a quasi-governmental funding corporation that would primarily support synthetic fuels development. Its price tag was even higher: \$100 billion. But by the time that President Ford announced the proposal, oil prices had stabilized and there was not enough of a sustained crisis atmosphere for Congress to take a risk on such a large program. The EIA case suggests the limits of the President's ability to set a course for major energy policy. If the crisis atmosphere is not sustained, the "bidding up" mechanism does not hold.

The second significant theme that comes out of these comparative cases has to do with policy entrepreneurship and energy policy formulation within the White House. Each case was developed in the White House by a rather different set of actors. The EIA proposal was championed by Vice President Nelson Rockefeller and developed by his staff and advisers. The final SFC proposal was thrown together hastily, with the drafting done in the Treasury and the major internal political support coming from the Domestic Policy office and the OMB. The RFS proposal was largely developed by staff from the Council of Economic Advisors, the Treasury, and the National Economic Council. Despite these major differences, what all three cases fundamentally have in common is that (a) they did not follow the interagency policy development process, and (b) most of the staff drafting these proposals had little to no background in energy.

The policy entrepreneurs, then, were not actors from the energy policy subsystem. They were senior advisors and their staff members, who cast their hands into the popular policy streams and grasped for the policy solutions that seemed at hand. This was reflected in the conventional choice of both policy instruments (financing corporations in the 1970s, technology mandates with price valves in the 2000s) and energy technologies (synfuels in the 1970s, biofuels in the 2000s). Where they departed from conventional wisdom was in the eye-popping scale of the proposed programs. The “numbers,” meaning the production targets or funding levels, often came from back-of-the-envelope math rather than comprehensive analysis.

Data Sources

This research draws on a rich array of qualitative data sources: archival documents, Congressional hearings, historical interview transcripts, original interviews, and journalistic accounts in newspapers, Congressional weeklies, and trade journals. Here I list the mix of data sources that I used in each of the case studies.

Case 1 (Chapter 4): Energy Independence Authority (EIA)

The EIA was a proposal that was unsuccessfully advanced by the Ford administration, particularly Vice President Nelson Rockefeller, in 1974-1975. This case study, which in some ways functioned as a relatively minor comparative case within this study, relies on archival and secondary sources:

- Gerald Ford Presidential Library
- Papers of Nelson Rockefeller (Rockefeller Archive Center, Tarrytown, NY)
- Papers of Donald Rumsfeld
- Congressional hearings

- Newspaper and journal articles (*New York Times*)
- 1 interview, conducted with a former White House staffer

Case 2 (Chapter 5): Synthetic Fuels Corporation (SFC)

The SFC was a program that was initiated by the Carter administration in 1979 and passed into law by Congress in 1980. This case study relies on the richest mixture of data sources, with both archival sources –White House papers as well as the archival collections of several major interest groups – and historical and original interviews:

- Jimmy Carter Presidential Library (Atlanta, GA)
- ExxonMobil Collection (University of Texas, Austin, TX)
- Sierra Club Collection (University of California, Berkeley, CA)
- Friends of the Earth Collection (University of Colorado, Boulder, CA)
- Presidential Oral Histories conducted in 1981-1984 by the Miller Center (University of Virginia, Charlottesville, VA)
- 20 interviews with staff from the White House, Department of Energy, Office of Management and Budget, environmental groups, coal lobbies
- Congressional hearings
- Government Reports (*Congressional Research Service*)
- Newspaper and journal articles (*New York Times*, *National Journal*, *Congressional Quarterly Weekly Reports*, *Science*)

Case 3 (Chapter 6): Renewable Fuels Standard (RFS)

The RFS was a fuels mandate that was established in 2005 and expanded dramatically in 2007. The case study in this dissertation focuses on the 2007 version, which was initiated with a proposal offered by President George W. Bush. As the papers from the Bush administration have not yet been made public (the Presidential library is slated to open in 2014) and the final rounds of Congressional negotiations were conducted in an unusual closed-door process, the paper trail on this policy-making is scant. Therefore this case relies on interviews, media coverage, and informal contemporary accounts of the policy-making, such as the blogs of administration staff and environmental groups.

- 62 interviews with government staff (White House, Council of Economic Advisers, Department of the Treasury, Department of Energy, Congressional offices and committees), interest group representatives (trade associations for corn, coal, and ethanol; corn ethanol and advanced ethanol producers; environmental groups; oil companies; coal companies), academics, and journalists.
- Congressional hearings
- Government reports (*Congressional Research Service*)
- Newspaper and journal articles (*New York Times*, *Washington Post*, *Wall Street Journal*, *Politico*, *Energy & Environment Daily*, *Ethanol Producer Magazine*)
- Blogs (*Natural Resources Defense Council*, *Grist*, and personal blogs of White House staff)

CONCLUSIONS

Sociologists of science ... have shown us how natural scientists work in ways never mentioned in their formal statements of method, hiding "shop floor practice"—what scientists really do—in the formal way they talk about what they do. Social scientists do that too, using a workaday collection of theoretical tricks when they're actually doing social science, as opposed to talking about Theory.

- Howard Becker ¹²⁶

This chapter mapped out a dynamic approach for building theory from case studies. It is intended to provide students with honest and helpful guidance about what is involved in inductive political science research. The methodological literature's overriding emphasis on causal inference has led, in my opinion, to a paucity of practical advice – particularly in regards to the process of theory development. What does it mean to do this research in practice? How do researchers actually go about turning their case studies into theoretical propositions? Is it okay to have a mid-course correction in case selection? The research strategy described in this chapter should help students think through these questions.

At the same time, I am cognizant of Stephen Van Evera's caveats about the difference between the "logic of discovery" and the "logic of presentation":

¹²⁶ Becker, Howard S. 1998. *Tricks of the Trade: How to Think About Your Research While You're Doing It*. Chicago: University of Chicago Press, 5.

The logic of presentation varies from the logic of discovery. Your research followed the logic of discovery, but your write-up should follow the logic of presentation. This means it should move simply and clearly from your questions to your answers. It is seldom wise to present your discoveries in the same order in which you made them.¹²⁷

The beauty of the approach articulated here is that it builds towards a set of cases and observations with strong causal inference. Thus, while it is meant to guide students through the process of discovery, it sets them up with findings that can be clearly and logically presented.

¹²⁷ Van Evera, *Guide to Methods*, 106.

CHAPTER 4: ENERGY INDEPENDENCE AUTHORITY, 1975-1976

I. INTRODUCTION

The Energy Independence Authority (EIA) was a proposed \$100 billion quasi-governmental energy financing corporation that was pushed by the Ford administration in 1975-1976. “My vision is a crash development,” said Ford on announcing the plan. “We need dramatic action to produce synthetic fuels – at least a million barrels a day – floating nuclear plants mounted on barges, new pipelines for oil and gas and vast energy parks throughout America.”¹²⁸ It was a startling program to come from the Ford presidency. Not only did it contradict his free market credo, but it also represented an uncharacteristic process of policy formulation. After the excesses of Nixon’s “imperial presidency,” Ford had been a staunch proponent of cabinet government – yet here was a major energy program that was entrepreneurially developed and championed by Vice President Nelson Rockefeller’s office, and which Ford approved over the vocal opposition of his economic advisors.

Chief of Staff Donald Rumsfeld predicted it would “drop like a thud” on the Hill, and indeed, it was roundly rejected by Congress.¹²⁹ The EIA was not included in the Energy Policy and Conservation Act, passed in December 1975. Congress continued to ignore the proposal in 1976, despite continued advocacy and promotion by Rockefeller. Even drastically scaled-back proposals for synfuels loan guarantees and price supports –

¹²⁸ Quoted in: Mayer, Allan J., James Bishop Jr., and Pamela Ellis Simons. October 6, 1976. “Crash Program.” *Newsweek*, 64.

¹²⁹ Reich, Cary (Interviewer) and Rumsfeld, Donald (Interviewee). 1992. “Cary Reich Interview re Biography of Nelson Rockefeller 11-05-1991.” [Interview Transcript]. Retrieved from The Rumsfeld Papers website: <http://library.rumsfeld.com/doclib/sp/166/Cary%20Reich%20Interview%20re%20Biography%20of%20Nelson%20Rockefeller%2011-05-1991.pdf>

first \$11 billion, then \$6 billion, and finally \$3.5 billion – were rejected by Congress in 1976. The bottom line was that by late 1975 energy prices had stabilized and the sense of crisis had passed. Members of Congress did not want to take the risk of supporting Ford’s “crash development,” especially not in the face of relentless opposition from environmental and oil interests alike.

The EIA is usually relegated to a footnote in studies of energy policy, if it is mentioned at all.¹³⁰ It was a failed proposal, and it was never a centerpiece of Ford’s energy policy the way that the Synthetic Fuels Corporation (SFC) was a centerpiece of Carter’s. Yet I argue here that the EIA is a useful case study for exploring three dimensions of policy-making: conditions, drivers, and processes. First, it is invaluable for exploring the scope conditions of large-scale energy supply programs. Presidential leadership may be necessary, but the EIA case demonstrates that it is not sufficient. In the absence of a sustained atmosphere of crisis, these crash commercialization programs are rejected as costly and unnecessary. The “bidding up” mechanism is not initiated in Congress, which in turn means that interest groups have little incentive to “sign on” to controversial proposals.

Second, although Congress declined to rise to the President’s challenge, the case illustrates how the White House constantly perceived itself competing for leadership on

¹³⁰ The most extensive scholarly treatment is the three page passage on the “Erfco” proposal in: De Marchi, Neil. 1981. “The Ford Administration: Energy as a Public Good.” *Energy Policy in Perspective: Today’s Problems, Yesterday’s Solutions*. The EIA also gets three paragraphs in: Davis, David Howard. 1982. *Energy Politics* [3rd Ed]. New York: St. Martin’s Press. And it gets a sentence or two in: Solomon, Lewis D. and Frederick H. Riesmeyer II. “The Development of Alternate Energy Sources: A Legal and Policy Analysis.” *Oklahoma Law Review* 30: 319-353; Greenberger, Martin. 1983. *Caught Unawares: The Energy Decade in Retrospect*. Cambridge, MA: Ballinger Publishing Co. The EIA is not named at all in: Victor, Richard H.K. 1984. *Energy Policy in America Since 1945: A Study of Business-Government Relations*. Cambridge: Cambridge University Press; Kash, Don E. and Robert W. Rycroft. 1984. *U.S. Energy Policy: Crisis and Complacency*. Norman, OK: University of Oklahoma Press; Katz, James Everett. 1984. *Congress and National Energy Policy*. New Brunswick, NJ: Transaction Books; Rosenbaum, Walter A. 1987. *Energy, Politics, and Public Policy* [2nd Ed]. Washington, DC: Congressional Quarterly Press.

energy issues. This appears to have been a driving rationale for the EIA proposal. Vice President Rockefeller repeatedly tried to sell President Ford on the EIA proposal by warning that members of Congress were considering similar proposals. “Senator Lloyd Bentsen is already talking privately about a new “RFC” [Reconstruction Finance Corporation] for energy,” he wrote in May 1975.¹³¹ “Various Presidential aspirants, particularly [Henry] Jackson, are readying announcements of similar plans any day now – with the possibility of stealing leadership from you,” he wrote in September 1975. Even the President’s economic advisors, all of whom opposed the EIA on substantive grounds, openly acknowledged the “political appeal” of its decisive leadership on energy.

Lastly, the EIA is an informative case of White House energy policy formulation. Two striking themes about policy formulation run through the case studies in this dissertation: (1) transformative energy proposals were designed not by the “usual suspects” of policy entrepreneurs within the energy bureaucracy or interest groups, but by advisors in the White House (and their young staff) who often had little experience with energy issues, and (2) quantitative targets such as funding or fuel production levels tended to be based on back-of-the-envelope arithmetic rather than rigorous technological assessments. Both themes were evident in the case of the EIA, which was developed within the Vice President’s office and characterized by political reasoning and big, ballpark assignment of numbers.

In presenting the EIA case study, this chapter proceeds through five sections that correspond to the five stages in the theoretical model: context, crisis, Presidential policy formulation, Congressional response, and interest group participation. *Context* reviews U.S. energy policy during the late 1960s and early 1970s. During this period, policy-

¹³¹ The post-war Reconstruction Finance Corporation (RFC) served as a model for the EIA.

making was segregated in fuel subsystems and focused on traditional natural resource supply rather than conservation or alternative fuels. *Crisis* discusses the October 1973 Arab oil embargo and its effect on energy policy in late 1973 through mid 1974.

President Nixon sought to consolidate the energy bureaucracy and, for the first time, develop a comprehensive energy policy that included both supply- and demand-side programs. The centerpiece was a wildly overambitious, large-scale supply program: Project Independence. *Presidential policy formulation* analyzes how the Ford administration carried through on this policy planning from 1974-1976. They quietly discarded Project Independence, trying instead to focus on deregulation and market strategies. But Vice President Nelson Rockefeller forcefully and entrepreneurially pushed forward on the \$100 billion EIA proposal. After intense internal debates in the administration over the summer of 1975, and over the vehement opposition of his economic advisors, President Ford finally approved the proposal in September 1975. *Congressional response* examines how the EIA legislation met with resistance in Congress during the fall of 1975 through the summer of 1976. *Interest group participation* explores the role of interest groups within this process, particularly focusing on the oil industry, environmental groups, and organized labor.

II. CONTEXT: ENERGY AND ALTERNATIVE FUELS POLICY, 1960-1973

This section reviews the status of U.S. energy policy, particularly alternative fuels development, in the years leading up to the 1973 Arab oil embargo. It provides the context for the policy responses of the White House and Congress over 1973-1974. The

main points of this background are that: (1) traditionally, energy policy was fragmented by fuel and focused on resource supply, (2) aside from nuclear energy, attention to alternative energy development was minimal and driven by pork-barrel politics rather than national priorities, and (3) strains in oil and natural gas markets started to reveal the vulnerabilities of the energy system during the first few years of the Nixon administration, 1969-73. During this time, policy-makers did start thinking more comprehensively about a national energy program, setting the groundwork for the radical changes that would be ushered in after the oil crisis (especially the consolidation of an energy bureaucracy). Yet, in terms of substantive policy, both Nixon and Ford maintained a dominant focus on supply-side policies.

Energy Policy: Fragmented and Focused on Fuel Supply

Prior to the 1973 Arab oil embargo, the United States had no comprehensive energy policy. Government policies were largely segregated by fuel – coal, oil, natural gas, electricity, and nuclear – and governed by fragmented policy subsystems.¹³² The Department of Interior was responsible for mineral leasing, with subunits carved out by resource (the Office of Coal Research and the Bureau of Mines funded research for the coal and mining, while the Office of Oil and Gas assisted those industries). The Departments of State and Defense dealt with oil imports, naval oil reserves, and international negotiations. The Federal Power Commission oversaw utilities, interstate natural gas pipelines, and gas and electricity pricing. The Atomic Energy Commission had responsibility for the civilian nuclear power industry. As for macropolitical

¹³² Davis, *Energy Politics*; Cochrane; Kash and Rycroft, *U.S. Energy Policy*; Chubb, John E. 1983. *Interest Groups and the Bureaucracy: The Politics of Energy*. Stanford, CA: Stanford University Press; Rosenbaum, *Energy, Politics, and Public Policy*.

oversight, through the 1960s the White House lacked an office or council devoted to energy matters, and Congress did not yet have committees on energy.

With this system of fragmented energy policy-making, there was no integrated, long-term, national planning; “coordinated high-level discussion, insofar as it took place at all, was usually no more than a response to some immediate problem.”¹³³ There was also no demand-side management to complement the supply-side orientation.

Regulations for health, safety, and environment were beginning to impinge on the major energy industries – the National Environmental Protection Act was passed in 1969, and the Occupational Health and Safety Act and Clean Air Act followed in 1970 – but for the most part, energy policies remained singularly focused on stimulating low-cost fuel and power supply. As Kash and Rycroft summarized, “the goal of cheap, abundant energy ... went virtually unchallenged.”¹³⁴

Alternative Energy Research: Focused on Nuclear, Not Synfuels

Despite this focus on supply, the development of *new* energy sources was a secondary concern. The exception, of course, was in nuclear energy, where federally-funded research and development (R&D) programs did support next generation reactor development. (As Franklin Tugwell explained: “To the extent that the next epoch in energy was considered, it was widely assumed that nuclear power, first fission than fusion, would naturally emerge as the successor to coal and oil.”¹³⁵) But R&D programs

¹³³ De Marchi, Neil. 1981. “Energy Policy under Nixon: Mainly Putting Out Fires.” *Energy Policy in Perspective: Today’s Problems, Yesterday’s Solutions*, 398.

¹³⁴ Kash and Rycroft, *Energy Policy*, 48.

¹³⁵ Tugwell, Franklin. 1980. “Energy and Political Economy.” *Comparative Politics* 13(1): 104.

were modest for other emerging energy technologies, such as solar energy, geothermal energy, and synthetic fuels.

Specifically regarding synthetic fuels research: In the 1960s, the Office of Coal Research (OCR), which had been founded in 1960 with a skimpy \$1 million budget, grew to support several synfuels demonstration projects.¹³⁶ The OCR's synfuel program was largely driven by coal-state Congressmen, seeking jobs and federal funding for their districts.¹³⁷ Project choice, site selection, funding, and implementation were so profoundly political that "the existence of a congressional champion appeared to have been the single most important criterion."¹³⁸

By the late 1960s the technological and economic failures of the OCR's synfuels projects had become apparent, and the OCR looked like it was on its way out. From 1967 to 1970, the OCR signed no new industrial contracts for coal gasification or liquefaction. Two projects (H-Coal and Kellogg) were cancelled in 1967. A third project (Project Gasoline) was terminated in April 1970; it was found to be such a pork-barrel fiasco that the Office of Management and Budget (OMB) issued new guidelines for synfuels research, requiring industry to contribute one-third of all project costs for new or modified pilot plants in the future. These funding guidelines, in part, contributed to the

¹³⁶ For a detailed overview of these demonstration projects, see: Cohen, Linda R. and Roger G. Noll. 1991. *The Technology Pork Barrel*. Washington, DC: The Brookings Institution.

¹³⁷ The OCR did not initially set off to pursue synthetic fuels. Why they lurched towards synfuels is an interesting side question. At the time, coal was considered an "ailing industry" in precipitous decline. Some scholars suggest that the OCR's focus on synfuels was due to the coal industry's desire for rapid assistance. But others have argued that the OCR's shift towards synfuels reflected the coal industry's fragmentation and weakness, not its strength. Coal producers favored small, short-term, pragmatic projects. In contrast, synfuels projects were large, long-term, and high risk. Synfuels won out not because they were what the coal industry wanted, but because labor unions and coal-state politicians valued the large expenditures and jobs associated with the demonstration projects. Sources: Vietor, *Energy Politics in America Since 1945*; Crow et al. 1988; Sperling, Daniel. 1988. *New Transportation Fuels: A Strategic Approach to Technological Change*. Berkeley: University of California Press; Yang, Chi-Jen. 2008. *Powered by Technology or Powering Technology? Belief-Based Decision-Making in Nuclear Power and Synthetic Fuel*. Ph.D. Dissertation. Princeton University.

¹³⁸ Vietor, *Energy Politics in America Since 1945*, 174.

deferral of a fourth project, Solvent Refined Coal (SRC). Only one project remained: Project COED, which converted coal into synthetic oil, gas, and char. The OCR claimed the Project COED was a technical success, although later assessments basically concluded that “the plant worked, but the product was lousy.”¹³⁹ Despite their lackluster performance, though, many of these projects would be resurrected after the oil shocks of the 1970s.

Early Strains in the Energy System

Vulnerabilities in the energy system were becoming apparent when President Nixon took office in 1969. There were shortages of natural gas and heating oil during the winter of 1969-70, the coldest winter in thirty years. Domestic oil production peaked in 1970 and plateaued, while imports rose alarmingly. Brownouts rolled up and down the Atlantic seaboard in the summer of 1970. None of these strains reached crisis proportions, but they indicated that the energy sector had shifted from surplus to scarcity.

In 1970-71, the Nixon administration made the first stumbling attempts to develop an integrated energy policy. The White House’s Domestic Council formed an Energy Subcommittee in August 1970, headed by CEA Chairman Paul McCracken (who quipped that he was chosen because “I brought to the subject that objectivity which came from total ignorance about [energy]”).¹⁴⁰ The following summer, June 1971, Nixon made a major energy speech to the nation – arguably the first Presidential address dealing with energy in a comprehensive manner. He emphasized a stepped-up supply program: expanded nuclear power, demonstration of a liquid metal breeder reactor, development of

¹³⁹ Cohen and Noll, *The Technology Pork Barrel*, 277.

¹⁴⁰ Quoted in De Marchi, “Energy Policy under Nixon.” 407.

coal gasification, and accelerated oil shale and outer continental shelf leasing. Nixon also proposed a new Department of Natural Resources that would consolidate energy regulation, research, and planning.

Nixon's initiative revived the underwhelming synfuels demonstration program. OCR appropriations jumped from \$17 million in FY 1971, to \$31 million in FY 1972, to \$45 million in FY 1974.¹⁴¹ Yet it failed to galvanize national energy policy-making more broadly. "Congress ignored the energy message and within the administration, too, it was quietly laid aside," partly because "no immediate crisis was in sight" and partly because the White House's own attention had shifted to China and economic policy.¹⁴² In fact, rather than solving the nascent energy supply problem, Nixon set the nation up for a worse crunch. As part of the Energy Stabilization Act in August 1971, he mandated price controls, including on oil. This continued to prop up profligate demand.

In April 1973, six months before the oil embargo, Nixon made a second major address to the nation on energy. It was a wide-ranging message in response to what he called the "energy challenge" (rather than a "crisis"). He called for deregulating the wellhead price of new natural gas, enhancing conservation measures, expediting permitting for the Alaskan oil pipeline, and accelerating leasing for oil shale, geothermal, and outer continental shelf resources. He strongly emphasized the increased use of coal resources in the short-term: "I urge that highest national priority be given to expanded development and utilization of our coal resources." For the long term, however, energy R&D focused on nuclear energy, not coal liquefaction or gasification. Nixon followed with another energy speech on June 29, proposing increased R&D funds – specifically,

¹⁴¹ The best compilation of statistics on synfuels R&D funding over this entire period is found in: Cohen and Noll, *The Technology Pork Barrel*.

¹⁴² De Marchi, "Energy Policy under Nixon."

another \$100 million for FY 1974 – and the creation of an integrated Energy Research and Development Administration (ERDA).

Summary

In short, by the time that the country was struck with an oil crisis in late 1973, the fragmented energy system in the U.S. had already been creaking with strains and shortages. The energy challenges of 1969-1973 had spurred the White House's attention to energy and increased the flow of R&D funding to alternative energy. They had not, however, led to radical changes yet. Policy-makers were beginning to think through the consolidation and integration of fuel issues, but the country lacked a comprehensive national energy policy. Conservation was beginning to enter into public discussions, but the government remained focused on increased fossil energy supply and accelerated nuclear energy development.

III. CATALYST FOR POLICY CHANGE: THE 1973 OIL SHOCK

Budding energy shortages blossomed into a full crisis in late 1973. The underlying structural vulnerabilities of decreased supply and increased demand had been building for years. What tipped the system into crisis was the Arab oil embargo and the quadrupling of crude oil prices over October-December 1973. This section reviews the events leading to the oil embargo and discusses the U.S. government's immediate policy response in the six months following the embargo. Charles O. Jones described energy

policy-making during this period as “confusion bordering on chaos,” further complicated by the upheaval of the Watergate scandal.

Key Events: Oil Embargo and OPEC Price Increases

On October 6, 1973, Egypt and Syria launched coordinated attacks on Israel, starting war on the Jewish holy day of Yom Kippur. The United States pledged its support for Israel, inflaming tensions with the Arab members of the Organization of Petroleum Exploring Countries (OPEC). Relations between OPEC and US interests had already been strained. In September, OPEC requested the renegotiation of the 1971 Tehran and Tripoli accords on oil pricing. Formal negotiations between oil companies and the OPEC ministerial committee, comprised of the oil minister of Saudi Arabia and the finance ministers of Kuwait and Iran, began on October 8, two days after the outbreak of the Yom Kippur war. The negotiations reached an impasse and were broken off on October 12, after which the ministerial committee convened a meeting with the oil ministers of the remaining Gulf states (Iraq, Qatar, Abu Dhabi).

Events quickly unraveled over the next several days.¹⁴³ On October 16, the six Gulf producers unilaterally raised the posted price of Arabian light crude by 70 percent, hiking it from \$3.01 to \$5.11 per barrel. On October 17, OPEC then voted to cut production by 5 percent each month until Israel withdrew from the occupied territories. On October 18, Saudi Arabia announced that they would cut their exports by 10 percent.

The United States’ response to this “oil weapon” was to step-up support for Israel; on October 19, President Nixon asked Congress for \$2.2 billion to support emergency military support for Israel. In retaliation, over October 19-20, Libya, Saudi Arabia, and

¹⁴³ Parra, Francisco. 2005. *Oil Politics: A Modern History of Petroleum*. New York: I.B. Tauris & Co.

the other Arab producers announced an embargo on oil shipments to the United States (later extended to other Israeli allies). In a final twist of the knife, they voted in December to raise crude oil prices to \$11.65/barrel – a quadrupling of prices since the summer.

Initial Policy Response, October 1973 – July 1974

The embargo did not last long, and it did not drastically reduce global oil supplies. The oil embargo was lifted in March 1974. Oil prices soon stabilized and would remain in the range of \$12-14/barrel until the second oil shock in 1979. Yet while the supply shock was quickly over, it had a continuing effect on the U.S. economy. Gasoline prices rose from 35 cents/gallon over the summer to 55 cents/gallon by the winter. Consumers were protected against higher increases by the price controls that were still in place. Without price-based allocation, however, there were shortfalls in quantity, resulting in winter gasoline lines and school and factory closures.

This thrust energy onto the national policy agenda to an unprecedented degree. The White House and Congress responded to the shortages with a desperate flurry of policy proposals, few of which ever resulted in substantive policy changes. James Everett Katz derided it as “mismanaged crisis management.”¹⁴⁴ Charles O. Jones described it as a scene of confusion:

Program formulation was characterized by participation of many departments, agencies, and committees; inadequate and unreliable information about the problems; premature announcements of broad proposals with impossible goals; and, as a consequence of the foregoing, little or no credibility for any one set of formulations.

There were literally hundreds of measures that were proposed to deal with the energy crisis. Overall, this chaotic policy response had three main themes: emergency

¹⁴⁴ Katz, *Congress and National Energy Policy*, 29.

conservation and allocation measures, a “crash” supply program, and bureaucratic reorganizations. The emergency measures were the first to be announced. On October 18, legislation for a National Energy Emergency Act (NEEA) was introduced in both the House and Senate, with restrictions on outdoor lighting, indoor temperatures, speed limits, utility fuel choice, and public and commercial energy consumption. On November 7 and 25, President Nixon’s energy speeches urged similar measures. But as the NEEA bill percolated through Congress, particularly the House, it became a “cross-hatching of uncomfortable compromises,” with dozens of amendments on all kinds of additional measures.¹⁴⁵ Members called it a “Christmas Tree,” a “can of worms,” even a “monster.” The bill that finally passed Congress in February was promptly vetoed by President Nixon, who explained that it “solves none of the problems, threatens to undo the progress we have already made and creates a host of new problems.”¹⁴⁶

The bureaucratic reorganization proposals, while also proposed quickly, took more time to be finalized.¹⁴⁷ Nixon created the White House’s Federal Energy Office (FEO) by executive order on December 3, 1973. In addition, he called on Congress to create a Federal Energy Administration (FEA) to manage energy shortages, and he reiterated his prior request for an Energy Research and Development Administration (ERDA) to conduct research and long-term planning. The proposals got bogged down in Congressional debate, but Congress did finally vote to create the FEA in May 1974 and ERDA in October 1974.

¹⁴⁵ Katz, *Congress and National Energy Policy*, 23.

¹⁴⁶ Quoted in Katz, *Congress and National Energy Policy*, 27.

¹⁴⁷ See: Katz, *Congress and National Energy Policy*, especially Chapter 3: “Congress Reorganizes the Energy Bureaucracy.” Also: Chubb, *Interest Groups*; De Marchi, “Energy Policy under Nixon”; Vietor, *Energy Policy in America Since 1945*; Rosenbaum, *Energy, Politics, and Public Policy*.

This came too late to affect the government's initial response to the oil embargo, but it would shape the next round of policy-making in the Ford administration. Rather than definitively consolidating energy policy development, the proliferation of new energy institutions made for a confusing chain of command within the White House – giving rise to a “rivalry for power” on energy issues.¹⁴⁸ In addition, the establishment of ERDA in January 1975 would be one of many reasons that the creation of another large-scale organization such as the EIA was unappealing in late 1975 and early 1976.

The energy supply programs were even more dramatic though equally ineffective. Congress leapt into action to pass something fast, most notably drafting and passing the Trans-Alaska Pipeline Act in record speed. President Nixon's splashy proposal was for a crash program – “Project Independence” – to achieve national energy self-sufficiency by 1980. He announced it in a speech on November 7, less than a month after the oil embargo had begun. In presenting the plan, Nixon called on Americans to “set as our national goal, in the spirit of Apollo, with the determination of the Manhattan project, that by the end of the decade we will have developed the potential to meet our own energy needs without depending upon any foreign energy sources.” Numerous scholars have concluded that the goal was technically unachievable, though politically expedient. Its component proposals were “hastily conceived, technologically infeasible, and contradictory,” but Nixon needed to “look decisive in solving a national crisis,” explained Walter Rosenbaum.¹⁴⁹ “The idea was wildly unrealistic, and everybody in energy circles

¹⁴⁸ “Energy: A Rivalry for Power.” September 23, 1974. *Time* [online archives].

¹⁴⁹ Rosenbaum, *Energy, Politics, and Public Policy*, 4-5.

knew it; but Nixon needed the gesture,” wrote Francisco Parra.¹⁵⁰ Neil de Marchi

highlighted how it represented a “bidding up” across Congress and the White House:

The goal itself bore little relation to technical and economic realities... [T]here is little doubt that the announcement was in part simply a response to press criticism about the lack of an R&D policy in the April 18 message and to a proposal of Senator Jackson ... to devote \$20 billion of federal funds toward achieving self-sufficiency by 1983.¹⁵¹

Planning for Project Independence moved forward over the next year. A large analytical team was assembled in the FEA to produce a “blueprint” for the plan, which came out in November 1974. Yet the program never took hold in Congress. Nixon, besieged by the Watergate scandal, did not make it a driving priority over 1974, and “[in] the political interregnum of the Ford administration, the *Project Independence Report* was soon forgotten.”¹⁵² The Ford administration quietly backed away from it when they released their own major energy policy proposal in January 1975. The development of Ford’s energy policy, particularly the EIA, is the topic to which we now turn.

IV. AGENDA-SETTING: FORD’S ENERGY INDEPENDENCE AUTHORITY

Gerald Ford was sworn in as President on August 9, 1974. By this time, the worst of the oil shock was over. Prices had stabilized, shortages had eased, and the acute crisis atmosphere had dissipated. “Neither Congress nor the public at large believed in an energy crisis,”¹⁵³ but the Ford administration recognized that the structural vulnerabilities of the U.S. energy system still remained. However, they did not want to continue Nixon’s approach of price controls, voluntary conservation efforts, and the “crash” supply

¹⁵⁰ Parra, *Oil Politics*, 186.

¹⁵¹ De Marchi, “Energy Policy under Nixon,” 460.

¹⁵² Commoner, Barry. 1979. *The Politics of Energy*. New York: Alfred A. Knopf, 11.

¹⁵³ De Marchi, “The Ford Administration”.

approach of Project Independence. Instead, they tried to develop more market-oriented policies, allowing fuel prices to rise in order to induce conservation and increased supply. This was to be balanced by excise taxes on natural gas and oil (technically, the “windfall profits tax” on oil was an excise tax) that could be rebated to consumers.

President Ford announced his energy plan in a televised fireside chat in January 1975, shortly before the State of the Union.¹⁵⁴ He proposed an ambitious array of energy policies: crude oil decontrol plus a windfall profits tax, deregulation of “new” natural gas, plus an excise tax, a tariff on imported oil, a billion barrel emergency petroleum reserve to buffer the impact of shortages, conservation initiatives, pipelines, efficiency standards for automobiles and buildings, product labeling, standby emergency powers, and an energy supply initiative. Although wide-ranging, the proposals as a package had a “striking ... consistency, born of a conviction shared by Ford and his advisers that moving to a free market in energy was the single best contribution they could make toward resolving the nation’s energy problems.”¹⁵⁵

The supply initiatives were one of the weaker components of the policy package. Ford announced that his goals included “200 major nuclear powerplants; 250 major new coal mines; 150 major coal-fired powerplants; 30 major new refineries; 20 major new synthetic fuel plants; the drilling of many thousands of new oil wells.”¹⁵⁶ Critics derided

¹⁵⁴ It was meant to be announced in the State of the Union, but a draft of the plan leaked to members of Congress in early January. A January 4, 1975 memo from Ford’s senior energy staff warned: “We feel that you should reevaluate your plans to announce the economic and energy proposals in the State of the Union speech ... A strong implication of you as a leader in firm command of the economy and the energy field may be lost if you don’t speak out before the details of your program are completely leaked.” As a result, Ford announced his energy plan in a televised fireside chat shortly before the State of the Union. See: Memo, William Seidman, Frank Zarb, and Ron Nessen to The President. January 4, 1974. Folder 2 (“January 1975”), Box 1, Frank Zarb Collection, Gerald Ford Library. Retrieved at: <http://www.fordlibrarymuseum.gov/library/document/0025/002500008.pdf>

¹⁵⁵ De Marchi, “The Ford Administration,” 488.

¹⁵⁶ 1975 State of the Union speech

it as a “laundry list,” with no plan offered for how these facilities would be financed. As for synfuels, although they were not the centerpiece of his supply initiative, Ford did mention a goal of producing a million barrels a day of shale oil and synthetic gas and liquid fuels by 1985. As Cohen and Noll observed, this goal was set “[e]ven though no synfuels project had yet shown commercial promise.”¹⁵⁷

The weakness of the supply initiatives was something that Vice President Nelson Rockefeller began to take a keen interest in over February and March. Rockefeller had not been significantly involved in the administration’s energy policy formulation up to this point, but he saw the challenge of energy financing as an issue where he could make his mark. Thus, while Ford’s energy plan started to wend its way through Congress – culminating in the Energy Policy and Conservation Act in December 1975 – Rockefeller’s team went to work on a proposal for financing for energy projects. The rest of this section traces how this proposal was developed.

Policy Formulation: Proposals for an Energy Finance Corporation

The EIA plan was driven and championed by Vice President Nelson Rockefeller. As one administration official characterized it: “It was Nelson’s baby all the way.”¹⁵⁸ The proposal was formulated over the spring and summer of 1975 by “a whole mash of Rockefeller advisees,” including the White House’s Domestic Council (which was headed by Rockefeller and staffed by two of his former aides), the staff in the Vice President’s office, and outside financial consultants that Rockefeller knew from his years as Governor of New York. “At one stage,” reported the *New York Times*, “the preparation

¹⁵⁷ Cohen and Noll, *The Technology Pork Barrel*, 281.

¹⁵⁸ Rowen, Hobart. September 24, 1975. “Energy Plan is Victory for Rockefeller.” *Washington Post*.

of the proposal was so distinctly a Rockefeller operation that elements within the Administration with direct responsibility for energy matters became edgy.”¹⁵⁹ In this section, I discuss the details of this policy formulation, with particular attention to the bureaucratic politics and jostling for control within the White House.

December 1974-March 1975: Early Formulation

The concept of an energy financing corporation appears to have originated in a December 1974 report from the Commission on Critical Choices for Americans, which was a think tank that Rockefeller had established before he became Vice President.¹⁶⁰ The report provided numerous policy recommendations to reduce dependence on oil imports. Its recommendations for how to increase capital flows to energy production included regulatory policies, tax reforms, energy prices floors, and a financing program based on the post-war Reconstruction Financing Corporation (RFC). This was described in the chapter by Michael Deutch as: “Create RFC-like instrumentality of the Government to provide capital needed to increase and expedite our energy production and facilities (where tax incentives will not suffice).”¹⁶¹ The chapter by Peter Wallison, who was one of Rockefeller’s young aides, offered a slightly different wording that also hinted at a desired funding source: “Create RFC-like government-sponsored agency to seek long-term capital funds from OPEC or other sources.”¹⁶²

¹⁵⁹ Lelyveld, Joseph. September 27, 1975. “Rockefeller Making an Impact on Policy.” *The New York Times*. [online archive].

¹⁶⁰ Dick Allison to Nelson Rockefeller. May 12, 1975. “Energy Finance – Notes from Friday Meeting at Hot Springs.” Volume 21, Record Group (RG) 26, Nelson A. Rockefeller (NAR) Papers, Rockefeller Family Archives, Rockefeller Archive Center (RAC).

¹⁶¹ M.J. Deutch. December 26, 1974. “II. Moderate Dependence on Imports, Deterrence and Safeguards.” Vol. 21, RG 26, NAR, Rockefeller Family Archives, RAC.

¹⁶² P. Wallison. 1974. “I. Independence.” Vol. 21, RG 26, NAR, Rockefeller Family Archives, RAC.

The Vice President's staff began to flesh out this proposal over February-March 1975, after consultation with New York Stock Exchange (NYSE) economists and reports from the White House's Office of Policy Development (OPD) confirmed that capital shortages would be a huge problem for the energy sector.¹⁶³ The OPD estimated that the President's energy supply goals would cost roughly \$734-856 billion, while industry's investments would only be \$489 billion.¹⁶⁴ This left a shortfall of \$245-367 billion. (This was, however, admittedly a "crude approximation" using "round ball park calculations.")¹⁶⁵

Rockefeller's staff developed a proposal for a \$200 billion government corporation, initially called the Resource Policy and Finance Corporation (RPFC). The earliest articulation of the plan was in a February 27, 1975 memorandum by Richard Parsons, a 26-year old staffer in the Vice President's office. Parsons argued that private capital flows could not achieve the President's energy supply goals and raised a basic question: "who is going to finance all of this growth?"¹⁶⁶ He recommended that the federal government create the RPFC, financed by the sale of \$5 billion of U.S. Treasury

¹⁶³ Rockefeller spoke and met with Needham, which led to ongoing communications between the NYSE and the White House. The NYSE's chief economist, William Freund, emphasized that capital shortages, especially in the utilities industry, would be a huge challenge over the next decade. Their policy recommendations, however, were tax credits and relaxed regulations on foreign investment – not government programs.

¹⁶⁴ "Needless to say, with as little detailed planning as was done regarding the implementation of the "Project Independence" prior to and since the President's message we do not know how much all these "other" costs [e.g development of infrastructure for increased drilling, transmission, water supply, new town construction, etc. as well as R&D to improve existing technology] will amount to and, therefore, do not really know how big the total cost of the program would be." Robert Milligan and David Farrell to the Secretary of Commerce. February 24, 1974. Folder 84, Box 15. Series 2, RG 26, NAR, Rockefeller Family Archives, RAC.

¹⁶⁵ Robert Milligan and David Farrell to the Secretary of Commerce. February 24, 1974. Folder 84, Box 15, Series 2, RG 26, NAR, Rockefeller Family Archives, RAC.

¹⁶⁶ "The President, in his State of the Union Message, called for the construction of 200 major nuclear power plants, 150 major new coal-fired power plants, 30 major new oil refineries and 20 major new synthetic fuels plants by 1985. The question which immediately comes to mind is, who is going to finance all of this growth? If the 1974 experience is at all indicative of the shape of our capital markets, one would have to guess that the private sector is not capable of doing the job alone." Richard D. Parsons to The Vice President. February 27, 1975. "A New "RFC."" Vol. 21, RG 26, NAR, Rockefeller Family Archives, RAC

stocks and with the authority to issue up to \$200 billion in government guaranteed obligations. The RPFC had lofty goals indeed – not merely “energy self-sufficiency,” but also “economic stability” and “full employment.” In addition, it was portrayed as a way to “allow the recycling of “petro-dollars” without allowing direct investment [sic] in American businesses by foreign nations.”

Richard Parsons and Peter Wallison, both counsel to the Vice President, continued to iterate on drafts of the RPFC proposal over March 5-7. A March 5 draft suggested possible expenditures – \$5 billion for water pollution control, \$5 billion for highways and mass transit, \$5-10 billion for housing, and \$100 billion for energy, raw materials and industrial production – but it is apparent that at this stage the proposal was just being sketched out in very broad brushstrokes.

March – June 1975: Bureaucratic Politics in the Administration

Around the same time, other actors within the Ford administration began to pay attention to the proposal. James Lynn, Director of the OMB, raised the issue at a March 7 meeting of the Economic Policy Board (EPB), which was a cabinet-level board that Ford had established to oversee all economic matters.¹⁶⁷ The EPB decided to explore it and agreed that “Treasury will do the paper,” which is to say take the formal lead on reviewing options and developing a proposal.

From mid-March to mid-April, there were multiple competing lines of policy development, principally: (1) the Treasury developed a proposal for a smaller Energy Development Bank, administered by the Treasury; (2) the Federal Energy Administration

¹⁶⁷ For more on the EPB, which Ford called “the most important institutional innovation of my administration,” see: Porter, Roger B. 1982. *Presidential Decision Making: The Economic Policy Board*. Cambridge: Cambridge University Press.

(FEA) worked up their own version that was more narrow in scope, first called the Utility Finance Corporation and later renamed the Energy Financing Corporation; and (3) the Vice President's staff, now joined by the Domestic Council and outside experts, continued to refine the RPFC proposal. All three proposals were combined into a large briefing book by the end of April, intended for submission to the President.¹⁶⁸

Despite the EPB's designation of the Treasury as the lead agency, Rockefeller sought to wrangle control back under his Domestic Council. He convinced the president to set up a special Domestic Council Review Group to work out some of the differences across the proposals. "I understand the people around the President and how these things work," Rockefeller explained to the *New York Times*. "I was determined that I was not going to let anything get between me and the President."¹⁶⁹ On May 2, Rockefeller met with the principals, including the Secretaries of State, Treasury and Commerce, and sent Ford a triumphant memo: "It was our unanimous feeling that there is tremendous potential in the project, but that the concept should be amplified, with specific illustrations of how such a corporation would function." Rockefeller recommended that this analysis be conducted by a review group under the Domestic Council. That same day, Rockefeller met with the President – Ford's official schedule indicates that it lasted four minutes – and then sent a memo back to the group, reporting that "The President has directed proceedings with the proposal we have been considering."

Ford's Chief of Staff, Donald Rumsfeld, noting that Rockefeller "had a streak of bully in him," recalled things differently:

¹⁶⁸ In addition, staff at the OMB were working on a draft of "modified RFC concept," although they noted that "Treasury has the lead on this issue." James Lynn to Nelson Rockefeller. March 20, 1975. Folder 84, Box 15. Series 2, RG 26, NAR, Rockefeller Family Archives, RAC.

¹⁶⁹ Lelyveld, "Rockefeller Making an Impact on Policy".

The vice president had talked to two or three of the domestic people, Zarb, Greenspan and a few others about [his \$100 billion dollar national energy proposal], but he had done it in his office in a way that didn't brook disagreement. And so he would come out of the meeting saying, "Gee, they're all for it." And he told the president that. And I'm sure he believed it.¹⁷⁰

The Domestic Council Review Group was convened on May 5. In addition to Rockefeller and his chief of staff Richard Allison, it grew to include Roger Morton (Sec. of Commerce), Frank Zarb (Administrator of the FEA), James Lynn (Director of OMB), Alan Greenspan (Chairman of CEA), William Seidman (Executive Director of EPB), and Jack Bennett (Undersecretary of Monetary Affairs, Treasury). Minutes from several meetings in May indicate that many of these participants were highly skeptical of the RPFIC proposal.¹⁷¹ The group acknowledged the political appeal – Greenspan observed that its political appeal was, in fact, its central virtue – but opposed it for substantive economic reasons. They were concerned about the high costs, the inflationary effects, and the potential for pork-barrel manipulation of sponsored projects.

Undaunted, Rockefeller's staff continued to work on the proposal. They tinkered with the program magnitude. It increased in size after Rockefeller and William Donaldson, a former Wall Street securities executive brought in as a consultant, decided over dinner on May 12 that they should raise the capitalization to \$20 billion, which would bring the total program size to \$220 billion.¹⁷² But a few weeks later it was halved to \$10 billion of capital and \$100 billion of borrowing authority after consultations with Arthur Burns of the Federal Reserve. Rockefeller shrugged off the change, explaining in

¹⁷⁰ Reich and Rumsfeld, "Cary Reich Interview," 5.

¹⁷¹ Dick Allison to Bill Donaldson. May 5, 1975. "Notes from Monday Meeting." Folder 87, Box 15, Series 2, RG 26, NAR, Rockefeller Family Archives, RAC.

¹⁷² Richard Allison for the Record. May 13, 1975. "Energy Policy Finance – Notes from Dinner Meeting, May 12, 1975." Vol. 21, RG 26, NAR, Rockefeller Family Archives, RAC.

a memo to President Ford that “there was nothing sacrosanct about the \$220 billion figure.”¹⁷³

They also tinkered with the program name. Another of Rockefeller’s consultants, William Ronan, recommended that the RPFC be renamed the American Corporation for Employment, Energy, and Resources (AMCEER).¹⁷⁴ As Ronan explained, this would emphasize the employment benefits and de-emphasize the big-government whiff of the underlying RFC model.¹⁷⁵ In mid-May the RPFC was renamed the Energy Resources Finance Corporation (ERFCO), which would stick until it became the Energy Independence Authority (EIA) in early September.¹⁷⁶

By early June, Rockefeller began to pressure the President to announce ERFCO, telling him that they there was no more time to wait. “From a substantive viewpoint, we are already far behind your energy independence timetable,” he warned the President. “From a political viewpoint, Senator Bentsen, Senator Jackson, John Connally, and a number of others are talking more widely of the need for an ERFCO-type entity. Unless you move to preempt this concept, I fear you may end up seconding someone else’s initiative.”¹⁷⁷ However, this sense of urgency was not shared by all of the President’s

¹⁷³ Nelson Rockefeller to Gerald Ford. June 6, 1975. “Energy and Resources Finance Corporation (ERFCO)”. Folder 89, Box 15, Series 2, RG 26, NAR, Rockefeller Family Archives, RAC.

¹⁷⁴ Ronan was the Chairman of the Port Authority of New York and served on Rockefeller’s Commission on Critical Choices for Americans.

¹⁷⁵ William Ronan to Nelson Rockefeller. April 30, 1975. “Agency for Energy, Employment and Resource Development.” Folder 86, Box 16, Series 2, RG 26, NAR, Rockefeller Family Archives, RAC.

¹⁷⁶ Other names under consideration included: 1985 Inc., Energy Production Corporation, Energy Resources Investment Corporation, Consumers Energy Corporation, Future Energy Development Corporation, and Energy Growth Corporation. It is an interesting list, inasmuch as the choice of name indicates which aspects of the program were publicly emphasized. Source: Jim Cannon to Nelson Rockefeller, Roger Morton, Frank Zarb, and Bill Seidman. August 27, 1975. “Suggested Names for the Energy Finance Proposal.” Vol. 21, RG 26, NAR, Rockefeller Family Archives, RAC.

¹⁷⁷ Nelson Rockefeller to Gerald Ford. June 6, 1975. “Energy and Resources Finance Corporation (ERFCO).” Folder 89, Box 15, Series 2, RG 26, NAR, Rockefeller Family Archives, RAC.

advisers. To the contrary, the White House decided to “staff out” the proposal and submit it to greater internal review.

