To the Graduate Council:

I am submitting herewith a thesis written by Philip C. Scharre entitled "Assessment and Mitigation of Social Impacts from Power Plant Construction in Tennessee." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science in Planning.

Joseph M. Prochaska, Major Professor

We have read this thesis and recommend its acceptance:

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ASSESSMENT AND MITIGATION OF SOCIAL IMPACTS FROM POWER PLANT CONSTRUCTION IN TENNESSEE

A Thesis

Presented for the

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Degree

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Philip C. Scharre

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ABSTRACT

As a result of the National Environmental Policy Act of 1969, the assessment of environmental impacts has become an integral part of determining the feasibility of many large-scale projects. Concern with social or economic impacts is included in this national policy. The construction of large power plants can often cause serious social or economic impacts on the surrounding area. Such impacts are primarily related to the presence of a large work force during the construction period. Many of these workers may move into nearby communities which may lack adequate public services and facilities. Subsequently, a serious strain or disruption in the delivery of these services may result.

In response to serious community impacts, the process of impact mitigation has been utilized. Mitigation is the attempt to prevent, reduce, or rectify the impacts of a project. Mitigation is usually provided by the utility constructing the plant, either directly through financial or technical assistance or indirectly through increased local property tax revenues. Some states experiencing significant amounts of energy development have established special means to aid communities through tax and loan programs.

This thesis examined current or proposed mitigation programs for three power plant construction projects in Tennessee. The key areas of concern in this examination were: (1) origin of the program, (2) form of the mitigation agreement, (3) basis of authority for implementation, (4) local organization for mitigation, and (5) the primary program

characteristics, such as funding procedures and roles and responsibilities of the participants. By comparing and contrasting these programs, a generalized response for a community to follow in the event of potential impacts was developed. Included in this response are the essential elements a community should consider to ensure adequate participation in the program and adequate mitigation of impacts. This thesis concludes that, based on carefully developed goals and strategies, a community may acquire a significant role in developing and implementing mitigation.

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CHAPTER I

INTRODUCTION

Impact assessment was institutionalized by the passage of the National Environmental Policy Act of 1969 (NEPA). This Act was the environmental policy statement for the nation as well as a means for implementing environmental protection. The major effect of NEPA was the requirement of an environmental impact statement (EIS) whenever a major Federal action significantly affecting the quality of the human environment is proposed. In addition, over half of the states have adopted some sort of EIS requirement.[1] The purpose of an EIS is to objectively describe the potential impacts, positive and negative, and act as a guide for appropriate decision-making. The assessment should be both an identification and clarification of facts and a forecast of what is likely to occur.

An EIS covers a broad range of potential environmental impacts. In the brief history of the EIS process, emphasis has been primarily on impacts to the natural or physical environment. Impacts on the human or social environment have not traditionally received as much attention. Recently, though, the importance of social impacts has been recognized and is obtaining a larger role in determining the overall feasibility of projects.

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[1]U.S. Council on Environmental Quality, Environmental Quality—1977, (Washington, D.C.: U.S. Government Printing Office, 1977), pp. 130-135.

Social impact assessment is the attempt to determine the effect of a proposed project or policy on the social and economic character of an area. The social impact assessment process involves gathering and analyzing data regarding the social and economic dimensions of the affected area along with characteristics of the proposed action. Analysis of the relationship between community and project characteristics result in an assessment of the probable impacts of the project on the area. The recognition of the importance of mitigating social impacts is also a recent occurrence and received mention in revised EIS guidelines only in 1979.

I. SOCIAL IMPACT ASSESSMENT AND POWER PLANT CONSTRUCTION

Much of the interest in assessing the social impacts from power plant construction, and energy development in general, resulted from coal and uranium-related mining activity in several western states. Several areas have experienced significant negative impacts from the construction of large power plants or extensive coal mining. In some areas county populations doubled in a few years and resulted in a severe strain on public and private services and facilities.[2] However, impacts from power plant construction are not always as significant as those experienced in the west. In fact, many areas experience only minor impacts, if any at all. An adequate assessment is essential if a community is to know what to expect and what to prepare for.

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[2]U.S. Department of Housing and Urban Development, Rapid Growth from Energy Projects, (Washington, D.C.: U.S. Government Printing Office, 1976).

