STRUCTURAL CHANGE IN CONGRESS:
THE DEMISE OF THE JOINT COMMITTEE ON
ATOMIC ENERGY

By

Linda R. Cohen and Mathew D. McCubbins
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Prepared for the Conference on the Economics and Politics of
Administrative Law and Procedures, May 11-12, 1991,
Allerton House, Monticello, Illinois
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During the mid-1970s, the internal structure of congress was substantially altered. Among the changes was the disbanding of the Joint Committee on Atomic Energy (JCAE). Usually called "the powerful" joint committee, for three decades it enjoyed exclusive jurisdiction over atomic energy issues, and was structurally unique in being the only joint committee with legislative authority. In 1974, Congress dismantled the Atomic Energy Commission into two separate agencies, the Nuclear Regulator Agency (NRC) housing the AEC's regulatory functions, and the Energy Research and Development Administration (ERDA), housing the AEC's development and promotional functions. Three years later, congress first stripped the committee of its authority to initiate legislation and then later that year abolished it entirely.

Scholarly research on congress emphasizes three reasons for the development of a committee structure in congress. First, gate-keeper committees with institutionalized agenda power ameliorate the problem of instability in majority-rule decision making. Because any status quo policy is likely to be vulnerable to defeat by some alternatives, an unstructured congress could produce unstable, even random policies. Because both citizens and their representatives are likely to prefer stability to instability, creating committees with gate-keeping functions and other strategic advantages on the floor of congress is valuable.

Second, the committee structure of congress provides an incentive for individual

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1Department of Economics, UC Irvine; Department of Political Science, UC San Diego; Department of Economics, Stanford University; Hoover Institution, Stanford University. The authors thank Gabriella Montinola and Emerson Tiller for the helpful research assistance.
members to become specialist experts in a particular subset of policy issues. The scope and complexity of modern government requires that representatives who craft legislation must be technical experts on the policy issues that are the subject of legislation. By conferring powers on committees the legislature as a whole institutionalizes a deference to committee expertise by strategically advantaging the committee’s proposals.

Third, committee specialization also corresponds to divergences in the electoral incentives facing individual members. If a member’s constituents are atypically interested in one domain of public policy, their representative can more effectively serve their interests by joining the relevant committee and exercising committee power on their behalf. Because all members seek greater electoral security, the collective interest of congress is to create committees for each important area of policy, to accord each committee significant power in legislating within its domain, and then to assign members to the committees of their (and their constituents’) choice.

The research literature also emphasizes the importance of the majority party in legislative organization. The majority party controls the structure of congress as long as it can maintain cohesiveness on floor votes dealing with structural issues. If party membership provides important information about the policy preferences of members, parties ought to be the dominant force in structuring the legislature, and in particular, ought to create committees and make assignments to them for the purpose of accomplishing the goals of the party. Consequently, changes in party control of congress can be expected to result in changes in the structure of congress.

The internal organization creates a form of tension between the two power centers, the party and the committee. The committees would be of little value — to their members or to the party — if they did not possess some degree of independence. Yet members of the majority party off the committee will not tolerate just any set of outcomes from a committee. They therefore have devised a series of institutions and control mechanisms that perform two
tasks. On the one hand, they ensure some degree of independence to the committee; on the other, they keep committees from getting too far out of line.

The demise of the JCAE constitutes something of a puzzle to these explanations for the structure of congress. The committee suddenly lost power in a period of Democratic party hegemony in congress, so the reassignment of the responsibility for legislation and oversight regarding atomic energy cannot be explained by a change in party control. Likewise, the ability of the committee to serve the three purposes described above did not change. It contributed to stability by exercising its strategic advantages, and it provided a means whereby members whose constituents were especially interested in atomic energy could use committee membership to pursue these interests. And, presumably the expertise of the committee on atomic energy issues did not suddenly vanish in 1977.

To explain this puzzle requires some further development of the theory of the relationship between structure and outcomes within congress. We do not take exception to the general theoretical arguments about the evolution of the structure of congress described above. Instead, our purpose is to develop more completely the relationship between the organization of congress and the nature of policy that emerges from it. The essence of our argument is simple: the structure of congress and its procedures for initiating legislation affect the policies that emerge from it, so that if the coalition in control of congress becomes dissatisfied with a particular policy outcome, it can move policy in the desired direction by reorganizing the structure and process in that domain of policy. As Riker has observed, if the organization of congress has policy significance, legislators are likely to seek to design congress so as to produce the policy outcomes that they prefer.

When examining an era of active restructuring of congress, we believe that Riker is essentially correct in the following sense. Because structure and process are influential in shaping policy, a change in the organization of congress is a joint choice of solutions to collective action problems and the range of likely policy outcomes. McNollgast have applied
this idea to the problem of the design of government agencies. Their interpretation of administrative law -- the structure of agencies, the procedures they use for making decisions, and the role of the courts in reviewing these decisions -- is that structure and process are chosen for the purpose of implementing the policy agreement of the coalition creating a new policy (usually a majority in both chambers plus the president). In this paper, we apply the same general argument to explain structural choices within congress.

The demise of the JCAE demonstrates several specific instances of how the design of institutions resolved policy disputes towards commercial use of nuclear power. First, jurisdiction over regulating commercial nuclear power, and hence the context within which intra-committee deals were struck, shifted from a committee with jurisdiction over all atomic energy issues -- development of weapons, research in basic science (especially physics and nuclear medicine), development of advanced fission and fusion reactors, oversight of a vast complex of government laboratories, experimental facilities and weapons factories, oversight for international treaties concerning use of nuclear materials -- to committees that were concerned with developing and regulating energy supply strategies (use of fossil fuels, nuclear, solar) and demand strategies (conservation programs) so as to further energy policies and goals in the post-OPEC, post-NEPA world. The change in context (apart from the change in personnel) allowed a change in the majority position on nuclear policy within committee and hence ultimate legislation and policy.

