Collapse of an Industry

Nuclear Power and the Contradictions of U.S. Policy

A volume in the series

Cornell Studies in Political Economy
Edited by Peter J. Katzenstein

A full list of titles in the series appears at the end of the book

John L. Campbell

Cornell University Press
Ithaca and London
(1988)
to help achieve the nuclear sector's immediate economic interests. However, science was not simply a slave to capital. Others seeking an approach to reactor safety policy informed more by a democratic than a technocratic perspective also used science to their advantage. In this case science was a double-edged political sword. Activists forced the government to improve its regulatory and safety research policies, even if officials intended those changes primarily to restore public confidence in both the sector and the government's ability to regulate it effectively. Of course, administrators did not surrender entirely. They designed their legitimization effort to favor the sector's development as much as possible. The irony was not that activists had succeeded at the expense of other important safety needs. Instead, it lay in the ability of government administrators to turn the activists' victory to the sector's advantage by developing a research program that would not just reestablish but also help sustain nuclear power both politically and economically.

Chapter Five

The Politics of Nuclear Power, the Power of Nuclear Politics

The reactor safety crisis was a catalyst for the antinuclear movement in the United States. But what effects did the movement have on the nuclear sector? How did the policy process influence the movement and contribute to its effects? Observers agree that antinuclear groups gained access to that process and created political stalemates over key policy issues. Some argue that this contributed significantly to the nuclear sector's collapse (e.g., Bupp, 1979; Golay, 1981; Kemeny, 1986). Others disagree (Komanoff, 1981). Without an analysis of political institutions, it is difficult to answer these questions. In the United States the institutional arrangements governing the politics of nuclear power tended to limit the access of different groups to different policy arenas. In addition to raising new concerns about the appropriateness of specific policies, differential access also reinforced public doubts about the legitimacy of the policy process itself. Political struggle continued to erupt and flow into policy arenas particularly conducive to obstructionist politics. This created policy stalemates, undermined planning, and dealt new blows to the sector's viability.

Policy Arenas

There is a long-standing debate among policy analysts about the nature of policy making in the United States. Many have argued that political authority has become more diffused among federal, state, and local governments, that administrative arrangements have grown more complex, that the number of opportunities for different groups
to participate in policy making have increased, and that the achievement of policy goals has become more difficult (e.g., Advisory Commission on Intergovernmental Relations, 1981; Reagan and Sanzone, 1981:4). As a result, they claim that competition among various agencies, policy-making elites, and special interest groups has often bred policy failure and a crisis of confidence in the government's ability to implement policy (Advisory Commission on Intergovernmental Relations, 1980; Pressman and Wildavsky, 1979; Walker, 1981:16). However, others have argued that political and corporate elites with privileged access to the most important policy-making arenas at least formulate policy consistently (Domhoff, 1983; 1978b; Lindblom, 1977; Mills, 1956). According to this second perspective, laissez-faire attitudes among elites and a distrust of the government's ability to plan effectively undermine political planning in the United States more than excessive competition over policy or flaws in the structure of the planning process (Vogel, 1978).

Despite their differences, both sides recognize the importance of specifying the degree to which policy arenas are hierarchically centralized and insulated from public pressure. Furthermore, those arguing for the decentralized pluralist model tend to focus on policy implementation while those suggesting a centralized elite model tend to concentrate on policy formation. As a result, there is room for agreement about the amount of access that different groups have to the policy process and the effectiveness of the process in the United States. Policy formation often occurs in arenas relatively insulated from public pressure, while policy implementation, the interpretation and application of substantive policies developed elsewhere (Lundqvist, 1980:6), tends to occur in more decentralized, accessible forums (Domhoff, 1978a; O'Conor, 1973:chap. 3; Pressman and Wildavsky, 1979).\(^1\) This does not mean that there is an ironclad separation between the policy formation and implementation processes. In some cases there are important reciprocal influences that create a seamless web connecting the two (Bardach, 1977; Pressman and Wildavsky, 1979:178). The problems of implementation may limit the range of policies policy makers choose from. Policy goals may shift as administrators struggle to find pragmatic ways to implement them. Nevertheless, it is useful to maintain the conceptual distinction while remaining sensitive to the interrelationships.

