DIALECTIC OF COOPERATION: HOW THE HOOD RIVER PROJECT WORKED

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ABSTRACT

Energy policy planning in the Pacific Northwest has been characterized by controversy and factionalism since the early 1970s. The Pacific Northwest Electric Power Planning and Conservation Act of 1980 structured debate and action on electricity planning issues by establishing the Northwest Power Planning Council (Regional Council). The Regional Council was mandated to develop a regional power plan, something that had not been done before. The Regional Council heard testimony from various energy groups on all aspects of the plan. The forums provided by the Regional Council moved the planning process out of the somewhat exclusive realm of the utilities and their industry associations and made the process public. Energy organizations and representatives of constituencies affected by energy planning came to the Regional Council forums with various perspectives. The discussions were, nevertheless, conducted in a generally cooperative and constructive manner. Issues and actions, however, continued to be mediated by the organizational interests of the planning forum's participants.

The Hood River Conservation Project, a $21 million empirical test of residential retrofit conservation, was guided by a consensus-driven steering committee, the Regional Advisory Group. This group was primarily composed of seven organizations whose interaction illustrates the cooperative process.

The focus of this paper is the usefulness of the consensus model. The paper also shows the application of "argument maps," as defined by Stephen Toulmin, in evaluation. Argument maps are a tool that can be used by planners, utility managers and evaluators. Three specific problems that arose in Project research planning, weatherization operations, and interpretation of empirical findings are discussed. Two are illustrated by argument maps in this paper. The problems encountered within the Project are problems typical to evaluation research in an organizational context. Conclusions about inter-organizational cooperation in a consensus-driven evaluation program are presented.

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The focus of this paper is the usefulness of the consensus model and the application of "argument maps," as defined by Stephen Toulmin, in evaluation. The argument maps are a tool that can be used by planners, utility managers and evaluators. Three specific problems that arose in Project research planning, weatherization operations and interpretation of empirical findings are discussed and illustrated by argument maps in this paper. The problems encountered within the Project are problems common to evaluation research in an organizational context. Conclusions about inter-organizational cooperation and a consensus-driven evaluation program are presented.

THEORY

A process of empirically referenced consensus was employed in the Hood River Conservation Project from planning and evaluation design, through implementation and the operational phases of evaluation work, and through the final phase of data interpretation and assessment of research results. An inter-organizational Research Advisory Group guided the project from start to finish, encountering and resolving emergent issues of which those presented in this paper are typical examples.

As a working model for the conduct of large-scale applied research, the project confronted and embodied in a creative tension the theoretical concerns of Campbell (1982) and Dunn (1982). Campbell and Dunn have extended the core theory of quasi-experimental design into the social and institutional realm of real-world evaluation performance. The theoretical basis for this extension also exists in the work of Restivo (1983a; 1983b), Habermas (1973; 1984), and in dialectical sociology (Mitroff & Mason 1981; Mitroff, Mason, & Barabba 1983). The theoretical work in this area is extensive. For this paper, is will suffice to note that the fundamental problem is that "natural law" does not clearly explain the results of social experiments. Instead, every phase of evaluation research is open to interpretation. But interpretation is linked to frames of reference or worldviews. Agreement then depends upon discussion and argumentation. In evaluation research, arguments revolve around questions of design, implementation, and data. These arguments are assumed linked to the goal of truth and are in practice conditioned by factors recognized by the consensus theory of truth. In the Hood River Conservation Project, these dimensions of evaluation research were taken into account and virtually all phases of the project were subject to an empirically referenced consensus process which explicitly acknowledged the goal of truth.

INSTITUTIONAL BACKGROUND

The Regional Council

The Northwest Power Planning and Conservation Act of 1980 (Regional Act) was proposed in a climate of rising concern about projected power supply deficits and the escalating costs of nuclear power plants then under construction by the Washington Public Power Supply System. The Regional Act created the Northwest Power Planning Council (Regional Council) composed of representatives from a four-state area within the Bonneville Power Administration (Bonneville) region. Congress charged the Regional Council with the duty to create long-range energy plans incorporating electrical conservation as a priority resource. This had never been done before in the United States.