June: “Staffing Out” the Proposal

Rockefeller’s handling of the energy financing proposal was not viewed favorably throughout the Administration. In mid June, shortly after Rockefeller appealed to the President to announce ERFCO, this tension erupted into a fight over whether the proposal should be “staffed out.” As Donald Rumsfeld recounted:

[T]he staff would come to me and say, “You’ve got to stop this. This is crazy. It’s going to be a laughing stock on the hill. If the president puts it up here, it’s going to drop like a thud.” And, of course, the president had made his commitment because the vice president had told him that everyone was for it. And the president said, “We’ll be for it.” And he gave it to me and said, “What shall we do now?” And I said, “Well, the staff is not for it.” And the president said, “We’ll staff it around.”¹⁷⁸

The timeline of the staffing out process indicates the Vice President office’s displeasure with this new scrutiny.¹⁷⁹ On June 16, Dick Cheney, Deputy Assistant to the President, asked James Cannon of the Domestic Council to staff out the Vice President’s paper. Cannon asked Peter Wallison for a copy of the paper and was informed that modifications were still being made to it. Cannon had to obtain a roundabout copy of the legislation in the form of a draft memo from Richard Dunham. On June 18, this memo was sent out to a handful of staff in the Administration for review. Over June 19-26, the responses from most of the staff trickled in – but Frank Zarb and James Cannon delayed,

¹⁷⁸ Reich and Rumsfeld, “Cary Reich Interview,” 5.

¹⁷⁹ James Connor to Dick Cheney. July 30, 1975. “Energy Resources Finance Corporation.” Vol. 21, RG 26, NAR, Rockefeller Family Archives, RAC.

indicating that “they had questions as to whether this paper was the appropriate one to use for decision making.”¹⁸⁰

What had happened was that Rockefeller met with Zarb and Roger Morton (Secretary of Commerce) on June 25. As Rockefeller explained, “in view of the evident feeling that this subject was so very much in the area of responsibility of the Energy Resources Council,” he recommended “that they take over responsibility in the ERC for the preparations of an option paper.”¹⁸¹ At first glance this may seem a curious move, given Rockefeller’s prior insistence on maintaining the lead on ERFCO as well as his desire for fast action. But this deflected the staffing out of the Vice President’s proposal, and it helped build a broader base of support within the administration. Zarb and Morton subsequently informed Cannon that “instead of responding to this specific [ERFCO] proposal, a broader options paper incorporating this suggestion and others [would] be prepared for the President’s decision.”¹⁸² It was in their version of the proposal, which I turn to next, that synfuels began to make a more prominent appearance.

July-August: Integration with ERDA’s Synfuels Proposals

Frank Zarb had not been receptive to the Vice President’s initial energy financing proposals.¹⁸³ He recognized the capital shortages facing the energy sector and agreed that,

¹⁸⁰ As does a subsequent passage in Rumsfeld’s interview: “The vice president found out I was staffing it around after he thought it had been approved by the president and got angry. He would come into an office and yowl and wave his arms and threaten, saying I was opposing the president.” Reich and Rumsfeld, “Cary Reich Interview,” 5-6.

¹⁸¹ Nelson Rockefeller to Gerald Ford. July 31, 1975. “Energy Resources Finance Corporation.” Vol. 21, RG 26, NAR, Rockefeller Family Archives, RAC.

¹⁸² James Connor to Dick Cheney. July 30, 1975. “Energy Resources Finance Corporation.” Vol. 21, RG 26, NAR, Rockefeller Family Archives, RAC.

¹⁸³ As reported in the *Wall Street Journal*: “Energy Chief Frank Zarb was an enigma to the end, seeming to oppose the scheme on some occasions, seeming to support it on others.” Farney, Dennis. September 30, 1975. “Mr. Ford’s \$100 Billion Elephant.” *The Wall Street Journal*, 24.

politically, the President needed a dramatic initiative. However, he argued that the program had to be more precisely specified. Not only was it unclear how ERFCO would meet the President's energy supply goals, but the broadly defined mission would render it vulnerable to pork barrel politicization. In meetings throughout the spring, Zarb repeatedly emphasized the need to limit the program's scope, define the standards for project selection, and provide specific technical illustrations of projects and funding mechanisms.

In drafting the policy options paper with Roger Morton, he had a chance to do just that. The two technical areas where he thought they could act were nuclear facilities, including uranium enrichment, and coal conversion, gasification, and liquefaction. As it happened, the Interagency Task Force on Synthetic Fuels was releasing its findings to the Energy Resources Council on July 15. Zarb and Morton's view, as expressed in a draft memo, was that the "ERFC proposal should build on this assessment and as a minimum be structured to provide the recommended incentives."¹⁸⁴ Thus, the timing and the shift in bureaucratic control of the corporation proposal meant that the synfuels program and the energy financing programs became integrated in a way that Rockefeller had not intended.

The Task Force conducted a cost-benefit analysis of three levels of 1985 capacity targets: 350,000 barrels/day, 1 million barrels/day, and 1.75 million barrels/day. Although the President had announced a goal of 1 million barrels per day of synfuels, the Task Force recommended starting only with the 350,000 barrel synfuels program. In a few years this could be evaluated and, if promising, increased to the 1 million barrel program, which "would probably be beneficial if the [OPEC] cartel remains strong." As

¹⁸⁴ Jim Connor to Dick Allison. July 9, 1975. Folder 91, Box 17, Series 2, RG 26, NAR, Rockefeller Family Archives, RAC.

for the 1.75 million barrel goal, they concluded that not only was it unjustifiably costly, but it may even be “infeasible due to resource and institutional constraints.” (It is worth noting that this was precisely the goal adopted for Carter’s Synthetic Fuels Corporation just four years later.)

In the FEA policy options paper, Zarb and Morton used the 1 million barrels/day synfuels goal as the baseline for the financing program. A July 23 draft was structured around four potential “scopes” for the program, detailed below. There are two features of their proposal that are worth highlighting. First, these scope options demonstrate the range of policies that were still in play in the White House over the summer of 1975. Second, it is remarkable that these hugely differing programs were evaluated with short lists of pros and cons. At this stage, these were not grounded in quantitative analysis – in fact, they were not even associated with ball-park price tags or production forecasts. A few weeks had not been enough time for the FEA to conduct such analyses. The pros and cons were outlined as follows:

- (1) *Synthetic Fuel Development.* Focusing on synfuels would support the “energy area most in need of federal backing,” but it had the drawback that such a “limited-scope program will not be viewed as a significant, “Manhattan Project-type” undertaking.”
- (2) *Emerging Energy Technologies.* In addition to synfuels, the scope would be expanded to geothermal, solar, and conservation technologies. They noted, however, that there was a “[s]hortage of emerging energy technologies suitable for accelerated commercialization.”

(3) *Emerging Technologies plus Conventional Technology Demonstrations and Infrastructure.* This could include technologies to improve the efficiency of conventional energy development, to significantly accelerate the development of conventional technologies, or to advance infrastructure. Potential projects ranged from ‘coalplexes’ that integrated mining and processing to floating nuclear power plants to coal slurry pipelines. “Unlike the emerging technology options, a substantial impact of Manhattan Project scope upon domestic energy supply within the next ten years would occur,” they wrote. But it would involve “significant Federal financial exposure” and raise “legal, institutional, and political issues.”

(4) *All Conventional and Emerging Energy Technologies plus Infrastructure plus Resource Constraints.* This option expanded to all major conventional energy or conservation technologies – even in the absence of efficiency or acceleration benefits – as well as projects that increased resource supply. Such a broad program had the potential to accelerate energy supply to the point where it could exert pressure on the oil cartel, but it was administratively complex and highly inflationary. In addition, it would shift the boundary between the public and private sectors in the long-term: “a centralized Federal activity with more than 100 billion dollars, and the constituencies that would form around it, will make the enterprise extremely durable; private sector may be unwilling to launch any significant energy ventures without Federal assistance.”

President Ford was due to receive the FEA's proposal with these four scope options on August 6. Rockefeller sent a preemptive memo the day before, August 5, giving his own recommendations. He assigned ludicrously round-numbered production goals to three of the four options: 1 million barrels per day for the synfuels option, 2 million barrels per day for the emerging technologies option, and 20 million barrels per day for the last "all of the above" option. Rockefeller urged Ford to assign the synfuels and emerging technology activities to ERDA ("The first three Scope Options really deal with research, development, pilot plants and commercially sized demonstration plants. They do not deal with getting the production of energy on a broad scale underway here and now") and to have the broad Scope Option 4 become the mission of the Energy Resources Finance Corporation.¹⁸⁵

Ford's Decision and Announcement of the EIA

President Ford had a one-hour briefing on the energy finance corporation proposals on August 9, but he postponed his decision until after Labor Day. This gave his economic advisors one final chance to shoot down ERFCO. Alan Greenspan, Bill Simon, and Jim Lynn wrote extensive, hard-hitting letters of opposition at the end of August. Their arguments are worth reviewing in some detail because they illustrate how tremendously controversial the proposal was within the Administration.¹⁸⁶

¹⁸⁵ Nelson Rockefeller to Gerald Ford. August 5, 1975. "Analysis of the Energy Resources Finance Corporation (ERCF) Proposal by the Federal Energy Administration (FEA)." Folder 96, Box 17, eries 2, RG 26, NAR, Rockefeller Family Archives, RAC.

¹⁸⁶ This tension is further illustrated by the *Wall Street Journal* reporting from September 10: "The Erfco [sic] subject is so touchy ... that officials involved say "don't quote me" and add that they don't want to alienate Mr. Rockefeller." Gapay, Les. September 10, 1975. "Ford May Trim Rockefeller's Proposal For Public Firm to Fund Energy Projects." *Wall Street Journal*, 3.

Greenspan stated bluntly: “CEA opposes the concept behind ERFCO and the vehicle proposed to implement this concept.”¹⁸⁷ He argued that a financing corporation was unnecessary to achieve the President’s energy goals, that in fact “the damage to long run energy security may be substantial” because it would “repress ... energy initiatives which do not fit into its bureaucratic mold.” Moreover, it would have detrimental macroeconomic effects; it would distort the capital market, create inflation, and overall “reduce the efficiency and productivity of the economy.”

Lynn acknowledged the political imperative for a large energy supply initiative, but he argued that this was the wrong way to go about it.¹⁸⁸ He concurred with Greenspan that ERFCO, rather than creating capital, would divert it from other productive uses. As he chided the President, this “does not comply with your State of the Union principle of using the private sector to the maximum extent possible.” He argued for a much narrower approach to energy supply: “[w]here subsidies are clearly needed, as in nuclear and synthetic fuel areas, they are better administered as programmatic initiatives rather than by a financing institution.” The OMB thus recommended technology-specific programs for nuclear, synfuels, and coal, “each of which would seek to remove those specific constraints” that have been bottlenecks in these areas.

¹⁸⁷ Alan Greenspan to Eric Zausner. August 28, 1975. “CEA Position on ERFCO.” Vol. 21, RG 26, NAR, Rockefeller Family Archives, RAC.

¹⁸⁸ His letter really captures the politics of technological fixes: “even though most domestic supply strategies have lead times of a decade or more and will not reduce vulnerability to an embargo in the years just ahead, public perception of Presidential “we can do it” initiatives on the supply side are likely to strike a most responsive chord. As I understand it, the Domestic Council’s suggestion of an Energy Resources Finance Corporation to act as a Manhattan-project type catalyst would be, most importantly, an effort to capture and direct public attention along these lines.” James Lynn to Gerald Ford. August 29, 1975. “Energy Resources Finance Corporation.” Vol. 21, RG 26, NAR, Rockefeller Family Archives, RAC.

Simon wrote 14 pages detailing the Treasury's vehement opposition to the program.¹⁸⁹ His arguments ranged from fundamental conceptual problems ("ERFCO would mark a major shift away from a private sector economy in the United States"), to adverse macroeconomic effects, to the potential for horrendously inefficient investment outcomes ("a mechanism whereby the Federal Government would use some 120 billion dollars to subsidize ... various investment projects is almost sure to result in the greatest misallocation of resources our economy has ever experienced"). He decried that the proposal's "view of the proper role of government ... is completely counter to the philosophy previously expressed by this Administration." In terms of policy recommendations, Simon argued in favor of R&D instead of premature commercial development: "continued R&D work on unproven synfuels technologies funded through ERDA would seem to be more cost beneficial than massive Federal subsidies aimed at forced commercialization."

After receiving these critiques, Frank Zarb weighed in with a summary memo to the President on August 30.¹⁹⁰ He maintained his position that the President's goals for synthetic fuels, uranium enrichment, and pipelines required a large-scale financing authority. He conceded, though, that the economic advisors had made important points regarding the program's impact on capital markets, the intrusion into activities that should be left to the private sector, and the risk of "pervasive and uncontrollable" impacts raised by the program's size and autonomy. As such, he recommended several final

¹⁸⁹ William Simon to Frank Zarb. August 28, 1975. "Critical Analysis of the Proposal to Establish the Energy Resources Finance Corporation (ERFCO)." Vol. 21, RG 26, NAR, Rockefeller Family Archives, RAC

¹⁹⁰ Frank Zarb to the President. August 30, 1975. "The Energy Finance Corporation (EFC)." Folder 12 ("Memoranda to the President, August 7-31, 1975"), Box 1, Frank Zarb Collection, Gerald Ford Library. Retrieved from: <http://www.fordlibrarymuseum.gov/library/document/0025/002500018.pdf>

modifications to the program, most notably including an offer to scale the program down from \$120 billion to \$75 billion (comprising \$25 billion of equity and \$50 billion of debt). Rockefeller countered on September 3 that “a compromise of \$100 billion ... would be reasonable,” ominously reminding Ford that “[v]arious Presidential aspirants, particularly Jackson, are readying announcements of similar plans any day now – with the possibility of stealing the leadership from you.”¹⁹¹

In early September, President Ford conclusively approved the financing corporation. In this final iteration – finally named the Energy Independence Authority (EIA) – it was a 10-year, self-liquidating, \$100 billion quasi-public corporation. It would be launched with \$25 billion in equity, funded by Treasury purchases of EIA’s stock (as Peter Wallison characterized it, “The equity portion ... is really supposed to represent the amount the Government is willing to lose on EIA’s risky projects”¹⁹²). It would also have the authority to borrow up to \$75 billion on an “off-budget” basis.

Ford announced the EIA at a September 22 speech to the AFL-CIO in San Francisco. “It is designed to achieve what many regard as impossible – energy independence by 1985,” he explained. “It will serve as a catalyst and stimulant, working through – not in place of – American industry.” The plan drew cheers from the audience in San Francisco.¹⁹³ But the media reception to the plan was uniformly negative. “It was purely a political decision – and economic advisers always lose to the politicians on the big ones,” one of the principals told the *Washington Post*.¹⁹⁴ “For all the high-flown

¹⁹¹ Nelson Rockefeller to Gerald Ford. September 3, 1975. “Energy Independence Authority.” Folder 96, Box 18, Series 2, RG 26, NAR, Rockefeller Family Archives, RAC.

¹⁹² Peter Wallison to Nelson Rockefeller. April 30, 1976. “EIA.” Vol. 24, RG 26, NAR, Rockefeller Family Archives, RAC

¹⁹³ Farney, Dennis. September 23, 1975. “Ford Proposes \$100 Billion Plan for Energy Aid.” *Wall Street Journal*, pg. 3; “Rocky’s Moon Shot.” October 6, 1975. *Time* [retrieved from the online edition]

¹⁹⁴ Rowen, “Energy Plan.”

rhetoric in which the President clothed the idea, it is essentially a bailout device for large corporations,” editorialized the *New York Times*.¹⁹⁵ “How did the President make such a horrendous mistake, endorsing a package so uncharacteristic of his thinking during his quarter-century of public life?” questioned the *Wall Street Journal*, surmising that:

It can only be assumed that the President wants to do something, something big and dramatic to persuade the public that he really does want to put people back to work and solve the energy problem. And the only big, dramatic plan around was this one that the Vice President cooked up. We suspect Mr. Ford will come to regret his impetuosity and wish that it could somehow be forgotten, but we also suspect that his critics on the left and on the right will not be so charitable.¹⁹⁶

Indeed, as the newspapers anticipated, when the EIA proposal was subsequently sent to Congress, the EIA proposal was attacked both from the left and the right. These Congressional politics are the subject of the next section.

V. BIDDING UP? EIA AND SYNFUELS FALL FLAT IN CONGRESS

During the contentious Administration debates over the EIA proposal over the spring, critics of the plan – Greenspan, Simon, Lynn, and, early on, Zarb – repeatedly voiced concerns that it would become a “Christmas Tree.” That is, they predicted that members of Congress would adorn the bill with amendments advancing their particularistic interests. As it turns out, these fears were unfounded. Members did not rush in to amend the program. To the contrary, they wanted nothing to do with it.

Over the fall of 1975, Congress ignored the proposal. President Ford sent the draft legislation to Congress on October 10, and Senator Paul Fannin (R-Ariz.) kindly introduced it as S. 2532, the Energy Independence Authority Act, on October 20. It was

¹⁹⁵ “Capital for Energy.” September 23, 1975. Editorial. *New York Times* .

¹⁹⁶ “Thinking Big.” September 25, 1975. *Wall Street Journal*, 20.

referred to the Banking Committee on November 5 – and then nothing happened. “That \$100 billion energy development proposal of President Ford’s is going nowhere,” proclaimed the *Wall Street Journal*.¹⁹⁷ Congress passed major energy legislation in December in the omnibus Energy Policy and Conservation Act, but there was no movement to incorporate the EIA into it.

Over the winter and spring, Rockefeller’s office mounted a campaign to get the EIA proposal back into play in Congress. His aide, Jack Veneman, outlined the formidable challenges in a January memo:

- There are very few if any supporters of EIA on the Hill;
- There is limited support among interest groups. It is virtually nonexistent when you go beyond labor and certain specialized industries.
- There is no evidence that an overall strategy for promoting EIA either on the Hill or among the public has been developed.¹⁹⁸

The Vice President’s staff, namely Jack Veneman and Peter Wallison, drew up a “5-week Crash Strategy” to promote the EIA. A large focus was on interest groups: gathering information on groups’ attitudes, tailoring analyses and arguments towards specific groups, and meeting with groups “to sell EIA and to generate commitments from the groups to press for hearings.” In addition, the strategy involved a media blitz, meetings with key Congressmen, and pressure on Congress to establish an ad hoc committee on the EIA. Through the winter and spring, they held legislative lunches and printed up brochures. Rockefeller published an op-ed in the *New York Times* and appeared on television news shows (60 Minutes, Issues and Answers).¹⁹⁹

¹⁹⁷ Gapay, Les. November 6, 1975. “Plan to Stimulate Synthetic-Fuel Program with Federal Aid Nears Passage in Congress.” *The Wall Street Journal*. 44.

¹⁹⁸ Jack Veneman to Nelson Rockefeller. January 27, 1976. “Energy Independence Authority.” Vol. 23, RG 26, NAR, Rockefeller Family Archives, RAC

¹⁹⁹ Rockefeller, Nelson A. February 24, 1976. “Toward Energy Independence.” *New York Times*. [Retrieved from online archives].

Their campaign yielded four days of hearings in the Senate Banking Committee in April and May. Chairman William Proxmire (D-Wisc.) started the hearing off with a scathing critique of the EIA. “If the Federal Government steps in and finances high cost projects that the private market won’t touch we could end up with a lot of white elephants on our hands,” he said in his opening statement. “It’s basically a \$100 billion blank check.”²⁰⁰ A majority of the witness also criticized or outright opposed the proposal. Nevertheless, based on conversations with the committee’s staff director, Peter Wallison optimistically reported to Rockefeller that “we made substantial progress in these hearings, despite the fact that the turnout by Senators was uniformly low.”²⁰¹ He said that the staff director told him that “a sufficiently strong case had been made for the proposal to preclude any chance that it would be overwhelmingly voted down by the Committee,” although it would likely be modified to include a greater emphasis on conservation, a lower initial capitalization, and more stringent Congressional controls.²⁰²

Congress never did take any positive action on the EIA. The brief gust of momentum died out. The Senate Banking Committee did not report the EIA legislation, and the House committees that had been assigned the bill dragged their feet on scheduling hearings over the summer. The Vice President’s staff doggedly pursued the EIA to the bitter end – as late as December 1976, Peter Wallison reminded Rockefeller,

²⁰⁰ *Energy Independence Authority Act of 1975: Hearings Before the Committee on Banking, Housing, and Urban Affairs, United States Senate*. April 12, 13, and 14 and May 10, 1976. 94th Congress. (Testimony of William Proxmire).

²⁰¹ Peter Wallison to Nelson Rockefeller. April 14, 1976. “Energy Independence Authority.” Vol. 24, RG 26, NAR, Rockefeller Family Archives, RAC.

²⁰² Peter Wallison to Nelson Rockefeller. April 14, 1976. “Energy Independence Authority.” Vol. 24, RG 26, NAR, Rockefeller Family Archives, RAC

“if you wish you can speak to the President about a reference to EIA” in the President’s energy message²⁰³ – but their efforts came to naught.

The fact was that the EIA plan was opposed from both ends of the political spectrum.²⁰⁴ Liberals denounced it as a handout to big business. Conservatives opposed its big budget and autonomy from Congressional oversight. And as I describe in greater detail in the next section, it was opposed by a broad array of organized interest groups: environmentalists objected to the emphasis on synfuels and nuclear energy instead of conservation, while industry and business saw it as dangerous meddling in the free market. Labor was the only significant constituency in favor of the EIA, and that was hardly enough to carry the legislation forward.

Perhaps these concerns could have been overcome had the public been urgently pressuring legislators to do something about energy. But by late 1975, there was no longer an atmosphere of crisis. The embargo had been lifted, Saudi Arabia had resumed full production, oil prices had stabilized, inventories had recovered, and real oil prices were actually declining. Polls indicated that over 70% of the public no longer believed that energy was even a serious problem. In short, “American energy patterns seemed back to normal.”²⁰⁵ Rockefeller lamented this during the Senate hearings:

“Unfortunately, many Americans don’t believe the energy crisis is real because there is not tangible evidence of it They recognized it 2½ years ago during the Arab oil embargo when the lines formed at the service stations. But there are no lines now.”

²⁰³ Peter Wallison to Nelson Rockefeller. December 6, 1976. “The President’s Energy Message.” Vol. 24, RG 26, NAR, Rockefeller Family Archives, RAC.

²⁰⁴ Sperling, *New Transportation Fuels*.

²⁰⁵ Engler, Robert. 1977. *The Brotherhood of Oil: Energy Policy and the Public Interest*. Chicago: University of Chicago Press. 7; See also: Stagliano, Vito A. 2001. *A Policy of Discontent: The Making of a National Energy Strategy*. Tulsa, OK: PenWell Corporation.

Michael Deutch, one of the original advocates for an “RFC-like” program, presciently predicted that Congressional opposition could hold until “the next international alert or energy crunch.”²⁰⁶ Indeed, after rejecting the EIA in 1975-76, Congress would pass the similar SFC in the feverish crisis atmosphere of 1979-80.

In short, the lack of a sustained crisis atmosphere meant that the “bidding up” and “signing on” mechanisms were never initiated for the EIA. Having reviewed the lack of Congressional bidding up, I now turn to the lack of interest groups’ signing on.

VI. SIGNING ON? INTEREST GROUP OPPOSITION

Rockefeller began meeting with business interests as early as May to drum up support for his proposal. On May 9, he met with a group of business, industrial, and financial leaders – brought together by David Packard – during a Business Council meeting in Hot Springs, Virginia. Rockefeller confidently reported back to the President that although their “initial reaction was wary,” he “successfully met” most of their arguments, such that their “reaction at the meeting’s end was much more favorable ... and a measure of support was kindled.”²⁰⁷ The fact was, though, that few interest groups ever endorsed the plan. The EIA was opposed by a wide range of organized interests: oil industry, coal industry, environmental groups, consumer groups, and business groups. Only labor and the nuclear industry supported the proposal. Thus, despite Rockefeller’s vigorous attempts to get groups to “sign on” to the EIA, most groups remained wary.

²⁰⁶ Michael Deutch to Richard Allison. September 17, 1975. Folder 96, Box 18, Series 2, RG 26, NAR, Rockefeller Family Archives, RAC.

²⁰⁷ Nelson Rockefeller to Gerald Ford. May 12, 1975. “Meeting on Energy Policy Finance, Hot Springs, Virginia, May 9, 1975.” Folder 88, Box 15, Series 2, RG 26, NAR, Rockefeller Family Archives, RAC.

“Even the businessmen it supposedly benefits are divided on its merits,” reported the *Wall Street Journal*.²⁰⁸

This section analyzes the role in EIA policy-making of three key interest groups: oil, environment, and labor. It describes what these groups thought of the proposal and how they sought to voice their preferences. It also shows how Rockefeller and his supporters in the Ford Administration worked assiduously to cultivate the support of business and labor (though not environmental groups). This outreach is important, because one of the themes running through this dissertation is that interest groups’ behavior is not purely an independent variable. We conventionally think of interest groups as lobbying and influencing politicians, but we also need to be attentive to how politicians lobby and influence interest groups. Senator William Proxmire hinted at this dynamic in the April hearings on the EIA when he told Vice President Rockefeller: “[we] tried hard to get testimony from the people in the industry – they tell us they don’t like this bill but they won’t tell us why. I wish they would. I think they’re a little afraid of you ... [and] they don’t want to offend you somehow.”²⁰⁹

Labor

Labor was the only major interest group that enthusiastically supported the EIA proposal. President Ford first announced the EIA plan at an American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) meeting in September 1973 – drawing cheers and applause – and the administration continued to seek labor support for the plan through the fall and winter. In November, Frank Zarb and Robert Aramo, who

²⁰⁸ Farney, “*Mr. Ford’s \$100 Billion Elephant*”, 24.

²⁰⁹ *Energy Independence Authority Act*, 12.

was Rockefeller's counsel on labor, met with the AFL-CIO's Energy Policy Committee. There was a "spirited discussion [that] ensued," with labor wanting the EIA to prioritize projects that were not sponsored by the major oil companies.²¹⁰ On the whole, though, it was a successful meeting for the administration, and a few days later the AFL-CIO issued a press release endorsing the EIA: "Private industry, left to itself, cannot and will not resolve the energy crisis which still plagues this nation." In December, Aramo continued to seek labor's endorsement for the plan. He met with approximately 25 legislative aides and representatives of unions, including in transportation, maritime, construction, hospitality, office workers, and public employees. "I believe that support of unions ... is vital and therefore have made an all-out effort to contact a substantial cross-section of the labor movement," he wrote in a December 12 memorandum to Rockefeller.²¹¹

The AFL-CIO became a staunch supporter of the plan. Interestingly, their support was only partly predicated on jobs from energy construction. More fundamentally, the AFL-CIO leadership was convinced that long-term economic stability and industrial growth depended on secure energy supplies. This stance was clearly demonstrated in an exchange between Senator William Proxmire, Chairman of the Senate Banking Committee, and Andrew Biemiller, Director of the AFL-CIO's Department of Legislation, during the Committee's April 1976 hearings on the EIA:²¹²

The Chairman: The Vice President argues that this would increase the number of jobs by 1.2 or 1.3 million, a figure which didn't seem to me very logical. We didn't challenge him on it, because there were so many other things to discuss. But one of your central concerns is jobs. You and your organization have fought very hard to reduce unemployment, provide more work. What, in your view, would be the effect of this on employment in the country?

²¹⁰ Peter Wallison to Nelson Rockefeller. November 11, 1975. "EIA." Vol. 23, RG 26, NAR, Rockefeller Family Archives, RAC

²¹¹ Robert Aramo to Nelson Rockefeller. December 10, 1975. "Meeting of Labor Representatives to Support EIA." Vol. 23, RG 26, NAR, Rockefeller Family Archives, RAC

²¹² *Energy Independence Authority Act*, 156 (Testimony of Andrew Biemiller).

Mr. Biemiller: We think it is absolutely essential if we are to maintain any kind of a full employment economy in this country. I don't have to remind you or anyone else who serves on this committee that we are below the trough of all postwar depressions at the moment. In our opinion, currently unemployment is actually over 10 million and not the figure that the Government is using. We cannot get those jobs without sufficient energy, and this is what our concern is.

The Chairman: But as far as the direct effect is concerned, many facilities would be located in remote areas, Canadian permafrost, Colorado mountains. You feel the principal effect of this in bringing employment in the center cities, for example, would be in making energy more abundant and at a more reasonable price?

Mr. Biemiller: There would be, of course, some jobs created in the construction of plants and energy lines and the like. And in a shale project, for example. But the main thing is, we want a source of energy available. We see real problems. ... We think if we are going to make use of the 25 percent of current industrial facilities that are not utilized at all, that we are going to have to have more energy in this country.

The AFL-CIO also spent a considerable portion of their testimony advocating for energy conservation. This was not a position that might have been expected from purely a job-creation angle, and it was certainly not what the Ford administration had emphasized in the EIA proposal. But the AFL-CIO's goal was long-term energy security, not merely short- to medium-term construction jobs. In sum, even the staunchest supporter of the EIA subtly pushed back on the Ford administration's approach to energy deployment.

Oil Industry

The oil industry was likely to be a prime beneficiary of the EIA's loan guarantees for synthetic fuels commercialization. Many of the oil majors had invested heavily in coal reserves beginning in the late 1960s, and oil companies like Mobil, Exxon, and Gulf were at the forefront of coal gasification and liquefaction research. It was therefore the oil majors who had the expertise and financial resources to launch the earliest commercial-scale projects – not the technologically backward coal companies.

Yet the oil industry staunchly opposed the EIA. Their position was that the most efficient pathway to energy independence was allowing the price of oil to rise, which would stimulate consumer conservation and generate greater capital resources for oil exploration. As the American Petroleum Institute (API) explained in a statement submitted to the April 1976 Senate Banking Committee hearings on the EIA:²¹³

The deregulation and decontrol of oil and natural gas prices would eliminate the need to ... create the Energy Independence Authority. The real beneficiaries of price decontrol action by Congress will be the American taxpayers and consumers, who would not have to bear the more expensive and less efficient costs of the EIA.

Their position did not include assurances that the oil companies would readily develop synfuels without government assistance. They would come to claim this just a few years later when the SFC was proposed, but in 1975-1976 the oil companies readily acknowledged that high capital costs, technological uncertainties, and environmental impacts posed a serious challenge for commercialization. It was their opinion, though, any federal assistance should continue to be channeled through ERDA. This position was most clearly articulated in the Congressional testimony of John Hopkins, Acting President of the Synthetic Fuels Division of the Union Oil Co. of California. Given the risks, he acknowledged that “it seems abundantly clear that private industry will not soon achieve significant synthetic fuels development on its own.” But he argued that the EIA would be “an expensive and inefficient way to get the job done. It creates a second large government organization with considerable authority for very large expenditures.”²¹⁴

The Ford administration did not lobby the oil industry to publicly endorse the EIA as aggressively as they lobbied the unions and the business community. Oil companies were politically unpopular in the wake of the oil embargo, having been blamed for the

²¹³ *Energy Independence Authority Act*, 431 (Statement of the American Petroleum Institute).

²¹⁴ *Energy Independence Authority Act*, 428 (Testimony of John Hopkins).

crisis by much of the American public, and their endorsement would hardly have helped the EIA's prospects in Congress. Nevertheless, Vice President Rockefeller did try to head off the oil industry's opposition to the plan. In July 1975, months before Ford announced the EIA plan, Rockefeller raised the ERFCO proposal with a group of energy industry executives who had been assembled by his nephew, Jay Rockefeller. The executives were unconvinced. In a follow up letter to the Vice President, Exxon's chairman M.A. Wright agreed that the United States needed strong measures for energy self-sufficiency, but argued that "[t]his can be best approached through free market forces which will encourage development of domestic energy supplies and encourage conservation and efficiency in energy utilization."²¹⁵

Environmental Groups

Environmental groups were not hugely involved in debates about the EIA. They did not launch a large public campaign the way they would do with the SFC a few years later. Archival materials from the Sierra Club and Friends of the Earth on alternative fuels policy during this period are relatively small in volume. The environmental groups' advocacy appears to have been limited to a handful of fact sheets, "Dear Member" letters, and Congressional testimony – mostly dealing with synfuels commercialization in general rather than the EIA in particular.

In their advocacy, the environmental groups stressed that subsidies for synfuels commercialization were neither economically efficient nor environmentally responsible.

An Environmental Policy Center fact sheet from November 1975 highlighted the

²¹⁵ M.A. Wright to Nelson Rockefeller. August 15, 1975. Folder 93, Box 17, Series 2, RG 26, NAR, Rockefeller Family Archives, RAC.

conclusions of the Synthetic Task Force's recent report: "the cost of a synfuels subsidy program would exceed its benefits to the nation."²¹⁶ A Sierra Club letter to House leadership in March 1976 argued that "indiscriminate commercialization" of synfuels would be "a dubious and even desperate overreaction" to the oil shortages.²¹⁷ A letter from Friends of the Earth, Environmental Action, and the Sierra Club in April 1976 most colorfully illustrated the position of the green groups:

We think it would be folly to force upon this country large-scale demonstrations of oil shale and coal gasification technologies, where not only would the people have to suffer the impacts of boom towns, polluted air, polluted and depleted water, and disturbed land, but also they would end up paying companies to cause this damage.²¹⁸

Although opposed to massive loan guarantees and commercialization subsidies, the environmental groups emphasized that they supported ERDA's ongoing research for oil shale, coal gasification, and coal liquefaction. They sought to position themselves as not being against synfuels per se, but against subsidies for premature commercial development.

²¹⁶ Environmental Policy Center. November 1975. Folder 1, Carton 44. Sierra Club Archives.

²¹⁷ Greg Thomas to Olin Teague. March 16, 1976. Folder 35, Carton 44. Sierra Club Archives.

²¹⁸ Blake Early, Jeff Knight, and Linda Billings to Members of Science and Technology Committee. April 27, 1976. Folder 10, Carton 44, Sierra Club Archives.

CHAPTER 5: SYNTHETIC FUELS CORPORATION, 1979-1980

“The SFC was a classic case of a crash program, and crash programs are always dangerous.”

– Washington Post editorial²¹⁹

I. INTRODUCTION

President Carter announced his plans for a “crash” synthetic fuels program on July 15, 1979. The nation was in the midst of a crippling energy crisis – replete with gas lines, fears about Three Mile Island, and outbreaks of strikes and violence over oil shortages – and Carter offered an ambitious energy plan as a way to restore the country’s confidence. The centerpiece of the plan was a quasi-governmental corporation to fund the commercialization of alternative fuels:

To give us energy security, I am asking for the most massive peacetime commitment of funds and resources in our Nation’s history to develop America’s own alternative sources of fuel. ... I propose the creation of an energy security corporation to lead this effort to replace 2½ million barrels of imported oil per day by 1990.

Carter’s statement about it being the “most massive peacetime commitment of funds” was not mere rhetorical flourish. The proposed cost of what Carter called the Energy Security Corporation (ESC) was \$88 billion – more than the Apollo and Manhattan projects put together.²²⁰ It was an astonishing figure, especially coming from a peanut farmer and environmentalist who had actually worked to minimize federal funding for synfuels in the previous two years, and it was correspondingly controversial. The public was not clamoring for it. Interest groups fought it vigorously. Conservatives and liberals alike in Congress tried to rein it in. Nevertheless, the proposal was eventually

²¹⁹ “Obituary for the Synfuels Corp.” 29 April 1986. Editorial. *The Washington Post*, A18.

²²⁰ The Manhattan project cost about \$2 billion, and the Apollo project cost nearly \$25 billion. Adjusted for inflation, these were respectively about \$8 billion and \$62 billion in 1979 dollars.

enacted by Congress, becoming the Synthetic Fuels Corporation (SFC), as established by the 1980 Energy Security Act.

The \$88 billion ESC proposal dramatically changed the stakes of alternative fuels policy-making in 1979-80. Yet while the proposal's impact has been widely recognized, its origins have remained unexamined, even misunderstood. The richest scholarly accounts of energy policy during this period spend no more than a few paragraphs describing how the administration developed the plan – and even then, the focus has been on the external drivers rather than the internal formulation process. The plan is often presented as if it emerged fully formed during President Carter's July retreat to Camp David,²²¹ when in fact the concept of a liquid fuels financing corporation was something that the administration had been exploring for months. In addition, some accounts have the sequencing between two components of the plan backwards, presenting the tax measures as if they pushed through in order to fund the synfuels financing corporation,²²²

²²¹ “Overwhelmed by public despair about the energy situation and their distrust of government, Carter retreated to Camp David to contemplate his energy strategy. When he returned from Camp David, he came up with the most ambitious synthetic fuel program in [the] world's history.” Yang, Chi-Jen. 2008. *Powered by Technology or Powering Technology? Belief-Based Decision-Making in Nuclear Power and Synthetic Fuel*. Ph.D. Dissertation, Princeton, 80.

“After a period of soul-searching at Camp David, Carter decided to develop a synfuels program that would outreach the House measure. In his July 15 message, he proposed a massive commitment to develop the synfuels industry.” Katz, James Everett. 1983. *Congress and National Energy Policy*. New Brunswick, NJ: Transaction Publishers.

“Seemingly unprepared for the House passage of the [synfuels] bill, Carter's initial reaction was to hold an energy summit at Camp David and to try to set his own itinerary for the “synfuels train.” Willis, Sabrina. 1987. “The Synthetic Fuels Corporation as an Organizational Failure in Policy Mobilization.” In Ernest J. Yanarella and William C. Green, eds., *The Unfulfilled Promise of Synthetic Fuels: Technology Failure, Policy Immobilism, or Commercial Illusion*. New York: Greenwood Press, 74;

“President Carter, under intense pressure to “get moving” on the energy problems facing the nation, retreated to Camp David for the now-famous “Energy Summit.” When he returned, he and his policy advisors had dramatically revamped their earlier energy program ... Carter returned with a policy that now included an ambitious synfuels development program much larger than the House plan.” Hamlett, Patrick W. 1987. “Technological Policy Making in Congress: The Creation of the U.S. Synthetic Fuels Corporation. In Ernest J. Yanarella and William C. Green, eds., *The Unfulfilled Promise of Synthetic Fuels: Technology Failure, Policy Immobilism, or Commercial Illusion*. New York: Greenwood Press, 56-7.

²²² For example, this is how the Carter program was described by energy historian Meg Jacobs: “Carter proposed a massive government program to create synthetic fuels. He pushed this program through

when in fact it was only the prior existence of the tax proposal that enabled the White House to quickly announce a synfuels commercialization plan. These common misunderstandings obscure the real drivers and decision-making processes that led to radical energy policies after the second oil shock.

In this chapter, I fill this scholarly gap by providing a detailed tracing of how the proposal for the Synthetic Fuels Corporation emerged and evolved in early 1979. The structure of the case study corresponds with the five sections of the theoretical model: context, crisis, Presidential policy formulation, Congressional response, and interest group participation. *Context* provides background on U.S. national energy policy-making in 1977-1978. During this period, the national energy agenda did not emphasize synthetic fuels. Carter's 1977 National Energy Policy instead focused on conservation and renewables. Moreover, he sought to minimize the cost of ongoing synfuels demonstration projects. *Crisis* reviews the oil shortages in the wake of the Iranian Revolution as well as the initial responses of the White House and Congress over early 1979. President Carter sought to respond with voluntary conservation measures in January-February, a standby gasoline rationing plan in March, and oil pricing and tax measures in April. Congress stalled on these proposals, then rushed headlong towards the nearest technological fix, i.e. synfuels, in June and July. This was widely described as a "synfuels fever" and represents the early bidding up of synfuels proposals between the House and Senate.

Congress, along with a windfall profits tax on oil corporations to pay for it." Jacobs, Meg. 2010. "Wreaking Havoc from Within: George W. Bush's Energy Policy in Historical Perspective." In Julian E. Zelizer, ed., *The Presidency of George W. Bush: A First Historical Assessment*. Princeton, NJ: Princeton University Press, 144.

Presidential policy formulation analyzes the process by which the White House subsequently formulated its own crash program for synthetic fuels. The President's energy advisers had actually been considering various synfuels strategies for months; in part, this was a tactic leveraging "synfuels fever" to promote the White House's decontrol-and-tax plan. The deteriorating crisis conditions in June and July, however, forced the White House to announce a major energy plan before it was fully prepared. The conventional wisdom about the ESC being composed on the spot at Camp David is thus partially, but only partially, true. *Congressional response* examines how the ESC proposal was subsequently processed by Congress, in particular the Senate. Although the Senate Finance Committee tried to gut the windfall profits tax, and the Senate Banking Committee tried to counter the ESC proposal with a \$4 billion demonstration program, the Energy Committee's version of a phased SFC was enacted. The SFC differed from Carter's ESC proposal in several respects, most significantly with the phasing of funding, but it did retain the structure of the \$88 billion quasi-public synfuels financing corporation. *Interest group participation* explores the role of interest groups within this process, particularly focusing on environmental groups, oil companies, and coal companies. There are two striking lessons that come out of this final section: First, although these groups all opposed (or at least were wary of) the synfuels corporation proposal, they expressed measured support for synthetic fuels development in general. My own interpretation is that, to some extent, this served to validate the synfuels proposals in Congress. Second, although we often think of interest groups as influencing policy-makers, this case illustrates that interest group preferences were also shaped by

their relationships with those policy-makers. The coal industry, in particular, reluctantly supported the SFC proposal for these political reasons.

II. CONTEXT: ALTERNATIVE ENERGY POLICY, 1977-1978

When President Carter took office in 1977, he put energy at the top of his domestic policy agenda. But it was not until the summer of 1979 – after the oil shock had metastasized into a national crisis – that he embraced alternative fuels as a priority. For the first two years of his administration, the President’s proposals instead focused on reducing demand for oil and natural gas through taxes and regulatory standards, reducing oil dependence by converting utilities to coal, and promoting solar and renewable energy. Synfuels initiatives were limited to one or two Department of Energy (DOE) demonstration plants, and Carter sought to rein in even these proposals.

This pre-crisis policy context is the subject of this section. I review Carter’s 1977 National Energy Policy, which barely survived a bruising 18-month battle in Congress, and the 1978 DOE energy supply initiative. This sets the stage for the 1979 policy-making. The key point is that in the two years leading up to the oil shock, synthetic fuels scarcely entered into national energy policy debates. Moreover, when synfuels expenditures *were* proposed, President Carter sought to hold them down. The government’s (and especially the White House’s) sudden lurch towards synfuels in 1979 thus represented a radical turnabout in policy.

1977-78 - National Energy Plan

That Carter immediately focused on energy was, actually, somewhat surprising. Energy played a minor role in the 1976 presidential election. The crisis atmosphere of the 1973-74 oil shock had passed, and Carter personally had an “apparent lack of intense interest in energy issues.”²²³ But natural gas shortages during the bitterly cold winter of 1976-77 brought energy supply back into the political spotlight, and the incoming Carter administration picked up on it as a major domestic policy issue.²²⁴

In his first fireside chat, on February 3, 1977, Jimmy Carter signaled that energy policy would be on the top of his Presidential agenda. Famously wearing a cardigan to ward off the chill of a lowered thermostat, he admonished the American people that “[a]ll of us must learn to waste less energy.” Carter declared that creating a national energy policy would be one of his “most urgent projects,” and he promised to develop a comprehensive National Energy Plan (NEP) within 90 days that would emphasize conservation, renewables, and cleaner coal power. The daunting task of developing the NEP within such a short deadline was given to Carter’s special energy advisor, James Schlesinger, who would soon become the first Secretary of the new Department of

²²³ Barrow, John Costly III. 1996. *An Era of Limits: Jimmy Carter and the Quest for a National Energy Policy*. Ph.D. Dissertation. Vanderbilt University.

²²⁴ External events alone seem unable to explain Carter’s conversion to energy issues – particularly because the natural gas shortages were due more to regulatory distortions than resource shortages. Daniel Yergin suggested that Carter had read a persuasive report on oil shortages: “Carter read a CIA report, prepared in late 1976, predicting future oil shortages; he found it compelling and persuasive, and it was important in motivating him to proceed the way he did.” John Barrow attributes Carter’s abrupt attentiveness to energy to the influence of Admiral Rickover, although Rickover’s biography indicated that he was not brought in to formally advise Carter until February 1977. Sources: Yergin, Daniel. 2008. *The Prize: The Epic Quest for Oil, Money, and Power* [New Edition]. New York: Free Press, 662; Barrow, *An Era of Limits*.

Energy.²²⁵ “Schlesinger had asked for longer, but Carter refused because he wanted to act boldly and quickly before losing popularity.”²²⁶

Schlesinger assembled a task force, called the Office of Energy Policy and Planning (OEPP). The task force was small and insular, composed primarily of economists and public administrators that Schlesinger had previously worked with. Only one person on the task force had substantial experience in the energy industry. The task force worked at a frenetic pace, putting in twelve-hour days to meet the deadline, and in remarkable seclusion, as Carter was determined to keep the policy design process insulated from political and industry pressures. OEPP staff met with industry and environmental interest groups in a series of “mini-conferences” in March 1977, but these were brief meetings during which the groups had a chance to voice their interests but were not consulted on the emerging policy (we will return to these mini-conferences later in this chapter, though, since they provide clear, private statements of interest groups’ preferences prior to the 1979 energy crisis). Even the White House’s Domestic Policy Staff was largely kept in the dark.

President Carter introduced the NEP to a joint session of Congress on April 20, 1977. The proposal had three major strategies to reduce dependence on oil imports: (1) inducing conservation by raising the cost of oil and natural gas (primarily through increased taxes) and setting regulatory standards; (2) stimulating utilities and industries to convert from oil and natural gas to coal; and (3) promoting solar, geothermal, and

²²⁵ A Harvard-trained economist who had served under Nixon as the chairman of the Atomic Energy Commission (1971-1973), director of the Central Intelligence Agency (1973) and Secretary of Defense (1973-1975), Schlesinger had a reputation as a brilliant, though arrogant, Washington insider. A particularly insightful description of Schlesinger is found in: Barrow, *An Era of Limits*.

²²⁶ Ponder, Daniel E. 1999. “The Presidency as a Learning Organization.” *Presidential Studies Quarterly*, 29(1), 106.

hydroelectric energy through tax credits and research and development (R&D) funding. The R&D program included generous support for coal research. The purpose of this research was to mitigate the environmental impact of increased coal use, and its focus was therefore on technologies for utilities and industry – such as flue gas desulfurization (“scrubbers”), efficient gasification and combustion, coal cleaning, and safer coal mining – *not* synthetic fuels production. In fact, supply-oriented policies of any sort barely registered in the entire plan. As the Congressional Budget Office concluded, the President only proposed to “[i]ncrease domestic supplies by reintroducing market pricing, or near market pricing, for truly new energy supplies. Accelerated development of new energy sources is not, however, stressed.”²²⁷ This was an emphatic rejection of Nixon and Ford’s approach of large-scale energy supply programs.

The NEP endured a grueling and protracted battle in Congress, emerging in October 1978 with only half its major provisions intact.²²⁸ The House passed the bill, essentially whole, by August 1977, due to the forceful leadership of Speaker Thomas “Tip” O’Neill, Jr. (D-Mass.). He created an Ad Hoc Select Committee on Energy to coordinate the legislation, leaned on the committees to report by mid-July, and fended off opposition by defining the debate in terms of the national interest versus special interests. In the Senate, however, “Carter’s Plan was dismembered, and by the end of the year there was little left of it.”²²⁹ With no single committee to coordinate the legislation, the plan

²²⁷ Statement of Alice M. Rivlin before House Ways and Means Committee. June 6, 1977. Congressional Budget Office. Retrieved from:

<http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/52xx/doc5291/doc15.pdf>

²²⁸ Barrow, *An Era of Limits*; Jones, Charles O. 1979. “Congress and the Making of Energy Policy.” In Robert Lawrence, ed., *New Dimensions to Energy Policy*. Lexington, MA: Lexington Books.

