

Regulatory Rulemaking To Implement Congressional Legislation

**Lessons from the Powerplant and
Industrial Fuel Use Act of 1978**

Frank Camm

35th
Year

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Regulatory Rulemaking To Implement Congressional Legislation

Lessons from the Powerplant and Industrial Fuel Use Act of 1978

Frank Camm

May 1983

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U.S. Department of Energy

35th
Year



PREFACE

This report is one product of a Rand study, supervised by Thomas K. Glennan, Jr., of the regulatory rulemaking process in the U.S. Department of Energy. The study was especially concerned with the way in which regulatory rulemaking is managed and with whether certain institutional changes might improve that process. The report presents one of several case studies conducted as part of the larger study.

The author addresses the regulatory rulemakings undertaken to implement the Powerplant and Industrial Fuel Use Act of 1978 (FUA), which formed a cornerstone of President Jimmy Carter's energy policy. The FUA rulemakings were conducted as model rulemakings and received special attention from groups concerned with the use of formal analysis to improve regulation. This report uses the FUA rulemakings as a case study with which to examine three fundamental issues of policy implementation in general:

- How does an agency transform Congressional intent into viable and effective concrete policies?
- What role can formal analysis play in designing such policies?
- What budgeting concepts can be used to control and manage the regulatory rulemaking process?

For reasons explained in the text, the FUA rulemakings are an especially attractive place in which to examine such questions. While the report addresses these questions in a specific context, it suggests lessons that could be important to anyone faced with the problem of *changing* regulation—in whatever direction. These issues are at least as important today as they were at the time of the FUA rulemakings. The report is intended primarily for those charged with implementing changes in existing regulations, and for anyone concerned with such implementation issues.

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SUMMARY

Following the Arab oil embargo of 1973-74, support grew rapidly in the United States to replace imported oil with domestic coal wherever possible. Many believed this would not occur fast enough without formal government programs to promote "fuel-switching"—switching from oil to coal. The Powerplant and Industrial Fuel Use Act of 1978 (FUA) grew out of this public desire to mandate fuel-switching at the federal level. This report describes the U.S. Department of Energy's (DOE's) efforts during the Carter Administration to fashion a coherent and effective federal fuel-switching program in the FUA rulemakings. These rulemakings were exceptional in many ways, and the lessons that emerged from them should make future rulemaking easier, whether to implement regulation or deregulation.

PROCEDURES USED IN THE RULEMAKINGS

DOE's Economic Regulatory Administration (ERA) ran the rulemakings through its Coal and Alternative Fuels Regulations Division ("Regulations Division"). It was assisted by other offices in ERA, the General Counsel (GC), the Policy and Evaluation Office (PE), and a number of other offices throughout DOE. The Environmental Protection Agency and the Federal Energy Regulatory Commission also played roles in some rulemakings.

The Regulations Division faced four serious problems in undertaking the rulemakings:

- Tight deadlines under which to address complex legislation;
- A small staff;
- Little in-house expertise on fuel-switching issues raised in the legislation; and
- Sharp differences within DOE on how to proceed.

Knowing that these problems could be overcome only through a long and sustained effort, the Regulations Division started working on regulations before the legislation was actually passed. It organized a working group of representatives from offices in DOE interested in the rulemakings. It broke the rulemakings down into about sixty issues and addressed them in turn. It gathered information from those offices participating in the working group and from public comment

on proposed rules developed by the group. Over time, the working group developed a fairly sophisticated understanding of the issues that promoted consensus within the group.

This approach allowed the rulemaking to proceed within its tight time and resource constraints but it also raised problems. The most serious was probably a lack of control over information. The working group had no resources for in-house analysis and hence had to take an essentially passive role in accepting information from outside sources. Participants agree that this contributed to a very poor reception of the group's first proposed rules, which in several places reflected the group's lack of knowledge. They also agree that the working group gave greater credence to analysis developed by participants in the working group than to "outside" analysts. There is less agreement on whether formal in-house analytic capability would have helped later in the rulemaking or even substantively changed the final rules that emerged. Although the rulemakings entailed a great deal of time and effort, participants doubt that a more formally directed effort would adequately have represented the strong divergences of views among offices interested in the rulemakings.

BASIC DECISIONS IN THE RULEMAKINGS

During the Carter Administration, the rulemakings addressed five basic questions:

- What was Congress's intent under FUA?
- What technique should be used to compare oil and coal costs?
- How much more could coal cost than oil and still be preferred?
- Should public interest exemptions be used to encourage gas use?
- What was FUA's role following the world oil price increases of 1979?

GC maintained that Congressional intent was a formal legal concept: Anything DOE did that could be supported in a court of law could be considered consistent with Congressional intent. If DOE were willing to take chances in court, it could effectively expand its authority to make decisions. On Secretary of Energy Schlesinger's explicit instructions, ERA wrote the initial rules to make FUA as tough as possible and prepared for the suits that would inevitably come. Every major rule was challenged in court.

To compare oil and coal costs, ERA considered two alternatives. A

"ratio test" looked at the ratio of private costs of using coal and oil. A "direct increment" test raised the price of oil by a per-barrel dollar amount called a "direct increment" to reflect externalities associated with its use and the faster rate at which its price was expected to rise relative to coal prices. It then used the difference in the net present value of oil and coal costs calculated using this adjusted oil price. The ratio test was chosen initially, primarily because ERA officials thought it was simpler. It failed in court, however—DOE could not justify its use—and the direct increment test was substituted. Ultimately, ERA officials came to believe that the similarity of the direct increment test to corporate financial methods made it the simpler test in application.

In asking how much more coal could cost than oil before oil would be preferred, DOE had to decide whether it was more concerned about achieving (a) a given predetermined level of fuel-switching or (b) the level of fuel-switching consistent with the level of externalities that analysts associated with the use of oil. The evidence is not clear, but whenever it came to a clear choice, option (a) appears to have prevailed. Early in the rulemakings, policymakers wanted more fuel-switching than analysts could justify on the basis of externalities; later they wanted less. And the policymakers prevailed. They appear to have set the level of the direct increment to achieve the level of fuel-switching they wanted.

Growing availability of natural gas made available by the Natural Gas Policy Act and growing concern about dependence on foreign oil following the Iranian revolution suggested a simple policy decision: Use FUA to encourage oil consumers who could switch to gas to do so. Unfortunately, Congress clearly wrote FUA to accelerate switching from gas to coal even faster than switching from oil to coal. Encouraging switching from oil to gas appeared to violate clear Congressional intent. DOE officials reasoned that if Congress could have foreseen the situation existing in 1979, they would have written FUA differently; hence, they actively applied public interest exemptions to encourage switching from oil to gas. Their decision held up in court.

Rapidly rising world oil prices following the Iranian revolution in 1979 made voluntary fuel-switching from oil to coal much more attractive. New analysis suggested that FUA would have only a marginal effect on fuel-switching with these new prices. Was it necessary to continue the tough enforcement of FUA originally advocated by Secretary Schlesinger? Those who replaced the Schlesinger team in August 1979 concluded that it was not. ERA began the process of reducing the regulatory burden imposed by FUA, a process that continued until the Carter Administration left office. It continued under the Reagan Administration as well.

LESSONS FOR FUTURE RULEMAKINGS

One of the most distinct features of the FUA rulemakings is that their effectiveness grew substantially as they proceeded and participants in the rulemaking process learned from the process. The FUA rulemakings also have lessons for future rulemakers, whether they seek to introduce new regulations or to remove old ones.

Any DOE rulemaking must begin by establishing DOE's authority to act. Congress traditionally writes relatively vague enabling legislation in that regard, leaving the responsibility for execution—and the political costs associated with execution—to the responsible agency. In the case of FUA, Congress provided little guidance on whether fuel-switching should be viewed as an end in itself or whether it should be tempered—for example, by cost-benefit analysis—with concern for broader but vaguer goals like general social welfare. This choice must be made before formal analysis, such as cost-benefit analysis, can be applied in a way that actually affects decisions.

Formal analysis will affect decisions only if the decisionmaking office—in our case, ERA—has some control over it. The logical place for ERA to turn for analysis, the Energy Information Administration, supplied analyses that ERA ultimately used only to fulfill procedural requirements. It had much greater faith in information from PE and DOE's line offices involved in the rulemakings.

The decision not to maintain analytic capability within the Regulations Division may have hampered ERA's use of the information it had. Most of ERA's information came from public comment or from analysis offered by participating offices. Formal analysis within the Regulations Division could never hope to replace such information. It could, however, help ERA put the information in perspective, understand its likely biases, draw additional insights from it, and actively seek information that was unlikely to be provided through this basically passive policy. Analysis could do this, of course, only if the Regulations Division firmly controlled its execution and use. Without such control, however, the Regulations Division—or any other responsible office—would lose much of its incentive to allow the analysis to affect its decisions.

Controlling regulatory rulemaking within a formal budgetary system like the Planning, Programming and Budgeting System (PPBS) is a tricky business. It is generally accepted that the most important costs (and benefits) of regulation are off-budget in the private sector. The FUA rulemakings were no exception. In addition, however, they illustrate that using a working group approach to rulemaking—which most of the participants believed was appropriate—takes most of the in-house costs off-budget as well. Most of the resources committed

within DOE to the rulemaking fell outside the Regulations Division, whose budget would most likely be associated with the rulemaking in a budget system like PPBS.

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CONTENTS

PREFACE	iii
SUMMARY	v
ACKNOWLEDGMENTS	xi
FIGURE AND TABLES	xv
ABBREVIATIONS	xvii
Section	
I. INTRODUCTION	1
II. NATIONAL FUEL-SWITCHING POLICY:	
RATIONALES FOR ACTION	5
Benefits of Reducing Imports of Oil	6
Existing Pricing Regulations	7
Alterations in Environmental Standards	8
Cheap Capital for Utilities	9
Transforming Rationales into Action	10
III. NATIONAL FUEL-SWITCHING POLICY:	
LEGISLATIVE PROPOSALS	12
Energy Supply and Environmental Coordination Act	
of 1974 (ESECA)	12
Coal Utilization Act and National Energy Plan	15
Powerplant and Industrial Fuel Use Act of 1978	
(FUA)	17
Powerplant Petroleum and Natural Gas Displacement	
Act	22
Summary	25
IV. ORGANIZATIONAL ENVIRONMENT OF THE	
RULEMAKINGS IN DOE	26
Economic Regulatory Administration (ERA)	26
General Counsel (GC)	28
Policy and Evaluation (PE)	29
Other Offices	30
Summary	32
V. PROCEDURES USED IN THE FUA RULEMAKINGS ...	33
The Procedure Used	33

How the Procedure Used Treated DOE's Basic Problems	38
The Role of Budgeting	49
Summary	49
VI. DOE'S BASIC DECISIONS IN THE FUA	
RULEMAKINGS	51
The Definition of Congressional Intent	51
The Measurement of "Substantially Exceed"	53
The Level at Which Costs "Substantially Exceed"	56
The "Special Rule" Under the Public Interest Exemption	60
A Revision of FUA's Central Focus	62
Summary	65
VII. FUA'S RELEVANCE TO FUTURE REGULATORY	
RULEMAKING	67
The Administration's Authority to Act	67
Information and Decisionmaking	68
Budgetary Issues	72
Closing Comments	74
BIBLIOGRAPHY	77

FIGURE

1. How Oil and Gas Consumption Fall as Cost Ratio Rises . 58

TABLES

1. Exemptions Under FUA 21
2. Dates of Principal Rulemaking Events During the Carter
Administration as Recorded in the *Federal Register* 35

ABBREVIATIONS

BNA	Bureau of National Affairs
CBO	Congressional Budget Office
CHP	combined heat and power or cogeneration
COWPS	Council on Wage and Price Stability
CWIP	Construction-work-in-progress
DOE	Department of Energy
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EPCA	Energy Policy and Conservation Act
ERA	Economic Regulatory Administration
ESECA	Energy Supply and Environmental Coordination Act
FEA	Federal Energy Administration
FERC	Federal Energy Regulatory Commission
FPC	Federal Power Commission
FUA	Powerplant and Industrial Fuel Use Act
GC	Office of the General Counsel (DOE)
MEFS	Midterm Energy Forecasting System
MFBI	major fuel-burning installation
NEA	National Energy Act
NEP	National Energy Plan
NEPCO	New England Power Company
NESS	National Energy Strategy Study
NGPA	Natural Gas Policy Act
NOI	notice of intent
NOPR	notice of proposed rulemaking and public hearing
PE	Office of Policy and Evaluation (DOE)
PPBS	Planning, Programming and Budgeting System
PUC	Public Utilities Commission
PURPA	Public Utility Regulatory Policy Act
RARG	Regulatory Analysis Review Group
SRC	Senior Review Committee

I. INTRODUCTION

In the 1977 National Energy Plan, the Carter Administration spoke of fuel-switching—and coal conversion in particular—as a cornerstone of our national energy policy, the principal object being to reduce our dependence on imported oil. To promote conversion to coal, the Administration recommended taxes on oil and gas, in a package with other proposals that became the Energy Tax Act of 1978, and mandated reductions in oil and gas use by industry and utilities, in proposals that became the Powerplant and Industrial Fuel Use Act of 1978 (FUA). Mandated switching was seen as a backup policy to the energy taxes. When Congress rejected the Administration's oil and gas taxes, mandated switching became the basis for national fuel-switching policy. This report describes the U.S. Department of Energy's (DOE's) efforts, during the Carter Administration, to fashion a coherent and effective federal fuel-switching program in the FUA rulemakings. The report serves two major purposes: It is a basic reference document on the FUA rulemakings and, building on this basic documentation, it uses the concrete case of the FUA rulemakings to identify several important general issues that recur in the implementation of regulatory policy.

The FUA rulemakings were meant to enact a fundamental element of President Carter's energy policy. They were also the first DOE rulemakings to use a formal regulatory analysis under Executive Order No. 12044, and to draw a review from the Regulatory Analysis Review Group (RARG) at the White House. Probably for similar reasons, and because of their number and complexity—over thirty rulemakings in all—officials in DOE's Economic Regulatory Administration (ERA) and Office of Policy and Evaluation (PE) decided to make them "model" rulemakings. Explaining how this key set of rulemakings proceeded, then, is the report's first purpose.

To understand why the rulemakings proceeded as they did, we must understand not only FUA and the rules considered to implement it, but the environment within which the rules were written. FUA was only one of several proposals for promoting fuel-switching that had been considered at various times. Many of the procedures used to write the FUA rules, and many of the rules themselves, reflect the failure of earlier attempts to effect fuel-switching. We cannot understand the FUA rules without first understanding why DOE officials believed earlier attempts had failed. Further, once started, the FUA

rulemakings did not proceed in a static setting. The rulemakings began in July 1978. In 1979, the rapid rise in world oil prices relative to coal prices dramatically weakened the rationale for government action to encourage substitution away from oil. And a complete change in the leadership of DOE in August 1979 ultimately changed the Department's view of mandatory fuel-switching. We cannot hope to make sense of the FUA rules without first sorting out the effects that these changes in world prices and DOE personnel had on the FUA rulemaking process. We can then use this description of events, motivations, and response to change in pursuing the report's second major goal. The report uses the concrete case of the FUA rulemakings to examine three important policy implementation issues.

First, given the language in a new piece of legislation, its legislative history, and the politics of the issue it addresses, what specific policy should an agency like DOE pursue in the rules it writes to implement the legislation? The FUA rulemakings offer a special opportunity to address this question. Though many groups advocated mandatory fuel-switching before, during, and after the rulemakings, there was little agreement on why it was important and why the government should take action; the rationale being vague, the Congress accordingly passed a series of vague laws calling for fuel-switching that DOE and its predecessor, the Federal Energy Administration (FEA), found extremely difficult to transform into effective policy. Every attempt to design a concrete policy brought the politics of fuel-switching into the rulemaking process itself. The FUA rulemakings were particularly politicized by the Administration's decision to promote policies in the rulemakings that it had failed to sell in Congress during the Congressional design of FUA itself. The politicization of fuel-switching in general and FUA in particular enervated repeated federal attempts to produce effective policy until world events—the Iranian revolution and rapidly rising oil prices—ultimately removed the principal justifications for federal action. The FUA rulemakings allow us to examine the effects of this divisive politicization and ask how it might be avoided in future rulemakings.

Second, what should be the role of formal analysis in regulatory rulemaking? Even successful rulemakings will be politicized; how does formal analysis accommodate the politics of an issue? What is the role of analysis relative to other sources of information and external evaluation and criticism in a rulemaking? As models, the FUA rulemakings offer us a special opportunity to see what analysis contributed when rulemakers especially wanted to "do the job right." As the first DOE rulemakings conducted under Executive Order No. 12044 and the first to undergo an RARG review, they also offer the first actual products of regulatory reform aimed at encouraging analy-

sis in DOE. In fact, formal analysis played a relatively small role in the FUA rulemakings, and much of the analysis used was not generated by or overseen by the rulemakers themselves. Why? What opportunities did the rulemakers forgo?

Third, how can budgeting concepts be used to manage regulatory rulemaking? Budgetary concepts like those in a Planning, Programming and Budgeting System (PPBS) provide control and accountability for activities whose principal effects fall within an agency. Are they useful in regulatory rulemaking where the principal effects should occur outside the agency in the private sector? The problems of control and efficient management were especially important in a set of over thirty complex rulemakings. DOE officials' view of the FUA undertaking as a model rulemaking adds interest to the management choices actually made in this case. The specific procedures chosen were in fact driven very strongly by management concerns about time and resource constraints. Formal budgeting per se, however, played a relatively small part in the rulemakers' decisions. They recognized that the regulations' principal effects would fall outside DOE and were not especially susceptible to examination in a budgeting context. Should we expect other rulemakings to be different?

The world has changed a great deal since the Carter Administration began to write rules to implement a federally mandated fuel-switching policy in 1978. The need to understand rulemaking has not. Although federal interest in regulation has turned to "deregulation," the need to write rules remains. Only if we embrace the status quo can we avoid this integral part of the regulatory policy process. Regulatory (or deregulatory) policy remains as political and potentially divisive as ever. How does one transform the carefully crafted—and vaguely worded—compromises of Congress into concrete actions that can stand the political heat? What role can formal analysis play in this process? Can budgeting concepts enhance the management and control of such a process? These issues were central to the FUA rulemakings; lessons learned about these issues during the FUA rulemakings could well reduce the cost of changing regulation today. And some understanding of the many other issues that arose during the FUA rulemakings might help today's rulemaker put his own implementation problems into perspective.

Section II below reviews the four principal rationales that were offered to justify a federally mandated fuel-switching policy. These rationales help us understand the alternatives that were offered to implement fuel-switching and the politics surrounding them. Section III puts FUA in historical perspective. FUA was only one of a series of federal efforts to induce fuel-switching by industry and electric utilities after 1974. We see issues from the rulemakings arising again and

again, emphasizing that the rulemakings were never more than a small part of a much larger and enduring political process. Section IV outlines the principal roles of the agencies associated with the FUA rulemakings, especially the ERA, the PE, and the Office of the General Counsel (GC). This background material facilitates the discussion to come. Section V describes four basic problems that the ERA had to resolve in the rulemakings, the procedure it chose to resolve these problems, and the extent to which it succeeded. Most of these problems would have to be overcome in any regulatory rulemaking. Section VI discusses five major decisions made during the rulemakings. It describes the nature of the choices considered in each decision, the information and analysis brought to bear on each decision, the process used to make each decision, and the rationale offered for each final decision. Finally, Sec. VII discusses the relevance, for regulatory rulemaking in general, of the report's observations on Congressional intent, the role of analysis, and budgeting techniques for management and control.