The Regional Council began to hear testimony in 1981 from a variety of energy organizations on all areas of planning to be included in the first Regional Power Plan. The call for testimony moved power planning from the domain of utilities and industry associations to a public forum. Among the groups offering evidence in these forums was the Natural Resources Defense Council (NRDC).

NRDC had been analyzing the resource economics of electrical energy conservation since the mid-1970s. NRDC issued two studies in 1977 and 1980 showing how a range of conservation measures, including full-scale weatherization, might obviate the need for a number of new power plants that were either under construction or in the planning stage. These studies provoked much controversy among energy organizations because they were in marked contrast to the perspectives of the region's major public and investor-owned utilities. The perspectives of those utilities had been embodied in previous energy forecasts of the Pacific Northwest Utility Conservation Committee (PNUCC), the main utility industry association in the Pacific Northwest, and Bonneville. During the Regional Council's planning forums many organizations recognized conservation was a fundamentally different energy resource than traditional resources such as coal-fired, hydro-power or nuclear power plants. Serious disagreements in the planning forums were generated from differences in organizational outlooks and uncertainties about the size, cost and delivery mechanism of conservation resources.

NRDC developed a study model incorporating plans for a least-cost resource mix, including conservation, that was presented to the Regional Council (Cavanagh, et al. 1982). (Key parts of the NRDC plan were eventually incorporated into the 1983 Regional Power Plan.) When NRDC's studies were critically reviewed by the utilities and other groups, the value of the studies was recognized. Several utilities, notably Pacific Power and Light (PP&L) (which was the region's first active supporter of conservation programs), agreed NRDC's customer participation rates and levels of weatherization proposed were possible, but not probable. Skepticism was based on experience with PP&L's low-interest and zero-interest weatherization loans to residential customers.

NRDC's projected customer participation rates were especially suspect, for unlike energy savings figures that could be compared with empirical data and academic studies, there was no hard data for participation rate comparison. Proponents of the NRDC model argued that previous weatherization programs differed conceptually from NRDC's model and therefore were not comparable.

The Hood River Conservation Project

NRDC and PP&L developed the Hood River Conservation Project (the Project) from NRDC models. They agreed much of the controversy engendered before the Regional Council, particularly on customer participation rates, could be resolved by a full-scale experiment. In December, 1981, Bonneville was approached with the outline for a full-scale residential retrofit research program. Bonneville initially rejected this proposal, but came back to PP&L in early 1982 with renewed interest. At this time, the Regional Council, PNUCC and the Northwest Public Power Association joined the Project planning effort. When the test site was identified, the Hood River Electric Cooperative also joined the group. This group formed the nucleus of the Project's steering committee, the Regional Advisory Group (RAG). The pre-Project planners reached consensus that the Project's primary research goal was to find the highest customer participation rate. The secondary research goal was to measure energy savings.

Three examples of dialectic in research planning, weatherization and interpretation of empirical findings are discussed below through examination of specific issues, their significance and resolution. Two examples are diagrammed in "argument maps," as defined by Stephen Toulmin, to provide concrete examples of how the maps are a tool for analysis of inter-organizational conflict resolution.

DIALECTIC IN RESEARCH PLANNING

Although the two key points of agreement on the goals of Project research -- customer participation rates and measurement of energy savings -- were an early indication the planning effort might be productive, there was still a multitude of issues on the table that were argued from different organizational perspectives. Many issues concerned the fundamental design of Project research. A key issue follows.

Issue

At issue was the primacy of incremental measure savings versus Project savings. During intensive Project planning, some organizations (most notably PNUCC) wanted research to focus on the savings that could be accrued from increments of single measures. Questions like "Is increasing an insulation level from R-20 to R-30 more valuable than increasing it to R-35?" were proposed as research topics. Other organizations proposed Project research

should focus on the savings to be accrued from the community-wide package of measures.