Second, the breakup of the JCAE shifted control from a joint committee to the standard arrangement of committees within each house that, after legislation is introduced and acted on by each house separately, resolve differences in conference. The set-up of the joint committee is not equivalent to having the conference first: legislation was reported out by a simple majority of committee members, not, as with conference committees, with a majority of members from each house. We argue in the following sections that the organization of the JCAE both weakened the extent of veto power that each house usually
has over the other and attenuated leadership control by the separate houses. With the breakup of the JCAE, policy could reflect the usual prerogatives that can be exercised by each house unilaterally, as well as the shift in power to majority coalitions within each house.

If the structure of the JCAE inherently implies a delegation of authority from the majority coalitions within each house of congress, the puzzle, perhaps, is not the demise of the JCAE but rather its existence in the first place. We argue that the unusual structure was a response to constraints imposed in 1946 on the structure of the Atomic Energy Commission, in particular, the perceived need for an extraordinary degree of secrecy over all AEC activities. While the JCAE weakened the apparent authority of party leadership within congress, we argue that it conversely strengthened the relative authority of congress versus the AEC given that congress could not impose the sorts of procedures (information flows, public hearings, standing for intervenors, etc.) to control AEC policy ex ante. "The powerful" joint committee was thus empowered so that it could credibly enforce congressional policy in the presence of secrecy requirements.

By 1977 of course, and indeed many years earlier, security was no longer an issue in commercial nuclear power regulation. But it was not until the late 1970s that the structure of the joint committee inhibited the policy outcomes regarding commercial nuclear power that a majority coalition within the House of Representatives might otherwise expect to be able to achieve. Thus the initial tradeoff resolved by establishing "the powerful" joint committee -- party control versus AEC autonomy -- had become irrelevant, and the structure of the JCAE itself an anachronism with (from the leaderships' viewpoint) serious deficiencies.

This paper proceeds as follows. Section 1 discusses the theory of congressional structure. Section 2 describes the background of nuclear power and begins our political analysis. Section 3 continues the political analysis and explains the peculiar form of events that led to the demise of nuclear power and its (formerly) powerful oversight committee.
Section 4 briefly describes the history of nuclear power after the destruction of the JCAE. Our conclusions follow.

1. The Theory of Congressional Structure and Process

In this section we lay out the elements of the theory of the organization of congress. We first set forth some key definitions, then state the assumptions of the theory, and finally state its principle conclusions.

A. Definitions

Structure and process are distinct concepts. Structure refers to the formal rules that assign authority and responsibility within an organization. These rules state who may act, when they may act, and what actions are permissible regarding a particular set of responsibilities. Examples are the assignment of duties, powers and members to committees, and the decision rules (e.g. voting procedures) in the decisional chain within congress. Process refers to the rules defining how decisions must be made. It includes the sequence in which issues and questions must be considered (the agenda), the information that, at minimum, decision makers must collect, consider, and make known to others, and the rules to be used in evaluating information and arguments in order for a decision to be accorded legitimacy and validity by other members of the organization.

By policy, we mean the goals to be served by a decision. In politics, policy usually has two distinct components. One is the "output" of a government production process as measured in units of goods and services delivered. Examples are miles of highway constructed, number of bombers manufactured, dollars of income assistance payments delivered, or number of nuclear power plants licensed. The other aspect of policy is
identification of winners and losers: what interests are to be served by the policy, and who is to bear the cost or to be ignored. Examples are the distribution of contracts in carrying out a program, and the relative weight to be accorded energy costs versus environmental protection in making regulations regarding new electric generation facilities.

In many cases, not all aspects of a policy are chosen simultaneously. In enacting new legislation, congress may not know precisely what the policy outputs will be, but it may know how it wants the choice of these outputs to influence various constituencies, i.e. it may know how it wants the interests of different groups to be taken into account in the final policy choice. Hence, it will chose a structure and process to advantage the interests represented by the enacting coalition. Although these choices will determine policy outcomes, the details of the ultimate policy will not be known at the time of enactment. Instead, enactment will determine explicitly only the relative weights to be accorded to the affected interests -- that is, the winners and the losers. Likewise, in setting up a new internal organization of congress, legislators may not know with precision all of the policy implications; however, they will know that they want policy outcomes to be more responsive to some concerns or interests than it has been in the past.

B. Assumptions and their Implications

Although we could discuss and explore our assumptions in some detail, for the moment we only state them. Our focus here is to lay out our arguments and then attempt to explain two critical conclusions that follow.

Assumption 1: Policy goals are not self-enforcing, nor are they self-implementing (this follows from more primitive social choice assumptions; see Schwartz).

Assumption 2: Structure and process provide the means for enforcement and implementation of policy goals (the key McNollgast assumption). In short, structure
and process are the means by which congressional majorities commit to policies by restricting the ability of future majorities to change policy.

McNollgast argue from these assumptions that administrative structure and process embody the goals of the majority coalition enacting the policy. They are not neutral, but rather are intentionally designed to bias outcomes (stack decks) produced by agents subject to structure and process.

**Assumption 3:** Absent structure and process, congressional majorities are capable of overturning any policy choice (this too follows from more primitive social choice assumptions).

Assumptions 1 and 3 imply that policy without congressional structure and process is untenable. Together with assumption 2, they imply:

**Conclusion 1:** Congressional structure and process are necessary to produce and maintain a policy.

A change in policy, then, is necessary for there to be a chance in structure and process. Of course, not all changes in policy will lead to changes in structure and process. Some policies will be implemented and enforced through existing structure and process, other policies will be ephemeral, existing without the structure and process necessary for their continuation and implementation. Thus, a change in policy is not a sufficient condition for a change in congressional structure and process.