Not only different phases of the policy process but also different kinds of policy making develop in different policy arenas. For example, policy makers often create programs designed to facilitate capital accumulation in relatively insulated agencies restricted to powerful political and corporate elites. The Federal Reserve Board and the Council of Economic Advisors are classic examples of insulated economic policy making (Lindberg, 1982b). On the other hand, policy makers develop programs with less explicitly economic goals, such as education and welfare policy, in more publicly accessible forums, which have the added benefit of legitimizing the state's activities (e.g., Habermas, 1973:36; Miliband, 1969:165; O'Connor, 1973:chap. 3; Offe, 1974:47; Poulantzas, 1978). As a result, the relative influence of different groups of political participants often varies according to the type of policy under consideration (Sahr, 1985:141).

We can make three important conceptual distinctions about the policy process which are useful for understanding how the anti-nuclear movement helped undermine the viability of the nuclear sector. First, specific policy arenas are either centralized and insulated from public pressure or decentralized and accessible. It is tempting to equate this centralization dimension with federal, state, and local levels of government where the federal level is the most centralized. However, this is not always the case. There are some important policy arenas that are decentralized, highly accessible to all interest groups, but within the jurisdiction of the federal government. One example is the Atomic Safety and Licensing Boards, which must approve individual construction permit and operating license applications for nuclear power plants before federal regulators may grant them. Other examples are the federal district and appellate courts. Second, different phases of the policy process and different types of policy are often segregated within the state apparatus. On the one hand, we can distinguish between the state's policy formation and implementation functions. On the other hand, we should differentiate between policies that address primarily economic or noneconomic goals. Most of the government's involvement with nuclear energy has involved the latter. The 1954 Atomic Energy Act instructed the AEC to protect the public health and safety and to encourage private corporations to commercialize the technology. Therefore, except for electric utility and antitrust regulation, the act prohibited the government from directly regulating capital formation within the nuclear sector.\(^*\)

\(^1\)Theoretical support for this view is found in Alford (1973). Alford and Friedland (1985), Bachrach and Baratz (1962), Domhoff (1978b), and Lukes (1974).

\(^*\)The government does influence the sector's economic condition. Health, safety, environmental, and other kinds of regulation obviously have economic effects, although not always as intentional policy goals. Furthermore, the government provided economic support for the nuclear sector through research and development programs.
The Failure of Commercial Nuclear Energy Policy

Third, the formation and implementation of different policies is often institutionally fragmented among any number of agencies or branches of government within a particular vertical level of centralization. The greater the number of agencies, the more fragmented decision making becomes within a level of government. Pressman and Wildavsky (1979:141) argued that the more fragmented the policy process is among either policy makers or implementors, the more opportunities there are for different decision makers to exercise control over the policy process. Such fragmentation, they claimed, tends to make the policy process less efficient and effective.3

Policy Formation, Implementation, and the Nuclear State

Centralized administrative agencies and congressional committees at the federal level have historically had most responsibility for nuclear policy formation regardless of the desires of less centralized, state and local governments. The doctrine of federal preemption prevented lower governments from superseding the rules and regulations that the AEC, the NRC, and the Energy Research and Development Administration, later the Department of Energy, promulgated in promoting and regulating the nuclear sector. For example, a federal district court ruled in 1971 that Minnesota officials could not legally force utilities to keep radiation emissions around nuclear plants lower than the levels the AEC prescribed (Nader and Abbotts, 1979:338). The ruling reinforced the federal government’s right to regulate the safety and health aspects of nuclear power without interference from state governments. In Congress, the Joint Committee on Atomic Energy enjoyed similar control over policy formation, serving as legislative and conference committees to both houses of Congress in all nuclear matters. It proposed, advocated, and then advised Congress on all nuclear legislation without interference from other congressional bodies. In practice the joint committee was usually a

strong ally of the AEC. For these reasons the joint committee and the AEC nearly monopolized the formation of nuclear energy policy during their lifetimes (e.g., Clarke, 1985; Hertsgaard, 1983:255; Lewis, 1972:chap. 2).

Policy-making autonomy began to crumble in 1974 with the organizational fracturing of the AEC. Afterward the NRC formed most regulatory policy and the Department of Energy was responsible for most development policy. Furthermore, the newly elected Democratic majority in Congress abolished the joint committee in 1977 because they felt that members of the committee were too close to the industry, had a terrible public image, and did not understand nuclear technology well enough (Ford, 1982:226). As a result, the NRC and the Department of Energy had to work with twenty-eight congressional committees and subcommittees that inherited various oversight responsibilities from the joint committee (Barkanbus, 1984). However, while policy formation became much more fragmented among these new agencies and congressional bodies, it remained centralized at the federal level and relatively autonomous from lower levels of government. This did not mean that state and local governments were completely powerless. They often shared regulatory responsibility with the federal government over the environmental and siting aspects of nuclear projects (OTA, 1984:151). They gained additional regulatory influence through new legislation, such as the 1982 Nuclear Waste Policy Act, that provided for state participation in the management of radioactive waste. Beginning in the mid-1970s state governments also learned to influence the nuclear policy process by exercising their right to regulate the economic behavior of utilities through public service commissions. However, much of this lower-level participation came during the implementation rather than the formation stages of nuclear policy.

