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The Journal of Politics, Volume 53, Issue 4 (Nov., 1991), 1044-1074.

Stable URL:
http://links.jstor.org/sici?sici=0022-3816%28199111%2953%3A4%3C1044%3AADAPS%3E2.0.CO%3B2-O

Agenda Dynamics and Policy Subsystems

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Rapid change in public policy outcomes often occurs, but most theories of pluralism emphasize only incrementalism.[2] Yet from a historical view, it can easily be seen that many policies go through long periods of stability and short periods of dramatic reversals. Often the grand lines of policy may be settled for decades during such critical periods of mobilization.

In this paper, we argue a single process can explain both periods of extreme stability and short bursts of rapid change. This process is the interaction of beliefs and values concerning a particular policy, which we term the policy image, with the existing set of political institutions—the venues of policy action. In a pluralist political system, subsystems can be created that are highly favorable to a given industry. But at the same time, there remain other institutional venues that can serve as avenues of appeal for the disaffected. Here we use the case of civilian nuclear policy to examine the process by which policy images find a favorable reception in some institutional venues but not others, and how the interaction between image and venue can lead to the rapid creation, destruction, or alteration of policy subsystems. We rely on data from a variety of sources to trace agenda access of the nuclear power issue in each of the policy venues available.

Rapid change in public policy outcomes often occurs, but most theories of pluralism emphasize only incrementalism. This overemphasis on incrementalism has caused many to view pluralism as inherently conservative. Yet from a historical view, it can easily be seen that many policies go through long periods of stability and short periods of dramatic reversals. These long periods of stability have led political scientists to focus on the equilibrium of current policy compromises rather than on the punctuations in the equilibrium by dramatic change. However, the grand lines of policy may be settled for decades during a critical period of mobilization.

In this paper we argue that pluralism is neither conservative nor radical, but that a single process can explain both periods of extreme stability and

[1]Authors listed alphabetically to indicate equal contributions to this article and to the larger project of which it is a part.

[2]The authors would like to thank the Center for Energy and Mineral Resources and the College of Liberal Arts, Texas A&M University, for support for some of the research reported here. Doug Jones, Susanne Marrs, and Jeff Talbert provided expert research assistance. We would also like to thank John Kingdon, Roger Cobb, Charles Elder, Bob Boynton, Jeff Berry, and Dave King for their comments.

THE JOURNAL OF POLITICS, Vol. 53, No. 4, November 1991

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One characteristic of pluralist government often and accurately noted by political scientists is the ability of single-industry economic interests to insulate themselves from the influence of large-scale democratic forces through the creation of relatively independent depoliticized subgovernments. Such systems of limited participation are thought to be highly resistant to change (Cobb and Elder 1983) and have intrigued political scientists for decades (see, for example, Bentley 1908; Odegard 1928; Griffith 1939; Maass 1951; Freeman 1955; Cater 1964). However, many systems of limited participation have been quickly and dramatically altered during certain periods of history. One such period was the mid-1970s in the United States, when policy subsystems relating to tobacco, pesticides, air and water pollution, airlines, trucking, telecommunications, and nuclear power were all destroyed or radically altered (Fritschler 1989; Bosso 1987; Jones 1975; Derthick and Quirk 1985; Robyn 1987; Campbell 1988). The changing landscape of policy subsystems has sensitized policy scholars to diversity in policy arrangements (Thurber 1990; Ripley and Franklin 1990), but so far they have not focused on the dynamics of construction, alteration, and the occasional demise of powerful subsystems. We argue that the 1970s were not simply an aberration, but rather the breakup of systems of limited participation, like their creation, can be explained in a systematic way. We propose an approach which helps account for the creation and destruction of subsystem politics.

Our approach treats political actors as capable of strategic action by employing a dual strategy. On the one hand, they try to control the prevailing image of the policy problem through the use of rhetoric, symbols, and policy analysis. On the other hand, they try to alter the roster of participants who are involved in the issue by seeking out the most favorable venue for the consideration of their issues. In this process, both the institutional structures within which policies are made (see March and Olsen 1989) and the individual strategies of policy entrepreneurs (see Riker 1986; Kingdon 1984) play important roles.

In the nuclear power industry in the United States, government and industry leaders were able to create an impressive and seemingly all-powerful

subgovernment favoring the industry as it grew and developed after World War II. Despite the apparent power of the members of this subgovernment, it was not to be permanent. Changes in the regulatory environment, congressional oversight, state and local government involvement, financial markets, and public opinion interacted to destroy this tightly controlled policy network. Changing popular understanding of nuclear power and appeals to different institutional arenas of policymaking were the strategies of those not fully represented in the original closed system of policymaking. A system of positive feedback developed, leading to a surprisingly rapid demise of what had only a few years previously appeared to be an impregnable institutional subsystem. In the analysis that follows, a variety of sources of evidence are used, including content analysis of popular press during the entire twentieth century, public opinion polls, indicators of regulatory activities, stock market performance, and analysis of all congressional hearings on nuclear power topics since 1944. The approach developed shows the importance of multiple and competing venues of policymaking within the federal system, and demonstrates the opportunities for overturning what appear to be powerful systems of limited participation.

Policy Image and Institutional Venue

Public and elite understandings of public policy problems may change over time. Often, these changes are the result of new scientific discoveries or research; other times, changes come from dramatic events or more subtle influences. In any case, we can note whether given public policies are generally discussed in a positive or negative light, and we call this the policy image. Nuclear power, as we shall discuss in greater detail, has at various times been seen as either the source of abundant supplies of electricity and the solution to many of mankind's problems, or as the cause of enormous problems, including radioactive fallout, the destruction associated with nuclear war, and other things that cannot be considered good for the industry. How public policies are discussed in public and in the media is the policy image, according to the terminology we use here. We simply differentiate between images that are favorable to proponents of a given policy and those that are detrimental. For nuclear power, these distinctions are simple: positive images are growth, jobs, high-technology solutions; negative images are mushroom clouds, waste, leaks, and the like.

Remarkably, public discourse when traced over long periods of time tends to show a fascination with one aspect of the issue to the exclusion of the other, at any given time. While individuals might be able to recognize that the same issue has both good and bad sides, public attention as it is reflected in media coverage tends to focus on one or the other. Over time, attention may shift from virtual euphoria to an equally one-sided preoccupation with negative aspects of the same policy or industry.

Because images have implications for which actors in society will be attracted to a given debate, policymakers have the incentives to attempt to manipulate them, and many political scientists have noted their attempts to change public or elite understandings of the nature of important policy questions (see Boulding 1956; Edelman 1964, 1989; Elder and Cobb 1983; Kingdon 1984; Riker 1986; and Stone 1989). Images are based on facts, of course, but public attention tends to focus strongly on one set of facts at a time, and exhibits a remarkable ability to dwell on the positives while ignoring the negatives during one period; only a small change in environment can later cause the attention of nonspecialists to swing to the opposite extreme. Technically complex issues such as nuclear power can be discussed either in terms of their scientific and engineering details, or in terms of their social impacts. When they are portrayed as technical problems rather than as social questions, experts can dominate the decision-making process. When the ethical, social, or political implications of such policies assume center stage, a much broader range of participants can suddenly become involved (Baumgartner 1989). Where a positive image dominates, specialists have strong arguments for demanding that political leaders grant them the autonomy and the resources necessary to get on with their work. Policy subsystems may be created during periods when public understandings of the questions involved is overwhelmingly positive.

Related to the policy image is the question of its venue. There are no immutable rules that determine which institutions in society will be granted jurisdiction over particular issues. Depending on the issue and on how it is understood by those potentially involved, it may be assigned to an agency of the federal government, to private market mechanisms, to state or local authorities, to the family, or to any of a number of institutions. We term this the venue problem. Each venue carries with it a decisional bias, because both participants and decision-making routines differ. When the venue of a public policy changes, as often occurs over time, those who previously dominated the policy process may find themselves in the minority, and erstwhile losers may be transformed into winners. The image of a policy and its venue are closely related. As venues change, images may change as well; as the image of a policy changes, venue changes become more likely.