This brings us to the central question of this paper: when will policies be institutionalized within congress? This question in turn leads obviously to another question: what kind of majorities can bring about a change in structure and process? Many legislative majorities are ephemeral and are centered around a single issue, or even a single vote. But structure and process are not ephemeral; the choice of structure and process can have long-lasting effects. Perhaps more important, because the chosen structure will affect future policy choices, the choice of structure and process will have effects on all members of
congress (defining a long-lived class of winners and losers, for example). Moreover, because the internal organization of congress is collectively provided to all members, it is a public good that is subject to collective action problems.

These kinds of collective action problems give rise to the emergence of party organizations within legislatures: members adopt a Hobbesian solution to remedy the problems of public goods provision among themselves and to internalize policy externalities between members (Cox and McCubbins). We therefore assume the following:

**Assumption 4:** Congressional structure and process are chosen by the members of the majority party — a long-standing coalition that competes electorally by promoting, advertising and defending a set of preferences over "public goods" (e.g., the party label, brand name, or platform). Further, the majority party leadership will use its resources (control over agenda, rewards and sanctions, control over the allocation of projects, etc.) to maintain the existing party structure (and their place within it).

**Conclusion 2:** It follows that changes in structure and process come about only when there has been a policy change and that change has been adopted or supported by the majority party.

The majority party organizes each chamber of congress. It proposes changes in structure and process, which are then passed in straight party-line votes. Indeed, structure and process in congress often change dramatically with changes in party control (Brady 1988, Stewart 1989, Kiewiet and McCubbins 1991). Thus, in order for policy to be institutionalized, it must be that the majority party has agreed to the policy change.

The fabric of the committee structure of congress embodies the policy choices of the majority party. When a policy begins to diverge from the preference of the party, its leadership can utilize a hierarchy of organizational instruments to correct the policy. First, the party can signal its displeasure through hearings and/or debates in the majority party
caucus, before the Rules Committee, or on the floor. Second, it can take intermediate measures, such as expanding a committee's size to add more right-thinking members, applying special rules to the committee's bills, or manipulating conference committee membership. Third, the leadership can grant overlapping jurisdiction to another committee, remove portions of a committee's jurisdiction, or depose its chair. The final and more drastic measure is death. These actions constitute a hierarchy because each successive step is more expensive to the majority party in terms of time and effort. The extreme measure of changing structure and process can carry significant other policy consequences, some of which are undesirable or unpredictable, so that it will usually be used only after other measures have failed.

2. Environmentalism, Atomic Energy, and the JCAE

The history of the JCAE provides an example of structural changes to accommodate changes in policy preferences within the majority party. The JCAE was empowered, in the 1954 Atomic Energy Act, to be congress's central agent in mapping out atomic energy policy. Republicans favored atomic power for privately-held utilities. Thus, Republicans added to the existing JCAE structure new authority that helped lock in place congressional commitment to an aggressive atomic energy development policy. One way to institutionalize congressional policy is to create veto gates and/or to distribute jurisdictional "property rights." The requirement for annual authorizations for atomic power plant acquisition, construction or expansion was an instance of the Republican party attempting to establish a new veto gate through which spending proposals for public utility plants would have to pass. However, with return to Democratic control of congress in 1955, this structure worked equally well to allow the Democrats to bias authorizations against private development and
in favor of public development. This was accomplished essentially automatically by changing the majority on the committee to reflect the new majority in congress.

For almost two decades, this structure served Democratic party goals well. But, as we will show, in the late 1960s the ideological composition of the committee grew apart from the House Democratic party as a whole. When congressional agents are perceived by the majority party leaders to be diverging from party goals, leaders can be expected to utilize the instruments at their command to reorient policy. Leaders usually use their power to refer bills to kill unwanted measures, can utilize the standing rules or write a special rule to structure the agenda, or can use their authority to make committee assignments to "stack" a committee in favor of a certain position. In the case of the JCAE, because the committee was jointly established with the Senate, each of these actions was unavailable to House leaders, thus necessitating more drastic action.

The rise of environmentalism created the gulf between the JCAE and the majority party. The success of the environmental movement in the 1960s and early 1970s brought emerging environmental policy into conflict with existing policy on atomic energy. This paper is the story of conflict between Democratic party policies, one entrenched and institutionalized in the 1950s, and a second arising within an institutional contest constructed for other reasons. Many elements of the environmental policy choices made in congress in the 1960s through NEPA and the Water Quality Improvement Act of 1970 were largely institutionalized in administrative structures and processes by 1970 or 1971, but these decisions created much conflict across the gamut of federal policy. Some aspects of conflict are still being sorted out in the 1990s. One policy conflict resolved at an earlier stage, however, was with atomic energy policy.

The primacy of environmental policy, as embodied in administrative structures and processes, over conflicting elements of atomic energy policy was confirmed in court actions in the early 1970s (notably, Calvert Cliffs). Resolution of these conflicts at the level of
congressional structure and process, especially in the House, soon followed. The Joint Committee on Atomic Energy was an intractable problem, however. Its unique structure, as a joint committee with substantive legislative jurisdiction, prevented House leaders from being able, within the realm of "normal" remedies, to bring the JCAE into conformity with House Democratic policy preferences. Unable to reform the committee without the full cooperation of the Senate, and unwilling to spend the time and effort necessary at the Rules Committee, floor, and reconciliation stages of legislation to inject party preferences into the committee's bills, House leaders chose finally to terminate the JCAE's lease on life.

A. Atomic Energy Policy: The Status Quo Ante

For our purposes, atomic energy policy can be said to have been institutionalized in congress with the Atomic Energy Act of 1954. This legislation was passed under unified Republican government. We can speculate that the purpose of this congressional structure was in part to allow the Republicans to guide policy in favor of private sector power plants, rather than the Democrats' preference for public sector plants.