Significance

How the cost-effectiveness of residential conservation measures is defined is the crux of this issue.

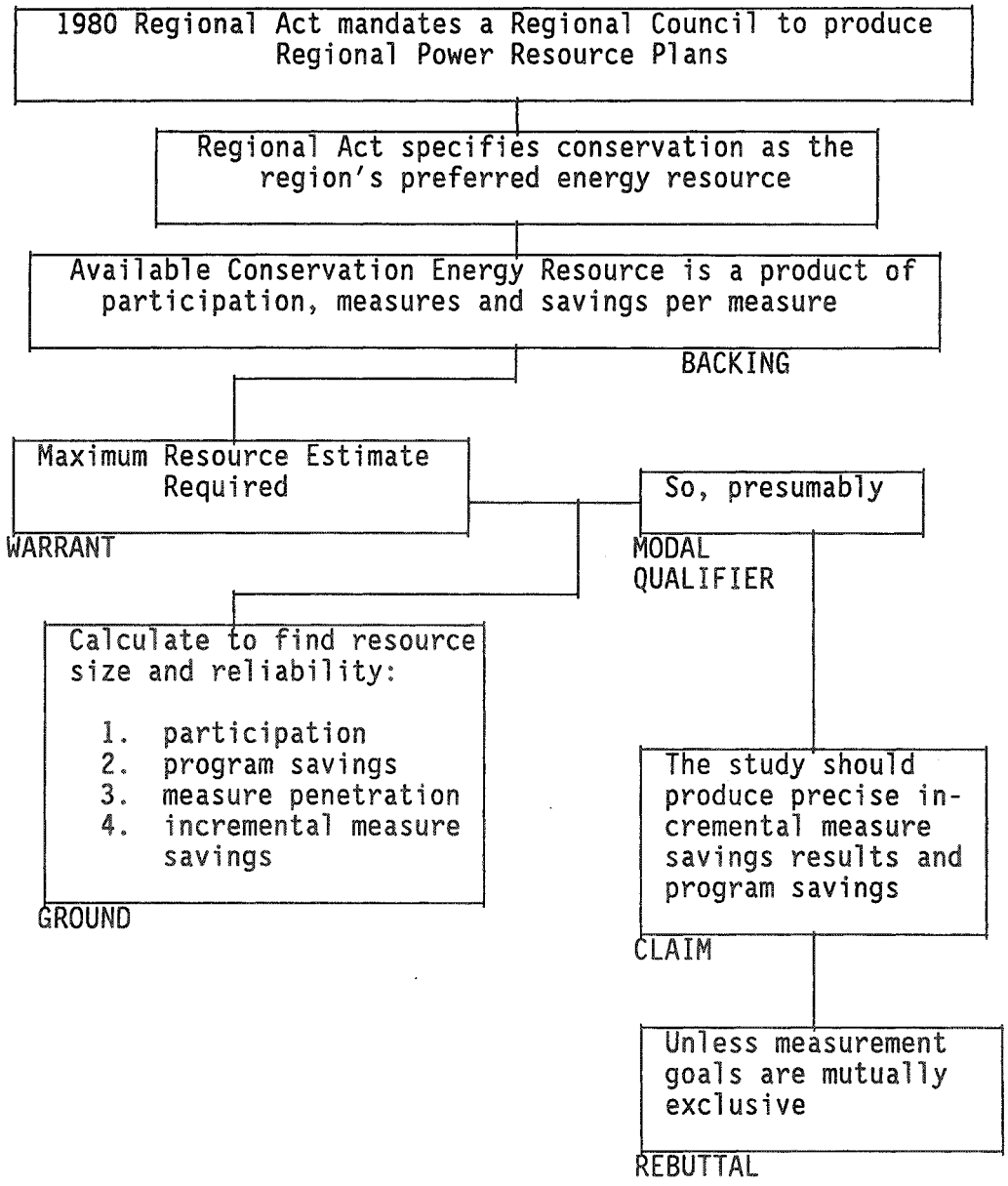
Those in favor of incremental measure savings research sought to optimize near term cost-effectiveness. This approach is a risk-averse, rational calculus approach that builds programs on highly detailed sequences of component treatments to individual dwellings. With precise knowledge of incremental measure savings for certain types of dwelling units and other intervening conditions, a minimum-cost path can be found to given levels of conservation resource with little error in program specification. The basic unit of this type of analysis is the measure increment.