Implementation has been much more decentralized than policy formation. The AEC’s Atomic Safety and Licensing Boards routinely held public hearings that provided an opportunity for concerned citizens to raise questions, gather information, and express their views about nuclear projects under consideration for construction permits and operating licenses. Critics and advocates of nuclear power have also asked the courts to interpret policies as part of the implementation process. State, county, and municipal governments have had jurisdiction over parts of the implementation process, often with significant results. For example, Suffolk County in New York State blocked operation of the Shoreham nuclear station on Long Island, at least temporarily, by refusing to approve the utility’s emergency evac-

3This scheme is similar to that offered by Friedland, Piven, and Alford (1977), who suggest that power struggles determine the institutional structure of government by segregating different kinds of policy (economic and noneconomic) into different institutional arenas at either centralized or decentralized levels. My scheme offers two refinements. It adds a third dimension, fragmentation, and also recognizes that policy makers may segregate policy formation and implementation into different arenas.

insurance schemes, fuel subsidies, and uranium enrichment services. The point is that the government is not responsible for supervising or establishing policy concerning the sector’s economic health per se except insofar as antitrust and electric utility regulation is concerned.
The Failure of Commercial Nuclear Energy Policy

who had access and why?

Corporate, political, and technocratic elites advocating nuclear power had privileged access to the most insulated and centralized interiors of the policy process. The intimate relationship between the nuclear corporations, AEC, NRC, and Joint Committee on Atomic Energy was well known (e.g., Green and Rosenthal, 1963:169; Hertsgaard, 1983; Metzger, 1972:29–30). Although criticism forced the AEC to start paying more attention to public concerns by the early 1970s, one observer wrote that “the AEC was [still] dominated by the demands of industry and was subservient to the will of the proindustry Joint Committee” (Lewis, 1972:259). That intimacy developed and

continued into the 1980s through lobbying, advisory committees, and informal consultations between regulators and corporations about proposed regulations, licensing, and other policy matters. For example, according to one NRC senior staff member interviewed during this study, after the accident at Three Mile Island in 1979 utilities and reactor manufacturers, concerned that they would have trouble meeting new safety regulations, consulted with the NRC regularly to develop and administer regulatory changes in mutually acceptable ways. Informal consultations like these also occurred constantly during the licensing review process. In fact, these contacts were so prevalent that they raised doubts about the NRC’s ability to regulate the sector impartially (President’s Commission on the Accident at Three Mile Island, 1979:20; Weinraub, 1983:1). Moreover, pronuclear technocrats and scientists, employed or funded through the federal agencies charged with managing nuclear technology, provided most of the technical advice to policy makers, a situation that bolstered these suspicions (e.g., Metzger, 1972:26; Steinhardt, 1978).

Nuclear critics did not have the same access. The NRC viewed them as outsiders and, according to one staff member I interviewed at the Union of Concerned Scientists, did not often invite them to the daily discussions between regulators and corporate officials. Instead, Critical Mass, Friends of the Earth, and other opposition groups lobbied in Congress or, more often, worked through decentralized arenas. Of course, all of these forums were equally accessible to nuclear advocates.

Differential access also characterized functionally segregated policy arenas. Nuclear advocates had consistent access to places where policy was formed and implemented while opponents remained confined primarily to the latter (Golay, 1981:30). For example, the Joint Committee on Atomic Energy and the AEC consulted directly with nuclear corporations and utilities when developing emergency core cooling system research policy, the largest safety research program in AEC and NRC history. Corporations provided much of the experimental data and computer modeling that formed the basis for the policy (Cottrell, 1974; GAO, 1976a; JCAE, 1967:18). The Advisory Committee on Reactor Safeguards often experienced pressure from corporations and utilities when making its decisions (Okrent, 1981). Opponents of the government’s policies frequently found themselves excluded from these arenas and confined primarily to licensing board hearings and the courts—forums reserved for ensuring proper implementation and removed from actual policy making (JCAE, 1974b:527; 1974c:27). More recently, the National Research Council
THE FAILURE OF COMMERCIAL NUCLEAR ENERGY POLICY

(1984), the U.S. General Accounting Office (1986; 1985b), and officials in several state governments (GAO, 1985c:34) have criticized the Department of Energy for selecting waste disposal sites and for developing siting guidelines without input from the people potentially affected. Generally citizens were able to express their views on these matters only in forums such as public hearings and the courts where they tried to block implementation of decisions the department made behind closed doors.