Schattschneider's (1960) conception of conflict expansion forms the basis of our notion of institutional venue and points to the importance of image as well. Schattschneider argued that losers in a policy debate have the motive to change the roster of participants by appealing to those not currently involved in the debate. If they can appeal to the right group of potential participants, they may be able to change their losing position into the winning one, as more and more people become involved in the debate on their side. Schattschneider, however, viewed conflict as either contained to elites or socialized to include the mass public. In our view, there are a variety of venues to which a particular conflict may be directed, most of which would

not involve mass mobilization at all. The mass public represents but one of a number of venues for policy conflict.

Conflict expansion to new venues can occur in three ways. The first is the classic loser appeal strategy that Schattschneider noted. The second is action by concerned outsiders, who may or may not be allied with losers in a policy subsystem. Oftentimes such outsiders lack both credibility and information to attack the existing subsystem, so that making alliances with losers from within the smaller group can be very important to outsider strategies. Third, decision makers from another venue can attack an existing policy arrangement trying to expand their own policy jurisdictions. Congressmen, for example, may wish to raise their visibility through such a strategy. Clearly these three conflict expansion processes are not mutually exclusive. In fact, alliances between all three types of conflict expanders are expected (see Baumgartner 1987 for a similar example in a different context).

Policymakers need not employ a rational decision model or know in advance exactly how their ideas will be received in a particular institutional venue. Rather, they may search for favorable venues through a trial-and-error process or an evolutionary search. Those uncomfortable in the current venue or with the current image have incentives to seek out more favorable ones. They may search in a variety of arenas at once. Where they find initial success, they continue to search; where their ideas are rejected, they abandon that effort. In this way, we need not assume that strategic actors can predict in advance the single most favorable image or venue for their policies. Successful efforts to shift image and venue may often be the result of evolutionary, rather than rational, search.

Any model of the policy process which seeks to explain both incrementalism on the one hand and rapid change on the other must appreciate the interaction between issue assignment and political rhetoric. Where the rhetoric begins to change, venue changes become more likely. Where venue changes occur, rhetorical changes are facilitated. Thus, a slight change in either can lead to rapid changes in policy outcomes. With each change in venue comes an increased attention to a new image, leading to further changes in venue, as more and more groups within the political system become aware of the question. So the interactions of image and venue may produce a self-reinforcing system characterized by positive feedback mechanisms. Such systems can produce both long periods of no change or dramatic reversals in outcomes in relatively short periods of time.

As an example of how image and venue changes may reinforce themselves, consider a case where an environmental group is continually on the losing side of regulatory decisions made with the executive branch of the federal government. Let us assume that they achieve some initial success by appealing to a previously uninvolved group in Congress. Their understanding of the issue, disregarded or considered to be marginal in the original

jurisdiction, may receive a more favorable hearing here (especially if there are congressmen searching themselves for issues where they might increase their own powers or visibility in hopes of running for higher office). If these first changes in jurisdiction are successful, Congress may pass legislation which allows protagonists greater access to the courts or in the regulatory process, thereby allowing the environmental group greater powers even in those venues where previously they had been weak. Further, the laws passed by Congress may explicitly make legitimate certain rhetorical symbols, so the venue change may lead to changes in image as well. These changes may generate increased public attention, thereby increasing further still the shift in image that the environmentalists seek.

From one strategic appeal, a whole series of self-reinforcing changes in image and venue may potentially follow. Such a scenario is not purely hypothetical. When Congress passed the National Environmental Protection Act (NEPA) in 1969 calling for environmental impact statements and allowing for much greater access to the courts, this one piece of legislation changed the nature of participation in both the courts and in the regulatory process, and forced these other institutions to give greater consideration to certain aspects of environmental policy which had been ignored in the past. When Congress created the Environmental Protection Agency shortly after the passage of NEPA, it created a new institutional venue where a variety of issues could be discussed. So strategic appeals from one venue to another may lead to dramatic changes over time. In other words, there may be a snowball effect, as image and venue changes continue to reinforce each other over time.

The degree to which problems are tightly linked to images is related to the degree to which a single arena of policymaking exerts monopolistic control over a policy. Where images are in flux, one may also expect changes in institutional jurisdictions. Where venues change, the terms of debate may be altered still further. Where venues are tightly controlled, on the other hand, changes in image are less likely; where changes in image are ruled out, the odds of effecting changes in venue are correspondingly lower. So image and venue can combine to produce rapid change, or they may interact to reinforce the current assignment of authority. Both stability and rapid change in policy outcomes can come from the same process.

Political images can be used by dominant political elites to reinforce their advantageous positions, as Edelman (1964, 1989) describes. Similarly, Bachrach and Baratz (1962) describe the ability of economic elites to keep alternative images of important policy decisions off of the political agenda, which they termed nondecision making (see also Crenson 1971). Stone (1989) focuses on the ability of political actors to portray issues in ways that suit their interests and argues that politics constantly involves strategic efforts to manipulate the understanding of reality. She writes that issue devel-

opment is more a result of conflict over problem and policy definitions than blunt instruments of elite control. We agree with Stone. The manipulation of images is not only one of the ways in which the powerful try to maintain their positions but also is a potential route to political power by relatively weak opponents to large economic interests. As we will show with the nuclear power industry, failure to control the images associated with a policy can lead to loss of control over the policy itself, even when it appears to be firmly within the institutional jurisdiction of influential groups all of whom favor the current direction of public policy. Manipulation of image and venue is an inherent part of the policy process understood by those on all sides of most policy debates. Sometimes it works in favor of economic elites, sometimes against them.

Cobb and Elder (1983, 152) describe a link between agenda entrance, by which they mean inclusion in the list of issues that compels attention by a governmental entity, and issue expansion, which refers to the number of people mobilized around an issue. They see the issue expansion process as a key element in the destruction of systems of limited participation and argue that as a larger and larger circle of participants is mobilized, the strength of the subsystem is likely to be weakened. Yet there is a second manner in which issues may gain agenda entrance: venue shopping by strategically-minded political actors. This strategy relies less on mass mobilization and more on the dual strategy of the presentation of image and the search for a more receptive political venue. While well-placed allies are essential in this process, mass mobilization is not necessarily critical. The mass public represents but one of many potential venues for a policy debate, and strategic policymakers can often be successful in breaking apart policy-making systems which go against their interests without any direct appeals to the broad public.

Even when mass publics are involved in the issue expansion process, they often come into the process following elite debate and then generally respond to symbols generated during the elite conflict. Carmines and Stimson (1986) show this to be the case for the important partisan issue of race relations. (Page and Shapiro 1983, have made the opposing case for the effect of public opinion on policy.) We shall present information shortly that indicates that major declines in public support for nuclear power occurred well after the demise of the option as a realistic policy alternative. By the time the conflict had been socialized to include the mass public, important policy decisions had already been made through the manipulation of image and venue among the institutions of national and local levels of government, far from the glare of public attention. Reversals in public opinion played an important role in solidifying the changes that had occurred among elites, but they did not create them.

Finally, the process of change need not involve only governments. In a

capitalist system, many decisions influencing the course of public policies are made in the private arena. In particular, the decisions of investors, reflected in the stock and bond markets, influence (and are influenced by) the dynamics of the policy process. In this study we treat the stock market as a primary venue for political action. Just as in any of the governmental venues of action, actions in the stock market show how dramatic changes within one arena can lead to further changes in other arenas. Thus, the stock market constitutes a further example of the complicated interactions among institutions that we believe are crucial to understanding the positive reinforcement mechanisms of the American policy process. The markets played an important role in weakening the nuclear subsystem well before the issue was at its peak of public attention or dislike. Dramatic changes can take place within the various arenas of elite behavior in American politics. Anticipated mass behavior certainly drives much of this activity, but the public plays mostly an indirect role, according to this research.