Those in favor of program savings research employ a wholistic pattern wherein the fundamental unit of measurement is the dwelling unit. This approach lends itself to the concept of the "community conservation resource" in which dwelling unit information is gathered to aggregate dwelling specific savings (through the statistical distribution of all the dwelling units' attributes) to the community.

The incremental measure savings perspective produces a statistical design of randomized assignment of measures, combinations of measures and levels of measures to dwelling units. The program savings perspective produces specific lists of measures and target levels for retrofit that generate program savings. Not inconsequential to this issue is the possible perceived inequity between customers and the potential impact of this perception on rates of participation if an incremental measures approach were to be applied in a small community.

Resolution

This issue was resolved in favor of program savings research. This perspective was accepted by PNUCC and others because incremental measure savings research could not be accommodated within the original goal of finding the maximum level practical to purchase conserved savings.



INITIAL POSITIONS

Opposed	Neutral	Support
4 Organizations	2 Organizations	PNUCC

Figure 1. Incremental vs. Program Savings

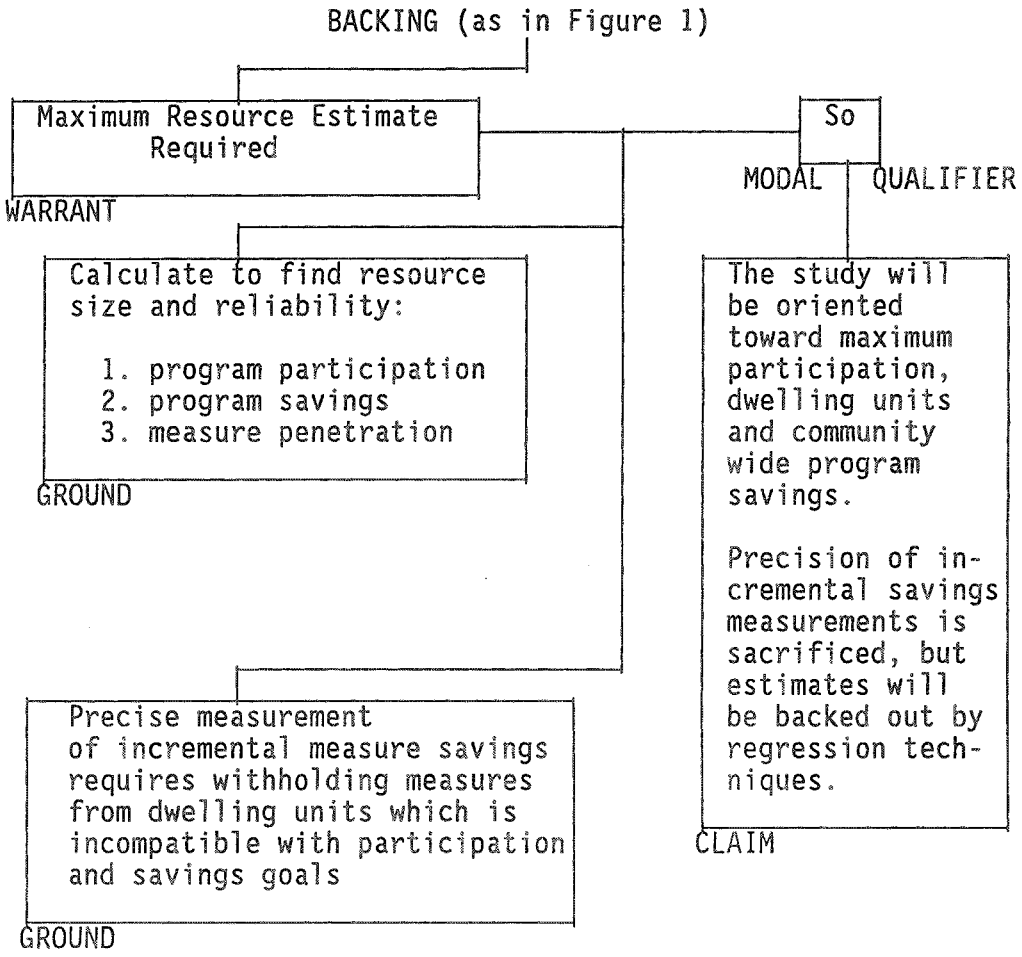


Figure 2. Consensus on Program Savings.

Mapping the Argument

The dialectical interaction involved in this sequence of interorganizational coordination and interpersonal consensus building is depicted in Figures 1 & 2. These argument maps are derived from the work of Stephen Toulmin (Toulmin, et al., 1979), and have been used in evaluation research by Dunn (1982) and Mitroff, et al. (1983). We have found them useful in coming to understand the process by which our Regional Advisory Group works in guiding the Project. The elements on the maps are "claims," "grounds," "warrants," "backing," "modal qualifiers," and "possible rebuttals". A full description of the elements is provided in the Toulmin reference cited above, but for this paper the intuitive connotations of these terms are probably adequate. Arguments leading to consensus adoption of maximum customer participation as a key Project goal and arguments underlying selection of a community approach are reported in Peach (1985). Initial positions of the incremental measure savings perspective are shown in Figure 1 and consensus positions are shown in Figure 2.

DIALECTIC IN WEATHERIZATION OPERATIONS