There are several reasons why there was such differential access. Part of the explanation is the amount of resources available to the different groups involved. Nuclear advocates had much more money, legal expertise, and other assets necessary for influencing the policy process than did environmentalists, citizen groups, and activists critical of nuclear policy (Ebbin and Kasper, 1974:194; U.S. Senate, 1977:19–22). Critics spent about $4 million annually during the early 1980s on lobbying, public education, and other activities. Nuclear corporations planned to spend $27 million in 1983 just for public relations campaigns (OTA, 1984:214). Technical and scientific expertise was also a particularly important, yet unevenly distributed resource. Most nuclear scientists and engineers had continuing relationships with either regulators or corporations that they risked by associating with opponents of nuclear power. For example, during the emergency core cooling system controversy several dissenting staff scientists in the AEC’s national laboratories lost either their research funds or their jobs (Ford, 1982). As a result, it was often difficult and expensive for antinuclear groups to engage scientific help (Ebbin and Kasper, 1974:15). Although the formation of groups like the Union of Concerned Scientists, comprised of scientists and other nuclear experts, reduced the gap somewhat, one senior staff member from that organization told me that they were still at a tremendous disadvantage in resources for influencing the policy process.

Perhaps more important, the commercial nuclear sector in the United States emerged from military programs shrouded in secrecy. Only a few private contractors, military personnel, scientists, and powerful congressmen involved with the technology’s military development during the 1940s created the original government bureaucracy and its early policies. Whatever access critics and nuclear opponents have gained to the policy process since then came through political struggle. For example, AEC administrators began holding public licensing hearings in 1957 because experts found that the agency had issued a reactor construction permit despite recommendations to the contrary by its own regulatory staff and the Advisory Committee

on Reactor Safeguards, one of the first scandals to rock the agency. Similarly, AEC officials established routine Atomic Safety and Licensing Board hearings open to the public in 1962 to improve the agency’s credibility, to absorb political conflict, and, therefore, to facilitate indirectly the AEC’s promotional efforts (Mazur and Trask, 1979:48–59). Occasionally, the AEC and NRC convened public rule-making hearings to review controversial regulations and issues for similar reasons. They usually convened the hearings when nuclear critics persisted in raising objections at licensing hearings that caused or threatened protracted licensing delays. The emergency core cooling system controversy was a classic but not unique example. Rule-making hearings were a convenient way to circumvent objections and avoid delays at licensing hearings because they removed contested issues to another arena for public debate (JCAE, 1974b:527). Once removed, interveners could not raise them during individual licensing hearings. However, because rule-making hearings served only an advisory role in the promulgation and establishment of regulatory policy, critics charged that they provided more formal than substantive input into policy making. Nevertheless, critics did raise technical issues there that led to new, more stringent safety regulations. Again, the emergency core cooling system case was one where criticism produced tougher standards through rule-making hearings. There were others (e.g., Reactor Safety Research Review Group, 1981). Access to the electoral arena did not come easily either. During the 1970s antinuclear groups put referenda and electoral initiatives to stop the construction of nuclear projects on state ballots only after heated political struggles. Even then pronuclear forces usually beat them at the polls spending at least twice as much as the critics did on referendum campaigns (Gyory et al., 1979:384; Olson, 1976; Wasserman, 1979:59). The same was true of court cases. In short, differential access developed because nuclear critics, systematically omitted from the policy process initially, usually only secured access to relatively decentralized implementation arenas through political struggle.

CHANNELS OF INFLUENCE

Differential access influenced the trajectory of political struggle in the sector. Critics objected to several nuclear policies that they felt did not adequately protect the public safety and health. Usually focusing on specific plants, they initially used decentralized implementation forums to raise many of their concerns about reactor siting, potential
The Failure of Commercial Nuclear Energy Policy

earthquake damage to plants, safety, and environmental impact (Caldwell et al., 1976; Mitchell, 1981). This tactic was not surprising in that such forums provided the easiest access. Moreover, public opinion polls showed that concerns with nuclear power were more pronounced and more consistently linked to political activism when they pertained directly to the respondent's community or locale (Melber et al., 1977:154). If satisfaction was not forthcoming there, activists usually moved the struggle to more centralized arenas through whatever channels were available. This also contributed to the erosion of the policy process's legitimacy.