Where issues have been assigned to policy subsystems, the venue change process can lead to dramatic reversals in policy outcomes. We use the term "subsystem collapse" to refer to changes in subsystem organization which enable interests not generally supportive of the involved industry to intrude in the policy process in critical ways. Other scholars have described changes in subsystem politics in different terms, and of course we recognize that there are degrees of collapse. Jeffrey Berry (1989) has described in considerable detail the changes in the American interest group system. These changes roughly correspond to the succession of terms that scholars have used to describe subsystem politics—from "iron triangles" to "issue networks" to "advocacy coalitions"—from tightly structured systems of limited participation through more fluid boundaries and easier access to the incorporation of conflict within the subsystem (Heclo 1978; Sabatier 1988). This raises the issue of whether the process of subsystem collapse occurred throughout the interest-group system, or whether it was confined to particular arrangements. In any case, this article shows how a powerful subsystem was created, maintained, then destroyed during the postwar period.

Testing the Theory

We examine four specific predictions in the pages that follow. First, where policy issues have been assigned to policy subsystems, increasing attention is related to an increasingly negative policy image. This follows from attempts of strategic policymakers to alter the prevailing policy settlement by calling attention to its undersireable effects. This relation between attention and valence is expected to hold only when opponents to the prevailing image are seeking to alter a standing decision or the institutional locus of an issue. The initial assignment of the issue to a venue may be associated with consid-

erable positive attention. Subsystems are created during periods of positive attention but are destroyed when attention increases and shifts in tone.

Second, we postulate a succession of venue-access events as conflict expands. Conflict does not expand across venues simultaneously. Rather, the venues most susceptible to the changing policy image should change first, with other venues accepting the issue on their respective agendas more or less sequentially. Venues differ in their potential receptivity to a new policy image; the job of a policy entrepreneur is often that of identifying the most receptive alternative venues for the policy. We identify these venue access-events by noting the levels of attention to the policy problem across numerous venues.

As disgruntled policymakers seek out new venues that they hope will be more favorable to their views, each success leads to some change in policy image. As the image deteriorates, a greater number of potential venues may become receptive to the question. Therefore, we expect that venue expansion and image change should occur quickly and simultaneously.

These three hypotheses have to do with the destruction of an established policy subsystem; the process is similar but distinct in the case of the creation or the build-up of a system. In this case, a wave of popular enthusiasm may generate considerable popular attention, an overwhelmingly positive tone, but little participation. Rather, this euphoria encourages government leaders to structure institutions in such a way as to allow the greatest leeway to the experts. So the creation of a subsystem may come amid high positive attention with little range in participation. The destruction of a subsystem may come with high negative attention but with important shifts in the venues of government policymaking.

In order to examine the viability of these four propositions, we turn to the case of the civilian nuclear power industry in the United States. By the middle 1950s, a tight subgovernment had been constructed centering on the civilian uses of nuclear power. The subgovernment consisted of the Atomic Energy Commission, charged with both regulation and promotion of nuclear power production as well as with the production of military nuclear needs; the Joint Congressional Committee on Atomic Energy, a unique oversight committee consisting of both Senate and House members; elements of the scientific and technological communities in government, universities, and the private sector; and public utility companies interested in exploiting the new technology (Hamm 1983). By 1974, not only had the subgovernment collapsed, but the civilian nuclear option was, for all practical purposes, dead. No new nuclear power plants have been ordered in the United States since 1977, and more than 100 previously ordered plants have been abandoned or canceled (Campbell 1988, 4). Forbes magazine labelled the failure of the nuclear power program as "the largest managerial disaster in business history" (Morone and Woodhouse 1989, 1).

We report data on nuclear power policy from a variety of sources to trace the changing image and the shifting institutional venues within which nuclear power policy developed from 1944 to 1986. As strategic actors raised the issue in various institutional arenas, regulatory agencies, congressional committees, state public utility commissions, federal and state courts, the attentive mass media, private investors, and the broader public became involved in making nuclear power policy in the United States. The growth in the list of active participants in the debate was associated with dramatic changes in the image of nuclear power portrayed by interested parties and through the media. It led to a complete reversal in public policy outcomes.

Clearly examining a theory in one context constitutes only a limited test of a theory. Negative evidence in such an important subsystem would certainly discredit the theory, but positive evidence offers only limited confirmation. The data presented below, however, are nevertheless the most extensive ever assembled on changes in subsystem governance and point the way for more extensive tests of the interaction of image and venue in producing public policies in America. Most importantly, we think that this approach allows for the study of stability and change in policymaking. Incrementalism and crisis are part of the same process. Policies and policy-making processes may shift from one apparent point of equilibrium to another such chimera, lurching from periods of relative stability during periods of intense change.

The Changing Nuclear Image

In his analysis of the history of images of nuclear power in the modern era, historian of science Spencer Weart (1988) carefully shows how the image of nuclear power changed during the twentieth century from solidly positive to overwhelmingly negative. He argues that this change in image is the primary cause of changing policies toward nuclear power in this country. This shift is not based so much on changing realities as it is on changing images. Inglehart (1984) documents myths and misinformation on nuclear power among the mass publics of 10 western nations, and suggests that misinformation and sensationalism in the mass media is partially responsible for a lack of factual basis in mass responses to the technology. Based on their comprehensive analysis of attitudes toward technological change, Rothman and Lichter (1982) report that "the scientific community is highly supportive of nuclear energy development," with support strongest among scientists most knowledgeable about energy matters. However, "journalists in the prestige press are far more skeptical of nuclear energy" (Rothman and Lichter 1982, 52). The views of other leadership groups correlate highly with those of the news sources that they consider reliable (Rothman and Lichter 1987).

Media coverage of political issues has two dimensions; attention and valence. Changes in the valence of issues matter little if attention is low. However, Mazur (1981) presents evidence that, at least for technical issues, any increase in media coverage tends to cause declines in public support for the policy (see also Freudenburg and Rosa 1984). As attention increases (whether positive or negative), public acceptance declines. For the nuclear industry as for other established policy subsystems in technologically complex areas, the adage "no news is good news" could not ring more true.

The peaceful use of nuclear power was initiated on a wave of positive propaganda: atoms for peace; electricity too cheap to meter; a clean, high-tech technology; low-cost source of energy for the future. But there were always competing images: the enormous destruction of nuclear weapons; a society of fall-out shelters; giveaways of public technology to private business. At the beginning of the civilian nuclear era, these negative images were far outweighed by the positive. As time went on, the image changed, and this degradation of image was associated with later changes in venue access. As the venues of nuclear power policy expanded, image degradation accelerated. Finally, the industry was in deep trouble.

Weart (1988) coded positive and negative titles listed in the *Reader's Guide to Periodical Literature* for both military and civilian uses of nuclear power, and has made his data available to us. Figure 1 shows the total number of titles concerning civilian nuclear power listed in the *Reader's Guide*, thus measuring attention.[3] In addition, it assesses valence by presenting the percentage of these titles coded positive (neutral and uncodeable titles are omitted from the calculation of percentages).

The figure shows an increase in attention to the issue of civilian nuclear power in the late 1940s, coinciding with the passage of the McMahon Act establishing the Atomic Energy Commission in 1946. In the early 1950s, a second major increase in attention occurred, coinciding with major amendments to the McMahon Act in 1954.[4] Both of these increases in attention were associated with positive images. This is the period of "atoms for peace."