²²⁹ Commoner, Barry. 1979. *The Politics of Energy*. New York: Alfred A. Knopf, vii.

was “hacked up” into six separate bills and never voted on as a single package.²³⁰

Provisions for coal conversion were “gutted.” Taxes on crude oil and gas guzzling cars were “emasculated.” Liberal opponents of natural gas deregulation launched a nine-day filibuster. In October, “[a]fter a total of seventy-three roll call votes on five different bills, not including the 109 votes that occurred during the natural gas filibuster, the Senate ... approved a program that resembled Carter’s original proposal in name only.”²³¹

Battles over oil taxes and natural gas pricing spilled over into the conference. The first session, October-December 1977, saw legislators deadlocked in a “protracted debate over apparently intractable differences.”²³² The politics were heightened by an intense lobbying campaign.²³³ Oil and gas interests were most forceful, but the comprehensive energy plan had “something to offend everyone.”²³⁴ The second conference session, January-May 1978, finally produced compromise legislation. The package of bills, known as the National Energy Act (NEA), passed both chambers of Congress in the fall and was signed into law by the President on November 9, 1978. It was only a partial victory for the White House. On the one hand, the NEA included several of the President’s proposals: increased natural gas pricing, coal conversion regulations, utility rate reforms, solar tax credits, and conservation programs. On the other hand, “the

²³⁰ Rankin, Bob. September 24, 1977. “Senate Hacks Up Carter Energy Program.” *Congressional Quarterly Weekly Review*, 1999-2000.

²³¹ Barrow, *An Era of Limits*, 115.

²³² Barrow, *An Era of Limits*, 122.

²³³ Corrigan, Richard. November 26, 1977. “Lobbyists Are Putting the Blitz on Carter’s Energy Program.” *National Journal*, 1836-1839.

²³⁴ Cochrane, “Carter Energy Policy,” 580.

legislation had been stripped of most of what Carter had wanted.”²³⁵ It did not include the crude oil equalization tax that was at the heart of the NEP.

The debate over national energy policy in 1977-1978 is critical for contextualizing the creation of the Synthetic Fuels Corporation in 1979-1980. On the one hand, it sets up a stark contrast between non-crisis and crisis policy-making. The 1979 energy crisis would usher in a radically different set of policy goals – costly, large-scale technological fixes – and strongly dampen the influence of interest groups. On the other hand, there were strong continuities in the White House’s underlying policy goals. Having failed to pass the Crude Oil Equalization Tax in 1977-8, the White House pursued the similar Windfall Profits Tax in 1979. As I explain later in this chapter, the SFC proposal was rooted in the administration’s dogged pursuit of this tax.

1978 - Solvent Refined Coal Demonstrations

In the spring of 1978, while the energy act was percolating through the conference, the Department of Energy (DOE) went to work on developing energy supply proposals for the President’s FY 1979 budget. The Congressional battles were making it apparent that the President needed to bolster his demand-side policies with supply-side initiatives. As Schlesinger warned in an April 26 memo to the President:

The Congress is already beginning to add supply initiatives to the fiscal year 1979 budget. If we fail to seize the initiative, we will be bound by significant congressional increases without Administration priorities, and it will appear to the public that the Administration has lost the lead in energy policy.²³⁶

The DOE proposed an aggressive energy R&D program, beginning in FY 1979 with \$192 million for synthetic fuels and \$100 million for solar energy, eventually

²³⁵ Ponder, “The Presidency as Learning Organization,” 109 .

²³⁶ James Schlesinger to Jimmy Carter. April 26, 1978. “1978 Supply Initiatives.” Folder 4, Box 201, Stuart Eizenstat Files, Jimmy Carter Library (JCL)

spending up to \$2.3 billion over the five years. The synfuels funding was directed towards the most mature synthetic coal technology: Solvent Refined Coal (SRC), which involves dissolving crushed coal in a solvent and filtering out ash and other contaminants. Specifically, the DOE proposed two demonstration plants, one to produce cleaner-burning solid fuels (SRC-I) and one to produce liquid fuels (SRC-II). Schlesinger framed it as a blunt political decision: “The critical question is whether the Administration is going to become part of the energy budget process in Congress ... or whether the Administration is going to become irrelevant to that process.”²³⁷ He argued that a small proposal would be counterproductive because it would invite “add-ons” in Congress.

The White House’s Office of Management and Budget (OMB) pushed back hard on the DOE proposal, recommending that the DOE start with \$37 million in FY 1979 for one SRC demonstration plant. OMB argued that two plants were unnecessary, since the technology for SRC-I and SRC-II overlapped by 80 percent. Moreover, contrary to the DOE, they argued that large programs, not small ones, would invite add-ons. “We should not treat the issue in the same manner as we did the 1977 Farm Bill – bargaining up and, in the process, fueling the demand for more Federal dollars,” wrote OMB Director Jim McIntyre in a memo to the President.²³⁸ President Carter clearly leaned towards the OMB’s position. His annotation on Schlesinger’s April 26 memo read: “I prefer to hold the 1979 budget levels down as much as possible, and see no need for increases now. Let’s see how NEP goes, & use veto if necessary. .. p.s. my impression was that SRC2 was preferable.”

²³⁷ Jim Schlesinger to The President. 29 April 1978. “1978 Supply Initiatives.” Folder 4, Box 201, Stuart Eizenstat Files, JCL

²³⁸ James T. McIntyre, Jr. to Jimmy Carter. May 1, 1978. “Subject: DOE Energy Supply and Sun Day Initiatives.” Folder 4, Box 201, Stuart Eizenstat Files, JCL.

It was Stu Eizenstat, Director of the White House's Domestic Policy Staff (DPS), who crafted a compromise. Acknowledging the "[s]ubstantial Congressional pressure to increase Federal expenditures on energy supply," he concurred with the DOE that a small supply initiative "will not be credible" and "will not put us in a stronger posture to resist far larger Congressional supply initiatives."²³⁹ Eizenstat cleverly suggested an alternative approach during a May 12 meeting with Schlesinger, McIntyre, and Carter. They would reprogram FY 1978 funding to begin process design studies for 4-5 synfuels projects. For FY 1979, they could use the existing \$23 million budget to undertake two detailed process designs. In FY 1980, based on the outcome of the design studies and cost-sharing negotiations, they would begin procurement and construction for either one or two SRC demonstration plants. This strategy would enable them to hold down the 1979 budget while appeasing Congressional proponents of the SRC projects.²⁴⁰

The White House's internal debate over the scale of SRC demonstrations sets the stage for the SRC policy-making in four interesting ways. First, as with the debate over the NEP, it illustrates President Carter's conservative approach to energy supply programs prior to the 1979 energy crisis. The fact that Carter put his foot down against any budget increases for synfuels in May 1978 makes it all the more remarkable that he supported an \$88 billion effort in July 1979. Second, the SRC program hints at an important shift in the locus of energy policy-making within the administration – away from Schlesinger (DOE) and towards Eizenstat (DPS). Here we see Stu Eizenstat taking on a greater role in not only brokering and coordinating domestic policy, but also

²³⁹ Stu Eizenstat and Kitty Schirmer to Jimmy Carter. May 1, 1978. "Subject: McIntyre and Schlesinger Memoranda on DOE Energy Supply and Sun Day Initiatives." Folder 4, Box 201, Stuart Eizenstat Files, JCL.

²⁴⁰ Jim Schlesinger to Jimmy Carter. May 13, 1978. "Subject: 1978 Energy Supply Initiatives." Folder 4, Box 201, Stuart Eizenstat Files, JCL.

beginning to formulate policy ideas. By the end of 1978, Eizenstat would start chairing the Energy Coordinating Committee meetings, and in 1979 he was arguably the key adviser of energy policymaking within the White House. Third, this episode is indicative of the remarkable ease with which huge numbers for energy spending were sloshed around by senior policy-makers. Over the course of three weeks from late April to mid May, the budget proposals for FY 1979 supply initiatives ranged from DOE's original proposal of \$349 million (including \$192 million for SRC), to OMB's recommendation of \$72 million (\$30 million for SRC), to DPS's suggestion of \$175-200 million (unspecified for SRC), to finally working out a plan with no additional funding for the SRC in FY 1979. Lastly, the internal debates about the SRC funding are a clear example of how the White House was thinking very explicitly about the dynamics of "add-ons" and "bargaining up" in the arena of Congressional policy-making.

III. CATALYST FOR POLICY CHANGE: THE SECOND OIL SHOCK

Congress, which has debated and dissected the national energy plan for several years, within 1½ months has reached a consensus to launch a U.S. synfuels industry. The catalyst, which was missing before this summer, is the crude oil and gasoline shortage.
- Patrick Crow, *Oil & Gas Journal*²⁴¹

After the grueling year-and-a-half battle over the 1977 National Energy Plan, national policy-makers planned to turn their attention to other policy issues. However, energy was soon thrust back onto the agenda by oil shortages following the Iranian revolution. This section reviews the development of the 1979 oil crisis and discusses the initial policy responses by the White House and Congress. The White House tried to dampen panic and respond with a series of measured proposals: voluntary conservation

²⁴¹ Crow, Patrick. 30 July 1979. "Support for Synthetics Building in Congress." *Oil & Gas Journal*. 113.

calls in January-February, standby rationing plans in March, and rational oil pricing policies in April. Congress, after stalling on the President's proposals in the spring, got whipped up into a frenzy of "synfuels fever" in the early summer. The period of early responses to the oil crisis is critical for setting the stage for the White House's subsequent "crash program" of the ESC. The "bidding up" of synfuels proposals between the House and Senate during this period encouraged the White House to introduce its own massive synfuels corporation, while the White House's prior pursuit of oil decontrol and a windfall profits tax gave them the financing vehicle.

Precipitating Event: Iranian Revolution

The precipitating event leading to the oil crisis was the Iranian Revolution, which caused Iranian oil exports to slow and then abruptly halt in late 1978. The Shah, Mohammad Reza Pahlavi, was a staunch ally of the United States, having reclaimed the Iranian throne in 1953 in a CIA-backed coup. He sought to modernize and secularize Iran, pursuing these goals with authoritarian tendencies. By 1977-1978, long-simmering anger with the Shah's rule, including his close ties with the U.S. and his brutal repression of Islamic clerics, began to boil over into anti-Shah demonstrations.

Clashes between Islamic fundamentalists and the Shah's regime came to a head in the fall of 1978. As confrontations and demonstration intensified, the Shah declared martial law on September 8. In retaliation, protesters began staging strikes in the oilfields and refineries as a means of depriving the Shah of oil revenues. After sporadic strikes in October and a mass strike of 37,000 refinery workers in November, Iran's oil output plummeted from 6 million to 1.5 million barrels/day. Foreign workers and technicians

fled the country, further crippling the oil sector's capabilities. By the end of the year, oil production dwindled to 500,000 barrels/day. Exports were then halted on December 27. "The world's second largest exporter of petroleum no longer could provide enough crude oil for its own needs, let alone those of the oil-starved west."²⁴² The Shah finally fled into exile on January 16, 1979.

The cessation of Iranian oil exports did not constitute an immediate catastrophe for global oil supplies. There were concerns about the long-term capability of the new Iranian government to repair the oil infrastructure and resume oil exports, and indeed when Iran resumed exports in March it was at a depressed level of about 3 million barrels/day. For the short term, however, the Iranian losses could be offset by production increases and inventory drawdowns by other OPEC countries – particularly Saudi Arabia, which quickly boosted its exports from 8.5 to 10.5 million barrels/day, but also Kuwait, Iraq, Nigeria, and Venezuela. As a result, in the first quarter of 1979, global crude oil supply was only 5 percent lower than normal. As Schlesinger wrote to the President in a January 3, 1979 memo: "the greatest short-term danger, outside of another crisis elsewhere in the world, would be an overreaction by the public, leading to panic and hoarding."²⁴³ Indeed, it was public panic and tank-topping that would tip the United States into an acute crisis over the summer, replete with gas lines, trucker strikes, and sporadic violence.

White House Response: Conservation, Rationing, and Decontrol

²⁴² Barrow, *An Age of Limits*, 137.

²⁴³ James Schlesinger to Jimmy Carter. January 4, 1979. "1/10/79 [1]" Box 114, Jody Powell Files, JCL.

The White House's initial response to the oil shortages was cautious and measured. They made no grand policy pronouncements. Instead, they called for voluntary conservation efforts such as turning down thermostats and obeying speed limits. "We derived about 5 percent of our oil supplies from Iran in recent months," said Carter in a January 17, 1979 press conference. "I don't think there's any doubt that we can cut back consumption of oil by 5 percent without seriously damaging our own economy."²⁴⁴ At another press conference a month later, he estimated the shortfall at 2.5 percent and repeated his entreaties for voluntary conservation measures.²⁴⁵

As the situation deteriorated over the spring, the White House moved ahead on two more significant policy responses. First, the President submitted a standby rationing plan to Congress on March 1, as required by the Energy Policy and Conservation Act of 1975. The standby rationing plan was met with great controversy in Congress. In particular, urban constituencies complained that it favored rural interests by granting them extra ration coupons. This divide ultimately led to the plans' defeat. The Senate passed it on May 9, but the House voted it down on May 10 by a vote of 246-159. The fact that some of the most fierce opposition came from Democratic districts made it an embarrassment for Carter.

Second, President Carter announced a second national energy plan in a major energy address on April 5. "Our nation's energy problem is very serious – and it's getting worse," the President told the American people. "The energy crisis is real." The main theme of his message was that price controls had propped up demand and held down

²⁴⁴ "Transcript of Carter's News Conference." January 20, 1979. *Congressional Quarterly Weekly Report* 37(3), 100.

²⁴⁵ Yager, Joseph A. 1981. "The Energy Battles of 1979." In Cauford D. Goodwin, ed., *Energy Policy in Perspective: Today's Problems, Yesterday's Solutions*. Washington, DC: Brookings.

domestic production. As a result, the centerpiece of the second energy plan was the gradual decontrol of oil prices, coupled with a windfall profits tax on oil companies' profits. It was essentially a revival of the decontrol and crude oil equalization tax proposals that the President had proposed, unsuccessfully, in his 1977 energy plan. One of the new dimensions, though, was that the President proposed that the revenues would be used to create an Energy Security Fund. It would pay for "exciting new energy programs" such as efficient automobiles, mass transit, coal gasification and liquefaction, oil shale, gasohol, small-scale hydroelectric power, and solar energy.

Although synfuels made only a minor appearance in the second energy plan, these measures lay the groundwork for the "crash" programs that would be hastily introduced a few months later. As I will explain at greater length in the section on Presidential policy formulation, the windfall profits tax gave the Carter administration a ready stream of revenue for bidding up the Congressional synfuels proposals in the summer. The proposal of an \$88 billion synfuels program was also a tactic for earmarking the tax revenues, protecting them from Congressional meddling, and building political support for decontrol and the windfall profits tax – which remained, to the end, the Carter administration's real goal for energy policy. This latter point is often overlooked by the scholarly literature, but it will be developed later in this chapter.

Congressional Response: "Synfuels Fever"

"The American people are in the mood to do something, even if it's wrong."

-Senator Dale Bumpers (D-Ark.)²⁴⁶

²⁴⁶ Quoted in: Wade, Nicholas. 1979. "Synfuels in Haste, Repent at Leisure." *Science* 205(4402): 167-168

Congress stalled on the President's energy proposals over the spring of 1979, voting down the standby rationing plan and fighting over the oil decontrol and windfall profits tax proposals. By June, they had no action to take home to their constituents. Desperate to show they were doing something about the deepening oil crisis, they ran headlong towards synfuels. Synfuels were years away from commercial development, and they were not a 'quick fix' in the sense of contributing to short-term energy supplies. But a crash synfuels program was seen as a signal of decisive resolve.²⁴⁷ "I've never seen a program gain such incredible momentum and support," said Charles DiBona, President of the American Petroleum Institute and former head of Nixon's National Energy Office. "It grows out of the sense of congressional frustration about the need to do something. But it also has the appeal of the World War II fever of getting things done. And it's a technical solution – which Americans like."²⁴⁸

Over the early summer, newspaper headlines screamed about the "synfuels fever," "synfuel madness," or "synfuels bandwagon" sweeping through the capital.²⁴⁹ "There was almost a frantic pace on the Hill," recalled a Department of Energy staffer. "Everybody had a synfuels bill."²⁵⁰ This synfuels fever began in the House. Back in January, Congressman William Moorhead (D-Penn.) had introduced a \$2 billion synfuels program as an amendment to H.R. 3930, a one-year extension of the Defense Production Act (DPA). It was a "legislative sleeper," narrowly drawn to apply to military fuel purchases.²⁵¹ Specifically, it authorized the President to "contract for purchases of, or

²⁴⁷ Wade, "Synfuels in Haste," 168.

²⁴⁸ Quoted in Crow, "Support for Synthetics Building in Congress," 113.

²⁴⁹ Corrigan, Richard. June 23, 1979. "Congress has Synfuels Fever." *National Journal* [online archives]; Wade, "Synfuels in Haste"; Masselli, Dave. August 1979. "Synfuel Madness Makes a Comeback." *Not Man Apart* 9(9):1.

²⁵⁰ Quoted in: Rowand, Andrea. 1984. "Synfuels Stayin' Alive?" *Science News* 126(5): 74-75.

²⁵¹ Wade, "Synfuels in Haste."

commitments to purchase, synthetic fuels for Government use for defense needs,” with a production goal of 500,00 barrels per day by 1985.

The ‘Moorhead’ amendment had been proposed by two staffers on the Subcommittee on Economic Stabilization, Edwin Webber and Norman Cornish, who had visited the Sasol coal-to-liquid facilities in South Africa. They were convinced that a synfuels demonstration was in America’s national interest, and they tied it to the DPA to keep jurisdiction in the House Banking Committee. As political scientist Patrick Hamlett explains, the technological goals were based on “quick” calculations:

Some quick calculations by Cornish revealed that annual military consumption of petroleum – an issue covered by the DPA – averaged about 500,000 barrels per day, which became precisely the production target for the new synfuels program. They felt there would be less opposition to a synfuels program aimed at freeing the military from dangerous dependence on imported oil. Moreover, 500,000 barrels per day of synfuels production would be, they thought, sufficiently large to demonstrate the feasibility of commercializing synfuels technology.²⁵²

On May 8, the Banking Committee reported the bill to the House by an overwhelming vote of 39-1. Opposition in the House came from Republicans who opposed government intervention and Democrats who preferred conservation and renewable energy project, but Majority Leader James Wright (D-Tex.) quickly saw its political value. As explained by Patrick Hamlett, “[n]ot only would the program get a federal synfuels program under way, but it would also demonstrate congressional – and especially House – leadership in energy matters.”²⁵³ In light of these political goals, Wright thought the plan should be even bigger and bolder. He moved to raise the funding to \$3 billion and the production goals to 2 million barrels/day by 1990. These goals were established without any evidence that they could be met. To the contrary, a report issued by the Congressional Research Service (CRS) concluded that even with

²⁵² Hamlett, “Technological Policy Making,” 55.

²⁵³ Hamlett, “Technological Policy Making,” 55.

large federal subsidies, synfuels production could not reach more than 100,000-200,000 barrels of oil equivalent per day by 1990.²⁵⁴

On June 5, the House leadership met with President Carter. Wright confidently informed the President that the “synfuels train is leaving the station,” and asked whether Carter would be on board.²⁵⁵ On June 26, the House passed H.R. 3930 by a landslide 368-25 vote, “demonstrating Congress’s vulnerability to an attractive idea of unknown merits and liabilities if it is accompanied by public agitation and a demand for action.”²⁵⁶

The Senate responded by considering an even larger synfuels demonstration bill. The Senate Energy Committee began to take up a proposal, introduced by Henry Jackson, to authorize \$5 billion for the construction of up to 15 synfuels demonstration plants. Representative Dave Stockman (R-Tex.) wrote a scathing *Washington Post* article on July 15 characterizing this as “Washington’s version of tank topping.”²⁵⁷ But that very evening, President Carter would introduce his staggeringly large \$88 billion synfuels program. An order of magnitude greater than the bills in Congress, it would completely change the stakes of synfuels policy-making in 1979. Carter’s policy formulation is the topic of the next section.

IV. PRESIDENTIAL AGENDA-SETTING: CARTER’S SYNFUELS PLAN

Jimmy Carter introduced his synthetic fuels plan in his landmark July 15, 1979 address on the energy crisis (which has been remembered, perhaps unfairly, as the

²⁵⁴ Pelham, Ann. July 14, 1979. “Cannot Be Met: Study Questions House Synfuel Production Goals.” *Congressional Quarterly Weekly Report* 37(28): 1398.

²⁵⁵ Hamlett, “Technological Policy Making,” 56.

²⁵⁶ Katz, *Congress and National Energy Policy*, 140.

²⁵⁷ Stockman, Dave. 15 July 1979. “The Senseless Stampede to “Synfuels.”” *The Washington Post*, E1.

“malaise” speech). After speaking at length about the “crisis of confidence” sapping the country’s spirit, he offered an ambitious energy plan to restore and strengthen the country’s confidence. The centerpiece was the \$88 billion Energy Security Corporation (ESC), which would replace 2½ million barrels of imported oil per day by 1990.

This section analyzes how the Carter administration developed the ESC proposal over the summer of 1979. It is divided into two sub-sections. First, I explore the big-picture politics of why the Carter administration, after previously trying to rein in synfuels demonstrations, came to embrace a large commercialization program. The deepening oil crisis and Congress’s seizing of leadership were the obvious political winds pushing the White House towards synfuels. But the White House’s plan for oil decontrol and the windfall profits tax also played into this change in complex ways – both enabling and necessitating a massive energy supply initiative. In short, the Carter administration came to embrace synfuels not because they were a realistic solution to the energy crisis, but because they were a pragmatic solution to a complex political crisis.

Second, I trace in detail how the ESC proposal was developed by the White House. As I will explain, the synfuels policy-making processed through four chronological stages in the spring and summer of 1979:

- (1) *May-June* – Although synfuels had not been a significant component of the administration’s energy policy, the DOE and Treasury began exploring new alternative fuel policy options, including a synthetic fuels financing corporation.
- (2) *July 1-4* – Stu Eizenstat rushed to put together a synfuels financing proposal for an energy speech that was scheduled on short notice for July 5, only to have the speech cancelled by Carter on July 4.

(3) *July 5-15* – After the cancellation of the speech, Carter remained at Camp David for a dramatic “domestic summit.” The administration staff continued to wrangle over energy policy options, with the final six-point policy dictated at the last minute by Eizenstat to the speechwriters.

(4) *July 16–September* – Once the ESC plan had been announced, staff at the CEA and OMB conducted more extensive economic and regulatory analyses, while a task force was drawn up to try to consult with and solicit support from the business community.

Woven into this chronology are the technical components of the ESC proposal. It is essentially a story of back-of-the-envelope math (“this was nothing that would rise to the level of number crunching,” recounted Eliot Cutler of the OMB²⁵⁸) and grasping for the nearest technological solutions at hand. Given the crisis-driven nature of the policy development, the White House did not have adequate time for rigorous technical or economic analysis prior to the announcement of the ESC proposal.

Political Drivers of the White House’s turn towards synfuels, May-June 1979

“In April, Jimmy Carter wouldn’t have thought that he would ever embrace a program of synfuels,” Jim Schlesinger recalled. “Then he ultimately fell in love with these things to an undue degree.”²⁵⁹ The fundamental driver of this lurch towards synfuels in the summer of 1979 was the metastasizing energy crisis – gas lines, rationing, truckers’ strikes, sporadic violence – and the political crisis it created for the

²⁵⁸ Personal communication, 1/3/12

²⁵⁹ Miller Center. 2003. *Interview with James Schlesinger*. Charlottesville, VA: University of Virginia, 42.

administration. A “crash” program for synthetic fuels was the White House’s pragmatic response to this political crisis. Publicly, it was a “bidding up” move that reclaimed leadership on energy from Congress. Behind-the-scenes, it was also an attempt to leverage “synfuels fever” to force the President’s oil decontrol and tax plan through Congress – a point that has often been overlooked in previous analyses of the SFC.

As I explained in the previous section, the White House had introduced two energy proposals in the spring – a standby gasoline rationing plan in March and the oil decontrol and windfall profits tax plan in April – as gasoline shortages began to spiral into public panic. Neither was immediately supported by Congress, which voted down the standby rationing and squabbled over the decontrol-and-tax plan. People felt that President Carter was failing to act on energy, and as the energy crisis deepened, his approval rating plummeted from 45% in March to 30% in June and 25% in July – lower even than Nixon during the Watergate scandal. Meanwhile, Congress, wanting to have something to take home to their constituents during the summer recess, latched onto synfuels. The House passed the Moorhead bill on June 26, authorizing \$3 billion of purchases and loan guarantees, with an expanded goal of 2 million barrels by 1990. The Senate was considering a \$5 billion program to build 15 synthetic fuel plants, introduced by Sen. Henry Jackson on June 11. “Synfuels fever has spread across Capitol Hill,” proclaimed the *National Journal*.²⁶⁰

With the energy situation deteriorating, the decontrol-and-tax plan stalled in committee, and “synfuels fever” sweeping through Congress, the White House hurried back to the drawing board to develop a third set of energy policy proposals around the theme of import reductions and synfuels commercialization. The competition for energy

²⁶⁰ Corrigan, “Congress has Synfuels Fever.”

leadership was a core driver of this policy formulation. As Stu Eizenstat characterized the administration's policy development during this period: "In part it was a reaction to the gas prices. In part it was a reaction to the fact that the Hill was beginning to take the initiative away from us with the Synthetic Fuels Program that was moving through the House."²⁶¹ As explained by Patrick Hamlett: "The appearance of aggressive, creative energy policy making became a political prize sought after by each house of Congress and by the White House, in effect "bidding up" the programmatic and financial stakes."²⁶²

But the story of why the White House turned to synfuels does not end there, with this simple one-upmanship, this jostling for visible leadership. There were subtler political considerations, too, that were instrumental in pushing the White House towards a massive synfuels commercialization initiative, and that profoundly shaped the scale and scope of the ESC plan. The fact is that the decontrol and windfall profits tax proposal remained the White House's energy policy priority, and this fed into synfuels policy development in two ways.

On the one hand, the decontrol-and-tax plan *enabled* the massive synfuels program. The revenues, funneled into the Energy Security Fund, were a ready financing vehicle for the Energy Security Corporation. (Carter, who was a balanced budget fanatic, would otherwise have been unlikely to propose such a costly program.²⁶³) On the other hand, the decontrol-and-tax plan *necessitated* such an enormous expenditure. The White House was initially vague about how the ESF funds would be spent, not wanting tussles

²⁶¹ Miller Center. 2003. *Interview with Stuart Eizenstat*. Charlottesville, VA: University of Virginia, 69.

²⁶² Hamlett, "Technological Policy Making," 65.

²⁶³ James Fallows, a former Carter speechwriter, called President Carter "the most notorious tightwad in town." Fallows, James. 1979. "The Passionless Presidency: The Trouble with Jimmy Carter's Administration." *The Atlantic* [online archive]. Also: Personal communications, 11/29/11

over expenditures to hold up Congressional action on decontrol.²⁶⁴ This turned out to be a weak legislative strategy, as anticipated by Brock Adams (Secretary of Transportation) in an April 17 memo to Jim McIntyre (Director of OMB):

As a matter of legislative strategy, it is absolutely essential to link the [Energy Security] Fund and the tax plans with new authorizations for spending the revenues. Only if this link is established, and only if it is established simultaneously, will it be possible to galvanize the various groups ... to support the basic tax proposal and thus ensure its success. Without this countervailing force and active constituency ... the Ways and Means Finance Committee's approach, if it produces a tax at all, will likely soak up all of the revenues in tax credits and producer plowbacks²⁶⁵

“Plowback” meant giving credits against the windfall profits tax liabilities to oil companies when they invested the profits from deregulation into new oil exploration. The Senate Ways and Means Committee strongly favored such an approach, which would greatly reduce the tax revenues from a windfall profits tax. There is some evidence that the White House became concerned about this in late May. President Carter received a memo on May 17 that “strongly recommended that the Administration give serious new consideration to incorporating a plowback scheme” in order to move the tax plan through Ways and Means. The President forwarded this to Stu Eizenstat on May 23 with a short note: “This is an informative private memo, not to be circulated. We need to plan now to meet these potentially serious challenges.”²⁶⁶

Directing the windfall profits tax revenues into a “crash program” for synfuels was in part an attempt to fend off these challenges and mobilize political support for the tax. As Jim Schlesinger later explained, the \$88 billion ESC “was used as a way of

²⁶⁴ “In an attempt to minimize potential legislative delays on the proposal, Carter met with several members of the House Ways and Means Committee and agreed that the proposal would be considered in two parts. Creation of the tax and energy security fund would occur first, and only after its approval would Congress determine how the money in the fund should be spent. Carter believed that debate over the exact uses of the fund would generate considerable disagreement within the Congress and could jeopardize both the tax and the creation of the fund.” Barrow, *An Era of Limits*, 183.

²⁶⁵ Brock Adams to James McIntyre. April 17, 1979. Folder 2, Box 202, Stuart Eizenstat Files, JCL.

²⁶⁶ Jimmy Carter to Stuart Eizenstat. May 23, 1979. Folder 11, Box 199, Stuart Eizenstat Files, JCL.

dealing with the critics of the windfall profits tax. Unnecessary counter-argument, by the way, since there was no way the windfall profits tax wasn't going through."²⁶⁷ Thus, while the ESC proposal has solely been interpreted in terms of a "bidding up" on synfuels between the White House and Congress, it also played another political function for the administration: soaking up the windfall profits tax revenues, preempting a plowback scheme, and leveraging "synfuels fever" to move the decontrol-and-tax plan through Congress.

The Sequence of White House Policy Formulation

May-June: Exploration of a "Liquid Fuels Corporation"

The President's April 5 energy proposals did not prominently feature synthetic fuels.²⁶⁸ Although the Energy Security Fund would likely support synfuels R&D and an oil shale tax credit, these were just two items in a longer list of potential expenditures, which also included solar energy financing, regional petroleum storage, coal R&D, and even woodstove tax credits.²⁶⁹ The first hint of a more aggressive move on synfuels was a short handwritten note that Stu Eizenstat dashed off to the DPS energy specialist, Katherine "Kitty" Schirmer, on May 17, asking for an expedited plan for a "Manhattan-type" project on alternative energy:

I am quite convinced Congress + the American people want a Manhattan-type project on alternate energy development. There is almost a desperation on this issue. Our Energy Security Fund creates a potential vehicle. What is lacking is a credible organizational structure.

²⁶⁷ Miller Center, *Interview with James Schlesinger*, 43.

²⁶⁸ In fact, in the 50-page decision memo that the interagency task force sent to the President on March 22, there was only one minor decision that specifically addressed synfuels: whether gasoline containing synfuels should be exempt from the Federal gasoline tax.

²⁶⁹ Stuart Eizenstat and James McIntyre to Jimmy Carter. April 3, 1979. Folder 7, Box 37, James T. McIntyre Files, JCL.

Please explore the possibility of a ... governmental or quasi-governmental corporation run by a preeminent American. It could be within DOE but must have some visibility. No one will believe we're serious, even with the Energy Security Fund, if it is run by current DOE set-up. Please expedite.

This brief, urgent note signaled the beginning of a dramatic shift in the White House's approach to energy policy, which would eventually include a re-orientation of mission (alternative energy supply rather than price-induced conservation), policy instruments (financing corporation outside the DOE), and even the policy formulation process (concentrated analytical groups rather than exhaustive interagency consultations).²⁷⁰

A concrete course of action was subsequently laid out in a June 12 memo by Eliot Cutler, the 33-year old lawyer who was the OMB's Associate Director for Natural Resources, Energy, and Science, and who in late July would be tapped by the White House to coordinate energy policy. In his memo, Cutler argued that the White House needed to seize leadership from Congress on alternative fuels:

The frustration and uncertainty, combined with increasing apprehensions about vulnerability, that has gripped the country has produced an environment in Congress where any answer is an attractive one – even if its wrong. ...

We need to seize leadership on alternative energy development – as we have on decontrol and the tax – in order to avoid not only serious political damage, but also the possibility

²⁷⁰ I am not able to conclusively identify the reasons that Eizenstat (and others in the Carter administration) became focused on the structure of a quasi-independent agency. In later publications, John Deutch and others portrayed it as a rationally- and analytically-determined decision, although Eizenstat's memo suggests that it may have been driven by more knee-jerk political reasoning. It may have been as simple as needing a way to use the tax revenues, and wanting to establish an organization that was separate from the DOE, which at the time was politically unpopular. A second possibility is that Ford's Energy Independence Authority served in some way as a model; I found no evidence that the EIA plan was discussed this early in the Carter administration, although one of Eizenstat's aides did send him a packet of *National Journal* and *Congressional Quarterly* articles on the EIA on July 13. A third possibility is that the administration was influenced by a proposal for a \$200 billion synfuels corporation proposal that had been circulated by a trio of Washington insiders – Paul Ignatius, Lloyd Cutler, and Eugene Zuckert. Their proposal was sent to the White House and Congress on April 22 and made a splash when it was published in the *Washington Post* in early June. Some scholars contend that the Ignatius-Cutler-Zuckert plan was a “catalyst” for the White House policy, but John Deutch dismisses it as “inconsequential.” In any case, it is evident that the policy concept of a quasi-public financing corporation had been percolating through the “policy stream” during the late 1970s.

that genuinely bad and very expensive investment decisions will be made by Congress in panic.²⁷¹

He suggested three immediate steps for the White House, which illustrate both the sense of political urgency that surrounded synfuels but also the administration's continued preference for "more sensible and cost-effective alternatives:"

1. Within a week, announce our support for the Moorhead bill (authority for a government-buy program for synthetic petroleum) if it is discretionary and funded out of the Trust Fund.²⁷² If it is discretionary, it will simple be another tool in our arsenal, and perhaps a useful one.
2. At the same time, announce that the President has asked John deButts, Felix Rohatyn, or some such type²⁷³ to study the feasibility of a Liquid Fuels Development Corporation – a government corporation – and to report back to him within 30 days on (a) whether such a corporation makes sense, (b) what its structure and relationship to the government ought to be, and (c) what financing authorities ought to be made available to it.
3. A small task force made up of carefully selected staff from OMB, DOE, CEA and other agencies should be charged to carry out – within the same 30-day period and on a full-time basis – the sort of comparative analysis of ways to meet various import reduction target levels that the President approved in the Spring Budget Review. Only through this sort of an exercise will we be able to insure that potentially more sensible and cost-effective alternatives to synthetics (e.g., conservation, Mexican and Alaskan gas, unconventional sources of domestic gas) will be considered in an overall supply strategy

Jim McIntyre forwarded this memo the same day to President Carter – who annotated it, "Good thoughts" – and the staff got to work on each of the points. First, regarding the response to Congressional initiatives, the next day Schlesinger, Eizenstat, and McIntyre sent the President a memorandum on the Moorhead synfuels bill.²⁷⁴ They indicated that "DoE will take the lead in developing for your review a comprehensive proposal to reduce imports and to provide alternative energy supplies," and they recommended that

²⁷¹ Eliot Cutler to James McIntyre and Stuart Eizenstat. June 12, 1979. "Synthetics and Energy Supply." Folder 9, Box 286, Stuart Eizenstat Files, JCL.

²⁷² i.e., the Energy Security Fund

²⁷³ i.e., a nationally-prominent businessman. John DeButts was the chairman and chief executive of AT&T. Felix Rohatyn was an investment banker who, as head of the Municipal Assistance Corp., had helped New York City restructure its debt and avoid bankruptcy in the 1970s. Notably, Rohatyn had also advised President Ford and Vice President Rockefeller during the design of the Energy Independence Authority (EIA) proposal.

²⁷⁴ James Schlesinger, Stuart Eizenstat, and James McIntyre to Jimmy Carter. June 13, 1979. "Moorhead Synfuels Bill." Folder 9, Box 286, Stuart Eizenstat Files, JCL.

“With your concurrence ... we will indicate the Administration’s support for the Moorhead Bill (with proposed changes).” Carter annotated it, “ok.”

Second, regarding the meeting with bankers on a Liquid Fuels Development Corporation, a June 19 meeting was set up for Vice President Walter Mondale with Felix Rohatyn, the investment banker, and Lloyd Cutler, the powerful Washington lawyer (soon to become the White House’s general counsel) who had co-authored a prominent *Washington Post* article on synfuels. In the June 18 briefing memo sent to Mondale before the meeting, Stu Eizenstat included in the talking points: “I would stress that we, as yet, made no firm decision to propose a corporation.”²⁷⁵

Lastly, regarding the creation of a small task force, on June 13 a draft work plan was developed for the DOE’s import reduction and alternative fuel policies.²⁷⁶ The 5-6 person team tasked with assessing alternative fuels (shale oil, petroleum substitutes, and biomass conversion) was to be headed by Ed Blum of the DOE and included staff from the DOE, OMB, OST, Agriculture, and CEQ. (However, although the group was sketched out, it apparently never met in the end, and it is not entirely clear who in the DOE would have been working on these issues.²⁷⁷)

The White House staff promised a decision memo on import reduction and alternative fuel policy options by mid-July. The schedule was accelerated, however, by the alarming deterioration of the domestic energy situation in late June. With only a few days’ notice, President Carter scheduled a major energy speech for July 5. Hasty plans for energy policy needed to be drawn up in advance of the decision memo.

²⁷⁵ Stuart Eizenstat and Kitty Schirmer to Walter Mondale. June 18, 1979. “Your Meeting with Rohatyn and Cutler on a Synthetic Fuels Corporation.” Folder 9, Box 286, Stuart Eizenstat Files, JCL.

²⁷⁶ “Proposed Schedules.” (n.d.) Folder 9, Box 286, Stuart Eizenstat Files, JCL.

²⁷⁷ Personal communication, Larry Linden, 9/6/12

July 1-4: Hasty Plans for a July 5 Speech on Energy

On June 28, as Carter was attending an economic summit in Tokyo, Eizenstat telegrammed him with an uncharacteristically impassioned memo on the domestic energy crisis.²⁷⁸ Eizenstat described the eruption of trucker strikes, gas lines, and violence and warned that “nothing which has occurred in the Administration to date ... [has] added so much water to our ship. Nothing else has so frustrated, confused, angered the American people – or so targeted their distress at you personally.” He urged the President to “seize the opportunity” that existed in this “worst of times,” to cancel a planned vacation in Hawaii, and to return home to spend two to three weeks devoted to energy matters. In closing, Eizenstat outlined a number of steps to take on policy, including on synfuels:

Shortly after you return, we will have a memorandum for you to decide how to propose spending the funds raised by the windfall profits tax. That memorandum will include the results of a comprehensive interagency review now underway to examine the synfuels issue and develop a significant proposal for you to announce. Once you decide the direction you want these new production initiatives to take, you might consider a major address to the nation ... around the third week of July.

Carter did indeed cancel his vacation to return home on July 1. On the morning of July 2 he spent several hours meeting with his advisors about energy. He was persuaded, at the urging in particular of Jody Powell (Press Secretary) and Gerry Rafshoon (Communications Director), to give an energy speech just three days later, on the evening of July 5. This was a tremendously controversial decision within the White House – in part because there was no new energy policy to announce yet.²⁷⁹

²⁷⁸ “Eizenstat was usually a well-mannered policy wonk, methodical and hardworking, not prone to outbursts.” Mattson, Kevin. 2009. *What the Heck Are You Up To, Mr. President?: Jimmy Carter, America’s ‘Malaise,’ and the Speech that Should Have Changed the Country*. London: Bloomsbury Publishing, 127.

²⁷⁹ Drew, Elizabeth. 27 Aug 1979. “Phase: In Search of a Definition.” *New Yorker*, 53.

A few days earlier, in fact, the staff speechwriters had sent a memo to Rafshoon and Hendrik Hertzberg, the head speechwriter, arguing forcefully against just such a hasty speech. “The mood in the country is grim. People are mad – fighting mad,” they wrote. “We strongly advise against another televised energy speech – unless the President has a bold, new, and ambitious policy to announce.”²⁸⁰ Nevertheless, the speechwriters reluctantly went to work on the July 5 speech. The first draft, dated July 2, had only vague oration on synthetic fuels: “I will be calling on Congress to take a number of essential steps, drawing on the Energy Security Fund, which will ensure that we produce more domestic energy and accelerate production of synthetic fuels.”²⁸¹

Meanwhile, the President’s energy advisors tried to reach quick agreement on a plan for import reduction and synfuels commercialization. In an agenda for a July 3 meeting between the President and his energy advisors, Stu Eizenstat outlined that “we are analyzing three possible levels of import reductions for 1990: 2, 3, and 5 billion barrels per day,” which would be achieved with a combination of synfuels, unconventional oil and gas, conservation, fuel switching, solar, and Alaskan and/or Mexican gas. Regarding synthetic fuels, he explained that “several tools are being considered to accelerate development,” including tax credits, federal price guarantees, and government-owned plants. These could be administered by the DOE, or, “[a]lternatively, we have considered the concept of a corporation to take over the synthetics part of the import reduction program.” Eizenstat drew the battle lines over the corporation concept as follows:

²⁸⁰ Achsah Nesmith, Walter Shapiro, and Gordon Stewart to Gerald Rafshoon and Hendrik Hertzberg. June 29, 1979. “Energy Speech.” Folder 2, Box 8, Speechwriters: Subject Files, JCL.

²⁸¹ “Draft 1.” July 2, 1979. Folder 2, Box 8, Speechwriters: Subject Files, JCL

We, OMB, and Treasury favor an independent corporation and would like to see you announce the broad outlines of a corporation in your Thursday [July 5] speech. DoE is less enthusiastic about this approach, though we have not yet had a chance to explore Secretary Schlesinger's views in detail.

The archival evidence is not conclusive regarding which agency originally developed and drafted the plan for the ESC. Although the DOE took the lead in developing the overall import reduction plan, the corporation proposal did not appear to originate with them – nor did Secretary Schlesinger favor such an approach.²⁸² Although Eizenstat had been the earliest advocate of such an approach, he repeatedly emphasized that the DPS merely coordinated policy rather than initiating it.²⁸³ Although Mondale met with advocates of a synfuels corporation in June and fervently advocating for a corporation in a July 4 memo to the President, there is no evidence that he or his staff played a role in the development of the proposal.²⁸⁴

My interpretation of the fragmented archival and interview record is that it likely originated within the Treasury, which would have gotten involved because it involved tax revenues. The earliest document that I have found that closely resembles the ESC was a July 2, 1979 draft plan for an entity called “The Authority.”²⁸⁵ This was sketched out as a 20-year independent Federal agency, funded with \$40 billion by the ESF, and tasked with

²⁸² In a 1984 interview, Schlesinger explained: “I myself did not want to establish the Synfuels Corporation. I thought that we should have a much more modest goal, which was to do some substantial R&D activities within the Department of Energy. Carter, when he got religion after the Iranian crisis and the gas lines embraced the synfuels to a degree that was unwarranted. I myself had to talk him down from five million barrels a day of synfuels capacity by 1990 to, what did we wind up with, just over two million barrels a day. But he was all set to go five million barrels a day.” Miller Center, *Interview with James Schlesinger*, 108

²⁸³ Miller Center, *Interview with Stuart Eizenstat*; Jones, *Trusteeship Presidency*

²⁸⁴ In his memo, Mondale reflected on the latest draft of the speech and recommended that instead of scolding the public they should offer a visionary plan for mobilizing the nation's natural and human resources. He exhorted that the country did it with the Manhattan project, synthetic rubber during World War II, and the Apollo project. “And once again we will do it with energy and America will show the world that there is a way out of this crisis. We will establish a new and independent corporation to produce synthetic fuels.” Reprinted in: Horowitz, Daniel. 2004. *Jimmy Carter and the Energy Crisis of the 1970s: The “Crisis of Confidence” Speech of July 15, 1979*. New York: Bedford/St. Martin's.

²⁸⁵ “Summary of Major Policy Decisions.” July 2, 1979. Folder 9, Box 286, Stuart Eizenstat Files, JCL.

mobilizing synfuels production at the level of 1 million barrels per day by 1990 and 2 million barrels per day by 2000. The proposal had no author listed, but the clues are that it was forwarded to Eizenstat with a short accompanying note: “Stu – This is a draft. Curt has no problems with you reading it, but does not want it distributed. Joanne.”²⁸⁶ I presume that “Joanne” was Joanne Hurley, DPS staff, and “Curt” was Curt Hessler from the Treasury. In personal communication, Hessler confirmed that it could indeed have been him, although he does not recall the details some 30 years out.²⁸⁷ His guess was that the document came out of an ad-hoc group in the Treasury under Deputy Secretary Robert Carswell, who did testify in Congress several times about the financial structure of the ESC.

Although the precise origins of the ESC proposal remain unclear, what *is* clear is that as late as July 3-4, the administration had not yet decided on the concept of an independent corporation for synfuels, much less a funding level or production target. “Although the president and his advisors reached agreement on the basic proposals to pursue, they could not agree on the specifics of the initiatives,” summarized John Barrows.²⁸⁸ There was merely agreement on the importance of doing some kind of a major synthetic fuels initiative.

On July 4, a draft of the energy speech was sent to the President at Camp David, where he had retreated with his family. Carter received the speech at 1 pm; two hours later he called the White House to cancel the speech – without explanation. It was a

²⁸⁶ Indeed, it reads like a very rough draft. The run-on, redundant opening statement read: “The focus of this proposal is to create an entity with sufficient authority and resources to achieve significant and achievable levels of North American production of synthetic fuels available in the United States in the shortest practical time.” Summary of Major Policy Decisions.” July 2, 1979. Folder 9, Box 286, Stuart Eizenstat Files, JCL.

²⁸⁷ Personal communication, 9/7/12

²⁸⁸ Barrow, *An Era of Limits*, 201.

horrifying shock to his staff, as the address was scheduled with the television networks, spelling a potential public relations disaster.

The President's decision may have reflected, in part, a disappointment with the energy proposals.²⁸⁹ But more fundamentally, the President had become convinced – largely by Patrick Caddell, his prodigious young pollster – that yet another energy speech would get him nowhere.²⁹⁰ The nation's discontent had much deeper roots: Americans had lost faith in themselves and their government, and they were tuning the President out. “I couldn't deliver [the speech],” wrote Carter in his diary. “I had already made four speeches to the nation on energy and ... they had been increasingly ignored. ... I had to do something to get the attention of the news media and the public.”²⁹¹ After cancelling the July 5 speech, President Carter remained secluded at Camp David. He called a “domestic summit” to assess what to do next.

July 5-15: Carter's Camp David Summit and the “Crisis of Confidence” Speech

Over the next ten days, scores of advisers were invited “to the mountain” to consult with the President, including senior political advisers, Congressmen, governors, mayors, businessmen, economists, labor leaders, journalists, and spiritual leaders. The President had two substantive meetings on energy – July 8 with his energy advisors and July 9 with members of Congress – but the overarching agenda of the summit was a

²⁸⁹ This was, at least, how Stu Eizenstat characterized the decision in a 1981 interview: “I remember him saying ... that he just didn't think the policy initiatives we had given him were dramatic enough to meet the problem at hand. Well, we had already ... decontrolled [oil], which was the biggest bombshell. You know, it's a hard act to follow. I felt that the Synfuels Corporation – in which we were talking about something on the order of \$88 billion – was a relatively big item. But somehow he felt it didn't meet the gravity of the situation.” Miller Center, *Interview with Stuart Eizenstat*, 75

²⁹⁰ The development of Caddell's argument is beyond the scope of this study, which specifically traces the synthetic fuels proposals. For a comprehensive account of this decision, see: Drew, “Phase”; Mattson, *What the Heck*; Barrow, *An Era of Limits*.