Citizens argued at an Atomic Safety and Licensing Board hearing in 1969 that the AEC should consider all of the environmental effects that two reactors then under consideration for construction permits would have on the Chesapeake Bay. The AEC refused, arguing that it was responsible for examining the plants' radiological impacts, but not the broader environmental effects such as thermal pollution. A regional coalition of environmentalists went to court. The U.S. Court of Appeals in Washington, D.C., upheld their complaint in 1971 and instructed the agency to obey the 1969 National Environmental Policy Act by considering the other environmental impacts during licensing. Similarly, critics raised the struggle over emergency cooling regulations to federal courts and centralized rule-making hearings when Atomic Safety and Licensing Boards refused to withhold permits and licenses until more data were available and the AEC examined the problem.

Perhaps the most graphic illustration of the channeling process involved nuclear waste policy. Beginning in 1976, states began to pass referenda, legislation, and public service commission declarations that restricted future nuclear expansion within state borders until the federal government developed a working program to manage nuclear waste (Atomic Industrial Forum, 1982; NRC, 1982a; 1981b). Some states also restricted the in-state disposal and storage of used reactor fuel. Communities, including New York City, passed laws forbidding the transport of high-level radioactive waste on their thoroughfares, making temporary solutions to the waste problem more difficult to achieve (Saiter, 1989). The conflict over nuclear waste finally worked its way to Congress, where, after a two-and-a-half-year legislative battle, legislators passed the 1982 Nuclear Waste Policy Act, ordering the Department of Energy to develop waste repositories. One reason it took so long to pass the bill was that several states, concerned that the department would pick them as disposal sites, demanded provisions in the bill that guarded against their selection

(Barlett and Steele, 1985:chap. 5). Ironically, Congress did not pass the bill until it included a provision granting any state the right to veto its designation as a waste site—a clause that created another institutional opportunity for states to block the implementation of federal policy.

The struggle over waste policy highlights the tendency for political struggles over nuclear policy to flow toward more centralized arenas. During an interview for this project, one member of the Union of Concerned Scientists reported that national organizations like his, which were once content to work through more decentralized implementation arenas, now, thanks to the fragmenting of the Joint Committee on Atomic Energy, try to influence both the formation and implementation of policy by initiating many of their struggles at the federal level. They lobby Congress, testify at congressional hearings, consult directly with federal regulators when possible, and work through the courts. They realized that they could accomplish very little at state and local levels, particularly in implementation arenas such as licensing hearings, that would help them change most NRC regulatory policy. In effect, activists learned to channel their dissent through whatever institutional opportunities they felt would lead to success.

Critics also began to question the legitimacy of the policy process because they recognized that the most accessible channels strictly limited their ability to influence policy makers. Interveners in Vermont, dissatisfied with the way things were going at their Atomic Safety and Licensing Board hearings, began complaining in 1970 that the AEC was favoring the promotion of nuclear power at the expense of safety and the environment (Ebbin and Kasper, 1974:99). Going one step further, groups in Michigan filed a lawsuit charging that their licensing board did not pay enough attention to their concerns and was biased in favor of the nuclear utilities it was supposed to help regulate. As more groups began to intervene in these proceedings around the country, they began to believe that the hearings were a charade; an attempt to create the appearance, but not the reality, of effective public input into the policy process. Even some AEC staff members conceded off the record that the hearings were a process for questioning decisions already made elsewhere (Ebbin and Kasper, 1974:141). A Senate investigation discovered in 1977 that regulators made most of their licensing decisions before ever holding hearings. Typically, by the time officials announced that they would convene hearings, the NRC staff and the utility applicant had already worked together for a year or two pounding out the technical details of the
application to ensure that the licensing board would grant the construction permit or operating license (U.S. Senate, 1977:54).