Resumption of Democratic control of Congress did not lead to a destruction of this new structure. We might speculate that Democrats and Republicans were in basic agreement that an atomic energy industry should be developed, and that Democrats preferred private plants to no plants and vice-versa. With the Price-Anderson Act of 1957, construction of atomic power plants (public and private) began. By the opening of the 1960s, atomic policy consisted of the following three points: (1) a goal to build 500 light water reactors (LWRs); (2) breeder research and demonstrations; and (3) advanced research on fusion.

Elements of administrative structure and process suggest, however, that the Democrats remained wary of atomic energy policy, particularly one that involved private power plants. The Price-Anderson legislation included a requirement that the AEC research and report to congress on all "nuclear incidents," which were broadly defined. These reports
were required to be made public. The act also created the Advisory Committee on Reactor Safety (ACRS), charged with reviewing safety studies and facility license applications, and whose reviews were to be made part of the public record on such applications. In 1962, a unified Democratic government amended the act to require the ACRS to review construction permit applications, thus heightening public scrutiny of atomic power plants at an early stage.\textsuperscript{2} The ACRS was also empowered in the 1957 Act to advise the AEC on "the hazards of proposed or existing reactor facilities and the adequacy of proposed reactor safety standards." Thus, by 1962, atomic policy was already being adjusted to take into consideration new apprehensions about reactor safety.

Reactor safety is of concern to environment and public health interests, each of whom have different access points entrenched in congress. In the House, public health aspects of environmental protection are the concern of the Interstate and Foreign Commerce Committee, and protection of fish, wildlife and water resources is divided among Agriculture, Interior and Public Works. Atomic energy policy was under stress from these institutionalized sources throughout the 1960s. These stresses culminated in the passage of NEPA and in the resolution of a series of course decisions at the start of the 1970s. In essence, the effect was to require that nuclear power plants undergo an environmental impact review during the licensing process.\textsuperscript{3}

B. The JCAE

Poole-Rosenthal measures indicate that the House Democratic contingent on the JCAE was on average more liberal than other median Democrats in the House from the

\textsuperscript{2}The ACRS was to be composed of up to 15 members, appointed by the AEC to four year terms.

\textsuperscript{3}As detailed in Cohen (1979) and McNollgast (1990).
committee's inception until the late 1960s. By the 93rd Congress, however, the contingent had become markedly more conservative. The committee contingent exhibits very little turnover over time, suggesting that it is the party that shifts to the left, rather than the contingent shifting to the right.\textsuperscript{4} Thus, the Democratic Caucus over time becomes increasingly critical and wary of the JCAE.

The environmental aspects of nuclear power clearly became an issue of widespread interest during the 1960s and early 1970s, but the structure of the delegation to the JCAE (a joint committee, whose jurisdiction and wise are written into statute) made it virtually impossible for the House Democratic caucus to manage. The caucus was unable to pack the committee with liberals or otherwise to use persuasion to change its policies because the size and partisan balance of the committee was set in law, and half of its appointments controlled by the Senate.

Nonetheless, the party did attempt to fix its problems without killing the committee. In the 94th Congress, the Bolling Committee proposed a plan to reorganize the committee system, strip the JCAE of its central role in overseeing the commercial nuke industry, and create a new, comprehensive, Energy and Environment Committee, built around the existing Interior Committee (Davidson and Oleszek 1977). Although rejecting the Bolling proposal, the Democrats decided to give special oversight authority to the Interior Committee over "all programs affecting ... nonmilitary nuclear energy and research and development, including the disposal of nuclear waste" [Rule X.1.j.16]. The Speaker was also given new authority to make multiple referrals in the 94th Congress, as part of the same reforms.

This new arrangement, despite the replacement of several members of the JCAE, failed to produce the desired policy change for two reasons. First, the House Democrats did not control all appointments to the joint committee -- that authority was shared with the

\textsuperscript{4}This, of course, parallels the arguments commonly made in the literature on the congressional reforms, e.g., Davidson and Oleszek (1977) and Rieselbach (1977).
Second, the House Interior Committee, while clearly less conservative than House Democrats on the JCAE, was not sufficiently representative of the party as a whole to ensure the injection of party policy. Between the 94th and 95th congresses, the Democratic caucus voted not to make appointments to the JCAE for the 95th. It gave the Commerce Committee primary jurisdiction over nuclear energy, while retaining Interior's joint jurisdiction over research and development and further granting jurisdiction over "all energy research and development" to the Select Committee. Commerce, of course, was the committee that produced the new environmental legislation of the 1970s. House International Relations gained jurisdiction over exports of nuclear technology and hardware, while Armed Services gained responsibility for military applications of nuclear energy. Thus, while the core responsibility over nuclear programs and policy was transferred to Commerce, several other committees gained joint jurisdiction over aspects of policy.

3. The Joint Committee on Atomic Energy

A. Why nuclear policy was challenged in the early 1970s

Although disagreements over specific development strategies existed from the inception of the AEC, wholesale opposition to nuclear power plants arose only in the late 1960s. Previously industry, regulators and politicians clung to the visions of the scientists who held out the hope in 1946 of nuclear reactions dealing out bounty as well as destruction. The AEC was established explicitly with a promotional goal. The major legislative reform of the agency in 1954 was to further that end by relaxing secrecy and government ownership restrictions. Subsequent legislation — most notably the Price-Anderson Act — attempted to remove additional restraints on private development by indemnifying private parties. Government developed light water reactors for military and civilian uses, and subsidized the
first generation of commercial plants through the power reactor development program.

The rise of the environmental movement in the second half of the 1960s changed the terms of debate. By 1970 the environmental movement had achieved major political successes in the National Environmental Policy Act and the establishment of the Environmental Protection Agency. Although the AEC initially resisted instituting environmental reviews, a series of circuit court decisions in the early 1970s (most notably the Calvert Cliffs decision in 1971) forced the agency to consider environmental consequences of commercial licensing decisions. In consequence, environmentalists acquired standing to participate as intervenors in nuclear licensing cases.

