
NUCLEAR POWER

The Decision Makers Speak

Robert L. Cohen and S. Robert Lichter

SINCE THE 1979 accident at Three Mile Island, there have been no new orders for nuclear plants and many well-publicized cancellations. Of all the reasons for this, one looms large. In the past decade, nuclear power has been transformed from an area in which professionals and policy makers had considerable leeway for making decisions to one in which the "nonexperts" call the shots. Increasingly, activist groups, concerned citizens and, especially, the mass media have played an instrumental role.

A recent article in *Public Opinion* explored an ironic consequence of this dramatic shift. Most scientific experts have remained strong supporters of nuclear energy, even as public opposition has escalated. This divergence, it was argued, seems to reflect the impact on the citizenry of media criticism fueled by a small but highly vocal minority of anti-nuclear scientists (S. Robert Lichter and Stanley Rothman,

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Here we look at another aspect of the nuclear energy debate. As public opinion on nuclear power has soured, the regulatory environment in which policy is implemented has toughened. With the increased public concern has come far closer governmental oversight. Initiatives from the nuclear industry meet with suspicious scrutiny at the Nuclear Regulatory Commission and related agencies. Congressional and regulatory hearings have multiplied, and their critical tone has grown sharper. It would be easy to conclude that the decision makers in the nuclear field are now as wary of nuclear power plants as the man in the street.

But appearances can be deceiving. As a result of our survey of scientific experts, for example, we discovered them to be far more supportive of nuclear development than many had thought. The only way to find out their true opinions was to ask them. Taking the same approach with decision makers in the nuclear field, we found equally surprising results—which are reported here for the first time. It

turns out that most regulators, congressional leaders, outside experts, and financiers are as united in their support of nuclear energy development as are industry executives. The anti-nuclear perspective is represented almost entirely by the heads of activist groups and a few scattered allies in Congress, the Environmental Protection Agency (EPA), and the Energy Department. They diverged from the majority not only in their assessment of the costs and benefits of nuclear power but also in their overall perspective on the energy issue.

Clearly, a relatively few dissenters have played a major role in blocking nuclear development. Precisely what they think, how they differ from other decision makers, and what this implies for the regulatory process is our subject here.

The Survey

During October 1980, we mailed a fourteen-page questionnaire to top decision makers in seven different categories:

- the nuclear power industry—presidents and chief executive officers of utilities (public and investor-owned), suppliers, and engineering firms, and senior executives and key public relations personnel at trade and professional associations, including the Atomic Industrial Forum, the Electric Power Research Institute, the Edison Electric Institute, and the American Nuclear Society;

- the financial community—the board of the American Nuclear Insurers and strategic individuals in banks and brokerage firms;

- the Nuclear Regulatory Commission (NRC)—officials and key staff members;

- other regulatory agencies—primarily the Department of Energy and the Environ-

mental Protection Agency, along with State Department officials who oversee the exporting of nuclear technology;

- Congress—ranking Democratic and Republican members and staff counsels of committees with jurisdiction over nuclear energy policy;

- outside experts—key scientists at national laboratories (such as Los Alamos and Brookhaven), influential scientists and consultants at major nuclear support service firms, and social scientists who have directed major energy projects for foundations or universities; and

- activists or “antis”—directors of major national environmental organizations such as the Natural Resources Defense Council, Friends of the Earth, the Sierra Club, and Critical Mass, as well as important regional anti-nuclear groups such as the Clamshell Alliance and the Black Hills Alliance.

We emphasize that the persons surveyed were not picked by drawing samples from larger pools of influential people. Rather, they are the particular individuals who were, at the time, most important in making or influencing American nuclear energy policy.

Of the 472 decision makers in our seven categories, 58 percent responded, a more than acceptable rate considering the questionnaire's length and the respondents' positions. Where the number of respondents in a category is small, it is generally because the number of top decision makers in that category is itself small. Only Congress had an especially low rate of response, 27 percent, so results for this group should be interpreted with appropriate caution. The following discussion is based on responses from 274 decision makers. In addition, for comparative purposes, we refer to certain results from the survey of 279 energy scientists that was summarized in *Public Opinion*.