Exacerbated by the crisis over emergency cooling systems, the legitimacy of the AEC's policy process continued to deteriorate. In 1972, six groups filed suit in federal court, arguing that the AEC's roles were contradictory, that its bias in favor of nuclear power rendered it incapable of performing its regulatory duties properly, and that Congress should relieve it of those responsibilities altogether (Ebbin and Kasper, 1974:234). In short, when public interest groups involved with implementation began to define their participation as primarily an exercise in symbolic politics, conflict spread to new and often more centralized arenas, such as rule-making hearings, electoral referenda, and higher courts. Furthermore, disenchanted with legitimate procedural channels caused a split in the antinuclear movement in 1975. Groups fed up with legal strategies turned to nonviolent civil disobedience, including public protests, sit-ins, and the occupation of nuclear power plant construction sites (Mitchell, 1981). For those who remained committed to legal channels, there were eventually many institutional points of access to the policy process at various levels of government. Ironically, although officials created forums such as licensing and rule-making hearings that facilitated participatory politics in order to neutralize nuclear opposition, these mechanisms later contributed to the escalation of antinuclear activity.4

In addition to citizen groups, lower-level governments objected to the policy process, worrying that officials in Washington were forcing policies on them without seriously considering local or state interests and without allowing them sufficient opportunities to contribute to the policy-making process. Conflict emerged among different levels of government. For example, the NRC ruled in 1986 that emergency planning at the Shoreham plant on Long Island should proceed even though state and county government officials protested that they could not develop an adequate evacuation plan. Representative Edward Markey, who chaired a congressional subcommittee with jurisdiction over NRC activity, called the decision “the groundwork to ram a nuclear power plant down the throats of state and local authorities who have made it clear they do not want the plant to operate” (Wald, 1986a:5). In Ohio, where a similar conflict over evacuation plans developed, the governor's office suggested that they were reviewing options to fight the NRC's decision (Wald, 1986a). It is unclear who

will win these intergovernmental fights. As noted earlier, Kansas defeated federal attempts to build a radioactive waste repository within its borders in 1970 without allowing state representatives to participate in the decision-making process. However, Minnesota failed to toughen the AEC's radiation emission standards.

In sum, the institutional structure of the policy process contributed to the politicization of various policy issues and the policy process itself. More important, political institutions provided opportunities for activists and policy makers from all levels of government to channel their conflicts into decentralized policy arenas devoted primarily to implementation. Later, because critics saw that struggles waged there were futile, conflicts began moving toward more centralized arenas, such as Congress, rule-making hearings, and higher courts. Many of these were closer to the sources of policy formation.

Obstructionist Politics, Planning, and the Sector's Decline

All of this affected the nuclear sector's planning capabilities and, therefore, its continued viability. By centering conflicts around implementation, institutional arrangements facilitated the development of obstructionist politics, something that became the rule rather than the exception (Bupp, 1979). The repercussions for the sector were severe, yet in some cases quite subtle. For example, struggles over safety, environmental, and other policy issues often caused licensing delays that some observers argued increased costs for nuclear construction, one of the major stumbling blocks for the nuclear sector in the United States (e.g., Bupp et al., 1975; Montgomery and Quirk, 1978). The appellate court's 1971 decision requiring a complete environmental review of all plant applications contributed to an expensive eighteen-month hiatus in licensing at the AEC (Mazuzan and Trask, 1979:70). Officials at the Seabrook station reported that the state of Massachusetts objected to the utility's evacuation plan, causing a six-month delay that cost operators $300 million (Wald, 1986a).

On the other hand, in an extremely sophisticated and insightful statistical analyses of the problem, Charles Komanoff (1981) argued that regulatory changes from the AEC and NRC, not nuclear critics delaying licensing, caused most of the escalation in plant costs during the 1970s. Representatives from the Atomic Industrial Forum agreed, adding that regulators were too quick to make changes and that such overregulation helped kill the nuclear option (Szalay, 1984). Komanoff's data show that as regulatory changes increased, so did the

---

4 Habermas (1973:96) suggests that policy makers often resolve legitimation problems by providing more democratic access to the policy process.
costs of building plants. However, he did not recognize that the identification and politicizing of issues such as safety in licensing hearings and other implementation forums by activists often contributed to the promulgation of new regulations in the first place. One NRC commissioner told me that individual antinuclear licensing interventions and their associated delays were relatively inconsequential in directly affecting the costs of specific plants but that groups like the Union of Concerned Scientists used the interventions to identify safety problems common to many plants, and the disclosures led to the promulgation of the major regulatory changes central to Komanoff’s argument. The emergency cooling system controversy is a case in point. Although Komanoff’s analysis is insightful as far as it goes, many of the political and institutional pressures are just too subtle for his statistical model to capture (Bupp, 1981). Therefore, it seems that obstructionist politics had at least a subtle, indirect effect on nuclear plant cost escalation and, therefore, the sector’s viability, if not a more direct impact on a plant-by-plant basis. Others I spoke with at the OTA agreed with this assessment. This reciprocal yet institutionally segregated relationship between policy makers and activists also underscores the important interplay between the policy formation and implementation processes.

