CASE STUDY OF THE NORTH CAROLINA ALTERNATIVE ENERGY CORPORATION

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PURPOSE

One of the missions of the Residential and Commercial Conservation Branch (RCCB) at the U.S. Department of Energy (DOE) is to encourage the adoption of energy efficiency programs by non-Federal agencies. This report presents a case study of the North Carolina Alternative Energy Corporation (AEC), a not-for-profit, voluntary organization of the state Utilities Commission and publicly owned and investor-owned electric utilities. The AEC is funded by North Carolina ratepayers through the energy conservation, and load management projects. The AEC should prove of interest to state and local governments, utilities, industries, public interest organizations and others who can apply some of the results of the AEC's innovations and experiences to their own attempts to increase energy efficiencies and to develop alternative energy resources. Many of the AEC qualities and characteristics are not energy specific. Thus, this AEC can also provide lessons outside the field of energy when local conditions suggest that a voluntary, joint effort of the public and private sectors may be needed or useful to address a complex problem

BACKGROUND

Created in 1980, the AEC is dedicated to improving energy efficiency in all economic sectors and to promoting alternative resources for electric power in the state. To accomplish these missions, the AEC funds (in whole or in part) a wide array of projects that relate to all categories of energy users and ratepayers and address problems that range from the demonstration of the viability of emerging technologies to the fostering of energy conscious behavior by consumers. The bulk of the AEC's project efforts, however, are designed to market energy efficiency measures to North Carolina's energy intensive electricity users.

The AEC was established largely through the efforts of the North Carolina Utilities Commission with the cooperation of the state's electric utility industry. The AEC is funded primarily by member utilities' voluntary contributions which are based on retail sales of electricity in the state. The utilities fully recover these contributions from the state's electric ratepayers. The utilities' contributions are not drawn from other items within the utilities' budgets and, consequently, the AEC does not compete with utility departments for these monies. The charter of the organization is noteworthy for the broad goals that are set for the AEC and the commensurate broad powers which the AEC has to attempts to achieve those goals.

ORGANIZATIONAL STRUCTURE

The organizational structure of the AEC is not unusual, yet it has certain features that contribute to the overall viability of the organization. The AEC is governed by a Board of Directors comprising public members, who are appointed by the Governor and constitute a majority of the board, and utility

members who represent and are appointed by the participating utilities that fund the AEC. The staff of the AEC is headed by its President/Executive Director and includes about 25 persons who are organized around five programs. These programs--agriculture, community, industry, residential/commercial, and utility--help to structure project activities in manners that are consistent with the organization of the participating utilities and encourage the development of projects that are focussed on the needs of the various markets for electricity in the state. The final major component of the AEC are supporting committees that serve several functions. Program committees exist for each of the five program areas and are composed of board members and representatives of utilities and ratepayers in the program area. The major function of the program committees is to recommend projects to the board for funding approval after reviewing their merits. A range of project advisory committees and task forces exist to provide specific input to AEC projects and undertakings. A secondary purpose of all these committees is to provide networks between and among the AEC, the electric utilities, industry and business, public interest groups, and other key parties. An especially useful and important part of the AEC's activities, these networks help to develop working relationships and build credibility between AEC and organizations throughout the state and also allow utilities and others to work together in ways that would otherwise not be possible.

The AEC provides significant benefits to three different groups in North Carolina. For utilities, the AEC is an analytical resource that complements and/or extends their own resources, that can conduct higher risk projects that utilities may not wish to pursue, and that can conduct projects of mutual interest to several utilities. Through the AEC's networking activities, utilities can exchange information with other utilities and with ratepayers. The activities of the AEC also provide public relations benefits for the utilities. For the state's Utilities Commission, the AEC provides a resource for analyzing problems of a societal nature and for developing solutions that serve the public good without the expenditure of public funds. The services of the AEC also can be seen as a response on the part of the Utilities Commission to the needs of its constituents, that is, the utility ratepayers of the state. For ratepayers who directly participate in AEC projects, the AEC can generate energy savings and reduced costs. For all North Carolina ratepayers, the AEC's efforts to make more efficient use of electricity provide benefits in the form of prices for electricity that are lower than they would otherwise be. These benefits to all North Carolina ratepayers are almost certainly impossible to measure, but in the final analysis, are the most basic justification for the AEC.