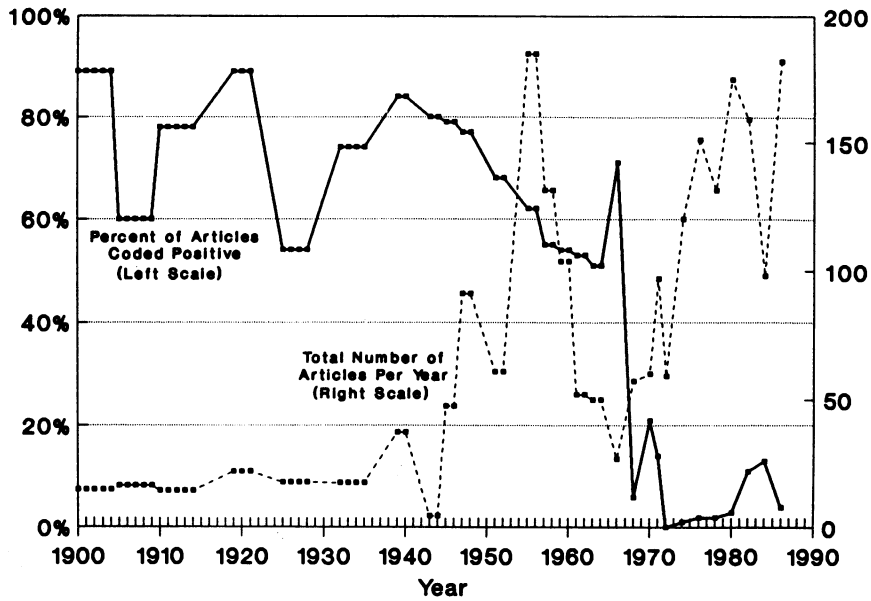
During the late 1950s and early to mid-1960s, attention to the issue fell. Then, in 1968, the dynamics of the nuclear image changed. Attention began to increase, and negative titles began to dominate. In 1968, the number of

[3] Weart coded selected years from the turn of the century. Each year coded is indicated by a point in the figure. The *Reader's Guide* published annual volumes from 1965 to present. Before 1965, individual volumes covered more than one year. The figure represents data by volume, standardized by the number of years covered. For example, if a volume covered two years, then each of the two would be assigned the same score equal to half the number of articles in the volume.

[4] The number of titles in the *Reader's Guide* changes over the years, so there is a risk of misinterpretation by using the raw numbers of titles on nuclear power. However, when we express the data in figure 1 as a percentage of all titles in the *Guide*, the shapes of the two lines are remarkably similar.

FIGURE 1

ANNUAL NUMBER OF ARTICLES ON CIVILIAN NUCLEAR POWER AND PERCENT OF ARTICLES CODED POSITIVE, FROM THE READERS' GUIDE



negative titles exceeded the number of positive titles, for the first time in the century. Since that year, the trend has been an increasing dominance of negative titles over positive ones, until in the 1980s, negative titles outnumbered positive ones by more than 20 to 1. The opponents of nuclear power had succeeded in convincing writers for the mass media that the future of nuclear power was not the shining city on the hill, but death, destruction, and debt.

So attention to nuclear power has gone through cycles. First, high positive attention was associated with the development of the industry in the United States, with extremely favorable institutional arrangements. Later high attention came in a period of bad news for the industry. The next section examines the link between these changes in image and the changes in venue that are expected to correspond.

THE CONSTRUCTION AND COLLAPSE OF A SUBGOVERNMENT

The initial technological advances making commercial nuclear power possible were developed by the national government for military uses, with a heavy reliance on contracting to private corporations. In the McMahon

Atomic Energy Act of 1946, Congress established the Atomic Energy Commission and granted it a governmental monopoly on the development of nuclear power (Polsby 1984, 18–35). After lobbying by private utilities at the AEC, within the executive branch and with members of the Congressional Joint Commission on Atomic Energy, Congress amended the McMahon Act in 1954 to provide for a private nuclear industry of which the AEC became the facilitator and the patron. The issue had been assigned to the private sector for decision with a small group of executive and legislative branch officials charged with boosterism, facilitation, and almost incidentally, oversight.

The initial institutional assignment of civilian nuclear power questions could not have been more favorable to the development of the industry. Institutions were purposefully designed to ensure control by those most strongly interested in advancing the technology. Government agencies were specifically organized to facilitate private development, and the nation's most powerful corporations pushed forward in concert with an encouraging executive branch agency and with a special joint committee of Congress also inclined to give them every assistance. Campbell describes the situation as one of differential access to decision making: "Corporate, political, and technocratic elites advocating nuclear power had privileged access to the most insulated and centralized interiors of the policy process" (1988, 78). Nuclear power was seen as the future guarantor of America's energy needs, while the negative images associated with it were pushed away from the national agenda. The technology of destruction which had put an end to the war would be put to use through a government-private sector partnership to put an end to scarcity and hunger. "Atoms for peace" would produce electricity "too cheap to meter." Journalists covering science topics played an important role in reinforcing the positive images of the time (see Lanouette 1990).

In his excellent case study of nuclear power policy, John Campbell clearly shows that political conflict expanded from the closed subsystem outward as AEC technical staff began to question the agency's safety decisions. He describes this as an internal legitimacy crisis (Campbell 1988, 51). These scientists and safety experts began to feel that government funds were going disproportionately toward the development of bigger and newer reactor designs with insufficient attention to the safety questions for which they were responsible (see Campbell 1988, 51 ff). Some scientists believed that the variety of designs permitted by the AEC made safety more problematic since each construction project was unique (Mooz 1979; Morone and Woodhouse 1989).

From the outset of the establishment of the policy subsystem, opponents had voiced objections. First, labor unions complained about government subsidies for private business (Morone and Woodhouse 1989, 47–50). Later environmentalists and local activists displeased at the location of plants close

to urban areas objected. Their complaints fell on deaf ears as policymakers deferred to the scientific experts. However, scientists concerned with safety issues could not be viewed as opponents to the industry, since they were nuclear engineers themselves. Hence their complaints had special legitimacy. In their efforts to ensure a larger share of the budgetary pie for safety questions, these bureaucratic entrepreneurs enlisted the support of members of the Joint Committee on Atomic Energy. Members of the Joint Committee objected to the authorization of the Fermi breeder reactor near Detroit over the reservations of the AEC's Advisory Committee on Reactor Safeguards (Mitchell 1981). With the first appeals from within the community of nuclear power experts, the monopoly of decision-making authority began to be whittled away.

Campbell sets 1965 as the date at which significant concern on reactor safety crystalized in AEC's regulatory arm (Campbell 1988, 53). However, earlier changes in rules of operation concerning licensing allowed external opponents access to the policy-making system. For example, in 1957 the AEC began holding public licensing hearings; in 1962 the AEC established routine and open licensing hearings. This gave safety advocates the opportunity to strike where the public was potentially most concerned: reactor safety at particular locations. Between 1967 and 1971, around one-third of all license applications were challenged (Rolph 1979, 102). The conflict had expanded outward as scientists in the agency leaked information to the Union of Concerned Scientists and other antinuclear groups (Campbell 1988, 61). This connection gave external opponents the credibility they needed to attack the system. According to Campbell, an external legitimacy crisis developed by 1972, as the Union of Concerned Scientists and their allies in the emerging environmental movement contested all license hearings. In 1973, Ralph Nader and other environmental groups filed suit in court based on the safety concerns (Campbell 1988, 63). As Campbell puts it, the internal legitimacy crisis had been transformed into an external one.

Changes in regulatory procedures had their impacts not only in the regulatory environment itself but also in a number of other venues. State and local governments, courts, and Congress all began to play a more important role, and most were hostile to the industry as the theory of conflict expansion leads us to expect (see "Activities of State and Local Governments," this article). In 1969, Congress enacted the National Environmental Policy Act requiring environmental impact statements for all federal licensing procedures. The courts, initially supportive of the AEC, became increasingly hostile, beginning with the DC Court of Appeals ruling in 1971 that NEPA applied retroactively to AEC licensing procedures (Rolph 1979, 106). The AEC responded to the use of its licensing procedures by environmentalists and the Union of Concerned Scientists by trying to close off the venue opportunity. It proposed eliminating the opportunity for public intervention in

operating license hearings in 1971, but this received no support from even the Joint Committee (Rolph 1979, 116). In 1974, Congress dismantled the AEC, assigning its regulatory functions to the Nuclear Regulatory Commission and its development functions to the Energy Research and Development Agency (ERDA), which later became the Department of Energy. A major reason for these changes was the low esteem of the AEC and the entire nuclear industry in the eyes of many congressmen. In 1977, the Joint Committee was abolished because of the general perception that the committee members were too close to the industry. A number of congressional committees claimed responsibility for oversight. Venue shopping clearly played an important role in this process, and its importance was understood by those on both sides.