Power plant construction can result in certain negative impacts because of the relatively rural location of most sites. Of course, negative impacts, especially traffic-related, may occur in densely developed areas. However, the more remote an area, the greater the chance for serious overall impacts. Plants are located in rural areas for several reasons. Those that are generated by a raw material, such as coal, are often located in remote areas to be closer to the source of mineral extraction. Nuclear plants are often built in remote areas because the Nuclear Regulatory Commission requires a low population density in the immediate vicinity of plants. Even so, the typical nuclear plant is located within 45 miles of approximately 280,000 people.[3]

Areas considered rural in the northeast and southeast may still be relatively close to populated areas. However, in the large western states construction may occur in areas located several hours driving time from large population centers. Power plant construction workers will commute long distances, with the upper limit being approximately one and one-half hours.[4] If the distance is longer, they will have a tendency to move into the immediate vicinity of the plant and thus potentially strain delivery of community services and facilities. That is, the local capacity to serve the increased population will be exceeded

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[3]David Myhra, "Factoring Local Interests into Energy Development," Aware, May 1977, p. 8.

[4]David Myhra, "The Socioeconomic Impact of Electrical Generating Facilities," Aware, October 1974, p. 6.

perhaps causing the community to go into short or long term bonded indebtedness. Thus, two of the most important determinants of the intensity of impacts is the number of workers and dependents moving into the community and the ability of the community to absorb them without causing a disruptive strain on its resources. Transportation-related impacts generally have an inverse relation to the number of in-movers, i.e., fewer in-movers results in more commuters. Impacts on less quantifiable variables such as aesthetics, or sociological or psychological phenomena, are rarely assessed in detail, if mentioned at all. The examples discussed in this thesis exclude such assessments. Thus, for the purposes of this thesis, social impacts primarily refer to those impacts on public services and facilities.

II. IMPACT MITIGATION AND POWER PLANT CONSTRUCTION

Impact mitigation has been defined in the most recent NEPA regulations as taking action to avoid, minimize, rectify, reduce or eliminate, or compensate impacts (Sec. 1508.20).[5] While mitigation has not been commonplace among power plant construction activities, it has been initiated at several sites and should continue to be a major consideration in the siting and licensing process. Support for impact mitigation comes from several areas, including court cases,

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[5]Federal Register, v. 40, n. 72, p. 56005.

recent NEPA regulations, and various actions by utilities and regulatory agencies.[6]

The initial impact assessment identifies areas in which mitigation will be required. Throughout construction of the project, monitoring of key variables will measure the intensity of project impacts and identify new impacts. Mitigation strategies should, therefore, be flexible enough to adjust to any variances from the original assessment.

Mitigation agreements are reached between the impacted community and the utility creating the impacts with state and federal agencies often being facilitators in the process. Mitigation may include utility sharing costs, provision of services or facilities, payments in lieu of taxes, or prepayment of taxes. In general, the goal of mitigation is for the community to acquire help in coping with negative impacts which seriously strain or disrupt local services and facilities.

III. RESEARCH QUESTION AND OBJECTIVES

This thesis is concerned with two fundamental research questions. First, what have been the responses at three specified projects toward assessment and mitigation of local socioeconomic impacts from power plant construction? These three sites, located in Tennessee, are: the Hartsville and Phipps Bend Nuclear Plants and the Clinch River Breeder Reactor. Second, how should a rural community respond in the event of significant potential impacts from power plant construction?

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[6]Elizabeth Peelle, "Mitigating Community Impacts of Energy Development: Some Examples for Coal and Nuclear Generating Plants in the United States," Nuclear Technology, June 1979.

In answering the above two research questions, the following objectives must be achieved. Specifically, the objectives of this study are to:

1. Discuss the process and major issues of social impact assessment in general and assessment and mitigation of social impacts as related to power plant construction;

2. Review responses in other states in assessing and mitigating social impacts from power plant construction;

3. Examine responses at Hartsville, Phipps Bend, and Clinch River in assessing and mitigating impacts;

4. Establish a general response for a community to take in the event of nearby power plant construction.

IV. METHODOLOGY

The first step in this study was an examination of the processes and major issues concerning assessment and mitigation of social impacts from power plant construction. This general overview of the field is necessary before narrowing down to examination of specific communities. This portion of the thesis was developed from a literature review including books, periodicals, reports, and studies. These documents are produced by many sources, including federal and state government, universities, and research organizations.

The second portion of this study is a review of assessment and mitigation of power plant construction impacts throughout the country, including the need for and process of mitigation, as well as other major issues. This provides a basis for understanding the general

scope of actual assessment and mitigation programs and for comparing actions in Tennessee to the rest of the nation. Major components of these examples are placed in matrix form for purposes of clarity and comparison. This portion of the thesis was derived from information obtained from participants in the projects.

The major emphasis of this thesis is the examination of assessment and mitigation in three Tennessee communities impacted or potentially impacted by power plant construction. This portion of the thesis was derived by two methods: literature review and personal interviews. Information concerning project and community characteristics, impacts, and official mitigation strategies was derived primarily from a review of the literature including environmental reports, environmental impact statements, and other studies and reports by the utility companies, state or federal government, or other research organizations.

