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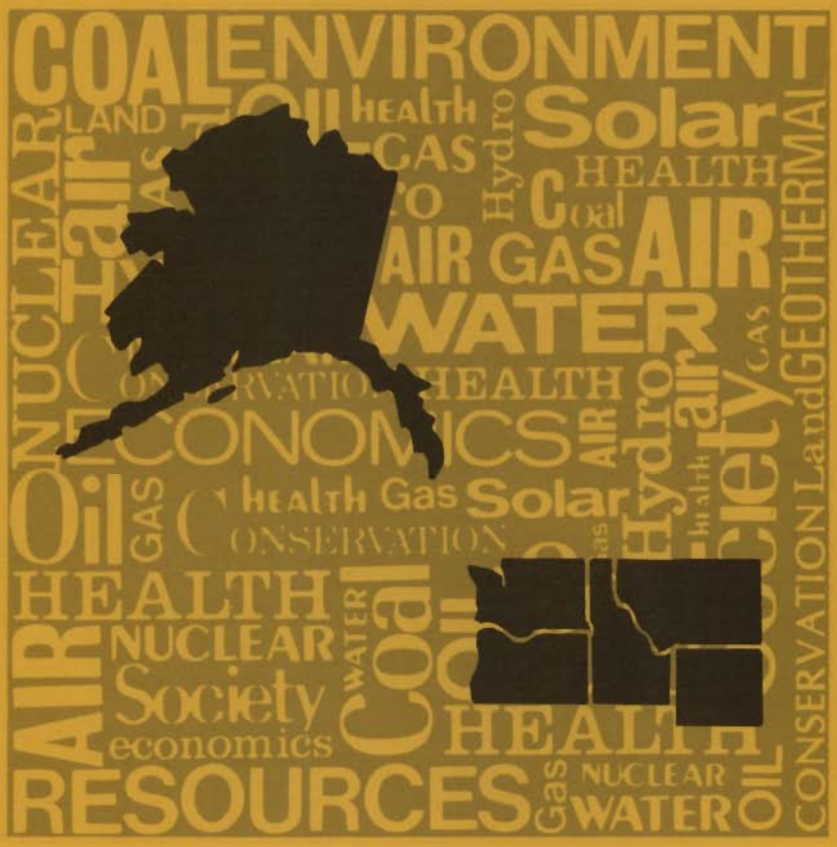
# Citizen Involvement in Energy Decision Making

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# CITIZEN INVOLVEMENT IN ENERGY DECISION MAKING

by
Martha G. Curry
Marvin E. Olsen

March 1977

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# CITIZEN INVOLVEMENT IN ENERGY DECISION MAKING

Martha G. Curry and Marvin E. Olsen

## INTRODUCTION

Citizen involvement in public policy formation is not a new concept, but it is still a highly controversial issue.[1,2] While few people deny that citizens should have a role in public policy decisions, there is little agreement regarding the nature or extent of this citizen participation role.[3,4] At one extreme is the belief that the citizen role in government ends at the ballot box. At the other extreme is the belief that citizens should have ultimate control over all public policy decisions. Between these two extremes are roles such as (a) information and education recipients, (b) advisory group members, (c) partners with decision makers, and (d) partial controllers of specific aspects of a policy-making process.

Proponents of a more active role for citizens argue that citizens are the best judges of all basic policy decisions and that policies formulated without citizen involvement are likely to meet with resistance and/or be ineffective in meeting people's needs.[5,6] Some evidence supports their contention that policy makers are not always fully aware of or sensitive to the negative consequences of certain policies on certain segments of the population (e.g., dislocation of the poor in urban renewal projects).

Opponents of extensive citizen involvement, meanwhile, maintain that citizens have only a narrow and often misinformed view of the need for and ramifications of certain policies. They argue that only "experts" and/or public officials are capable of making ultimate policy decisions.[7]

In practice, most citizen involvement efforts have been fairly limited in scope. While citizens have prevented some policies from being implemented (e.g., through court suits) and have actually initiated some policies (e.g., through lobbying), they have played mostly advisory roles in the public policy-making arena.