Opponents followed the classic pattern of expanding the conflict by altering the institutional venue. Simultaneously they worked to reformulate the image of nuclear power from one of progress and efficiency to one of danger and waste. Ironically, as Weart points out, much of the reason for the shifting image of the nuclear power industry came from the almost perverse pride that the leaders of the industry took in its early years in proclaiming that they were going to harness the world's most dangerous technology. The industry prided itself on its preparations for worst-case scenarios, but opponents were able to make effective use of "Maximum Credible Accident" calculations when it suited their strategic needs (see Weart 1988, 288ff). Unfortunately for those in favor of the industry, public attention focused on the seeming admission by the government and industry that these accidents could indeed occur, rather than on the preparations being made for them, or on how unlikely they might be.

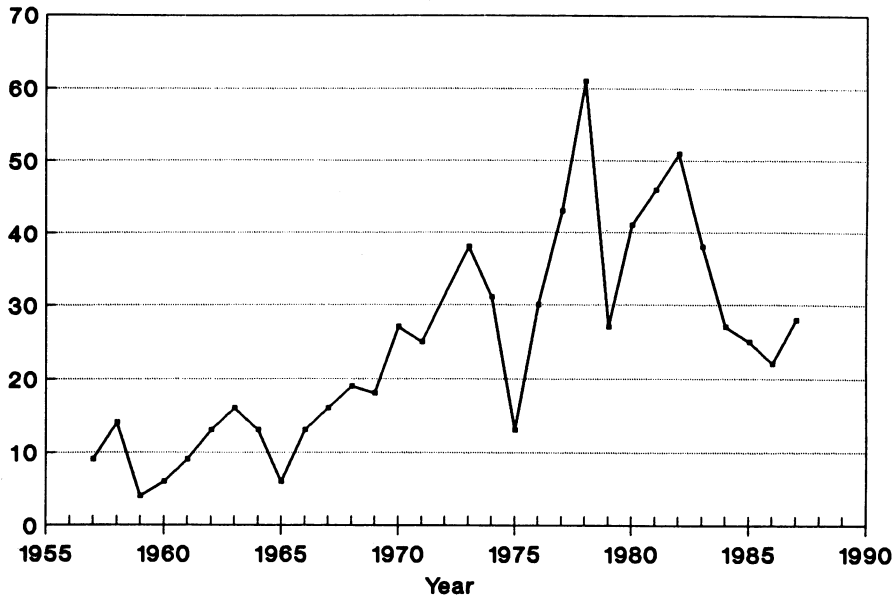
Even though it was not clear at the time, and even though most analysts today do not fully comprehend it, the fate of nuclear power was sealed prior to 1974. When the industry lost control of the issue, when the venue had been expanded by opponents to include licensing, oversight, and ratemaking, the future was determined. Utilities ordered only 15 more plants after 1974. Opponents had won primarily by getting their vision of the issue accepted and by altering the nature of the decision-making process by expanding the range of participants involved. We present data in the following sections which assess the changing nature of the nuclear power policy community in the United States. The image changes evident in Weart's data presented earlier correspond to the emergence of nuclear power questions in a variety of institutional arenas.

The Changing Regulatory Environment

Nuclear power at its inception was regulated by an agency intent on avoiding the public discussion of any problems in the nuclear industry and driven

FIGURE 2

TOTAL NUMBER OF REGULATIONS AND AMENDMENTS BY AEC/NRC PER YEAR



by a desire to see the civilian program grow. The Atomic Energy Commission issued few regulations, its inspection staff was small, and its annual reports to Congress showed little reason to be concerned with any problems with the industry. Since the agency was responsible both for safety questions and for the promotion of the growth of the industry, however, internal conflicts existed from the start. By the mid-1960s, the AEC was showing the first signs of greater oversight of the industry which it simultaneously sought to stimulate and regulate. While small and seemingly inconsequential at first, these changes multiplied rapidly in following years.

AEC/NRC annual reports and other sources can be consulted to document the transformation of the regulatory environment of the nuclear industry over time. By almost any measure available, the regulatory environment had gone through a major transformation during the early 1970s. Figure 2 presents one set of indicators.

The total number of regulations and amendments issued by the AEC/NRC per year is a rough indicator of how rapidly the regulatory environment is changing. Figure 2 shows the number of regulations and amendments enacted in each year since 1957 (unfortunately, the 1973 data were not available in AEC annual reports). After an initial period of only 15 or fewer new

regulations per year, the agency shifted in the late 1960s toward much greater activity. By the mid-1970s, regulatory activity as measured with this simple indicator was much more erratic but generally at about four times the previous level.

Corresponding to the change in the total number of regulations and amendments are the results of an independent study which sought to classify each new regulation in terms of the scope of its impact. This study covered only the period of 1967–1977; fortunately this is the period during which the regulatory environment was transformed in the United States. Bennett and Kettler (1978) created a "weighted regulation index" that counts those regulations with greater impact on the industry more heavily than those with smaller impact. The weighted regulatory index grew almost geometrically from the late 1960s to the mid-1970s, from a value of 3 in 1967 to 12 in 1970, 29 in 1972, 47 in 1975, and 49 in 1977. As figure 2 indicates, the annual output of regulations and amendments increased in a similar way at about the same time. The two series of data combined show the changes surrounding the activities of the AEC/NRC as the breakup of the nuclear energy subgovernment approached. Of course this activity has a much greater cumulative effect than only annual figures suggest. A major shift in regulatory behavior started in the late 1960s and was complete by the mid-1970s.

Other indicators also point to an increasingly tight regulatory environment over time. The annual number of reactor inspections done by AEC/NRC staff went from about 500 per year in the early 1970s to more than 3,000 per year in the 1980s, according to annual reports. This dramatic shift in activity began in or around 1974, when the number of reactor inspections passed 1,000 for the first time. Inspections of fuel facilities and other nuclear sites besides reactors under the jurisdiction of the AEC/NRC follow a similar pattern. Finally, the percentage of NRC staff in the Inspection and Enforcement Division shows a steady increase, from 20.9% in 1975 to 32.8% in 1986. During the early period, much of the federal government's investment in nuclear energy was in research and other activities, but by the late 1970s the NRC had become a watchdog agency. The mid-1970s was a period of transition.[5]

The Changing Nature of Congressional Oversight

The dramatic changes in the regulatory agencies surrounding nuclear power in the United States were paralleled and partially driven by changes

[5] The regulatory data also allows us to eliminate a potential rival hypothesis: that changes in control of the White House caused changes in the regulatory activities. From the mid-1960s to the mid-1970s, regulatory actions increased. A process which had begun in the Johnson administration was continued and accelerated under Nixon until the system was transformed. The data do suggest a lightening of the regulatory load in the Carter and particularly the Reagan administrations (see Wood 1988); however the nuclear industry subsystem had already been dismantled before then.

in congressional activities. Changes in congressional activities led in turn to greater regulatory activity, as for example when regulators requested, then received, authority to impose expensive fines on utilities found in violation of safety regulations (see Jones and Baumgartner 1989). The two venues are tightly linked, and changes in one are rapidly seen in the other. As congressional attention to nuclear power has grown, the tone of its inquiry has shifted from positive to negative.

In order to pinpoint the period when nuclear power emerged on the congressional agenda, we have coded and analyzed all hearings on civilian nuclear power topics by all congressional committees from 1944 to 1986. There were a total of 1,203 hearings on civilian nuclear power in Congress during this period, which we have identified by reading their abstracts and descriptions in annual publications (Congressional Information Service, annual). For each hearing, we have coded its date, the committee(s) and subcommittee(s) which held it, and up to five topics which were discussed. These topics were noted as positive, negative, or neutral in tone. Each hearing then could contain both negative and positive topics, so our dataset contains a greater number of topics than of hearings. Positive hearings were those focusing on such things as the use of nuclear power to desalinate seawater, to propel commercial ships and aircraft, to promote new technologies necessary for the industry, or on growing demand for electricity. Negative topics include such things as reactor accidents, regulatory reform, safety for workers, export policy criticisms, waste disposal, or transportation problems. Neutral topics were those such as annual appropriations hearings or others where no clear tone could be identified.