Within a year or two of the Calvert Cliffs decision, it was evident that the changes had important consequences for both the design and cost of nuclear power plants (Cohen 1979). Nuclear licensing cases took about a year longer than previously to be resolved; those cases with sophisticated intervenors were delayed on average an additional year. In addition to licensing delays and delays in preparing environmental impact statements, utilities were required to make substantive changes in plant designs, including the addition of cooling towers and emergency core cooling systems. The immediate effect of licensing delays alone on plant costs has been estimated at between ten and twenty-five percent. Engineering studies of the cost of environmental controls estimated construction cost increases of at least 30%.

Nevertheless, the perception of the environmentalists was that, despite their apparent political power, they were getting nowhere in their nuclear goals. Not only had congress just initiated a major new nuclear development program in liquid metal fast breeder technology, but the impact of the environmental movement on light water reactors fell far short of its goals. The environmental coalition opposed any development of nuclear power owing to its potential for environmental catastrophe. That nuclear proponents could point to specific environmental advantages of nuclear power over, say coal generation in the
context of everyday operations and air pollution, or that cooling towers could be installed to mitigate normal thermal emissions was irrelevant to the debate. Indeed, virtually all of the issues which the AEC had identified as "environmental" and allowed environmentalists standing over for intervention in licensing cases were of secondary concern to the movement. Because the bone of contention was residual catastrophic risks from nuclear power plants, no accommodation between environmentalists and promoters of the use of nuclear power was possible.

In cases before the AEC between 1970 and 1974, environmentalists raised some aspect of the residual risk issue in over three quarters of the licensing cases in which they participated (in most years active participation in cases ranged from fifty to seventy-five percent). In every case the contentions of intervenors were either ruled to be not an allowable issue for discussion, or not an allowable issue for resolution in the licensing case. (In that event the AEC may have held a rule-making hearing on the issue.) All of the plants in question were granted construction permits without any formal decision on the issue of residual risks (Cohen 1979).

Making matters worse, utilities continued to order new plants in increasing numbers despite the increase in costs and headaches. Many of these plants were ultimately canceled — at enormous expense — but as of the early 1970s the nuclear industry had never looked better. Utilities ordered 38 new nuclear units in 1972, 41 in 1973, and 28 in 1974. New orders dropped to 4 in 1975, and was more than offset by 13 cancellations. But no one at the time recognized the 1975 figures as the new trend rather than an anomaly. In any event, the NRC continued to work toward licensing over one hundred plants. Environmentalists had yet to succeed in stopping one project in a licensing hearing.

\footnote{Nuclear Plant Cancellations: Causes, Costs, and Consequences, Energy Information Administration, DOE/EIA-0392, Washington, D.C., April 1983, p.5.}
B. Jurisdiction

A key feature in the institutional design of congress is the allocation of jurisdictions to committees. Two aspects of the procedural connection of jurisdiction to policy outcomes has been analyzed; both have relevance to nuclear policy in the 1970s. First, jurisdiction determines the structure-induced equilibria: the definition of dimensions dictates what will be a median position and hence the stable equilibrium that results from structure. In the case of nuclear power, the resulting equilibrium would be somewhere around the median position of JCAE members about commercial nuclear power. Second, jurisdiction, combined with committee powers, defines the gate-keeping powers of the committee. Changes in policies are not expected to occur so long as the median JCAE member prefers the status quo to what might occur should legislation be proposed. To the extent that JCAE members do not reflect median congressional positions (or the median position within the majority party in each house) removing jurisdiction from the JCAE is a strategy which the leadership could (and did) use to change policy.

That the leadership did not merely re-staff the joint committee is due to two problems. One was the joint nature of the committee, which is discussed below. The other is due to a variant on the jurisdiction issue. The jurisdiction of the JCAE was set by the 1946 Atomic Energy Act, i.e., by law rather than by internal rule of the chamber, and so could not be modified without legislation. And the particular conjunction of issues dealt with by the JCAE — the multiple dimensions over which they had jurisdiction — contributed to pro-nuclear power policies both by effecting the likely median position within the committee whoever would be assigned to it, and by allowing pro-nuclear power legislation to be formulated in combination with other policies so that the former was likely to be approved by congress.

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6Structure-Induced Equilibrium Stuff.
Consider the second point first. The outcome of voting, and the existence of stability, depends on the issue space over which voting occurs. If the space is one-dimensional, an equilibrium always exists at position of the median voter. The combination of issues, then, can identify the median position, or alternatively, destabilizes an outcome. The latter case appears a better explanation behind the support for redefining nuclear power oversight jurisdiction.

At the JCAE, commercial nuclear power development was part of an overall atomic energy strategy. In addition to being an energy source, development of nuclear power was presented initially as a way to demonstrate our peaceful intentions despite the destructive applications of atomic energy, and subsequently as important to maintaining U.S. hegemony (through technological dominance) over international uses of atomic energy. Essentially all of the goals of the AEC were furthered by increased development of (safe) nuclear power. The position of JCAE members in the relevant issue space (and the rest of congress) can be modeled as lying on a line in space — thus issues are technically one-dimensional and an equilibrium exists. The policy question concerns the degree of promotion of nuclear power. Figure 1 depicts the preferences of several relevant types of members of congress. To the left are the environmentalists (E) who prefer the lowest levels of promotion. To the right are conservatives (C) who prefer high levels of promotion. In between are the moderates (M) who prefer a substantial degree of promotion, but not as much as the conservatives. The JCAE is populated largely by conservatives. The status quo, Q, remains a structure induced equilibrium as long as the JCAE retains complete control over this issue.