The Results

Activists vs. Everybody Else. Let us begin with the basic policy question: how should the United States proceed with nuclear energy development? We offered decision makers the four alternatives shown in Table 1, ranging from rapid development to the dismantling of

This article is part of a large project on leadership and social change, directed by Stanley Rothman and S. Robert Lichter and sponsored by the Research Institute on International Change at Columbia University, Smith College, and the Graduate Program in Science, Technology, and Public Policy at George Washington University. The methods for the survey discussed here were based on an article by Thomas Lombardo in *IEEE Spectrum*, November 1979.

existing plants. The result was overwhelming support for the nuclear power option among all groups except the antis. It is to be expected that the leaders of the nuclear industry would feel this way. What is surprising is that their virtually unanimous pro-nuclear sentiments are echoed by financiers, NRC officials, and—most significant—outside experts and the broader scientific community. For example, 95 percent of the outside experts support nuclear power and 69 percent would move rapidly to develop nuclear energy; the figures for energy scientists are 95 and 70. Other government regulators and Congress are only slightly less sanguine: about four out of five favor nuclear development. The only exceptions are the activists. All of the leaders of the environmental and anti-nuclear groups surveyed would halt development immediately and 67 percent of them would dismantle existing nuclear plants as well.

This pattern of responses was repeated for several related questions summarized in Table 2. Always excepting the antis, most decision makers and energy scientists believe that nuclear plants are safe, the risks acceptable, and the scientific and technical problems solvable. They even profess their willingness to “vote with their feet”: they would not object if a nuclear plant were built in their own community.

By contrast, the activists are unanimously opposed on every issue. Their distance from the other players in the nuclear regulatory game is illustrated by the issue of risk. Any technology involves risks, so the key question is whether the risks incurred seem acceptable in light of the benefits gained. This trade-off is rejected by virtually no one in the industry, the financial community, and the NRC, and by only one of eight outside experts, one of four congressmen, and three of eight government regulators outside the NRC—as well as only one out of five energy scientists. Among the antis, however, the opposition jumps to the familiar figure of 100 percent.

Table 1
POLICY PREFERENCES ON NUCLEAR ENERGY DEVELOPMENT

	Activ- ists N=12	Indus- try N=127	Finan- ciers N=18	NRC N=31	Other Regu- lators N=24	Con- gress N=20	Experts N=42
Proceed rapidly	0%	93%	94%	65%	54%	40%	69%
Proceed slowly	0	5	6	35	25	40	26
Halt development	33	2	0	0	8	20	5
Dismantle plants	67	0	0	0	13	0	0

Table 2
GENERAL ATTITUDES TOWARD NUCLEAR ENERGY

	Activ- ists N=12	Indus- try N=127	Finan- ciers N=18	NRC N=31	Other Regu- lators N=24	Con- gress N=20	Experts N=42
Risks unacceptable	100%	2%	0%	4%	37%	25%	12%
Very confident we can solve problems	0	94	61	72	60	43	74
Plants unsafe	100	2	0	7	28	28	5
Would live near reactors	0	97	83	94	60	53	88
Energy crisis is extremely serious	75	61	39	42	35	71	48
U.S. energy needs will not increase	50	0	6	0	13	10	7

So the pattern is clear. Majorities of all decision-making sectors save the antis want to move ahead rapidly with nuclear development, would accept the risks involved, and pronounce nuclear power plants safe enough for their own “backyards.” The leaders of the activist groups are unanimously opposed to all these propositions.

Why the Disparities? What is it about nuclear power that divides the antis so completely from every other category of decision makers? To find out, we asked all groups to rate on a seriousness scale a number of problems covering every phase of nuclear energy from designing and building new plants to decommissioning old ones, from personnel to proliferation, safety systems to waste storage. Once again, as shown in Table 3, the antis disagreed sharply with all other groups. Whereas solid majorities of activist leaders rated eleven of the thirteen problems as “very serious,” none of the problems was considered that serious by a majority of the other decision makers. Only high-level waste disposal was considered very serious by a majority of any of these seven groups. Two other problems that troubled substantial numbers of decision makers were nuclear weapons proliferation and the training of reactor personnel.

The divergence of the antis from the other six groups is illustrated in the responses on accidental releases of radioactivity from reactors: 83 percent of the antis call this risk very serious, whereas the top figure for any of the other groups is 15 percent. Clearly the antis make few distinctions in their assessments of nuclear power's dangers—which raises the possibility that their views on these problems may be less the cause of their opposition to the development of nuclear energy than its consequence.

Another factor that may lead the antis to differ so dramatically from other decision makers is their evaluation of the overall energy situation. Referring again to Table 2, note that the activists, far from rejecting the threat of an energy crisis, think it is more serious than does any other group: three out of four term it "extremely serious." Paradoxically, though, they are much less likely than the other decision makers to believe the United States will need more energy by the year 2000. Majorities of every other group agree that U.S. energy needs will rise by 50 to 100 percent during that period. Only one expert out of fourteen believes that energy usage will level off in the future, and at the NRC, not a single one of the decision makers we surveyed foresees a no-growth energy future.