OPERATING CHARACTERISTICS

The structure and operations of the AEC are characterized by a number of qualities that help to make the organization effective. The principal characteristics are:

> Independence. AEC is a not-for-profit corporation that is not directly tied to either the state government or the participating utilities. This helps free the AEC from operational restrictions

(e.g., contracting procedures) of government and facilitates its ability to be credible with a wide range of parties.

- Hybrid structure. By formally involving the electric utilities and their ratepayers in the organization, the AEC encourages cooperation among potential adversaries and the development of solutions that are the result of consensus among these parties.

- Networking. The AEC is involved in networking both as a result of its formal structure and as a deliberate operational strategy. Through its committees and project activities, the AEC creates working relationships between staff and officials of investor-owned and publicly owned utilities who otherwise would not meet. Similarly, the utilities work hand-in-hand with ratepayers from industry and all other economic sectors.

- Flexibility. Broadly written organizational objectives, relatively unrestricted powers to act, and short decisionmaking time frames allow the AEC to respond quickly to opportunities for new projects with diverse solutions that can be flexibly designed and implemented.

- Diversity. Both in the personnel that comprise the organization and in the work that it undertakes the AEC is diverse. The mix of skills and experiences helps the AEC to respond to a broad range of problems and possibilities without overtaxing staff resources.

- Market orientation. Both in its structure and its project design the AEC tries to understand and respond to market conditions and forces. This helps to insure that the technical and programmatic solutions that the AEC develops relate to needs and problems faced by the state's utilities and ratepayers. Conversely, a focus on the energy marketplace avoids the problem of identifying technical solutions or implementation options before a "problem" is determined.

- Stability. The AEC has a stable funding source and has had substantial stability among its leadership. Both factors have contributed to a sense of organizational continuity.

PROJECTS

The AEC is involved in a great many project activities and places substantial emphasis on continuous development of new ideas. The AEC is also concerned with moving projects into the energy efficiency market place where others will continue AEC-initiated work. What follows are some current and recent examples of the kinds of projects the AEC is conducting:

- Efficient Lighting for Poultry (Agriculture Program).
- Cogeneration Assistance Program (Industry Program).
- Distributed Photovoltaics: Utility and Residential Applications (Utility Program).
- Dual Fuel Heating Systems in Residences: Consumer and Electric Utility Economics (Residential/Commercial Program).
- Data Acquisition Programs: Solar Domestic Hot Water Systems (Residential/Commercial Program).
- Improving Institutional Energy Management: The Nonprofit Sector (Community Program).

The range of these projects runs from technically oriented assessments of specific equipment to much "softer" energy education projects. This capacity to span a wide range of end-use sector interests and programmatic approaches to energy related problems is a significant characteristic of AEC undertakings.

TRANSFERABILITY

The characteristics identified above and other organizational and operational aspects of the AEC are the "lessons" that can be learned and transferred to other settings. Some lessons (e.g., flexibility, networking, stability) are more process related and can be applied to organizations with missions and objectives completely outside the field of energy. Others (e.g., specific organizational structure, market orientation, individual projects) are more closely tied to energy efficiency and alternative energy resources and can be most easily used in organizations that share many of the goals of the AEC.

To benefit from the AEC's experience, these lessons need to be applied in the context of specific local problems and conditions. These local problems and conditions will undoubtedly be different from those surrounding the creation of the AEC. Thus, it is not recommended to transfer the total AEC

organization and its operations to another setting, but that relevant aspects of the AEC's structure and practice may be useful guides to effective energy conservation program activities.

Transferability can be enhanced if certain preconditions are present. These include good working relationships between utilities and state regulators, financial health among prospective participating utilities, a perception by utilities that participation brings at least public relations benefits so long as there is an absence of disbenefits from their involvement, and prior experience with public/private partnerships like the AEC. Such preconditions are not mandatory. Their presence, however, would tend to facilitate the successful adoption of one or more feature of the AEC experience in other locations.