II. NATIONAL FUEL-SWITCHING POLICY: RATIONALES FOR ACTION

One of the most striking things about FUA is that it was only one of several legislative attempts to achieve a single aim: induce oil and natural gas users to use other energy sources, especially coal. Following the oil embargo of 1973, Americans generally supported the notion of fuel-switching away from oil and gas to more "secure" and "plentiful" energy sources such as coal, solar energy, and synthetic fuels. Many argued that as the prices of oil and gas rose, such switching would naturally follow. Many more supported a directed federal effort to promote more switching than would naturally occur in response to price changes. But one after the other, legislative attempts to promote switching eventually failed, raising the question of how pieces of legislation with similar aims could continually pass, only to fail in application. The most compelling explanation is that fuel-switching was easier said than done. Various groups supported the concept, but apparently they did so for different reasons and each reason suggested a very different instrument for realizing fuel-switching. Debate over means became increasingly polarized along philosophical lines, making the ends increasingly difficult to reach. Legislation could be phrased vaguely enough to gloss over these philosophical differences, but they cropped up again in application because regulations had to be concrete.

This view of federally mandated fuel-switching policy goes a long way toward explaining FUA's position relative to other federal attempts at fuel-switching. Most important for our purposes, it helps explain the politically divisive environment that existed when the FUA rulemakings started and the ways in which proposed rules changed as economic facts and personnel important to the rulemakings changed. This section explains the key rationales most often cited as justifications for government action and why they suggest very different types of government action. The next section shows how these rationales drove the legislative process from one law to the next, including FUA.

The public debate on mandated fuel-switching raised a large number of rationales to support federal action. Four are compelling. First, the free market did not recognize the full benefits of reducing imports of oil. Second, existing pricing regulations held prices below the true social cost of oil and gas. Third, the rising cost of oil and gas called for alterations in environmental regulations to allow more fuel-switch-

ing; this required administrative action. Fourth, Public Service Commission regulation prevented utilities from raising enough capital to exploit socially desirable fuel-switching opportunities.

BENEFITS OF REDUCING IMPORTS OF OIL

For a number of reasons, free international trade in petroleum and petroleum products leads to greater imports into the United States than are socially desirable from the U.S. point of view. The most compelling reason is the U.S. monopsony position in the world oil market. Most models of the world oil market suggest that increases in U.S. demand for crude oil raise the world oil price. Hence each barrel the United States buys entails not only the cost of that barrel—an amount the market recognizes—but also the amount by which the cost of all other imported oil rises as a result of purchasing this extra barrel.¹ The decision to reflect this monopsony premium in the price of imported oil, then, represents a willingness to reject free international trade. To do this, the government takes the monopsonist view, which no competitive firm by itself can sustain.

The second reason that oil imports are too great has to do with their strategic value. Each barrel of oil imported both reduces the U.S. government's ability to maneuver overseas, militarily and politically, and increases the domestic costs of any cutoff in imported oil. Contracts could be devised to allow a free market to reflect these effects but they would have to be contingent on allowing holders of oil to capture the full opportunity value of their oil in a crisis. Current government policy and social practice do not allow such contracts. Hence, the government itself must find an alternative way to reflect these issues in our import policy.

A third reason that imports are too great is their effect on inflation. The monetary and fiscal policies used to ameliorate the macroeconomic effects of oil imports are costly, and each barrel of oil imported increases their costs. Hence, imported oil should reflect these costs in its price. Because a free market does not reflect such costs, some administrative alternative may be appropriate.²

¹Analytically, the United States maximizes its social welfare when it sets its marginal benefit, reflected in the domestic price of oil, equal to the marginal cost (MC) of that oil imported (x), where $MC = d(px)/dx = p + x(dp/dx)$; p is the world price of oil and $x(dp/dx)$ is the monopsony premium, known in the trade literature as the optimal tariff.

²For a detailed discussion of these points, see C. E. Phelps, F. Camm, and F. Hoffman, *Issues Surrounding an Oil Import Premium*, The Rand Corporation, P-6568, October 1980.

Each of these rationales suggests that imported oil should cost more to domestic users than it would in a free market. Imports would then fall and demand would be brought into line with the actual social cost of imported oil. Users would tend to switch from oil to coal and other energy sources. This is most easily achieved by addressing the import problem directly—using quotas or tariffs, for example, to reduce imports. Failing that, explicit fuel-switching policies can be designed to encourage industrial and utility fuel use patterns more nearly like those that would occur if imported oil were properly priced. This is most easily achieved with a tax on industrial and utility oil use—either an actual tax or an implicit tax that is used to value fuel-switching *as if* import controls were in place, and to determine administratively where fuel-switching is socially desirable. Actual oil taxes came up often in the fuel-switching debate; FUA rules proposed several variations of the implicit tax.

EXISTING PRICING REGULATIONS

Federal, state, and local regulations discouraged socially desirable switching in the mid-1970s in two ways. First, they subsidized oil and gas use. Second, they imposed regulatory barriers to change. Let us consider each in turn.

A variety of pricing regulations tended to hold the price of most energy sources below their marginal cost; hence, consumption of these fuels typically produced too little value to justify the social cost of their use. These regulations included domestic price controls on oil and natural gas, then slowly being eased off; average cost-pricing in electric and natural gas utilities, then giving way to crude forms of marginal cost-pricing; federal subsidies to nuclear power; and so on. Coal was distinctly excluded from such price control at the primary fuel level, and therefore had to compete on unequal terms.

Other pricing regulations created barriers to change. Public Utilities Commission (PUC) treatment in the past had discouraged industrial investment in cogeneration. Federal Power Commission (FPC) and Federal Energy Regulatory Commission (FERC) controls on gas prices had created shortages. The regulatory allocations used to ration the scarce gas forced industry and utilities out of gas into imported oil and prevented their return as imported oil became "scarcer." One particular price-control device received more attention in the public debate than most: the fuel adjustment clause. This favored existing fuel use patterns within utilities over significant changes by making the regulatory environment far more favorable to the status quo than to

innovation; by allowing utilities to pass on any increased fuel costs, this clause isolated utilities from the full effects of growing oil prices and hence discouraged adjustment. Another control device that discouraged change included the reluctance of PUCs to support new construction and additions to the rate base, when demand growth could not justify their addition.

A more direct way to deal with these impediments to fuel-switching would be to eliminate them. Many, however, were state and local regulations that were beyond federal jurisdiction. Many also had solid rationales phrased in terms of goals other than optimal fuel use, making their elimination unlikely even if the federal government had jurisdiction. Hence, explicit fuel-switching policies made sense. Actual and implicit taxes on oil and gas, like those discussed above, could help overcome subsidies to these fuels. Special administrative exemptions for fuel-switching investments could be designed for cogeneration or imposed where fuel adjustment clauses and rate base considerations arose. All of these options came up in debate.

ALTERATIONS IN ENVIRONMENTAL STANDARDS

The levels chosen for environmental standards have been controversial ever since they were instituted in the 1960s. The rhetoric of environmental standards, best summarized in the phrase "best available control technology," strongly suggests that an environmental standard can be objectively chosen without reference to economics or politics. But the very existence of standards is evidence that clean air is now a scarce resource. The value of scarce resources is maximized when they are allocated to their highest-value uses. But that simple admission leads to a need to lower environmental standards in response to rising oil prices.

This is true because rising oil prices do two things. First, they raise the cost of production, which in turn raises consumer prices and, all other things equal, lowers real income. We can no longer consume as much as we did before. We demand cleaner air as our incomes rise; because a rising oil price reduces real income, it leads to a decreased demand for clean air.

Second, this drop in income will be greatest if we do not change anything in the production process. But we can ameliorate it by substituting away from oil to coal. Unfortunately, coal is a dirtier fuel than oil. It is technically feasible to use enough additional air-cleaning and energy-conservation equipment to deliver the same usable heat with coal as with oil without affecting emissions. But that would

be extraordinarily expensive. It would cost more to preserve the level of clean air at the margin in this way than that air is worth to society. In fact, it could be so expensive that, on the whole, oil would be less expensive, suggesting that coal would not be substituted for oil. If, on the other hand, we allowed air quality to fall, less pollution abatement equipment would be required and the substitution away from oil would reduce its price impact and hence its impact on real income; we would breathe dirtier air but our real income would be higher. If the value of the increment to real income exceeds the decrement in the value of the air we breathed, it would be worth reducing air quality in response to a rising oil price. At the margin, this will almost always be true; it will almost always make sense to substitute *some* oil for clean air as the price of oil rises, in response to a price effect.

As a society, we have opted to use an administrative process to choose our levels of air quality. This *procedural* choice does not suggest that the "economic" logic above is inapplicable. But it does suggest that it will be difficult to reflect that logic in social decisions. Because the administrative process is inherently political, particularly in a case of this kind where we appear to be choosing between the goals of clean air and general material well-being, this logic can be effected only to the extent that effective political forces can detect the relative costs involved and act on them. And even if these relative costs are accurately sensed, the inherent political nature of such administrative action in this arena has assured a political fight.

CHEAP CAPITAL FOR UTILITIES

A variety of factors prevented utilities from exploiting fuel-switching, even if it appeared to be an attractive investment to them. Regulatory limits on a utility's ability to borrow could prevent it from raising the capital required to finance fuel-switching. Access to capital was further restricted in the early 1970s as inflation accelerated and—in an era before fuel adjustment clauses—utility equity absorbed severe costs precipitated by regulatory lag. Without retained earnings, the regulations allowed these utilities to borrow even less. Third, PUCs were reluctant to pass on the costs of switching because, as noted above, it did not contribute new capacity to a utility system. As early as November 1976, FPC rules allowed both pollution abatement and coal conversion costs to pass through. But FERC raised questions about this policy in January 1980 in its reluctance to pass conversion costs through. After then, it agreed to pass such costs through during switching. State regulatory boards were less willing

to give fuel-switching costs CWIP³ status in tariff-making. All of these, it is argued in various quarters, contributed to utilities' inability to raise capital for switching. As a result, the capital costs of switching might have had to come from the general investment fund, thereby denying a firm capital for plant expansion that in itself could help replace gas or oil.

The problems could be dealt with directly by removing the barriers to capital accumulation and use, but the same problems discussed with regard to pricing regulations arise here. More likely, explicit fuel-switching policies could transfer earmarked investment capital to utilities as grants or loans, guarantee loans to utilities for fuel-switching that raised their debt-equity ratios too high, or grant exemption from utility regulations tied to fuel-switching. All of these options have come up at one point or another.

TRANSFORMING RATIONALES INTO ACTION

Each of these rationales played an important role in the national debate on fuel-switching after 1973. Given such an array of ideas, most Americans could find at least one reason why federally mandated fuel-switching would make sense. It was easy enough, then, to point to a consensus in favor of mandated fuel-switching, but how to carry it out was another thing entirely.

Several problems stood in the way. First, a policy that reduces import dependence need not make sense to someone concerned about getting capital to the utility industry: Different rationales dictate different policies. Second, any one rationale can serve as a basis for a variety of policies, none of them compatible with the others. Finally, and most important, the net social gains that make each of these rationales socially attractive point only to the *possibility* of forming a political coalition to transform each rationale into effective public action. Individuals view specific actions not in terms of these august rationales, but in terms of how these actions will affect them personally. Before the mandate could be turned into reality, these individuals had to identify a set of specific actions that yielded a viable distribution of costs and benefits. The next section shows how specific

³CWIP or construction-work-in-progress is that portion of construction costs allowed in the utility's rate base before completion. Treating switching costs as CWIP reduces the effective cost of switching.

actions were chosen in the concrete policies that were proposed during the 1970s.⁴

⁴Technically, each of these rationales suggests that some form of fuel-switching policy can *potentially* ameliorate a difference between social costs and costs perceived by the absence of such policy; each points to Pareto-relevant gains. But none of them suggests that a political or social mechanism exists to realize these gains. Legislation and its accompanying regulations represent political/social attempts to distribute these net gains in a way that allows action.

III. NATIONAL FUEL-SWITCHING POLICY: LEGISLATIVE PROPOSALS

By the time the FUA rulemakings began in July 1978, most of the policy alternatives discussed in Sec. II had already been proposed in one form or another. Divisions over which alternatives to use to encourage fuel-switching had already developed in the design and implementation of the first federal attempt to mandate fuel-switching, the Energy Supply and Environmental Coordination Act (ESECA) of 1974. Debate on President Carter's National Energy Plan (NEP) and the first movements toward FUA itself began in the context of political opposition to the specific policy alternatives adopted in ESECA. Attempts to move to other alternatives, however, quickened the debate and deepened the divisions over the appropriate means to induce fuel-switching. This cast FUA and its rulemakings in a heavily politicized and increasingly polarized light. To understand many of the issues that arose and the decisions that were made in the FUA rulemakings, we must look back to the beginning of federal interest in fuel-switching following the Arab oil embargo of 1973. This section places FUA in the larger context of federal fuel-switching policy, looking back to its beginnings in 1974 and then looking forward to proposals to replace FUA as opposition to the specific policy alternatives it considered grew large enough for Congress to design a replacement.

ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT OF 1974 (ESECA)¹

ESECA was signed into law in June 1974 as an early response to the oil embargo of 1973. It mandated a number of activities meant collectively to "provide for a means to assist in meeting the essential needs of the United States for fuels, in a manner which is consistent, to the fullest extent practicable, with existing national commitments to protect and improve the environment."² The House Report³ is more specific about the legislation's purpose: It grants "specific authority to increase the use of coal resources so as to increase the energy supplies available to the Nation...and to permit certain adjustment of

¹P.L. 93-319, 88 Stat. 246.

²P.L. 93-319, Sec. 1.

³No. 93-1013, April 26, 1974, Interstate and Foreign Commerce Committee.

environmental requirements." It represents an early reaction to the recognition that, if continuing reliance on oil would subject us to future disruptions in world markets, reliance on coal could remove the threat posed by such disruptions. To avoid the danger of another embargo like that in 1973-74, then, it made sense to exploit our coal resources to the full extent possible. That judgment lies behind everything that was to follow in the public debate on coal conversion: Coal could be, and therefore should be, king.⁴ ESECA provided a first step toward that goal by mandating FEA to seek opportunities for conversion from "natural gas or petroleum products as [a] primary energy source" to coal in electricity powerplants and "major fuel burning installations," later known as MFBIs.

We immediately see examples of the import dependence and environmental standard rationales mentioned in Sec. II. An example of the first calls for government action to provide a domestic energy source, but does not explain why any government action is necessary. The second is clearer about the centrality of the energy-environmental tradeoff and the need to deal with it in a coal conversion program. But here too the language is moderate and the Act quite conservative. There is little real sense of crisis in the language of the Act or its legislative history. From our current vantage point, the proceedings seem almost quaintly optimistic that coal could easily be substituted for oil.

As shown in the Committee hearings, electric utilities have reported that within three weeks from the time conversion is started, approximately 13,000 megawatts of capacity normally burning oil or gas fuel could be converted to coal, with an indicated reduction in residual oil demand of about 105 million barrels per year or an average of 288,000 barrels per day.⁵

The administrative mechanism that was meant to achieve this rapid turnabout differed from its successors in a number of ways. The most important is that, under ESECA, FEA bore the burden of proof that conversion was socially desirable. It had to prove that it was in the public interest to convert an existing fuel-using installation of any kind, or a planned powerplant, to coal. Once it proved this, however, FEA had the power to force conversion. To prove the social desirability of conversion, FEA had to show that (a) coal-burning was practical, (b) coal and coal transportation facilities were available, and (c) for

⁴See the comments of Joel D. Schwartz, Environmental Protection Agency Office of Policy and Evaluation, at the Bureau of National Affairs/Catholic University Conference on FUA, May 3, 1979.

⁵House Report No. 93-1013, *U.S. Code and Administrative News*, 93d Cong., 2d sess., 1979, p. 3296.

powerplants, conversion would not degrade system reliability. FEA also had to get Environmental Protection Agency (EPA) concurrence that coal-burning would not violate the Clean Air Act. FEA had until June 30, 1975, to issue orders and December 31, 1978, to enforce them.

The task proved too great. FEA issued a large number of notices of intent (NOI) to force conversion by the deadline of June 30, 1975. But none of them involved industrial plants, none involved plants that were not already planning to use coal, and none required the use of scrubbers. On July 1, 1975, all that was left for FEA was to enforce these rather innocuous orders over the next two and a half years.

Officials who helped administer ESECA confirm that bearing the burden of proof throughout the rulemaking contributed to their failure. They also suggest that they were impeded by EPA's having such a central role when EPA had an inherent bias against conversion from the very beginning. Furthermore, the White House did not always support vigorous implementation of ESECA and on several occasions directly discouraged it. But more than anything else, former ESECA officials claim that they failed because the procedures they designed to implement ESECA hamstrung them. In particular, their decision to treat not only environmental issues, as required by law, but all other issues as well, on a case-by-case basis multiplied the opportunities for obstruction by plant owners who did not want to convert. Obstruction ranged from presentation of immense volumes of data to straight political pressure. In the end, ESECA sank under the weight of its attempts to be equitable.

Amendments attached to the Energy Policy and Conservation Act of 1975 (EPCA) renewed ESECA's mandate. They extended the order and enforcement deadlines, respectively, to June 30, 1977, and December 31, 1984. They also broadened ESECA's mandate by allowing FEA to pursue conversion of planned industrial plants as well as planned powerplants. When EPCA was signed into law in December 1975, FEA took up its authority to issue orders again. FEA and its successor, DOE, continued to exercise that authority, with the assistance of an additional extension, until the end of 1978. By that time, the Fuel Use Act had been signed into law, although its regulations would not become effective until May 1979.

But progress remained slow. Not until November 1976 did FEA issue an order to a plant that was not planning to use coal as a fuel. The first orders requiring the use of scrubbers came in April 1977; the first orders to industry came in June 1977. Furthermore, the first order of any kind did not become effective until April 1977, almost three years after the bill's initial passage. Congress expressed its impatience with the conversion program at least once, in 1976, in a Sen-

ate bill to force immediate conversion. A more serious response came with Senator Jackson's S. 977, introduced in March 1977, to renovate the conversion program, and in the President's "Moral Equivalent of War" speech a month later. This is where the true history of FUA begins.

COAL UTILIZATION ACT AND NATIONAL ENERGY PLAN

S. 977, Senator Jackson's proposed Coal Utilization Act, would have amended ESECA to accelerate its application. Carter's fuel-switching plan within the National Energy Plan (NEP), presented in April and introduced to the House in May as H.R. 5831, looked quite similar to Jackson's. Both shifted the burden of proof on fuel-switching from FEA to the plant owner. Both required conversion, subject to case-by-case exemption. Both placed a substantial tax on oil and gas consumption by utilities and industry in order to alter the economics of fuel choice in favor of alternatives to oil and gas. Carter's plan went one step further by granting a credit against that tax for conversion expenses incurred after April 20, 1977. Carter's plan also called for investment tax credits for construction of non-petroleum power facilities. Jackson saw a need for additional incentives, but met it with \$1 billion in loans and \$5 billion in loan guarantees for the installation of pollution abatement equipment. Both plans gave EPA explicit countervailing power to overrule conversion orders that would degrade air quality enough to violate the Clean Air Act. If all these proposals were accepted, both Carter and Jackson agreed that fuel-switching alone could account for 60 percent of the total reduction in oil imports effected by all the energy proposals taken together.

In these proposals, we see variants of all the rationales offered in Sec. II. Both Carter's and Jackson's sense of urgency grew out of the import dependence question. Carter's plan in particular viewed taxes and investment incentives as a way to reduce demand for oil and gas in general and hence to reduce oil imports. These taxes and incentives were also seen as an efficacious federal response to distortions caused in large part by state and local pricing controls. It is easy to show that these instruments were a more appropriate response to the pricing problem than to the import problem.⁶ What is important to us here,

⁶The import problem is best attacked by creating a *difference* between world and domestic oil prices to reflect the divergences between private and social marginal costs discussed above (for example, by imposing an import tariff on oil). Across-the-board taxes and incentives do not do this. In fact, given the character of the oil price controls

however, is not so much the effectiveness of these instruments as it is the motivations behind them.