As citizen participation has become a major issue in Federal programs and local politics during the past few years, many researchers have attempted to determine the components and conditions of successful citizen influence efforts.[2,5,6,7] Little attention has been given, however, to how citizens view the various roles and techniques for implementing citizen influence in public decision making, or to what people mean by "success" in citizen participation. Such knowledge is vital to understanding the necessary conditions for citizen participation techniques and strategies which best meet the expectations of the groups involved in public decision making.

The purpose of the study reported in this paper was to learn more about the perceived effectiveness and appropriateness of various citizen influence techniques. As part of the Pacific Northwest Regional Assessment Program, this research focuses on nuclear power decision making because of its visibility as both a local and national issue, and because it is representative of other resource development issues in which citizens are becoming highly involved.

## METHODOLOGY

The sample for this survey consists of 300 citizens drawn randomly from telephone directories throughout the State of Washington, who were sent mailed questionnaires in 1975. With repeated mailings, 208 (69%) of the questionnaires were eventually returned. These respondents were predominantly male (80%) and well educated (23% had completed some college and 40% had completed four or more years of college), which perhaps reflects the kind of people most interested in issues of citizen participation in nuclear power development. Consequently, the sample cannot be regarded as representative of the total population of Washington State.

In most other respects, however, the respondents were relatively heterogeneous, so that the sample is sufficiently diverse to permit meaningful comparisons among various subgroups. For instance, the age distribution of the respondents was as follows: 18-29 years = 20%; 30-49 years = 34%; 50-69 years = 38%; 70 or older = 7%. Seventy-six percent of the respondents were employed, and 86% of them had lived in the Pacific Northwest for at least ten years. Fifteen percent of these people lived in rural areas or communities smaller than 2500; 38% lived in metropolitan areas of 100,000 or more; and the remaining 47% lived in intermediate-sized communities.

An initial concern of this study was to explore overall perceptions of the actual, potential, and ideal levels of citizen influence on nuclear power decisions, in comparison with the influence exerted by utility executives, public officials, and technical experts. These perceptions were measured with 11-point scales ranging from "citizens have had/could have/should have no influence" to "citizens have made/could make/should make the decisions."

The principal concern of the study, however, was to determine the perceived effectiveness and preferred usage of the following eight citizen influence techniques: (1) personal contacts and lobbying, (2) open public meetings, (3) organized participation programs, (4) formal public hearings, (5) interest organization activities, (6) citizen advisory committees, (7) court suits, and (8) citizen control boards. The perceived effectiveness

of each of these techniques was measured with an 11-point rating scale ranging from "no influence" to "controlling influence." Desired usage of these techniques was measured by asking respondents to rank them in terms of personal preferences. With the perceived influence ratings, numerical values were assigned to the responses and a mean value was computed for each technique. With the preference rankings, a summary score for each technique was obtained by summing its number of first and second choices and then subtracting its number of last choices. The third through seventh choices were omitted with this procedure on the grounds that people are usually certain about what they like most and least but are often less clear about choices between these extremes, with the result that rankings among middle items are rather arbitrary.

As predictor variables, respondents were asked about the following items: (a) their age and sex, (b) their education and occupation, (c) their attention to information about nuclear power plants in the mass media, (d) their personal acceptance of nuclear power plants, and (e) the size of their community.

Data from the survey were analyzed through frequency distributions, cross tabulations on significant variables, and correlational analysis.

## CITIZEN INFLUENCE

Respondents were first asked to make three overall judgments concerning citizen influence on nuclear power plant development: (1) how much influence citizens have actually had, (2) how much influence citizens could potentially have with existing laws and techniques, and (3) how much influence citizens should ideally have. Mean scores for these three items, on an 11-point scale, were as follows: (1) past influence = 3.56 (standard deviation = 2.05); (2) potential influence = 5.98 (standard deviation = 2.31); (3) ideal influence = 5.99 (standard deviation = 2.05). In other words, these respondents perceive that citizens have had relatively little influence on nuclear power plant decisions in the past, but believe that citizens could and should have significantly greater influence in the future.