As the diagram suggests, the median position in congress on this dimension was probably not the environmentalists’ position. As a frustrated industry continually pointed out during the 1970s, nearly all public opinion polls about nuclear power prior to the Three Mile
Island accident found majority public support for some level of nuclear power. The environmentalists' concern with safety was not widely accepted before the accident at Three Mile Island. Thus, while environmentalists were successful in other areas, it is not clear that a straight test of support for nuclear power, even without the gate-keeping force of the JCAE, would have killed the industry.

The second jurisdictional point is apparent from an examination of the AEC budget. Consider, for example, fiscal year 1973. Total program costs came to $2.4 billion. Of that, nuclear materials accounted for $433 million, weapons for $868 million, the civilian reactor development program (at that time mostly concerned with breeder reactors) for $293 million, and the physical research program for $240 million. "Regulation Activities" amounted to $39 million. In brief, the JCAE had authority over billions of dollars of atomic energy activities. All of this money was for activities consistent with promoting commercial nuclear power. In some cases, the programs directly fed, or hoped to feed into commercial nuclear power use (e.g., the development program and the science programs); for others commercial nuclear power provided moral justification. Thus, whether JCAE members sought membership because of installations in their districts or whether they naturally attempted to distribute some of this potential pork towards their districts, the fallout would be constituents who supported nuclear power, and hence JCAE members who in fact were more promotional towards the use of commercial nuclear power than the legislature at large.

We provide some modest evidence in support of our thesis that in the late 1960s and early 1970s the JCAE was out of line with the Democratic party mainstream. To do so, we utilize the voting scores provided by Poole and Rosenthal (1991a,b). These characterize each

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7 Of course, the same polls indicated that majorities wanted the plants located somewhere else, and subject to environmental controls.

congressmen along a liberal-conservative dimension on the basis of his voting record for the entire Congress. We have normalized these scores so that in each congress the median Democrat's score is .50. Lower scores indicate a more liberal position than the Democratic median while higher scores indicate more conservative ones. Cox and McCubbins use these scores as one means to analyze the representativeness of committees. They consider committees with scores above .60 or below .40 as non-representative.

These figures are reported in Table 1. From 1957 through 1965, the median House Democratic JCAE member was close to or more liberal than the median Democrat in the House. From 1965 through 1973, however, the committee became markedly more conservative. As emphasized above, this difference appeared at a time when nuclear power was increasingly under attack from environmentalists, a position favored by the median Democrat.

C. Jointness

The second key institutional feature of the JCAE is that it was a joint committee. The membership features were established in the 1946 Atomic Energy Act: nine members would be appointed from each house of which not more than five could be of one party, and the chairmanship would alternate on a biennial basis between the House of Representatives and the Senate. All atomic legislation was assigned to it (although, as the case of NEPA shows, not all legislation with implications for nuclear power), and legislation was reported out of it, to both houses simultaneously, if approved by a simple majority of committee members.

An immediate implication of this arrangement is that it reduces the power of the majority party within each house. Rather than controlling over half the appointments to the committee, they controlled only slightly over a quarter. Packing the committee becomes
impossible if the leadership of the two houses disagree over policy. Furthermore, each house cannot exercise its usual veto power over reporting out any legislation in a given area: one house, with only minor aid from the other, can either block or report out legislation. Thus, to the extent that one house's leadership desires policy change in the area but the two houses disagree, changing the institutional structure of the committee becomes a necessity: feasible changes in membership will not suffice. "The powerful" joint committee, then, was powerful not just in the extent of its jurisdiction, but also relative to party leadership.

The legislative history of the 1946 Act is silent as to why the joint committee was established. However, Mazuzan and Walker (1984, p. 11), in their history of the AEC, claim that "all the legislators familiar with plans for the new agency were cognizant of the vast powers they were giving to the executive branch and must have felt that some legislative device was essential to restrict the independence of the agency and to protect their traditional congressional prerogatives."

The key feature for our analysis is that in the field of atomic energy in 1946, as in environmental policy twenty years later, substantial uncertainty existed about the ultimate outcome of policy, but it was nevertheless recognized that the outcome might have important distributive effects. For example, while the ultimate value and use of atomic technologies were of course unknown, vast potential benefits were discussed with science-fiction fervor (see Mazuzan and Walker 1984, p. 2). At a more practical level, a major debate concerned the extent to which government would monopolize commercial uses of atomic energy.⁹

Unlike the later case of environmental policy, congress could not constrain future policies through procedures, as described in McNollgast (1990). The critical issue in the establishment of the AEC was secrecy. The 1946 Act placed atomic energy under civilian

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⁹This issue recurred at several points in the history of nuclear power. Ten years later it would reemerge as a fight between federal ownership of nuclear power production facilities versus private ownership. After another ten years the issue appeared again, this time in the struggle between investor-owned utilities and municipal utilities.
rather than military jurisdiction. However, to preserve complete secrecy, the government retained a monopoly over ownership of all nuclear material. All AEC employees were required to obtain a high level of security clearance; access to any information about what the agency did was limited, and severe penalties were imposed on anyone divulging classified information. While congress required the agency to provide it with information, it limited the information to a small committee, and ruled out any practical method of obtaining information about what the AEC was doing from any source other than the commission itself.

One result of this arrangement is that the usual procedures for ex-ante control — e.g., as discussed in McNollgast (1989) — were not practical in these circumstances. This limitation implies that congress would substitute other means of influence, e.g., ex post actions, in order to maintain control over the AEC. Normal committee structures give authority to each house of congress individually. Hence, the ability to make ex post corrections and return an agency to a status quo ante is compromised. In particular, the bureaucracy may be able to game one house of congress against the other so that at least one will use a veto point to block changes in the ex post outcome. The establishment of the JCAE, then, emerges as a solution to the problem of how to establish a credible way for congress to commit itself to a single position so that ex post actions become feasible or (better yet) unnecessary.