Personal interviews were the source for more detailed information concerning the actual processes and issues in each community. Included in these interviews were local officials from each of the three impacted areas including mayors, county judges, city managers, planners, and other appropriate officials. Also, interviews with involved state officials and pertinent utility officials were conducted.

Participants from the involved parties—local and state government and project sponsors—were contacted to obtain a comprehensive view of the process in each area. Identification of key participants was made simple by their relatively small number. The result is an understanding, not available from documents, of how various policies and programs were

actually conducted, and an examination of the participants' roles. This perception of roles is particularly important since a major objective of this study is to prepare guidelines for an impacted community to follow.

The research in this thesis provides the basis for development of a proposed community response to potential impacts. The elements of the response are derived from key issues identified in preceding chapters. This response provides the essential steps a community should follow as well as emphasizing key factors to be included in the process. These elements are contained in a paradigm to provide a concise summary of the response. Briefly, a paradigm is an example or pattern. Paradigms are qualitative in nature and are based on ". . . concepts, ideas, or problems found in existing theory, research, and experiences related to a particular subject. . . ."[7]

V. IMPORTANCE OF STUDY

In 1975 the Federal Energy Administration and the Federal Power Commission jointly estimated that the United States will require by 1985 between 635 and 644 new electrical generating units and an additional 356 to 956 units shortly after 1985.[8] It should be noted

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[7]Kenneth L. Kraemer, Policy Analysis in Local Government, (Washington, D.C.: International City Management Association, 1973), p. 132.

[8]John V. Winter and David A. Conner, Power Plant Siting, (New York: Van Nostrand Reinhold, 1978), p. 14.

that those figures are not entirely accurate because of the general slowdown in power plant construction in the past several years. In general, the forecasts of utility's need for power have been high and will probably not be met. However, it is evident that every state will probably experience power plant construction which will most likely be coal or nuclear. Many states should also experience intensified coal mining. While major impacts will not be felt in every situation, impact assessments will usually be required and mitigation measures will often be taken.

Conflicts between providing both energy production and environmental protection have intensified in this decade. Energy shortages are leading to a national goal of decreasing dependence on imported oil and increasing the use of coal and nuclear power. Simultaneously, environmental protection has become recognized and institutionalized as a national policy. Therefore, a balance between the two must occur. Thus, proper assessment and mitigation of impacts becomes an important trade-off. The trade-off occurs as an area accepts the need for a power plant but recognizes the need to understand potential impacts and possible mitigation requirements.

One of the most important outcomes of this study is a clarification of the roles and responses of the various participants in assessment and mitigation. These participants include local and state governments and the utilities constructing the plants. Confusion over responsibilities of mitigation is common in such projects.

There has been much activity regarding assessment and mitigation in Tennessee during this decade. However, there has not been a

comprehensive look at those actions for purposes of evaluation and comparison. This study provides such an examination thereby enabling identification of positive and negative aspects of each example. Important results of this comprehensive examination include provision of a base of information and evaluation for future impacted communities, comparison of the three Tennessee sites with each other and those in other states, and provision of a general response for a typically impacted community to follow.

VI. ORGANIZATION OF THESIS

This first chapter is intended to briefly introduce the subject under study and to set forth the purpose, objectives, methodology, and need of this thesis. Chapter II provides a more detailed examination of social impact assessment, particularly as related to power plant construction. This enables a better understanding of the significance of the research presented in later chapters.

Chapter III discusses assessment of impacts and approaches to monitoring and mitigation of impacts from several power plant projects across the country, providing a broader context in which to discuss Chapter IV. The assessment and mitigation programs related to three projects in Tennessee—Hartsville, Phipps Bend, and Clinch River—are compared and contrasted in Chapter IV. In particular it is important to compare the process and organization of mitigation at each site. Each one is individualized and reflects the experimental nature of implementing mitigation.

Chapter V presents the elements of the preferred response for a potentially impacted community to follow in the event of power plant construction. This is primarily based on research contained in Chapter IV but also represents key elements of Chapter III. These guidelines are generalized in nature and are reflective of both the problems and opportunities discovered in research of other communities. Chapter VI contains a summary and the major conclusions of this research effort. These chapters are not separate studies. Rather, they are linked together so that understanding of Chapters II through VI is based on information presented in the preceding chapter.