Neither sex nor amount of education were significantly related to any of these three overall judgments. Age is unrelated to perceptions of past influence, but inversely correlated to potential ($r = -0.11$) and ideal ($r = -0.19$) influence, indicating that younger people are particularly anxious to see greater citizen influence. Occupational status is related only to potential influence, with higher status workers believing that more influence is possible ($r = 0.12$). Community size is also related only to potential influence ($r = 0.15$).

Attention to nuclear power issues in the media is directly correlated with all three overall influence measures: past $r = 0.18$; potential $r = 0.19$; and ideal $r = 0.11$. This suggests that the more people know about the whole area of nuclear power, the greater the amount of influence they believe citizens have had, can have, and should have in this area. Acceptability of nuclear power is also positively correlated with past influence ($r = 0.20$) and potential influence ($r = 0.16$), but is negatively correlated with ideal influence ($r = -0.17$). In other words, people who favor nuclear power plant development tend to be more satisfied with the amount of influence exercised by and available to citizens than are opponents of nuclear power. Opponents, meanwhile, believe that citizens should exercise more influence on nuclear issues than they have thus far.

Media exposure and nuclear acceptability were then simultaneously cross-tabulated with the three overall influence judgments. The highest scores on perceived past citizen influence occurred among those respondents who were both exposed to nuclear information and who accepted nuclear power (mean = 4.39); while the scores for the other three categories were all essentially the same (means from 3.12 to 3.22). An identical pattern also occurred with potential influence, with the same group of respondents scoring higher (mean = 6.87) than any of the other categories (means from 5.62 to 5.77). These findings indicate that media exposure and nuclear acceptance interact to increase people's perceptions of the amount of influence citizens do and can exert on nuclear power development. In contrast, the highest scores on ideal influence occurred among those people who were exposed to the media but who opposed nuclear power plant development (mean = 6.70; other category means range from 5.58 to 5.98). These informed opponents of nuclear power are particularly anxious for citizens to exert more influence on nuclear decision making than they have in the past.

## INFLUENCE TECHNIQUES

In this section, the eight citizen influence techniques examined in this study are first ranked according to their apparent effectiveness. They are then evaluated in relation to their preferred use. Finally, the perceived effectiveness ranking is compared to the preferred usage ranking.

### ACTUAL EFFECTIVENESS OF TECHNIQUES

Mean effectiveness ratings of the eight influence techniques were as follows:

| Rank | Technique | Mean Rating |
|---|---|---|
| 1 | Court suits | 4.96 |
| 2 | Interest associations | 4.52 |
| 3 | Control boards | 4.30 |
| 4 | Formal hearings | 4.00 |
| 4 | Participation programs | 4.00 |
| 4 | Advisory committees | 4.00 |
| 7 | Public meetings | 3.86 |
| 8 | Personal contacts | 3.62 |

Court suits (including injunctions, damage suits, and other legal actions taken by citizens against power companies or governmental agencies) were viewed as the most effective of these various techniques. The next most effective method was seen as working through interest associations (including conservation groups, professional associations, and political parties). Citizen control boards (or bodies of elected or appointed citizens who make binding decisions) were believed to be the third most effective technique--although it should be noted that in Washington State there are no such boards dealing with nuclear power plant development. The next level of effectiveness was shared by the three techniques of formal public hearings ( at which interested parties are given an opportunity to react to governmental policies or decisions), organized participation programs (usually involving a series of

meetings, ongoing work and discussion groups, etc.), and citizen advisory committees (composed of elected or appointed citizens who advise governmental agencies on relevant policy matters). Open public meetings (at which a problem is discussed and proposed solutions are explained) were seen as even less effective, while personal contacts (writing or meeting public officials, legislators, etc.) were viewed as least effective.

Men tend to view almost all of these techniques as more effective than do women, although only the relationships for court suits, interest associations, and formal hearings are statistically significant. Perceived effectiveness of all the techniques increases with educational attainment, although many college graduates score somewhat lower than do persons with only some college (which may be the result of higher expectations among college graduates). The greater one's exposure to nuclear issues via the media, the more effective each of these techniques is also believed to be, although the relationships for control boards and advisory committees are not statistically significant. Finally, the factors of age, occupational status, community size, and nuclear acceptability are not related in any way to the perceived effectiveness of any of these influence techniques.