Project weatherization operations installed and inspected measures retrofited in residences in the test-site area. In the process of interacting with the community, the Community Advisory Committee (CAC) and the contractors several issues vital to the success of the Project emerged (Philips, et al., 1986). One key issue, the hiring of a second round of contractors, had been anticipated during Project planning. Under high-volume field production, this issue became a major problem. It also had a direct impact on the evaluation of project penetration. A major objective of the project was to test maximum penetration by removing all identifiable barriers. If a limited contractor pool prevented achievemnnt of the maximum penetration this known barrier would have made describing the conservation potential difficult and would have limited the credibility of the results.

Issue

At issue was the hiring of a second round of contractors. Project weatherization operations began in the fall of 1983 when five local contractors were hired. In March, 1984, PP&L and Bonneville disagreed over reliance on this limited contractor pool. At issue were costs, the pace of work and the possibility that limits to contractor competition would appear inappropriate.

Significance

One major evaluation concern was the ability of local contractors to install high levels of measures in the target of 3,100 residences within the 24 months contract period. Hiring had been limited to local contractors who could meet Project conditions for the following three reasons.

First, if a sudden energy crisis required the region to undertake full-scale weatherization, it might be difficult to draw contractors from other areas to undertake weatherization work at a similar scale throughout the region.

Second, the local economy should be the beneficiary of Project dollars spent for weatherization, especially since local contractors would have little to do in that area after the Project.

Third, preliminary research in the Hood River area indicated residents preferred local contractors to do Project work. Residents believed local contractors offered more quality work than contractors outside the area.

Based on these concerns, five local contractors were hired who met the following Project conditions: 1) they were established as businesses in Hood River before announcement of the Project;[1] 2) they specialized in weatherization work; 3) they were experienced with utility-operated weatherization programs and the bureaucracy associated with them; and 4) they were familiar with the measures' specifications of Bonneville's regionwide weatherization programs.

At the March, 1984 RAG meeting, concern was voiced by Bonneville, NRDC and the Regional Council about serious production shortfalls in the weatherization of residences. Bonneville also was concerned about the high running-average cost for each completed dwelling. Anticipated community resistance to outside contractors inhibited quick action to solve the problem.