No matter what their views on the growth of energy usage, all groups look to only a few resources to meet our short-term needs. We gave them a list of sixteen resources, ranging from biomass to wind power, and asked what contribution each would make toward our energy needs by the year 2000. As Table 4 illustrates, most groups view coal as our primary short-term energy source, followed by oil and then either natural gas or nuclear fission, and finally conservation. As usual, the activists are the only dissenters. For them, conservation is far and away the top choice, solar heat becomes a major contributor, and nuclear energy completely disappears from the picture. There

Table 3
PROBLEMS RATED VERY SERIOUS

	Activ- ists N=12	Indus- try N=127	Finan- ciers N=18	NRC N=31	Other Regu- lators N=24	Con- gress N=20	Experts N=42
Design	67%	2%	17%	7%	21%	29%	5%
Construction	67	3	28	7	38	24	8
Training reactor personnel	58	20	50	45	50	48	32
Risks to workers	42	1	6	0	17	5	0
Radioactive release	83	1	6	10	13	15	2
Safety systems	67	3	17	0	25	24	13
Emergency systems	92	9	17	3	38	43	25
Low-level waste disposal	42	7	33	10	25	14	5
High-level waste disposal	83	21	61	31	54	57	23
Transport waste	58	6	28	3	25	14	5
Decommissioning plants	58	2	28	3	33	14	2
Proliferation	92	12	50	31	50	48	50
Sabotage	67	1	22	0	17	19	18

Table 4
RESOURCES THAT WILL MAKE MAJOR CONTRIBUTIONS
TO OUR ENERGY NEEDS

	Activ- ists N=12	Indus- try N=127	Finan- ciers N=18	NRC N=31	Other Regu- lators N=24	Con- gress N=20	Experts N=42
Coal	58%	96%	78%	94%	75%	91%	95%
Oil	50	57	50	63	84	67	79
Natural gas	42	44	41	34	48	52	67
Nuclear fission	0	52	24	28	52	25	33
Solar heat	42	1	0	3	12	10	2
Conservation	100	16	29	19	50	52	38

is no other group that ranks conservation higher than fourth, expects solar energy to be important, or writes off nuclear energy altogether.

These projections contain some other surprises. At the NRC, despite a generally positive outlook on nuclear energy, only 28 percent see fission as a major short-term contributor. But at other government agencies, where we have seen more criticism of nuclear power, a majority looks to this resource for a large contribution. Indeed the other regulators' projection precisely matches that of the nuclear power industry.

What Factors and Groups Should Rule? Of course, evaluations of nuclear power are not based solely on one's assessment of its risks and of future energy needs. On the contrary, a key issue in this debate concerns just what considerations *should* influence decisions on nuclear development. Here again, as Table 5

shows, the antis and the other decision makers were far apart. Every other category believes that nuclear development should be guided primarily by technical and economic considerations, and all but one (the other regulators) find moral issues least important. But the antis look first to environmental, social, and moral factors, and last to science and technology. So most decision makers approach nuclear policy from an instrumental perspective, balancing costs and benefits. For the antis, it is a moral issue to be assessed in terms of broader social values. Small wonder that these activists have little in common with other players in the regulatory game. They disagree on the very rules by which the game should be played.

We asked our subjects to rate not only the nuclear issue itself, but also the performance of groups that deal with its problems. In view of the standards the activists use to judge the nuclear issue, it is not surprising that they find most of the principals wanting. As Table 6 shows, they disapprove of every group involved in the policy-making process by strong

majorities, and not a single activist has a good word for the three groups connected with the nuclear industry. Their highest approval rating (42 percent) goes to the public.

Less predictable was the near unanimity of the other six categories. All of them, except Congress, reserve their highest plaudits for scientists connected with the nuclear industry. Even the outside experts give scientists in the industry higher marks than their peers in government and academia. Another surprise is the relatively high rating most groups give to reactor technicians—who were severely criticized following Three Mile Island. Majorities of all categories, save Congress and the activists, say that industry scientists and reactor technicians are good or excellent. Not a single activist gives either group a positive rating.

The activists and Congress also stand alone in their positive assessment of the public. (In fact, the most negative rating of the public's performance comes from the outside experts.) All categories except the activists reserve their worst marks for government bod-

ies. No group speaks up for state-local authorities or congressional committees, and virtually the only praise for U.S. government regulators comes from the NRC.

So an unexpected pattern emerges. The industry gets high marks overall, even from government regulators and outside experts, but nearly everyone criticizes the three government groups. Congress is strongly critical of its own committees, and government regulators fail to win majority favor, even at the NRC. But the antis stand alone in their almost unanimous criticism of industry, government, and the scientific community.