The higher one's overall assessment of the influence exerted by citizens in the past, the more effective one believes all of the specific techniques to be. (These correlation coefficients range between 0.22 and 0.51, and average 0.36.) A similar relationship exists relative to the overall assessment of the amount of influence that citizens could exert with existing laws and practices. (These coefficients range between 0.17 and 0.36, and average 0.27.) No significant relationships exist between ideal level of citizen influence and the perceived effectiveness of the specific techniques, however, which indicates that those who desire greater citizen influence do not view these techniques as any more or less effective than do those who are satisfied with present levels of citizen influence.

## PREFERRED USAGE OF TECHNIQUES

To determine which of the eight influence techniques were most and least preferred by the respondents, they were asked: "If you and many of your

neighbors were trying to influence a decision concerning the construction of a nuclear power plant in your community, which of these eight methods would give you the amount of influence that you think citizens should have on this decision?" They were then instructed to rank all of the techniques. These rankings (based on the number of first and second choices for a technique minus the number of last choices), were as follows:

| Rank | Technique | Percent Choosing |
|---|---|---|
| 1 | Control boards | 28.7 |
| 2 | Formal hearings | 27.9 |
| 3 | Participation programs | 27.3 |
| 4 | Advisory committees | 23.8 |
| 5 | Public meetings | 17.5 |
| 6 | Personal contacts | 15.1 |
| 7 | Interest associations | 1.3 |
| 8 | Court suits | -19.0 |

The first preference of these respondents is for citizen control boards with decision-making authority over nuclear power development issues. Almost as highly preferred are formal public hearings which have quasi-legal status and organized participation programs in which citizens are involved throughout the decision-making process. Citizen advisory committees, open public meetings, and personal contacts, all of which are communication rather than decision-making activities, fall in the middle range of this preference ranking. Clearly not preferred by most people are the techniques of working through interest associations and filing court suits.

Men and women display some interesting differences in their preferences for these various techniques. Men favor formal hearings, participation programs, and public meetings more than women, while women prefer advisory committees, personal contacts, and court suits more than do men. The remaining variables of age, education, occupation, community size, and media exposure show only a few scattered relationships with these technique preferences, none of which displays any meaningful patterns.

Acceptance or rejection of nuclear power plants does affect people's choices of influence techniques, however. Proponents of nuclear power tend to favor more traditional influence techniques such as formal hearings, public meetings, participation programs, and interest association actions more than do opponents of nuclear power. The latter respondents prefer stronger techniques such as citizen control boards and court suits.

Finally, the higher a respondent's score on the measures of overall actual and potential citizen influence, the less likely the person is to prefer court suits--even though this approach has been more effective than most other techniques in the past. In contrast, the higher a respondent's ideal level of citizen influence, the more likely that person is to prefer public meetings and personal contacts and to dislike citizen advisory committees.

## ACTUAL EFFECTIVENESS VERSUS PREFERRED USAGE

The most interesting and noteworthy finding of this study is the comparison between the actual effectiveness ratings of these influence techniques and the preferred usage rankings. Court suits, which are seen as having been the most effective citizen influence technique, are nevertheless the least preferred approach. Similarly, interest association activities are seen as second in actual effectiveness but seventh in preferred usage. Quite clearly, the respondents are not satisfied with these two means of exerting influence, despite their perceived relative effectiveness. In contrast, citizen control boards, formal hearings, and organized participation programs, which share fourth place in terms of actual effectiveness, are elevated to first, second, and third rankings in terms of preferred usage. All three of these techniques give citizens a legally defined direct role in the decision-making process, in contrast to the external or indirect routes of working through interest associations and court suits.

To ensure that perceptions of overall past, preferred, and ideal levels of citizen influence did not significantly affect these latter findings, the two sets of technique rankings were compared while holding constant each of those three overall judgments. In general, the patterns described above for the total sample remain fairly consistent regardless of level of past,

preferred, or ideal citizen influence. The reversal of court suits and interest association actions from the top of the actual effectiveness list to the bottom of the preferred usage list occurs regardless of how much influence one believes citizens can or could or should exert on nuclear power development decisions. Conversely, formal hearings and organized participation programs consistently receive higher preferred than effectiveness rankings. The only technique that deviates somewhat from the general pattern is citizen control boards--with preference rankings varying from first to fourth among levels of past, preferred, and ideal citizen influence--but there are no consistent trends in these deviations.