²⁹¹ Carter, Jimmy. 2010. *White House Diary*. New York: Farrar, Straus and Giroux.

broader and more philosophical exploration of the nation's crisis and the direction of the Presidency. Carter "was moving away from his inner technocrat to his inner moralist."²⁹²

A heated debate broke out among his senior staff – "the most acrimonious debate by far that occurred in the four years of the administration," according to Eizenstat - as to whether the President' post-summit speech would even include an energy plan. Caddell argued that the speech should be a sermon about America's deep moral and spiritual crisis. Eizenstat and Mondale strenuously opposed against this approach; now was not the time to blame Americans for their dispiritedness, they argued, but rather to lead them through the energy crisis with bold action.

While this debate raged at Camp David, back in Washington the interagency task force staff continued to work at a frenzied pace on energy policy options. On July 7, the *New York Times* reported that "White House officials said that the general agreement had been reached on an effort to develop 1 million to 2 million barrels of synthetic fuel a day by 1990," although on July 10 it clarified that there was still a "furious debate" even within the DOE about the appropriate synthetic fuel targets, with proposals ranging from one to five million barrels.²⁹³

In the final speech, the "crisis of confidence" theme was foremost. But a six-point energy program was hitched on at the end as a solution to the nation's malaise. As the speechwriters described it, they had gone up to Camp David for a July 13 meeting with Jordan, Caddell, and Eizenstat.²⁹⁴ "[T]he fight was in full cry between those who felt

²⁹² Mattson, *What the Heck*, 141.

²⁹³ Rattner, Steven. July 7, 1979. "Carter Shifts Focus of Talks on Energy and Economic Issues." *New York Times*; Rattner, Steven. July 10, 1979. "President Planning to Retain Controls on Gasoline Prices." *New York Times*.

²⁹⁴ Mattson, *What the Heck*.

it should be a strong energy speech and those who felt that it should be a crisis of confidence speech” when:

[Eizenstat] got so angry, so incensed that there would be no energy in the speech at all ... and we just kept telling him it's boring and he finally blew up and said it's not, it can be said in an exciting and dramatic way. He thundered out his six point [energy] program and he did it very, very well.²⁹⁵

Eizenstat himself gave a similar account, which illustrates how close the President came to not addressing energy at all in his July 15 speech:

I said that it was obvious that I had lost my argument on the concept of the malaise speech ... but at least we ought to pull energy in. The way we should pull it in was to tie it to the issue of malaise. That is, if there was a malaise in the land, perhaps what was necessary was for there to be a unifying rallying point, which would be energy independence and energy security. And this new vehicle with the Synthetic Fuels Corporation, Energy Mobilization Board, would be the vehicle to rouse people out of the malaise I did not believe they had. ... Everybody thought that was a good idea, and I dictated – off the top of my head, as I remember it – what became the energy section of that speech.²⁹⁶

This dramatic eleventh hour dictation was reported in Elizabeth Drew's 1979 *New Yorker* article, and I suspect that it is responsible for the widespread view that Carter's synfuels plan was borne in the heat of the moment at Camp David. But this process tracing shows that the full story of the administration's synfuels policy-making is more complicated. The ESC proposal may have been hastily drawn up, politically-driven, and based on incomplete analyses --- but the archival evidence shows that the idea had at least been percolating through the White House since May.

Mid July – September: Policy Refinement and Stakeholder Consultation

“What a lot of people forget is that the whole synfuels thing was thrown together on the back of an envelope up on top of the mountain, and OMB was told to provide

²⁹⁵ Quoted in: Jones, Charles O. 1988. *The Trusteeship Presidency: Jimmy Carter and the United States Congress*. Baton Rouge: Louisiana State University Press, 177.

²⁹⁶ Miller Center, *Interview with Stuart Eizenstat*, 72.

supporting details for this modest \$80 billion venture,” recalled Van Ooms, an OMB economist in the Carter administration.²⁹⁷ The previous sections explained that, in fact, the “synfuels thing” had slightly deeper roots than this, but it is correct that much of the analytical work was done by OMB *after* the ESC proposal had already been announced. This ex-poste policy refinement and consultation will be described in this section, representing the final stage of the White House design of synthetic fuels policy.

The White House’s initial fact sheet, released on July 16, provided only the broad brushstroke outlines of the Energy Security Corporation: it was to be a 12-year independent corporation, governed by a 7-member board, which would “direct the investment of \$88 billion to produce 2.5 million barrels per day of substitutes for imported oil by 1990.” The funding would come from \$83 billion of windfall profits tax revenues and \$5 billion in special energy bonds sold by the Treasury. The corporation would be free to determine the mix of technologies and fuels, but for illustrative purposes the fact sheet suggested: 1.0-1.5 million barrels per day (MBD) of coal liquids and gases, 0.4 MBD oil shale, 0.1 MBD biomass, and 0.5-1.0 MBD unconventional gas.

The origin of some of these quantitative targets remains a mystery, as they did not appear in archival materials (draft speeches, staff papers, etc.) prior to the July 15 speech. The July 2 draft of an “Authority,” for example, had proposed a \$40 billion corporation. In interviews, a few DOE and OMB staff recalled that the \$88 billion figure came from a forecast of windfall profits tax revenues. It is worth noting that forecasts of revenues varied greatly during this period. When Carter first proposed the tax, oil prices were at \$16/barrel and the tax revenues were estimated at \$20 billion by 1990. As crude oil prices

²⁹⁷ Miller Center. 2003. *Interview with James McIntyre*. Charlottesville, VA: University of Virginia, 82. Retrieved from <http://millercenter.org-/president/carter/oralhistory/james-mcintyre>

continued to rise, revenue estimates varied from \$147-270 billion, depending on global oil price forecasts. (As Art Pine of the *Washington Post* quipped: “Suddenly, the windfall tax has become Carter’s magic money machine.”²⁹⁸)

In the week following the July 15 speech, the President’s energy advisors put in twelve-hour days trying to work through the details in preparation for Congressional hearings over July 20-27. The chaotic nature of the White House’s policy development during this period was richly illustrated in transcripts from the hearings. In a hearing before the Senate Energy Committee on July 24, Senator Melcher complained that “[t]his testimony and these few lines of these sheets of paper really leave us kind of in the dark on what the President is asking for.”²⁹⁹ In a hearing before the Senate Banking Committee on July 25, the administration trotted out numerous officials to explain their plan in greater depth: Robert Carswell from the Treasury to explain the financing, Bo Cutter from the OMB to answer the budgetary and structural questions, John Deutch and Alvin Alms from the DOE to explain the overall import reduction plan and synfuels commercialization goals, and Gus Speth of the CEQ to address environmental concerns. But when Senator Riegle (D-Mich.) tried to get a straight answer about who was “honchoing” the energy policy for the administration, a remarkable *Who’s on First?* routine ensued:

Sen. Riegle: Are you folks now the principals that are heading this thing up within the administration? Is that who you are as a group, or not? And if not, who is?

Mr. Cutter: All of us, Senator.

Sen. Riegle: What is your specific responsibility?

Mr. Cutter: My specific responsibility is Executive Associate Director for Budget of OMB.

Sen. Riegle: But what is your role in the energy proposals, and why are you here today?

²⁹⁸ Pine, Art. 30 July 1979. “Proposed Oil Tax Becomes a Magic Money Machine.” *The Washington Post*, A4.

²⁹⁹ *Synthetic Fuels Legislation: Hearings before the Committee on Energy and Natural Resources, United States Senate*. 1979. 96th Congress. Publication No. 96-88, 297.

Mr. Cutter: I am here today because we thought that the chairman and members of the committee might have questions regarding the financial structure of the corporation.

Sen. Riegle: Do you have a responsibility ... to try to pull this group together?

Mr. Cutter: Yes, sir.

Sen. Riegle: I mean, are you acting in a coordinating capacity for everybody else that's at this table, these other agencies? Are you quarterbacking this effort? Or are you just one of several players?

Mr. Cutter: I have acted in that capacity in OMB's clearing of proposals within the administration, yes.

Sen. Riegle: So basically you're in charge at the moment? Are you the person that's responsible for pulling together these various component agencies and presenting a common front here? Do you have that authority at the moment?

Mr. Cutter: No, not as a matter of –

Sen. Riegle: Who does have?

Mr. Cutter: Not as a matter of authority. OMB is responsible institutionally for making certain that the proposals of the administration are cleared and coordinated throughout the administration.

Sen. Riegle: Well, is there anybody that's specifically in charge right now on pushing ahead the synthetic fuel legislative effort for the administration? Who really has operational command? Who's in charge?

Mr. Cutter: The specific responsibility is in the Department of Energy.

Sen. Riegle: So the Energy Secretary, or Mr. Duncan, who was just appointed.³⁰⁰

Mr. Cutter: Yes.

Sen. Riegle: One or both are presently the people who are honchoing this effort. Is this right?

Mr. Cutter: Who will be responsible, yes.

Sen. Riegle: How many meetings have you folks had together since this new plan was laid out? Have you had a chance to meet daily, or several times as a group?

Mr. Deutch: From 7 to 7, from 7 in the morning to 7 at night.

Sen. Riegle: As a group, all of you at the table here?

Mr. Deutch: More – I guess that Mr. Speth wasn't there yesterday...

Sen. Riegle: So in other words, what we're hearing today then is really an integrated proposal that you've all had a chance to take part in, and this is really the product of a lot of coordinated effort over the last week and a half. Is that a fair statement?

Mr. Cutter: I think that's a fair statement.

Mr. Carswell: Yes. I am sorry that we have not come up with the specificity that you prefer, Senator, but we have tried to wrestle with a very complex issue.³⁰¹

Over the late summer and early fall, three final pieces of the administration's synfuels policy-making were put into place: (1) re-organization and centralization of energy policy in the White House, (2) further economic and technical analysis, and (3)

³⁰⁰ Shortly after the July 15 speech, President Carter overhauled his administration with the firing or resignation of five Cabinet officers. Secretary of Energy Jim Schlesinger was one of those who resigned, and Charles Duncan was to be his successor. Overall, the Cabinet purge proved to be a devastating political mistake; rather than showing the President decisively taking control of his administration, it was interpreted as a reflection of internal disarray. See: Drew, "Phase"; Mattson, *What the Heck*.

³⁰¹ *Energy Financing Legislation: Hearings before the Senate Committee on Banking, Housing, and Urban Development*. July 25, 26, and 27, 1979, 90-91. 96th Congress.

interest group outreach. The goal was to build a solid foundation of analytical and political support for the ESC when Congress took up the proposal after the August recess.

To streamline the White House's oversight, in late July, Carter tapped Eliot Cutler of the OMB to coordinate all of the administration's energy initiatives. Now focused on legislative strategy rather than policy development, Cutler replaced the interagency consultative process with a streamlined "unit leaders" approach. One (or sometimes two) staff took the lead on each of sixteen policy initiatives. As Cutler explained, "We have five months to accomplish our goals, we do not have time for task forces and lengthy consideration by committees."³⁰² For the ESC proposal, the unit leads were Bo Cutter (OMB) and John Deutch (DOE), who from then on were in charge of overseeing the Congressional outreach on the proposal.

For the policy analysis, from August to September, analysts in the DOE, CEA, and OMB conducted further analysis and put together a briefing book on the ESC. Although basic figures had been released with the White House's fact sheet in July, the more extensive technical and economic analyses for the briefing book were conducted *after* the ESC proposal had already been announced. At the outset, there was even internal confusion about what the goals represented; "The output target of the ESC is sometimes referred to as 2.5 mbd and sometimes as 1.75 mbd," complained George Eads and Burke Dillon of the CEA.³⁰³ The technical forecasts became more defined during this period, although apparently they continued to be round-number guesstimates. For example, the DOE's draft deployment schedule for coal liquids was as follows: 25, 50,

³⁰² Eliot Cutler to Hamilton Jordan. July 30, 1979. "Enactment of the President's Energy Program." Jordan Collection, JCL.

³⁰³ George Eads and Burke Dillon to Joe Kearney. August 14, 1979. "Draft Monograph on Energy Security Corporation." Folder 4, Box 224. George Eads Collection, JCL.

150, 250, 750, and 1000 thousand barrels/day in 1985, 1986, 1987, 1988, 1989, and 1990.³⁰⁴ In the briefing book released in late September, this was described as a “hypothetical but plausible” deployment schedule.³⁰⁵ “We were trying to make predictions about what we could do and how we could do it without any experience to go on,” recalled Eliot Cutler. “[There was] no experience-based data to deal with.”³⁰⁶ The cost estimates also to some extent relied on rules of thumb. For example, after a technical meeting with the DOE, a CEA economist reported that: “Most of the technology we need to begin is available off the shelf ... [but] costs would be reduced by 10 to 20 percent if we didn’t go so rapidly, thereby allowing more opportunity to learn from our own experience.”³⁰⁷

As for the interest group outreach, in September and October the administration held numerous meetings with business interests to shore up political support. On September 10-14, senior administration official – including Stu Eizenstat, Anne Wexler (Assistant to the President for Public Liaison), Charles Duncan (Secretary of Energy), and G. William Miller (Secretary of Treasury) - held a series of luncheons with industry executives. The meetings, which were arranged by the Business Roundtable, included CEOs from oil companies, chemical companies, utilities, major corporations, and trade associations. Minutes from the meetings included some encouraging statements for the administration – “I’m encouraged by today’s meeting,” said Jerry McAfee, CEO of Gulf

³⁰⁴ Rick Jones to Joe Kearney, Ron Konkel, Luke Lynch, George Eads, and Van Ooms. August 8, 1979. No title. Folder 2, Box 224. George Eads Collection, JCL.

³⁰⁵ The White House. 1979. “The President’s Program for United States Energy Security: The Energy Security Corporation.” Folder 8, Box 11, Kitty Schirmer Collection, JCL.

³⁰⁶ Personal communication, 1/3/12

³⁰⁷ Burke Dillon to George Eads and Lyle. August 1, 1979. Folder 3, Box 224. George Eads Collection, JCL.

Oil,³⁰⁸ “What we have today is very reassuring,” said Thomas Murphy, CEO of General Motors³⁰⁹ – but in October the Business Roundtable’s Energy Task Force formally declined to endorse the White House’s energy plan. Anne Wexler was told confidentially by Irving Shapiro, CEO of DuPont, that “the oil companies are the heart of the problem – mainly because the Corporation is tied to the Windfall Profits Tax. He says if the Corporation was not tied to the tax the oil companies would not fight it any more.”³¹⁰

Summary

This section provided a detailed explanation – to the extent possible, given the fragmented archival record during July 1979 – of how the Carter administration developed its plan for an Energy Security Corporation. It analyzed how the White House, which had previously been very conservative about synfuels, came to embrace a crash synfuels program as a pragmatic solution to the political crisis. This emphasis on synfuels was largely driven by the House and Senate’s “bidding up” on synfuels in the early summer. The White House’s response was not, however, simplistic one-upmanship; it was also a tactic for shoring up support for the Windfall Profits Tax, which remained the administration’s principal priority.

The haste with which the ESC plan came together in July makes it difficult to definitely trace who drafted the plan or how the funding and production targets were derived. The evidence suggests that the \$88 billion figure came from estimates of

³⁰⁸ Richard Reiman to Anne Wexler. September 10, 1979. “September 10 Energy Luncheon (Oil, Chemicals).” Folder 5, Box 19. Anne Wexler Collection, JCL.

³⁰⁹ Richard Reiman to Anne Wexler. September 14, 1979. “September 14 Energy Luncheon (Corporations, Utilities).” Folder 5, Box 19. Anne Wexler Collection, JCL.

³¹⁰ Anne Wexler for the Files. September 12, 1979. “Telephone Conversation with Irving Shapiro (Post Business Roundtable Energy Committee Meeting).” Folder 5, Box 19. Anne Wexler Collection, JCL.

Windfall Profits Tax revenues, and that the Treasury (rather than the DOE) may have taken the lead on drafting the proposal for the ESC. Regardless, what is clear is that although various individuals in the administration had been exploring the strategic implications of these issues for some months, the final plan came together in early July – quickly, chaotically, and without a great deal of analytical underpinning. These weaknesses notwithstanding, Congress rose to the challenge and eventually passed the \$88 billion Synthetic Fuels Corporation, based on the White House’s proposal. This “bidding up” is the focus of the next section.

V. BIDDING UP: CONGRESS & THE SYNTHETIC FUELS CORPORATION (SFC)

The “bidding up” of synthetic fuel initiatives had begun early in the summer, with the House’s passage of the \$3 billion Moorhead bill and the Senate’s consideration of a \$5 billion synfuels bill. As the last section described, on July 15, 1979 the President stepped in with an \$88 billion proposal for an Energy Security Corporation (ESC), dramatically raising the stakes of the competition over synfuels policy. This section discusses the final stage of the competition: Congress’s response to the White House’s proposal. It covers the House’s response, the Senate’s response, and the final passage of a Synthetic Fuels Corporation (SFC).

The competitive nature of synfuels policy was clear from the headlines: “Congress ‘Ahead of the Game’ on Energy,” proclaimed *Congressional Quarterly*

Weekly Report.³¹¹ The House, of course, had already passed a windfall profits tax and a synfuels plan before the July 4th recess, so it was left to the Senate to respond to the President's July 15 proposals. Ultimately, they did pass a bill for an \$88 billion SFC, representing a clear rising to the president's challenge. But it is important to recognize that it was not without a fight. The windfall profits tax and the ESC were tremendously controversial measures, and the Finance and Banking Committees in particular sought to forestall them. The Finance Committee, which had jurisdiction over the windfall profits tax, attempted to gut the tax measures. The Banking Committee, which shared jurisdiction over the ESC with the Energy Committee, tried to rein in synfuels subsidies by proposing a \$4 billion program. Despite these attempts to undercut it, however, the Senate moved forward with a substantial tax and the Energy Committee's version of a Synthetic Fuels Corporation (SFC). The SFC was more modest than the President's ESC proposal; the funding was phased, such that only \$20 billion was appropriated up front, and the production timelines were stretched out. Nonetheless, it essentially upheld the President's program. Patrick Hamlett's conclusion, drawing on a 1981 interview with Rep. Moorhead, was that the Senate's pursuit of the SFC reflected their desire to reassert leadership:

[T]he size and nature of the Synthetic Fuels Corporation, ... reflected the Senate's desire to reassert its traditional preeminence in Energy matters. To reestablish senatorial leadership ... required more than simply aping the House's modest program. It required developing a dramatic and aggressive energy program that would put the House's effort in the shadows.³¹²

What is important to recognize from this section is that the program that emerged from Congress thus reflected a competition for energy leadership not only between the

³¹¹ Pelham, Ann. July 21, 1979. "Congress 'Ahead of the Game' on Energy." *Congressional Quarterly Weekly Report*. 37(29): 1433-1441.

³¹² Hamlett, "Technological Policy Making", 64-65.

White House and Congress, but also between the House and Senate. This competition sustained a “bidding up” of programs well beyond what was economically efficient or technologically feasible, and well beyond what any interest groups had championed. (The interest groups’ advocacy will be the subject of the following section.)

House Response

By the time Carter proposed the \$88 billion Energy Security Corporation, the House had already passed legislation on synfuels production and a windfall profits tax (although the two were not linked). On June 26 the House had passed H.R. 3930, an expanded version of the Moorhead bill, providing \$3 billion for loan guarantees, price supports, and government purchases, with a goal of producing 2 million barrels/day of synthetic fuels by 1990. On June 28 the House had passed H.R. 3919, the Crude Oil Windfall Profit Tax Act. The House’s bill (60% tax for ten years) was weaker than what President Carter had proposed in April (permanent 50% tax) or what had been reported out of the Ways and Means Committee (permanent 70% tax), but nonetheless it represented prompt action on the President’s spring energy plan.

Because the House had rushed to pass the bills in time for the July 4th recess, Carter’s July 15 announcement did not cause a policy response from the House. The one exception was departmental appropriations. On July 30, the House passed the fiscal year 1980 budget for the Departments of the Interior and Energy, authorizing \$3.36 billion for the DOE. This was \$1.5 billion *more* than what the President had requested, with the extra funding earmarked for immediate synfuels projects. The Appropriations Interior Subcommittee wanted to “serve notice” that it was serious about synfuels, explained

ranking minority member Joseph Dade (R-Penn.), and they particularly wanted to target the funds for building production “capacity” not “proliferating pilot processes.”³¹³

Senate Response and Conferences

After the President’s July 15 speech, the Senate had three interlocking pieces of synfuels legislation to consider: (1) the windfall profits tax, (2) the Energy Security Corporation, and (3) the DOE synfuels budget. Here I discuss which Senate committees had jurisdiction over these issues and how their debates about the legislation evolved over the latter half of 1979.

Windfall Profits Tax

The Finance Committee had jurisdiction over the windfall profits tax. Their delays in handling the tax measure, which was of course crucial for generating revenues, would in turn create difficulties for the synfuels measures that were under consideration in other committees. The Senate Finance Committee started markup of the House’s bill in late July. Chairman Russell Long (D-La.) initially said he hoped to have a bill for the president by October 1, but this deadline was pushed back by contentious debates in the committee. The fights were not over whether to pass a tax – as one oil industry lobbyist conceded, “We’re big enough boys to realize that we’re going to get a windfall profits tax”³¹⁴ – but over tax rates, exemptions, and plans for spending the revenue.

³¹³ Pelham, Ann. August 18, 1979. “House Votes \$1.5 Billion for Synfuels Production.” *Congressional Quarterly Weekly Report* 37(33): 1740-1742.

³¹⁴ Corrigan, Richard. September 1, 1979. “Who Should Reap the Benefits of Decontrolled Oil Prices?” *National Journal* [online version].

After an October 11 committee meeting, it was reported that the Finance Committee was close to approving a windfall profits tax that would collect \$65 billion over the next decade. It was a sharp rebuke to the President's plan. The tax was much weaker than what either the President or the House had proposed. Although it raised the tax rate for pre-1973 oil wells to 75%, it exempted newly discovered oil and the first 1,000 barrels/day of independent production, and it was set to expire after it had generated the target revenue level. Moreover, the proposed expenditures – \$25 billion for aid to the poor, \$25 billion for tax credits and conservation, and \$15 billion for mass transit – left nothing for synthetic fuels financing. The Committee argued that since higher oil industry profits would generate higher income tax revenues, the synfuels program could be supported by general revenues.

By the time the Finance Committee reported a windfall profits tax bill on November 1, it was so weakened and pitched towards oil interests that eleven members of the committee (five Democrats and six Republicans) filed a statement of protest. They claimed that “several special exemptions are allowed which are unjustified because they do not enhance production and because they significantly reduce badly needed revenue.”³¹⁵ Majority Leader Robert Byrd (D-W.V.) and Finance Committee member Abraham Ribicoff (D-Conn.) offered an amendment, against which Long and others mounted a filibuster. A compromise was finally worked out, and the legislation passed the Senate on December 17 by a 74-24 vote.

A conference was held to work out differences with the House bill – which “made the usual compromises, often exactly at midpoint between the two competing

³¹⁵ Quoted in Katz, *Congress and National Energy Policy*, 147.

measures”³¹⁶ – and the windfall profits tax was finally signed into law by the President on April 2, 1980. The final tax was weaker than the President’s version. It was not permanent, and the revenues were to be held in the general revenue fund rather than a special energy security fund, but it was predicted to raise \$227.3 billion by the early 1990s – providing ample funding for the crash synfuels program.

Energy Security Corporation: Banking and Energy Committees

Jurisdiction over the synthetic fuels program was shared by the Energy Committee and the Banking Committee. The Energy Committee had already been working on a \$5 billion demonstration program for synthetic fuels, proposed by Sen. Jackson. The Banking Committee had jurisdiction over the Defense Production Act, which the House synfuels bill amended, as well as financial corporations in general. Both committees sought jurisdiction over H.R. 3930, and the Senate leadership assigned the bill to both of them.³¹⁷ They produced such divergent bills that “aides considered it unlikely that a compromise version could be worked out.”³¹⁸

The Banking Committee opposed the entire concept of the ESC. “Clearly, the proposal the administration presented to us is a turkey,” said Chairman William Armstrong (R-Colo.). “[It] has all the earmarks of a crash effort to get rid of an embarrassing \$88 billion,” said Sen. Adlai Stevenson (D-Ill.).³¹⁹ Committee members were concerned about the inflationary effects, the lack of government oversight, and the government takeover of the energy industry. Notably, both Senators from the oil shale

³¹⁶ Katz, *Congress and National Energy Policy*, 148.

³¹⁷ Hamlett, “Technological Policy Making.”

³¹⁸ Pelham, Ann. October 6, 1979. “Senate Banking Committee Abandons Carter Plan for Energy Security Corporation.” *Congressional Quarter Weekly Report* 37(40): 2214-2215.

³¹⁹ Quoted in Hamlett, “Technological Policy Making,” 59-60.

rich state of Colorado – William Armstrong and Gary Hart – opposed the crash effort, expressing concerns about the social, economic, and environmental impacts of hasty oil shale development. At the same time, though, the Banking Committee recognized that “congressional sentiment strongly favored some kind of program to develop synfuels,” so their strategy was to craft a sensible alternative. They produced a plan that closely resembled the original Moorhead proposal, authorizing \$3.9 billion in loan guarantees and price supports for synfuels plants.

The Energy Committee, on the other hand, was sympathetic to a large synfuels initiative. They balked, though, at the size and ambitiousness of Carter’s “crash” program. Their compromise was to structure a Synthetic Fuels Corporation (SFC) with two stages of funding. In the first phase, the SFC would be authorized with \$20 billion over three years. In the second phase, the additional \$68 billion could be authorized after additional Congressional evaluation. In addition to the phasing, the committee stretched out the schedule of the production targets until 1995.

The two proposals came up for debate in the Senate on November 7-8. Although the Banking Committee version of S.932 had been endorsed by an unusually strong and varied coalition of environmental groups, oil companies, and business interests, it was defeated on November 7 by a vote of 37-57.³²⁰ The Energy Committee successfully increased the bipartisan appeal of their version with \$13 billion of additional programs for gasohol, biomass conversion, solar energy, acid rain research, geothermal energy, and petroleum reserves. Sen. Bennett Johnston (D-La.) openly acknowledged that these additional titles were necessary to bring along the members who were not otherwise

³²⁰ Pelham, Ann. 10 Nov 1979. “Senate: \$34 Billion in Energy Programs.” *Congressional Quarterly Weekly Report* 37(45): 2512.

inclined towards synfuels. Padded with these programs, the Energy Committee's version prevailed on November 8 by a vote of 65-19. "Clearly, much of the support for synfuels in the Senate relied upon political inducements rather than the technical specific of the proposed synfuels project," concluded Patrick Hamlett.³²¹

The conference on the Energy Security Act, which included the SFC as Title I, was immensely complicated. It was the largest conference in Congressional history, with 55 conferees and another 50-60 staffers, and it lasted seven months. The primary challenge for the conference was reconciling the House's \$3 billion DPA amendment and the Senate's \$20 billion (up to \$88 billion) SFC proposal. The creative solution worked out was to combine them into a nested program. The DPA authority was to be used as a "fast start" to synfuels programs, and the SFC could take over when it was fully established. Another challenge was that Senate had added nine additional titles on conservation, gasohol, solar, etc. Early on, Rep. Moorhead suggested that these be broken off from the synfuels title, but Sen. Bennett Johnston, who was co-chairing the conference with Moorhead, rejected the idea, "since Senate passage ... had been purchased only by the addition of those other programs." In the end, though, the subcommittees of staff working on each of these titles was able to work them out without great obstacles. The Senate passed the conference report on June 19, 1980 by a vote of 78-12, and the House followed on June 26, 317-93. President Carter finally signed the Energy Security Act into law on June 30.

DOE Appropriations

³²¹ Hamlett, "Technological Policy Making," 64.

In October 1979, while the Finance Committee delayed on the windfall profits tax and the Banking and Energy Committees duked it out over a synfuels corporation, the Senate Appropriations Committee moved to signal its support for the crash synfuels program through the DOE appropriations. In the end, since the Energy Committee successfully pushed through the SFC, the Appropriations Committee's actions were rendered moot. But it is an interesting piece of the politics and policy-making process behind the SFC, because it illustrates one more way in which segments of Congress were seeking to signal their willingness to bid up proposals.

On October 10, the Appropriations Committee agreed 15-8 to provide \$20 billion for alternative fuels, funneled into a special "Energy Security Reserve." Technically this was part of the appropriations for the Energy and Interior Departments (H.R. 4930), so it was separate from the energy security corporation plan that the Energy Committee was working on. But the Committee recommended that the \$20 be put into a special fund, the Energy Security Reserve, that could be transferred to a corporation should it pass.³²² As reported by *Congressional Quarterly Weekly Report*, "By allocating the \$20 billion to a reserve, the Appropriations panel is indicating their willingness to forgo an annual review of detailed spending for synthetic fuels."³²³

The challenge, of course, was that this allocated funding in advance of the windfall profits tax. During debates about the appropriations, Senators William Armstrong (R-Colo.) and Harrison Schmitt (R-N.M) argued strongly against committing the funds before the authorizations had gone through. Armstrong said that the Senate

³²² Koch, Kathy. November 3, 1979. "Bargaining Sessions Begin on Fiscal 1980 Measure to Fund Interior Department." *Congressional Quarterly Weekly Report* 37(44): 2476-2477.

³²³ Pelham, Ann. "New Proposal by Long Could Leave Synfuels Out in Funds Scramble." *Congressional Quarterly Weekly Report* 37(41): 2261-2262.

was buying a “\$20 billion pig in a poke,” while Schmitt complained that it was “legislating by appropriation.”³²⁴ The White House opposed this approach as well, because they wanted the tax and synfuels spending components tied together. “Funds for ESC were approved by the Senate Appropriations Subcommittee, but not contingent on WPT [windfall profits tax] revenues. We have restated our commitment to contingency language,” reported Eliot Cutler to the White House’s energy advisers.³²⁵

Over their opposition, the measure was adopted. It was passed by the Senate on October 18, adopted by both houses on November 9 after the conference, and signed into law on November 27. Over two years later, on February 8, 1982, President Reagan would sign Executive Order 12346 transferring the funds from the Energy Security Reserve to the Synthetic Fuels Corporation.

Summary

In an atmosphere of sustained energy insecurity, Congress rose to meet the challenge of the President’s energy supply program. The Synthetic Fuels Corporation that the Senate developed strongly resembled the President’s Energy Security Corporation proposal. It was a 12-year, self-liquidating corporation, publicly funded and independently staffed and operated. It started with \$20 billion of appropriations in the first phase, with the potential to add another \$68 billion in a second phase a few years later. The synfuels production targets were 500,000 barrels/day by 1985 and 2 million barrels/day by 1990.

³²⁴ Koch, Kathy. October 20, 1979. “Senate Approves Funds for Synfuels, Aid to Poor.” *Congressional Quarterly Weekly Report* 37(42): 2314.

³²⁵ Eliot Cutler to Hamilton Jordan, Stuart Eizenstat, James McIntyre, and Frank Moore. October 1, 1979. “Current Status of President’s Energy Initiatives.” Folder 5, Box 45. Hamilton Jordan Collection, JCL.

These targets were adopted despite resounding evidence from experts that they were infeasible. As Cohen and Noll summarize: “The [synfuels legislation] bill was not just bad economic and fiscal policy. It was technically infeasible because of resource constraints ranging from lack of water and coal mines to lack of architect-engineers, skilled construction workers, and building materials.”³²⁶ The Government Accountability Office and the Congressional Research Service both released reports saying as much, but they were easily swept away in the frenzied crisis atmosphere. Moreover, it is striking that the program was adopted over the opposition of many interest groups, who overwhelmingly lobbied for the Senate Banking Committee’s smaller \$4 billion synfuels program. It is these interest group politics to which we turn in the next section.

VI. SIGNING ON: INTEREST GROUP NEGOTIATION AND INFLUENCE

[O]ver the months leading up to the passage of this legislation, the committees of the Senate and the other body heard much testimony from industry experts, economists, engineer, financiers, scholars, and consultants. We called these authorities in and, in effect, said to them, ‘what will it take to get synthetic fuel production moving?’ Interestingly, practically none of them suggested creation of the Synthetic Fuels Corporation or a similar massive bureaucracy.

- Senator William Armstrong

The concept of a massive Synthetic Fuels Corporation was opposed by a wide spectrum of interest groups: environmentalists, oil industry, coal industry, business interests, bankers, and consumer groups. Far from entrepreneurially driving the SFC, these groups largely sought to block it – and failed. This section investigates the advocacy of three key groups: environmental groups, coal industry, and oil industry. Environmental groups strongly opposed an aggressive synfuels effort for environmental

³²⁶ Cohen, Linda R. and Roger G. Noll. 1991. *The Technology Pork Barrel*, Washington, DC: The Brookings Institution, 289.

reasons. The coal industry wanted an increased market for coal but had serious misgivings about the structure of the SFC. The oil industry, which arguably had the most to gain from government financing of synfuels, tended to be ideologically opposed to major government involvement in energy. None of these groups had previously advocated for a large-scale government synfuels initiative. None responded favorably to the early Congressional proposals. All reluctantly signed onto the Senate Banking Committee's proposal in an effort to fend off a larger program, but over their protests, Congress approved the Energy Committee's version of the SFC.

There are three interrelated patterns that emerge from this review of the interest group politics. First, these groups found their influence dampened by the crisis atmosphere. Interest groups felt that their hands were tied by the overwhelming, panic-driven push towards synfuels. Second, their actions were a response to – not a driver of – radical policy proposals. As a coal lobbyist explained, “what set the Synfuels Corporation in motion was people in the White House and Congress,” and the interest groups were just scrambling to respond. Third, policy-makers courted interest groups to try to convince them to sign onto legislative proposals. It was a two-way flow of influence. In sum, the case of the SFC presents a dramatically different view of the relationship between interest groups, politicians, and radical policy change than is commonly portrayed in the literature on interest group influence.

Environmental Groups

Environmental groups staunchly opposed large-scale synthetic fuels development due to concerns about numerous environmental impacts: coal strip mining in Appalachia,

oil shale extraction in the West, air pollution, water pollution, water usage, toxic and carcinogenic chemical usage, and emissions of greenhouse gases. Here I describe how their advocacy evolved over the summer and fall of 1979. The environmental groups were not ultimately successful in their fight against an aggressive synfuels commercialization initiative. But they had enough other victories in the legislation that they did not oppose the final National Energy Act.

The environmental groups began to mobilize against Congressional synfuels proposals over the early summer of 1979, as “synfuels fever” suddenly took off. In a July 8 memo exploring strategy options, a Friends of the Earth staffer explained the stakes: “our choices lie between two undesirable extremes: disaster, and unmitigated disaster.” Disaster was the synfuels subsidies and fast track permitting under consideration in the House and Senate. Unmitigated disaster would also involve a “[g]overnment corporation with broad power,” supported by higher synfuel production goals and additional waivers of environmental regulations.

When they got wind – apparently through a leaked decision memorandum – that the White House was going to propose the latter, the environmental groups wrote an impassioned letter to the President at Camp David.³²⁷ The July 12 letter was signed by the heads of Friends of the Earth, Sierra Club, Natural Resources Defense Council, The Wilderness Society, and the Environmental Policy Center. “[W]e are concerned that you are on the brink of making a disastrous and irreparable mistake in your choice of energy strategies,” they wrote. “Instead of spending tens of billions of dollars only on untried technology, you ... should be looking for cost-effective energy investments which can

³²⁷ “Carter Must Stalk the Energy Enemy in His Own Camp – At Home.” July 16, 1979. *Oil & Gas Journal*, editorial, 21.

produce more energy at a lower cost with significantly fewer environmental, health, and safety risks.”³²⁸ They highlighted that synfuels are “extravagantly expensive” and “untried,” that they “will not meet our short-term energy problems” and “cannot end the gas lines,” and that they “produce unacceptable environmental risks.” In addition to these substantive arguments, the groups directly addressed the political pressures:

The political counsel in the decision memorandum is that a commitment to anything less than 2 million barrels per day [of synthetic fuels] by 1990 would not be “credible.” The message this clearly conveys is that you as President should be stamped by the same panic and ignorance which have driven Congress to impetuous folly.

The Carter Administration had previously been receptive to environmental concerns, but in the face of overwhelming political pressure it continued with the synfuels program, and the environmental groups turned their attention back to Congress with renewed intensity. “At the national level, just about the whole environmental community has become mobilized in the last week,” wrote Brock Evans of the Sierra Club in a July 23 memo to his Board of the Directors. “There isn’t much time, but we are rolling.” Environmental groups mounted an enormous grassroots campaign over August and September. The Sierra Club put together a mailing, instructing members on how to get the message out through local talk shows, radio announcements, and newspaper editorials. The National Wildlife Federation and the Audubon Society launched calls-to-action, urging their large memberships to write their Congressmen.

The environmental groups coordinated their activities with one another, forming an “Energy Coalition” in September to release collective fact sheets, letters, and advocacy materials.³²⁹ They also sought to reach out to a wide range of other interest

³²⁸ Rafe Pomerance et al. to Jimmy Carter. July 12, 1979. Folder 20, Box 107, Stuart Eizenstat Files, JCL.

³²⁹ The different environmental groups brought different strengths to the collective. For example, the Sierra Club was the most “politically savvy,” Friends of the Earth was a more leftist presence that would “keep

groups. The Sierra Club instructed their organizers on how to reach out to constituencies representing labor, consumers, minorities, public health, farmers, and churches. Friends of the Earth and Shell Oil even explored the possibility of a joint statement against a “crash” synfuels program (as a Shell employee expressed in a note, “My feeling is that a carefully worded ... joint denunciation of a crash synfuels program from environmentalists and oil companies alike would demolish the program.”)³³⁰

In terms of the substance of their advocacy, the environmental groups decided to endorse the Senate Banking Committee’s version of S. 932. It was a pragmatic attempt to stave off the Energy Committee’s proposal for the Synthetic Fuels Corporation – disaster rather than unmitigated disaster.³³¹ For example, on October 18, the Coalition sent out 45-page “Dear Senator” mailers, urging them to reject the Energy Committee’s bill. They argued that: “Any irrevocable commitment to synfuels before more is known about their technical feasibility, economic vitality and environmental impact would be sheer folly.” It is interesting to note that this required the environmental groups to portray themselves as opposing a “crash” effort rather than synfuels in general. Their July 12 letter to the President even went so far as to support “an accelerated and ambitious program of research on ‘second generation’ synthetic fuels technologies.”

the Sierra Club in line,” and the National Wildlife Federation and the Audubon Society had scientific staff and huge memberships. Personal communication, 3/11/10

³³⁰ “A Joint Statement from the Shell Oil Company and Friends of the Earth (Draft).” n.d. Folder 60, Box 5, David Masselli Papers, Friends of the Earth Collection, University of Colorado, Boulder.

³³¹ As an aside, this pragmatism is particularly interesting because one theme that emerged in my interviews with environmentalists from the 1970s was their incredible disappointment with the compromising of today’s environmental groups. In general, they felt that today’s environmental groups were too professionalized, too quick to sacrifice on environmental protection in order to stay on the winning side of legislation. A few representative quotes illustrate this sentiment: “In the old days, we had principles and walk-away points,” “Today [they’re] driven by funders and not driven enough by gut and commitment,” and “NRDC ... fell in love with economic stuff [i.e. environmental trading and market mechanisms] in the 1990s” and should “spend eternity burning in hell” for it.

In the end, despite mounting a huge grassroots campaign, the environmental groups were unable to slow down the “synfuels train.” They were unable to persuade the White House to hold off on the ESC proposal, unable to persuade the Senate to approve the Banking Committee’s more modest version of S. 932. They did, however, have other major victories in the 1979-80 energy legislation, principally in the overturning of an Energy Mobilization Board.³³² Moreover, the National Energy Act that established the SFC also included a number of initiatives for conservation and solar energy. As summarized by Ralph Bayrer, “[w]hile environmentalists tended to be hostile to synthetic fuels, they did not oppose the Act because of other initiatives they held in high value.”³³³

Coal Industry

“Who’s responsible for the synfuels corp? Certainly not the coal industry!” a former coal lobbyist explained in an interview. “We thought there was as much danger in synfuels as good.”³³⁴ Many people assume that the coal industry was wholeheartedly behind the SFC,³³⁵ but the story of the coal industry’s response is more complex. Although coal companies welcomed the expanded market prospects, they also had deep reservations about the SFC legislation for both ideological and substantive reasons. They reluctantly signed onto the proposals for political reasons, but their endorsement lagged rather than led the policy development.

³³² The Energy Mobilization Board (EMB) was designed to eliminate the red tape – particularly environmental permitting – for priority energy supply projects. The EMB was arguably a greater focus for environmental groups than the SFC, although this is beyond the scope of this study. See: Plotkin, Sidney. 1985. “Corporate Power & Political Resistance: The Case of the Energy Mobilization Board.” *Polity* 18(1): 115-137.

³³³ Bayrer, Ralph L. *The Saga of the U.S. Synthetic Fuels Corporation: A Cautionary Tale*. Washington, DC: New Academia Publishing, 60.

³³⁴ Personal communication, 4/20/11

³³⁵ For example, when I suggested to a former Carter Administration energy staffer that the coal industry had mixed feelings, his response was: “That’s horseshit. Bob Byrd was all over this.”

That the coal industry had other policy priorities is evident from their advocacy in 1977-1979, prior to the onset of “synfuels fever.” As indicated by the minutes from the industry’s March 1977 “mini-conference” with the nascent DOE, the industry’s main concerns were environmental regulations, coal transportation, and labor issues. Only one coal executive brought up synfuels in a brief comment towards the end of the meeting. There were a couple of reasons that the coal industry’s enthusiasm for coal liquefaction and gasification was tempered. With oil prices high, the coal industry was predicting strong demand growth for coal in the power sector (although by 1979, this had stalled). Moreover, the coal industry had neither the capital nor the technological capabilities to develop synfuels plants. “The coal industry, at the time, was just a bunch of mining companies,” explained an OMB analyst.³³⁶ “They just wanted to mine their coal and sell it to utilities,” said a coal lobbyist.³³⁷ The oil companies, not the coal companies, had the capital and chemical expertise needed to build and operate synfuels plants.

In June 1979, when Congressional energy policy debates suddenly turned to synfuels, the coal industry had mixed feelings. On the one hand, demand growth for coal had not taken off the way that the industry had expected, and a large synfuels industry had the potential to generate much-needed demand. On the other hand, the coal industry tended to be wary of large-scale governmental intervention. Many conservative coal CEO’s were ideologically opposed to government help, particularly the “old guard” of the family-owned companies.³³⁸ In addition, the National Coal Association (NCA) was genuinely concerned about whether the panic-driven programs would crowd out private investment and leave the industry battered by a boom-and-bust cycle. These fears were

³³⁶ Personal communication, 1/24/12

³³⁷ Personal communication, 5/26/11

³³⁸ Personal communication, 5/26/11

never aired in public by the industry, but Nicholas Wade reported on them in an issue of *Science* magazine:

What is remarkable is that the coal industry, which should be the leading beneficiary of any crash synfuels program, has serious doubts as to whether Congress's various schemes will do more good than harm in making synfuels commercially viable. A confidential review prepared on 18 June by the staff of the National Coal Association suggests that the bills under consideration "may do little to speed up the commercialization of coal gasification or liquefaction. The evaluation does not square with either the professed desire of many members of Congress to move ahead with Synfuels or widespread perception in Washington that the legislative proposal are major steps forward – with great benefit to the coal industry. Thus, any position taken by the coal industry that doesn't square with popular wisdom may be difficult to explain."³³⁹

By September, once President Carter had introduced the ESC proposal, the stakes of synfuels policy were higher, and the NCA wavered in their support. Their greatest concern was government-owned, government-operated (GOGO) or government-owned contractor-operated (GOCO) plants. The ESC proposal had authorized up to three of these government-owned facilities, and the Senate Energy and Natural Resources Committee was strongly in favor of them. Most business interests, including the coal industry strongly opposed GOGO's and GOCO's. On September 26, Carl Bagge of the NCA wrote a blunt letter to Senator Henry Jackson, chair of the Energy Committee, stating: "We want to make clear that the coal industry is strongly opposed to any and all provisions of this bill which would permit ownership by the government or a government corporation of any commercial-scale synthetic fuels facilities."³⁴⁰ Bagge emphasized that government ownership would "be a disincentive to private efforts and could retard the development of a private, competitive synthetic fuels industry," because the specter of government involvement could make it harder for investors and lenders to commit private capital. He also raised concerns that it "would correctly be perceived as a precedent for government involvement in other energy production and related activities."

³³⁹ Wade, "Synfuels in Haste," 167.

³⁴⁰ Carl Bagge to Henry Jackson. September 26, 1979. Folder 5, Box 19. Anne Wexler Collection, JCL.

When the Energy Committee moved ahead with the SFC, including GOCO's, the NCA endorsed the Banking Committee's version of S.932. This caused some consternation within the White House. As George Eads of the Council of Economic Advisors (CEA) reported to Charles Schultze, CEA Chairman: "emotions on this run high. Even the National Coal Association jumped ship and is now supporting the Banking Committee version due to the GOCO provision. (Byrd is trying to talk them out of it, we understand)."³⁴¹ In the end, the final SFC legislation did authorize up to three GOCO's, which would only be used as a last resort if a construction project otherwise would not be completed. The coal industry and other business interests were thus unsuccessful in shooting down this provision. Meanwhile, although they had reservations about even the Moorhead bill, they made the decision to endorse a large synfuels demonstration program – i.e. the Banking Committee bill – in an attempt to stave off the SFC.

Oil Industry

"Most Oilmen Slam New Energy Plan," ran the headline in the *Oil & Gas Journal* after Carter's July 15 speech.³⁴² The oil industry had fought a crash synfuels program under the auspices of the Energy Independence Authority in 1975, and they continued their staunch opposition to the concept in 1979 – even though it was the oil industry that would most likely reap the benefits of the SFC's loan guarantees. To quote the industry's trade journal again: "the oil industry at best is lukewarm about a big commitment to synfuels. ... They say as much or more oil could be produced more cheaply and more

³⁴¹ George Eads to Charles Schultze. November 5, 1979. "Calls on ESC." Folder 3, Box 224, George Eads Files, JCL.

³⁴² "Most Oilmen Slam New Energy Plan; Other Reactions Mixed." July 23, 1979. *Oil & Gas Journal*, 20.

quickly with the same money invested in conventional production.”³⁴³ This section will discuss how the oil industry sought to stave off the creation of the SFC, including endorsing the Senate Banking Committee’s smaller synfuels bill. In the end, however, “Big Oil” was unsuccessful in exerting influence over the legislative policy-making.

The American Petroleum Institute (API), the main trade organization for the oil industry, emphasized four points in its advocacy over 1979. First, it vehemently opposed a windfall profits tax, arguing that the best way to reduce oil imports was to allow oil companies to invest in domestic exploration. Second, regarding synthetic and alternative fuels, the API argued that the government’s direct involvement should be limited to DOE-funded demonstration facilities, and that “[g]overnment support of a project should stop when it reaches the stage where it is commercially viable.”³⁴⁴ Third, it strongly opposed the creation of a government corporation for synfuels financing, particularly one that allowed for government equity in commercial synfuels plants. Commercialization, it argued, should be left solely to the private sector. Lastly, it stressed that the best way for the government to accelerate synfuels development – if it so desired – was through favorable tax incentives (energy investment tax credits, production tax credits, accelerated depreciation) and fast track environmental permitting.