Resolution

Additional contractors were hired from within and without the local area. Resolution was encouraged by advice from the Community Advisory Committee (CAC) who heard from their constituents that work from two of the original five contractors was unsatisfactory. This enable the CAC and the project to honorably retreat from exclusive use of local contractors. This occurred over a six-month period and included four stages of resolution conducted through several forms of communication. Figure 3 illustrates the significant stages of decision making, the opposing positions and forms of communication.

Mapping the Argument

In this argument, we show the interaction process in Figure 3 to conserve space. The dialectical interaction of interorganizational coordination and interpersonal consensus building could also be depicted in the argument map format of Figures 1, 2, and 4.

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[1] One of the five firms was accepted because it technically met the criteria, although its presence in Hood River much before the announcement of the Project is a matter of question.

Stage	Issue	PP&L	BPA	Form of Communication
1	Bids	Bids OK	Bids High	Letters
2	Pace	Too slow Be patient	Too slow Hire more contractors	Letters
3	Hire	Who? How to limit?	Who? How soon?	Meetings
4	Mature Issue	Control of process	Timely hiring	CAC meetings

Figure 3. Stages of decision-making

DIALECTIC IN INTERPRETATION OF EMPIRICAL RESULTS

Measuring limits to customer participation and measure penetration in Hood River was a major focus of Project research. Determining the impediments to installation of high levels of measures was necessary to assess the inherent physical and social limitations to the acquisition of conservation as a resource. Accordingly, the Project included provision for extensive documentation of barrier types. This data was analyzed to gain conclusions about customer participation and measure penetration (Goeltz & Hirst, 1986; Hirst & Goeltz, 1986).

Issue

At issue was the "whole house barrier" category. This category was used by the Hood River field office staff to describe a residence that was not be to retrofited with any measures. During the analytic phase conducted by the Project's research and evaluation team, the whole house barrier category was adopted from the field office staff as an analytic category. The usefulness of this term became an issue among RAG members.

Significance

There are several ways to quantify the potential for measure installation (Goeltz & Hirst, 1986). Two ways were debated at length during the analytical phase of the Project.

One view is the theoretical approach which holds the potential for measure installation equals all measures installed to Project target levels in all residences (e.g., all roof insulation is to be brought to level R-49). A shortfall is defined as any theoretical measures not installed, even if