Early in the postwar period, there was little congressional attention to nuclear power questions, with an average of only three hearings per year from 1944 to 1954 (except for one year 1949, when there were 28 hearings). Very few committees were involved in this process, generally fewer than two House and Senate committees holding hearings in any given year. As time progressed, however, the controlled nature of the agenda and the relative inattention to nuclear questions were transformed dramatically. The number of congressional hearings increased to an average of 16 per year during the period of 1955 to 1968 and to 51 per year from 1969 to 1986. The number of different committees and subcommittees claiming jurisdiction over nuclear affairs increased dramatically as well. Table 1 presents information concerning the emergence of nuclear power on the congressional agenda.

During the early years of the nuclear power industry in the United States, Congressional activity could not have been organized in a way more favorable to the industry. There were few hearings on the topic, and a small number of committees and subcommittees were able to maintain the exclusive right to oversee "their" industry. During the late 1950s and 1960s, this

TABLE 1

THE EXPANSION OF CONGRESSIONAL ATTENTION TO NUCLEAR POWER, 1944–1986

Dates	Average Number of Hearings on Nuclear Power	Average Number of Committees Holding Hearings per Year	Average Number of Committees and Subcommittees Holding Hearings
1944–1954	5.8	1.8	1.9
1955–1968	15.9	5.3	8.6
1969–1986	51.3	14.3	24.2

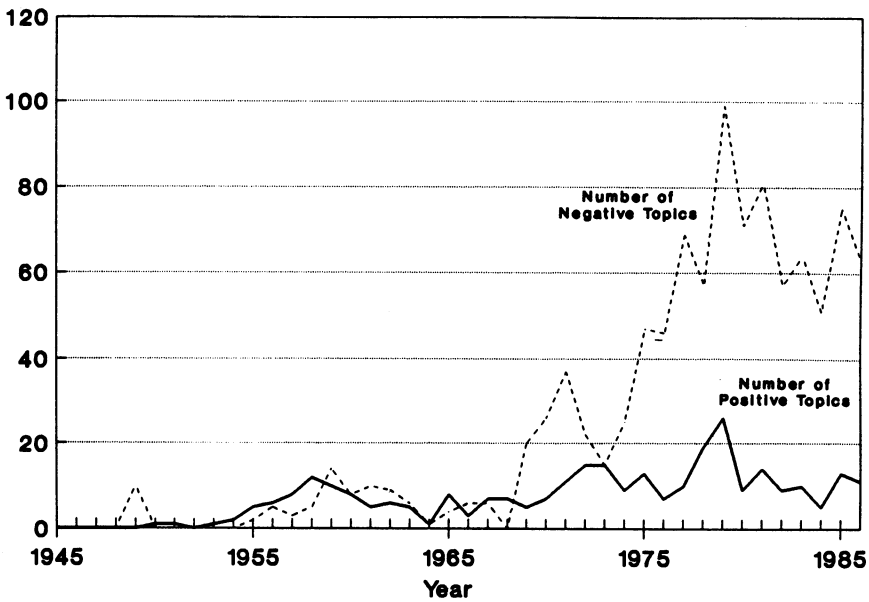
system began to break up, as evidenced both by the increasing number of hearings on nuclear topics, but probably more importantly, by the increasing number of different bodies claiming jurisdiction over some part of the industry. By the 1970s, the previously independent subgovernment intent on supporting the industry had completely disappeared, as two dozen different committees or subcommittees of the Congress held hearings on some aspect of the civilian nuclear program in a typical year. In 1979, no fewer than 36 different congressional bodies held a total of 94 hearings on nuclear power questions.

Not only did the number of hearings and the number of committees and subcommittees claiming jurisdiction over the civilian nuclear industry increase dramatically in the postwar period, but this change in attention coincided with a shift in valence. Negative topics came to dominate congressional attention to nuclear power. Figure 3 shows the increasingly negative view of Congress as nuclear power emerged onto its agenda in the mid-1970s. It presents the number of positive and negative topics that were discussed in congressional hearings from 1945 to 1986 (a small number of hearings clearly had more than one topic; therefore the number of topics coded in figure 3 is slightly higher than the number of hearings indicated in table 1).

As congressional actors became increasingly interested in questions nuclear, their purpose was not to promote the industry. They were breaking into a subgovernment which had shown its favorable inclinations toward the industry, and those committees and subcommittees which sought to encroach on this jurisdiction did so as the result of appeals from those on the losing side of the previous policy battles. Institutional changes within Congress during the 1970s increased dramatically the number of committees and subcommittees which were able to claim jurisdiction over at least some aspects of nuclear power policy in the United States. The Congress as a whole represented a venue to which opponents of the industry appealed when they could not win within the Atomic Energy Commission. By taking advantage both of regulatory rules which allowed for public participation and by in-

FIGURE 3

THE INCREASINGLY NEGATIVE TONE OF CONGRESSIONAL HEARINGS ON NUCLEAR POWER



creasing their presence in Congress, opponents to nuclear power succeeded over a number of years in breaking down a powerful subgovernment. The changes were not dramatic at first. However, the cumulative effects of small changes in congressional oversight during the 1960s, then alterations in regulatory activities during the early 1970s, and finally an explosion in the number of congressional masters overseeing the regulatory agencies in the 1970s signaled a complete breakup of the pro-nuclear iron triangle in the United States. These changes were similar to changes occurring at other levels of government and were soon to have their impact through the financial markets.

The Increasing Activism of State and Local Governments

Beginning with rules requiring public participation and local hearings for individual plants, environmental activists were able to mount increasingly successful campaigns against plants in particular areas. While the national policy-making system was being altered on the one hand, some of the greatest successes of antinuclear activists were due to their skills in using state and local levels of government to slow down or to stop construction on many

plants. They pressed the rhetoric of public participation to force the opening of numerous previously closed governmental processes, allowing greater and greater intervention by opponents at all stages of the policy process (Nelkin and Fallows 1978). Massive local protests were mounted at specific plants (Nelkin 1971; see also Kitschelt 1986).

In California, strong environmental and consumer movements and the availability of the initiative and referendum allowed citizens to vote on two antinuclear propositions, one in 1972 and a second in 1976 (Kuklinski 1982). Although these referenda failed, California environmentalists continued to press their case at licensing hearings and rate-setting hearings before the public service commission. Consumer advocates in many states began focusing on state public utility commissions in order to force them to take a tougher stance against the electric utility monopolies which they regulated. They began to intervene regularly in ratemaking procedures, especially when nuclear plants were involved, with more success in some states than in others. As capital costs for nuclear facilities escalated during the 1970s, nuclear opponents benefitted from public service commission rules that prohibited passing on costs of facilities to ratepayers until the plants were completed. They also picked up some valuable allies in the form of manufacturing corporations interested in keeping their electricity costs low. Antinuclear activists, once a diverse coalition of environmentalists, now included General Motors, Dow Chemical, and other large industrial users of electricity who knew that with each nuclear power plant granted an operating license, state regulators would allow significant rate increases so that utilities could recoup their enormous investments.