This basic platform is not, perhaps, that remarkable. But there are two slightly more complex points about the oil industry’s position that are worth highlighting here. First, although the API’s position broadly represented the industry’s position, individual oil companies variably argued for higher or lower governmental support. For example,

³⁴³ Crow, “Support for Synthetics,” 113.

³⁴⁴ American Petroleum Institute. September 19, 1979. “Position Paper: Incentive Programs for Synthetic Fuels and Alternative Energy Sources.” Folder 2, Box 3, David Masselli Papers, Friends of the Earth Archives.

while Mobil similarly argued that the government should focus on R&D funding and environmental regulations, it was also open to direct subsidies and guaranteed purchase contracts in order to accelerate commercialization:

If for reasons of national security or other overriding national interests the government wants synfuels capacity before commercially competitive synfuel production capability has been demonstrated, then this should be done directly through the budgetary process, with full recognition that there would be a misallocation of economic resources.³⁴⁵

Or as Rawleigh Warner, Jr., Chairman of Mobil Corporation, stated even more pointedly in a September 10, 1979 speech: “private companies should develop these synthetic fuels, with government assistance in the form of a willingness to buy guaranteed quantities of fuel at guaranteed prices high enough to provide adequate rates of return.”³⁴⁶ Guaranteed purchases were, of course, one of the mechanisms that the SFC would fund.

In contrast, Exxon emphasized that the private sector was ready and able to develop a commercially viable synfuels industry without government intervention: “The resources are adequate. The technology is ready for commercial application. And the private sector has the necessary financial, technical and managerial resources.”³⁴⁷

Moreover, there were different views yet from the smaller integrated companies, who lacked capital and strongly favored an extensive loan guarantee program, and the independents, who “denounced the synfuels effort as a transferring of wealth from the

³⁴⁵ “Mobil’s Proposed Treatment of Synthetic Fuel Development.” 1978. (Mobil Corporation: Subject Files: Corporate: Research & Development: Products & Technology: Synthetic & Alternative Fuels, 1975-1986) Folder, Box 2.207/F160, ExxonMobil Collection, Dolph Briscoe Center for American History, University of Texas...

³⁴⁶ Warner, Rawleigh, Jr. September 10, 1979. Remarks before the Economic Club of Detroit. (“U.S. Energy Policy: Can We Get There From Here?”) Folder, Box 2.207/E119. ExxonMobil Collection, Dolph Briscoe Center for American History, University of Texas.

³⁴⁷ “The Role of Synthetic Fuels in the United States Energy Future. n.d. (Publications: General, 1977) Folder, Box 2.207/L12e, ExxonMobil Collection, Dolph Briscoe Center for American History, University of Texas.

independent producers to the integrated companies.”³⁴⁸ In short, there was a diversity of voices from the oil industry.

The second important point is that the oil industry strongly supported the goal of developing large-scale synfuels production as a means of reducing U.S. oil imports. That is, although they tended to reject the SFC as a policy instrument, they did not push back on the objective. In fact, most of the industry’s position papers and testimony opened with a resounding endorsement of rapid synthetic fuels development. “The need for rapid development of a synthetic fuels industry – to ease dependence on imported energy and to meet a coming shortfall of world energy supply – is clearly critical to the national interest,” acknowledged Exxon. “In view of the US oil import dependence ... government incentives should be used to expedite the development, demonstration and commercialization of synthetic and alternative fuel technologies,” stated the API. “We must do everything that we can do to develop all of the alternate sources – shale oil, coal liquids, alcohol. ... This is of the utmost national urgency. Our national defense capability is impaired by the great dependence on unstable Mideast supplies of oil,” said John Hopkins of the synfuels division of Union Oil Co..³⁴⁹

Summary

This section showed that key interest groups were unsuccessful in derailing the “synfuels train” once it had gathered steam in the White House and Congress. Their supporters in Congress managed to wrangle some smaller victories, such as weakening

³⁴⁸ Marcus, Alfred A. 1992. *Controversial Issues in Energy Policy*. Thousand Oaks, CA: Sage Publications, 93.

³⁴⁹ *Oversight: Alternate liquid fuels technology: Hearings before the Subcommittee on Energy Development and Applications of the Committee on Science and Technology, United States House of Representatives*. 1979. 96th Congress. Serial No. 96-33. (Testimony of John Hopkins)

the windfall profits tax (preferred by the oil industry) and adding additional titles for solar, geothermal, and conservation (preferred by environmental groups). But the momentum behind the synthetic fuels legislation was strong in the wake of the oil crisis. In Hamlett's analysis of the congressional politics of the SFC, he concluded that it was a remarkable case in which interest groups opposing synfuels were "outmatched."³⁵⁰

There was one surprise in this story. In disputes about technologies that represent radical changes within a concentrated social, political, and economic infrastructure, the expected dominant political pressures ought to oppose, rather than support, the proposed technical changes. ... Such a coalition [of opposition] did form in the synfuels issue, led by an unusual combination of usually hostile established oil companies and environmental groups. But the thrust of political pressures in the synfuels case was so strong in support of the new technology that opponents were outmatched throughout the process.

This is even more remarkable given the fact that there was no coalition of interest groups supporting the radical changes. That is, there was no vocal constituency for the SFC, save the politicians who thought that a crash program would signal their bold leadership on energy security.

In terms of the implications for the theoretical model, the interest groups never fully "signed on" in the sense of endorsing the SFC legislation. Yet all of these groups – environmental groups, coal industry, oil industry, as well as broader business lobbies – chose to publicly and vociferously support the Banking Committee's version of synfuels legislation. They chose to do this despite significant reservations about the cost, technical achievability, and environmental impact of a \$3-4 billion synfuels demonstration program. Their (often reluctant) endorsement of the demonstration program was an attempt to stave off a "crash" commercialization program. Yet in advocating for the Banking Committee bill, all of these groups validated the importance of synthetic fuels development.

³⁵⁰ Hamlett, "Technological Policy Making," 67.

CHAPTER 6: RENEWABLE FUEL STANDARD, 2007

I. INTRODUCTION

In the January, 23, 2007 State of the Union address, President George W. Bush announced his “Twenty and Ten” plan for reducing America’s petroleum consumption. The centerpiece of the plan was an aggressive alternative fuel mandate. As President Bush explained in his speech:³⁵¹

Tonight, I ask Congress to join me in pursuing a great goal: Let us build on the work we’ve done and reduce gasoline usage in the United States by 20% in the next 10 years. ... To reach this goal, we must increase the supply of alternative fuels, by setting a mandatory fuels standard to require 35 billion gallons of renewable and alternative fuels in 2017. And that is nearly five times the current target.

The President’s proposal, known as the Alternative Fuel Standard (AFS), transformed the stakes of alternative fuels policy. By the end of the year, Congress rose to the President’s 35 billion gallon challenge, enacting an even higher mandate for 36 billion gallons of renewable fuels in the form of a revised Renewable Fuel Standard (RFS2). Congress’s plan departed from the President’s proposal in many significant ways, most fundamentally by narrowing it to biofuels (although the Bush administration admitted that the AFS would be mostly satisfied by biofuels anyways) and adding a 16 billion gallon sub-mandate for cellulosic ethanol. Nevertheless, the President’s AFS proposal set the precedent for the overall mechanism and volume.

These volumes are startlingly high, for they are impossible to achieve given the state of cellulosic ethanol technology. To put this in perspective: current U.S. ethanol

³⁵¹ About three-quarters of the reductions would come from this alternative fuel mandate, with the rest from increased automobile efficiency standards. The politics of the CAFE standards are beyond the scope of this dissertation, but they, too, were eventually incorporated into the 2007 Energy Independence and Security Act (EISA) in a politicized and contentious process.

production, which consumes a hefty 40% of the U.S. corn crop, reached nearly 14 billion gallons in 2011. The RFS2 target is 2½ times this volume. The scale of the increase alone is staggering, let alone the requirement that it come from an as-yet-uncommercialized technology. In the first few years of implementation, the Environmental Protection Agency (EPA) has had to slash the annual cellulosic ethanol mandate by up to 97 percent – and still the regulated parties under the RFS2 (refiners and oil blenders) have been saddled with millions of dollars in penalties for not fulfilling their obligations. A recent *New York Times* headline summed up this dysfunctional situation: “A Fine for Not Using a Biofuel That Doesn’t Exist.”³⁵²

This head-scratching outcome begs the question: where did the President’s 35 billion gallon goal come from? It was an unprecedented number, with no correspondence to mainstream projections for alternative fuels. The White House offered no justification, no explanatory models or scenarios or supporting analyses.³⁵³ Tellingly, not one of the industry lobbyists, environmental advocates, Department of Energy analysts, or Congressional staff that I interviewed seemed to know where the 35 billion gallon goal came from. Many of them derided it as a number made up for political purposes: “It’s a baseless number,” “It’s a political number,” “Just a big political number,” “Pure taking numbers from the air,” “Plucked out of a hat,” “Mind-boggling,” “Arbitrary,” “Mythical.” Others offered speculations – all incorrect – about how the number might have been derived. An environmental advocate suggested that the White House simply

³⁵² Wald, Matthew L. January 9, 2012. “A Fine for Not Using a Biofuel That Doesn’t Exist.” *New York Times*, B1.

³⁵³ Carl Pope, executive director of the Sierra Club, called the White House fact sheet “deliberately murky” and “magic wand stuff.” See: Pope, Carl. January 24, 2007. “Twenty in Ten or Seven Come Eleven?” *Huffington Post*. [website] http://www.huffingtonpost.com/carl-pope/twenty-in-ten-or-seven-co_b_39487.html.

added up 15 billion gallons for corn ethanol, 15 billion gallons for cellulosic ethanol, and 5 billion gallons for biodiesel. An oil lobbyist thought it was just a rough quintupling of the RFS. A Senate aide wondered whether it was based on what was needed to stabilize the price of corn.³⁵⁴ While anecdotal, these responses importantly reflect that the 35 billion gallon goal had no reference within the energy policy subsystem. To the contrary, it was widely seen as a baseless and arbitrary number.

This chapter provides the first detailed case study of the RFS2 policy-making. As with the previous two empirical chapters, it follows the structure of the theoretical model: context, crisis, Presidential policy formulation, Congressional response, and interest group participation. *Context* reviews that status of corn and cellulosic biofuel development over 2000-2004, as oil prices were just beginning to rise. *Crisis* describes the confluence of factors – rising oil prices, environmental concerns, and the Iraq War – that focused attention on major energy policy-making beginning in 2005. This was not as abrupt as the oil shocks in the 1970s, but it nonetheless thrust energy onto the national energy agenda. *Presidential policy formulation* analyzes how as this pressure continued building, the White House developed its aggressive AFS plan in the fall of 2006. The surprising backstory of the White House’s plan was that it was actually designed to be the functional equivalent of a gasoline tax, relying on the price signal provided by a \$1/gallon alternative compliance mechanism, a.k.a. the “safety valve.” The volumetric goals were thus never intended to be readily achievable. *Congressional response* examines how the proposal was incrementally adjusted as it made its way through the Senate and House, where it became tangled in jurisdictional battles. Ultimately, the

³⁵⁴ I could even go on: A Treasury economist said that that the numbers were probably “plucked out of a hat.” An EIA analyst said they had no idea where the numbers came from (asking, “If you find out, please let me know”).

Senate bid up the goal to 36 billion gallons of biofuels, while the House “greened” it with the cellulosic carve-out and other environmental measures. *Interest group participation* describes how ethanol and environmental groups sought to influence to the legislative proposals. These groups were critical in guiding, requesting, and validating many of these incremental policy adjustments, but it is important to recognize that their influence was lagged and reactive. Interest groups were not driving the policy-making. The RFS2 was fundamentally driven by politicians competing for leadership on energy issues.

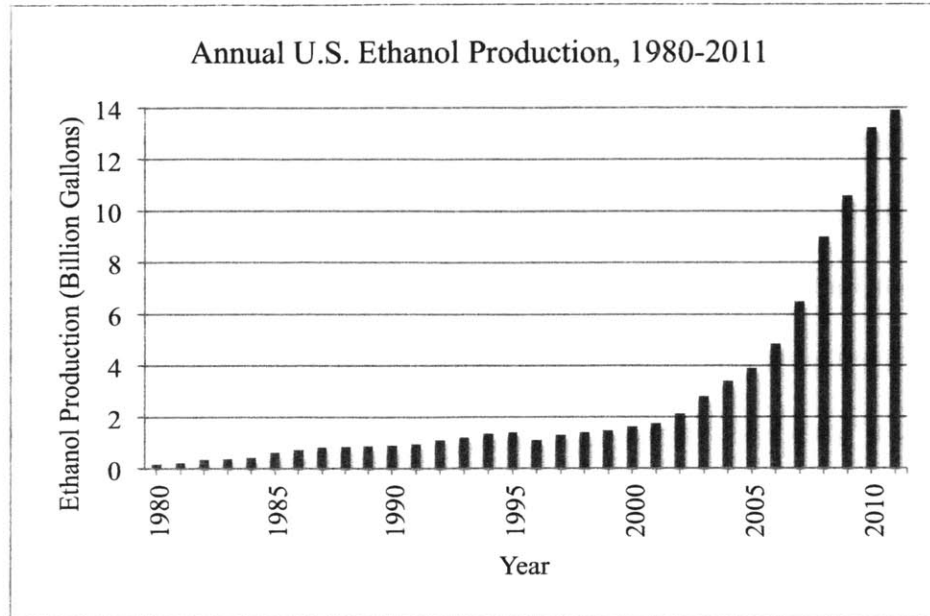
II. CONTEXT: ALTERNATIVE FUEL POLICY & DEVELOPMENT, 2000-2004

This section provides a brief background on renewable fuels during the five years prior to the RFS2 policy-making. It covers the policy context and commercial development of two types of fuels: corn ethanol and cellulosic ethanol. Broadly speaking, the years 2001-2004 were a period of growing interest and investment in alternative fuels. Corn ethanol production started its meteoric rise, sparked by environmental concerns about the gasoline additive methyl tertiary butyl ether (MTBE) and enabled by high oil prices, low corn prices, and various federal subsidies. Cellulosic ethanol research was increased, although commercialization continued to be hampered by financial, technological, and infrastructural challenges.

Corn Ethanol

After twenty years of steady but modest growth, corn ethanol production rapidly took off in the early 2000s. Corn ethanol production roughly doubled every three years:

1.77 billion gallons in 2001, 3.4 billion gallons in 2004, 6.5 billion gallons in 2007 (and it would double once more after the RFS2, rising to 13.2 billion gallons in 2010).



Source: Renewable Fuels Association.³⁵⁵

This take off of exponential growth was facilitated by both policy and market conditions. Ethanol producers had been helped since 1980 by a 51 cents per gallon tax credit to refiners for blending ethanol into gasoline and a 54 cents per gallon tariff on imported ethanol. In 1990, a small producer tax credit was established. In 2002, an energy title was added to the Farm Bill for the first time. It provided low-interest USDA financing for renewable energy projects, and it was instrumental in financing the first major wave of farmer-owned ethanol plants.

Environmental concerns about MTBE also gave a huge push to ethanol. MTBE had been widely used to boost gasoline octane and meet federal oxygenate requirements for reformulated gasoline. In the late 1990s, it was discovered that MTBE, leaking from underground storage tanks, had contaminated groundwater in California and elsewhere.

³⁵⁵ Renewable Fuels Association. n.d. *Statistics*. Retrieved from <http://www.ethanolrfa.org/pages/statistics>

California announced in 1999 that it would phase out MTBE by 2003, and ultimately sixteen other states follows suit.³⁵⁶ In 2000, the EPA recommended a national MTBE phase out (which became part of the bargaining in the original 2005 RFS). As MTBE was phased out, demand grew for ethanol as a substitute fuel additive.

In addition to these policies, favorable commodity prices stimulated the expansion of the corn ethanol industry. Oil prices were on the rise, while corn prices remained relatively low for several years, making it a period of unprecedented profitability for ethanol. In interviews with people in the ethanol industry, the years 2003-2005 were described as a “gold rush” period. Ethanol plants were “printing money,” said one ethanol executive, who remembered investment meetings where farmers would write checks on the spot for a million dollars.³⁵⁷ Ethanol plants costing \$120-150 million were paid off within two years. This profitability led to tremendous capacity growth.

The transformation in the industry during this period was not just one of scale. The composition of participants in the industry also profoundly changed. For decades, the ethanol industry had been dominated by major agribusiness producers, particularly ADM and Cargill, but the favorable policy and market environment paved the way for new entrants, including scores of farmer-owned cooperatives. Ethanol refineries became a way for farmers to move into higher value-added steps of the corn value chain and to hedge against low corn prices. As Rick Tolman of the National Corn Growers Association explained, it created a “real excitement throughout agriculture” because it

³⁵⁶ Note: nine of these states were in the Midwest and never used MTBE anyways.

³⁵⁷ Personal communication, 10/20/11

could be a “new engine of growth for rural America.” As a result, while ADM accounted for 75 percent of U.S. ethanol production in 1990, by 2005 it was down to 19 percent.³⁵⁸

Cellulosic Ethanol

Interest in cellulosic ethanol also began to awaken during this period, although it was still at level of pilot- and demonstration-facilities rather than commercial production. By way of background, cellulosic biomass – including switchgrass, corn cobs, wood chips, paper pulp, and even municipal solid waste – can be turned into ethanol once the fermentable sugars are unlocked from the woody plant material. It is a reaction that chemists and technologists have pursued since the 19th century.³⁵⁹ Experiments on the acid conversion of cellulose to glucose date to 1819, while the first attempt to commercial cellulosic ethanol dates to the 1910s.³⁶⁰ In the 1940s, U.S. Army researchers discovered that cellulose could alternatively be broken down with microorganisms, such as *Trichoderma viride*, the “jungle rot” that proved so destructive to military tents and clothing in the Pacific theater. In the 1970s, this formed the basis of a vigorous cellulosic fuels program by both the Army and Gulf Oil. General Electric also got into the game, briefly founding a subsidiary for the purpose of making cellulosic ethanol from poplar

³⁵⁸ Solomon, Barry D., Justin R. Barnes and Kathleen E. Halvorsen. 2007. “Grain and Cellulosic Ethanol: History, Economics, and Energy Policy.” *Biomass and Bioenergy* 31(6): 416-425.

³⁵⁹ As Frederick W. Kressman wrote in 1922: “The production of fermentable sugars and ethyl alcohol from cellulosic materials, such as straw, linen, cotton, peat, wood, and in fact, all plant fibers, has engaged the attention of chemists and technologists for nearly a century.” Kressman, Frederick W. 1922. “The Manufacture of Ethyl Alcohol from Wood Waste.” U.S. Department of Agriculture, Bulletin No. 983.

³⁶⁰ The French chemist Henri Braconnot discovered in 1819 that concentrated sulfuric acid could convert cellulose into these fermentable sugars. German scientists developed a dilute acid hydrolysis process in the 1890s. This was first commercialized in the early 1910s by the Wood Waste Products Company, with plants in South Carolina and Louisiana that produced alcohol from southern yellow pine. These plants were shut down in the late 1910s, however, when the post-war curtailment of lumber production rendered them uncompetitive with molasses-derived alcohol. See: Sherrard, E.C. and Frederick W. Kressman. 1945. “Review of Processes in the United States Prior to World War II.” *Industrial and Engineering Chemistry* 37(1): 5-8.

wood. With relatively low oil prices during the 1980s and 1990s, however, attempts to commercialize cellulosic ethanol faded away. The point of this brief historical contextualization is that technological breakthroughs have long been projected, but gathering and breaking down vast quantities of woody biomass remained stubbornly expensive, especially when compared to readily available and fermentable corn.

Cellulosic ethanol drew little attention through the 1990s, but the first few years of the new millennium, 2000-2004, saw modest developments again. Research and pilot development were beginning to stir again after many quiet years, with this time the research shifted towards universities and the National Renewable Energy Laboratory (NREL) rather than the military or multinational companies. Nascent development efforts in this period included about half a dozen pilot plants in the U.S. and Canada and three commercial scale demonstration plants in the planning stages.³⁶¹ It is worth noting that the companies developing these plants tended to be small technology start-ups; it would not be until a few years later that venture capitalists and major oil and chemical corporations would flock to bioenergy.

Summary

To recap the key points from this section: the years leading up to the original 2005 Renewable Fuel Standard saw a rapid expansion of the corn ethanol industry, fueled by environmental concerns and enabled by favorable policies and commodity prices. Cellulosic ethanol began to attract more funding and interest as well, although it had not

³⁶¹ Badger, P.C. 2002. "Ethanol from cellulose: A general review." In J. Janick and A. Whipkey, eds., *Trends in New Crops and New Uses*. Alexandria, VA: ASHS Press; DiPardo, Joseph. 2000. "Outlook for Biomass Ethanol Production and Demand." Energy Information Administration, U.S. Department of Energy. <http://www.eia.doe.gov/oiaf/analysispaper/pdf/biomass.pdf>

yet burst onto the scene as a prominent policy issue. According to Ashlie Delshad's research on ethanol framing, media attention to cellulosic ethanol also remained minimal until 2005, when a confluence of environmental and economic concerns began to push greener biofuels to the fore of energy policy debates.³⁶² The energy crunch of 2005-2007 would not be as abrupt as in 1973 or 1979, but it would lead to comparably dramatic crash programs for alternative fuels.

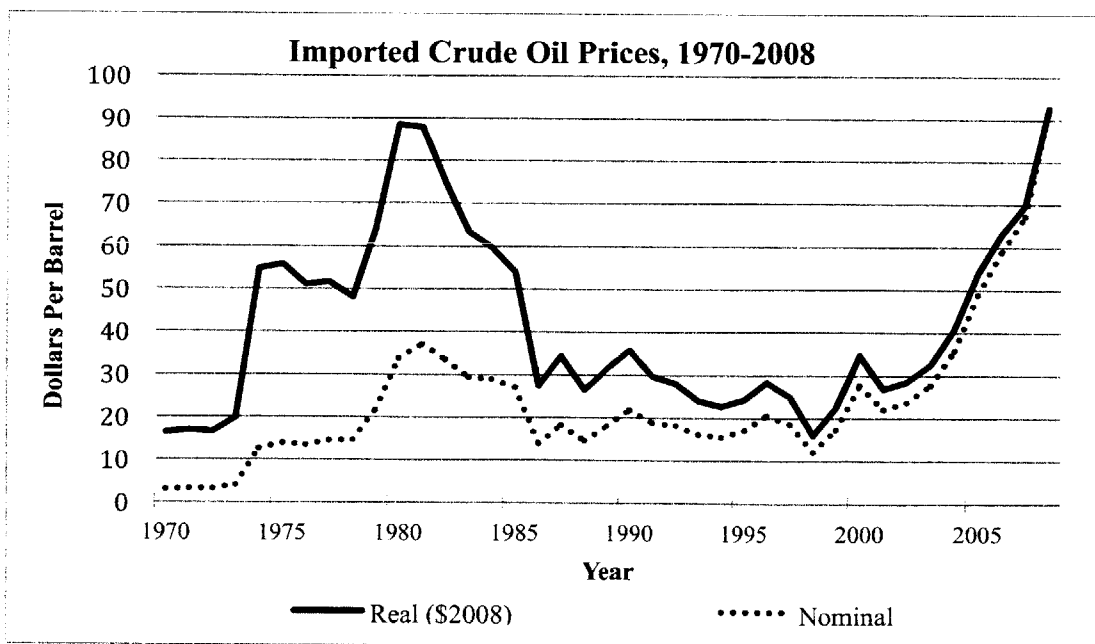
III. CATALYST FOR POLICY CHANGE: RISING OIL PRICES, C. 2005

This section discusses the burgeoning energy crisis over 2005-2007, which contributed to the passage of the original 2005 Renewable Fuel Standard and subsequently fueled the "crash program" of the 2007 Renewable Fuel Standard. This analysis of the energy crisis is developed in three stages: (1) the confluence of rising oil prices, hurricane-induced refining disruptions, and environmental concerns that pushed energy onto the national policy agenda starting in 2004-2005, (2) the development of the 2005 Renewable Fuel Standard, which had been developed over several years and was predominantly a deal on MTBE, though it was aided by high gasoline prices, and (3) the deepening of energy challenges over 2006-2007, which put pressure on policy-makers for an even more dramatic energy supply push. The following section will analyze how the Bush administration developed this next stage of alternative fuels policy in late 2006, culminating in the 2007 Renewable Fuel Standard.

Confluence of Energy and Environmental Problems, c. 2005

³⁶² Delshad, Ashlie. 2009. "A Decade of Discourse on Ethanol: Changes in Media Coverage and Content." Paper presented at the Midwestern Political Science Association Conference.

Oil prices began to rise in 2003 and continued rising annually through 2008. The price increases, while exacerbated by exogenous shocks such as Hurricane Katrina, was fundamentally driven by global demand and supply trends. On the demand side, global oil consumption grew steadily through the 1990s and then accelerated in 2003, largely due to booming economic growth in the developing world. China's oil consumption alone jumped from 5 mbd in 2002 to 7.9 mbd in 2007, representing a 63 percent increase in five years. At the same time, on the supply side, global oil production had plateaued by 2004. Several major oil fields were in decline, including the North Sea. Production had outpaced new oil discoveries since the 1980s. Saudi Arabia could no longer reliably act as a swing producer, boosting supplies when needed, because by the early 2000s some of its largest oilfields were in decline as well. This meant that global oil markets were tight – with virtually no spare capacity – and vulnerable to disruptions. In sum, high demand and stagnant supply caused oil prices to rise precipitously over 2003-2008.

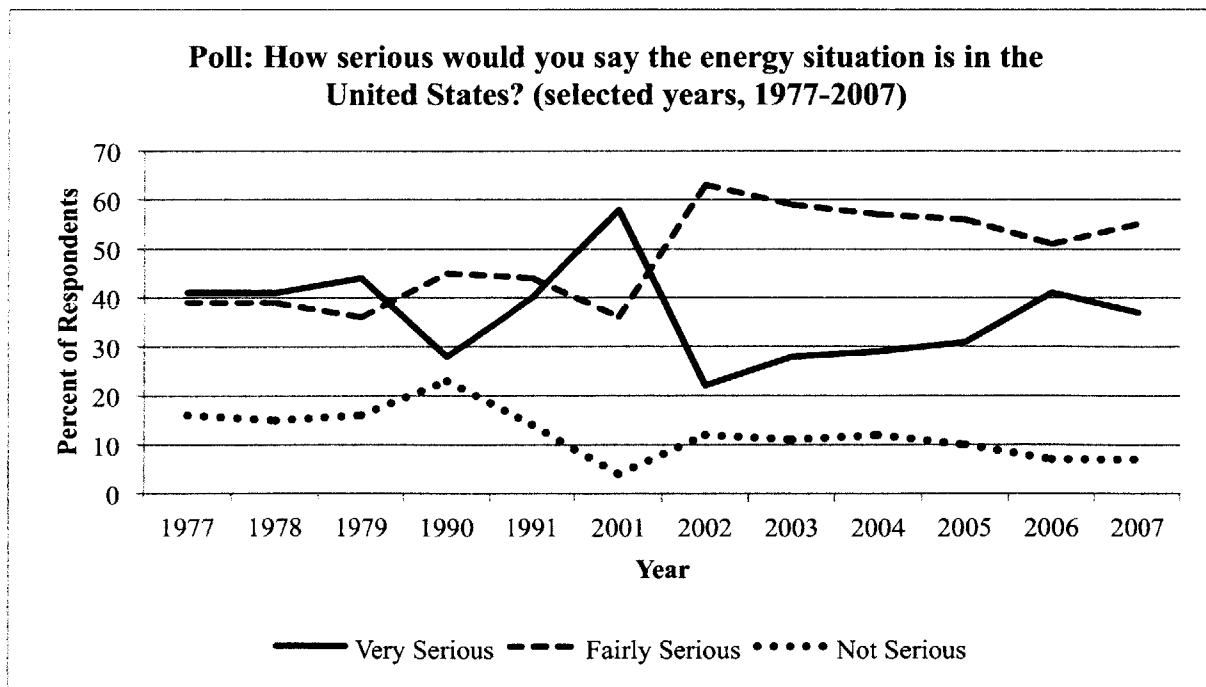


Source: U.S. Energy Information Administration³⁶³

³⁶³ U.S. Energy Information Administration. December 11, 2012. "Short-Term Energy Outlook Real and Nominal Prices." Retrieved from http://www.eia.gov/forecasts/steo/realprices/real_prices.xls

These oil and gasoline price increases, while causing economic strains for consumers, never metastasized into gasoline lines, strikes, or mass panic as in the 1970s. This was a different kind of energy crunch. Even though oil prices eventually exceeded the heights of the 1973 and 1979 crises, the gradual increase and the lack of price controls meant that the market could function to allocate tight supplies. The energy crunch did not erupt into acute shortages.

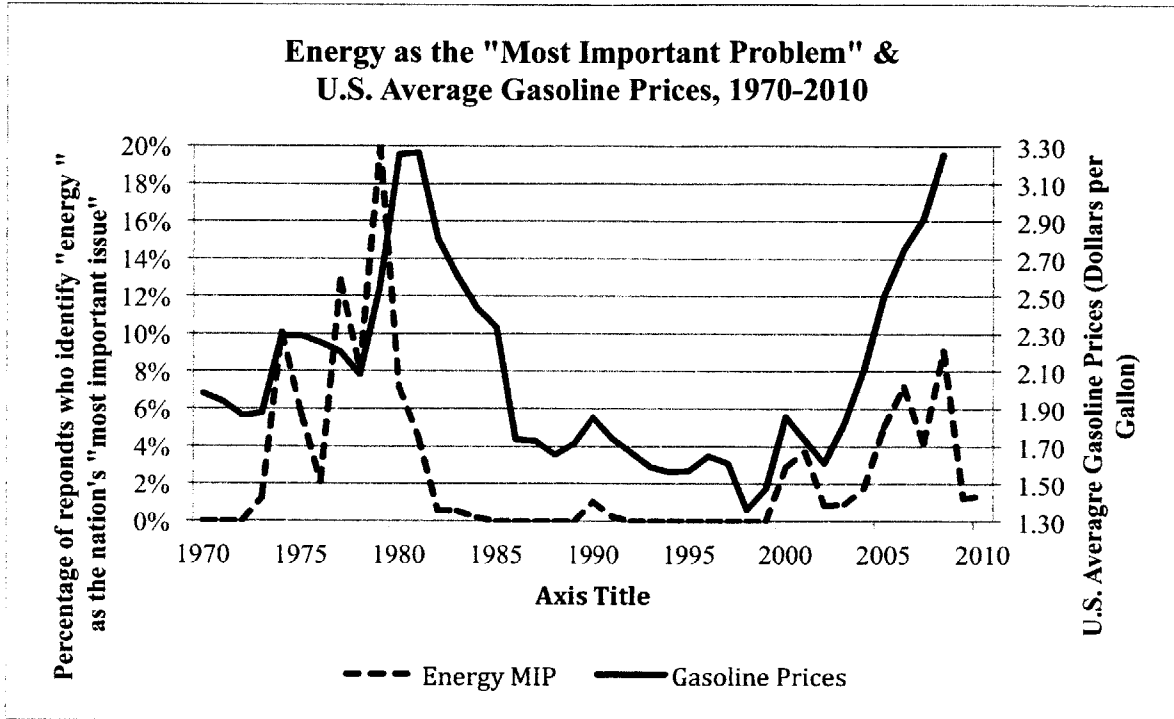
The signal of public concern about gasoline prices was nevertheless evident in polling data and media coverage. Although the percentage of respondents who thought that the energy situation was “very serious” peaked at 58 percent in 2001 with the California electricity crisis, by 2005 it was 31 percent and by 2006 it reached 41 percent. In addition, over half of respondents thought the energy situation was “fairly serious.”



Source: Gallup³⁶⁴

³⁶⁴ Gallup, Alec M. and Frank Newport, eds. 2008. *The Gallup Poll: Public Opinion 2007*. Lanham, MD: Rowman & Littlefield, 122.

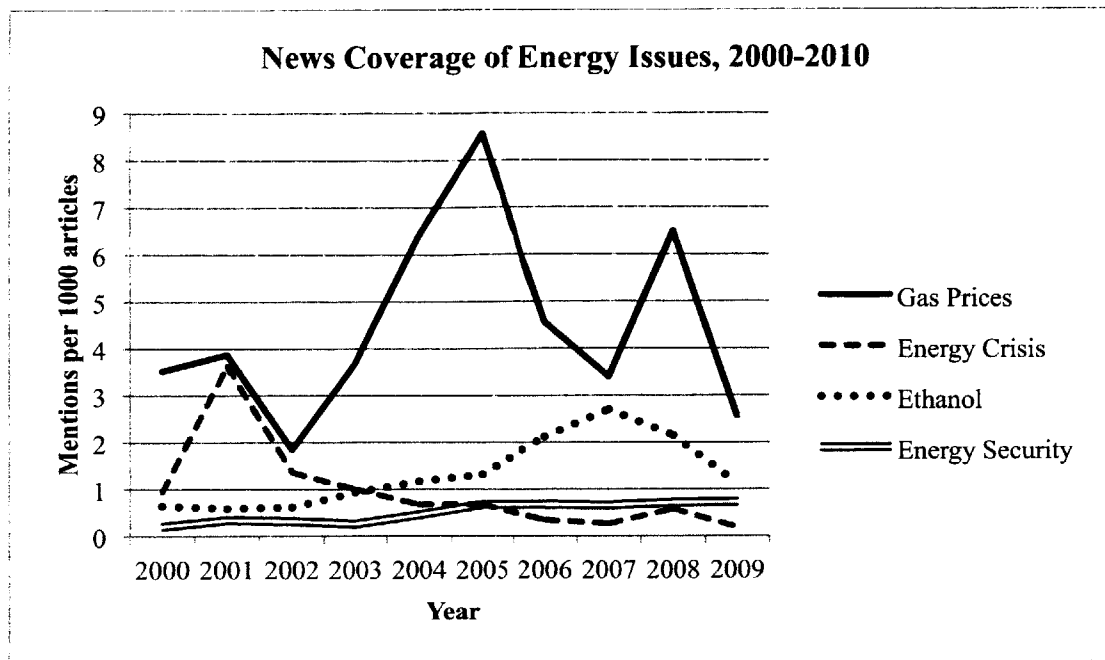
Energy began to show up on Gallup’s “Most Important Problem” poll at rates comparable to the mid-late 1970s. It is interesting to compare this polling result to trends in gasoline prices over the entire period:



Source: Policy Agendas Project and U.S. Energy Information Administration³⁶⁵

In terms of media coverage, gasoline prices received considerable attention during this period, especially in the wake of Hurricane Katrina. In keyword searches of news coverage from 2000-2010, “gas prices” appeared over 8 times per thousand articles at the peak in 2005 (although they subsequently dropped, even as oil prices continued to rise):

³⁶⁵ Data on Gallup’s “Most Important Problem” is available through the Policy Agendas Project (<http://www.policyagendas.org>). This project was developed by Frank R. Baumgartner and Bryan D. Jones, with the support of National Science Foundation grant numbers SBR 9320922 and 0111611, and is hosted through the Department of Government at the University of Texas at Austin. Gasoline prices were obtained through: U.S. Energy Information Administration, Short-Term Energy Outlook”



Source: NewsLibrary³⁶⁶

Other dimensions of energy issues appeared far less frequently in news coverage. It is interesting to note, however, how these topics rose and fell over this period. “Energy crisis” as a phrase appeared during California’s electricity shortages in 2000-2001, then petered out. It was not revived even as oil prices rose alarmingly in the mid 2000s. “Ethanol” grew steadily, peaking in 2007 during debates over the RFS, though it never surpassed gasoline prices as a newspaper topic. “Energy security” had sustained but very slow growth as a topic. It appeared more frequently in the latter half of this period, as short-term concerns about gasoline prices matured into long-term concerns about the stability of oil supply, especially with the continuation of war in Iraq and Afghanistan and deepening tensions with Iran. Overall, however, despite these multiple dimensions of

³⁶⁶ NewsLibrary (<http://nl.newsbank.com>) is an online database developed by the Knight Ridder media company. It tracks articles from over 1,000 news sources, mostly traditional outlets such as newspapers, magazines, and some television transcripts. It has been used by Nate Silver in analyzing media coverage for the *New York Times*. For example, see: Silver, Nate. October 7, 2011. “Police Clashes Spur Coverage of Wall Street Protests.” *FiveThirtyEight* [blog on the New York Times website]. <http://fivethirtyeight.blogs.nytimes.com/2011/10/07/police-clashes-spur-coverage-of-wall-street-protests/>

the 2000s energy crisis, gasoline prices dominated as the focal issue in both polling and media coverage.

Crafting the 2005 Renewable Fuel Standard (RFS)

The original Renewable Fuel Standard (RFS) was passed in 2005. It was the height of public concerns about gasoline prices, but the RFS should not be interpreted as a knee-jerk reaction to these events. To the contrary, it had been hammered out over years of negotiations, and it hinged on environmental and fuel regulations rather than energy prices. As one ethanol lobbyist characterized it in an interview, high gasoline prices may have helped the RFS get passed, but in substance it was a “straight deal on MTBE.”³⁶⁷

Here I briefly discuss the development of the 2005 RFS. The key point, for the purposes of understanding the “crash program” of the 2007 RFS2, is that the original 2005 biofuels mandate was modest and achievable – and in fact, U.S. ethanol production easily exceeded its targets. It basically institutionalized the growth of corn ethanol that was already underway with the MTBE phase-out, and it was supported by a wide range of interest groups because it gave oil producers and refiners a break on other fuel regulations (namely the oxygenate standard).

The concept of a biofuels mandate had been circulated by farm state senators, particularly Tom Daschle (D-SD) and Richard Lugar (R-IN), during the late 1990s, when Congress was debating rules for reformulated gasoline. In 2002, legislation was introduced for a 5 billion gallon mandate by 2012. It had widespread support – including from the White House, Congressional leadership, and some industry groups – but failed

³⁶⁷ Personal communication, 5/7/12

to pass. Senators from California and New York had opposed it on the grounds that it protected MTBE producers from defective product lawsuits, but the main reason that it failed was that it was tied to a larger energy policy package brought down by highly controversial items, such as drilling in the Arctic National Wildlife Refuge.

In 2003, RFS legislation was reintroduced. The Senate's version had three components: (1) a biofuels mandate of 5 billion gallons by 2012, (2) a phased national ban on MTBE, and (3) elimination of the 2 percent fuel oxygenate requirement under the Clean Air Act. Corn and ethanol interests pushed for the biofuels mandate, environmental groups pushed for the MTBE ban, and oil and refining groups largely accepted the ethanol mandate in exchange for the removal of the oxygenate requirement. "It probably mildly disappoints all parties equally," an unnamed industry source told *Greenwire*. "What it represents is a balance of solutions that reflects the interest of all the constituencies involved."³⁶⁸ This compromise legislation passed the Senate on June 5 by a strong 67-29 vote. However, conflicts with the House over liability issues caused it to stall in the end. The House retained the "safe harbor" provision limiting the liability of MTBE producers, which Senators from states with MTBE-contaminated water opposed.

In 2005, the RFS legislation was introduced yet again, and this time it promptly passed by summer. There were some important changes to the policy substance: the liability limitation was set aside, the mandate was increased to 7.5 billion gallons in light of the growth of the ethanol industry, and for environmental reasons a carve-out was added for 250 million gallons for cellulosic ethanol (this latter provision was inserted by Senator Maria Cantwell (D-Wash.)). But what really changed were the big picture

³⁶⁸ Sullivan, Colin. March 3, 2003. "House Republicans Seek to Frame Energy Debate with 200-Page Draft Bill." *Greenwire*.

politics. Gasoline prices had risen alarmingly, putting pressure on legislators to pass an energy act after years of failure. At a televised press conference on May 31, President Bush chided Congress for their delay and demanded a bill by August: “they need to get the bill off the floor, into conference, resolve their differences, and get me a bill before the August recess. That’s the what American people expect and that’s what I expect.”³⁶⁹ As requested, the House and Senate passed the Energy Policy Act (EPAAct), containing the RFS, on July 28-29. It was not an aggressively ambitious bill – “Five-year negotiations lead to modest energy bill,” yawned the front-page headline of *The Christian Science Monitor*³⁷⁰ - but was the first comprehensive energy legislation passed since 1992.

Conclusion

Many of the trends that had pushed energy onto the federal policy agenda in 2005 continued through 2006 and 2007. “With oil prices approaching the symbolic threshold of \$100 a barrel, the world is headed toward its third energy shock in a generation,” reported the *New York Times*.³⁷¹ Concerns about energy security and oil dependence also grew, with the continuing war in Iraq and tensions with Iran. Although gasoline prices dipped seasonally, and with that a bit of the public’s attention to energy, among policymakers energy remained continued to be seen as an issue on which the White House and Congress wanted to demonstrate leadership. Thus by the summer of 2006 –

³⁶⁹ Transcript. Available from the NY Times website:
<http://www.nytimes.com/2005/05/31/politics/31TEXT-BUSH.html>

³⁷⁰ Knickerbocker, Brad. July 28, 2005. “Five-Year Negotiations Lead to Modest Energy Bill.” *The Christian Science Monitor*. [online archive].

³⁷¹ Mouawad, Jad. November 9, 2007. “Rising Demand for Oil Provokes New Energy Crisis.” *The New York Times* [online archive].

scarcely a year after original RFS had been enacted, and before the EPA had even issued rulemaking³⁷² – the White House sought to make its mark with a bold new energy plan. The deepening of the nation’s energy problems in 2006-2007 would usher in a radically different process of policy-formulation – what one might call a shift from “normal politics” to “crisis politics” – with radically, even irrationally, high policy goals.

IV. AGENDA-SETTING: PRESIDENT BUSH’S “TWENTY IN TEN” PLAN

This section explains how the President’s “Twenty in Ten” plan was formulated in the White House over July - December 2006. This explanation unfolds in three steps: First, I discuss the White House’s *mission*, which was to develop an aggressive plan for reducing oil dependence. Second, I explore the policy formulation *process*, which essentially involved a small “cabal” of staff – few of whom had extensive experience in energy issues - from the NEC, CEA, and Treasury. Third, I explain where the “*numbers*” came from, which is to say the quantities and prices in the Alternative Fuel Standard (AFS) plan. This provides a window into the role of science and technology assessment within the policy-making.

Overall, there are two key takeaways about policy drivers and design that emerge from this account of the White House process (these could also be thought of as corresponding to Kingdon’s “problem” and “policy” streams³⁷³). First, the core motivation for the AFS was increasing energy security. High gasoline prices were not

³⁷² EPA issued the final rulemaking for the 2005 RFS in April 2007.

³⁷³ Kingdon, John W. 1995. *Agendas, Alternatives, and Public Policies* [2nd Edition]. New York: Harper Collins.

the underlying driver of the administration's alternative fuel policy. To the contrary, the AFS plan sought to deliberately increase gasoline prices as a means of displacing oil.

Second, the AFS proposal emerged from internal staff analysis rather than from interest groups or other policy subsystem actors. The CEA and Treasury staff who primarily designed the policy were, in fact, new to energy issues, and their work did not go through the "normal" interagency policy assessment process. These young staff managed to design clever and innovative policy instruments, rooted in the economic literature. But the White House's desire to do something "big," combined with the informality of the technology assessment, resulted in arguably over-ambitious targets.

It is worth mentioning that virtually nothing has been written about the development of this important policy in either the academic, popular, or trade literature. Primary documentation is only sparsely available, as the White House papers of President Bush are not yet open for archival access.³⁷⁴ This account is predominantly based on interviews with staff who participated in or closely witnessed the policy formulation at the National Economic Council (NEC), Council of Economic Advisors (CEA), Department of the Treasury ("Treasury"), and Office of Management and Budget (OMB).

³⁷⁴ The George W. Bush Presidential Library is not slated to open until 2014.

Policy Mission and Principles

Mission: Reduced Oil Dependency

In the summer of 2006, the White House identified energy security – specifically, reduced oil dependency³⁷⁵ – as the core mission of energy policy. Dependence on oil was seen as creating two critical vulnerabilities: first, and foremost, national security risks due to the reliance on oil supply from unstable and/or hostile regimes, and second, macroeconomic risks from oil price shocks.³⁷⁶ Numerous interviewees indicated that the national security dimensions were, indeed, the primary motivation for focusing on oil dependence, although the economic dimensions were critical in creating the space for the Department of the Treasury to get deeply involved (as explained later, this influenced the type of analysis that went into the policy development). This definition of the policy mission had profound consequences for policy design, leading the administration to embrace a wide range of alternative fuels – ethanol, electric and hybrid vehicles, hydrogen, natural gas, coal-to-liquids, and electric and electric vehicles – as well as fuel economy standards in an effort to displace petroleum.

³⁷⁵ It remains unclear whether the core problem was seen by the administration as oil dependency or *foreign* oil dependency. On the one hand, one White House staffer explicitly told me that their job was to ensure that Bush did not say “foreign oil” in speeches. The global market for oil means that the economic impact of price shocks depends on a country’s oil consumption, not its degree of imports. Thus, policy was directed at diversifying the energy supply in order to displace oil, *not* increasing domestic oil supplies in order to displace imports. The White House fact sheet on the plan stated that “importing alternative fuels increases the diversity of fuel sources, which further increases our energy security.” On the other hand, President Bush did, in fact, introduce his plan in the 2007 State of the Union with a strong statement about foreign supply: “For too long, our nation has been dependent on foreign oil. And this dependence leaves us more vulnerable to hostile regimes and to terrorists who could cause huge disruptions of oil shipments and raise the price of oil and do great harm to our economy.” Foreign oil was also cited as the core issue by Al Hubbard, Director of the NEC; Hank Paulson, Secretary of the Treasury; and Stephen Hadley, the President’s National Security Director.

³⁷⁶ As stated in the CEA-authored Economic Report of the President: “The lack of substitutes for oil means that in the short run, oil consumption in transportation is particularly unresponsive to price changes. This makes the economy vulnerable to sudden increases in oil prices. Perhaps more importantly, the world’s reliance on oil creates an external cost in terms of national security.” *Economic Report of the President*. 2007. Washington, DC: Government Printing Office, 125.

Interviews with White House staff indicate that the focus on oil dependency evolved from top-down signals from the President as well as bottom-up analysis from White House policy shops. One White House staffer described it as an “organic” process, growing entirely out of internal discussions rather than being forced by external events such as high gasoline prices. In fact, while gasoline prices had spiked during the summer, prices dropped in the fall when the policy formulation process was in high gear.³⁷⁷ The relatively low prices meant that “it didn’t feel like a crisis,” according to a White House economist involved in the policy design.

This is not to say, though, that a political sensitivity to oil prices had no effect on the White House’s policy. One White House staffer explained that the cycles of high prices over the previous few years had powerfully emphasized the need for longer-term solutions such as efficiency and alternative fuels.³⁷⁸ High oil prices also made it easier to “sell” these programs politically. But providing relief from high gasoline prices was emphatically not the focus of White House energy policy. To the contrary, since the AFS’s combination of quantity targets and price essentially functioned as a gasoline tax, it was likely to raise prices.

Notably, environmental concerns were also not a significant consideration.³⁷⁹

Hank Paulson, Secretary of the Treasury, explained in an interview with *Newsweek*: “This [20 in 10] policy has got some important positives for the environment, but they’re

³⁷⁷ For 2006, monthly U.S. gasoline prices hovered between \$2.88-2.98/gallon in May-August. This dropped to \$2.56 in September and remained between \$2.23-2.31 from October through February 2007. While these autumn prices were high from an historical perspective, they were comparable to the 2005 average of \$2.27/gallon. Source: Energy Information Administration, “Short-Term Energy Outlook.”