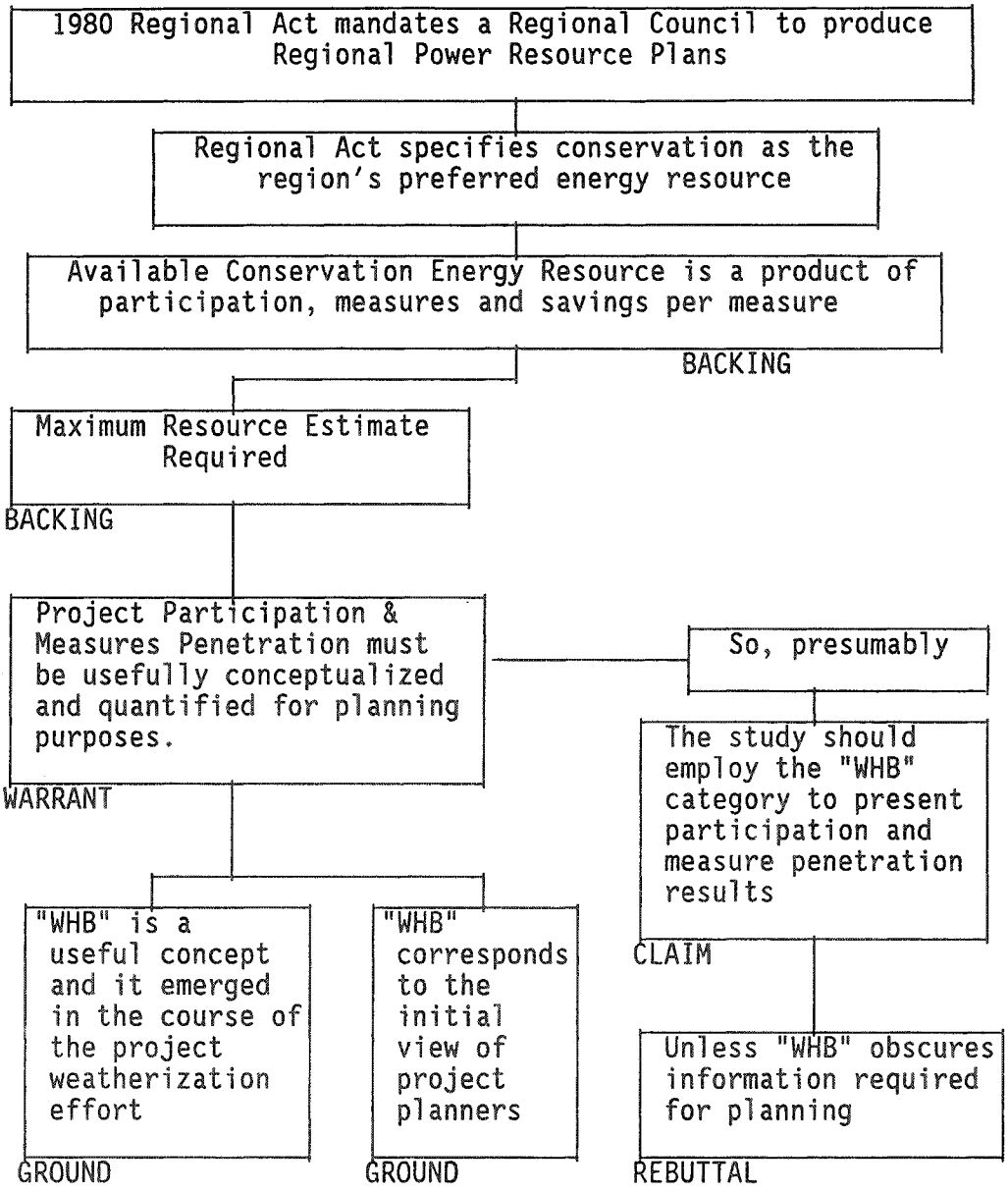

Figure 4. Establishing the Reporting Category

many of those measures were obviously inappropriate (e.g., duct insulation cannot be installed in a home without baseboard heat). This approach may appear simplistic, but it was the approach of the Project planning group.

The second view is the practical approach which defines the resource potential for measure installation as the installation of all appropriate

measures in all eligible residences. Shortfall is quantified as the difference between the potential and actual resource acquisition, i.e., measures not installed due to physical barriers or customer choice. This approach gained de facto acceptance when the Project budget was adjusted in a "best guess" of measures that could be installed.

Those arguing in favor of using the whole house barrier as an analytical category maintained it was a useful shorthand to indicate elimination of a portion of homes from weatherization. Also, that the category had come into use in project fieldwork and had obvious relevance within the field context.

Resolution

As discussion proceeded, it was realized that although the whole house barrier category had good conceptual resonance with the theoretical view of resource potential, it fit poorly with the practical view. As the practical view emerged as the consensus perspective of the Regional Advisory Group, the whole house barrier category was dropped in favor of more descriptive subsets of meaning. The concept of the whole house barrier masked other more important analytical categories. The concept also guided perception toward the aggregate of homes not served by the Project without accounting for why these homes were not served. When the whole house barrier category was dropped from analysis, new categories arose as major analytical categories that more clearly differentiated between residences.

Mapping the Argument

The dialectical interaction from which the decision on the whole house barrier issue emerged is pictured in Figure 4. To conserve space, only the first stage of the interaction is presented. In the second or consensus stage, the rebuttal becomes a ground for the ultimate determination of conceptual categories for the reporting of quantitative results.