Though the government comes in for more than its share of criticism, few decision makers would restrict its influence over nuclear development, as Table 7 indicates. Most would leave that matter to three groups: energy scientists and engineers, government leaders, and the "in-

Table 5

CONSIDERATIONS THAT ARE VERY IMPORTANT TO NUCLEAR DEVELOPMENT

	Activ- ists N=12	Indus- try N=127	Finan- ciers N=18	NRC N=31	Other Regu- lators N=24	Cong- ress N=20	Experts N=42
Engineering/technical	50%	87%	89%	100%	78%	76%	74%
Economic	58	82	61	65	75	76	79
Environmental	100	44	50	55	67	48	41
Social	83	41	33	42	58	50	46
Moral	83	20	22	16	30	10	10
Scientific/theoretical	33	30	44	48	18	29	31

Table 6

POSITIVE RATINGS OF GROUPS THAT DEAL WITH NUCLEAR PROBLEMS

	Activ- ists N=12	Indus- try N=127	Finan- ciers N=18	NRC N=31	Other Regu- lators N=24	Cong- ress N=20	Experts N=42
Nuclear plant owners/ licenceses	0%	79%	74%	25%	40%	23%	52%
Nuclear reactor technicians	0	87	61	58	52	33	67
Scientists-nuclear industry	0	92	83	72	60	43	86
Scientists-universities	33	53	45	31	40	52	57
Scientists-government	8	41	33	72	52	51	67
U.S. government regulators	8	10	33	47	16	24	31
State and local authorities	25	13	22	25	13	19	7
Congressional committees	0	11	22	13	16	29	14
Public	42	19	33	25	29	52	14

Table 7
GROUPS THAT SHOULD HAVE
GREAT INFLUENCE OVER NUCLEAR DEVELOPMENT

	Activ- ists N=12	Indus- try N=127	Finan- ciers N=18	NRC N=31	Other Regu- lators N=24	Con- gress N=20	Experts N=42
Energy scientists- engineers	9%	82%	67%	63%	42%	59%	62%
Government leaders	27	42	44	70	71	59	57
Business leaders	0	41	29	27	33	19	34
Public interest groups	36	1	17	0	25	13	2
"Informed" public	63	47	50	67	44	44	44
"General" public	55	15	22	31	25	25	12

formed" public. There is less support for a major role for business leaders, still less for the general public, and near total rejection of public interest groups. As always, the activists are the great exception. They alone would exclude scientists as well as business leaders from nuclear policy making and severely limit even government leaders. Indeed, they would assign public interest groups a greater role than government. In the activists' vision of nuclear policy making, apparently the public would rule, freed from elite and expert influences but aided by public interest groups like the ones that the activists work for.

Implications

What might these results tell us about policy making in the nuclear arena? On particular issues, the anti-nuclear and environmental group leaders find some allies in Congress and government regulatory agencies, which may go far toward explaining their success in getting their viewpoint across. Nevertheless, they differ dramatically from all other decision makers in their assessment of virtually every aspect of nuclear power. Yet their outlook need not reflect irrational or malignant distrust of the "experts," as some industry sources have charged, but simply the view that scientific, technical, and economic considerations must take a back seat to broader questions of morality and social philosophy. The implication, however, is that "cost-benefit" analyses and empirical findings on nuclear power issues will not convince the activists and their followers. Their internally coherent perspective renders such argumentation irrelevant.

All other sectors take the basically pragmatic position that the benefits of nuclear

technology should be weighed against its risks and other costs, and all agree that in practice the risks are worth it. They see some problems, but in general do not find them insurmountable. Not only is this rosy view held by top nuclear industry executives, but it is shared in substantial part by the financial community, the NRC, and outside energy experts. The NRC in particular emerges as a bastion of support for nuclear power. This may represent an instance of regulatory capture—where the agency becomes the protector and booster of the industry it regulates. Yet many of the NRC's views are affirmed by the outside experts and, we should add, also by the wider scientific community. Moreover, there is considerable acquiescence, probably broader now as a result of personnel changes following the 1980 elections, from Congress and from EPA and Energy Department officials as well.

In spite of this impressive pro-nuclear consensus among key decision makers, both public opinion and the nuclear regulatory process have moved in recent years toward the preferences of the activists. This suggests that the anti-nuclear and environmental group leaders have acquired a kind of veto power over nuclear development. How they have managed it is quite another question. The explanation, discussed in the *Public Opinion* article, is the strength they have drawn from two circumstances—the fact that anti-nuclear scientists are much more "political" than pro-nuclear scientists and the willingness of sympathetic national media to convey anti-nuclear arguments to the general public.

Considering their isolation, the antis have done a remarkable job of combating the combined forces of a powerful industry, sympathetic regulators, and even outside experts who overwhelmingly favor nuclear development. What has helped them is their skill at practicing the increasingly familiar art of single-issue politics. They have stymied the traditional players on the regulatory field by not playing a traditional game. It seems increasingly clear that, in the contest for nuclear energy's future, they have won to their side the one ally that counts—the American public. ■