³⁷⁸ Personal communication, 5/25/12

³⁷⁹ Anecdotally, several interviewees mentioned Sec. Paulson’s environmental sensibilities – particularly citing his bird-watching and conservation interests - as one reason that the Treasury took an unusually involved role in energy policy-making. I note this, as it was apparently gossiped about on the Hill. But I have not found any evidence that this actually had any bearing on the policy.

collateral. That wasn't the driver. The driver was energy security."³⁸⁰ These breezy assurances notwithstanding, though, the proposal had no guarantees that the environmental impacts would be positive. The White House just assumed that price-induced conservation and low-carbon ethanol – rather than coal-to-liquids – would be the predominant results of the policy.

Design Principles: Moonshots and Markets

I think the President's goal is to propose bold standards, and to do it in the way that is economically responsible.

- Edward Lazear, Chair of the CEA³⁸¹

Policy design in the White House was apparently guided by two central, if slightly conflicting, principles. *First, it was clear that the President wanted to do something big.*

"[T]he President asked us [to] ... push the envelope, guys. Figure out the most aggressive thing we can do to achieve energy independence," explained Al Hubbard, Director of the NEC. "[W]e presented him with several proposals. He chose the most aggressive."³⁸²

This emphasis was also echoed by Hank Paulson, Secretary of the Treasury, who explained that "the question was, how would we craft something that would give us energy security as soon as possible? [The President] wanted bold ideas."

In interviews, a couple of White House staff went so far as to frame it as a search for an alternative fuels moonshot.³⁸³ "Shoot for the moon" was how one staff member

³⁸⁰ Paulson, Henry. Feb 26, 2007. "The Last Word: Henry Paulson; 'He Wanted Bold Ideas.'" *Newsweek*.

³⁸¹ *Review of the administration's energy proposals for the transportation sector: Hearing before the Subcommittee on Energy and Air Quality of the Committee on Energy and Commerce, House of Representatives*. 2007. 110th Congress. Serial No. 110-9. (Testimony of Edward Lazear).

³⁸² Hubbard, Allan. March 1, 2007. Speech presented to the U.S. Department of Agriculture's Agricultural Outlook Forum, Arlington, VA.

³⁸³ Calls for "moonshot" or "Manhattan Project" for energy are not uncommon. However, on why it's a misplaced engineering metaphor, see: Rettig, Richard A. and John G. Wirt. 1976. "On Escaping the "Moon Shot" Metaphor." *Policy Studies Journal* 5(2): 168-171; Yang, Chi-Jen and Michael Oppenheimer. 2007.

characterized the policy vision, while another lamented that their advice went unheeded because “I didn’t have the moonshot.” (This extreme ambitiousness led at least a couple of other White House and Treasury staff to disparagingly view the plan as political posturing and a “State of the Union exercise.”)

Second, the President wanted policies that were minimally intrusive to the market.

The President’s advisors concluded that the national security externalities of oil dependence were grave enough to justify government intervention in energy markets. But in accordance with the Republican platform they sought to minimize the economic costs and market distortions.³⁸⁴ This had two important policy implications. It meant designing fuel-agnostic policies that would not “pick winners” among competing energy technologies. As articulated in Congressional testimony by Edward Lazer, Chairman of the CEA:

[W]e don’t want to pick the winners. We want the market to pick the winners ... and frankly, we simply don’t know where the technology is going to take us in the next few years, and we don’t want to try to steer in a particular direction.³⁸⁵

In addition, it meant building flexibility into the regulations in order to limit the economic costs and mitigate against unforeseen crises (e.g. natural disasters, pipeline bursts, etc.). In terms of policy design, this included both administrative waivers and price-based alternative compliance mechanisms.

“A “Manhattan Project” for Climate Change?” *Climatic Change* 80: 199-204; Stine, Deborah D. 2009. “The Manhattan Project, the Apollo Project, and Federal Energy Technology R&D Programs: A Comparative Analysis.” Report 7-5700. Washington, DC: Congressional Research Service; Mowery, David C., Richard R. Nelson, and Ben R. Martin. 2010. “Technology Policy and Global Warming: Why New Policies Are Needed (Or Why Putting New Wine Into Old Bottles Won’t Work).” *Research Policy* 39(8): 1011-1023.

³⁸⁴ As Al Hubbard described in a speech: “because of ... the economic risks and most importantly the national security risk, the President decided, yes, we shouldn’t just rely on the free market to solve this problem. We should actually intrude in the marketplace in a minimalist approach to encourage alternative fuels.” Hubbard, Speech presented to USDA’s Agricultural Outlook Forum.

³⁸⁵ *Review of the administration’s energy proposals*, 28.

These two guiding principles – “most aggressive” and “least intrusive” – need not be in conflict, depending on how the policy optimization goals have been specified. Yet there is an inherent tension between them; they pull in opposite directions. Ultimately, this tension was manifested in the final AFS proposal, which combined market-oriented policy instruments with excessively optimistic goals.

Process of Policy Design

Brainstorming and Economic Analysis by the CEA and NEC

The White House’s early policy development began in the summer of 2006. Energy security and oil displacement were being identified as the core mission, and President Bush directed the National Economic Council (NEC) to generate some initial policy ideas. Staff at the NEC and CEA began brainstorming, literally writing lists of all possible policy instruments.³⁸⁶ They looked at the entire universe of options – gasoline taxes, alternative fuel mandates, oil price floors, loan guarantees, alternative fuel tax credits, import tariffs, lower speeding limits – including policies that they were certain that the President would reject. Over the course of roughly a month during the summer, they generated a list of about 30 options and winnowed it down to 3-4 initial priorities: fuel economy standards and feebates, innovation prizes, and an alternative fuel mandate.

To understand how the CEA honed in on the notion of a mandate with a safety valve, it is worth a brief detour into organizational structure. The NEC and CEA have very different responsibilities within the Executive Office of the President, with

³⁸⁶ In interviews, some staff portrayed this as evidence of their rational-comprehensive approach to policy development; others saw these “stupid lists” as an elementary exercise.

correspondingly different staffing and expertise.³⁸⁷ The NEC coordinates economic policy-making – defining policy questions, gathering relevant analyses, running meetings, brokering debates among advisors, and monitoring implementation – and is typically led by someone from a management or public policy background, playing largely an “honest broker” role. It is the economic analogue to the National Security Council.³⁸⁸ In contrast, the CEA has been described as the White House’s internal “think tank” or economic consulting group. It conducts economic research, analyzes empirical data, provides economic appraisals of policy options, assists in policy formulation, and writes economic reports and memos for the President. The CEA is almost entirely composed of Ph.D. economists (this includes the three council members as well as their staff economists), most of whom are doing a one- or two-year “tour” from academia.

The composition of the CEA has profound implications for policy design. The staff economists who work on policy formulation are *not* the typical members of policy subsystems. They may be new to government, new even to the issues that they are

³⁸⁷ The clearest description that I have come across is a lengthy blog post by Keith Hennessey, who was at the NEC under President Bush. He writes: “NEC does economic policy and decision-making, and CEA does economics. ... CEA staff apply economic theories and data to economic policy, while NEC staff operate at the intersection of economics, policy design, the law, communications, politics, strategy, and the practical aspects and constraints of legislating and managing a bureaucracy.” See: Hennessey, Keith. August 8, 2010. “Roles of the President’s White House Economic Advisors.” [website] <http://keithhennessey.com/2010/08/08/economic-roles/>

³⁸⁸ The NEC was in fact modeled after the National Security Council. It was a relatively recent addition to the White House (established by President Clinton in 1993) and there is a small literature that explores its impact and how it represents a post-Cold War elevation of economic issues: Destler, I.M. 1996. *The National Economic Council: A Work in Progress*. Washington, DC: Institute for International Economics; Juster, Kenneth I. and Simon Lazarus. 1997. *Making Economic Policy: An Assessment of the National Economic Council*. Washington, DC: Brookings Institution Press; Dolan, Chris J. 2003. “Economic Policy and Decision Making at the Intersection of Domestic and International Politics: The Advocacy Coalition Framework and the National Economic Council.” *The Policy Studies Journal* 31(2): 209-236.

assigned to work on at the CEA, and more deeply infused in the academic literature than the “policy streams” flowing among agencies and advocates.³⁸⁹

These characteristics were certainly at play in the case of the Alternative Fuel Standard proposal. In 2006-2007, the CEA’s energy and transportation economist was Benjamin Ho, who came to the CEA in July 2006 after finishing his Ph.D. in economics at Stanford. Edward Lazear, the new Chairman of the CEA, had been his Ph.D. advisor. Dr. Ho had an undergraduate degree from MIT in mechanical engineering but no substantive background in energy or environmental economics. Nonetheless, he was assigned as the CEA’s energy economist and spent the summer steeping himself in the relevant literature.

What the economics literature overwhelmingly concluded was that a gasoline tax was the most elegant and efficient solution to the problem of oil dependency. When the NEC balked – higher energy taxes having been political anathema since the 1970s – Dr. Ho reached into the economics literature for an almost subversively clever alternative.

In a seminal 1974 paper, Martin Weitzman had established the functional equivalence of quantity and price instruments.³⁹⁰ Building on this work, Mark Roberts and Michael Spence developed a “hybrid” approach for pollution control that combined

³⁸⁹ Ben Ho blogged that: “Within the White House, the CEA was known as the most conservative group, because all the economists advocated essentially consensus economic opinion, even though nearly everyone at CEA was a Democrat.” Ho, Ben. December 2, 2008. “Greg Mankiw’s Blog: The Sociology of Economics.” [website] <http://blog.benho.org/2008/12/greg-mankiws-blog-sociology-of.html>

³⁹⁰ Weitzman argued that there is no theoretical reason to prefer one mode of control versus the other – “generally speaking it is neither easier nor harder to name the right prices than the right quantities because in principle exactly the *same* information is needed to correctly specify the other.” He thought it “puzzling” that economists prefer price-controls as a matter of course, when “a careful reading of economic theory yields little to support such a proposition.” Ben Ho similarly wrote on his blog after leaving the CEA: “honestly, economists are a little bit dogmatic when it comes to advocating a carbon tax or gasoline tax. It is almost a matter of faith, rather than evidence.” Weitzman, Martin L. 1974. “Prices vs. Quantities.” *The Review of Economic Studies* 41(4): 477-491; Ho, Ben. July 8, 2007. “Do We Really Need A Higher Gasoline Or Carbon Tax?” Memes of Ben Ho [website] <http://blog.benho.org/2007/07/do-we-really-need-higher-gasoline-or.html>

quantity and price instruments. Specifically, in a 1976 paper they proposed that regulators could release additional credits in a cap-and-trade system if the credit price exceeded a “trigger” price.³⁹¹ This approach received renewed attention in the late 1990s and early 2000s during the debate over the Kyoto Protocol and climate cap-and-trade policies, evolving into an analysis of automatic “safety valves,” or price penalties (functioning as an alternative compliance mechanism) that regulated parties would pay if they exceeded a carbon cap.³⁹² *Essentially, what this literature established was that a quantity instrument combined with a price penalty was essentially equivalent to a tax.* Benjamin Ho entrepreneurially drew on this insight to propose an alternative fuels mandate with an automatic “safety valve” price – functionally approximating a gasoline tax.

Thus, this was a policy instrument that was rooted predominantly in the academic literature. It represented a clever attempt to apply microeconomic principles to the problem of oil dependence in a more politically palatable way than a gasoline tax. In terms of the vetting process for the proposal at this stage, Dr. Ho would typically write 1-2 page policy memos, which were then circulated in CEA until everything was fact-checked, then circulated to other members of the energy policy coordinating committee (NEC, OMB; often Office of the Vice President and the Council on Environmental Quality; less often Office of Science and Technology Policy).³⁹³ At this very early stage of policy formulation, the Department of the Treasury was not prominently involved.

³⁹¹ Roberts, Mark J. and Michael Spence. 1976. “Effluent Charges and Licenses Under Uncertainty.” *Journal of Environmental Economics and Management* 5: 193–208.

³⁹² McKibbin, Warwick J. and Peter J. Wilcoxon. 1997. “A Better Way to Slow Global Climate Change.” Brookings Policy Brief No. 17, the Brookings Institution; Pizer, William A. 1997. “Price vs. Quantities Revisited: The Case of Climate Change.” Discussion Paper 98-02. Washington, DC: Resources for the Future; Pizer, William A. 2002. “Combining Price and Quantity Controls to Mitigate Global Climate Change.” *Journal of Public Economics* 85(3): 409-434; Jacoby, Henry D. and A. Denny Ellerman. 2004. “The Safety Valve and Climate Policy.” *Energy Policy* 32(4): 481-491.

³⁹³ Personal communication 6/29/12.

Intensification of Treasury Involvement

The Department of the Treasury began to get intensively involved in the design of the White House's energy policy around September 2006. The Treasury had not historically been very engaged in White House energy policy, but Hank Paulson, who was sworn in as Secretary in July, was keenly interested in the topic.³⁹⁴ Furthermore, in taking the office he had negotiated an unusually powerful position in the administration.³⁹⁵

The Treasury's engagement and leadership had significant consequences for the substance of the AFS policy, not only because it maintained the economic orientation to the issue (as opposed to, say, the Department of Energy, which might have been more attuned to the technological challenges), but also because of the specific individuals assigned to work on policy development. Although the Treasury had staff microeconomists with expertise in environmental and energy matters, Hank Paulson assigned Neel Kashkari, an assistant who had accompanied him from Goldman Sachs, to work on developing policy options. Neel Kashkari would later become famous for

³⁹⁴ In interviews, White House staff said that "Hank Paulson wanted to be involved" because he was "passionate about energy," had an "intense interest," was "all over this." Several interviewees (including White House, Treasury, and Congressional staff) cited his personal environmental interests as a possible motivating factor. Others said that Paulson was concerned about the economic impact of volatile oil prices. These responses are anecdotal and certainly speculative, but they indicate that, in various ways, staff in the administration and on the Hill traced the Treasury's unusual involvement in energy policy to Hank Paulson's interest and initiative. As for Hank Paulson's own public commentary on the matter, he has merely said that "The president wanted me to be involved in all major economic issues, domestic or international." Sources: Personal communication, 4/29/11, 6/16/11, 6/13/12, and 6/26/12; Paulson, "The Last Word"

³⁹⁵ "Hank Paulson became Secretary Treasury ... only after prolonged negotiations over his role as chief economic policymaker. To lure Paulson to Washington, the President gave him extraordinary authority to manage economic policy on both the domestic and international fronts." The result was that: "Paulson's emergence represents a major shift in economic policymaking from the White House to Treasury. The losers are Vice President Cheney, National Economic Council head Al Hubbard, and the President's Council of Economic Advisers chaired by Ed Lazear. Their clout has been significantly diminished." Barnes, Fred. 2006. "Bolten's White House." *The International Economy* 20(4): 10-13

running the \$700 billion Troubled Asset Relief Program (TARP) during the 2008 financial crisis.³⁹⁶ In the fall of 2006, though, he had just recently arrived at the Treasury and was working as Paulson's special assistant – “a kind of handyman position for which he took on a series of projects that caught Paulson's interest.”³⁹⁷ As Mr. Kashkari described it, Sec. Paulson was very concerned about energy security and basically told him to “Go see what you can do about it.”³⁹⁸

Kashkari had worked as an aerospace engineer, received his MBA from Wharton, and spent four years as a junior banker at Goldman Sachs in the information technology software sector. Although he had a technical background, he did not have substantive experience in the energy sector. He threw himself single-mindedly into the topic of energy security, reaching out to as wide a swath of experts as possible – scientists, industry leaders, trade groups, think tanks, venture capitalists, professors – to learn about alternative energy technology and policy issues. He also began extensively collaborating with staff at the NEC and CEA.

Neel Kashkari was critical in generating the numbers behind the 35 billion gallon goal (as I will explain in a following section), and he became an extremely forceful advocate for the policy, both internally in the White House as well as externally. *The*

³⁹⁶ At 35 years old, only six years out of business school and with only four years of finance experience, Kashkari was a tremendously controversial choice. He subsequently became the center of major media attention, dubbed the “bailout czar” by *USA Today* and the “\$700 Billion Man” by *Time* and *The Washington Post* (a *Variety* magazine reported in 2011 that George Clooney was producing a movie based on Kashkari's experiences, entitled “\$700 Billion Man”). Kashkari's role in energy policy became a footnote – but perhaps we might also call him the “35 Billion Gallon Man.” See: “Kashkari Faces Major Task as ‘Bailout Czar’”. October 11, 2008. *USA Today* [online version]; Rosenwald, Michael S. October 9, 2008. “The \$700 Billion Man With an Engineer's Mind.” *The Washington Post*. D1.

³⁹⁷ Savage, Charlie and Ben White. October 9, 2008. “Bailout Role Elevates U.S. Official.” *The New York Times*, 1.

³⁹⁸ Personal communication, 6/6/11

Washington Post used an anecdote from the energy policy-making to illustrate Kashkari's bold personality:

During Kashkari's first meeting in the White House with President Bush and his senior team, Paulson had expected Kashkari to sit quietly and observe. Instead, when a senior member of the president's team asked a question about energy policy, Kashkari piped up from one of the back rows with the answer.³⁹⁹

In fact, he was such a relentless advocate of the proposal that many agency and Congressional staff assumed that he was its “mastermind” or “architect.”⁴⁰⁰ For example, an OMB analyst stated flatly in an interview that everyone on the Hill knew that “Treasury was the hub of Bush administration [energy] policy” and that “Kashkari led it”; a Treasury analyst said that the effort was “spearheaded” by Kashkari, who entrepreneurially shopped around a 20-page powerpoint; and a Senate aide quipped that the White House “gave a whippersnapper at the Treasury [i.e. Kashkari] the job of figuring out how to do a gas tax in a politically palatable way.” Nevertheless, the process tracing of the policy design indicated that Kashkari's analysis built on the CEA's identification of the mandate-plus-safety-valve mechanism. Moreover, it was the NEC that formally coordinated and led the policy development (Kashkari himself said that he worked jointly for Al Hubbard and Hank Paulson on these issues).⁴⁰¹

³⁹⁹ This was a rare anecdote about the Twenty in Ten policy-making that made it into a newspaper. It appeared in an article written about Kashkari when he was leaving the Treasury in 2009. Paulson had related this anecdote to the reporter in order to illustrate Kashkari's boldness. Cho, David. April 29, 2009. “After Months on the Hot Seat, Bailout Director Nears Exit.” *The Washington Post*. A10.

⁴⁰⁰ This impression was reinforced by the way that Kashkari was introduced when he went to conferences to talk about Twenty in Ten, as well as by newspaper articles written when he burst into prominence with TARP, e.g., by *The Washington Post* (“Kashkari's first assignment was energy issues. He and [Al] Hubbard worked closely on developing Bush's “Twenty in Ten” energy plan.”) and *USA Today* (“[Kashkari] was sworn in as a senior adviser responsible for developing the President's Twenty in Ten energy security plan.”). See: Rosenwald, “The \$700 Billion Man,” D1; “Kashkari Faces Major Task,” [online archive]

⁴⁰¹ Personal communication, 6/16/11

Summary of the Formulation Process: “Cooked Up by a Cabal”

“[Twenty in Ten] was cooked up by a cabal in the White House and the guy at Treasury, Neel Kashkari.”

- an agency analyst ⁴⁰²

One of the central themes of this dissertation is that the process of policy development – the expertise of staff analysts, the sequencing of policy decisions, the operation (or not) of vetting processes – profoundly shapes public policy outcomes. It is therefore significant that the White House departed from the interagency policy development process that would normally go into a policy of this magnitude. Normally, one agency would take the formal lead; an interagency working group would be convened through OMB; there would be numerous analytical memos circulated through the working group; and a decision memo would only go to the President after three to four months of vetting and refinement at increasing levels of seniority – staff and deputy assistant, then assistant secretaries, then principals.

In the case of the AFS and the Twenty in Ten plan, an energy Policy Coordinating Committee (PCC) was convened, but it lacked the normal broad-based analytic input. The policy formulation and analytic work was instead concentrated in a strikingly small circle: principally Neel Kashkari (Treasury), Ben Ho (CEA), and Keith Hennessey (NEC), and to a lesser degree a handful of their colleagues. One agency staffer went so far as to call it a “violation” of the formal interagency process.

How did this procedural irregularity impact the policy outcomes? On the one hand, several staff voiced concerns that without the full interagency process, there was insufficient scrutiny of the complexities and impacts of the proposed regulation. This included environmental issues (e.g., land use, agricultural pollution, water use) as well as

⁴⁰² Personal communication, 6/13/12

legal considerations (i.e., potential challenges to jurisdiction, as EPA does have the authority to tax). In addition, by far the most widespread complaint raised in interviews was that the analysts who drafted the policy did not, fundamentally, have a deep grounding in energy issues. They lacked experience with the challenges of energy technology commercialization. They may have been unduly influenced by the optimism of venture capitalists (Vinod Khosla was singled out as “very influential” and a “familiar face”). And they fervently believed that the market would deliver the necessary innovation and investment, to the extent that Al Hubbard speculated, “I think within thirty years, and I don’t know what it will be, we will have pollution-free and basically free energy.”⁴⁰³ One staffer characterized this faith in the market as “devout,”⁴⁰⁴ while another called it “almost delusional technological optimism” and wondered, “Where was the due diligence? Where were the adults?” An OMB analyst lamented that their agency, which was well aware of the challenges for cellulosic ethanol, was pushed aside.

On the other hand, without discounting these critiques, it is interesting to contextualize the AFS policy development process by recognizing that the “normal” policy development process was circumvented with some regularity within the Bush White House. This was far from an isolated case. In national security, scholars have documented a pervasive pattern of “secrecy, top-down control, tightly held information,

⁴⁰³ DePauw University. October 27, 2006. “Headlines Belie Strength of US Economy, Presidential Adviser Allan Hubbard Tells DePauw Discourse.” [Press Release] Retrieved from: <http://www.depauw.edu/news-media/latest-news/details/18343>

⁴⁰⁴ This religious “faith in the market” framing also appeared in an exchange between Congressman John Dingell (D-MI) and Edward Lazer during a hearing on Twenty in Ten. They were discussing CAFE, but it illustrates the paradigmatic chasm that also applied to volumetric fuel mandates:

“The CHAIRMAN: So, we have a target, but we don’t know how we are going to get there.

Mr. Lazer: Well, we know the method that we would use. The issue is we don’t know the cost of technological change over time.

The CHAIRMAN: Well, for a hardheaded economist, Doctor, I must confess I am being driven to the conclusion that you are probably more suited to the clergy, because your faith and your hope appear to be more outstanding than the quality of your scientific work here.”

Source: *Review of the Administration’s Energy Proposals*, 23.

disregard for the judgments of career professionals, and the exclusion from deliberation of qualified executive branch experts.”⁴⁰⁵ As one former NSC staff stated bluntly, “Big decisions were not subjected to the rigor of the interagency process,” including even the decision to go to war in Iraq.⁴⁰⁶ Similarly damning critiques were made for domestic policy development. “There were no actual policy white papers on domestic issues,” wrote John Diulio, who was brought in by President Bush to run the White House’s faith-based initiatives. “[T]he lack of even basic policy knowledge, and the only casual interest in knowing more, was sometimes breathtaking.”⁴⁰⁷ Or as one senior White House official evocatively summarized early in the administration: “certainly in domestic policy, there has been almost no meaningful consideration of any real issues. It’s just kids on Big Wheels who talk politics and know nothing.”⁴⁰⁸

Taken in this context – and especially when compared to energy policy development in President Bush’s first term, when Vice President Cheney chaired a secretive energy task force that was reportedly packed with former oil executives – the “cabal” behind the AFS could be seen as a reasonable improvement in process. They were relatively insulated from industry demands⁴⁰⁹ and trying earnestly to develop effective policy instruments that were rooted in economic principles. A senior White House official said that they were trying to put together the best plan for the public interest, and that “We were not interested in helping any particular industry, any

⁴⁰⁵ Pfiffner, James P. 2008. “The Contemporary Presidency: Policy Making in the Bush White House.” *Presidential Studies Quarterly* 39 (2): 363-384. Pp. 380.

⁴⁰⁶ Benjamin, Daniel. July 6, 2008. “The Decider Who Can’t Make Up His Mind.” *The Washington Post*.

⁴⁰⁷ Quoted in: Suskind, Ron. 2003. “Why Are These Men Laughing?” *Esquire* 139(1): 96-105. [online version] http://www.esquire.com/features/ESQ0103-JAN_ROVE_rev_2

⁴⁰⁸ Suskind, “Why Are These Men Laughing?”

⁴⁰⁹ Even one staffer who opposed the plan acknowledged that it was “not industry driven.” Personal communication, 4/29/11.

particular interest group, any big donor.”⁴¹⁰ Ben Ho said he felt happy that they had figured out a policy that was mathematically equivalent to a gas tax. Even a Democratic Senate staffer who thought poorly of the excessively high volumetric targets privately acknowledged that the plan did not get enough credit for its innovations.⁴¹¹

Specific Numbers and Policy Instruments

Thus far, this section on White House policy making has explained the principles and processes that shaped the AFS policy. Here, I explore the derivation of the specific prices and quantities in the plan: the \$1/gallon safety valve price, the 35 billion gallon mandate, and the overall goal of 20% gasoline reduction in 10 years. This illuminates the modest role of science and technology assessment within the White House’s AFS policy development.

Safety Valve of \$1 per Gallon

The “safety valve” price was fundamental to the functioning of the AFS. It provided regulated parties – in this case, refiners, blenders, and importers – with a fixed-price means of complying with the fuel mandates. This effectively placed a cap on firms’ compliance costs, creating both flexibility and predictability. At the same time, it sent a price signal to oil markets that would reduce oil consumption whether or not cost-

⁴¹⁰ Personal communication, 7/7/11.

⁴¹¹ Personal communication, 10/26/11.

effective alternative fuel technologies were successfully commercialized. The “safety valve” was at the core of the administration’s energy plan.⁴¹²

In determining the price for the safety valve, the CEA’s energy economist, Ben Ho, sought to find a price that reflected the externalities associated with oil consumption. In other words, he sought to reproduce an optimal gasoline tax. He proposed a price of \$1/gallon of gasoline equivalent based on a 2005 article by Parry and Small, which had calculated that the optimal gasoline tax for the United States was \$1.01/gallon.⁴¹³ It is worth noting that their analysis was based on the external costs of traffic congestion, accidents, and air pollution – not the national security and macroeconomic stability externalities that the White House actually wanted to address in their policy. Nevertheless, given the short timeframe for policy design and the lack of a more specific analysis, this seemed like a reasonable estimate derived from the economics literature.

Yet none of this reasoning was widely disseminated or understood. Although the safety valve was critical to the functioning of the AFS, it was similar enough to a gasoline tax that the administration did not want to draw attention to it.⁴¹⁴ As a result, the White House downplayed the safety valve to the point where it is actually difficult to find official information about it. It was not explained in detail in the White House fact sheet on the Twenty in Ten plan. When it is mentioned at all in White House reports or statement, it is vague, almost a footnote.⁴¹⁵ Administration officials even gave

⁴¹² The proposed regulation did also include administrative waivers, but they were intended to be for droughts, pipeline bursts, etc. (i.e. natural disasters and Acts of God that could abruptly disrupt fuel supply).

⁴¹³ Parry, Ian W. H., and Kenneth A. Small. 2005. "Does Britain or the United States Have the Right Gasoline Tax?" *American Economic Review*, 95(4): 1276–1289.

⁴¹⁴ Personal communication – 6/26/12, 5/25/12, 10/27/11.

⁴¹⁵ For example, the CEA’s description of the plan highlighted the administrative waivers but only vaguely discussed the automatic price mechanism: “In the event that production of alternative fuels proves more costly than expected, the President has built in two safety valves to protect consumers. First, the

contradictory accounts of how it would be calculated – Andy Karsner of the DOE testified that it was \$1 per gallon of gasoline equivalent while Robert Meyers of the EPA testified that it was \$1 per gallon of ethanol, or 67 cents per gallon of gasoline equivalent. And aside from Ben Ho, not a single person in any interview knew had any sense of what was supposed to happen to the revenues.

35 Billion Gallons of Alternative Fuels

The origin of the 35 billion gallon alternative fuel mandate is murkier than that of the \$1/gallon safety valve. In echoes of Rashōmon,⁴¹⁶ interviews with CEA, NEC, and Treasury staff collectively produced four dramatically different narratives of how the number “35” was derived.

In one version of the story, primarily told by the staff at the center of the process, the White House pushed alternative energy experts (industry, academia, DOE, national laboratories) to help them come up with stretch goals that were “aggressive but achievable.” White House staff consulted with these technology experts, considered the trajectories of various alternative fuels, and made a calculated guess how far they could credibly push the targets. This was hardly traditional technology analysis – to paraphrase

Administrator of the Environmental Protection Agency, and the Secretaries of the Department of Energy and the Department of Agriculture will have the authority to waive or modify the standard if refiners and blenders have difficulty finding alternative fuels for purchase. *Second, an automatic mechanism will be in place to prevent the price of gasoline from rising above a threshold due to this policy.* These two provisions ensure a degree of market stability as use of alternative fuels expands in the marketplace.” (italics added). *Economic Report of the President*. 2007. Washington, DC: Government Printing Office, 136.

⁴¹⁶ Rashōmon is a seminal 1950 film by Akira Kurosawa. Famously, the movie depicts the murder of a samurai through the confusing and mutually contradicting accounts of four witnesses.

one staffer, this was Neel going out and talking to people – but it was allegedly rooted in expert judgment.⁴¹⁷

In a second version, primarily told by disgruntled observers, the numbers did not appear to be based on rigorous analysis of any kind, but were instead round numbers that sounded sufficiently bold. “They had a proclivity to make shit up and put it in a powerpoint,” said one staffer. “These guys were amateurs.” Another staffer, in recalling when 35 became the number, deadpanned that “I don’t remember it being particularly technical at that point.”

In a strikingly different third version of the story, told by Neel Kashkari, the underlying logic was to double the federal gas tax of 18.6 cents/gallon. That is, the mandate was based on the volume needed, given the \$1/gallon safety valve, to approximate this per-gallon tax. In an interview, Kashkari articulate that this doubling of the gas tax was what they were optimizing around, although he acknowledged that it was based on “back of the envelope math” because there was no way of knowing – and actually, it didn’t matter to them – precisely what percentage of the mandate would be satisfied by alternative fuels versus the safety valve price.⁴¹⁸ Ben Ho, on the other hand, had not heard this reasoning mentioned.

⁴¹⁷ In Congressional testimony, Andy Karsner of the DOE gave a similar explanation when he was asked how the White House had determined the timeline: “What we do is actually assess the state of the technology –and our most recent data validating that technology—and in terms of when we believe it will be available to enter into the marketplace. ... We basically look at all the tools that we have in the tool chest to displace consumption, including efficiency, and then make a calculated guess. If the President were to get a mandate for alternative fuels, what would be the most aggressive and ambitious timeframe that could be pursued? That was the task.” In response, Rep. Matheson suggested, rather snipingly, that “To the extent that there was an analysis of the existing technology in your projection ... it would be helpful to have that provided to the committee.” Source: *Legislative hearing on discussion draft concerning alternative fuels, infrastructure, and vehicles: Hearing Before the Subcommittee on Energy and Air Quality of the Committee on Energy and Commerce, House of Representatives*. 2007. 110th Congress. Serial No. 110-53. (Testimony of Alexander Karsner)

⁴¹⁸ I did not have access to their calculations, but here is a bit of my own back-of-the-envelope math for illustrative purposes: In 2006, the EIA’s forecasts for U.S. gasoline consumption were about 170 billion

Lastly, early proposal drafts suggest that the Treasury started with a massive round number goals for ethanol, which were revised downwards and made fuel agnostic in an effort to be conceivably achievable. An October 16 policy draft contained a proposal for a Renewable Fuel Standard of 25% of U.S. fuel consumption by 2015. This represented approximately 42.5 billion gallons of gasoline or 60 billion gallons of ethanol. Given that corn ethanol production in 2005 was only 3.9 billion gallons, this would have meant more than an order of magnitude increase in less than a decade. Although obviously this biofuel-centric policy was not the direction that the CEA had embarked upon, several interviewees emphasized that Neel Kashkari was extremely enthusiastic about cellulosic ethanol.

Clearly, these four accounts are at odds with one another, and since they come from the small circle of staff that were involved in (or closely witnessed) the policy development, it is difficult to adjudicate among them.⁴¹⁹ The only thing that everyone seemed to agree on was that the goal of 35 billion gallons of alternative fuels was based on numbers coming out of the Treasury rather than the CEA. A couple of staffers indicated that the CEA's alternative fuels targets would have been more on the order of 25-30 billion gallons.

My own interpretation is that the 35 billion gallon goal emerged through a process of messy, multi-dimensional satisficing. In several different ways, and for several groups of actors inside the White House, the number was considered good enough for

gallons by 2015 and 180 billion gallons by 2020 (note: these are the mid-range of forecasts from the 2006 *Annual Energy Outlook*). One might assume, then, 175 billion gallons for 2017. If the entire AFS were satisfied through the safety valve, that would be the equivalent of \$35 billion/175 billion gallons = 20 cents/gallon – indeed, very close to the federal gas tax. Source: U.S. Energy Information Administration. 2006. *Annual Energy Outlook 2006*. Washington, DC: Author.

⁴¹⁹ Archival access may eventually provide a more conclusive account of the technological, economic, and political analyses that went into this goal-setting. At the current time, however, these materials remain closed until the George W. Bush Presidential Library opens in 2014.

government work. It was greater than what most energy experts at the time projected, but it probably seemed close enough to people who were not steeped in the challenges of alternative energy commercialization, and who were anyways told to find aggressive “moonshot” targets. It was higher than what the CEA analysts wanted, but they figured their safety valve would compensate for overambitious mandates. Its rough approximation of the gasoline tax may or may not have been the driving calculation, but in either case it probably helped 35 seemed like a tidy number. In this way, elements of the four processes described above – expert consultation, inexpert guesstimating about stretch goals, comparison with federal gasoline tax, and consolidation of multiple proposals – could have all fed into the determination of the number. Notably, these were largely *internal* process in the White House, not driven by external subsystem experts.

“20 in 10” Goal

The final quantitative feature of the “Twenty in Ten” plan was, of course, the headline goal of reducing U.S. gasoline consumption by 20% in 10 years. As explained in a speech by Al Hubbard:

Three days before the State of the Union the communicators were involved, and they figured out that the plan we’d come up with actually resulted in a reduction of our dependence on gasoline by 20 percent in 10 years and so they came up with a 20 and 10. I know most people would think we came up with this idea of 20 and 10 and then made the numbers fit, but it actually worked the opposite way.⁴²⁰

Rather than being the top-level goal from which the alternative fuel mandate and CAFE targets were derived, the 20% goal was actually developed by the White House communications team at the very end of the policy development process, mere days before the 2007 State of the Union.

⁴²⁰ Hubbard, Speech presented to the U.S. Department of Agriculture.

Conclusion: White House Policy-Making

This process tracing has shown in great detail how the White House formulated the AFS plan in late 2006. The key takeaways in terms of the policy substance is that the “safety valve” was central to the entire functioning of the AFS plan, that it was developed prior to the 35 billion gallon alternative fuel goal or the “20 in 10” framing, and that it meant that the AFS was never intended to be an achievable mandate per se.

In regards to the policy process, there are two important points that bear on the theoretical model of “politician-driven policy-making.” First, it is clear that the White House wanted a bold plan as a way of seizing the leadership on energy issues. In 2005, the public had been very critical of President’s Bush’s handling of gasoline prices, while Congress managed to pass a major energy act. In 2006, then, the White House sought to do something big about energy. It was not a straightforward reaction to public panic over gas prices – in fact, gas prices had seasonally dipped when the White House began to think about energy policy in the summer of 2006, and there was no longer a sense of acute crisis. Nevertheless, it can be interpreted as an ambitious attempt to “bid up” the stakes of fuel policymaking at a time when energy issues were on the national agenda. Second, the internal developers and champions of this massive energy plan were not the policy entrepreneurs typically envisioned by the policy process literature. They did not come from the energy policy subsystem. To the contrary, the CEA and Treasury analysts who principally developed the AFS plan were new to energy issues.

V. BIDDING UP: CONGRESS AND THE RENEWABLE FUEL STANDARD (RFS)

[W]e have a biofuels mandate here, but we don't have the technology. How are we going to complete the action on this? How wise is that? Mr. Speaker, this bill is, frankly, incompetent.

- Rep. Fred Upton (R-Mich.) before the final House vote⁴²¹

Energy issues were already on Congress's agenda before President Bush announced the Twenty in Ten plan – but not the notion of a massive fuel mandate. Democrats had become the majority party in both the House and Senate after the 2006 elections, and it was widely understood that they intended to make energy efficiency and climate change the policy priorities.⁴²² Although the notion of an expanded RFS was percolating behind the scenes in the Senate Energy and Natural Resources Committee, this was not a broadly shared priority in Congress. Once the “Twenty in Ten” plan was announced, however, the concept of a fuels mandate was thrust onto the Congressional agenda. It set a policy target of 35 billion gallons that Congress strove to beat.⁴²³ Eventually a 36 billion gallon RFS was passed by Congress in December in the Energy Independence and Security Act (EISA).

This section traces how the RFS proposal emerged and evolved in Congress over January-December 2007. It was a tremendously complex process, extending over the course of the entire year, involving multiple proposals from multiple committees, and caught up in political competition both within and across the two chambers. This section presents the process in three stages: (1) *Senate energy bill*: over the spring of 2007, RFS

⁴²¹ Rep. Upton (MI). December 18, 2007. “Energy Independence and Security Act of 2007.” *Congressional Record* 153(194): H16744

⁴²² As a Democratic House aide explained in an interview, Congress was going to do something on energy efficiency and greenhouse gases. Biofuels ended up getting “unintentionally” folded into legislation after the Twenty and Ten plan, which effectively pushed climate legislation off the table. Also see: Samuelsohn, Darren. Jan 5, 2007. “As Congress Begins, Dems Plant Global Warming, Energy Atop Their Agenda.” *Environment & Energy Daily* [website].

⁴²³ The “Twenty in Ten” plan's fuel economy standards were also enacted after a prolonged political battle, but this is beyond the scope of this study.

proposals were developed by two committees (Energy and Natural Resources (ENR) and Environment and Public Works (EPW)), and the Senate ultimately passed ENR's 36 billion gallon RFS with no safety valve; (2) *House energy bill* – an AFS proposal was considered by the House in mid-spring, but controversy over coal-to-liquids led to the proposal being dropped, such that the House energy bill did not include a fuel mandate; (3) *Reconciliation* - from October through December, the House and Senate leadership tried to privately negotiate on the opposing bills. At the end, the House swallowed the Senate RFS but “greened” it with cellulosic ethanol mandates, biomass sourcing standards, and greenhouse-gas thresholds.

There are three main points to make about this process up front. First, a Congressional conference was never held to work out the differences between the House and Senate bills. Senate Republicans refused to appoint conferees, such that the bill was instead assembled through highly unusual, extraordinarily closed, behind-the-scenes negotiations. This procedural irregularity generated great consternation among the Members of Congress who were shut out of the process (“We have a bill, written in secret by a handful of people,” complained Rep. John Boehner, House minority leader, on the eve of a vote: “Nobody knows what’s in this bill because nobody’s had time to read it.”). It also creates a challenge for scholars, as it leaves a scant paper trail. This account therefore draws heavily on newspaper and Hill newswire articles, as well as my own interviews with Congressional staff.

Second, the evolution of the RFS2 policy was strongly conditioned by several cross-cutting dimensions of political competition. Most obviously, the Republican White House and the Democrat-led Congress were competing to demonstrate their leadership on

energy security. This was reflected in the brazen one-upmanship between the President's 35 billion gallons and Congress's 36 billion gallons. More subtly, there was also a jurisdictional battle in the Senate between the Energy and Natural Resources (ENR) and Environment and Public Works (EPW) committees, as well as a fierce competition between House and Senate leaders (both of whom, incidentally, were Democrats) to get credit for the energy bill. These political competitions may not have been apparent to anyone outside the beltway, but they profoundly affected the policy-making process by helping to determine *who* had a voice in the process and *at what stage*.

Third, the sequencing of policy changes is critical in explaining the final policy outcomes. The details of the policy – targets, timelines, feedstock standards, greenhouse gas thresholds, waiver provisions - evolved in a path-dependent manner, with the major changes at each stage responding to the changes that had been made in a previous stage. This was, ultimately, a policy that nobody would have wanted to begin with. It can only be understood as the product of this contingent evolution, as a policy that was formulated as a coherent whole in one institutional setting and transformed piece-meal in another.

Senate Energy Bill -- 36 Billion Gallon RFS

The Senate responded readily to the President's Twenty in Ten proposals, passing an energy bill in June with both a fuel mandate and fuel economy standards. Yet their version of the fuel mandate departed sharply from the President's. They retained the overall scale – in fact, raising it from 35 to 36 billion gallons – but instead of a fuel-agnostic AFS with an economic safety valve, the Senate developed a biofuels-specific standard with no alternative compliance mechanism.

The proposal came out of the Energy and Natural Resources (ENR) committee, which sought to seize leadership on alternative fuels from the Environment and Public Works (EPW) committee. This competition strongly influenced the drafting of the legislation, because ENR tried to write the RFS in such a way that they could retain jurisdiction. In this section on the Senate Energy Bill, I will (1) explain this competition between the two Senate committees; (2) lay out the two versions of the RFS, with particular concentration on the details of the ENR's version; and (3) briefly discuss the Senate floor debate.

Jurisdictional Competition between ENR and EPW Committees

“It is not a contest. It is not a competition between committees,” assured a spokesman for Sen. Bingaman over the spring of 2007.⁴²⁴ But the competing ENR and EPW bills were indeed a battleground for jurisdiction over biofuels policy. The Senate parliamentarians at the time had been taking the position that EPW's purview covered any policies under EPA regulation, while ENR covered what was under the DOE. This handed a great deal of energy policy-making to the Environment Committee – too much, in the eyes of the Energy Committee. This tension had already been made evident in a September 2006 hearing in EPW on federal energy policy. Senator James Inhofe, then EPW Chairman, spent a considerable portion of his opening statement emphasizing EPW's jurisdiction over renewable fuels:

This committee has principle jurisdiction over motor fuels policy, including renewable fuels [A]ny future changes to the renewable fuels standard must come through our committee to ensure consistent, flexible and efficient national policy. In preparing for the 2007 Farm bill, USDA issued a theme paper last month on agriculture and energy. In

⁴²⁴ German, Ben. May 4, 2007. “Energy Policy: Boxer Delivers Competing Fuels Bill to Shake Up Debate.” *Environment & Energy Daily* [website].

listing possible options, the USDA acknowledged, and this is a quote, they said “It is unclear how expansive energy provisions could be in the Farm bill, since suggestions require legislation [that] may not be under the jurisdiction of the agricultural committees.” And USDA is correct, it’s largely in the jurisdiction of this committee.⁴²⁵

Sen. Inhofe reiterated these points when he introduced his Alternative Fuel Standard Act in April 2007: “As the committee of principal jurisdiction, the Committee on Environment and Public Works has a long history of moving fuels legislation.”⁴²⁶

Nevertheless, the Energy Committee sought more control over fuels policy-making. In seizing leadership on the RFS, they were trying to make the point to the parliamentarians that the Senate rules defined committee jurisdiction by policy area, not agency.

In the end, EPW focused on other energy policy proposals and ceded leadership of the RFS to ENR. The RFS proposal that advanced to the Senate floor vote was essentially ENR’s version (although Sens. Boxer and Bingaman did work together to create environmental amendments during the Senate debate).⁴²⁷ *The key takeaway from this section is that although both Senate committees favored an RFS, the jurisdictional competition between them affected the content of their proposals.* The Energy Committee shied away from greenhouse-gas standards in part because it did not want to cede control to EPW. Furthermore, it was carefully crafted as a standalone program, rather than a Clean Air Act amendment, because removing the RFS from EPA placement was critical to ENR’s bid for jurisdiction. This was a highly controversial move, and was one of the reasons that the House sought to seize control over the policy-making in the fall.

⁴²⁵ *Federal renewable fuels programs: Hearing Before the Committee on Environment and Public Works, United States Senate.* 2006. 109th Congress. S. Hrg. 109-1079. (Testimony of James Inhofe).

⁴²⁶ Sen. Inhofe (OK). April 19, 2007. “Statements on Introduced Bills and Joint Resolutions.” *Congressional Record* 153(63): S4753

⁴²⁷ The amendment included an “anti-backsliding” provision requiring EPA to study the impact on air quality, grants for low-carbon biofuels production, and a call for the National Academies of Science to research the environmental effects of increased biofuels. German, Ben. June 21, 2007. “Vote on Renewables Mandate May Not Happen.” *Environment & Energy Daily* [website].

Proposal from the Energy and Natural Resources Committee

The Senate Energy and Natural Resources (ENR) committee had begun to think about revisiting and raising the RFS as early as fall 2006.⁴²⁸ In fact, it was understood that the job of one new committee staffer was to write a new RFS.⁴²⁹ “The idea had been percolating for quite some time,” confirmed one ethanol lobbyist, who went so far as to conclude that “the President’s entire plan was completely irrelevant.”⁴³⁰

Although the Energy Committee had not yet drafted their new RFS when the President announced his AFS plan in the 2007 State of the Union, this behind-the-scenes momentum set them up to respond rapidly to the President’s proposals. On February 1, just days after the State of the Union, the Energy Committee held a hearing on biofuels. On March 26, Sen. Bingaman introduced a bill with an RFS (S. 987, “Biofuels for Energy Security and Transportation Act”). On April 12, this was the subject of a committee hearing. Comprehensive legislation, including an RFS, was subsequently introduced on April 27 and voted out of committee on May 2. As I will explain in greater detail when we get to the section on the Senate floor debate, this was then incorporated into the energy bill that the Senate passed on June 21.

The Energy Committee made five transformative changes to the White House’s AFS proposal: (1) focusing on biofuels rather than alternative fuels, (2) raising the volume to 36 billion gallons, including 21 billion gallons of “advanced” biofuels, (3) stretching out the timeline by five years, from 2017 to 2022, (4) dropping the price-based

⁴²⁸ Interestingly, most White House staff said in interviews that they were unaware of this parallel process in the Senate. Thus, while it might be tempting to interpret their introduction of an AFS as a pre-emption of the Senate’s RFS2, the evidence suggests that this was *not* the case.

⁴²⁹ Personal communication, 10/26/11 and 10/27/11

⁴³⁰ Personal communication, 10/27/11

safety valve, and (5) adding modest greenhouse-gas standards. Here I will discuss the reasoning and analysis, such as it was, behind each of these changes.

(1) Fuels: focused on biofuels

Right from the start, beginning with the initial February 1 hearing, many Senators and industry representatives spoke of the AFS as if had been a biofuels-specific RFS. For example, Sen. Salazar spoke of “the President’s renewable fuels goal here at 35 billion gallons by 2017,” while Jonathan Lehman of VeraSun said, “we greatly appreciate the President’s statement ... setting the goal of 35 billion gallons of ethanol.”

Not everyone, of course, readily accepted this rapid re-framing around biofuels. Several coal-state Senators grumbled about the exclusion of coal-to-liquid fuels and attempted to add CTL provisions. In May, Sens. Craig Thomas (R-Wyo.) and Jim Bunning (R-Ky.) introduced an amendment with a separate 21 billion gallon CTL mandate (as one energy reporter observed, “Bingaman questioned whether the committee had done enough research to endorse such a significant mandate for CTL, essentially the same level as the mandate for advanced biofuels.”⁴³¹). They attempted to make the CTL fuels more palatable with a provision that required greenhouse gas emissions to be lower than for conventional gasoline. Nevertheless, after a “testy battle,” the CTL amendment was voted down in a May 2 committee session by 11-12, a straight party-line vote.