However, obstructionism also affected planning and the sector’s viability more directly. The most important example was the fight over nuclear waste. Beginning in 1976, antinuclear groups began to convince state public service commissions not to approve new nuclear projects until the federal government was ready to receive the plants’ radioactive waste and used reactor fuel, a service that will probably not be available until at least 1998 (Barlett and Steele, 1985:151). Critics argued that until then utilities could not accurately forecast all of the plant’s operating costs because the expense of waste management was unknown. Because public service commissions were responsible for regulating utility rates, determined in part by considering utility operating costs, and because it was impossible to predict these costs for nuclear plants without a solution to the waste problem, critics claimed that commissions should not approve new nuclear projects. By defining the issue in economic terms before public service commissions, nuclear opponents avoided the threat of federal preemption, for the federal government had only minimal responsibility for regulating the economics of nuclear generated electricity. The U.S. Supreme Court upheld this argument in 1983 (Greenhouse, 1983:1).

According to spokespersons from two national antinuclear organizations interviewed for this study, success like this and the ability to avoid federal preemption convinced activists to begin rephrasing their arguments in economic rather than safety terms and to present them before state public service commissions in order to block further nuclear development.

Obstructionism and the conflicts surrounding the sector also contributed to the deterioration of investor confidence in nuclear power. A financial analyst for the Edison Electric Institute, the utility trade association, informed me that declining public confidence helped undermine the utilities’ ability to raise capital for nuclear construction. First, citizens urged public service commissions not to increase rates or otherwise help provide the investment capital necessary to build new nuclear plants because they felt the costs were unknown and the safety questionable. The degree to which a public service commission is willing to provide rate relief directly affects the utility’s ability to raise capital in the capital markets. When that relief is not forthcoming, investment capital becomes more difficult and more expensive to obtain. As discussed in chapter 6, the ability to raise investment capital became an increasing problem for many nuclear utilities, a problem facilitated by the unique and institutionally accessible structure of utility regulation. Second, individual citizens themselves held almost 70 percent of all the utility equity in the United States. If these people did not support nuclear power, they could withhold their investment capital from utilities planning or trying to finish nuclear projects.

The point is that obstructionist politics tended to undermine the planning required for the sector’s development. Obstructionism helped foil the government’s plans for the development of a nuclear waste management system. Obstructionism helped make it difficult for utilities to plan nuclear projects requiring large amounts of capital over long periods of time because the availability of capital was uncertain. Obstructionism contributed to licensing delays, instability in the regulatory process, and the escalation of project costs—factors that made it even more difficult for utilities to plan for nuclear projects.

The multiplication of agencies and congressional committees responsible for nuclear policy also inhibited smooth planning in the sector and raised doubts about the government’s ability to formulate and implement policy (Bupp, 1979:151). The problem of policy coordination increased because several agencies began exercising control over the same policy where a single agency was once responsible. For example, following the dissolution of the AEC, both the NRC and the
Energy Research and Development Administration had some control over the national laboratories. Bureaucratic in-fighting, squabbling, and turf wars delayed several projects from generating the data necessary for important regulatory policy decisions (GAO, 1976a; 1976b). The problems of fragmented policy jurisdiction became more important, but they do not seem to have been as significant in undermining planning and the sector's development as those stemming from decentralization and segregation. However, this may change, particularly if more fragmenting occurs. For example, observers feel that management of nuclear waste has become especially difficult since the NRC, Department of Energy, Department of Transportation, and the Environmental Protection Agency started sharing responsibilities for managing it (Barlett and Steele, 1985:51).

**The Significance of Political Institutions**

In democratically decentralized systems, when many interest groups cannot gain access to policy formation, their consent may not be forthcoming, the legitimacy of the policy process becomes suspect, political struggles over policy emerge in implementation arenas, and obstructionist politics ensue, making implementation difficult (Mayntz, 1975:362; Rein and Rabinovitz, 1977:6). This is precisely what happened with nuclear policy in the United States. Antinuclear groups had great difficulty gaining access to places where government and corporate elites created policy. This bred distrust and suspicion among those excluded, which led to deliberate confrontations in implementation arenas. Conflict flowed to whatever arena seemed most promising in terms of changing or blocking policy. When one channel failed to produce results, nuclear critics tried another, carrying the struggle to new parts of the state apparatus in a more centralized, federally oriented direction toward the policy source.