## CONCLUSIONS

The main findings of this study can be summarized in a series of generalizations:

1. Citizens do not, on the whole, feel that they have exerted very much influence thus far on nuclear development decisions in the State of Washington.

2. Citizens do believe, however, that it is possible and desirable for them to exert more influence on these decisions than in the past. This is true of both men and women at all educational levels, but is more evident among younger people than others and among those with considerable exposure to the media.

3. Citizens' attitudes toward the nuclear power issue seem to influence their degree of satisfaction with existing citizen influence opportunities. Those who agree with the decisions made thus far generally do not see a need for greater citizen involvement, whereas those who disagree with these decisions would like to increase citizen involvement in energy decision making.

4. Citizens view court suits and interest association activities as the most effective techniques in the past for influencing energy development decisions. This perception is more widespread among men than among women, as well as those who are well educated and who have extensive exposure to the media. In addition, the greater the amount of influence one believes citizens have and could exert, the more likely one is to rate these two techniques as effective.

5. Citizen control boards, formal public hearings, and organized public participation programs are the most preferred influence procedures. This stance is taken more frequently by men than by women, but does not vary with any other factors.

6. Although court suits and interest association activities are seen as the most effective influence techniques in the past, they are the least preferred techniques. This contrast is most pronounced among people who believe that citizens are capable of exerting greater influence on nuclear energy development decisions.

More broadly, the respondents in this study appear to be saying that citizens can and should play a more active role in energy policy decisions than they have thus far, and that this process of citizen participation in public policy formation should be institutionalized in a set of formal procedures. Instead of having to circumvent the established decision-making process by filing court suits and using organizations to exert pressures on decision makers, citizens should be brought more directly into the public policy formation process through membership on decision-making boards, representation in legal hearings, and involvement in organized citizen participation programs. If these formal influence procedures were used more extensively and effectively, the citizens who responded to this study apparently believe that energy policy decisions would more likely reflect the general public interest.

Finally, although this study is limited to decisions concerning energy development, the influence procedures examined here could be utilized with any public issue. Future research should therefore replicate this study with other kinds of issues. The knowledge gained through such a research program would be of direct benefit to public officials and community leaders concerned with the problem of stimulating greater citizen involvement in public decision making.

## REFERENCES


1. Alden Lind, "The Future of Citizen Involvement." The Futurist, 9:316-328, December 1975.

2. Jon Van Til and Sally Bould Van Til, "Citizen Participation in Social Policy: The End of the Cycle?". Social Problems, 17:313-323, 1970.

3. Sherry R. Arnstein, "Eight Rungs on the Ladder of Citizen Participation." In: Citizen Participation: Effecting Community Change, Edgar S. Cahn and Barry A. Passett, editors, Praeger Publishers, New York, NY, pp. 69-91, 1971.

4. David K. Hart, "Theories of Government Related to Decentralization and Citizen Participation." Public Administration Review, 32:603-621, October (special issue), 1972.

5. Edgar S. Cahn and Jean Camper Cahn, "Citizen Participation." In: Citizen Participation in Urban Development, Vol. 1, Concepts and Issues, Hans B. C. Spiegel, editor, Washington Center for Community Affairs, NTL Institute for Applied Behavioral Sciences, Washington, DC, pp. 215-225, 1968.

6. David R. Godschalk, "The Circle of Urban Participation." In: Taming Megalopolis, Vol. II, Wentworth Eldridge, editor, Doubleday and Co., Garden City, NY, pp. 971-979, 1967.

7. Harold Goldblatt, "Arguments for and Against Citizen Participation in Urban Renewal." In: Citizen Participation in Urban Development, Vol. 1, Concepts and Issues, Hans B. C. Spiegel, editor, Washington Center for Community Affairs, NTL Institute for Applied Behavioral Sciences, Washington, DC, pp. 31-42, 1968.

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