The Carter tax proposals were the first manifestation of the Administration's view of objectively and impersonally applied incentives as the appropriate way to reflect the import and price regulation rationales in policy. Though this view generated a great deal of opposition, the Administration continued to hold this view in some form within the FUA rulemaking and in the later oil backout proposals. It represented a center of controversy in fuel-switching policy as a whole.

The Carter and Jackson plans reflected a continuing unwillingness to allow dirtier air in order to reduce oil use. But Jackson's subsidy schemes proposed a federal willingness to support immense investments in pollution abatement equipment to protect the environment. Jackson's subsidies also reflected increasing belief that the utilities could not raise capital on their own.

Given the stakes involved, it is not surprising that an active public debate followed introduction of these two proposals. Predictably, industry and the utilities favored credits over taxes. They soon found a friend in the Senate in Russell Long, who observed that taxes would hurt some regions far more than others. In particular, California, Oklahoma, Texas, and his home state of Louisiana would be hardest hit. All early analyses of the proposals concurred in this regional effect, although they differed on its severity.⁷ Long and others argued that credits, loans, or loan guarantees would spread the burden of "the *national* goal of coal conversion" more equitably than taxes would. By June 1977 new rebates and credits had been added to H.R. 6831. By October, the oil and gas taxes in Carter's proposed Energy Tax Act were dead.

Heavy opposition developed on other issues as well. Industry complained that retrofitting was impractical. It also charged that the proposal favored utilities by giving them longer deadlines. The utilities and the coal industry complained that coal conversion was already well under way and required no legislation to succeed; in fact, the confusion caused by the public debate appeared to be slowing down conversion. In the longer term, forced conversion of existing

in place at that time, with the system of entitlements used to maintain those controls, any policy that drove a wedge between domestic and foreign prices would have been difficult to implement. In any case, the taxes and incentives proposed did raise domestic oil and gas demand prices, and in so doing could make up the difference between private and social marginal costs associated with pricing regulations.

⁷Later analyses also confirmed it. See, for example, DOE's draft Environment Impact Statement for FUA, circulated for comment in July 1978; and the report of the Southwest Regional Energy Council, April 1979.

plants could slow investment in new plants and, therefore, be self-defeating.⁸ Others complained that conversion would add to inflation, particularly in the regions most heavily affected. And everyone doubted that environmental concerns, particularly those that required the use of best available control technology—scrubbers—would allow much conversion to occur.

The Administration typically confirmed the existence of these difficulties but consistently held that they were far less severe than the critics made them out to be. The Administration was generally seen as too optimistic; most analyses confirmed this.⁹ There was some concern that FUA might impose heavy burdens on industry and the utilities with little hope of effecting significant conversion. Congress—first the Senate and then the Conference Committee—handled these objections by writing a liberal set of exemptions into the final bill. But the bill kept its initial character of requirements *cum* exemptions.

The final bill that emerged from the Conference Committee in January 1978 was not nearly as tough as the Administration had hoped. But it was the first piece of the National Energy Act completed by the Committee after a long, harrowing debate. The Administration accepted it, quietly planning to write regulations for the final Act that would make most of the exemptions meaningless. This basic difference between the Administration and the Congress set the stage for the implementation of FUA.

POWERPLANT AND INDUSTRIAL FUEL USE ACT OF 1978 (FUA)

Another six months would pass before the House and Senate approved the Conference Committee's version of FUA in July 1978. In April 1978, Carter and Schlesinger had demanded that all parts of the National Energy Act (NEA) be reported out together. Therefore, fuel-switching legislation had to wait for more controversial parts of the

⁸See, for example, the comments of Herman Roseman, National Economics Research Associates, and William B. Marx, American Boiler Manufacturers Association, in the public record on FUA.

⁹The Administration's position is best explained in the White House Energy Policy and Planning Office's "Replacing Oil and Gas with Coal and Other Fuels in the Industrial and Utility Sectors," sent to Congress on June 2, 1977. As Sec. V explains, we would expect the public comments of private interests to be more pessimistic than this document and they are. In addition, however, the Congressional Budget Office's May 31, 1977, report to Congress on the NEP, and the General Accounting Office's "An Evaluation of the National Energy Plan," sent to Congress on July 26, 1977, also found that the Administration's estimates were overoptimistic.

Act to be finalized. Congress passed the final package in October and President Carter signed the NEA and with it FUA into law November 9, 1978. It was scheduled to become effective six months later, May 8, 1979, by which time its regulations would be written and ready for use.

In its final form, FUA moved beyond ESECA in a number of important ways. Its central focus, beyond including alternative fuels with coal among the acceptable substitutes for oil and gas, was quite similar:

The purposes of this Act are furthered in cases in which coal or other alternative fuels are used by electric powerplants and major fuel-burning installations, consistent with applicable environmental requirements, as primary energy sources in lieu of natural gas or petroleum.¹⁰

But its specific purposes were much more carefully elaborated than those of ESECA. As we shall see in succeeding sections, this elaboration became important in DOE's attempts to mold FUA into an instrument more to its liking. The specific purposes included:

- (1) To reduce the nation's dependence on foreign sources of energy;
- (2) To conserve natural gas and petroleum for uses for which there are no feasible substitutes;
- (3) To encourage the greater use of coal and other alternate fuels, in lieu of natural gas and petroleum;
- (4) To encourage the use of synthetic gas derived from coal or other alternate fuels;
- (5) To encourage improvement of railroad service and equipment necessary to transport coal;
- (6) To conserve natural gas and petroleum for the benefit of future generations;
- (7) To encourage the modernization or replacement of existing and new electric powerplants and major fuel-burning installations that use natural gas or petroleum;
- (8) To require that existing and new electric powerplants and major fuel-burning installations comply with applicable environmental requirements;

¹⁰P.L. 95-620, Section 102(a)(2).

- (9) To ensure that all federal agencies use their full authority to further the purposes of this Act;
- (10) To ensure that adequate supplies of natural gas are available for essential agricultural uses;
- (11) To reduce the vulnerability of the United States to energy supply interruptions.¹¹

Of particular moment is the fact that these purposes treated fuel-switching as a policy imperative aimed at a number of well-defined goals that did not include social or economic efficiency. Although point (9) also mentions the "efficient use of energy," the context suggests strongly that the reference is to technical efficiency.¹² In sum, the purposes of the Act gave no clear mandate to the use of cost-benefit analysis unless that was the implicit means by which these disparate goals were to be weighed against one another. We must look to the body of the Act to find references to cost, and even here, the intent of these references is not clear. While this may seem to be a small point, we shall see that it lay at the very root of a central controversy in FUA's implementation.

Moving into the substance of FUA, we quickly find that two things that hampered ESECA had been corrected. First, while DOE had to seek EPA's advice on orders, EPA no longer had concurrence authority. Its influence was restricted to its traditional role of enforcing environmental standards. These still presented a formidable barrier to switching, but EPA's influence was diminished.

Second, and more important, FUA shifted much of the burden of proof about switching onto plant owners, particularly owners of new plants. In fact, the heart of FUA lay in its specifications of prohibitions and exemptions and the conditions under which these may be effected.¹³ They applied differently to a plant depending on whether, under the Act, the plant was considered "new" or "existing" and was classed as a "powerplant" or an industrial "major fuel-burning installation." Existing plants were those started before April 20, 1977, or defined as existing at the Secretary's discretion on a case-by-case basis after November 9, 1978. Plants started between those dates became known as "transitional facilities." Furthermore, both

¹¹Paraphrased from P.L. 95-620, Section (102)(b).

¹²A state of technical efficiency implies that any reduction of the level of any input must also reduce output. Economic or social efficiency implies that (a) the choice of inputs to produce any level of output minimizes costs, and (b) the level of output is chosen to maximize net social benefits.

¹³Titles II and III.

temporary (typically for up to five years) and permanent exemptions were available.

The prohibitions basically did the following. They prohibited *new* powerplants from using natural gas or petroleum and required them to be capable of using coal or some "alternative fuel." They allowed the Secretary to apply a similar requirement to certain classes of other *new* industrial MFBI's. They prohibited *existing* powerplants from using gas after January 1, 1990, or using at any time a greater proportion of gas than they have used in the past. They prohibited *existing* units of all kinds from using gas or oil, if it was technically and financially feasible to switch to coal or some alternative fuel. Among those fuels under certain circumstances were fuel mixtures containing gas or oil. With some exceptions, DOE had to implement prohibitions on *existing* units on a case-by-case basis.

Plant owners could request any of a large number of exemptions, but the burden of proof that FUA allowed an exemption in an individual case was on the plant owner, not DOE. Table 1 lists the types of exemptions available.¹⁴ Note that the prohibitions were aimed primarily at baseload powerplants and their equivalent in industry. FUA attempted to avoid excluding fuel-saving innovations. It included some very specific exemptions that were obviously intended to avoid undue hardship in a few vocal localities.¹⁵ The exemptions tended to be written to favor conservation of gas over that of oil. And by including a general public interest exemption, FUA allowed considerable flexibility in application, a flexibility that would open an important side debate on FUA shortly after its passage.

Several observers noted that FUA allowed so many exemptions that any firm that did not want to switch from gas or oil could find a way under FUA to avoid switching. This placed FUA in the worst of all possible worlds: It would impose heavy burdens on firms in the form of filing and litigation costs without achieving anything. More formally, a firm would typically view these costs as a tax, but a tax not large enough to induce it to convert. Hence, the tax would simply impose an excess burden on society without yielding any social benefits. Committed to getting a law as effective as that envisioned in the NEP, and cognizant of the net costs likely to result from FUA as Congress saw it, Schlesinger ordered his staff to devise tough regulations that would

¹⁴The parenthesized letters in the table indicate the paragraphs within each section in FUA that describe each exemption. Note that the wording on exemptions in any given row typically differs across section columns. Only the general nature of the specific exemptions calls for them to be placed in a common row.

¹⁵For example, a limited number of plants that were dependent on internationally supplied gas or LNG were exempted. Some other exemptions in the "Miscellaneous" and "Innovation" categories resulted from Congressional responses to specific claims of potential hardship.

Table 1
EXEMPTIONS UNDER FUA

Basis for Exemption	New Plants		Existing Plants	
	Temporary Sec. 211	Permanent Sec. 212	Temporary Sec. 311	Permanent Sec. 312
<i>General Feasibility</i>				
Lack of alternative fuel supply, site limitations, environmental requirements	(a)	(a)	(a)	(a)
Other state or local requirements		(b)		(b)
Maintenance of system reliability		(f)	(g)	
Product or process requirements		(i)		(k)
<i>Special Uses</i>				
Unit needed to meet scheduled equipment outages				(l)
Unit used only for emergency purposes		(e)		(e)
Peakload unit		(g)	(f)	(f)
Intermediate load unit		(h)		(g)
<i>Innovation to Save Fuel</i>				
Cogeneration		(c)		(c)
Mixtures containing gas or oil		(d)		(d)
Future use of synfuel	(b)		(b)	
Future use of innovative technology			(c)	
<i>Miscellaneous</i>				
Oil use in certain small installations	(d)			
Gas use in certain small power plants				(h)
Units to be refined soon			(d)	
Certain use of LNG				(i)
Units served by certain international pipelines				(j)
Public interest	(c)		(e)	

both close up the "loopholes" implicit in FUA and increase the cost—the tax—of asking for an exemption.

ERA was already discretely proceeding with rulemaking plans in July 1978, when the House and Senate took up final consideration of the Conference Committee report on FUA. ERA's intention was to emphasize environmental and economic factors in setting up rules to implement exemptions. It hoped to have most regulations ready for publication in the *Federal Register* and public comment within a month after FUA was passed.

Even though it was rumored in the interim that the proposed regulations would be tough, their toughness surprised utilities, industry, and the Congress when the first ones appeared in the *Federal Register* in the weeks after Carter signed FUA. A surge of opposition began to build, working from many of the same arguments that had been used to get the exemptions written into FUA in the first place. The chorus of complaint comprised many different voices, but basically they said one thing: DOE had grossly exceeded the intent of Congress in the regulations offered for review.¹⁶ The Regulatory Analysis Review Group (RARG) notified DOE that it would review the Energy Information Administration's (EIA's) analysis of FUA five weeks after Carter signed the NEA. And Jackson hinted that he might consider direct oversight to assure responsible and reasonable implementation of FUA. In a series of revisions embodied in interim regulations issued in March, May, and later in July, DOE attempted to meet the demands of many of its critics. But it was too little too late. In June, Jackson introduced new legislation to override FUA, and both RARG and the White House itself called on DOE to soften the regulations in fundamental ways and to conduct new regulatory analyses. A month later, in July 1979, Carter proposed an "oil backout" plan to override the part of FUA relevant to utilities. Scarcely eight months after becoming law and two months after becoming effective, FUA was already a candidate for replacement. Beyond the development of rules to implement prohibition orders and exemptions and the administration of remaining ESECA orders, federal attention now turned to the legislation that would define the third law in six years to try to induce fuel-switching.

POWERPLANT PETROLEUM AND NATURAL GAS DISPLACEMENT ACT

What began as an oil backout proposal became the proposed Power-plant Petroleum and Natural Gas Displacement Act, which evolved through two different Administration proposals. The first called for a

¹⁶Critics found many grounds for complaint, but those most often voiced were the requirement to consider every available site before rejecting coal; the effective elimination of the cogeneration exemption; the definition of a site as an area within a ten-mile radius; the "exorbitant" application fees; and "overzealous" transfer of the burden of proof—for example, for the Environmental Impact Statement and examination of fluidized bed combustion as an option. Some of these directly violated the language of FUA; others were simply considered excessive. All were considered likely to incite "massive" litigation.

50 percent reduction in utility oil use by 1990. It was composed of a scheme of entitlements, taxes, and government assistance to reduce oil use in utility boilers. Entitlements totaling 50 percent of utility oil used during 1976-1979 were to be allocated to utilities, with a slight bias in favor of smaller companies. The utilities could then trade these entitlements or "tickets" freely. Any utility using oil in a boiler for which it did not have a ticket was to be subject to a tax of \$12 per barrel. The proposal also called for \$5 billion in grants and \$10 billion in loan guarantees to assist utilities in converting away from oil to coal and other alternative fuels. By November, DOE had altered the plan slightly to backout both gas and oil, apparently under political pressure from the Southwest. Some difficulties over the proper amount of aid to the utilities kept DOE from formally submitting the proposal to Congress. But apparently much more severe problems arose toward the end of 1979. It was thought to be too complex and unlikely to induce fast results. By January 21, 1980, DOE had re-drafted the backout plan to provide a totally different approach.

The second backout proposal discarded the incentive approach of the first and imposed a tough, mandatory conversion approach in two phases. Phase I would force an explicitly named list of about 140 powerplants to convert from oil before 1990. FUA would also have required many of these to convert; the backout proposal simply changed the terms under which conversion would occur. It would prohibit them from using fuel adjustment clauses in their tariff-making until they had converted. And it would provide a fund of \$6 billion for grants of up to two-thirds of the cost of conversion for conversions started before 1985. Phase II would provide a fund of \$4 to \$6 billion in loans to other utility and industrial plants for conversion expenses. It would be rationed on the basis of the expected value of oil saved per dollar of investment. To the extent that the projected savings were realized, the loan would be forgivable. To the extent that they were not, the loan would be repayable with interest for the shortfall.

Objections immediately arose over the level of assistance and the likely environmental effect of such a plan. On the one hand, Edison Electric Institute claimed that the aid offered was insufficient. On the other, critics familiar with a September 1979 DOE study that concluded that coal conversion was environmentally sound and economical without any federal intervention beyond that in the Clean Air Act, wondered why any assistance was required at all. Meanwhile EPA, environmental groups, and even Canada raised objections that the proposed legislation could increase acid rain 15 percent in the Northeast. After a standoff with EPA, DOE prevailed and the proposal was judged environmentally acceptable.

A scaled-down version of the proposal with 106 powerplants and

\$3.6 billion in grants in Phase I and \$6 billion in loans in Phase II, went to Congress in March 1980.¹⁷ It entered the Senate as Wendell H. Ford's (D-Ky.) S. 2470. A tougher version entered the House of Representatives as John Dingell's H.R. 6930. Hearings in both houses revealed that serious doubts continued about both bills. The Senate ultimately overcame opposition to S. 2470 by dropping Phase II of the Administration's proposal, scaling back Phase I, and putting greater reliance on loans. A much revised version passed the Senate in July 1980. The Administration supported this new version. In the House, however, a coalition of Republicans opposed to the scale of government aid and Democrats opposed to the bill's potential environmental effects ultimately held the bill in subcommittee and killed it. The backout proposals died with the end of the session and the prospect of a new president with very different ideas about energy policy.¹⁸

Two things are striking about the oil backout proposals. First, although they were the third set of attempts in six years to effect fuel-switching, the oil backout proposals did not raise any new issues. The basic reasons for fuel-switching remained the same. Import dependence maintained the urgency for switching and helped justify the Administration's early tax proposals. Pricing regulations remained important in the proposed taxes and later in the second proposal's intention to control use of the fuel adjustment clause. The environmental rationale appeared again in the hot debate over the acceptability of acid rain that switching could induce. And capital shortages created the basis for the central feature of the proposals: massive federal aid in the form of grants and loan guarantees. That is, nothing appears to have changed in the general national perception of the problem. The oil backout proposals simply represent one more attempt to put together an effective set of concrete policies and a political consensus to address the problem.

Second, the Administration's abrupt turnabout between the first and second proposals suggests that the Administration had moved away from its firm belief in the use of impersonal incentives—taxes—to promote fuel-switching. The turnabout may be related to the rise in oil prices following the Iranian revolution in early 1979 that ended

¹⁷For details on the plants considered under the bill, see *Profiles for Title I Existing Electric Powerplants* named in *The Proposed "Powerplant Petroleum and Natural Gas Displacement Act,"* Economic Regulatory Administration, Office of Fuels Conversion, Washington, D.C., May 1, 1980.

¹⁸Some of those who supported these backout proposals continued to pursue new ideas in 1981 that placed greater reliance on tax incentives than on direct grant and loan aid. These efforts were ultimately rewarded in sections of the Economic Recovery Tax Act (P.L. 97-34), signed August 13, 1981. It provided some tax incentives to coal conversion. This Act, however, was a dim reflection of earlier hopes.

the efficacy of the unusual incentive approach used in the FUA rule-making (we will discuss that below). As we shall see, however, rising world oil prices left relatively little justification for *any* federally mandated fuel-switching; when the backout proposals failed, only FUA remained and higher oil prices ultimately sapped the urgency of using it to force conversions.

SUMMARY

Apparently, mandated fuel-switching was not meant to be achieved at a single stroke. The first attempt, ESECA, displayed an extraordinary faith in the government's ability to "do the right thing." In the end, it failed most probably because it gave the utilities and industry too much administrative protection and the government too much responsibility and too little power. It also gave those drafting and then implementing FUA a clear picture of what not to do the second time.

FUA faced a problem little changed from that which ESECA addressed, though ESECA's failure gave the makers of FUA a greater sense of urgency. In their urgency, those implementing FUA took a tough stance. Coupling that stance with impersonal procedures that made it difficult for many plants to seek an "equitable" escape from switching created focused political opposition to FUA, ultimately expressed in a demand for the oil backout bills. DOE could not avoid the procedural problems of ESECA without resurrecting the political problems that underlay the sharp debate surrounding FUA's legislative formation. But it could not induce switching if it failed to avoid ESECA's procedural problems. FUA's procedural "solutions" revealed persistent political problems that the Administration and Congress felt only one more round of legislation could resolve.