If secrecy lay behind the original rationale for the JCAE, it evaporated by the time the 1946 Act underwent major revisions in 1954. The Russians had the bomb. The government relinquished its monopoly over nuclear materials so that promising commercial developments could be pursued by private industry. The survival of the JCAE, however, is not surprising: its members presumably wanted to keep power, and there were no apparent schisms between the two houses of congress over nuclear policy that might overcome institutional inertia.
D. Policy Change

The main implication of the analysis thus far is that the House Democrats could not alter nuclear energy policy simply by stacking their members on the JCAE. Nor, given the recalcitrance in the Senate, could they alter the structure of the committee. As a consequence, the standard strategies for influencing policy would not work.

Two alternative strategies were tried, both with some (ultimate) success. The first involved the passage of NEPA, as noted above. By changing policy in another jurisdiction in a way that had implications for nuclear power, members off the JCAE had some influence over nuclear power.\(^{10}\) Though this had an immediate impact following the Calvert Cliffs' decision requiring the AEC to follow NEPA's guidelines, it did not stem the flow of new orders nor cause cancellations. Reform-minded Democrats sought additional means to alter policy.

They method used was in the 1974 Act dismantling the JCAE's jurisdiction, moving it to the Commerce Committee. This legislation also split the old AEC into two separate functions, its regulatory decision making structure becoming the NRC and the promotional aspects becoming ERDA. Several factors combined to help make this legislation possible. In addition to the rise of environmental issues, energy had emerged in late 1973 as a new and central policy issue. Congressmen on various committees began searching for means of obtaining a piece of it. At the same time, the Democratic reforms were taking place in the House as liberals transferred power in a series of stages from the older, typically conservative power centers to newer, typically more liberal ones. All three factors combined to pass the new legislation.

The key from our perspective is the manner in which this jurisdictional change allowed a major shift in policy. Prior to the shift, nuclear power was defined as a subset of

\(^{10}\)This case is examined in detail in McNollgast (1990) and Weingast (1981) and will not be repeated here.
the nation's atomic programs, including weapons development. After the shift, it was defined as one of many energy programs. The new committee had to decide the national strategy for energy development. This change is depicted in Figure 2 which shows how nuclear power issues are transformed when they are transferred from the JCAE to Commerce and combined with questions about subsidies for alternative energy sources. The environmentalist, E, prefers no nuclear power and low expenditures on any policy that enhances energy supply. M, the moderate, supports some nuclear power and a high amount of government intervention to enhance energy supplies. C, the conservative, remains highly supportive of nuclear power, but in general opposes government intervention in commercial markets, and is therefore unenthusiastic about energy development programs.\footnote{Cohen and Noll (1991, chapters 9,10) derive this pattern of preferences for coal and nuclear technology development programs. Correlating ACA score with support for the coal synfuels program shows a peak support occurs for republicans with ACA scores of around 70, and declines for more conservative republicans. For both the coal program and the nuclear development program support for these energy development strategies is higher for conservative democrats (with ACA scores of around 50) than for conservative republicans (with ACA scores of over 70).}

The new committee, unlike the JCAE, is chosen for its sympathy with the goals of the Democratic members (as expressed in the caucus), and therefore is dominated by members with preferences of type E and M, and a relative absence of those of type C. Consequently, the transfer of jurisdiction from the JCAE to the new committee allows the latter to alter policy in their favor, namely to curtail substantially the degree of promotion of nuclear power development.

E. Some (modest) evidence.

Cohen and Noll (1991, Chapter 9) provide some evidence of the disagreement between the House and Senate in the 1970s over the fundamental issue of whether the government should continue to promote nuclear power. Their discussion supports our contention via an analysis of congressional voting on the Clinch River Breeder Reactor
project. In 1975, 1976, and 1977 both houses voted on an amendments to the JCAE authorization bill which would have canceled the project. None of the amendments passed. However, the project was supported in the House by majorities of 62%, 54%, and 51% in the three years respectively; in the Senate the project was supported by 69%, 62%, and 56% of the vote. Over the next three years attempts continued in the House to cancel the project, but no corresponding votes occurred in the Senate.

The analysis of these votes shows that nearly all JCAE members supported their own bill. In the House, the level of support of both JCAE members and members of the House appropriations subcommittee is significantly greater than that of other members, controlling for other factors such as party, conservatism (measured by ACA score), the importance of nuclear electricity in the representative’s district, and the size (if any) of Clinch River project contracts flowing to the representative’s district. The estimated coefficients for the vote in 1976 suggest that defeat of the amendment may have been problematic without direct committee support. Assuming that the JCAE had at least some of the external influence that authorization committees exert on their colleagues, it is possible that the House would have voted to cancel Clinch River in 1976 rather than continue it.

In the Senate, alternatively, JCAE members were NOT more likely to support the project than other Senators, controlling for the same factors. (Not only is the coefficient insignificant, it is nearly zero and of the wrong sign.) The implication, then, is that first, the House and Senate disagreed over policy, and second, the intermediation of the JCAE was critical in continuing the promotional strategy of breeder reactor development. Finally, in votes taken in the House 1977 and 1978, oversight committee membership vanishes as a significant determinant of program support.12

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12By 1978, other project features (pork barrel characteristics) had overwhelmed nuclear policy issues in keeping the program alive.
4. Shifting nuclear policy since 1977

Since 1977 the commercial nuclear power industry has been a debacle. Electric utility companies today consider nuclear plants to be far too expensive and risky to invest in, even if the utilities could get the necessary permits from state, federal and local authorities. How much of this can be attributed to federal policies since the breakup of the JCAE is unclear. Certainly the industry had a major hand in its demise with the accident at Three Mile Island and the types of management problems at Diablo Canyon and WPPSS that resulted in losses of billions of dollars. The state of the economy and the reduction in electricity demand projections have played a major role as well in the delays and cancellations of nuclear plants that have been priced at well over fifty billion dollars. Furthermore, nearly all the plants of each technological generation were ordered at about the same time, so that reactor orders in the early to mid 1970s were made in the absence of relevant operating experience. In the case of nuclear power, operating experience proved a sobering experience for proponents: most completed plants have been less reliable and have generated substantially less electricity than projected.