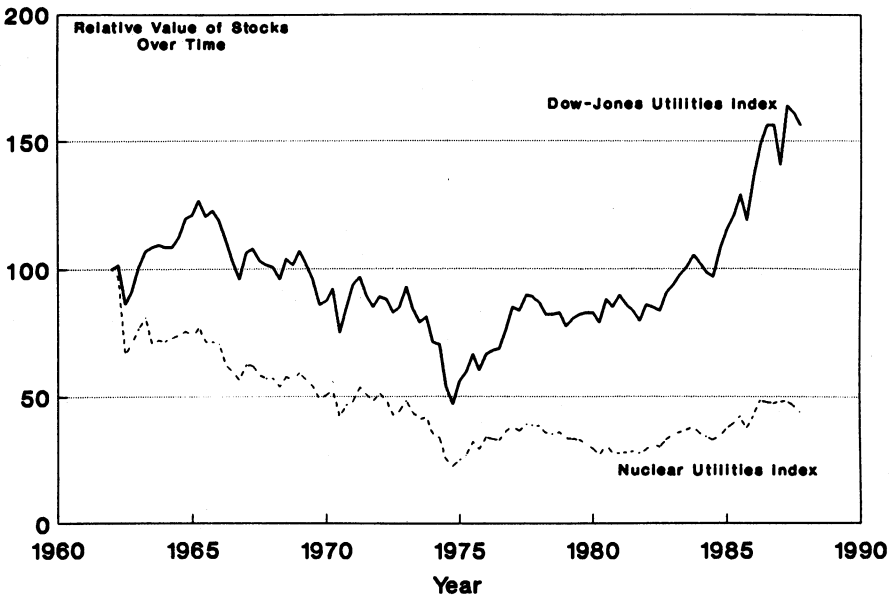
Expansion of the nuclear power policy community did not only occur in national policy-making institutions. Federal and state courts became more involved, and state and local governments were mobilized. In short, opponents were successful in seeking out not only one more favorable venue for their views, but literally hundreds of them, breaking up the previously tightly controlled subgovernment in the process. These changes were to have dramatic impacts on the economic performance of those utilities operating or constructing nuclear facilities.

The Changing Reactions of the Financial Markets

Ultimately, nuclear power was abandoned in the United States because the industry became uncompetitive with alternative sources of energy. The financial plight of the nuclear power industry occurred during a period of long-term problems in the electrical power industry. In 1965, electric utilities as a group represented extremely safe investments, with only 11% of major electric utilities being rated at the lowest investment grade of (Baa) by Moody. A decade later, half of these utilities were rated so poorly and were,

FIGURE 4

THE REACTION OF FINANCIAL MARKETS TO NUCLEAR POWER



therefore, forced to offer higher rates on their bonds (Campbell 1988, 99). Utilities had lost their luster to the financial community. Part of the reason for the declining economic performance of the utilities had to do with their heavy nuclear investments and the changing regulatory environment, as noted earlier (Montgomery and Rose 1979; Golay 1980; Weingast 1980; Komonoff 1981; Paik and Schriver 1981; see also Goodman and Wrightson 1987). The financial markets reacted to the huge cost overruns associated with nuclear investments in a way which reinforced some of the negative images associated with the industry, even though the business and financial community had no particular aversion to the technology per se. Those utilities most committed to nuclear power fared even worse than others during this time.

Figure 4 compares the stock market performance of the Dow-Jones Utility Index with an index of nuclear utility stock prices which we have created, from 1962 to 1988. The Dow-Jones Utility Index is comprised of 15 utilities and thus may not be fully representative of the utilities industry. A comparison with the more inclusive Standard and Poor's utility index yielded no significant differences, however. Our nuclear utility index was constructed by averaging the stock market performances of those 36 utilities listed on the New York Stock Exchange that rely most heavily on nuclear power for

electrical generation. While the Dow-Jones Utility Index includes a number of utilities with large nuclear investments, it also includes those with none of their generating capacity coming from nuclear power. The 36 utilities which we have combined into the nuclear utilities index include some of the largest utilities in the country, including Commonwealth Edison, Consolidated Edison, Houston Industries, Southern California Edison, and Duke Power. They were chosen by assembling a list of all the utilities with nuclear power plants and taking those with the highest proportion of their total generation capacity coming from this source. Ironically, these utilities may represent some of the most successful nuclear utilities, since by definition they have managed to get their plants constructed and in operation. Many other utilities invested heavily in nuclear power plant construction only to abandon the projects in some cases after billions of dollars had been spent. We have also analyzed the performance of those 11 utilities which abandoned nuclear power projects after the longest periods of construction (and therefore presumably the greatest lost investments). We find no significant difference between the stock market performance of these 11 utilities with abandonments and those 36 utilities with the greatest commitment to nuclear power included in figure 4. Both groups perform poorly.

Figure 4 reports quarterly values of stocks for both indices, adjusted to report their values as compared to their starting points in 1962. Both groups show a decline from 1964 to 1974, when utility stock prices hit bottom. It is in the recovery phase that important differences occur, making clear the investment community's new aversion to nuclear power. The Dow Utilities recover in the late 1970s, are steady until 1982, and then improve rapidly in the bull market of the 1980s. The stocks of companies building and operating nuclear facilities fail to recover at all during this time. Figure 4 compares the nuclear utilities index only with other utilities, but it is important to note that utilities in general did not fare well during this period. The Dow Jones Industrial Index grew from a value of about 700 in 1962 to more than 2,500 in 1988, while the Standard and Poor's index of 500 stocks grew similarly from a value of about 70 to 325. So while these broad stock indices increased their values by factors of four or five during this period, utilities in general increased their values by a factor of less than two, and those utilities heavily committed to nuclear power distinguished themselves by seeing their stocks decline to less than one-half their original value. Utilities with heavy nuclear investments became the pariahs of the investment community.

The investment community did not react negatively to nuclear projects before the breakup of the subgovernment which controlled the industry before the early 1970s but later avoided them with a passion. The breakup of the pro-nuclear governmental iron triangle seems to have affected the financial performance of the utilities. While utilities in general recovered from the poor performance before the oil crisis of 1973 and 1974, and on average

their stocks were worth over three times as much in 1988 as in 1975, those most heavily involved in nuclear power have made no discernible recovery. In 1988, their stocks remained, on average, at less than one-half of their 1962 values.

Clearly, the economics of nuclear power did not drive its politics. On the contrary, politics had an important impact on the adverse reactions of the market. As regulatory activity increased and as the federal government jettisoned its boosterism of the industry, it became clear to investors that utilities operating, constructing, or planning nuclear plants could be in serious financial trouble. The market constitutes one more element in the positive reinforcement process. As elite understandings of nuclear power questions were altered in the 1960s, new actors began to intervene thereby changing the nature of the regulatory and the governmental environment for the industry making it considerably less favorable. This led to serious changes in the financial outlook for the industry. So changes in the political environment and in the processes and rules of policymaking eventually found their reflection in the financial markets as an image problem became a serious economic concern. Prudent business managers began to shy away from nuclear investments, where previously the tightly controlled and supportive governmental structure in charge of promoting the industry had made the investments so attractive to this same group. So we see clearly the link between politics and markets, as the markets are a part of the single process of interaction among the multiple venues of decision making in any complex society.

The Changing Public Image of Nuclear Power

We have argued so far that policy change in the nuclear power area proceeded as follows: opponents exploited divisions within the community of experts; images in the popular media changed; opponents were able to obtain the attention first of regulators and then of Congress, of the courts, and of state regulators; finally, the market responded.

What about the public? Far from anticipating or causing the changes in venue which we have identified with respect to nuclear power in the United States, public attitudes toward nuclear power responded to elite activity. The expansion of conflict often includes the mass public, but its inclusion in the policy debate is not always necessary. In the case of nuclear power, opinion polls assembled by William Rankin and his colleagues (1984) show clearly that a majority of the public supported the construction of more nuclear power plants until after the incident at Three Mile Island (TMI). However, the proportion opposing started rising after 1974. Moreover, there existed a minority opposition of just under 20% as early as 1970. In response to the question, "Do you favor or oppose the construction of more nuclear power plants?" positive responses outnumbered negative ones (unsures eliminated)

by approximately 60 to 18 in 1970; 60 to 27 in 1974; 45 to 35 in 1975; 60 to 28 in 1977; and 50 to 30 in 1979 before TMI. After TMI, opponents outnumbered supporters by 60 to 30 (see Rankin et al. 1984, 48). Throughout the period when changes in the nature of the policy process in Washington were at their most dramatic, the public became increasingly concerned in a pattern that suggests response to elite conflict.

There was significant public concern about the siting of nuclear power plants "in this area," which show increasing opposition to the industry throughout the 1970s. In this series of polls presented by Rankin, in response to the question: "Suppose your local electric company said it wanted to build a nuclear power plant in this area. Would building such a plant be all right with you, or would you be against it?" large majorities were in favor of such a decision in 1971 (58 to 23) and 1973 (56 to 24), then opposition began to rise steadily throughout the mid- and late 1970s, reaching greater opposition than support in the last poll before TMI, in 1978 (see Rankin et al. 1984, 52). The critical weakness, ably exploited by opponents, was the location of power plants near heavily populated areas.