FUA, of course, remained in force as Congress and the Administration considered a series of backout proposals. But even as the federal government considered its third distinct approach to mandated fuel-switching policy, events were passing that third policy by. Six years after the mandated switching "program" began, the rationales in Sec. II no longer offered the magnitude of social gains they did in the beginning. Section VI explains why. For now, it is important to note that the federal government's delay in transforming compelling rationales into effective action may well have left it without a viable social mandate.

IV. ORGANIZATIONAL ENVIRONMENT OF THE RULEMAKINGS IN DOE

Although Congress did not finalize FUA until October 1978, its form, down to small details, did not change after December 1977. At that time, the skills and tools that accumulated within DOE to promote FUA within the National Energy Plan began to coalesce into a program to implement FUA. Ultimately, over thirty rulemakings would emerge to implement FUA.

As DOE's chief regulatory agency, ERA had a natural claim to take the central position in these rulemakings. But in early 1978, FUA looked to many in DOE as if it would be the centerpiece of the nation's energy policy. Hence, the Office of Policy and Evaluation (PE) and the Office of the General Counsel (GC) both tested ERA's claim to dominance on a number of points. PE and its predecessors had played a key role in formulating the Administration's version of FUA and had natural claims to a general policy and coordination role in the rulemaking. In addition, PE was assisting Argonne National Laboratories with the programmatic Environmental Impact Statement for FUA, a document that addressed many of the issues that the rulemakings would also have to face. Similarly, General Counsel had traditionally written regulatory rules in DOE and saw itself as the best qualified office to do that in the FUA rulemakings. Nonetheless, over time, ERA Administrator David J. Bardin established a central and dominant place for ERA in the administration, policymaking, and rule-writing of the rulemakings. This section outlines the relevant characteristics of these offices and the others that participated in the rulemakings from their quiet beginnings in mid-1978 forward. It provides the *dramatis personae* for the action to come in succeeding sections.

ECONOMIC REGULATORY ADMINISTRATION (ERA)

The implementation of FUA had high visibility within ERA. Bardin himself took an active part in it.¹ Douglas G. Robinson, then Deputy Administrator for Regulations, supervised both the regulatory development for FUA in what became the Office for Regulations and

¹His successor, Hazel R. Rollins, played a less public role but maintained a high level of interest.

Emergency Planning's Coal and Alternative Fuels Regulations Division, and the implementation planning for FUA in what became the Office for Fuels Conversion.² Implementation planning and regulation development are obviously closely related activities and the offices responsible for these activities worked together rather closely. They were assisted by the Office for Utility Systems. In broad terms, the Regulations Division was responsible for the rulemaking itself. That included writing the actual language of the regulations and performing any studies required to support that language. The Conversion Office, on the other hand, had a technical staff that was especially familiar with hardware and the environmental issues of fuel-switching. It also had the office responsible for implementing ESECA. Many people familiar with ESECA worked in the Conversion Office. Hence, it drafted language for more technical sections of the rulemaking and provided insights to the rulemaking that developed from studies it conducted to support its implementation work. It also acted as a liaison for the Regulations Division to EPA and program offices in DOE that assisted the rulemaking on technical issues. The Regulations Division retained responsibility on all these issues for finalizing the language of the FUA regulations. The Office for Utility Systems played a role similar to that of the Conversion Office on topics where it had expertise, for example, on cogeneration and repowering. That is, it provided technical information which it had available and acted as a liaison on some technical issues.

Though there appears to have been good communication among these offices, it is not at all clear that this is what ERA planned. Bardin did not encourage communication and, on some topics, communication was limited. In fact, in contrast to practice in the early ESECA rulemaking, ERA had deliberately split the implementation and regulation functions. The reason given for the split was to avoid the appearance of having the same person who wrote regulations executing them. There was some concern, based at least in part on experience under ESECA, that under such an arrangement, the executor could write regulations to suit his goals. By splitting the responsibility, the executor's actions would be circumscribed and hence be more predictable. Another possible rationale, which will become clearer below, is that, in order to avoid repeating the errors in the ESECA rulemaking, ERA wanted to separate those with ESECA experience from direct responsibility for the FUA rulemakings. Most of ERA's experience with ESECA lay in the Conversion Office.

²For simplicity, this report will hereafter refer to the Office for Regulations and Emergency Planning as the Regulations Office, the Office for Fuels Conversion as the Conversion Office, and the Coal and Alternative Fuels Regulations Division as the Regulations Division.

Whatever the reasons for it, the split was only partially successful. Personnel moved back and forth between the Conversion Office and Regulations Division throughout the rulemakings. In particular, a number of people with direct ESECA experience held key positions in the Regulations Division. As noted above, informal communication continued over the whole period, often on a day-to-day basis. Both offices saw one of the Conversion Office's principal roles in the rulemaking as providing up-to-date data on trends encountered in implementation, trends that could be reflected in revised regulations. We will see numerous examples of this in Sec. VI. And, perhaps most important of all, both offices eventually gained veto power over each other's activities, the Conversion Office through its membership on the Senior Review Committee that oversaw the rulemaking, and the Regulations Division through its concurrence authority on the Conversion Office's targets.

In sum, despite efforts to split responsibilities for implementation and regulations, the various offices within ERA appear to have worked rather well together. That is not to say that they did not have differences. Despite its dominant place in the rulemakings, ERA harbored rather profound differences within its ranks about how the regulations should be written, differences we will discuss in some detail in Sec. V.

GENERAL COUNSEL (GC)

General Counsel has traditionally played a central part in regulatory rulemakings in DOE and its predecessor, the Federal Energy Administration (FEA). This was particularly true of the oil and gas regulations that dominated DOE's regulatory concerns before the NEA. Though other agencies, like ERA, had the primary responsibility for setting policy for regulations and then for administering regulations, GC was DOE's principal regulatory rulemaker. In particular, GC was DOE's in-house expert on regulatory procedure and the specific administrative forms required to implement the policy concerns of other offices in DOE.

Though GC retained an important role as a legal advisor in the FUA rulemakings, GC did not play the central role here that it had played in previous rulemakings. Recall that many in DOE saw the procedures adopted to implement ESECA as a principal cause of ESECA's failure. Many in ERA, Bardin included, saw GC as the culprit behind the ESECA procedures. In order to allow a fresh start,

ERA wanted to reduce GC's role in the FUA rulemakings. The Regulations Division set up a staff of good lawyers to provide a rule-writing capability in-house. GC acquiesced to this arrangement and agreed to take the secondary position in the rule-writing of reviewing ERA's drafted regulations. Bardin maintained close contact with GC throughout the rulemaking on issues of legality; GC maintained its key role as in-house counsel. GC regained its rule-writing role in the rulemakings only in mid-1980, when ERA's group of lawyers began to disband. Even then, however, responsibility for policy decisions remained in ERA.

This reduced role should not suggest that GC played a small role in the rulemakings. GC retained responsibility, in coordination with the Justice Department, for litigation associated with FUA and hence had an interest in assuring that the rulemakings prepared for litigation. As things developed, not one major FUA rule went unchallenged, suggesting that litigation could be even more important for FUA than it is with most rulemakings. Section VI will say more about this.

POLICY AND EVALUATION (PE)

PE was involved in issues related to FUA well before the rulemaking began. As early as mid-1977, the offices that would become PE were using a formal economic model of industrial boilers to examine the relative effects of policy alternatives like energy-user taxes and mandated coal conversion. PE staffers even developed the notion of a ratio test, discussed in Sec. VI, which the Energy Information Administration later used to perform the incidence analysis underlying FUA's formal regulatory analysis. Hence, it was natural that PE staffers would have an interest in the FUA rulemakings. The specific interests of PE's staff members often affected the issues in which it took an official interest.

As we shall see, a key part of ERA's rulemaking strategy was to draw on the resources of the rest of the Department whenever possible. PE's resources interested Bardin for two reasons. One was the analytic capability suggested by PE's early experience with FUA. The other was the influence of the Assistant Secretary for PE, Alvin Alm, with the Secretary. Bardin wanted Alm's support for whatever policies came out of the rulemaking. With these factors in mind, Bardin approached Alm early in 1978 to ask for his participation. Staffers familiar with the FUA issues recommended that PE provide analytic support on a relatively narrow set of issues and then act in an advisory role on other issues. PE would play a key role in much of FUA's early regulatory analysis.

Just as the formal rulemaking began to gear up, Darius Gaskins arrived in PE with a different view of PE's role. He wanted to reduce PE's commitment to individual issues and to increase its concentration on issues of general policy interest. At least in part because of this attitude, PE provided a relatively limited commitment to the rulemakings. No more than two PE staffers were ever directly involved in the rulemakings at any time and those involved typically had other responsibilities as well. Further, the staffers directly involved experienced a relatively high turnover. At least four staff persons had primary responsibility for FUA and they all left PE before the end of the rulemakings. This experience contrasts strongly with that of other offices associated with FUA, where the staff involved was more or less stable over the duration of the rulemakings until they phased down.³

Taken together, these factors limited PE's role. No one was particularly concerned about that. Officials interviewed agree that PE's participation would have been more effective with less turnover. But few suggest that PE's role should have been much different from the one it played.

OTHER OFFICES

Though the three offices above played the most important roles in the FUA rulemakings, other offices participated in two distinctly different roles. First, the Energy Information Administration (EIA) provided a series of incidence analyses from its Midterm Energy Forecasting System (MEFS) in support of the regulatory analysis required of FUA under Executive Order No. 12044, and of the Regulatory Analysis Review Group's (RARG) reviews of this analysis. Second, DOE's Offices for Fossil Energy, Conservation and Solar Energy, and Environment, and the Environmental Protection Agency (EPA) provided technical support to the rulemaking on a broad range of issues. Let us consider each in turn.

EIA and its predecessors in FEA have traditionally maintained much of the analytical capability within DOE. In particular, EIA maintained DOE's major energy models and much of its information. Hence, with the increasing emphasis on regulatory analysis under Executive Order No. 12044, we should not be surprised to see EIA

³From the perspective of PE, their commitment was substantial. In particular, PE committed more resources to this rulemaking than to any other associated with the National Energy Act.

involved in the FUA rulemaking. And indeed, ERA relied on EIA for many of its formal analytic obligations.

But on the whole, PE and the RARG played more important analytical roles in the rulemakings. Though both drew on EIA's models from time to time, such instances always represented attempts to test hypotheses developed within PE and the RARG. Restrictions on its conduct of policy analysis, its policy on review and publication, and the unwieldy nature of its models discouraged other agencies from using EIA's analytical services.⁴

More specifically, as an objective source of data and analysis, EIA was prohibited by the DOE Organizational Act from advocating any position. In its attempt to be objective, EIA offered bare-bones analyses which even skilled analysts had difficulty interpreting. Officials without analytic backgrounds were simply confused and put off. Similarly, having been reprimanded for some questionable analysis offered in support of the first National Energy Plan, EIA was skittish about cooperating too closely with other agencies to meet their analytic needs. To protect itself, EIA remained at arms length and discouraged requests for informal analyses or analyses whose premises EIA staffers did not support. This made it difficult to apply EIA's formal models to points of view different from those held in the agency. Though they could provide extraordinarily detailed and useful results once programmed to do so, the models were so difficult to manipulate that sensitivity analyses were difficult to perform. As a result, EIA staffers tried not to carry the models far from a standard set of assumptions.

The net result of all this is that EIA was becoming progressively less useful to many parts of DOE. Other offices developed their own analytic capability in-house, turning more to outside contractors for analytic support, or, most distressingly, going without. This was true in the FUA rulemakings. Beyond the analytic memorandum supporting FUA's initial regulatory analysis,⁵ EIA's analyses had little effect on actual decisionmaking in the FUA rulemakings. ERA in particular has called EIA's analysis "inadequate."⁶ As a result, EIA's effect on the FUA rulemakings was much smaller than its output in support of the rulemakings might suggest.

⁴This statement, expanded in the next two paragraphs, is based *solely* on the views of officials interviewed in the course of this study. Though we have not verified these views independently, the consistency with which they were held suggests that they present an accurate picture.

⁵D. E. Meade, F. H. Murphy, and W. D. Montgomery, *Analysis of Proposed U.S. Department of Energy Regulations Implementing the Powerplant and Industrial Fuel Use Act*, Energy Information Administration, AM/EI-79-07, November 1978.

⁶Economic Regulatory Administration, "Final Regulatory Analysis for Certain Purposes and Draft Regulatory Analysis for Purposes of the Cost Calculations," 45 *Federal Register* 42210, June 23, 1980.

Other offices in DOE, as well as the EPA, provided technical data and analysis to the rulemakings that were, by contrast, much more influential. With the exception of EPA, these offices generally brought two forms of technical information to the rulemaking: (a) information on the current and projected technological status of a variety of "alternative fuels" and the technologies that employed them, and (b) technical information important to the definitions that defined the limits of FUA applicability. Because none of these offices has appropriated funds to provide such information, they typically participated for reasons related more to their own programs' success than to FUA's ultimate success. EPA was in a slightly different position because FUA's legislation gave EPA an explicit role in FUA's execution. In addition to asking EPA for technical information about the limits and costs of pollution abatement, ERA spent a great deal of time negotiating with EPA on how best to coordinate their implementation obligations. As we shall see in Sec. V, the technical issues and implementation issues were closely linked.

SUMMARY

ERA's Regulations Division had primary supervisory responsibility for the rulemakings, but the rulemakings had high visibility throughout the agency. Other parts of ERA, particularly the Conversion and Utility Systems Offices, provided substantial technical support to the rulemakings, both through their own in-house expertise and as liaisons to technical program offices elsewhere in DOE.

Outside ERA, GC and PE played the principal roles in the rulemakings. GC played its traditional role as chief legal advisor and made sure the rulemakings would be able to support the litigations they were likely to induce. GC also reviewed language drafted for the rules by ERA and ultimately took over that drafting role. PE made its principal contribution through analysis and promotion of social welfare as a basis for decisions. Together with the RARG, it provided most of the formal economic analysis in the rulemakings beyond EIA's memorandum in support of the initial regulatory analysis. EIA offered important analytic support in that memorandum, but lost its credibility in the rulemakings soon after.

Among the other offices in DOE, Fossil Energy and Conservation and Solar Energy played the largest roles, both by providing technical information for the rulemakings. Outside DOE, EPA had an important role defined by the legislation that led to its involvement. It also provided technical assistance over and above its statutory obligations.

V. PROCEDURES USED IN THE FUA RULEMAKINGS

How does one manage a regulatory rulemaking? In particular, how does one manage more than thirty complex, interrelated rulemakings in a volatile political environment for a Secretary who demands that the Department take a politically sensitive and controversial position on fuel-switching policy? When ERA's Regulations Division began to plan the procedures for the FUA rulemakings, it faced four major operational difficulties. (a) *Deadlines*. It had just six months from the time the President signed FUA in which to complete operational rules for implementing sixty pages of complex legislation. (b) *Staff management*. The Regulations Division had a staff of fifteen with which to write the rules, a staff that had to be properly managed over time to match its resources to the dynamic temporal demands of a rulemaking. (c) *Lack of information*. Though some in the division had experience with ESECA, most were more expert in the procedural problems of management and rulemaking than in the technical aspects of fuel-switching. And even the experts on fuel-switching had only scanty empirical knowledge about many issues important to the rulemaking. (d) *Diversity of interests*. The rulemaking would have to resolve sharp differences within ERA in particular and DOE as a whole that existed because of diverse programmatic interests in the Department and of philosophical differences even within programs. This section describes the procedure the Regulations Division chose to deal with these difficulties and how it dealt with each. The division's choices provide valuable insights into the management of regulatory rulemaking; in particular, they suggest that budgeting concepts have a very limited role to play.

THE PROCEDURE USED

Before we get into specifics, a quick statement of the concept underlying the process chosen will help order the discussion. The Regulations Division decided early to use an open and flexible management approach. The basic operating principle behind the rulemakings was to set up a decisionmaking structure that would air the views of anyone who cared to contribute to the rulemakings, and then to rely on the self-interest of those who might be affected by the rulemakings to participate if they wished. The division hoped that this would resolve

difficulties (b), (c), and (d) above by exploiting resources beyond the division, assuring that those with information would bring it to the rulemakings if it was relevant, and assuring that differences in opinion could be heard and debated. Difficulty (a), which was ultimately the binding constraint on the rulemakings, was attacked by setting up a formal working group of the organizations with the greatest stakes in FUA as a decisionmaking body to assure that the process remained on schedule and ultimately reached closure.

More specifically, the Regulations Division organized the rulemakings in a matrix structure. On one axis of the matrix were the important issues in FUA for which rules were to be developed. The Regulations Division identified about sixty of these. For example, each exemption was treated as a separate issue. The definition of the cost test and a number of other basic definitions were also issues. On the other axis of the matrix were the program offices in DOE. In the beginning, non-DOE offices were not considered because of legal fears that dealings outside the Department might be viewed as a form of *ex parte* communication. It soon became clear, however, that with proper treatment of such contacts in the public record, interagency communications would create no difficulties. Once this was established, EPA and, to a lesser extent, FERC were also included on the program axis. The Regulations Division's task then became one of assuring that the rulemaking process brought appropriate skills from offices on the program axis to bear on specific issues within FUA on the issues axis. The Regulations Office effectively set itself up as a liaison agency which brought the skills throughout DOE to bear on specific issues in FUA.

It did this within the context of the working group, whose operation changed significantly over the life of the rulemaking. It met daily for several hours during three identifiable periods. During the first period, from July to November 1978, Bardin personally oversaw the group as it formulated the options for the proposed rules issued in November 1978 and January 1979.¹ During this period the working group became known to all involved in it as the "group grope." It worked in the following way.

As noted above, the Regulations Division identified about sixty separate topics to be addressed. The working group dealt with one topic or a few related topics at a time. A staff member of the division was assigned to address each of these topics, to develop policy options for treating it, and to write a crude issue paper. This issue paper then served as an informal agenda for the working group's meeting on the

¹Table 2 offers a summary of the rulemakings' principal dates of issuance in the *Federal Register*.

Table 2

DATES OF PRINCIPAL RULEMAKING EVENTS DURING THE CARTER
ADMINISTRATION AS RECORDED IN THE FEDERAL REGISTER^a

10 CFR Part:	Description of Content	Proposed Rulemaking	Interim Rule	Second Proposed Rulemaking	Final Rule
500	Policy and definitions	11/17/78	5/15/79	8/80 ^b	6/6/80
501	Administrative procedures and sanctions	11/17/78	5/15/79		6/6/80 8/12/80
502	Fuel decision report	11/17/78	5/17/79		6/6/80 ^c
503	New electric powerplants	11/17/78	5/17/79	6/23/80 ^d 8/80 ^b	6/6/80
504	Existing electric powerplants	1/29/79	5/15/79	6/23/80 ^d 8/80 ^b	8/12/80 ^c
505	New MFBIs	11/17/78	5/17/79	6/23/80 ^d 8/80 ^b	6/6/80 ^c
506	Existing MFBIs	1/29/79	7/23/79	6/23/80 ^d 8/80 ^b	8/12/80 ^c
507	Fuel classification and reporting requirements	1/29/79	5/17/79		6/6/80
508	Special rule on the public interest exemption for gas	1/5/79			4/9/79
515	Transitional facilities	11/22/78	3/21/79		10/19/79
516	Industrial outdoor lighting	2/13/79			5/10/79

^aMinor amendments not included.

^bRevision of the terms of the cogeneration exemption.

^cDeleted; contents consolidated with other parts of the regulations.

^dRevision of the method of defining "substantially exceeds."

topic. A typical meeting would have anywhere from 8 to 25 people present. They included staff from the Regulations and Conversion Offices in ERA, GC, PE, and any other offices "interested" in the proceeding. The Regulations Division gave advance notice of working group meetings to potentially interested offices, and then proceeded with the staff members interested enough to attend.