The policy shift at the federal level, however, is clear. The costs imposed by more stringent environmental and safety regulations reflect increased recognition of the problems with the industry as well as an actual change in policy, i.e., the attempt to assume a lower level of risk from use of the technology. For several reasons, it is difficult to assess the impact of these regulations on the cost of future reactors. Our experience is with the generation of plants that was under construction, or even operating, at the time the regulations changed, and hence required retrofits and the development of new technology to satisfy the standards. Current research suggests that learning curves are fairly steep under such conditions, so that new reactors are likely to be much cheaper to construct, and substantially more reliable to operate, than those that lived through the Calvert Cliffs
decision or Three Mile Island accident.

That utilities have kept away from nuclear power with a ten foot pole may owe as much to the continued regulatory nightmare of licensing nuclear power plants as to their appalling personal experience with past projects. It is here that federal policy (ostensibly under the jurisdiction of the committees which took over from the JCAE) has unambiguously changed from the prior promotional strategy. In particular, the bureaucracies have done virtually nothing to aid or rejuvenate the industry. The most glaring example is the glacial pace of development -- some would say the complete lack -- of any serious nuclear waste disposal policy for commercial reactors. As a result, a number of states have successfully skirted federal preemption issues and passed laws that prohibit new nuclear construction.

In addition, promising advanced light water reactors -- the so-called "inherently safe reactor designs" -- have received limited federal research support. More telling, the NRC has not attempted to establish viable licensing conditions for these new designs. The history of Clinch River clearly indicates that at least some experience with new reactors is prerequisite to granting commercial licenses. In the case of Clinch River (an experimental plant, which, because of numerous constraints and miscalculations, needed commercial licenses), actual experience was needed for preparing an acceptable environmental impact statement; the absence of experience with both environmental and safety systems provided opportunities for court delays and appeals of the licenses granted by the NRC. That no review for the purpose of setting license requirements is underway for the new reactor types suggests that utilities would be foolish to seek commercial licenses from the NRC even if the technology is perceived to be attractive.

5. Conclusion
This paper focuses on the interconnections between two issues. First, how policy is maintained via institutionalization. Second, the tension between committees as power centers within each chamber and the majorities that organize each chamber. The context of this study was the demise of nuclear power in the 1970s. While that story has been told many times, it usually focuses on the interaction of the environmentalists, regulatory agencies, and the courts, omitting any discussion of the role of elected officials. We argue that the latter played a critical role in the changing fate of nuclear. Politicians engineered three critical events that would have dramatic impacts on nuclear power — the passage of NEPA in 1970, the dismantling of the AEC and transfer of committee jurisdiction in 1974, and the destruction of the JCAE in 1977.

In the first, we furthered the theory about the relationship between institutional structure and policy outcomes. The literature has long emphasized the relationship between committees and the equilibrium and comparative statics of policy stability and change. Yet that analysis takes the structure of committees as given. The transformation of nuclear power studied in this paper involves the evolution of committees themselves. We argued that by the mid 1960s, the rise of environmentalism led many members of congress to seek a change in nuclear energy policy. Over time, the median Democrat became more liberal, thus and thus became increasingly concerned about environmental issues while calling into question the activist policies underpinning the promotion of nuclear power. In contrast, the preferences of the members of the relevant committee with jurisdiction, the JCAE, seemed not to change, creating a widening gulf between the preferences of the median Democrat in the House and that on the JCAE. A change in policy would require a change in institutional structure, for as long as the JCAE retained jurisdiction, policy remained stable.

Changing the institutional structure, in turn, required a novel approach in this case because of the unique characteristics of the JCAE. Not only did the very jointness of committee distinguish it from the other committees, but the authority for the committee
derived from the 1946 Atomic Energy Act and not from the internal rules governing a chamber. Moreover, the legislation fixed the size (9 members from each house) and party ratio (5 from the majority party to 4 of the minority party). As a consequence, the Democrats in the House, acting without the cooperation of the Senate, could not follow the standard strategy for adjusting the preference configuration of a committee. In the usual case, expanding the size of the entire committee (as Rayburn did to the Rules Committee during the Kennedy administration) and adding members with the relevant type of preferences will suffice if the preference imbalance is not too great. Because the 1946 Act placed authority for the JCAE in legislation, this method was unavailable to House Democrats.

The "energy crisis" of 1974 provided the circumstances that enabled the Democrats to use an alternative strategy, that of changing the committee and jurisdiction of the nuclear power regulatory issues. These were transferred from JCAE to the Commerce Committee, taking nuclear regulation out of over all nuclear power issues and combining it instead with other energy issues. Because the preference configuration of the Commerce Committee was far more like that expressed in the Democratic Caucus, this change in structure led to the desired change in policy. Over the next few years, the nuclear power industry went into a nosedive.
Table 1: JCAE Democrat Median, 80th-94th Congresses (1946-1976)
(Democratic Chamber Median Normalized to .50)

<table>
<thead>
<tr>
<th>Congress</th>
<th>Years</th>
<th>JCAE Democratic Median</th>
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<tbody>
<tr>
<td>80</td>
<td>1947-49</td>
<td>.37</td>
</tr>
<tr>
<td>81</td>
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<td>94</td>
<td>1975-77</td>
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* Republican majority
Figure 1: Stable Policy, Q, Promoting Nuclear Power While JCAE Retains Complete Jursidictional Control.
Figure 2: Democrats Institute New Energy Policy, P, Following Transfer of Jurisdiction.
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