CONCLUSION

Evaluation results were impacted by the changing dialectic during planning, implementation, and evaluation phases of the Project. Just as "natural law" does not satisfactorally explain the outcomes of social experiments, evaluation outcomes cannot be interpreted independent of planning and implementation decisions.

A different resolution of each of these issues would have altered the evaluation findings. The incremental measures decision and the limited contractor pool would have prevented an accurate description of the maximum penetration. In the same fashion the whole house barrier would have made transfering the description of the conservation potential to other settings more difficult.

We have shown how the process of decision making in the Hood River Conservation Project enhanced the usefulness and acceptability of the research in the Pacific Northwest. We believe that this model is appropriate to other research.

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The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either express or implied of the U.S. Government, Pacific Power & Light, or of the Hood River Electric Cooperative.

REFERENCES

Campbell, Donald T.
"Experiments as Arguments," Knowledge: Creation, Diffusion, Utilization, March 1982, 3(3):327-337.

Cavanagh, Ralph, Margie Gardner & David Goldstein.
A Model Electric Power and Conservation Plan for the Pacific Northwest. Seattle: Northwest Conservation Act Coalition, 1982.

Dunn, William N.
"Reforms as Arguments," Knowledge: Creation, Diffusion, Utilization, March 1982, 3(3):293-326.

Goeltz, Richard & Eric Hirst
Residential Retrofit Measures in the Hood River Conservation Project: Recommendations, Installations, and Barriers. Oak Ridge, Tennessee: Oak Ridge National Laboratory, ORNL/CON-208, June 1986.

Habermas, Jurgen.
Legitimation Crisis. Boston: Beacon Press, 1973.

Habermas, Jurgen.
The Theory of Communicative Action: Reason and the Rationalization of Society. Boston: Beacon Press, 1984.

Hirst, Eric & Richard Goeltz.
Dynamics of Participation and Supply of Services in the Hood River Conservation Project. Oak Ridge, Tennessee: Oak Ridge National Laboratory, ORNL-CON-210, July 1986.

Keating, Kenneth M., Ruth L. Love, Terry V. Oliver, H. Gil Peach and Cynthia B. Flynn.
"The Hood River Project: Take a Walk on the Applied Side," The Rural Sociologist, May 1985, 5(2):112-118.

Mitroff, Ian I. and Richard O. Mason.
Creating a Dialectical Social Science. Dordrecht, Holland; Boston, USA; London, England: D. Reidel Publishing Company, Theory and Decision Library, Vol. 25, 1981.

Mitroff, Ian I., Richard O. Mason and Vincent P. Barabba.
The 1980 Census: Policymaking Amid Turbulence. Lexington, Massachusetts & Toronto: D.C. Heath and Company, Lexington Books, 1983.

Peach, H. Gil.
1985 "Argumentation in Applied Research." Paper presented at the 10th Annual Meeting of the Society for the Social Study of Science, Rensselaer Polytechnic Institute, Troy, New York, October.

Peach, H.Gil, Terry V. Oliver and David B. Goldstein.
1984 "Cooperation and Diversity in a Large-Scale Conservation Research Project," Pp. 286-293 in American Council for an Energy Efficient Economy (ACEEE), Proceedings of the Panels on Utility Programs and the Hood River Project (Vol. I). Washington (DC): ACEEE.

Restivo, Sal.
1983a, "The Myth of the Kuhnian Revolution," Pp. 293-305 in Randall Collins, ed., Sociological Theory 1984. San Francisco; Washington; London: Jossey-Bass Publishers, 1983.

Restivo, Sal.
1983b, The Social Relations of Physics, Mysticism, and Mathematics, Studies in Social Structure, Interests, and Ideas, Series Episteme, Volume 10. Dordrecht, Holland; Boston, USA; London, England: D. Reidel Publishing Company, 1983.

Philips, Marion, Susan French, Dennis Quinn and H. Gil Peach.
Weatherization Logistics, Hood River Conservation Project, 1986.

Toulmin, Stephen, Richard Rieke, and Allan Janik.
An Introduction to Reasoning. New York: Macmillan, 1979.