Usually, one or two attendees would know enough about the topic to dominate the discussion. Their knowledge might result from previous experience or from developing the topic within the Regulations Division. To a large extent, the meetings served the educational purpose of transferring these informed attendees' knowledge on a topic to the less informed majority. This was done in a relatively unstructured setting. Not even the senior officials of the key offices in ERA and GC, who typically attended these meetings, were briefed in advance on the basic issues involved. The staff members in the working group had too little knowledge at the time to allow it. Similarly, no formal analysis was initiated by the working group to support itself. Funds were unavailable for contract research, and organic resources were strained in the day-to-day process of supporting the working group.

Discussions within the group ordinarily culminated in a consensus, but two factors often slowed the process. First were honest differences of opinion, which stemmed both from philosophical differences in the group and from the lack of technical information on many key issues early in the rulemaking. Philosophical differences persisted throughout the rulemaking. On the one hand, a group characterized early as "crusaders for coal" saw fuel-switching as a policy imperative in its own right and hence as a goal in and of itself. On the other, advocates of cost-benefit analysis saw fuel-switching as one among several instruments to be used to improve social welfare and therefore as an instrument whose use should be tempered by economic considerations. With the support of Bardin, O'Leary, and Schlesinger early in the rulemaking, the crusaders tended to prevail in the working group. The result, discussed in more detail in Sec. VI, was a set of definitions and administrative burdens designed to force fuel-switching even where it was quite costly. Because so many issues could be seen from either of these two points of view, honest differences of this kind slowed down the rulemaking considerably. These, of course, are the types of issues that the Regulations Division hoped would be raised and resolved in the rulemaking. The lack of technical information slowly gave way to understanding, particularly as public comments began to come in, but it led to considerable confusion during the first set of meetings.

The second factor that slowed the proceedings of the working group was the fact that individual staffers usually were not empowered to

commit their offices to a position agreed upon in the group. Apparently, many group decisions fell apart as members reported opposition from their offices; higher-ranking officials from those offices thereupon entered the rulemaking to resolve disagreements between different parts of DOE.

The presence of these more senior officials was important because a chief concern of the Regulations Division in setting up the working group was to avoid "rolling"—the practice of asking offices for comments only when it was obviously too late to use them. The involvement of senior officials yielded broad input into the rulemaking process at an early enough stage to affect both the options it considered and the decisions it made. Effective senior input, of course, depended on the effectiveness of the regularly participating staffers, who were likely to be better informed on details of the rulemaking and surely better informed about the times when their superiors should enter the rulemaking than the senior officials could hope to be without participating directly themselves.

Even when senior officials were called in, the working group could generally reach agreement. But when the issues involved required policy decisions, Bardin stepped in. He in turn might take the issue to Deputy Secretary O'Leary or even to Secretary Schlesinger. But, while the issues addressed by the group were highly visible at the highest levels, few went beyond Bardin for decisions.

The second set of working group meetings occurred from February to May 1979. For these meetings, Bardin relinquished his day-to-day involvement, delegating operating responsibility to Richard Herzog. He oversaw the meeting through a Senior Review Committee (SRC) composed of three officials, each with a veto power over decisions made in the rulemaking. They were F. Scott Bush, Assistant Administrator of ERA for Regulations and Energy Planning; Robert L. Davies, Assistant Administrator of ERA for Fuels Conversion; and James Heffernin, Assistant General Counsel for Coal Regulations. The Regulations Division continued to oversee the working group as it developed issues for final decision by the SRC. During this period, the SRC's main task was to respond to public comments on the proposed rules issued in November 1978 and February 1979 and revise the rules into interim rules to be issued by the May 8, 1979, statutory deadline. In fact, the principal rules were published in May and July.

By this time, the personnel in the working group were better educated about the issues. The issues relevant to revisions were more clearly defined and narrowly focused, and the information coming in from public comment allowed a more informed discussion of many of the key issues. As a result, working group meetings proceeded in a

more orderly fashion. GC and the Regulations Division reviewed comments as they arrived, digested them, and presented their principal points in a short discussion of the issues involved. These were typically circulated to staffers and the SRC before meetings in a one-page summary form, and enabled everyone to use his time more effectively. The SRC continued to make decisions in the same way and to pass issues up to Bardin as required.

The Regulations Division also began to keep a formal record of the rulemakings at this time. After a rocky start, the record became a routine; it was updated to within about forty days of any particular current date.

The third set of meetings occurred from March to June 1980. By this time, Rollins had replaced Bardin. She played a less active day-to-day role in the proceedings than Bardin had, but continued to resolve agreements within the SRC.² Her leadership played an important role in the philosophical change in direction effected through these meetings (see Sec. VI). In particular, this set of meetings prepared for the issuance of final rules and also developed newly proposed rules for the cost test and the cogeneration exemptions in June and August 1980. The efficiency of the group continued to improve. By this time, those in the working group were well informed about the issues. They concentrated on very specific, technical issues such as the amount of oil required for flame stability in a plant with coal as a primary fuel, or the maximum number of hours to allow a peak-load powerplant to operate per year. They also effected a substantial simplification of the rules and considerably reduced the administrative burden on applicants for exemptions. They were able to do both of these in an orderly way because of the knowledge accumulated in the working group and the experience accumulated from application of the interim rules that became effective a year earlier.

HOW THE PROCEDURE USED TREATED DOE'S BASIC PROBLEMS

As the epithet "group grope" suggests, the process the Regulations Division devised to make the FUA rules did not run particularly smoothly in its early days. Lingering problems of setting up DOE itself contributed some confusion to the process at times. Nonetheless, the process accumulated experience and knowledge over time and led

²Rollins supervised the SRC through Bush, who remained an active participant. By this time Gary R. Comstock had replaced Heffernin in GC's position on the SRC.

to a much more smoothly running process after the initial rules were proposed. As a general rule, those who participated in the FUA rulemaking believe that, given the constraints they faced, the rulemaking went rather well. But how well did it address the four difficulties that were mentioned at the opening of this section? Let us consider each in turn.

Deadlines

The most pressing problem was the deadline whereby rulemaking was to be completed within six months of FUA's becoming law. Though not nearly so restrictive as the emergency deadlines typically encountered in oil and gas allocation and entitlement regulation, it did restrict the amount of preparatory work that could be done.

ERA dealt with this deadline in two ways. First, it started the rulemaking well before FUA became law. This raised some doubts about DOE's preempting Congress's authority to define the fuel-switching regulations, but these never became serious. The decision more than doubled the time available to write rules but still left a tight deadline.

Second, ERA decided to issue interim final rules rather than final rules to satisfy the statutory requirement. Such an action had been rare in DOE. This further extended the available preparatory time and, more important, provided the opportunity to use early experience with FUA's rulemaking to write the final rules. As noted above, the working group accommodated well to this arrangement.

But the decision to issue interim final rules also imposed a serious cost: delay. Most DOE officials agree that the single largest cost of the regulatory process was not the cost of resources that DOE devoted to it nor the cost of resources that industry and utilities were likely to devote to fighting it; it was the cost associated with the uncertainty about fuel use that prevailed over the duration of the interim rules. In particular, the effect of this uncertainty on investment in alternatives to oil and gas imposed substantial costs on fuel users and their customers. Fuel users who did not want to switch from oil and gas did not know what FUA would require of them. Those who did want to switch did not know how FUA might affect their choices.

Although interim rules are the law of the land over their duration, all litigation associated with the interim FUA rules was suspended pending issuance of the final rules so that judicial decisions on the interim rules would not be moot when issued. Because every significant interim rule was challenged in court, the entire rulemaking lay in question until the final rules appeared, even a year after the statutory deadline for operational rules. To counter this problem, ERA of-

ferred petitioners the better of the alternatives—the interim rules or the final rules—from the petitioner's point of view if the petitioner would accept an action made under the interim rules. That is, acting on the interim rules could expand a petitioner's options. While reducing the effect of delay, this provision, of course, also tended to loosen the FUA regulations.

No analysis has been performed to determine whether the additional information and time provided by the use of interim final rules outweighed the cost of delay. To the extent that early experience with the FUA rules contributed to their radical revision later on, the delay probably paid off. Section VI examines this question in more detail.

Staff Management

A rulemaking with proposed, interim, final, and sometimes revised and repropounded rules offers a series of periods with heavy workloads that alternate with periods of lighter loads. The approach taken by the Regulations Division allowed other offices to absorb most of the variation in workload. Because the primary focus of these other offices was not rulemaking, they could use slack periods in the rulemaking to perform other duties. Hence, they were better able to absorb variations in workload than the Regulations Division would have been. From this point of view, the decision to farm out a great deal of the work on the rulemaking to program offices was a good one.

Nonetheless, it was not costless. Allowing staffers who did not report to the Regulations Office to carry out much of the workload nullified much of the Regulations Office's control. ERA recognized this point explicitly in its decision to place lawyers in the Regulations Division so that the lawyers writing the rules would reflect ERA's position and not GC's. The same difficulty arose with other participants in the rulemaking, though their influence was unlikely to be as great as that of the lawyers. A number of participants from DOE's program offices stated frankly that they participated because they believed they would advance their own programs by doing so. Most of them felt that they could have improved the rulemaking by giving it more time but that they could not justify the time. They believed they might promote their programs either "offensively," by pressuring the rulemaking process to favor a program office's technologies, or more "defensively," by simply looking after the interests of the program office's clients in the private sector or learning the subtleties of the rules that their clients might exploit. Such behavior is not unexpected. But the Regulations Division showed little concern for the types of

biases this behavior might introduce into the rulemaking;³ if anything, the division valued the program offices' points of view as a source of diversity within the Department that should be considered fairly with other points of view. That, of course, related directly to another of ERA's goals in the rulemaking.

Lack of Information

Lack of information was probably the central difficulty with which the Regulations Division had to cope. Though it could draw on four years of ESECA experience and the technical resources of the entire Department and its contractors (to the extent that it could tap these resources without a strong *quid pro quo*), it lacked in-house technical expertise and did not have the luxury of time to develop it. As a result, officials associated with the rulemaking agree that the initial proposed rules were developed with a significant lack of understanding on a number of key issues. Understanding developed only as public comment began to clear up some of the more egregious errors made in the proposed rules. These officials also agree that this lack of understanding accounted at least partly for the rude reception accorded to the proposed rules when they were published.

ERA used four basic instruments to overcome this lack of understanding: past experience, accumulating experience, public comment, and formal analysis.

Past experience. Two sources of past experience were available: ESECA, both in its record and in its former staff, and the program offices in DOE. The Regulations Division used the ESECA experience to isolate and define concepts relevant to both rulemakings and to attempt to avoid the errors of the ESECA implementation. The FUA rulemakers borrowed a considerable amount of language from the ESECA rules. One example that played a key role in the FUA rules is the notion and definition of a "primary energy source." Others involved technical aspects of the operation of boilers that did not change simply because the law changed. More often, however, ESECA appears to have been viewed negatively. The decision to write the rules within ERA has already been mentioned. Another example is a similar decision to avoid case-by-case determinations whenever possible, which Sec. VI discusses in some detail.

The program offices offered the benefit of their knowledge, mostly

³Ironically, at the beginning of the rulemaking, the Regulations Division feared that program offices would not participate for fear of endangering their relationships with their clients. In fact, the program office, at least in some cases, gave private industry indirect, backdoor access to the rulemaking.

based on past experience. The information offered was typically either on the *general* technological status of a new option, such as fluidized bed combustion, synthetic fuel, or combustion of coal-oil mixtures; or on a specific technical issue, often associated with a specific FUA case. Recall, however, that the participation of these offices was limited and of a predictably biased nature.

Accumulating experience. The Regulations Division used accumulating experience from a number of sources. The general rulemakings themselves, with interim rules, were designed to accumulate operating experience that could be used in later rulemakings. This was enhanced by a number of decisions to extend comment periods to accumulate public reaction to FUA's actual experience. And, of course, the SRC working group was designed to accumulate experience in the rulemaking process itself.

Again, information gathered in this form is not costless. As noted earlier, it may be purchased only at the price of delay. Furthermore, it need not provide experience representative of what the rulemaking office will face in the future. As we shall see in Sec. VI, the Conversion Office believed that the first year of FUA's implementation had been atypical and had to be interpreted with a clear understanding of the changes likely to come in the future.

Public comment. Public comment appears to have been the single most important source of information for Regulations Division, from whose point of view it offered several attractive features. First, with a regulation like FUA, which was to affect a heterogeneous population, self-interested public comment was likely to reveal the location of "pressure points"—that is, who is likely to be hurt. Significantly, a victim who is able to supply a convincing public comment is also probably able to apply effective political pressure. Hence, public comment offers a warning of where political reactions are likely to be most severe.

Second, public comment is a critical part of our current notions of due process. Information collected in this manner can be examined and questioned in a fair, public forum. Furthermore, because administrative law required that DOE request public comment and respond to significant comments in the public record, the opportunity to collect useful information from such comments simply added to the benefits of an activity which had to occur anyway. This offered information at a very low price.

Third, most of the resources dedicated to public comment are off-budget. This further enhances the value of the public comment process *relative* to other sources of information.

But public comment also has its costs. Probably the most important is that public comment does not draw a representative set of informa-

tion important to policy. It typically undervalues the views of parties who cannot effectively present their views. This may be true because, while benefits or injuries to a class are large, effects on any individual in the class are too small to draw a reaction. Or it may be because the class is hard to identify, even to its own members. This is typically true of the manufacturers and consumers of new products—such as technologies that use alternative fuels—who will “inherit the future” but who cannot find each other today for effective joint action. Because these difficulties also lead to ineffective political action, DOE may not have been concerned about these points of view. But its mandate to accelerate our transition to a new future suggests that it should have been.

A second problem is the biased view presented by individual commenters. One rarely hears it said that the government does not impose on the private sector enough, because almost no one—in the private sector, certainly—has an incentive to say it; but the best comments will be made on issues for which there are both advocates and opponents in the private sector. The special rule on the public interest exemption for gas use is one example of such a case in the FUA rulemakings, but such examples are rare.

ERA was obviously aware of these problems. On the latter point, commenters clearly stated their interest in the rulemaking in their comments, and the positions they presented were relatively easy to predict once their stake was understood. But these problems suggest that ERA should have had an alternative source of information in order to provide the truly informed, adversary forum that public comment demands. Public comment cannot be used alone without tilting policy too much in favor of the parties being regulated.

To complement these problems, formal public comments offer a rather awkward channel of communication because of their formality. For example, administrative law required that the rules finally adopted had first to be offered as proposed rules.⁴ Hence, if a public comment period yielded useful suggestions that would carry the rulemaking beyond the options considered in the notice of proposed rulemaking and public hearing (NOPR) preceding the comment period, another NOPR reflecting the suggestions had to be issued and followed by further comment. This in fact occurred in the cases of the cogeneration exemption and the cost test under FUA.⁵ This inherently

⁴The DOE Organizational Act required this explicitly, but FUA was not subject to the procedural requirements of this Act (P.L. 95-620, Sec. 701(h)(1)). Nonetheless, ERA appeared to use its prescribed procedures anyway, probably because they reflected prevailing administrative case law.

⁵A change in leadership in DOE in August 1979 complicates this point slightly. The new NOPRs were required to implement policies sought by the new leadership. Im-

delayed rulemaking and reduced the rulemaker's willingness to exploit new information, despite its usefulness. More generally, the public comment procedure encourages an oversimplified, formalized, and sometimes rhetorical form that is less likely to be conducive to real communication of available information than would be a less formal, personal exchange of views.

Finally, as noted earlier, overreliance on public comment does not enhance a regulator's image as a competent regulator if it must propose questionable rules on the basis of limited information in order to solicit comment. In fact, such a strategy may actually attract litigation or, at the very least, increase organized opposition. The rapid and raucous response to the proposed rules for FUA reflects these difficulties. Rulemakers in ERA recognized this problem and believed that earlier and less formal access to industry and utility input could have helped avoid the problem.

Early, informal information-probes into industry and the utilities could ameliorate both of these problems—the limited usefulness of information from public comment and poorly written proposed rules. GC took a very conservative position on such contacts. As a result, ERA feared that such probes would give the appearance of conflict of interest. Informal contacts with the parties to be regulated raised the possibility that parties not contacted would argue that they had not been given equal access to the rulemaking process. Such an argument could weaken DOE's position in any litigation resulting from FUA. Informal contacts also invite bribes and more subtle forms of persuasion that could lead to actual conflict of interest and prejudice the rulemaking as a whole. While these problems are serious, they have not prevented other agencies—notably FEA under President Ford and, more generally, EPA—from exploiting early informal contact with industry. But for the reasons given above, ERA rejected the approach in the FUA rulemaking.

Formal analysis. The Regulations Division's final source of information was formal analysis. Formal analysis creates new information from individual data or observations by explicitly positing a model that shows how these data relate to some policy-relevant issue. Any time a manager uses a new piece of information to illuminate a policy decision, he must use some implicit model, even if it is as simple as requiring that if one public commenter supports a proposal provision and no one opposes it, the provision is appropriate. Formal analysis posits a model or logical structure that draws on some documented, substantive body of knowledge. It explicitly exposes the assumptions

plementation of these policies, however, relied on information from earlier NOPRs. We discuss these finer points below in Sec. VI.

required to implement the model and the places where values affect the interpretation and use of observed facts. This allows an objective third party who is conversant with the model and has access to the same factual data as the analyst to reach the same conclusion the analyst reaches. Neither the model nor its underlying assumptions need be universally accepted. But the model must be spelled out well enough to allow an objective assessment of whether it can be used to move from some set of observations to a conclusion relevant to policy. Formal analysis differs from the other sources of information above because it immediately gives its user the benefit of a substantive body of knowledge with which to place newly obtained individual observations in a policy-relevant context. As a result, it substantially expands the information content of such new observations and speeds the rate at which they can influence new policy designs.

Officials in ERA freely noted that it had little capability in-house to perform formal programmatic analysis. It did not even contract directly for analysis to support the rulemakings. Contract funds not devoted to ESECA were earmarked for research on implementation issues at the beginning.⁶ When analysis was done to support the rulemakings, it was done by PE, the program offices, RARG, or their contractors.⁷ ERA welcomed the analysis and often used the analytic results as a basis for decisionmaking. But it does not appear to have aggressively pursued such analysis. The analysis was made available because the offices supporting ERA in the rulemaking saw its importance and supplied it out of their own resources. In this sense, the formal analysis that ERA received shows some of the characteristics of the public comments it received. Though the communication problems were not serious (with the exception of the EIA's analysis), and the differences between ERA's interests and those of the parties supplying the analysis were not great, ERA had neither the control nor the perspective to assure that the analysis represented its best interests. We come back to the analogy with the lawyers; ERA's lack of control over its analysis injured it in the same way that its lack of control over its rulewriters could have—again, probably to a lesser degree.

Summary. The Regulations Division placed greater reliance on public comment and less on formal analysis than one might think was desirable. To some extent this was dictated by the circumstances:

⁶One exception was the Regulations Division's contract to Ernst and Ernst for an analysis of the cost of capital. This was used in setting the parameters to be used in the cost test. "Costs of capital and rates of return for industrial firms and Class A and B electric utility firms," May 17, 1979.

⁷Recall that EIA also provided analysis. Because ERA requested it only as a formality, however, it is not included here.

short deadlines that would not have allowed such formal analysis to be initiated after the rulemaking started, the lack of an analytic tradition in ERA, the availability of public comments from required administrative procedures, the heterogeneity of parties affected by FUA, and so on. In fact, more formal analysis probably would not have changed the final form of the regulations much. But, via an ordered exploration of the available facts, it probably could have hastened the date on which those final rules were published, thereby substituting both for public comment and for accumulating experience.