Dorothy Nelkin (1984:18) described the institutional channeling of political conflict in other technology policy areas in the United States. She noted that it usually involved litigation, referenda, public hearings, lobbying, and political demonstrations because these were the forums readily available to all the interested parties. The analysis presented here is consistent with her observations, but offers a more refined three-dimensional view of the processes. By distinguishing among different types of policy arenas, we understand why controversy tends to flow systematically in certain ways through the policy process. Initially it appears in decentralized implementation arenas, where access is easiest, but later moves toward centralized places closer to policy formation if implementation struggles prove unsuccessful and the losers wish to continue the fight. In short, not only are there institutional reasons why conflicts emerge in the arenas she mentions, but, more important, there are institutional reasons why the conflicts shift among arenas in certain directions.

Several observers recognized that the nuclear policy process in the United States became more pluralist, particularly after the fragmentation of the AEC and the Joint Committee on Atomic Energy. They found that this exacerbated implementation problems and created more obstructionism than there was in the past (Barkenbus, 1984; Bupp, 1979). The analysis presented in this chapter supports this important insight to the extent that it considers policy implementation. However, the need for conceptual refinement appears again. If we do not distinguish among types of policy arenas, this description of growing pluralism becomes oversimplified and confusing. Although the policy process became more inclusive, groups previously excluded gained access primarily to policy implementation, not policy formation, circles. Unless we note this critical distinction, it is difficult to understand why obstructionism developed at all. If activists had gained access to policy formation as well as implementation circles, there would have been no reason for obstructionism to develop. Why would participants who contributed to policy formation and whose agreement was required to establish policy in the first place try to block that policy's implementation later?

Antagonism and conflict tend to characterize the regulatory process in the United States in areas besides nuclear power. For example, Lennart Lundqvist (1980) found that there was tremendous conflict over air pollution regulations in the United States because the policy process was intimately linked with institutions such as litigation, adversarial hearings, and electoral competition that facilitated conflict and a winner-take-all attitude among participants. In Sweden the courts were reluctant to hear complaints, administrative autonomy was greater, and, as a result, the regulatory politics of air pollution were more consensual. He also found that air pollution regulations were more extreme in the United States, at least initially, because citizens had more institutional opportunities to influence the policy process. The more insulated and centralized Swedish system pro-

---

6This point is elaborated in chapter 8, particularly with respect to the Swedish case, where there was more access to policy formation for citizens and where obstructionist politics were less common.
duced more moderate, conservative standards. In a comparison of
United States and Swedish occupational safety and health regulation,
Steven Kelman (1981) found many of the same institutional biases but
also corresponding ideological slants. He argued that for historical
reasons a self-assertive value system permeated the consciousness
of United States citizens, which contributed to the adversity and conflict
over policy. In Sweden accommodationist institutions and deferent
values produced more negotiation, cooperation, and consensus
among those involved.

It also appears from their descriptions (Kelman, 1981:150–58;
Lundqvist, 1980:123) that the more insulated Swedish model pro-
duced what Dickson (1984) described as a technocratic policy para-
digm, a more conservative, cautious approach designed not to
undermine economic growth, while the relatively accessible U.S.
model generated a democratic policy paradigm more responsive
to the general public. 7 What is interesting about the U.S. nuclear regu-
lar process is that it involved both models and paradigms simulta-
neously. Policy formation was usually insulated and consensual,
although rarely involving citizen participation. Policy implementa-
tion was accessible and adversarial. Furthermore, those involved in
policy formation pushed a technocratic approach from above, while citizens
involved with policy implementation advocated a democratic
approach from below. When the two paradigms collided, conflict and
policy stalemates occurred. Contrary to what Kelman might expect,
struggles over policy did not spring from a general set of self-assertive
values but from political institutions that fostered conflicts over policy
paradigms and the policy process itself. If the institutional oppor-
tunities had been available in the United States for nuclear critics to
participate during the earlier stages of the policy process and push it
in a more democratic direction, they might not have engaged in so
much obstructionism later.

It is also possible that antinuclear criticism and obstructionism
would not have developed in the first place, or at least not to the extent
they did, if regulators and nuclear corporations had built safer plants
initially, solved the waste problem earlier, standardized plants more
thoroughly, and paid more attention to the environmental impacts of
nuclear power—things that might have happened if policy makers
had adopted a more democratic policy paradigm. Similarly, utilities

7It is questionable how responsive occupational safety and health policy was to the
workers’ concerns. Empirical evidence exists indicating that Kelman seriously over-