Meanwhile, administration officials – notably Andy Karsner, DOE’s Assistant Secretary for Energy Efficiency and Renewable Energy – tried to repeatedly emphasize that the President’s plan was fuel-agnostic. But the administration had to sheepishly

⁴³¹ Kaplun, Alex. May 3, 2007. “Energy Policy: Major Fights on Senate Energy Bill Delayed Until Floor.” *Environment & Energy Daily* [website].

admit that renewable fuels would probably constitute the majority of their AFS volumes anyways – and, of course, they did not want to bring up the safety valve to explain why it did not actually matter whether the volumes materialized. The tension between the White House and Congressional approaches was illuminated in an exchange between Mr. Karsner and Sen. Bingaman in an April 2007 hearing before the Energy Committee:

The Chairman. Could you explain to us exactly what portion of the President's 35-billion-gallon per-year target by 2017... do you expect to be met from renewable fuels? What portion do you expect to be met by other fuels, and could you be specific? I'm not clear what your plan is.

Mr. Karsner. Part of the reason for that is that it is not the administration's goal to be prescriptive about how the market perceives various technology pathways in order to meet the end state. The goal of the administration's plan is to mandate the end state and offer force of law into a national objective that provides certainty and predictability to the market to perform. So in that way, if for example, lithium ion batteries and sources of electricity and plug-in vehicles were to surpass or have a technological leap ahead of other pathways, we would not want to preclude or foreclose on that possibility. What we would like to see is that we apply everything that this Nation has--from its scientific community, from its farming community, from its innovative community, from its industrial leaders and entrepreneurs--that they all have the certainty that their technology pathways for clean, domestic alternatives will be included to lower gasoline consumption.

The Chairman. Well, I think that's a grand vision, but there is bound to be some scenario that you could envision that gets you to 35 billion gallons equivalent by 2017 and I'm just trying to understand what that is.

Mr. Karsner. And forgive me because I didn't mean to be elusive. In my own personal view, based on the latest data that I have and the portfolio that I manage, I would imagine that cellulosic ethanol and ethanol in general would make up the overwhelming majority of that, based on what I know today.

(2) Goals: 36 billion gallons, including 21 billion gallons of advanced biofuels

Narrowing the mandate to biofuels made the 35 billion gallon goal even less achievable. But not to be outdone by the President, the Energy Committee raised the goal to 36 billion gallons. “No one was going to let the other side out-do them on this,” explained an ethanol lobbyist. “It became almost a game of one-upsmanship.” Committee staff did consult with investors, interest groups, and inventors, but ultimately this was a number based on political rather than technical assessments. One staffer recalled a meeting where people were tossing numbers around – one person suggested 40, another

person said 36. “Our goal cannot be lower than the President’s,” was how another staffer summarized the Committee’s rationale. (The Senate’s own independent plan would likely have been smaller; estimates from Congressional staff and ethanol lobbyists ranged from “in the 20s” to 30 billion gallons by 2020.)⁴³²

One major challenge, though, was that by 2007, corn ethanol’s popularity was waning. This shift was reflected in media reports, which increasingly emphasized the negative rather than the positive impacts of ethanol.⁴³³ Environmental groups, which had in the past cautiously endorsed biofuels, were beginning to voice an anti-corn ethanol stance, while the specter of higher corn prices drew ire from consumer groups, the Grocery Manufacturers Association, and the “barnyard lobby” of meat and poultry producers.

To appease these concerns, ENR wanted to guarantee that the RFS would incentivize ethanol production from cellulosic biomass. They included a separate secondary mandate for “advanced biofuels” – 21 billion gallons by 2022 – which effectively capped corn ethanol at 15 billion gallons. These were quantities that were based on back-of-the-envelope arithmetic, not rigorous analysis. At the time, the conventional wisdom was that corn ethanol production would top out at 15 billion gallons.⁴³⁴ (This was yet another example of how numbers take on a life of their own – this number came out of the National Corn Grower’s Association’s (NCGA) 15x15x15 vision for 15 billion bushels of corn and 15 billion gallons of ethanol by 2015, and people

⁴³² Personal communication, 10/26/11 and 10/27/11.

⁴³³ Delshad, “A Decade of Discourse.”

⁴³⁴ One Senate aide suggested that it was the NRDC who put this on the table this as a cap, and the RFA agreed to it immediately because they did not think they would exceed it anyways. Personal communication, 4/22/11

latched onto it even though it was explicitly *not* a forecast.⁴³⁵) As one ethanol lobbyist explained, “[15] was agreed to in a second because the study was there”.⁴³⁶ As for the 21 billion gallon advanced biofuels mandate, it was simply the residual. It’s what remained of the 36 billion gallons after subtracting 15 billion gallons for corn ethanol. These massively important numbers were based on back-of-the-envelope arithmetic.

(3) Timeline: 2022

To compensate for narrowing the applicable fuels and increasing the volumetric goals, the Senate proposal stretched out the schedule by five years, from 2017 to 2022. “I don’t remember feeling like we had an analysis,” said one Senate staffer, who described that they were just walking back as far as they could with the White House.⁴³⁷ The Energy Committee’s schedule for the mandate was as follows:

⁴³⁵ In 2005-2006, the National Corn Growers Association (NCGA) engaged in a “visioning” exercise, in which they tried to think about what their industry’s productive capability might be in ten years. The NCGA board, which was made up of farmers, looked at historic trends in acres and yields and postulated several scenarios that could get them up to 15 billion bushels/year by 2015. It was an aggressive vision, at a time when corn production was 9-10 billion bushels/year. And because such high production numbers would raise concerns about a corn glut, they went on to consider consumption in addition to production. After setting aside the portion of the 15 billion bushels that would be used for domestic consumption, livestock, and exports, they calculated that at around 2.8-3 gallons/bushel, they would have enough corn surplus to roughly produce 15 billion gallons of ethanol. Thus, the ethanol numbers were an attempt to think about how a corn glut could be avoided – given a hypothetical 15 billion bushels of corn production – not an attempt to project the maximum volume of corn ethanol production. It was explicitly an exploratory “vision,” not a forecast. But the NCGA’s 15x15x15 plan was quickly latched onto by ethanol advocates and opponents alike as if it were an ethanol forecast. (And interestingly, in the end the farmers proved to have had a more realistic sense of where corn production was going than the academic experts. According to USDA data, corn production reached a high of over 13 billion bushels in 2009.) Source: Personal communication, 5/29/12 and 10/27/11

⁴³⁶ Personal communication, 10/27/11

⁴³⁷ Personal communication, 4/22/11

| Year | Advanced Biofuels (billion gallons) | Total Renewable Fuels (billion gallons) |
|-------------|--|--|
| 2008 | -- | 8.5 |
| 2009 | -- | 10.5 |
| 2010 | -- | 12.0 |
| 2011 | -- | 12.6 |
| 2012 | -- | 13.2 |
| 2013 | -- | 13.8 |
| 2014 | -- | 14.4 |
| 2015 | -- | 15.0 |
| 2016 | 3.0 | 18.0 |
| 2017 | 6.0 | 21.0 |
| 2018 | 9.0 | 24.0 |
| 2019 | 12.0 | 27.0 |
| 2020 | 15.0 | 30.0 |
| 2021 | 18.0 | 33.0 |
| 2022 | 21.0 | 36.0 |

(4) Waiver provision: none

Arguably the most fundamental change that the Energy Committee made to the President’s fuel mandate was to drop the \$1/gallon safety valve mechanism. This was probably even more profound than turning the AFS into an RFS, given that any AFS volumes were likely to be satisfied by biofuels anyways. The safety valve was absolutely critical to the President’s plan – it made a mandate into the equivalent of a gasoline tax and compensated for over-optimism in the “moonshot” goals. Without the safety valve, the RFS was left with the impossibly high goals and rendered dependent on uncertain and unpredictable technological progress.

Energy Committee Members and staff privately acknowledged this uncertainty. But there was scant support for the President’s \$1/gallon safety valve for several possible reasons. Part of this was skepticism about its functioning; as one Senate aide explained, it seemed like it was just one 34-year old guy in the Treasury who thought he had a brilliant idea, and “we just didn’t buy it.” Part of this may have been resentment with the White House -- one ethanol lobbyist called it “toxic” and a “dead on arrival” proposal because

the White House had not vetted it with the Hill. Part of this may have reflected that the oil and gas industry, which saw the safety valve as a costly tax, made dropping it their one “ask” of the Energy Committee. In any case, the safety valve was dropped from the Energy Committee (and ultimately the Senate) version of the fuel mandate. The Senate did not specify, though, what would be used in its place as an adjustment mechanism. As I will describe later, that step was left to the House during the process of reconciliation.

(5) GHG Thresholds: 20%

The category of “advanced” renewable fuels was defined by feedstock inputs (i.e. not produced from corn) rather than environmental performance. In a nod to environmental concerns, though, the ENR version of the legislation also included greenhouse gas thresholds: all new renewable fuel facilities had to produce fuels with 20% lower greenhouse gas emissions. This was, however, a modest nod indeed. As Sen. Bingaman said in the Committee debate, it was a “very achievable” standard.⁴³⁸ Existing facilities were grandfathered. And it was likely that most of corn ethanol, and certainly any advanced fuels, would meet this threshold in any case.

Yet even this seemingly uncontroversial provision passed only by a party-line vote in the Committee. Reportedly, a major reason that many members of the Energy Committee were wary of including greenhouse-gas standards was that doing so could mean that the bill would be referred to the EPW Committee. The development of EPW’s competing proposal is the topic to which we now turn.

Proposal from the Environment and Public Works Committee

⁴³⁸ Kaplun, Alex. “Energy Policy: Major Fights.”

While the ENR committee was preparing its RFS proposal, Senators in the EPW committee were preparing two of their own versions. First, on April 19, Ranking Member James Inhofe (R-Okla.) introduced S. 1158, “Alternative Fuel Standard Act,” based on the President’s legislative proposal for a 35 billion gallon AFS by 2018. It contained a minimum of 250 million gallons of cellulosic ethanol by 2013, which had been a feature of the original 2005 RFS, but it was otherwise fuel-agnostic. It included both administrative waivers and the administration’s safety valve. The bill attracted no co-sponsors and died in committee.

Second, and more significantly, on May 3 Chairman Barbara Boxer (D-Calif.) along with Sens. Joe Lieberman (I-Conn.) and Susan Collins (R-Maine) introduced S. 1297, “Advanced Clean Fuels Act.” Their RFS was for 35 billion gallons of renewable fuels by 2025, of which 21 billion gallons were required to have greenhouse gas emissions at least 50% lower than conventional gasoline. Specifically, they set volumes for “Phase II” fuels with 50-74% lower emissions and “Phase III” fuels with 75% or greater emissions reductions. The schedule for the mandate was as follows:

| Year | Phase I Fuels (billion gallons) | Phase II Fuels (billion gallons) | Phase III Fuels (billion gallons) | Total Renewable Fuels (billion gallons) |
|-------------|--|---|--|--|
| 2011 | 12.0 | 0 | 0 | 12.0 |
| 2012 | 13.25 | 0.5 | 0.25 | 14.0 |
| 2013 | 15.25 | 0.5 | 0.25 | 16.0 |
| 2014 | 15.75 | 1.5 | 0.75 | 18.0 |
| 2015 | 17.25 | 1.5 | 0.75 | 20.0 |
| 2016 | 18.25 | 3.0 | 1.5 | 22.0 |
| 2017 | 20.25 | 3.0 | 1.5 | 24.0 |
| 2018 | 18.5 | 5.0 | 2.5 | 26.0 |
| 2019 | 20.5 | 5.0 | 2.5 | 28.0 |
| 2020 | 18.0 | 8.0 | 4.0 | 30.0 |
| 2021 | 19.0 | 8.0 | 4.0 | 31.0 |
| 2022 | 15.0 | 11.0 | 6.0 | 32.0 |
| 2023 | 16.0 | 11.0 | 6.0 | 33.0 |
| 2024 | 17.0 | 11.0 | 6.0 | 34.0 |
| 2025 | 14.0 | 13.0 | 8.0 | 35.0 |

The RFS proposed by EPW was seen as being more environmentally benign for a few reasons: (1) it defined fuel categories by lifecycle greenhouse gas emissions and ramped up reductions over time, (2) it added safeguards for biomass sourcing, and (3) as with the original RFS, it was written as a Clean Air Act amendment and would be administered by the EPA, while ENR's was written as a standalone program with agency placement at the President's discretion. Primarily for these reasons, the environmental community wrote a strong letter of opposition to Sen. Bingaman's proposal,⁴³⁹ but wrote no similar letter in response to Sen. Boxer's bill. (Nowhere have I seen the point made, though, that the EPW version allowed 25% higher volumes of corn ethanol – up to a maximum of 20.5 billion gallons, before Phase II and Phase III fuels were required to ramp up production in the early 2020s.)

Senate Consideration and Floor Vote

The Senate's energy proposals – including the RFS from the Energy Committee, CAFE standards from the Commerce Committee, and an array of proposals on energy efficiency, carbon sequestration, and gasoline price gouging – were bundled into S. 1419, “Renewable Fuels, Consumer Protection, and Energy Efficiency Act,” which was introduced in the Senate by Majority Leader Harry Reid on May 17. An identical bill

⁴³⁹ The May 1 letter to ENR was signed by Defenders of Wildlife, Earthjustice, Friends of the Earth, Greenpeace, League of Conservation Voters, Natural Resources Defense Council, Sierra Club, Union of Concerned Scientists, and a handful of other groups. It stated that: “we urge you to oppose in its current form Chairman Bingaman's mark ... of the energy bill scheduled to be marked up on May 2, 2007 in the Senate Energy and Natural Resources Committee. We regret our need to oppose this legislation, but it would dramatically increase biofuels production in the U.S. without also establishing the necessary safeguards to ensure this increase does not cause substantial environmental harm.” Cited in: Dempsey, Matt. June 19, 2007. “Vocal Critics Turned Silent.” U.S. Senate Committee on Environment and Public Works, Press Room Blog. [website]. http://epw.senate.gov/public/index.cfm?FuseAction=PressRoom.Blogs&ContentRecord_id=45A53C11-802A-23AD-4DBB-7880E3D22A79

was subsequently proposed on June 12 as S. Amdt 1502, one of the Senate’s principal amendments to the House energy bill. The Senate debated this and nearly 120 other amendments over June 13-21 before approving it by a 65-27 vote on June 21.

I want to make two brief observations about the substance of the Senate debate – or rather, what was conspicuously absent from the debate.⁴⁴⁰ First, the Renewable Fuel Standard received scarcely any attention. The most controversial proposals by far were fuel economy standards, renewable electricity standards, and tax provisions. When the RFS was mentioned at all, it was briefly and almost tangentially. For example, in debating S. Admt. 1502 (CAFE and RFS standards) versus S. Admt. 1508 (hybrid vehicles and goal-setting in the executive agencies), the RFS was brought up to demonstrate how S. Admt. 1502 represented stronger Senate leadership.⁴⁴¹ The RFS also came up during debates on coal-to-liquid amendments – “What we should try to do as a body is not to pick winners and losers,” exhorted Sen. Corker (R-Tenn.) – although in that context the arguments were in favor of expanded applicability to CTL, not in opposition to a fuel mandate per se. The only overt critique of the program came from Sen. Inhofe, who sought but failed to secure broader waiver provisions to guard against price impacts. Not a single Senator questioned the basic achievability of a 36 billion gallon RFS.

⁴⁴⁰ Full text of the Senate floor debate is available through the Library of Congress’s THOMAS database: <http://thomas.loc.gov/cgi-bin/bdquery/z?d110:S.AMDT.1502>:

⁴⁴¹ For example, see Sen. Domenici’s impassioned argument in favor of S. Admt. 1502: “These goals are consistent with what the President articulated in his State of the Union Address. But we didn’t wait around to see how he was going to do it and let him call the shots and then brag that he set the goals. We did it ourselves. The President’s Twenty in Ten Initiative calls for a reduction in gasoline usage by 20 percent in 10 years, or by 2017. This bill not only includes these gasoline savings goals but established the programs that will put us on track to meet them. In particular, the bill includes an ambitious renewable fuel standard that will displace foreign oil with homegrown fuel.” Source: Sen. Domenici (NM). June 12, 2007. “Creating Long-Term Energy Alternatives for the Nation Act of 2007.” *Congressional Record* 153(94): S7529.

Second, energy security was clearly the overall mission of the energy proposals, while only a few Senators invoked the need to keep gasoline prices down. In fact, the two amendments addressing gasoline prices – one from Sen. DeMint (R-SC) meant to create a procedural hurdle for any legislation raising gasoline prices, and one from Sen. Kyl (R-Ariz.) that would block any tax increases that would raise gasoline prices – were roundly defeated. In response to Sen. Kyl’s bill, Sen. Bingaman struck back that “The truth is we all know the price of oil is determined on the world market. ... I think American consumers have watched that occur year after year and they understand that is the circumstance.”⁴⁴² *That gasoline prices were downplayed is remarkable because much of the literature (and arguably much of the popular media) suggests that public outcry over high gasoline prices is a core driver of energy policy-making.*⁴⁴³ It may indeed have been a large part of how Congress portrayed the energy bill to the public, but it was an extremely minor issue internally in Senate and House debates about the bill.

House Energy Bill – Rejection of a Fuel Mandate

In the spring and summer of 2007, as the Senate was drafting its omnibus energy legislation, the House was going through a parallel process. This section explains the House’s energy policy-making. There are three key points to take away: First, the House’s drafting of energy policy focused on climate change and energy independence – in fact, Speaker Pelosi set up a Select Committee on these topics – not gasoline prices. We saw a similar emphasis in the Senate, but it is still somewhat shocking based on conventional wisdom about the drivers of alternative energy policy. Second, the

⁴⁴² Sen. Bingaman (NM). June 21, 2007. “Creating Long-Term Energy Alternatives for the Nation Act of 2007.” *Congressional Record* 153(101): S8171.

⁴⁴³ Reilly, Daniel W. June 11, 2007. “Primed and Pumped and Ready For a Showdown.” *Politico* [website].

principal fuel standard proposal in the House had been based on the President's AFS, and it contained strong coal-to-liquids provisions. Controversy about CTL ultimately killed the proposal in the House. Third, the energy bill passed by the House in August 2007 contained a Renewable Portfolio Standard and tax provisions but no RFS or CAFE standards – which was precisely the opposite of the Senate's energy bill. This set the chambers up for an enormously difficult process of reconciliation.

Legislative Priorities: Global Warming and Energy Independence

The original House energy bill of the 110th Congress had been H.R. 6, “CLEAN Energy Act,” passed on January 18. This was the bill that S. Amdt. 1502 amended with an RFS (among other provisions) and that ultimately involved into the “Energy Independence and Security Act.” It was not, however, the only or even the main energy legislation that was written in the House over early 2007. It was a narrow bill – essentially rolling back oil and gas tax breaks to fund alternative energy – forced through in the House's 100-hour legislative blitz under a closed rule with no amendments.

On the morning of its passage, Speaker Nancy Pelosi (D-Calif.) indicated where the House's real focus would be in the months ahead: “Tomorrow we finish our 100 hours, and I will talk about what comes next, and included in that is energy independence. Climate change is part of energy independence.”⁴⁴⁴ Signaling her commitment to a climate policy agenda, she proposed a Select Committee on Energy Independence and Global Warming.⁴⁴⁵ The Select Committee would lack authority to

⁴⁴⁴ Fialka, John J. and David Rogers. January 18, 2007. “Democrats Push Climate Change to Front Burner.” *Wall Street Journal*, A1.

⁴⁴⁵ Samuelsohn, Darren. January 19, 2007. “With Select Panel, Pelosi Vows to ‘Raise the Visibility’ of Global Warming.” *Environment & Energy Daily* [website].

draft legislation but could conduct hearings and develop policy recommendations. The Select Committee was approved in March, despite rumors and concerns that the Speaker might use it to “usurp” control over energy policy (that is, marking up legislation straight out of the Select Committee if she disapproved of the legislation produced by Energy and Commerce).⁴⁴⁶

Rejection of an Alternative Fuel Standard

Speaker Pelosi asked for energy independence legislation to be submitted no later than the Fourth of July. Thus over the spring and summer, while the Senate was working out its amendments to H.R. 6, numerous committees in the House got to work drafting a new energy bill. Over 40 hearings were held, with contributions by ten different committees. The bulk of the bill, though, was handled by the Energy and Commerce committee, Chaired by John Dingell (D-Mich.), and its Energy and Air Quality Subcommittee, Chaired by Rick Boucher (D-Virg.).

During April and June it appeared that an Alternative Fuel Standard, modeled on the White House plan, might be included in the legislation.⁴⁴⁷ In Boucher’s early June discussion draft, one of the key proposals was for an AFS of 35 billion gallons by 2025. He explained that the timeline had been extended “given our current annual consumption of less than 6 billion gallons and the absence of any empirical support for the 2017 date

⁴⁴⁶ “I know yesterday John Shimkus, a pretty senior Republican in the Energy and Commerce Committee, said that he thought maybe Pelosi, even though she’s insisting, you know, she’s giving assurances that she’s not going to usurp the Energy and Commerce Committee, maybe, based on some of the Democratic precedent, maybe she will, ultimately, if she doesn’t like what she sees in Dingell’s committee, markup legislation straight out of the select committee and move it to straight to the floor. I mean there maybe is a level of paranoia right now.” Statement by Darren Samuelsohn, an energy reporter for *Environment & Energy Daily*, in an 1/15/27 reporter roundtable on *E&E TV*’s OnPoint program.
http://www.eenews.net/tv/video_guide/537

⁴⁴⁷ “House Energy Package Moving on Multiple Fronts – Status Report.” May 18 2007. *Environment & Energy Daily* [website].

supplied by the administration.”⁴⁴⁸ Other significant changes included dropping the safety valve (in the hearing on the discussion draft, Andy Karsner of the DOE and Robert Meyer of the EPA urged that the safety valve be included) and incorporating greenhouse gas rules with a low-carbon fuel standard. Rep. Boucher clearly intended for the AFS to include coal-to-liquids, and he also pushed hard for advancing CTL commercialization with federal price guarantees.

The support for CTL made Boucher’s plan tremendously controversial with Speaker Pelosi and many other Democrats. After several fits and starts – Boucher withdrew it due to opposition; John Shimkus (R-Ill.) brought it up it as an amendment during mark-up, then backed off to reconsider at Boucher’s request; and Shimkus finally re-introduced it as an amendment in a June 28 Energy and Commerce Committee meeting, where it was defeated in a 23-29 party-line vote⁴⁴⁹ -- the entire AFS proposal was dropped from the House energy legislation. Ultimately, the short summer deadline meant that John Dingell pushed to hold off on the controversial measures for fuel economy, renewable electricity, and alternative fuels, in favor of smaller measures with bipartisan support.⁴⁵⁰

Thus, the 786-page energy bill that the House passed in August, H.R. 3221, “Renewable Energy and Energy Conservation Tax Act,” had a potpourri of standards and supports for energy efficiency, solar and geothermal energy, renewable fuels infrastructure, cellulosic biofuels research, carbon sequestration, maritime pollution,

⁴⁴⁸ *Legislative Hearing on Discussion Draft* (Testimony of Alexander Karsner)

⁴⁴⁹ Kaplun, Alex and Darren Samuelsohn. June 25, 2007. “House Markup May Launch Another Fight over CTL, Alt Fuels.” *Environment & Energy Daily* [website]; Kaplun, Alex. June 29, 2007. “Major Piece of House Energy Puzzle Falls Into Place.” *Environment & Energy Daily* [website]

⁴⁵⁰ Hitt, Greg. June 27, 2007. “Dingell Keeps Tight Rein on Energy Measure.” *Wall Street Journal*, A6; Kaplun, Alex. June 19, 2007. “Dingell, Pelosi Strike Apparent ‘Deal’ on House Energy Bill.” *Environment & Energy Daily* [website]; Fialka, John J. June 19, 2007. “House Delays Thorny Energy Issues.” *Wall Street Journal*, A4.

green jobs, etc. – but no AFS or RFS. The only truly controversial provision was a Renewable Portfolio Standard, which had been a fiercely debated amendment introduced by Rep. Tom Udall (D-NM).

Reconciliation of House and Senate Bills

Reconciling the Senate and House energy bills was a massive, multi-dimensional challenge, complicated by: (1) *substantive challenges* – the Senate passed the RFS2 and CAFE standards and rejected the RPS and tax provisions, while the House did precisely the opposite; (2) *technical challenges* - the Senate bill was an amendment to H.R. 6, while the House had gone on to produce H.R. 3221, such that they were not technically the same bill;⁴⁵¹ and (3) *political challenges* – Senate Republicans refused to appoint conferees, in a political tactic for stalling the progress of the energy legislation.⁴⁵²

Senate Majority Leader Harry Reid told reporters in early October that he would soon move to go to conference on the energy bill, but he never ended up offering the motion.⁴⁵³ Instead, by mid October the Democratic leadership of the House and Senate agreed to negotiate the legislation between themselves, behind closed doors.⁴⁵⁴ This was described in the press as a “ping-pong” reconciliation, in which proposals were bounced between the Democratic leadership of both chambers, with staff working out the principle

⁴⁵¹ Geman, Ben. October 5, 2007. “Energy Policy: Conference Motion in Senate Delayed Until Post-Recess.” *Environment & Energy Daily* [website].

⁴⁵² Geman, Ben. October 24, 2007. “Senate Republicans Split on Conference Strategy.” *Environment & Energy Daily* [website].

⁴⁵³ Geman, Ben. October 3, 2007. “Energy Policy: Reid Wants to Name Senate Energy Conferees This Week.” *Environment & Energy Daily* [website].

⁴⁵⁴ Geman, Ben. October 11, 2007. “Pelosi Backs Non-Conference Strategy on Energy Bills.” *Environment & Energy Daily* [website].

negotiations.⁴⁵⁵ Towards the end, however, even this cooperation apparently broke down – in interviews, several Congressional staff and lobbyists described this as the House “taking over” and “shutting out” the Senate. The bill ended up being assembled privately in Speaker Pelosi’s office at literally the eleventh hour (it was publicly released at 11:52 pm on December 5, the eve of the vote). Even the Senate staff who had been working on the bill were excluded from the process.

Due to this closed procedure there is no public record of the negotiation points or the various rounds of proposals, but interviews with Congressional staff suggest that the House and Senate clashed on both the scope and the placement of the RFS2. The House leadership initially proposed a more modest RFS2 and was adamant about writing it as a Clean Air Act amendment (in fact, a couple of staffers suggested that the desire to ensure that the RFS2 fell under EPA jurisdiction was a key reason that the House wrested control of it from the Senate). The Senate leadership held firm on the 36 billion gallon goal. The House ultimately “swallowed” the outlines of the Senate RFS2 but in exchange had a free hand in rewriting many provisions.

House’s Amendments to the Senate Amendments: “Greening” the RFS

The 1038-page bill produced by Pelosi’s office on December 5 (H.R. 6, “Energy Independence and Security Act” (EISA)) included all of the major legislative proposals from both the House and the Senate: CAFE standards, RFS2, RPS, energy efficiency standards, and tax provisions. Regarding the RFS2, this version added several major

⁴⁵⁵ Yachnin, Jennifer. October 11, 2007. “It’s ‘Ping-Pong’ for Energy Bill.” *Roll Call* [website]. http://www.rollcall.com/issues/53_41/-20423-1.html; Cummings, Jeanne. October 29, 2007. “Dems Drafting Energy Bill in Secret, Too.” *Politico.com* [website]. <http://www.politico.com/news/stories/1007/6605.html>

provisions, essentially representing an attempt to “green” the bill within the outlines of the Senate’s 36 billion gallon goal. These changes included: (1) a massive 16 billion gallon mandate for cellulosic ethanol, which was a “carve-out” within the advanced biofuels category; (2) an EPA waiver for adjusting the cellulosic mandate; (3) increased greenhouse gas standards, and (4) placement as an amendment to the Clean Air Act. Here I discuss where each of these changes originated. *Notably, it was at this stage of the legislative policy-making that the interest groups began to influence – directly and indirectly – the evolution of the RFS policy.* Their influence will be briefly flagged here and then explored in greater depth in the section on interest groups.

(1) 16 billion gallon cellulosic carve-out

The House maintained the overall mandate of 36 billion gallons and the advanced biofuel mandate of 21 billion gallons. What it added were two additional subcategories, or “carve-outs,” for specific advanced fuels: 16 billion gallons of cellulosic biofuels and 1 billion gallons of biodiesel. The schedule for these fuels had corn ethanol plateauing at 15 billion gallons by 2014, at which point advanced fuels – especially cellulosic ethanol – would contribute the remaining increases in fuel volumes.⁴⁵⁶

⁴⁵⁶ Note: this table does not include a column for corn ethanol because the RFS did not include a specific corn ethanol mandate. The RFS established a total renewable fuel mandate along with secondary requirements for advanced biofuels, cellulosic ethanol, and biodiesel. This effectively created an allowable volume for corn ethanol, but it was not a required volume.

| Year | Advanced Biofuels (billion gallons) | Cellulosic Ethanol (billion gallons) | Biodiesel (billion gallons) | Total Renewable Fuels (billion gallons) |
|------|--|---|--------------------------------|--|
| 2006 | --- | --- | --- | 4.00 |
| 2007 | --- | --- | --- | 4.70 |
| 2008 | --- | --- | --- | 9.00 |
| 2009 | 0.60 | --- | 0.50 | 11.10 |
| 2010 | 0.95 | 0.10 | 0.65 | 12.95 |
| 2011 | 1.35 | 0.25 | 0.80 | 13.95 |
| 2012 | 2.00 | 0.50 | 1.00 | 15.20 |
| 2013 | 2.75 | 1.00 | * | 16.55 |
| 2014 | 3.75 | 1.75 | * | 18.15 |
| 2015 | 5.50 | 3.00 | * | 20.50 |
| 2016 | 7.25 | 4.25 | * | 22.25 |
| 2017 | 9.00 | 5.50 | * | 24.00 |
| 2018 | 11.00 | 7.00 | * | 26.00 |
| 2019 | 13.00 | 8.50 | * | 28.00 |
| 2020 | 15.00 | 10.50 | * | 30.00 |
| 2021 | 18.00 | 13.50 | * | 33.00 |
| 2022 | 21.00 | 16.00 | * | 36.00 |

* To be determined, but not less than 1.0 billion gallons

The source of this 16 billion gallon number remains somewhat of a mystery. In interviews, Senate staffers said that they did not know where it originated, as they were shut out of the process at that point. House staffers demurred. The only explanation came from an advanced ethanol lobbyist and an environmental advocate, both of whom worked closely with Nancy Pelosi’s office on the bill. They separately but similarly indicated that it was a “symbolic” and “imaginary” number, rooted in the desire to have cellulosic ethanol beat out corn ethanol, 16-to-15.⁴⁵⁷

This championing of cellulosic ethanol was key to the Congressional politics, because it helped bring Southerners and environmentalists on board with the RFS2.⁴⁵⁸ Tellingly, the 46 Democratic Representatives who signed a letter to the House and Senate leadership on October 29 pressing for cellulosic ethanol mandates (“we urge you to make the development of bio-fuels [sic] from crop wastes, wood wastes, perennial grasses and

⁴⁵⁷ Personal communication, 11/12/11 and 6/2/11

⁴⁵⁸ Personal communication, 11/12/11 and 5/9/11

other non-food crops the centerpiece of a new and expanded RFS⁴⁵⁹) were roughly split between Southern states with sizable forest resources (Arkansas, Georgia, North Carolina, South Carolina, Louisiana, Tennessee) and coastal states with strong environmental records (California, New York, New Jersey, Massachusetts, Maine).

Interestingly, environmentalist members of Congress pushed for cellulosic ethanol in the RFS2 even though environmental groups were pushing in a different direction – i.e., performance-based standards rather than these feedstock-based mandates. This will be discussed at greater length in the section on interest groups – but for now, suffice to say that the cellulosic carve-out cannot simply be traced to the indirect influence of interest groups. The available evidence suggests that the goal was chosen primarily for its symbolic value within Congress.

(2) EPA Waiver

The House version of the RFS2 provided for flexibility in the mandates not via the \$1/gallon safety valve mechanism, as the White House had wanted, but with EPA waivers for the cellulosic ethanol portion of the RFS. Specifically, the legislation directed that:

For any calendar year for which the projected volume of cellulosic biofuel production is less than the minimum applicable volume ... not later than November 30 of the preceding calendar year, the Administrator shall reduce the applicable volume of cellulosic biofuels required ... to the projected volume available during that calendar year.

This required the EPA on an annual basis to project how much cellulosic ethanol would be produced the following year and to set that as the adjusted cellulosic ethanol mandate. Essentially, this rendered the mandate toothless. The bill did also include a

⁴⁵⁹ Available at: <http://switchboard.nrdc.org/blogs/ngreene/media/Stark%20RFS%20letter.pdf>

small price signal – the next paragraph laid out that when the EPA reduces the cellulosic biofuel mandate, it is required to “make available for sale cellulosic biofuel credits at the higher of \$0.25 per gallon or the amount by which \$3.00 per gallon exceeds the average wholesale price of a gallon of gasoline in the United States.” – but this was far below the White House’s safety valve, and was apparently not enough to compel investment in cellulosic ethanol development.

The House’s EPA waiver provision was the one piece of the RFS2 legislation that I have been able to trace directly to interest group drafting – and, incredibly, it was written not by the oil and gas industry, but by a cellulosic ethanol lobbyist⁴⁶⁰. Although the ethanol industry publicly assured Congress that the goals were “achievable,” even the major cellulosic ethanol producers were privately concerned that they could not reach commercialization at that rate. The waiver was meant to reward partial success and ensure that the RFS2, as a whole, would not be undone by low cellulosic volumes. This reasoning will be explained at greater length in the section on interest groups and the cellulosic ethanol industry.

(3) Environmental provisions: biomass sourcing and greenhouse gas reductions

The House increased the environmental protections associated with the RFS2 in two significant ways. First, they added feedstock requirements by newly defining what could count as “renewable biomass.” The definition addressed types of feedstock (particularly for cellulosic ethanol) as well as the type of land on which it could be grown. Restrictions were placed on biomass from virgin agricultural land, rangeland, or federal forest land. Overall, these feedstock requirements were intended to reduce the

⁴⁶⁰ Personal communication, 10/27/11 and 11/12/11

greenhouse gas (GHG) emissions associated with biofuels by limiting the degree to which land would be newly cleared and/or cultivated.

Second, they mandated reductions in lifecycle GHG emissions for each category of renewable fuels. The reductions were as follows: 20% for all renewable fuels, 50% for advanced biofuel, 50% for biodiesel, and 60% for cellulosic biofuels, compared to a baseline of gasoline or diesel fuel (depending on what the biofuel was replacing). The reductions were presented as “thresholds” because they set performance standards that fuels had to meet to qualify for the coveted categories of advanced, cellulosic, or biodiesel. Existing ethanol facilities were exempt from these performance standards, as a concession to corn and ethanol interests.

The GHG reductions were considered a major victory for the environmental groups, who had been pushing for performance-based standards rather than volumetric mandates. The reduction levels were not especially stringent; what was radical was the concept. This was the first time that the EPA would have to implement a regulation based on lifecycle GHG emissions.⁴⁶¹

(4) Rewritten as a Clean Air Act amendment

The House rewrote the Senate Energy Committee’s version of the RFS2 as an amendment to the Clean Air Act. This meant that it would continue to be administered by the Environmental Protection Agency. This placement was in accordance with the original RFS, and it was how the Senate Environment and Public Works Committee had sought to write the legislation as well. It had only been the Senate Energy Committee

⁴⁶¹ The implementation challenges are beyond the scope of this dissertation. However, it is worth noting that the rulemaking for this provision has indeed been an enormous challenge for the EPA, particularly due to the inclusion of indirect land use changes.

that sought to write a standalone program – solely for jurisdictional rather than substantive reasons.

House debate and passage of the House Amendments

Speaker Pelosi's energy bill was introduced, debated, and passed in the House on the afternoon of December 6, 2007 (specifically, from 1:06-3:31 pm). Given the stunningly closed process through which the bill was crafted, it is unsurprising that much of the House debate focused on procedural matters rather than the substance of the bill. Rep. John Dingell (D-Mich.) expressed his boiling frustration, hinting at the Senate Republicans' refusal to conference:

This is not a bill that the Committee on Energy and Commerce and my colleagues and I would have written if it had followed the regular order... Indeed, it is a process which is brought about in good part because of the lack of interest by the White House and, very frankly, the incompetence and the indifference and the arrogance of the other body.⁴⁶²

Rep. Ralph Hall (R-Texas) said, "I am concerned with some changes and additions made in this amendment, changes that came about without the opportunity for vetting or member involvement." Rep. Joe Barton (R-Texas) complained that "we have before us a bill that has not gone through the regular process in the House of Representatives ... It is the result of some negotiations primarily between select Members of the majority here in the House and the majority in the Senate." Rep. Frank Wolf (R-Virg.) criticized that "We cannot create energy policy through wheeling and dealing or thousand page bills released just hours before a vote."⁴⁶³ He particularly highlighted that:

⁴⁶² Rep. Dingell (MI). December 6, 2007. "Energy Independence and Security Act of 2007." *Congressional Record* 153(186): H14425.

⁴⁶³ Rep. Wolf (VA). December 6, 2007. "Energy Independence and Security Act of 2007." *Congressional Record* 153(186): H14439.

Today the House considers a bill that is over 1,000 pages, with only 12 hours of notice and only 1 hour of debate. I found it interesting that while the bill was not introduced and made available to members until 8:30 last night, K Street lobbyists provided copies to congressional staff 3 hours earlier.

Regarding the RFS, it was only briefly mentioned by a handful of Members, who raised concerns about its achievability – “We are mandating 36 billion gallons of biofuels which don’t exist and probably won’t exist,” said Rep. Barton⁴⁶⁴ – as well as its impact on food prices and environmental quality. Rep. Rob Goodlatte (R-Virg.) also criticized the “unrealistic mandate for advanced biofuels technology that doesn’t exist” and complained that the feedstock standard “creates hurdles for the development of second generation biofuels by placing restrictions on alternative fuels, renewable fuel plant production, and, most important, limits the harvesting of our homegrown feedstocks.”⁴⁶⁵ Rep. Gene Green (D-Texas), a member of the Committee on Energy and Commerce, had the longest commentary -- which illustrates the overall paucity of debate on these matters:

I am particularly disappointed in the lack of discussion on the renewable fuel standard, RFS, which was not included in our House bill and was not moved through any regular process in the House of Representatives. It is premature to consider expanding the RFS until our current one is fully implemented, and we run the risk of negative environmental impacts, questionable greenhouse gas emissions, and increased food and energy prices with a focus on corn-based ethanol.

A sensible approach would have been to require RFS to include, prior to taking effect, a clear mechanism to reduce the mandate in case the environmental challenges, technological, or feasibility of supply issues, or projected food price increases were impacts.⁴⁶⁶

The only remarks made in favor of the RFS came from Rep. Ike Skelton (D-Missouri) – “Important to Missouri farmers is the robust renewable fuels standard

⁴⁶⁴ Rep. Barton (TX). December 6, 2007. “Energy Independence and Security Act of 2007.” *Congressional Record* 153(186): H14425.

⁴⁶⁵ Rep. Goodlatte (VA). December 6, 2007. “Energy Independence and Security Act of 2007.” *Congressional Record* 153(186): H14441.

⁴⁶⁶ Rep. Green (TX). December 6, 2007. “Energy Independence and Security Act of 2007.” *Congressional Record* 153(186): H14428.

included in the Energy Independence and Security Act”⁴⁶⁷ – and a lukewarm acknowledgement from Rep. Stark (D-Calif.) that although “I am troubled that we are continuing to subsidize and ratchet up corn-based ethanol production ... this bill includes some environmental safeguards and directs future production toward advanced biofuels.”⁴⁶⁸

Coal-to-liquid fuels received even less attention than renewable fuels. Rep. Capito (R-WV) wondered, “where is coal liquefaction? It is a proven viable fuel for the decades to come,” and Rep. Goodlatte complained, “Coal is one of our Nation’s most abundant resources, yet the development of Coal-to-Liquid technologies is ignored,”⁴⁶⁹ but the issue was otherwise absent from the House debate.

As for the issue of energy prices, three Republican members voiced concerns that “There is nothing in here that is going to lower gasoline prices in America” (Rep. Boehner), that “there is nothing in this bill that will ... lower the cost of a tank of gasoline or the monthly electricity bill” (Rep. Hall), and that “when our constituents tell us to “do something” about gas prices, they don’t mean “Make them higher”” (Rep. Herger (R-Calif.)). But this was the extent of debate over the bill’s impact on gasoline prices. After one hour of debate on the bill, the measure was passed on December 6 at 3:31 pm, by a vote of 235-181. The following day, the House’s amendments were taken up in the Senate.

⁴⁶⁷ Rep. Skelton (MO). December 6, 2007. “Energy Independence and Security Act of 2007.” *Congressional Record* 153(186): H14443.

⁴⁶⁸ Rep. Stark (CA). December 6, 2007. “Energy Independence and Security Act of 2007.” *Congressional Record* 153(186): H14439.

⁴⁶⁹ Rep. Goodlatte (VA). December 6, 2007. “Energy Independence and Security Act of 2007.” *Congressional Record* 153(186): H1442.

Final Reconciliation, December 7-18, 2007

Final Senate Amendments

The Senate's final consideration of the Energy Independence and Security Act progressed in three stages. On December 7, the Senate took up the House's bill without additional Senate amendments. One option would have been to invoke cloture and vote on the bill as presented. Sen. Domenici argued against this option, with a scathing critique of how the House had handled the process:

[The Senate bill] went to the House and there it sat. Senator Bingaman and I thought we were negotiating with the House over the months under a proposal that said the two of us represent the Senate, and we will sit down with House Members and see, since we cannot have a conference – there was no way to get a conference on our bills because of objection in the Senate – we would sit down together and produce a bill that had left the Senate and clearly some of the things that had been down in the House. It was pretty clear we could get a great bill out of that ...

After talking it through and getting to the point where we were ready to go, the House decided to go its own way and leave us standing. Then they used our bill ... to put together a bill that came through the House yesterday and is before us today.

... 35 years in the Senate – I had never been dealt with this way before in my time in the Senate, where I was asked to do something by a committee, we were in the process of doing it, and then a committee backs out and uses the work that was done by the working groups ... to produce a new bill⁴⁷⁰

The cloture motion fell short of the necessary 60 votes (53-42), and the Senate leadership went back to the drawing board to try to hammer out another compromise.

The penultimate version of the Senate's energy bill amendments was introduced in a motion by Sen. Reid on December 12. In this version, the House's RPS was dropped, by the RFS and CAFE standards remained intact. (As one Senate staffer said in an interview, at this point they were "told not to cross a T or dot an I" on the House's

⁴⁷⁰ Sen. Domenici (NM). December 7, 2007. "Energy Independence and Security Act of 2007." *Congressional Record* 153(187): S15004.

RFS,⁴⁷¹ although according to the *Wall Street Journal*, Republicans did want to remove the narrow definitions of advanced fuels.)⁴⁷²

On the morning of December 13, the bill was considered in the Senate but fell one vote short of cloture (59-40) at a 9:54 am vote. Tax provisions – which were likely to draw a Presidential veto – were at the heart of the controversy, although lingering bitterness about the House’s action also fueled opposition. “I am voting against cloture on [the] energy bill, although I support many of the bill’s provisions, because key commitments to at least one of my Republican colleagues were reportedly broken,” said Sen. Arlen Specter (R-Penn.). “I face a choice between procedural matters I dislike and policies I support.”⁴⁷³

That evening, the final Senate version of the bill was brought for consideration, this time with the controversial tax provisions removed. In this last round of debate, there was continued griping about the policy-making process (“So many of us were not even afforded the courtesy of basic Senate procedures, and that was appalling,” said Sen. Orrin Hatch (R-Utah)), and a couple of critical comments about the RFS’s costs from Sens. Kay Bailey Hutchinson (R-Texas) and James Inhofe (R-Okla.). But for the most part the Senators praised the “historic” and “landmark” legislation, especially its ambitious CAFE standards. At 6:25 pm, the motion was agreed to by an 86-6 vote, and the bill was sent back to the House.

⁴⁷¹ Personal communication 10/26/11

⁴⁷² “A Domenici spokesman said Republicans want to remove restrictions on advanced-fuels definition and a clause giving the government authority to cancel the mandate by 2017.” Fialka, John J. and David Rogers. December 8, 2007. “Senate Aims to Break Energy Bill Logjam.” *Wall Street Journal*, A4.

⁴⁷³ Sen. Specter (PA). December 13, 2007. “Renewable Fuels, Consumer Protection, and Energy Efficiency Act of 2007.” *Congressional Record* 153(191): S15387-S15388.

Final House Consideration

On December 18, the House considered the Senate's final amendments with one hour of debate. The RFS received slightly more airtime this time around, although it consisted of predictable parting shots: Reps. John Shimkus (R-Ill.) and Terry (R-Neb.) grumbled about how it failed to include coal-to-liquids; Rep. Collin Peterson (D-Minn.) praised that it would be a tremendous boost to agriculture; Reps. Bartlett (R-Md.), Stark (D-Calif.), and Stearns (R-Fla.) expressed concern about corn ethanol being inefficient and driving up corn prices. Speaker Nancy Pelosi swept in at the end to brag that they were bringing "earth-shattering change in terms of energy policy to the floor of the House."⁴⁷⁴ And with that, the House voted 314-100 to pass H.R. 6, "Energy Independence and Security Act," with the Senate's amendments to the House's amendments to the Senate amendments.

This section has thus laid out the contentious process that produced the RFS. The White House had proposed a 35 billion gallon AFS with a \$1/gallon safety valve, which was a vehicle for introducing a price signal to petroleum markets. The Senate, which had every reason to believe that the AFS would be mostly fulfilled by biofuels anyway, turned it into a biofuels-specific standard within the RFS paradigm, while one-upping the number to 36 billion gallons and gutting the economic safety valve. The House tried to rein it back, but finding that impossible, resorted to "greening" it with a dramatic cellulosic carve-out and compensating for the inflated expectations with an EPA waiver. In the end, the RFS2 bore little resemblance to what most analysts thought was

⁴⁷⁴ Rep. Pelosi (CA). December 18, 2007. "Energy Independence and Security Act of 2007." *Congressional Record* 153(194): H16747.

achievable, or what anyone had wanted to begin with (including the industry it purportedly helped). It was a wildly unrealistic mandate that was rendered ineffective by the EPA waiver authority. It was, in short, a hodge-podge of a proposal, reflective of path-dependent politicking rather than any kind of rigorous analysis.

VI. SIGNING ON: INTEREST GROUP NEGOTIATION AND INFLUENCE

Introduction

The previous sections on the White House and Congressional policy-making showed that the 2007 Renewable Fuel Standard was initiated by politicians – not interest groups. This is remarkable because ethanol policy, of all issues, is often seen as being fundamentally driven by special interests. The RFS2 case pushes back on this conventional wisdom, showing instead that policy emerged from a moonshot proposal from the White House and incremental, politically-oriented adjustment in Congress. Both of these processes were predominantly based on internal (and, to some extent, inexpert) staff analyses rather than industry advocacy.