Diversity of Interests

If the FUA rulemaking procedures were designed to do anything, it was to assure that any voice that wanted to be heard in the proceedings would be heard. This applied equally to voices within DOE, where the SRC working group provided an open forum, and to voices outside DOE, where every opportunity was offered, including the extension of several comment periods, to assure that all points of view could reach the rulemaking.

In fact, as noted above, there were two distinct sources of diversity among the voices heard in the rulemakings and each affected the rulemakings in a different way. The first was the philosophical split within DOE, with one side viewing fuel-switching as a direct policy imperative and the other viewing it as an instrument with which to enhance a larger view of social welfare. This split could only be resolved by policy choices made above the SRC. Though the position of the Department shifted during the rulemakings, the change did not alter the basic position that fuel-switching was a policy imperative in its own right. The Department called for active pursuit of it early in the rulemaking and for only a symbolic gesture toward it as the rulemaking proceeded. Section VI will address this change in more detail. The main point to note here is that this difference in views was generally resolved by policy decisions above the SRC or by decisions in the working group that anticipated the position above the SRC.

The second source of diversity was more important at the staff level. It stemmed from the positions of private interests and program offices within DOE. As noted above, the rulemakings could be rather selective in terms of which views they represented inside or outside DOE. A good example of the differences that could persist within DOE can be found within DOE's Conservation and Solar Energy Office. On the one hand, the Industrial Applications Office became aware of the rulemakings early in their life and participated actively in the rulemaking on the cogeneration exemption throughout its life. This office

became aware of the rulemaking when ERA circulated a draft version of the November 1978 proposed rules. The office objected to the rulemaking's bias against cogeneration and worked hard to change that position. It even committed its own resources to two contractor studies that underlay the regulatory analysis for the August 1980 proposed rulemaking on cogeneration.⁸ Despite differences with others in the rulemaking, this office was satisfied that the rulemaking treated its view fairly. A principal staffer who was involved regretted only that he could not justify committing more resources from his primary program goals to promote his views in the rulemaking.

Contrast this experience with that of the Solar Thermal Power Office. Though the rulemaking considered major initiatives to promote solar alternatives as early as November 1978, this office did not become aware of FUA rulemakings until April 1980. At that time, a staffer in the ERA Conversion Office circulated a draft version of ERA's planned treatment of solar thermal power under the fuel mixtures exemption to the Solar Thermal Power Office. His goal was less to solicit the office's views in a general survey of the Department than to tap a bureaucratic source of support for his point of view. The office did indeed support his position but found itself powerless to affect the rulemaking. It had neither time nor resources to analyze the fuel mixture issue and a number of other issues it questioned. And it did not have enough experience with the rulemaking to know either how to apply pressure directly or how to advise its clients in the private sector on how to use the FUA rules to promote solar power. In sum, this office felt isolated from the rulemaking and as a result felt that its views had been cut out of the options being considered.

The principal reasons for this difference in experience are not immediately obvious. Because cogeneration is generally perceived as a more viable technology than solar thermal power, the rulemaking may well have overlooked the potential interest in the solar office. Alternatively, the two offices may have differed in their bureaucratic experience and their willingness to engage in bureaucratic entrepreneurship. Certainly, the industrial office was more inclined to commit resources to the rulemaking than the solar office. On the whole, this difference appears to illustrate a basic characteristic of the FUA rulemakings mentioned earlier. They provided an open forum for those willing and able to press their cases; they did not always actively

⁸"Potential in States and Regions for Displacing Oil or Gas via Oil- or Gas-Fired Cogeneration," May 1980; and "Market Development of Oil- or Gas-Fired Cogeneration Installations in Selected States Between 1980 and 1990," May 1980; both are on file at DOE in Room B-110, 2000 M Street, N.W., Washington, D.C.

solicit the views of those who might care about the outcome of the rulemaking.

Even given the limited participation that this view suggests, the rulemakings accommodated a diversity of voices that was still too great for coherent management of the SRC working group. The lack of close management protracted the working group's discussions and significantly increased the costs of keeping a good record of its proceedings. The first contributed to the rulemaking's delay in producing final rules; the second contributed to early difficulties experienced in maintaining a good record of its deliberations.

Officials within DOE have offered a number of ways to ameliorate these problems. One recommends that the working group be held to no more than six people in any one meeting, and that each agency be allowed only one representative in the meeting. This would reduce nonproductive discussion in the group and encourage more preparation by attendees. Another recommends that the SRC employ more senior representatives of agencies within DOE. This would reduce backtracking by representatives unable to speak authoritatively for their agencies. Probably more important, it would limit discussion to major issues and participation to agencies with a great enough interest to commit a senior person. And, most important of all, it would increase the probability that senior personnel in DOE were aware of choices being made in the FUA. A third recommendation calls for ERA to exercise greater control over the agenda by devoting more resources to issue papers and by defining the limits of debate more narrowly. This would lead to more orderly discussion and, more important, would create the basis for a formal record of proceedings.

None of these recommendations offers a costless solution. Calls for more senior staff and better control of agendas and records require the commitment of more resources to the rulemaking. Further, the restriction of entry to the SRC working group and greater control of agendas tend to exclude points of view whose worth may well exceed the cost of tolerating them in a working group. Given the limited information ERA had to structure the rulemaking, imposing more responsibility on it to make procedural choices increases the likelihood that worthwhile points of view will not be heard.

In sum, given persistent, honest differences of opinion and limited information, there was no simple way to manage the diversity of viewpoints within DOE. Under the circumstances, increased order would *probably* increase errors. The value of time saved and records effected would have to outweigh the cost of these errors. Limited implementation of some of the suggested alternatives might well have been profitable in these terms. To say more than this would require a much closer examination of the proceedings than we can provide.

THE ROLE OF BUDGETING

Conspicuously absent from the discussion above is any direct reference to budgeting as an aid in managing the rulemakings. In fact, budgeting did not play a major role. Participants generally agreed that resource issues associated with the management of the rulemakings were far less important than those associated with the effects that rules were likely to have in the private sector. Hence, optimal use of resources within the rulemakings themselves did not receive much direct attention.

When Regulations Division managers worried about how best to use their resources, it was in the context of specific issues like those discussed above. For example, in organizing a complex set of rulemakings around a staff of fifteen people, managers were very much aware of a severe resource constraint. But this did not constrain the total level of resources available to the rulemakings; many other people and other resources became involved. It simply kept the Regulations Division from maintaining direct control over all resources devoted to the rulemakings. In particular, as noted above, this implicit budgetary constraint led division managers to maintain control over a legal staff, while relying on outside offices to provide analysis and most of the information the division used. As we have seen, these decisions had important effects on how the rulemakings proceeded. They are not the type of effects we normally associate with budgeting as a management aid. But they may be inevitable in this type of activity. Section VII discusses in more detail the likely role of formal budgeting in future regulatory rulemakings.

SUMMARY

The FUA rulemakings proceeded in a constrained environment. The participants faced tight deadlines, limited resources, a serious lack of information, and diverse interests that had to be reconciled. Given this environment, the rulemakings appear to have proceeded well.

The approach to rulemaking chosen emphasized flexibility and accumulation of information and experience over ordered control and speed. Most of the rulemaking proceeded at the staff level in an interoffice working group, but senior officials entered the process when the group could not resolve issues on its own. The working group continually improved its understanding of the substantive issues underlying fuel-switching *through* its process of decisionmaking.

There are no quick fixes that would obviously have improved the

proceedings; changes likely to improve on the approach taken all appear to have attendant costs. One disturbing problem is the lack of direction in the pursuit of information and interests to include in the rulemaking. Strict reliance on self-interest to bring information and interests to the rulemaking is likely to cause distortions in the final view presented. These can probably be eliminated over time, but only at the cost of added delay. Despite the tight schedules, greater reliance on formal analysis would probably have increased the rulemakings' ability to order data and direct discussion and thereby hasten the date of publication of the final rules.

We must emphasize, however, that all these statements clearly are conjectures about the nature of tradeoffs in the rulemaking. The number of tradeoffs of interest is an important point itself. They are likely to call for different procedures to be used for different rulemakings, a prospect that will be important when we consider the relevance of this rulemaking to the generic issue of regulatory rulemaking.

VI. DOE'S BASIC DECISIONS IN THE FUA RULEMAKINGS

Over the course of the FUA rulemakings during the Carter Administration, DOE made five basic decisions. The way in which they were made gives us important insights into the rulemakers' interpretation of Congressional intent and the effect of formal analysis on the rules chosen. The rulemakings had to choose (a) a precise definition of Congressional intent under FUA, (b) a general method for measuring the extent to which costs of alternative fuels "substantially exceed" the cost of using oil or gas, and (c) the actual level of costs at which they "substantially exceed" the cost of using oil or gas. In addition, DOE decided during the course of the rulemaking to (d) use the "public interest" exemption to respond to unforeseen circumstances, and (e) alter the central focus of the FUA regulations in response to changing circumstances. This section discusses these choices in detail.

THE DEFINITION OF CONGRESSIONAL INTENT

Officials associated with the FUA rulemaking within DOE displayed a strong consensus about the meaning of Congressional intent in their activities. They contended that Congressional intent is a legal concept embodied formally in the actual language of the Act and its legislative history. Whatever can be proven in court to be consistent with this language can be used as a valid interpretation of Congressional intent. The important operative concept here is "proof in court." It implies that DOE could interpret Congressional intent in any way it liked so long as no one stopped it. Congressional action is one way to curtail DOE action, but it is typically more costly than court action. Hence, DOE saw the requirement that its interpretation hold up in court as the operative curb on its definition of Congressional intent.

While this may seem extreme, it is useful to view it in light of the likely efficacy of alternatives. If the statutory language of a bill is a true compromise, as we expect it will be, DOE will not be able to please everyone, no matter what interpretation it chooses. Furthermore, if DOE's rules were effective, they were bound to impose some costs on private parties that those parties would bear only if coerced. The victims of such coercion could be expected to sue DOE. DOE expected suits, and in fact viewed them as the only satisfactory way to define the precise bounds of its authority. Since DOE expected that,

under any effective regulation, its authority would be determined in court anyway, it went into rulemaking with an ability to "prove it in court" as its operative definition of its authority. No matter what other approaches might be preferred, the courtroom is where disagreements with Congress or the public over Congressional intent must ultimately be resolved.

We should not conclude from this discussion that Congress has little control over the definition of its own intent. In fact, it can and should anticipate such an approach within DOE. If it wishes to, it can write legislation precise enough to limit DOE's discretion to virtually any level it deems appropriate. In general, of course, Congress tends to avoid specificity.¹ But DOE implicitly argued that it could not be held responsible for Congress's failure to be specific.

With that in mind, GC treated ERA as its client. It counseled ERA on what could and could not be sustained in court. More specifically, it counseled ERA on the gray area between these two possibilities. As one GC lawyer noted, if ERA had only a 5 percent chance of winning on a point in court, he might still recommend that ERA attempt it—nothing ventured, nothing gained. In supporting "his client's" (ERA's) best interest, he had an obligation to supply legal advice in this form. In the end, then, the more litigation ERA was willing to tolerate, the broader was its initial set of choices in defining Congressional intent.

Schlesinger espoused a definition likely to precipitate considerable litigation. He instructed ERA to "utilize every bit of authority that was granted to the Administration" in writing the FUA rules.² Schlesinger offered no analysis to support this guidance; apparently, no formal analysis was performed to support it. He viewed fuel-switching as a policy imperative and not as an instrument to promote something abstract, such as "general social welfare." His view appears to reflect a general desire not to repeat FEA's ineffectual coal-conversion performance under ESECA. More specifically, it reflects a judgment that FUA would have to achieve by itself what it and the Administration's proposed Energy Tax Act would have attempted together. ERA, PE, and GC responded by using every skill that DOE's lawyers could bring to bear to shape a tough interpretation out of the language of FUA.

¹A lack of specific knowledge and a desire to shift blame for the concrete costs associated with concrete proposals are both cited as reasons why Congress tends to leave its statutory language relatively loose.

²Quoted in E. C. Levine, "ERA Edges Away from Fuel Use Hard-Line," *Legal Times of Washington*, June 4, 1979, p. 8.

THE MEASUREMENT OF "SUBSTANTIALLY EXCEED"

Recall from Sec. III that FUA basically called for prohibition of oil and gas use, *with* exceptions. The exemptions could typically be related back to a single basic concept: A plant could be exempted if any of a series of conditions—for example, the requirement to satisfy the Clean Air Act or the use of cogeneration—made the cost of using coal or some alternative fuel "substantially exceed" the cost of using oil or gas.³ ERA had to decide, then, how to define and measure "substantially exceed."

ERA first had to decide whether to approach the "substantially exceed" criterion on a case-by-case basis or with a rule.⁴ ESECA had previously faced a similar problem in operationalizing the concept of financial feasibility. As noted in Sec. III, ESECA used a case-by-case approach to its conversion program as a whole. Despite suggestions to the contrary in the preambles of its proposed orders, it also used a case-by-case cost assessment. ERA rejected this approach under FUA for two reasons.

First, ERA believed it was too arbitrary. The ESECA rules, for example, had allowed the use of a "deep pocket" doctrine that led FEA to impose heavier costs on plant owners who were more able to bear them. ERA considered such an approach in particular to be unacceptable and supported an objective basis for comparing costs. PE supported this point of view. There was some sentiment in PE to make the FUA rulemaking a "model proceeding." Alm in particular favored the explicit use of economic efficiency as a rationale for action. If this were to be done, the most logical place to do it was in the definition of "substantially exceed," where it would permeate the rules of exemptions.

Second, and at least as important, ERA believed that ESECA's case-by-case approach was a significant cause of its failure. It contributed to the red tape that grew around the ESECA procedures and gave plant owners an opportunity to dump large amounts of "information" on ERA to support their claims that they were exceptional.

Once ERA determined to use a rule-based approach to the "substantially exceeds" criterion—and this occurred even before the formal proceedings for the rulemaking began—the next problem was to define an explicit cost test to represent that criterion. Early examina-

³P.L. 95-620, Secs. 211(a)(1), 212(a)(1)(A), 311(a)(1), and 312(a)(1)(A).

⁴There is some controversy about this. The FUA language explicitly states that a rule must be used. See, for example, Sec. 211(a)(1). But the use of such a rule could be narrowly defined. For a discussion, see Scott Spiewak, "Final FUA Regs: Reporting, Substantive Changes," *Legal Times of Washington*, June 23, 1980, p. 24, fn. 31.

tions of the effects of various policies on fuel-switching, first in PE and then in EIA at ERA's request, used a simple "ratio test."⁵ It used the ratio of the present value of all the private costs of using coal or an alternative fuel to the present value of the private costs of using oil or gas. If the ratio for a particular plant exceeded a certain arbitrarily set level, that plant received an exemption. The private costs could be manipulated to include or exclude the effects of income and investment taxes and credits, depending on the purpose of the analysis. In these early analyses, the ratio had the virtue that it was simple and analytically tractable. The ratio also turned out to be intuitively satisfying to policymakers less familiar with its analytic virtues. Unfortunately, no rigorous justification existed for moving the ratio from use as an analytic tool to use as a policy tool.

An alternative that could be justified rigorously became known in the proposed regulations alternatively as a "direct increment methodology" and a "net present value technique."⁶ This approach adjusted the price of oil or gas by a "direct increment" which reflected marginal social values of the sorts of externalities discussed in Sec. II—import externalities, average cost-pricing, environmental effects, and so on. Additional adjustments could be made to reflect the expectations of rising fuel prices in the future, though such adjustments are harder to justify rigorously. It then examined the differences between the present values of using coal or alternative fuels and those of using oil or gas, and exempted plants for which the differences were positive. This approach drew on a well-established literature in the area of applied welfare economics and on empirical work that grew out of PE's work on the National Energy Strategy Study (NESS) in January 1978. While it was (and is) extremely difficult to determine the socially optimal size of the direct increment, at least analysts could find a basis for using *some* increment. Policymakers were not so sure.

The proposed rules of November 1978 offered both alternatives but favored the ratio test. ERA favored the ratio test both because it appeared to be simpler and easier to implement and because it did not require ERA to reveal its projections of oil, gas, and coal prices; only relative projections were required to be made public. ERA was partic-

⁵This appears to have been used for the first time to characterize the effects of FUA in PE's comparison of mandated fuel-switching and energy user taxes in 1977. PE used it again in 1978 to support FUA's programmatic Environmental Impact Statement. EIA then employed it to initiate analyses that would culminate in the analysis memorandum underlying FUA's initial regulatory analysis. See Meade, Murphy, and Montgomery (1978).

⁶See, for example, "Proposed Rules to Implement the Powerplant Oil Industrial Fuel Use Act," 43 *Federal Register* 53976, November 17, 1978; and "Calculation for the Cost of Using Alternative Fuels Under the Powerplant and Industrial Use Act of 1978," 45 *Federal Register* 42190, June 23, 1980.

ularly sensitive to the problem of publishing these projections because they might be seen as encouraging inflation or even encouraging OPEC to pursue an aggressive pricing policy. Though no one in ERA believed that either of these would actually occur, many officials worried about the appearance that ERA might be encouraging rising prices.⁷ In any case, ERA noted that both could be calibrated to have the same aggregate effect. It did not note, however, that "equivalent" tests could affect individual plants very differently, depending on the time profile of their cash flows.

ERA received public comment on the options and sifted through their response in its normal manner (see Sec. V). The choice between the two was finally taken to Bardin, who opted for the ratio test. He considered it easier to understand, justify, and use. Hence, it was issued in the slightly different forms that FUA's language required for new and existing plants. It became the centerpiece for FUA's interim rules.

Shortly after the interim rules were published in mid-1979, the ratio test ran into legal problems. A court suit challenging the ratio test revealed, in DOE's early attempts to respond, that the documentation for the analysis underlying the ratio test was inadequate for use in litigation.⁸ Because the analyst responsible for the work in PE had left PE, adequate documentation could not be developed. A full justification would have required a "complex black box to translate direct increments into a ratio with equivalent aggregate impacts."⁹ The complexity of such a procedure, coupled with its "inequitable" treatment of plants with the different time profiles of cash flow, made the development of any documentation difficult. Furthermore, the early inquiries also revealed a number of numerical errors in the contractor-produced results provided to support PE's analysis. Given these difficulties, ERA agreed to revise the cost test and the court test was held in abeyance until final rules could be written.

Later in 1979, a second problem with the ratio test arose. In an early application for exemption,¹⁰ it became clear that the ratio test could be used to "promote" very expensive alternative technologies by

⁷No consideration was given to the possibility that these projections would have to be available in the public record to allow public review of the assumptions underlying the test. As we shall see in a moment, just such an examination played an important role in the life of the cost test.

⁸The test of adequacy applied was stricter than had typically been required in the past. It resulted from a recent District of Columbia Court of Appeals ruling on another case that had not been reviewed by the Supreme Court.

⁹Rodney Lorang, private communication, November 21, 1980.

¹⁰Tentative Staff Determination, Anheuser-Busch, Inc., Docket No. ERA-FC-79-001, November 9, 1979. See Spiewak (1980) for a full discussion. See also the regulatory analysis for the revised cost test, 45 *Federal Register* 42209.

rolling their costs in with a cheaper fuel to keep the ratio index below its administratively set level. In essence, fuel mixture clauses in FUA could be used to create average-cost-pricing subsidies in the ratio test. ERA determined that the ratio test was an unacceptable criterion for judging fuel mixtures.

In response to these difficulties, ERA initiated a new proposed rulemaking in June 1980 that effectively advocated the direct increment methodology, newly labeled as a net-present-value approach.¹¹ Public comment revealed that such a cost test more closely approximated normal business practice and hence was easier for private industry to use. ERA also claimed that it would avoid the average-cost-pricing difficulty encountered in the Anheuser-Busch case.¹²

In sum, the central cost criterion in the rulemaking remained unresolved 15 months after the final rules were required. The first criterion proposed, the ratio test, grew out of analytic work and met two serious problems when introduced as a policy instrument. Its documentation failed, a problem that could have been avoided. And it failed to discriminate among alternatives in a policy setting, though for reasons that its early opponents had not foreseen. The second criterion proposed, the net-present-value test, was considered at the very beginning of the rulemaking, and was ultimately promoted for the same reason ERA favored the ratio test over the net-present-value test in the beginning—because it was simple to understand.