The mass public represented but one of a number of potential arenas of political discourse in the American political system and not always the key one. Strategic policymakers can have tremendous success and even up-end powerful subgovernments made up of cohesive groups of executive branch officials and strong economic interests, through the strategic manipulation of images and venues of local and national governments. They are not limited to appealing directly to the mass public in their efforts to expand conflicts beyond their original bounds. Available data on nuclear power suggests that mass opinion followed elite exploitation of venue opportunities. However, the case can be made that the potential for conflict expansion to the mass public is an important calculus in the entire venue search/conflict expansion process. That is, participants may be keenly aware of the consequences of mass mobilization on an issue.

Policy Venues and Pluralist Governance

We have argued that Schattschneider's notions of conflict expansion need to be modified to include the multiple policy venues that can be activated in the United States. We suggested that policy venues tend to become involved in an issue sequentially because of their differing perspectives and responsibilities. Finally, we argued that image change and venue access proceed simultaneously and in an interactive fashion. Changes in policy images facilitate changes in venue assignment. Changes in venue then reinforce changes in image, leading to an interactive process characterized by positive feedbacks, which can lead to dramatic results (on positive feedback mechanisms, see Arthur 1988, 1989, and 1990).

TABLE 2

TRACING THE DEMISE OF A POLICY SUBSYSTEM: VENUE SUCCESSION FOR NUCLEAR POWER

Date	Event	Source
Pre-1965	Tight Control by AEC/JCAE; positive images	Hamm 1983; Figures 1–3
1965	Internal questioning of safety at AEC	Campbell 1988
1966	Slope of regulatory activity becomes positive	Figure 2
	Amount of media coverage begins to expand	Figure 1
1968	Negative press coverage exceeds positive	Figure 1
1969	Negative Congressional hearings exceed positive	Figure 3
1971	Court of Appeals rules that EIS applies to AEC	Campbell 1988
1972	Union of Concerned Scientists begin to intervene in licensing hearings	Campbell 1988
1972	California antinuclear initiative	Kuklinski et al. 1982
1973	Nader's court suit	
1974	AEC reorganized into NRC and ERDA	Campbell 1988
	Only 15 Nuclear plants ordered after 1974	
1975	Nuclear stock prices fail to recover after nadir	Figure 4
	Congressional hearings per year exceed 40	Figure 3, Table 1
1977	Joint Committee on Atomic Energy disbanded	
1978	Public opinion on building local plants becomes negative	Rankin et al. 1984
1979	Three Mile Island	
1979	Public opinion on nuclear power becomes negative	Rankin et al. 1984

The information concerning nuclear power presented earlier can be summarized in table 2, which presents dates that indicate an image change associated with a change of venue. Direct, quantitative evidence we have assembled here are supplemented by particulars from other sources as noted in the table. The indicators are only rough benchmarks of changes in a very complex policy process. Nevertheless, the table presents strong evidence that conflict expands sequentially, venue by venue, rather than dichotomously, from elite control to mass public.

In the minds of many analysts, pluralism divides power, thereby making both coordinated policy and major change difficult to achieve. This system benefits powerful economic interests by allowing them to create governmental structures that insulate them from popular influence. Yet we have shown that at least in some cases the numerous policy venues characteristic of a pluralist system provide opportunities for those on the losing side of a policy debate to find a more favorable venue for the consideration of their issue. In order to take advantage of these multiple venues, they must be able to alter the accepted image of the issue. The changes which can stem from shifting images and venues can be quite dramatic, as they were in the reversal of American policy toward the nuclear power industry.

Systems of limited participation are often supposed by political scientists to be resistent to change. Yet the nuclear energy subgovernment collapsed; and this was a particularly impressive subgovernment, tying together powerful governmental agencies with many of the nation's largest economic corporations, with jobs and contracts spread throughout a number of states and congressional districts, and with a technology which was thought by many to be the very embodiment of progress and prosperity.

Was the collapse of the nuclear power subsystem unique? We think not. We know from several existing studies that this was not the only subgovernment to weaken dramatically during the mid-1970s. Bosso (1987) carefully analyzed changes in pesticide policies since World War II and notes a change in image from agricultural bounty to health risk. As in the case of nuclear power, environmentalists exploited the variety of venues open to them—the regulatory agencies, the Congress, the courts, and state and local governments—to achieve policy change. Similarly, the tobacco subsidy subsystem has become much more open to divergent views as health officials have become more active, according to Fritschler (1989). Seemingly powerful systems of limited participation can be torn asunder in the American political system if opponents are able to tarnish the image and shift the venues of consideration of the policy.

Was the collapse of such subsystems as nuclear power and pesticides part of a general trend in policy organization in America? Here one would need evidence of subsystem collapse at various points in history and evidence of subsystem construction in the more open atmosphere of the modern interest group system. Evidence here is limited, but Browne (1990) has shown that in the agriculture policy arena groups search for niches where they can have disproportionate influence and not run into the activities of other groups. That is, each specialized group seeks out an area, even if a minor one, where it can enjoy a policy monopoly.

Enough other examples of subsystem construction and collapse exist to convince us that we are observing a general phenomenon. On the one hand, government now regulates such items as automobile safety and fuel economy, air and water pollution, and electric utilities through what Sabatier (1988) has termed "advocacy coalitions." On the other hand, other subsystems have survived to date as systems of limited participation. One might cite the regulation of financial securities, which successfully deflected congressional interference after the 1987 stock market collapse, although certainly this arena is home to considerable intramural jockeying. Finally, new subsystems have been created, such as the special regulatory arrangements established to promote the production of generic drugs.

The process seems to be one of continual strengthening and weakening of systems of limited participation affected by secular trends and cycles in deference toward such systems. We believe this process can best be understood

by attention to the interactions of policy images and venues. Subsystems are created and thrive under conditions of positive images and restricted jurisdictions, but they can be destroyed as events or strategic actions conspire to chip away at the image, leading to intrusions from other policy venues. Finally, as the issue is the object of simultaneous interest within multiple venues of the political system, its image (and its corresponding policy monopoly) may be completely destroyed.

Pluralism, then, is not invariably conservative. The existence of multiple venues makes change a recurring possibility. Certainly in many cases it may not be easy to rout the old order. But the many venues of American politics also allow new policy to find niches within which to flourish. Because powerful economic interests cannot normally dominate all venues, they can lose control of the policy image that protects them. As images change, so does the possibility for dramatic policy change contrary to the will of those previously favored by governmental arrangements.

Pluralism is not invariably progressive either. Strategic manipulation of image involves a sophisticated understanding of the policy process and requires resources not controlled by all. Many venues require the mastery of specialized language and the understanding of complicated concepts. Courts, regulatory agencies, and congressional committees all require the presentation of policy proposals in specialized and arcane language, and all have complicated rules of formal agenda access. Hence, agenda entrance barriers will favor those able to master these rules or pay for specialists who do. Even with many venues, there remain substantial barriers to entry into the pluralist heaven.

We may conceive of pluralist systems of governance as systems of institutionally-linked policy venues. Such systems of governance are open to new ideas, can engage in nonincremental policies, and give the opportunity for losers in one policy venue to search for more favorable venues elsewhere. This results in the continual creation and destruction of systems of limited participation. Often, the creation of these systems provides enormous benefits to the economically powerful. In some cases, those disadvantaged by such arrangements are able to use the multiple venues of power in order to turn the tables on those who are advantaged. The resources necessary to dominate policymaking by subgovernment are certainly not the same as those needed to appeal to allies in other potential venues of policymaking. Some groups may be able to create subgovernments while others may be more skilled at breaking them up. Questions of the distribution of political and economic power cannot therefore be considered without a discussion of the relative abilities of policy actors to manipulate image and venue.

Manuscript submitted 2 February 1990
Final manuscript received 7 March 1991

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