Nevertheless, while interest groups did not provide the impetus for the RFS2 policy-making, they did have a hand in shaping and supporting the legislation during the Congressional bargaining. This section explores these influences by mapping out the positions, advocacy, and influence of the three major interest groups involved in the RFS2 policy-making: corn ethanol producers, advanced ethanol investors and producers, and environmental groups. I focus on these groups because they were the three who seem to have exerted influence. This is a conclusion that is based partly on the ex-post observation that they are the ones whose preferences were included in the legislation (as

opposed to the oil and gas industry, grocery manufacturers, and meat and poultry producers, who outright opposed the RFS2). Moreover, specific representatives from these groups – Bob Dinneen of the RFA, Nathanael Greene of NRDC, and especially Vinod Khosla of Khosla Ventures – were the only advocates who were consistently and specifically mentioned by Congressional aides in interviews as having been influential.

Remarkably, none of these groups had been pushing for an expanded RFS in 2006 and early 2007. They all had other legislative priorities. But the corn ethanol, cellulosic biofuels, and environmental interests came on board to support the RFS2 over the course of the Congressional policy-making, once they got enough of what they wanted into the legislation. This “signing on” process profoundly affected the details of the RFS2 legislation. Various members from these interest groups helped to block the safety valve, insert an EPA waiver, create a cap on corn ethanol, create a mandate for cellulosic ethanol, validate the technological goals, add greenhouse gas and biomass sourcing regulations, and overall provide political legitimation and support. It is extremely important to recognize that these activities were lagged and reactive, concentrated in the mid-to-late stages of Congressional policy-making. It is a circumscribed role, a far cry from the powerful, driving policy entrepreneurship that is expected from the policy process literature.

After mapping out the roles of different groups, I conclude this section with a reflection on how this advances a more nuanced view of the *when*, *how*, and *who* of interest group influence. To summarize: (1) rather than driving initial policy-making, interests groups responded to the initial proposals and bargained to make them as amenable to their interests as possible, such that their influence was concentrated in the

later stages of the policy-making; (2) groups influenced policy outcomes in numerous and complex ways – validating the unrealistic technological goals, drafting portions of the legislation, and endorsing the legislation once their specific “asks” were met; (3) biofuels investors (specifically Vinod Khosla) emerged as an unexpectedly powerful interest, in addition to the ethanol lobby and environmental groups.

Ethanol Producers

“Congress was looking for something to do.”
- ethanol company executive⁴⁷⁵

Although the ethanol industry became a fierce supporter of the 2007 Renewable Fuel Standard, it did not drive the initial policy formulation. This was clearly evident in interviews with staff from the White House (“That increase definitely was not the ethanol industry running around saying let’s make the RFS bigger”⁴⁷⁶) and the Senate (“This was not something that came from the biofuels companies to us. We got really close to introducing the [RFS] bill with the assumption that the RFA wouldn’t support us”⁴⁷⁷). To the contrary, in 2006 and early 2007 an expanded RFS was a low priority for the ethanol industry. Their immediate legislative priorities were extending the Volumetric Ethanol Excise Tax Credit (VEETC); raising the “blend wall,” i.e. the percentage of ethanol that can be blended into regular gasoline, from 10% to 20%; and expanding the market for higher ethanol blends (85% ethanol, a.k.a. E85) through flex-fuel vehicles and expanded E85 pumps. These tax and infrastructure goals were apparent as late as April 2007, in a Senate hearing on “The Next Generation of Biofuels.” When agriculture and ethanol

⁴⁷⁵ Personal communication, 7/15/11

⁴⁷⁶ Personal communication, 4/29/11

⁴⁷⁷ Personal communication, 10/26/11

industry witnesses were asked what they would most like to see changed in policy, not one of them mentioned an RFS expansion. Don Endres, CEO of VeraSun, responded, “if we only had one opportunity for legislative changes ... it would be to figure out how to increase the allowable blend;” Jeff Fox from POET followed with, “We would probably encourage the VEETC credit being made permanent;” and Reid Jensen from the South Dakota Farm Growers said, “I think what would do more for agriculture would be being able to go to the 20-percent blend and creating more demand.”⁴⁷⁸

There were a few reasons that the industry was not focused on an RFS expansion in late 2006 and early 2007. For one, at the time they didn’t think they needed it.⁴⁷⁹ The shift from MTBE to ethanol was driving exponential demand growth, to the point where the ethanol industry was likely to surpass the original RFS by 2007. Secondly, in the medium- to long-term, what would limit their growth was the market’s physical ability to absorb more ethanol. The “blend wall” capped ethanol consumption at 10% of the gasoline market – a saturation point that the industry was likely to reach in 5-10 years – and to grow beyond that would require an aggressive expansion of E85 infrastructure. Thus, rather than trying to prop up demand with an RFS, the industry was focused on infrastructural barriers to growth. Thirdly, the 2005 RFS had been a major victory, and 2006-2007 was simply too soon to ask Congress to double or triple the standard.⁴⁸⁰

⁴⁷⁸ *The next generation of biofuels: Cellulosic ethanol and the 2007 farm bill. Hearing Before the Subcommittee on Energy, Science and Technology of the Committee on Agriculture, Nutrition, and Forestry, U.S. Senate. 2007. 110th Congress. Serial No. 109-12. (Testimony of Don Endres, Jeff Fox, and Reid Jensen).*

⁴⁷⁹ Personal communication, 10/27/11

⁴⁸⁰ Personal communication, 5/17/12

For these reasons, the initial response of the Renewable Fuel Association (RFA), the major ethanol trade organization,⁴⁸¹ to the White House’s “Twenty in Ten” plan was lukewarm, even dismissive. As reported by *Ethanol Producer Magazine*:

In response to Bush’s lofty goal, Bob Dinneen, president of the Renewable Fuels Association (RFA), said the “blunt force” of a significant increase to the renewable fuels standard (RFS) may be unnecessary to guarantee ethanol’s future. In other words, the RFA is confident that the demand for ethanol will be so strong in the coming years that the fuel may need little further legislative support to ensure its proliferation and success.⁴⁸²

The RFA’s hesitation was not due to concerns about the achievability of the RFS volumes. From the beginning, they gave easy assurances about their industry’s productive capacity, validating even the highest of goals:

Senator Salazar: Is that [35 billion gallon] goal high enough, Bob, or would 50 billion be something that would be achievable? Would 60 billion? What the right goal?
Mr. Dinneen: I’m not sure I’ve seen a goal yet that I would say isn’t high enough.⁴⁸³

On cellulosic ethanol, too, they were effusively positive. “[T]he movement towards cellulosic ethanol is coming fast and furious. It will be commercialized far sooner than conventional wisdom suggests and those are numbers that would be achievable,” testified

⁴⁸¹ The RFA is the ethanol industry’s dominant trade organization. Over the years, though, several smaller groups have emerged as competing voices to RFA. In the late 1980s, David Hallberg, the founder of RFA, grew frustrated that its agenda had become dominated by Archer, Daniels, Midland (ADM). He left the RFA to found the American Coalition for Ethanol (ACE), which is a smaller group that represents a more grassroots perspective. In 2008, another trade organization – Growth Energy – was founded by POET, a South Dakota company that had grown to be the second largest ethanol producer after ADM. Growth Energy envisioned itself as a “new, fresh, aggressive voice,” which would push hard to expand the ethanol market by raising the blend wall and increasing E85 consumption. Sources: Personal communication 8/9/10 and 10/8/10; “Three Years of Growth Energy.” Nov 1, 2011. Growth Energy [website]. <http://www.growthenergy.org/news-media/blog/three-years-of-growth-energy/>

⁴⁸² “RFA: Bush’s 35 Billion-Gallon Vision ‘Bold.’” March 6, 2007. *Ethanol Producer Magazine* [website] <http://www.ethanolproducer.com/articles/2783/rfa-bushs-35-billion-gallon-vision-bold>

⁴⁸³ *Accelerated biofuels diversity: Hearing Before the Committee on Energy and Natural Resources, United States Senate*. 2007. 110th Congress. S. Hrg. 110-16. (Testimony of Bob Dinneen and Ken Salazar), 12.

Bob Dinneen in a May hearing.⁴⁸⁴ “3 billion gallons of cellulose by 2015, I think, is certainly realistic,” he testified in April.⁴⁸⁵

The RFA was not, then, primarily concerned about future industry expansion; indeed, it wanted to see the ethanol market continue to grow and expressed confidence in future productive capacity. Rather, its position was that the RFS was neither necessary – Samantha Slater of the RFA said in March: “[grain and gasoline] markets are just now starting to adjust ... and it’s not clear yet whether or not a more aggressive RFS will be necessary at this point in time”⁴⁸⁶ – nor sufficient to guarantee the growth of the industry.

Through the spring and early summer of 2007, the RFA continued to press for its tax and infrastructure goals rather than straightforwardly endorse the RFS. In the February Senate hearing, for example, Mr. Dinneen said that 35 billion gallons was “a very aggressive goal, but one that would be eminently achievable if the right tools are in place.”⁴⁸⁷ As for the legislation that the House had been drafting in May-June, the portion that the RFA especially supported was not the AFS per se but the supporting incentives for flex-fuel vehicles and E85 infrastructure. For example, in a June 7 hearing on the Boucher discussion draft, Bob Dinneen pointed out that: “we are already getting to the point where we are going to reach the saturation point, in terms of the existing blend market, which is why this legislation is really important, because it envisions other markets of E85, flexible fuel vehicles.”⁴⁸⁸

⁴⁸⁴ *Alternative fuels: Current status, proposals for new standards, and related infrastructure issues: Hearing before the Subcommittee on Energy and Air Quality of the Committee on Energy And Commerce, House of Representatives. 2007. 110th Congress. Serial No. 110-42. (Testimony of Bob Dinneen and Daniel Lashof).*

⁴⁸⁵ p. 50

⁴⁸⁶ Irwin, Lindsey. March 2007. “Leeway Through Legislation.” *Ethanol Producer Magazine*. [website] <http://www.ethanolproducer.com/articles/2804/leeway-through-legislation>

⁴⁸⁷ *Accelerated Biofuels Diversity* (Testimony of Bob Dinneen)

⁴⁸⁸ *Legislative Hearing on Discussion Draft* (Testimony of Bob Dinneen)

The RFA began to shift its stance in midsummer, eventually becoming a fervent advocate for the RFS.⁴⁸⁹ A Senate staffer shrugged this off in terms of bandwagoning: “Once they saw it was going to happen, they came around and got on board.” The underlying reason, though, is that the RFA became increasingly aware that the industry, which had been expanding at a breakneck speed from 2004-2006, had overbuilt its capacity. Unless an expanded RFS came through to bolster demand, they feared that the industry would undergo a disastrous contraction. The RFS essentially gave the industry a chance to lock in a 15 billion gallon market for corn ethanol.

The RFA’s advocacy during the autumn (as with all the interest groups) is difficult to conclusively trace, due to the absence of hearings and public statements. Interviews with ethanol lobbyists and Congressional staff indicate, however, that the RFA became wholeheartedly committed to passing the RFS with 15 billion gallons for corn ethanol.⁴⁹⁰ Consequently, they were willing to sign off on most of the other provisions -- including the cellulosic ethanol carve-out, the greenhouse gas thresholds, and the indirect land-use change provisions. This also meant that their legislative goals for the blend wall and E85 infrastructure fell by the wayside.

Cellulosic Ethanol Producers & Investors

In 2007, cellulosic ethanol had yet to be successfully commercialized.⁴⁹¹ There was, however, a nascent cellulosic ethanol industry, with numerous start-up companies (e.g. Iogen, Abengoa Bioenergy, Coskata, Amyris, Mascoma, Gevo, etc.) and prominent investors (most notably, venture capitalist Vinod Khosla). Trade organizations for

⁴⁸⁹ Personal communication, 10/27/11

⁴⁹⁰ Personal communication, 7/14/11; 10/27/11; 11/12/11; 3/12; 5/12/12

⁴⁹¹ For that matter, this remained true in 2012.

advanced ethanol had not yet been coherently organized, but the RFA took charge of promoting cellulosic as well as corn ethanol, and the Biotechnology Industry Organization (BIO) also advocated for advanced biofuels.⁴⁹²

This “industry” was thus composed of a diverse set of interests, representing different feedstocks, conversion technologies, and commercialization horizons. Consequently, these companies had a diverse set of legislative priorities. Mandates for flex-fuel vehicles and E85 pumps, in addition to variable VEETC rates, were strongly emphasized by Vinod Khosla in a May 2006 hearing.⁴⁹³ In contrast, DOE research funding and loan guarantees were emphasized by Abengoa, DuPont, and Iogen in a February 2007 hearing.

Notably, an expanded RFS was a minor, even a contested issue among cellulosic ethanol interests through 2006 and early 2007. Mr. Khosla had in 2006 merely included an expanded RFS (specifically, for E85) in a long list of policies that he saw as helpful but not essential for cellulosic ethanol.⁴⁹⁴ Executives from Iogen Corporation in early 2007 testified more forcefully in favor of an RFS, which they saw as providing a clear market signal that would stimulate investment in cellulosic biofuels. But companies such as Amyris and DuPont that were exploring different feedstocks (e.g. algae) or higher density fuels (e.g. biobutanol) argued that the existing policies could disadvantage their fuels, and they emphasized that any mandates should be structured around performance standards rather than volumetric- or feedstock-based standards.

⁴⁹² The Advanced Biofuels Association (ABFA) was founded in 2009, and the Advanced Ethanol Council (AEC) was founded in collaboration with the RFA in 2011.

⁴⁹³ “These three simple things can completely and forever change the face of America in a way that is hard to imagine,” he exhorted.

⁴⁹⁴ *Energy security and oil dependence: Hearing before the Committee on Foreign Relations, United States Senate*. May 16, 2006. 109th Congress. S. Hrg. 109-860. (Testimony of Vinod Khosla).

In the end, although cellulosic ethanol interests had not been aggressively or consistently pushing for an increased RFS, I believe that they were instrumental in facilitating the forward movement of the proposals. In particular, by overpromising on the speed and costs with which cellulosic ethanol could be commercialized, these actors validated the absurdly high goals that had been produced by the White House and Congress. Vinod Khosla led the charge with his irrational exuberance, testifying that cellulosic ethanol production alone could reach 39 billion gallons by 2017 and 139 billion gallons by 2027:⁴⁹⁵

Mr. Khosla: [W]e can reach not only 39 billion gallons by 2017, we can reach 139 billion gallons by 2027, and by 2017 have dollar-a-gallon cellulosic ethanol.

Senator Salazar. So, Mr. Khosla, should our renewable fuel standard this year be 199 billion gallons by the year 2027, and could we do that?

Mr. Khosla. I do not think that will be needed. I am sort of a free market kind of person and would like the least amount of subsidies and mandates. Some are absolutely essential and I have proposed those. But I do believe, once we reach some number like 50 billion gallons, it will take off on its own because it will be cheaper than petroleum.

Senator Salazar. As a goal, though, whether we get there with an RFS or some other way, you believe that by 2027 we can get to 139 billion gallons of production?

Mr. Khosla. Yes.

Slightly more restrained assessments were offered by Bob Dinneen of the RFA (“35 billion gallons of biofuels by 2017, I think, would be awfully ambitious”) and Brian Foody of Iogen (“35 billion by 2017 ... would roughly equate to something like 20 billion gallons of cellulosic ethanol by 2017. America has the tremendous capacity to do new things, but that’s a heck of a big step. It’s really aggressive.”), although both the RFA and Iogen ultimately assured the Senate that a cellulosic ethanol mandate of 3 billion gallons by 2015 was “achievable.”⁴⁹⁶

⁴⁹⁵ *Grains, canes, and automobiles: Tax incentives for alternative fuels and vehicles: Hearing Before the Committee on Finance, United States Senate.* 2007. 110th Congress. S. Hrg. 110-482. (Testimony of Vinod Khosla).

⁴⁹⁶ *Biofuels for energy security and transportation act of 2007. Hearing before the Committee on Energy and Natural Resources, United States Senate.* 2007. 110th Congress. S. Hrg. 110-81. (Testimony of Bob Dinneen and Brian Foody).

These confirmations were *not* rooted in rigorous technology assessments, complex forecasting models, or proprietary expertise. Khosla Venture’s forecasts were based on stunningly simplistic assumptions about future growth rates for biomass acreage, biomass yields, and ethanol yields.⁴⁹⁷ As for the RFA, one source explained that they were lobbyists, not scientists, trying to make predictions about an industry that doesn’t exist.⁴⁹⁸

Nevertheless, however shaky the empirical foundations, this overpromising on cellulosic ethanol technology was persuasive. There is some anecdotal evidence that it may have influenced the original White House policy-making; several staff there singled out Vinod Khosla as “very influential” and a “familiar face,” and suggested that his enthusiasm was part of what got Neel Kashkari “hepped up on biofuels.” As for Congress, Khosla had cultivated close ties with Nancy Pelosi, and numerous interviewees cited this relationship as one of the sources of his influence.⁴⁹⁹ “His approach to this issue lacked a sophisticated market or technical analysis, but was so powerful because he has the cellphone numbers of a lot of members of Congress,” explained one ethanol lobbyist. “He controlled Nancy Pelosi,” said another. “He had a direct line to Nancy Pelosi’s office,” rued a Senate staffer. “He was very persuasive.”

⁴⁹⁷ Mr. Khosla presented his chart of forecasts to the Senate in April 2007 and to a conference in April 2006. Conveniently, the conference slides are available on the Khosla Ventures website and include an embedded Excel spreadsheet with the formulas. The numbers for cellulosic ethanol production simply came from multiplying biomass acreage (acres) x biomass yields (tons/acre) x ethanol yields (gallons/ton). He assumed that (1) biomass acreage would grow from 0 to 10 million acres over 2007-2014, and then by 3 million acres/year until 2030; (2) biomass yields would grow annually at 5% from 2005-2009, 7% from 2010-2020, and 8% from 2021-2030; and (3) ethanol yields would grow annually at 4% from 2005-2010, 1% from 2011-2020, and 0% from 2021 onwards. Costs, infrastructure, etc. were not even remotely taken into consideration. www.khoslaventures.com/presentations/Biofuels.Apr2006.ppt

⁴⁹⁸ Personal communication, 10/27/11

⁴⁹⁹ Vinod Khosla himself declined to be interviewed for this dissertation.

But more generally, one gets the sense after reading through hundreds of pages of Congressional hearings that Members were genuinely trying to assess the achievability of these goals. They repeatedly asked this in hearings, and the industry consistently confirmed the goals, but in a quick way, without deep reasoning or empirical data. When I mentioned this to one cellulosic ethanol lobbyist, their response was: “Every conversation behind closed doors and in hearings, felt exactly the same as your framing. [They’d ask] can we do this? They’d get back a headshake, yeah, that’ll work.”⁵⁰⁰

The race to validate the RFS goals actually made many in the advanced ethanol industry uneasy. They recognized the uncertainties involved in large-scale technology deployment and worried about the backlash if they failed to deliver on the volumes, but they felt trapped into a dynamic of overpromising by Vinod Khosla (ironically, some of the angriest comments about Khosla came in interview with ethanol lobbyists and advocates – “Vinod starting talking too much” and started a “rush to keep up with the bullshit”; “Vinod was my worst enemy”; he was “awful” and “pushed these absurd numbers”). To balance these inflated expectations, they sought to ensure that the mandate had flexibility and that partial success would be rewarded. Thus, it was actually a consultant for a cellulosic ethanol company who developed the EPA waiver concept, engaged with Congressional staff, drafted the provisions for the legislation, and helped keep momentum on the waiver during the intense final assembly of the bill.

To summarize, the cellulosic ethanol industry helped to shape the final RFS in two ways that, ironically, opposed one another: first, by overpromising on the technology and validating the impossibly high goals for the mandate, and second, by drafting the EPA waivers that undercut the mandate. This is a fascinating outcome for a couple of

⁵⁰⁰ Personal communication, 11/12/11

reasons. On the one hand, it represents a startlingly large and direct impact, arguably greater even than that of the corn ethanol lobby. On the other hand, it also reflects the fractures and conflicts within the nascent industry; the waiver was drafted during the late stages of the House policy-making precisely to compensate for the earlier overpromising.

Environmental Groups

Environmental groups cautiously supported the 2005 RFS as a means of encouraging lower carbon fuels and displacing environmentally harmful fuel additives. However, they started to take a more overtly oppositional stance over 2005-2006 as corn ethanol production dramatically ramped up and the negative environmental impacts received more scrutiny.⁵⁰¹ An expanded RFS, especially one that included increased volumes for corn ethanol, was not at all what the environmental lobby wanted by early 2007.⁵⁰² Instead, most environmental groups advocated strongly for performance-based standards – specifically a Low-Carbon Fuel Standard (LCFS), which would encourage

⁵⁰¹ For example, whereas in 2006 the Natural Resources Defense Council (NRDC) applauded the greenhouse gas benefits of corn ethanol (“corn ethanol is providing important fossil fuel savings and greenhouse gas emissions reductions today”), within a few years it called corn ethanol a “dirty biofuel of yesterday” and warned that even “using cellulose as a feedstock is no guarantee of good environmental performance” See: Natural Resources Defense Council. 2006. “Ethanol: Energy Well Spent.” Washington, DC: Author.; Natural Resources Defense Council. 2007. “Getting Biofuels Right: Eight Steps for Reaping Real Environmental Benefits from Biofuels.” Washington, DC: Author.; Natural Resources Defense Council. 2009. “The Billion Gallon Challenge: How America Can Produce One Billion Gallons of the Best Biofuels by 2014.” Washington, DC: Author.

⁵⁰² To the contrary, the World Resources Institute wrote that: “An expanded ethanol market is likely to provide an incentive for farmers to revert to more intensively managed rotations and less sustainable management practices, which may have long-term implications for soil and water quality. The benefits gained from displacing petroleum GHG emissions are offset in part by the increased agricultural GHG emissions demonstrated here and by the energy required for producing ethanol.” Marshall, Liz and Suzie Greenhalgh. September 2006. “Beyond the RFS: The Environmental and Economic Impacts of Increased Grain Ethanol Production in the U.S.” WRI Policy Note, No. 1. Washington, DC: World Resources Institute. 5.

cellulosic biofuels as well as electric vehicles, hydrogen, and natural gas – and additional safeguards for sustainable land use and biomass sourcing.⁵⁰³

The environmental community therefore responded negatively to the initial RFS proposals in the spring and summer of 2007, citing the potential for environmental degradation.⁵⁰⁴ In April, Daniel Lashof of the NRDC testified that the 21 billion gallon carve-out for advanced biofuels was a wholly inadequate substitute for performance-based standards on greenhouse gas emissions and sustainable sourcing.⁵⁰⁵ In May, when the Senate released its RFS proposal, numerous environmental groups signed onto letter of opposition.⁵⁰⁶ In August, when the House was battling over its energy bill, NRDC's Nathanael Greene wrote that "NRDC and the other environmental groups ... have decided that we'd rather see the House do nothing on a renewable fuel standard in its energy bill than an incomplete measure." And in September, when a coalition of 22 environmental groups signed a "Dear Senator" letter outlining their energy policy preferences, not only was an RFS absent from the list, but they urged the Senate "to reject any requirement to increase biofuels production that does not include critical environmental safeguards."⁵⁰⁷

⁵⁰³ "Applying a technology-neutral "low-carbon fuel standard," rather than a technology-focused renewable fuels standard targeting increased production of today's fuels, can spur a number of technology solutions." Staley, Britt Childs and Rob Bradley. July 2008. "Plants and the Pump: Reviewing Biofuels' Impacts and Policy Recommendations." Washington, DC: World Resources Institute, 5.

⁵⁰⁴ "[T]he environmental community is ... worried about moving too fast on biofuels. The groups oppose an aggressive Senate provision that would mandate the production of 36 billion gallons of ethanol and other biofuels per year by 2022, [Friend of the Earth's Eric] Pica said, a dramatic leap from the 6 billion gallons made now. Such an accelerate pace could damage land and other natural resources." Cummings, Jeanne and Jeff Patch. June 19, 2007. "Environmentalists Rev Up Auto Pressure." *Politico* [website]

⁵⁰⁵ *Biofuels for Energy Security* (Testimony of Daniel Lashof)

⁵⁰⁶ The environmental groups wrote: "We regret our need to oppose this legislation, but it would dramatically increase biofuels production in the U.S. without also establishing the necessary safeguards to ensure this increase does not cause substantial environmental harm." Quoted in: Dempsey, "Vocal Critics Turned Silent."

⁵⁰⁷ They insisted that any final energy legislation "must include" provisions on fuel economy, renewable electricity standards, energy efficiency, renewable energy tax credits, oil and gas reform, and public land

Over the course of the later RFS2 policymaking, though, environmental groups began to shift. *Pragmatically, they recognized that while a fuel mandate was not their preferred policy, it could be a vehicle for introducing lifecycle greenhouse gas regulations.*⁵⁰⁸ This was a strategic shift that reflected the reality that a LCFS was unlikely to be instituted as a standalone regulation, due to both political unpopularity and administrative complexity, while the RFS had substantial political support.⁵⁰⁹ (As summed up by Nathanael Greene: “At the federal level, the LCFS was not politically ripe and the RFS was almost inevitable, so we decided to work to make the RFS good for biofuels and good for the environment.”⁵¹⁰)

In the end, environmental groups, particularly the NRDC, pushed for performance standards as the price of their support for the RFS.⁵¹¹ Specifically, this included: (1) greenhouse-gas thresholds for cellulosic ethanol, biodiesel, and advanced biofuels; (2) the inclusion of indirect land-use change effects within the lifecycle analysis for greenhouse gases; and (3) sustainable sourcing requirements, including that cellulosic biomass could not come from federal forest land.⁵¹² The NRDC worked closely with Nancy Pelosi’s office during late 2007, and all of these provisions were incorporated into the House’s December version of the Energy Independence and Security Act (EISA). Nathanael Greene described the environmental community’s strategy and victory as follows:

and wildlife protection. Letter available at:

<http://switchboard.nrdc.org/blogs/ngreene/media/Conference%20letterfinal--senator.pdf>

⁵⁰⁸ Personal communication, 5/9/11, 6/2/11, 11/12/11, 1/24/12, and 5/17/12

⁵⁰⁹ As one Senate staffer explained, performance-based standards made people “nervous” because nobody could be sure how they would be affected. Personal communication, 5/9/11

⁵¹⁰ Greene, Nathanael. Nov, 21 2007. “RFS vs LCFS or RFS & LCFS?” *Switchboard*. [blog]

http://switchboard.nrdc.org/blogs/ngreene/rfs_vs_lcfs_or_rfs_lcfs.html

⁵¹¹ Personal communication, 6/2/11

⁵¹² A couple of Senate staffers and ethanol lobbyists specifically said that NRDC rewrote the renewable biomass definitions in the legislation, although I have not yet confirmed this with the NRDC. Personal communication, 10/26/11 and 10/27/11

This broad coalition of [environmental] groups started working together back in January of this year and together we tried to figure out what it would take to make biofuels a sustainable source of global warming reduction. We also watched the politics behind the renewable fuel standard heat up and jointly decided that we had to try to make the RFS as good as possible. *We developed the performance standards and safeguards and won virtually all of them.*⁵¹³

And what of the 16 billion gallon carve-out for cellulosic biofuels? In interviews, several Congressional and agency staff suggested that it, too, came from environmental groups (as characterized by an OMB analyst, echoing a common view: “Cellulosic was payback to environmental groups for going along with corn”). But this was not reflected in interviews with staff from environmental groups. Although environmental groups strongly favored cellulosic over corn ethanol, the feedstock-based mandates ran counter to the fundamental point they were trying to make about greenhouse gas performance. As Daniel Lashof of the NRDC testified: “it’s possible to produce corn ethanol that has a very substantial greenhouse gas benefit or one that has no benefit at all and similarly, it’s possible for cellulosic ethanol that have very substantial greenhouse gas benefit or actually make emissions worse.”⁵¹⁴

Analysis: Interest Group Influence in the RFS2

When: Interest Groups Lagged Agenda Setting

⁵¹³ The broad environmental coalition included the American Lung Association, Climate Action Network, Defenders of Wildlife, Earthjustice, Environmental Working Group, Friends of the Earth, National Audubon Society, National Wildlife Federation, NET, Sierra Club, Union of Concerned Scientists, Western Organization of Resource Councils, and the Wilderness Society. Source: Greene, Nathanael. Dec 14, 2007. “The First Step for Congress on Climate, A Big Step for Biofuels.” *Switchboard* [blog] http://switchboard.nrdc.org/blogs/ngreene/the_first_step_for_congress_on.html (emphasis added)

⁵¹⁴ Their emphasis was so strongly on greenhouse gas performance that Lashof, in dialogue with Sen. Salazar, indicated that even coal-to-liquids might be palatable given stringent performance standards: “I don’t support modifying this bill [S. 987] to allow coal-to-liquids in, but were coal-to-liquids to be part of any kind of fuel program, if there was a performance standard that said you had to make a reduction in global warming pollution at least as large as what can be obtained through ethanol, then I think that would certainly be somewhat reassuring.” Testimony, 4-12-07, (31 and 52)

One unexpected finding of the RFS2 case study that *the attention and support of key interest groups appeared to lag, rather than lead, the initial agenda setting and policy formulation.* As one White House analyst concluded in an interview, it was “politician-driven policy, not industry-driven policy.” As described above, neither the ethanol industry nor environmental groups were advocating for a revised RFS2 prior to early 2007. In fact, both groups even seemed somewhat surprised when the RFS2 suddenly appeared on the agenda. As Nathanael Greene of the Natural Resources Defense Council (NRDC) explained:

Even just 6 months ago, everyone in the [ethanol] industry and outside assumed that we were about a decade before the industry would get to where it now looks like will be in as little as 3 years. As a result, no one was calling for a new renewable fuel standard, and as far as I can tell, everyone was surprised when it became clear a few months ago that the Senate was going to move an RFS if it moves anything on energy. (Greene 2007)

Only after the announcement of the AFS plan, and the Senate’s subsequent pick-up of blending mandates, did interest groups – including ethanol refiners, corn growers, environmental groups, oil companies, ranchers and poultry producers, grocery manufacturers, and the paper and pulp industry– devote considerable attention to the issue. From that point onwards, the ethanol, environmental, and investor communities in particular had a prominent hand in legitimizing the goals, providing political support, and/or pushing for environmental safeguards. But none of these groups were advocating for a revised RFS before President Bush’s 2007 State of the Union speech. Their stance was reactive, not proactive. Their support was conditional, premised on the calculation that this would likely be the primary avenue of energy legislation for the year.

How: Information Provision and Goal Legitimation

One of the key ways in which interest groups exerted some influence over the policymaking was in validating the politically-derived volumetric goals. In early hearings, Senators and Representatives repeatedly asked about their achievability. The 35 billion gallon goal had already been set by the White House proposal, though not backed up by any data or models, and it seemed as though Congress was earnestly trying to figure out whether those volumes made sense. And indeed, industry actors repeatedly assured Congress that the goals were achievable, even though they had no empirical basis for those assurances. I described this dynamic to one cellulosic ethanol lobbyist, who concurred: “Every conversation behind closed doors and in hearings felt exactly the same as your framing – [They’d ask] can we do this? They’d get back a headshake, yeah, that’ll work.”

This goal-validating, information-providing role for interest groups is interesting in two ways. First, it pushes back on the conventional wisdom that decision-makers are awash in information, that “policy-relevant information is abundant, perhaps embarrassingly rich, on Capital Hill” (Hall 1996, 90) and that “there is so much information in the U.S. political system that winnowing through it is more of a problem than finding it” (Jones and Baumgartner 2005, viii). The RFS2 case reminds that adequate information is not given, particularly for emerging technologies, where much of the advanced knowledge is proprietary. Moreover, even when governmental agencies are able to offer their assessments, they may be discounted as not having the most reliable information (several interviewees scoffed when I brought up the EIA scenarios for cellulosic ethanol, suggesting that they were overly conservative and not based on technology assessments).

Second, ironically, while this case suggests that “information matters,” and that industry commands attention in part because they have the greatest technological expertise, the quality of information provided by industry was actually very low. As discussed earlier, there was a striking lack of empirical evidence or rigorous modeling (consistent with Burstein and Hirsch’s analysis of the information presented in Congressional testimony⁵¹⁵). Industry representatives mostly offered broad assurances and encouraging anecdotes about pilot plants.⁵¹⁶ There was a lot of optimistic talk about commercialization timelines – almost always starting in five years, i.e., 2012 – but rarely any articulation of how that translated to fuel volumes. Don Endres of VeraSun was one industry witness who did try to connect these two mismatched metrics, and his testimony was illustrative of the round number “guesstimating” that was going on within the ethanol industry⁵¹⁷:

I think in the next 24 months we will see successful pilots producing cellulosic ethanol, so kind of 2008 and 2009 will be piloting years. And then I think we start construction, so I think within the next 5 years you will see commercial-scale facilities running. I am just estimating today maybe there are ten companies that get there, and I think those first plants will be –you know, and this is all just guesstimating—25 to 50 million gallon facilities to start off with, again, thinking back in the way the ethanol industry has developed. So that gets you in the 250 million to 500 million gallons per year operating.⁵¹⁸

In short, industry actors appeared to have played a critical role in legitimating the RFS2 goals. Though they provided little actual data, their opinions were valued because they were assumed to have proprietary knowledge about emerging cellulosic fuel technologies,

⁵¹⁵ Burstein, Paul and C. Elizabeth Hirsch. 2007. “Interest Organizations, Information, and Policy Innovation in the U.S. Congress.” *Sociological Forum* 22(2): 174-199.

⁵¹⁶ I have tracked down the press releases from many of these advanced ethanol companies. It is interesting to note that the press releases regarding pilot plants are largely clustered in two pulses –February/March and November/December – when the Senate and House bills were respectively being assembled.

⁵¹⁷ Contrast this with the EPA’s most current estimates for 2011 cellulosic ethanol production: only five *demonstration* plants, maximum capacities from 250,000 to 4 million gallons/year, and with most plants running at less than 50% capacity.

⁵¹⁸ “The Next Generation of Biofuels,” 2007.

and Congress sought their assurances about achievable volumes of renewable fuels.

Were these assurances decisive? Necessary? The counterfactuals are, of course, difficult to construct. But it is clear from interviews with both lobbyists and aides that no one put much stock in the EIA's projections. And it is plausible that, had no one stepped up and validated the 35 billion gallon goal, it would have been considerably more difficult for Congress to move ahead.

Who: Surprising Role of Venture Capitalists

In the RFS2 case, three types of interest groups seem to have exerted some influence: the ethanol industry, environmental groups, and venture capitalists. That the RFA and the NRDC had some influence in the arena of biofuels policy is unsurprising (although the NRDC's sway within the House was greater than one might expect⁵¹⁹). But the influence of the venture capital community, in particular Vinod Khosla, came as a surprise. In interviews with both White House and Congressional staff, when I asked about influential experts and analyses, his name was almost always the first on the list. He was consistently described in superlative terms as "very influential," "all over the Hill," "very proactive," "very persuasive," and "very charismatic."

He was also resentfully described by many interviewees as "awful," "arrogant," or a "venture lobbyist." As one Senate aide explained, "Members of Congress love him, [but] no staff can stand to be in a room with him." In part, this resentment came from the way he operated, bypassing the staff and going directly to members (a Senate aide described him as having a direct line to Nancy Pelosi; an ethanol lobbyist said that "He

⁵¹⁹ One Senate aide related that Nathanael Greene of the NRDC was in Nancy Pelosi's office at the end, when even Senate staff were not allowed.

controlled Nancy Pelosi”); and another ethanol lobbyist explained that “he was so powerful because he has the cellphone numbers of a lot of members of Congress”). The resentment was also rooted in the perception that he dangerously overpromised on cellulosic ethanol. Even the ethanol industry was concerned about his claims; one ethanol lobbyist said that Khosla’s claims “made us nervous,” while another said that, ironically, Khosla “was my worst enemy” and that he “lacked a sophisticated market or technical analysis”.

The scholarly literature has yet to study U.S. investors as an interest group or a key information source to policymakers⁵²⁰. But the weight of their influence is a compelling story. It essentially represents an outsourcing of policy analysis and technology assessment, under the assumptions that investors have to conduct due diligence, have developed specific technological expertise, and have access to proprietary knowledge. These may in fact be reasonable assumptions. But there is reason to be concerned about a blind faith that “industry knows best,” when their expertise is derived from non-neutral economic interests.⁵²¹

⁵²⁰ Although there is some literature on foreign investors as an influential group in developing countries, as well as some that considers investor’s input into investment protection legislation.

⁵²¹ Eden, Sally. 1999. “‘We Have the Facts’ – How Business Claims Legitimacy in the Environmental Debate.” *Environment and Planning A* 31(7): 1295-1309 .x

CHAPTER 7: CONCLUSION

“The most predictable elements of federal energy policy since the 1970s are inconsistency and unpredictability.”

-- Walter Rosenbaum⁵²²

This dissertation examined how “crash programs” for alternative fuels emerged and evolved in the wake of energy crises in the 1970s and the early 2000s. Its principal theoretical contribution is the model of “politician-driven policy-making” that was presented in Chapter 2, in which a competition between Congress and the White House to show leadership in a crisis can lead to massive programs that no one really wanted. These are the ‘major policies without major advocates’ that initially constituted an empirical puzzle.

In this concluding chapter, I widen the scope of analysis. Whereas the theoretical model identifies a specific sequence of decision-making, here I explore ten broader lessons about alternative energy policy-making that grow out of these case studies. These points are organized thematically as follows: Points 1-3 relate to the rise and fall of overly ambitious technology policies. Points 4-5 address patterns of policy formulation. Points 6-7 pertain to interest group influence. Points 8-10 delve into basic assumptions about the role of interests, information, and individuals in the policy-making process.

The Rise and Fall of Crash Programs

The first lesson from these case studies is that *large-scale government programs may be driven by a rush to “do something, anything,” not by particularistic rent-seeking.* The President and Congress, perceiving an imminent energy crisis, wanted a dramatic

⁵²² Rosenbaum, Walter. 1987. *Energy, Politics, and Public Policy* [2nd Ed]. Washington, DC: Congressional Quarterly Press, 17.

program to demonstrate their decisive action. They grasped for the nearest technological fix. As one of Carter's energy advisors told me, "We didn't pick synfuels. It was just what was on the table." The policy-makers may not even care whether the energy supply solution comes from corn, biomass, coal, natural gas, or nuclear. In fact, far from trying to pick winners, in all three cases the White House first sought to keep their program fuel agnostic. Although the EIA and SFC became focused on synfuels, the original proposals were open to funding a wide range of energy technologies. Although the RFS2 became narrowed to ethanol, particularly cellulosic ethanol, the White House had tried to push an Alternative Fuel Standard. The specific focus of these massive commercialization programs was thus to a large extent incidental; when forced to articulate a vision for future energy development, they just reached for the solutions that most seemed at hand.

Second, *policy-makers tend to take innovation for granted, when, in fact, energy technology development is incredibly challenging.* Part of what emboldens these crash programs is a sense that alternative fuel development can be readily accelerated by government policy. In interviews with some Carter administration staff from the 1970s, this stance was expressed in terms of the energy problem just being a matter of setting the right incentives. In interviews with White House staff from the 2000s, it took the colloquial form of "our ambitions define our achievements." Though pervasive, this optimism was unwarranted. Energy technology commercialization is actually very difficult. Energy supply intersects with all kinds of systems: commodity markets, transportation infrastructure, consumer preferences, and interoperability standards. New technology entrants cannot be easily mandated or prodded with a little extra financing. The underestimation of challenges was a serious weakness of government programs.

Third, a related point is that the *ambitious commercialization programs may be especially set up for failure*. Arguably, the policy initiatives that were most successful in advancing innovation, demonstration, and early deployment were the ones that began modestly, such as the research funding through the Office of Coal Research in the 1960s and the ethanol tax credits started in the late 1970s. In contrast, the most ambitious programs, such as the synfuels goals in the SFC and the cellulosic carve-out in the RFS2, failed to catalyze the commercial development of these fuels. There are several reasons for the poor performance of these “crash” programs. The SFC case showed that costly programs quickly become targets for budget cuts. The RFS case showed that infeasibly aggressive goals invite the creation of loopholes and waiver provisions. Furthermore, overly rosy technology forecasts mean that programs may not be designed to address structural roadblocks to commercialization, such as feedstock supply or fuel distribution infrastructure. The bottom line is that “[p]rograms announced by politicians in the heat of a crisis are likely to be too ambitious and exceed the capacity of the government or the private sector to accomplish objectives.”⁵²³

Policy Formulation

The fourth broad lesson from these cases is that they richly illustrate the *contingent evolution of policy proposals*. These “crash programs” are outcomes that no one actually wanted in the first place. They can only be explained as the product of dynamic negotiation and path-dependent policy adjustments. For public policy scholars, this implies that if we want to understand the substance of radical policy change – as

⁵²³ Marcus, Alfred A. 1992. *Controversial Issues in Energy Policy*. Thousand Oaks, CA: Sage Publications, 101.

opposed to just the timing – then we need to be attentive to the historical contingencies, scientific uncertainties, information asymmetries, and strategic compromises involved in political decision-making. Or in even plainer language: to explain specific outcomes, we need to consider specific causes.

Although I am certainly not the first to draw attention to this, many public policy scholars studiously ignore this insight. In reviewing recent articles on policy change in the top political science and sociology journals, Paul Burstein found that most employed macro-level variables at one snapshot in time (e.g. party balance or GDP) rather than issue-specific, time-sensitive, or group-oriented variables. He concludes that this represents a “strange state” for policy change research, in which “[a]lmost no attention is paid to public opinion or peoples’ efforts directed at changing particular policies, while a great deal of attention is devoted to independent variables that cannot possibly be proximate causes of policy change.”⁵²⁴ The basic roots of this pattern is explained by Michael Howlett: “for many years most social scientists and policy scholars have searched for a set of deterministic factors (independent variables/effects) which lead to specific policy outcomes (dependent variables/effects).”⁵²⁵

The fifth lesson is that *policy choices are influenced by the current ideas in the policy stream*. Over time, there were enormous shifts in the policy instruments and governmental role that were considered effective. In the 1940s-1960s, most of the alternative energy programs involved government funded R&D, sometimes in

⁵²⁴ Burstein, Paul. 2011. “How Our Understanding of Policy Change is Affected by the Measurement of Public Policy, Hypothetical Determinants of Change, and the Relationship Between Them.” Paper presented at the American Political Science Association Annual Conference, Seattle, WA. Available online: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1901006.

⁵²⁵ Howlett, Michael E. 2009. “Process Sequencing Policy Dynamics: Beyond Homeostasis and Path Dependency.” *Journal of Public Policy*. 29(3): 242.

government labs and sometimes in industry labs. In the 1970s, there was a shift to quasi-governmental corporations like the EIA and SFC, which would provide financing to industry and possibly keep an equity stake in firms. After a backlash in the 1980s, however, there was a shift towards market-oriented mechanisms in the 1990s and 2000s. Fuels mandates, while a command-and-control regulation, reflected this market orientation insofar as they sought to incentivize the market to find the cheapest and fastest way to reach a societal goal.

Interest Group Influence

Sixth, *influence between interest groups and politicians flows in both directions.* “There is a widespread view that government is manipulated by the energy industries,” wrote Martin Greenberger, stating the conventional wisdom.⁵²⁶ The implication is that powerful interest group influence is a root source of seemingly irrational or inefficient policy outcomes. Even this research project began with this conventional wisdom as a starting point.⁵²⁷ However, what emerged was evidence that much of the interest group lobbying on alternative fuels lagged the legislative proposals, and interest groups sometimes publicly supported proposals that they privately did not favor. In addition, we see that White House and Congressional staff would meet with business and labor groups (and to a lesser extent, environmental groups) to solicit their endorsements for controversial policies. There was, then, a two-way channel of influence.

⁵²⁶ Greenberger, Martin. 1983. *Caught Unawares: The Energy Decade in Retrospect*. Cambridge, MA: Ballinger.

⁵²⁷ A summary statement from my prospectus announcement read: “This dissertation will ... explore how interest groups use discursive and informational strategies to sway policy.”

Seventh, *one of the subtle but powerful ways in which interest groups can influence these policies is to validate the technological goals, however infeasible.* This was seen most prominently in the case of the RFS2, in which Vinod Khosla's overhyping of cellulosic biofuels validated the over-ambitious goals. But, I think, this was also partially at work in the case of the SFC, in which oil companies tried to deflect government involvement in synfuels commercialization by insisting that they could achieve it on their own.

Basic Assumptions: Interests, Information, and Individuals

Eighth, these cases exhort us to *not take interests for granted.* Explaining interest group politics is not as simple as drawing static battle lines derived from material interests: oil wants X, environmentalists wants Y, and so forth. The ways in which industry, labor, and environmental groups conceived of their interests vis-à-vis alternative fuels varied considerably over time, and it did not always correspond to conventional expectations. To take a couple of examples: in the 1970s, coal companies were surprisingly wary of large-scale synfuels development, while environmental groups, though not supporting "forced commercialization," did voice support for synfuels R&D. In 2007, ethanol companies had initial reservations about the RFS2, and the EPA waiver provision that gutted the cellulosic mandate was drawn up by someone from the advanced biofuels industry. Far from being reliably static, interests and policy preferences are dynamic. In fact, the formation and evolution of groups' preferences is an important element of the politics. As Cornelia Woll summarized in her book on business lobbying on trade: "Firms do not always know what they want from trade negotiations.

Business contacts with governments regarding trade policy are as much about defining preferences as they are about influencing the stance defended by negotiations.”⁵²⁸

Ninth, these cases are a reminder to *not take information for granted*. It is accepted within much of the policy process literature that policymakers are inundated with information, such that sorting through and processing it is the real challenge. However, as these case studies illustrate, policymakers do not always have reliable data on emerging technologies. Partly this may be due to information asymmetries between industry and government. Partly it is due to the fact that as-yet-uncommercialized technologies are inherently difficult to forecast. The risk is that, as one environmental advocate told me in an interview, “in the absence of good data, anecdote rules.”

Tenth, these case studies suggest that *individuals matter in policy formulation*. Most studies of policy change look at the impact of groups – interest groups, advocacy coalitions, and epistemic communities. But these case studies remind us that government offices are made up of individuals, whose expertise, beliefs, and relationships can affect the course of policy-making. It is impossible to tell the story of the EIA proposal without the driving force of Nelson Rockefeller. It is impossible to account for the specific goals of the RFS2 without the economic ideas of Ben Ho, the analyses and advocacy of Neel Kashkari, the technological over-promising of Vinod Khosla, and the insertion of a waiver clause by a worried ethanol lobbyist. In the future, I hope that public policy scholars better integrate the macro- and the micro-foundations of policy change.

⁵²⁸ Woll, Cornelia. 2008. *Firm Interests: How Governments Shape Business Lobbying on Global Trade*. Ithaca, NY: Cornell University Press, xi.

Conclusion

These ten points represent the big picture lessons from this study of large-scale alternative fuel initiatives. Taken together, they tell a story of crisis policy-making that significantly departs from our typical understanding of policy change. It is not a story of strategic policy entrepreneurs or scheming interest groups. Rather, it is a story of political grandstanding and jostling for control, hasty searches for technological solutions, young aides making up numbers, interest groups scrambling to shoot down turkeys, adaptation and appeasement, side-deals and signing-on. These scrappy dynamics rarely come through in the political science literature on policy change. But they are evident in conversations with practitioners, who often recollect these experiences with a knowing chuckle:

“Some [policies] cannot be explained easily.”

- former Congressional staffer.⁵²⁹

“Sometimes policies are just a compromise, not the result of someone’s vision.”

- former synfuels lobbyist.⁵³⁰

“**No one has the courage to say we didn’t know what the hell we were doing.**”

- former energy bureaucrat.⁵³¹

⁵²⁹ Personal communication, 3/8/12

⁵³⁰ Personal communication, 2/23/12

⁵³¹ Personal communication, 1/24/12

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