THE LEVEL AT WHICH COSTS "SUBSTANTIALLY EXCEED"

Given the *form* of the cost test, the next task was to decide on its level. Two distinct schools of thought developed on this decision within DOE. One, associated with the "crusaders" mentioned in Sec. V, called for the level to be set administratively to achieve whatever level of switching policy was seen to be called for. This point of view was reflected in analysis to relate different levels of the ratio and direct increment to levels of the incidence of switching: "incidence analysis." The other, associated with those who saw switching as an instrument and not as an end in itself, argued that the social externalities discussed in Sec. II should be used to choose the level of the cost test, irrespective of the level of switching it induced. This point of view supported careful analysis of the import premium and environmental diseconomies: "cost-benefit analysis." Both forms of analysis

¹¹45 *Federal Register* 42190.

¹²See regulatory analysis, 45 *Federal Register* 42209.

proceeded under the rulemakings to determine the level at which costs "substantially exceed."

As noted in the discussion of the cost test, incidence analysis began as early as 1977 in PE. Incidence analysis to support FUA began in PE and EIA in 1978. By late 1978, PE was conducting incidence analyses to compare the effects of ratio and direct increment tests. The analyses all revealed that, with the exception of some planned California combined cycle plants, all utility plants—new and old—switch to coal at a ratio level of 1.1.¹³

Figure 1 shows this for projected oil and gas consumption in 1990. Additional industrial plants convert as the ratio rises from 1.1 to 1.5; almost no additional switching occurs beyond 1.5. A "knee" occurs somewhere between 1.3 and 1.5.¹⁴ As a result, analysts in PE and EIA advised ERA that a decision to move the ratio above 1.3, and certainly above 1.5, would have little effect on fuel-switching and would exasperate the few plant owners picked up in this cost region. The November 17 proposed rules called for a ratio of 1.3 to 1.8 or higher; this reflects the influence of officials above ERA, officials who wanted the appearance of toughness as well as the reality.¹⁵

When these proposed rules were published, RARG noted immediately that the regulatory analysis accompanying them provided no basis for making a choice within the range of 1.3 to 1.8 "or higher." On the basis of this problem as much as any other—what RARG referred to as the absence of any analysis of benefits—RARG decided to review the FUA regulatory analysis.¹⁶ They notified DOE in the public record on December 15, 1978, and January 24, 1979, of their intention to review. That review process began a dialogue that commenced the cost-benefit analysis that would support FUA's interim rules.

Although the November 1978 regulatory analysis makes no mention of the quantified benefits of switching or of an objective way to choose the level of the cost test, analyses of these *general* issues had been under way in PE since January 1978. By August 1978, the import premium discussed in Sec. II was becoming a central focus of PE's thinking as a concept on which to structure a general cost-benefit methodology. In fact, PE was using the premium to analyze the bene-

¹³Recall that the ratio used was that of the present value of all the private costs of using coal or an alternative fuel to the present value of the private costs of using oil or gas.

¹⁴The "knee" is the level at which the marginal productivity of incremental rises in the ratio, in terms of additional switching, drops off markedly.

¹⁵43 *Federal Register* 53977.

¹⁶RARG had objections about the baseline and the relative treatment of oil and gas, but its concern about benefits appears to have dominated these other problems.

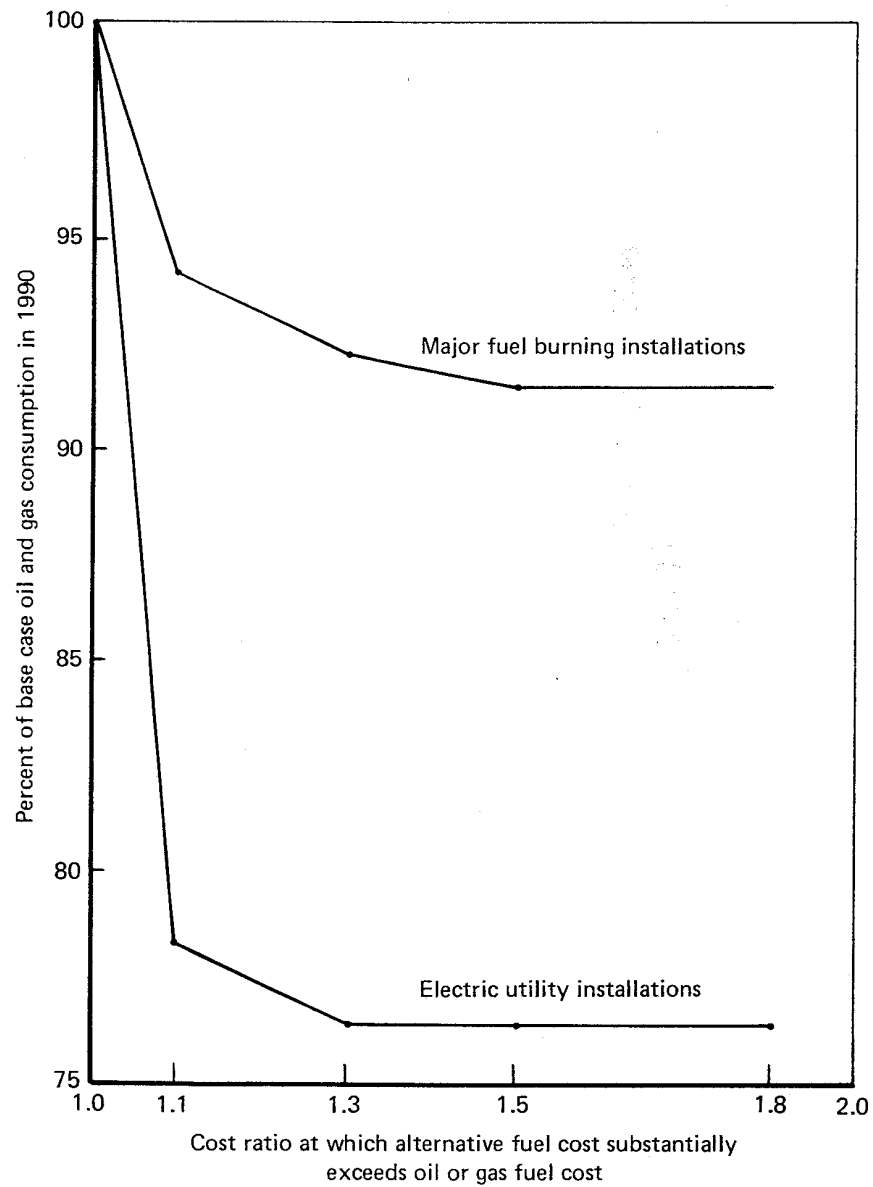


Fig. 1—How oil and gas consumption fall as cost ratio rises
(computed from results reported in Meade et al., 1978, pp. 28-42)

fits of FUA within the context of the second National Energy Plan.¹⁷ But that analysis was not reflected in the FUA rulemakings themselves.

This analysis of the premium provided the basis for a productive dialogue between RARG and PE, using EIA as a resource on energy models. Though the two disagreed on exact numbers, they reached agreement on a methodology that, in PE's hands, produced a direct increment of \$5.00 per barrel of oil-equivalent over and above the world price of oil.¹⁸ Earlier comparisons of the ratio and direct increment tests within PE revealed that a \$5.00 direct increment had approximately the same aggregate effect as a 1.3 ratio.

Bardin wanted the highest ratio that PE could accept—apparently a concession to Alm's influence in the Department early in the rule-making—and 1.3 was the number that PE's analysis supported. That this number is so close to the knee identified in earlier incidence analysis logically raises a question of whether a previous choice of 1.3 was "backed" into PE's analysis of the social benefits. There is surely enough uncertainty about these benefits to have allowed such an exercise. RARG's involvement in the process and PE's apparently sincere preference for a cost-benefit approach to FUA make this unlikely. But one must still be curious about what would have happened if the cost-benefit analysis had dictated a value much lower than 1.3.

ERA proposed to adjust the level of the cost test as circumstances dictated; and from both an incidence and a cost-benefit perspective, the rise in world oil prices that accompanied the Iranian revolution changed circumstances markedly. In early 1979, world oil prices jumped from about \$14 to over \$30 per barrel. Many DOE officials have characterized this jump as "imposing the energy-user taxes that the Senate rejected" and thereby reducing the need for FUA. The way the cost test was defined, a move from a 1.0 to a 1.1 ratio under these new circumstances had an effect similar to that of a 0.1 increment in the ratio above 1.5 before the price rise: very small. An EIA analysis requested by RARG indicated that FUA no longer displaced any oil in utilities or industry, and displaced gas only because of an anomaly in

¹⁷After that, the premium became even more important in national energy policy. For example, see its treatment in U.S. Department of Energy, "Draft Policy, Programming, and Fiscal Guidance, FY 1982-1986," January 30, 1980, pp. 9-16, D-4-D-5.

¹⁸Only \$2.00 of this results from an analysis of the social externality. The remaining \$3.00 is an annuity designed to reflect expected relative fuel price escalations for a typical plant. Compare *Department of Energy's Proposed Regulations to Implement the Powerplant and Fuel Use Act [sic] of 1978*, Report of the Regulatory Analysis Review Group, Council on Wage and Price Stability, Washington, D.C., March 12, 1979; and the preamble to "Powerplant and Industrial Fuel Use Act of 1978; Criteria for Petition for Exemption from Prohibitions of the Act: Interim Rule," 44 *Federal Register* 28953-28957.

the way that the cost test valued gas.¹⁹ Meanwhile, reassessments of the new direct increment suggested a social premium of \$4.00 to \$10.00 per barrel of oil-equivalent and an annuity to reflect the effect of fuel price escalation on a typical investment of \$5.03 to \$13.75 per barrel of oil-equivalent.²⁰ Taken together, these suggest a total direct increment of \$9.00 to \$24.00 per barrel. Given the minimal likely effect of FUA following the price rise, and under instructions from above, ERA chose a direct increment of \$5.00 per barrel again, well out of the range suggested by cost-benefit analysis.²¹ There is little doubt that those favoring switching as a policy imperative prevailed late in the rulemaking, although, ironically, they did so to make the cost test less stringent than those favoring a cost-benefit approach would have.

THE "SPECIAL RULE" UNDER THE PUBLIC INTEREST EXEMPTION

The first final rule under FUA, issued April 4, 1979, created a public interest exemption which allowed industry and utilities to use natural gas in excess of the amount allowed under FUA. The decision to allow this exemption was important for two reasons. First, it suggested a marked reversal in the federal policy of moving utilities and industry out of gas over time. In particular, after encouraging industry and utilities to reduce their use of gas for a full year following the gas curtailments of winter 1978, DOE found itself encouraging industry and utilities to return to gas. Second, the language in FUA showed a marked Congressional preference for displacing gas over that for displacing oil. The exemption at least appeared to violate this Congressional intent by encouraging fuel users to switch from oil to gas. Despite these difficulties, DOE issued the Special Rule.

The initiative for the Special Rule apparently came from the White House. It was formalized within DOE through normal channels, although it appears to have moved more quickly than other rules. Within DOE, the Special Rule was seen as a commonsense reaction to two

¹⁹See *Department of Energy's Proposed Regulation to Implement the Powerplant and Industrial Fuel Use Act of 1978*, Report to the Regulatory Analysis Review Group, Council on Wage and Price Stability, Washington, D.C., October 26, 1979.

²⁰See the preamble and regulatory analysis for the revised cost test, 45 *Federal Register* 42190-42199, 42209-42212.

²¹There is some evidence that, while PE analysts had confidence in these estimates, others in PE did not. Because the direct increment had implications that went well beyond the FUA proceedings, and \$5.00 was a conservative number that could be defended without direct reference to specific analyses in PE, \$5.00 may have become a "safe" number to defend within PE itself.

coincident conditions. On the one hand, the Iranian oil-shutoff of December 1978 further demonstrated the insecurity of international oil supplies and increased their price. This increased the urgency of reducing dependence on imported oil quickly. Second, initial implementation of the Natural Gas Policy Act (NGPA) created a surplus of gas in the United States. Officials within DOE differ on which of these was more important, but all agree that the logical reaction to this situation was to use surplus gas to displace imported oil. And the easiest way to do that was to persuade utilities and industry with the greatest short-run ability to switch from oil to gas. As it turns out, the Special Rule was quite successful, displacing more imported oil in 1979 than FUA as a whole was expected to displace by 1985.²² Leaving the success of the Special Rule aside, the rule itself raises important questions about the extent of DOE's discretion under FUA. Whether the Special Rule made sense or not under the circumstances, it did represent a distinct departure from stated U.S. energy policy as a whole and Congress's fairly plain intent in FUA. DOE officials explain that general policy and Congress's intent must be continually redefined as circumstances change. In particular, a basic task of the executive is to determine how a historical intent, as expressed in the explicit language of an Act, is best expressed in light of information available only now. One official went so far as to suggest that the preference for saving gas in FUA resulted from Congress's overreaction to gas curtailments during the winter in which FUA was considered in Congress. If it had had a more reasonable, objective perspective, probably available only after the fact, Congress would not have expressed such a preference; hence, the clearly expressed preference in FUA does not accurately reflect actual Congressional intent. Some DOE officials—at least this one—saw considerable latitude in their right to define Congressional intent. A more typical view is simply that, if Congress were considering FUA during the winter of 1979, it would have supported the exploitation of the surplus gas to displace imported oil. And that is what the first final rule issued under the FUA did.²³

²²The credit for these displaced imports, of course, should go to NGPA, which created the surplus that led to displacement. A difficulty with early FUA analyses was that they left NGPA out of the baseline, thereby increasing FUA's effect. For example, see the RARG Report of March 12, 1979.

²³The rule was tested in court and ultimately upheld in April 1981 in the U.S. Court of Appeals for the District of Columbia Circuit.

A REVISION OF FUA'S CENTRAL FOCUS

Over the course of 1979, three separate changes pointed to a need to change the focus of the rulemaking. First, as noted above, increases in the world price of oil associated with the Iranian revolution markedly reduced FUA's likely effectiveness. Recall that the failure of the Administration's proposed energy-user taxes contributed to Schlesinger's decision to make the FUA rules tough. With higher world oil prices creating the incentives to switch away from oil that the taxes were meant to create, the rationale for a tough set of rules was weakened.

Second, ERA received only about a tenth of the applications for exemptions—15 to 20 a year as opposed to 150 to 200—that it had expected to receive under the interim rules. This is partly attributable to the oil price rise, though we shall see in a moment that there may be other reasons as well. From ERA's point of view, it meant that the problem of enforcement would not be nearly as severe as it had expected it to be. With so few applications for exemptions, it could conceivably use a less formal enforcement mechanism and take advantage of the criminal penalties in statutory language to assure compliance.

Third, when Charles W. Duncan, Jr., replaced Schlesinger as Secretary of Energy in August 1979, personnel down to the administrator and assistant secretary level turned over. William W. Lewis replaced Alm; Hazel R. Rollins replaced Bardin; and John C. Sawhill ultimately replaced O'Leary. The new personnel had no stake in the policies of the past and could support a change in policy if the available evidence so dictated.

These three changes coalesced into a set of policy changes which dramatically reduced the administrative burden of FUA. ERA's Regulations Division initiated the formal process required to get a change. A proposal to change the emphasis in FUA rulemaking from toughness to minimization of regulatory burden was circulated during the summer of 1979. The draft document involved was never finalized, but it had the desired effect. Rollins, soon after her arrival at ERA, approved the change in emphasis and it proceeded within the context of ERA's established procedures.

The policy change was embodied in three changes in FUA's rules. First, application fees were eliminated. Though such fees are allowable for the enforcement of federal regulations, they are not commonly used. They must be based on cost, as the FUA interim rules suggest they were,²⁴ but the costs chosen can prove to be difficult to defend.

²⁴44 *Federal Register* 28535, 28546. See *FPC v. New England Power Company*, 415 U.S. 345 (1974); for a discussion, see P. J. Mode, Jr., and P. L. Radoff, "New DOE Fuel

Second, the requirement to file a Fuels Decision Report was dropped.²⁵ For some exemptions, such as the peakload exemption, where it was clear when a plant was entitled to an exemption under FUA, dropping the Fuels Decision Report substantially reduced the amount of information the plant owner had to gather and report. For others, the information called for in the Fuels Decision Report still had to be collected and reported, but it could be reported in the less burdensome form of "specified evidentiary requirements relating to individual exemptions."²⁶

Finally, and most significantly, ERA offered plant owners the opportunity to self-certify themselves for certain selected exemptions.²⁷ ERA reasoned that, given FUA's criminal sanctions, plant owners could be deterred from breaking the law under such certification by simple stochastic monitoring. Self-certification dramatically changed the administrative burden associated with many exemptions, especially those where plants applying were almost certainly entitled to an exemption. ERA also proposed a variation on this method in the form of state certification for cogeneration plants.²⁸ While changing external circumstances and accumulating evidence on the response of industry and utilities to FUA's actual implementation appear to have warranted a change, the change actually undertaken represented a basic philosophical departure from previous practice. A stance which saw administrative burden as a way to encourage switching gave way to one which sought to minimize administrative burden whenever possible. This is important for two reasons. First, the change involved was probably beyond the reach of formal analysis. In fact, beyond the EIA runs made for RARG, no formal analysis was conducted to justify it. Underlying the change was a basic reassessment of circumstances that, although supported by accumulating evidence, could probably have occurred without it. Second, the change in attitude within DOE was so dramatic that it probably had to be the product of a change in the leadership of the Department. The personalities that had implemented a tough stance—Schlesinger, Bardin, and Alm—probably would have had great difficulty supporting such a dramatic change in policy. Again, the change in personnel that accompanied Schlesinger's departure allowed a philosophical reassessment. While accumulating evidence and altered circumstances supported such a change, they were not sufficient to precipitate change. At least to some de-

Act Regulations Reflect Decisions to Use Authority," *Legal Times of Washington*, December 18, 1978, p. 18, fn. 6.

²⁵45 *Federal Register* 38276.

²⁶*Ibid.*

²⁷*Ibid.*, 38276, 38302.

²⁸Proposed rulemaking, Docket No. ERA-R-80-24.

gree, they helped to justify a decision which would have been made anyway in their absence by the new leadership.²⁹

A more fundamental question concerns the problem of why FUA should continue to exist at all, given its likely minimal effect in the future. RARG, in fact, recommended that the Secretary "consider whether the regulations and regulatory program developed under FUA should be terminated."³⁰ Personnel in DOE generally reacted to such advice in one of two ways.

First, they suggested that prevailing circumstances would not continue. As coal prices caught up with world oil prices, for example, switching to coal would become far less attractive than it appeared in the "interim" period following the Iranian revolution. Furthermore, industrial conservation, more efficient boilers, recession, high interest rates, and uncertainty induced by FUA itself had all come together to keep boiler purchases, and hence an interest in exemptions, down. As these factors passed, boiler sales would rise, and FUA would begin to look more important. Furthermore, as synthetic fuel and other alternatives became relatively more viable, exemptions to exploit them would become more important. In sum, the world situation is dynamic and one cannot judge FUA's future usefulness simply on the basis of the short experience with it thus far. This point of view predictably raised doubts about the advisability of the recent revisions in the FUA rules. It supported keeping the authority that FUA provided, even if it were not presently needed.

Second, even if FUA did have only a negligible effect on shifting to coal, coal was not the only alternative addressed in FUA's statutory statement of purposes. Those purposes call for the Act to "encourage and foster the greater use of coal *and other alternative fuels* . . . [and] . . . encourage the use of synthetic gas" (emphasis added).³¹ A number of trends under FUA pointed to this focus as increasingly important to FUA's future. Support existed in DOE's program offices and in the ERA Conversion Office, for example, to use cross-subsidization and preferential treatment to promote specific technologies under FUA. The Anheuser-Busch case mentioned earlier, for example, represented an unsuccessful attempt to promote solar thermal heating. The rules proposed in mid-1980 for the

²⁹Several participants in the rulemaking process confirmed this perspective, but from a slightly different angle. They saw a shift of power among groups *within* DOE occur when the new leadership took over. The change made it easier for individuals favoring less stringent regulation to make their views known and to have them acted on.

³⁰RARG, October 26, 1979, p. 21.

³¹P.L. 95-620, Sec. 102(b).

cogeneration exemption set up the opportunity to negotiate with states in a way that could allow FUA to promote specific technologies.³² At that time, the Regulations Division's deliberations on an "alternative fuels matrix" to define what fuels a plant had to consider for an exemption also reflected this perspective. But this perspective did not outlive the Carter Administration. One of ERA's first priorities under the Reagan Administration in January 1981 was to narrow the range of alternative fuels that might be considered under FUA. Rules developed during 1981 and issued in November 1981 ultimately limited FUA's significance to coal and fuel mixtures including coal.

In many ways, changes in FUA's regulations and regulatory program that began in 1979 marked the beginning of the end for FUA. The new Republican Administration maintained FUA itself as a symbol and as a means to counterbalance environmental regulations where firms wanted to convert to coal. But the changes begun in 1979 set the stage for the gradual dismantling of FUA from the inside and eventually for the repeal of several key sections of the Act over the next few years.

SUMMARY

Our brief examination of five basic decisions faced in the FUA rulemakings during the Carter Administration tells us a great deal about the flexibility available within the rulemaking and the grounds typically used for decisions. These points in turn illuminate DOE's view of its mandate and the importance of formal analysis to final outcomes.

DOE's interpretation of Congressional intent gave it considerable flexibility. The Special Rule shows how far DOE could push its interpretation when it needed to. Given the rapidly changing circumstances in which DOE operated, that flexibility was important. Principally as a result of changing world oil prices, FUA moved from having a small but still important role in national energy policy to having practically none at all. The rulemaking adjusted to this change by reducing its administrative burden and beginning to look beyond coal for a central focus. Whether this change could have occurred without the change in personnel that came about halfway through the rulemakings (to date) is unclear, but it appears unlikely.

The basis for the decision that effected this flexibility is also impor-

³²"Powerplant and Industrial Fuel Use Act of 1978; Cogeneration Exemption: Notice of Proposed Rulemaking and Public Hearing," Docket No. ERA-R-80-24, pp. 16-17.

tant. Of the five decisions presented, formal analysis supported only one. And even here the exact role of the analysis in the actual decisions is unclear. Was incidence or cost-benefit analysis more influential? The incidence analysis that viewed fuel-switching as a policy imperative in and of itself appears to have had the inside track; the greatest concern for cost-benefit analysis came from an agency outside DOE: RARG.

For the other decisions, a variety of grounds for action were important. The definition of Congressional intent and the Special Rule flow straight from a conviction about import reduction as a policy imperative. This conviction was probably informed by a judgment that, without such dramatic emphasis, FUA could lose its way just as ESECA had. These decisions offered the opportunity for a dramatic turn. The choice of a cost test and the decision to change FUA's level of severity were less focused and appear to have resulted from accumulations of experience, comment, and observation. They lacked the sharp sense of focus and purpose that analysis and personal convictions give to the other decisions. That does not make them any less valid, but certainly brings them along more slowly.

VII. FUA'S RELEVANCE TO FUTURE REGULATORY RULEMAKING

In many ways, the FUA rulemakings were unusual. Because FUA was the first part of NEA to be completed, it also led to the first set of rulemakings in DOE to (a) use the regulatory analysis specified under Executive Order No. 12044, (b) use the import premium to calculate program benefits, and (c) draw an RARG review. Probably for similar reasons, and because of its size—over thirty separate rulemakings in all—officials in ERA and PE decided to make it a “model” rulemaking. That contributed in turn to another first: The FUA rulemakings were the first in DOE not to use GC to draft rules. All of these features were bound to make the FUA rulemakings different from those that preceded it. But they did not prevent the rulemakings from raising many of the basic issues that will be important to future rulemakings—whether those rulemakings are used to impose new regulations or to dismantle them.

This section brings together the insights that the FUA rulemakings offer on the more general issue of regulatory rulemaking *per se*. The discussion covers the definition of the Administration's authority to act, the relationship of information and decisionmaking, and some budgetary issues.

THE ADMINISTRATION'S AUTHORITY TO ACT

The notion of the Administration's authority to act was important in the FUA rulemakings in two ways. The first was the matter of defining general Congressional intent about FUA. The other was the more specific issue of whether fuel-switching was to be treated as a policy imperative in and of itself or as one more instrument with which to pursue government policies in support of the general social welfare. The two were often closely linked in discussions of FUA, but they involve distinctly different issues.

As noted above, the general problem of defining Congressional intent is likely always to arise. Congress can typically be expected to shift the burden of specificity onto rulemakers in DOE. In the case of FUA, DOE pursued an extreme, legalistic interpretation of Congressional intent that led to legal challenges of every significant rule. But while FUA generated the prospect of more litigation than most DOE rulemakings have, litigation is inevitable in any rulemaking and ulti-

mately represents the only way the scope of the Administration's authority can be clearly defined. We can expect every rulemaking in the future to face this situation and to have to define intent in terms of the specific issues of each new statute.

The conflict between viewing an activity like fuel-switching as an end in itself and viewing it as a means to an end is a more general issue that transcends individual rulemakings and even the generic activity of rulemaking itself. FUA's statement of purposes gives little guidance as to how to trade off among all the purposes of the legislation. But a number of generic actions within the Administration do. Executive Order No. 12044, for example, appears to provide some guidance. It requires a regulatory analysis for "major" regulations. And when RARG reviewed such analyses, the first thing it looked for was *incremental, aggregate, social* cost-benefit analysis. (Though it had addressed distributional issues in the past, it did not do so unless asked.) RARG created a source of visibility within the White House that led to significant changes in the FUA rules. All of this suggests that the Administration wanted to become serious about cost-benefit analysis. PE's general interest in cost-benefit analysis was consistent with this intent. A similar interest is often expressed by the Reagan Administration.

As we noted above, it is not clear that cost-benefit analysis had much of an effect in the rulemaking. The commitment to cost-benefit analysis that surrounded the FUA rulemakings never penetrated to the heart of the rulemakings themselves. It will be argued below that, unless it is conducted in a very different way, such analysis is unlikely to have much effect. The Administration's mandate will continue to be expressed in terms of a series of policy imperatives.

INFORMATION AND DECISIONMAKING

A central concern of the FUA rulemaking that is likely to carry over to others is the problem of how to get information, on both technical issues and diverse points of view, in order to make decisions. This problem in turn raises three basic issues: the relationship of analysis and other ways to collect information, the importance of controlling analysis, and the ultimate issue of the extent to which information actually affects decisions.

Analysis and Other Information Sources

Formal analysis is only one way to secure information. Other ways include public comment and the use of existing and accumulating

experience. The FUA rulemakings rejected new analysis for all but the core issues because (a) their deadlines were too tight to allow new formal analysis and (b) the heterogeneous nature of the plants most likely to be affected by the rulemakings made formal analysis very difficult for more than a few simple (but elegant) questions.

While these are important points, an equally important point is that sources of information other than formal analysis have serious and predictable problems. Public comments contain several kinds of biases and accumulating experience provides no way to interpret data on the recent past when circumstances change. In the FUA rulemakings, there was a presumption that past experience provided an adequate context for perceiving and correcting for the biases in public comment and projecting future events on the basis of recent events. Analysis can test the hidden (even from the user) assumptions used in applying experience. It can also extract more information from a given set of data than a well-informed intuition can. The basic notion underlying FUA was to use a series of proposals and reactions to iterate to a final set of rules. Analysis is designed to seek out the point of convergence without actually experiencing the iterations. Much as formal training transfers information faster than apprenticeship, formal analysis deciphers the issues of importance faster than accumulating comment and experience. In this sense, analysis can actually reduce delay, thereby making it easier to meet deadlines, not harder.

The sort of analysis considered above is obviously better for some problems than for others; the heterogeneity of plants affected by FUA obviously makes piercing insights from analysis more difficult. But the discussion above does not suggest that analysis be used to the exclusion of other information sources. It suggests instead that analysis be used to create a context for using other information sources more effectively. This suggests an integration of formal analysis into rulemaking in a way that we never observed in the FUA rulemakings. While we normally think of formal analysis as a form of expert opinion on precise technical issues, it would have proven especially useful in the FUA rulemakings as the basis for a framework with which to organize information on precise technical issues. It would suggest what biases to expect from specific information sources, what information would likely not come to the rulemakings unsolicited, and so on. That is, formal analysis could potentially be used as a powerful management tool, not just as a source of technical information.

Control Over Analysis

For analysis to be used as a management tool, the rulemaking office must have the capability and the authority to control it directly. The office must be able to control its assumptions, its focus on specific problems, its use of alternative data sources when such sources differ in quality, and so on. In addition to making a useful management tool available to the office, such control has two other important benefits.

First, it gives the rulemaking office greater faith in the analysis it is using. This is true both because it can be sure that the analysis properly reflects the office's goals and because the office can impose greater control on the models, assumptions, and scenarios used in the analysis in order to assure that the analysis reflects the office's understanding of the world.

Those holding the common view about the use of analysis in the government would be appalled by such "local control" because it compromises the objectivity of analysis. Such a view neglects the effects of incentives in government and confuses all analysis with project evaluation. If analysis is so "objective" that it reflects neither the concerns nor the goals of a decisionmaker, he will not use it. The FUA rulemakings offer an excellent example of this difficulty: ERA was willing to request analysis from EIA to fulfill formal obligations, but completely ignored the analysis in its decisions. For analysis to be used in day-to-day decisions, it must be accessible to managers on a day-to-day basis; it must become a management tool.

Analysis can also be used as a tool with which to evaluate decisions or performance, but here it represents the interest of a higher office. RARG was quite frank about this distinction. As an evaluative office, it represented the interests of the White House, which were presumably broader than the interests of DOE that were represented in its regulatory analyses. Its broader view did not motivate RARG to replace analysis within DOE with analysis from an independent agency. RARG simply attempted to deter DOE from taking actions too far out of line with interests outside DOE. In the case of FUA, it used its review of the regulatory analysis as a way to look at the rulemakings as a whole to do just that.

The key point here is that, while analysis can serve as a powerful evaluation tool, it can embody different points of view. In order for a rulemaking office to use the results of analysis in its decisionmaking, it must believe that the analysis reflects its view of how the world works and what the key policy issues are. Control over the analysis increases the probability that this will be true. As noted above, the logic is quite similar to the logic ERA used to set up its own legal staff to write rules.

Control over analysis provides another very different benefit to the rulemaking office. The availability of an analytic capability in-house increases the office's ability to seek information of all kinds, and analysis in particular, in a deliberate way. For the most part, ERA did not seek analysis; it simply (and appreciatively) accepted analyses that public commenters and other offices in DOE thought were pertinent. Even if in-house analytic capability were not used to interpret incoming information, as suggested above, it would allow the rulemaking office to reach out for information in a focused way. Once this capability is in place, it can promote an analytic tradition that encourages the broader uses of analysis within the office suggested above.

Assuring That Information Affects Decisions

As a socially costly activity, information collection makes sense only if it affects final decisions. The FUA rulemakings raise serious questions about the extent to which information affects decisions, even when it is available.

For example, issues can easily be defined as being beyond the reach of information, as philosophical or policy imperatives that cannot be responsive to additional information. Major decisions on the central focus of FUA tended to take this form. Schlesinger had in mind the failure of ESECA and the Administration's energy-user taxes when he took a tough stand on FUA, but he had no information to suggest that DOE should use "every bit of authority that was granted to the Administration." And he was unlikely to respond to information to the contrary. In fact, DOE did not respond to accumulating information that the FUA rules were too burdensome until the policymakers associated with Schlesinger's stand left DOE. Similarly, once DOE determined that the FUA rules should not be burdensome, it treated this conclusion as a judgment above analysis and set the value of the direct increment in the cost test far below even the lowest figures supportable by empirical analysis. This second example is particularly important because it illustrates how easy it is to neglect valid information even when it is available at no cost.

Some stands taken without or despite available information obviously will not respond to any amount of information. But for other issues, local control of analysis accompanied by countervailing evaluation should increase the probability that information will affect decisions in a socially desirable way.

The evaluation need not be totally *ex post*. In fact, the most important stage in policy analysis comes at the point where policy options

are defined and the information requirements for their comparison determined. Once this stage passes, criticism of the analysis can affect only tactical issues of execution and not the strategic issues of choice that actually affect policy. It is particularly desirable to involve senior officials at this stage. Staff will typically favor narrow perspectives and be less willing to move beyond the ordinary. Only high officials understand DOE's general goals well enough to define meaningful options. And unless the analysis provides meaningful options, senior officials will not value the analysis enough to use it in their decisions.

Similarly, the evaluation should concentrate, not on the in-house analysis, but on the actions of the rulemaking office itself. While the in-house analysis may offer a conduit for review, it should not obscure the focus of the review on actual outcomes.

One way to achieve this focus on outcomes is to set up parallel management analysis and evaluation analysis tracks for a rulemaking. The management analysis should if possible be integrated with the rulemaking office; at the very least, it should report to it. And those responsible for the evaluation analysis should have the right not just to review but to intervene.

Some of these features existed during the FUA rulemaking. For example, PE had the right to review proposals for rulemaking early enough to affect early policy-relevant choices. But this right was exercised in a perfunctory way unlikely to affect rulemaking choices. Similarly, while RARG could act only as a public commenter, it could flag problems that would motivate others to intervene in a rulemaking. For example, when Bardin attempted to avoid some issues raised by RARG, the Domestic Council intervened to stop publication of the interim FUA rules. Even this action, however, was precipitated through informal channels.

While some aspects of this arrangement existed, then, they were not sure in their application. And the most important element was missing: analytic capability integrated with the rulemaking. Until this occurs, information and decisionmaking need not ever meet.

BUDGETARY ISSUES

Budgetary issues play a small part in the FUA rulemakings, but two points are important. One involves the budget that describes how alternative decisions about rules affect the social value of resources affected by the rules. The other involves the budget for the rulemaking itself.

The FUA rulemakings gave little attention to what budgetary con-

cepts might be appropriate to choosing among alternative rules. Early in the rulemakings, PE performed some back-of-the-envelope calculations which suggested that, if FUA were as effective as DOE hoped, its *net* benefits would exceed the costs relevant to any internal DOE budget by at least an order of magnitude. Hence internal budgeting received little attention in the rulemaking.

Whether the back-of-the-envelope calculations had any validity or not, this conclusion is certainly consistent with common wisdom about the costs and benefits of regulation. For *effective* regulation, costs and benefits external to DOE and the government are so much greater than costs and benefits within DOE that any budgetary analysis should concentrate on external effects. When comparing regulatory programs, their relative effects in the private sector are far more important from a social point of view than the relative marginal productivity of resources devoted to them within DOE. Though the FUA rulemakings published no formal estimates of their net social benefits, thinking within the rulemakings was concerned more with that *type* of measure than with one that would fit nicely into a PPBS cycle.

Significantly, as the likely effectiveness of FUA fell following the Iranian oil-shutoff, the rulemakings gave more attention to direct costs of implementation. But even here, costs to the private sector attracted the rulemakings' primary attention. Where FUA was unlikely to affect fuel-switching choices, ERA concluded that the private sector's costs of compliance and litigation should be minimized. While this judgment would have been equally valid early in the rulemaking, it became *relatively* more important within the rulemakings as FUA's likely net benefits fell.

The budget for the rulemaking itself is troubling because it accounted for such a small fraction of the real resources devoted to the rulemaking. Hence, even this narrow set of costs would not show up well in a PPBS system. The reason, of course, is that only fifteen people were counted as actually producing the FUA rules. In fact, the rulemakings were devised to shift most of the rulemaking work outside the Regulations Division. Other parts of ERA provided technical support and even helped draft rules. Program offices, PE, and EIA provided technical support and funded contractor-produced analysis. GC and the Justice Department braced to handle the unusually large amount of litigation that FUA induced through its rulemaking. Public commenters, especially the RARG, provided technical support and formal analysis at no budgetary cost to DOE at all. While all the costs associated with these activities were small in comparison with the expected net social benefits when the rulemaking began, they do present two difficulties.

First, because most of these activities were off-budget, the Regula-

tions Division might well have had an incentive to rely on them to produce more support than was worthwhile. It is obviously impossible to measure the marginal productivity of the last dollar spent on the rulemaking, much less on any activity within it. But the price of these services was so low to the Regulations Division that we would not be surprised if the division allowed the accumulation of more information and more analysis—particularly analysis it had no intention of using—than it would have if it had been responsible for the cost of these items. The validity of this proposition depends on the size of the division's budget, the *quid pro quo* the division offered implicitly or explicitly for support, and a number of other issues that would carry us beyond the scope of this discussion. Simply put, the multitude of budgets involved in the rulemakings raises serious questions about the efficiency of resource use within the rulemakings.

Second, this type of budgetary issue might well encourage the Regulations Division to spin off responsibilities that would have contributed more if under the division's control. The division valued lawyers too much, particularly given the ESECA experience, to spin the rule-writing responsibility off to GC. But the division's lack of an analytic tradition may have caused it to undervalue analysis and hence to prefer to use it off-budget; because of the low value placed on analysis, its reduction in value as the division lost control of it was more than compensated by the resources freed by moving it off-budget. This illustrates the close connection between budget and control envisioned in PPBS planning. It also suggests that rulemaking offices need not go out of their way to gain control of the analysis they need to support a rulemaking.

CLOSING COMMENTS

In the end, under the circumstances faced by the FUA rulemakings, most of the participants believe they went well. Most have offered suggestions for improvements based on their experience with the rulemakings. We have discussed many of these above. Almost without exception, the changes involve additional costs as well as benefits. Whether these changes would offer a net improvement is beyond the competence of this brief overview of the rulemakings as a whole. A simple awareness of the importance of these tradeoffs should help improve regulatory rulemaking in the future.

What is clear to everyone involved in the rulemakings is that they ran more smoothly and yielded "better" decisions as the rulemakings progressed. In part this is because they were designed to operate this

way and because the circumstances required such an approach. But presumably some of the learning achieved in the FUA rulemakings can be transferred to future rulemakings so that they need not repeat this costly process of learning. To the extent that this overview promotes that transfer, it has served its purpose.

BIBLIOGRAPHY

- Levine, E. C., "ERA Edges Away from Fuel Use Hard-Line," *Legal Times of Washington*, June 4, 1979, p. 8.
- Meade, D. E., F. H. Murphy, and W. D. Montgomery, *Analysis of Proposed U.S. Department of Energy Regulations Implementing the Powerplant and Industrial Fuel Use Act*, AM/EI-79-07, Energy Information Administration, Washington, D.C., November 1978.
- Mode, P. J., Jr., and P. L. Radoff, "New DOE Fuel Act Regulations Reflect Decisions to Use Authority," *Legal Times of Washington*, December 18, 1978, p. 18.
- Phelps, C. E., F. Camm, and F. Hoffman, *Issues Surrounding an Oil Import Premium*, The Rand Corporation, P-6568, October 1980.
- Spiewak, S., "Final FUA Regs: Reporting, Substantive Changes," *Legal Times of Washington*, June 23, 1980, p. 24.

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