CHAPTER II

SOCIAL IMPACT ASSESSMENT AND MITIGATION

I. NEPA AND SOCIAL IMPACT ASSESSMENT

Social impact assessment was present in various forms before the National Environmental Policy Act of 1969 (NEPA). One of the earliest recognized social impact studies was published in 1951 by Cottrell, a sociologist. This study examined the negative impacts experienced by a small town after the railroad was rerouted.[1] The widespread application of social impact assessment, however, has occurred only because of the requirements for impact assessment contained in NEPA. As a result of NEPA, the consideration of social impacts has become an area of study, even if vaguely defined, within many social science disciplines. This has resulted in a broader role for social impacts and a growing body of research and literature. Social impact assessment usually occurs in an EIS but may also be present in independent studies.

Social impacts have traditionally received less attention than impacts related to the natural environment. Concern over degradation of the natural environment provided the original impetus for passage of NEPA. Also, many social impacts are secondary, long range, or not

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[1]Floyd Cottrell, "Death by Dieselization: A Case Study of the Reaction to Technological Change," American Sociological Review, June 1951.

very dramatic.[2] With regards to power plant construction, the importance of social impacts is becoming recognized. For example, until recently the EIS's prepared by the Nuclear Regulatory Commission usually treated social impacts in a cursory manner. However, recent EIS's for nuclear plants have dealt with social impacts more thoroughly. In fact, the EIS for the proposed Greene County (N.Y.) Nuclear Plant recommended denial of the construction permit primarily on the basis of social, economic, and aesthetic impacts.[3]

NEPA does not precisely define components of the social impacts portion of an EIS. In fact, NEPA is vague on the specifics of compiling an impact statement, including the definition of "environment." NEPA gives the following general guidelines for preparing environmental impact statements. An EIS "shall identify, develop, and analyze" the following:

1. Background and description of the proposed action,
2. Alternatives of the proposed action,
3. Environmental impacts of the proposed action—primary, secondary, or induced,
4. Adverse impacts which cannot be avoided should the proposed project be implemented, and steps to minimize harm to the environment.

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[2]Sherman J. Rosen, Manual for Environmental Impact Evaluation, (Englewood Cliffs, New Jersey: Prentice-Hall, 1976), p. 86.

[3]U.S. Nuclear Regulatory Commission, Final Environmental Statement for the Greene County Nuclear Power Plant, (Springfield, Virginia: National Technical Information Service, 1979).

5. Relationships between local short term uses of man's environment and the maintenance and enhancement of long term productivity,
6. Irreversible and irretrievable commitments of resources to the proposed action should it be implemented, and
7. Problems and objections raised by other federal, state, and local agencies and by interested persons in the review process.[4]

Thus, NEPA has constructed only the general outline for EIS's leaving the development of specific contents to practitioners. Early impact statements reflected this lack of specific guidance. While the situation has improved, a leading critic has recently contended that each impact statement is usually an independent assessment with no continuity between statements in specific content.[5] The result of this lack of guidance and conformity has often been an absence of a true assessment of important impacts. Statements have often become information books, much of which is irrevelent to the projects impacts. In response, the newest NEPA guidelines are aimed at streamlining EIS's to approximately 150 pages, making them "analytic rather then encyclopedic," and discussing impacts in proportion to their significance.[6]

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[4]Federal Register, v. 40, n. 72, pp. 16819-16820.

[5]Richard Andrews, "Substantive Guidelines for Environmental Impact Assessment," in Environmental Impact Analysis: Emerging Issues in Planning, ed. R. K. Jain and Bruce Hutchings, (Urbana, Illinois: University of Illinois Press, 1978), p. 30.

[6]Federal Register, v. 43, n. 230, pp. 55994-55995.

Although NEPA does not specify the content or methodology for social impact assessments, the need for assessing social impacts is specifically referred to:

1. "Encourage productive and enjoyable harmony between man and his environment . . . and stimulate the health and welfare of man." (Section 2)

2. "Insure the integrated use of natural and social sciences . . . in decision making which may have an impact on man's environment." (Section 102-A)

3. "Insure that presently unquantifiable environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations." (Section 102-B)

II. DEFINITION AND PURPOSE OF SOCIAL IMPACT ASSESSMENT

Any definition of social impact assessment must be broad and generalized because of the nature of the subject under study, the social environment, an all encompassing term in itself. Although NEPA does not define social impact assessment, several scholars have. The following definitions are good, generic descriptions of social impact assessment:

1. ". . . estimating and appraising the condition of a society organized and changed by a large-scale application of high technology . . ."[7]

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[7]C. P. Wolf, "Social Impact Assessment: The State of the Art," in Social Impact Assessment, ed. C. P. Wolf, (Milwaukee: Environmental Design Research Association, 1974), p. 2.

2. ". . . an analysis of past and present impingements upon local social conditions and processes, and a projection of likely future consequences of proposed interventions upon these aspects of life . . ."[8]

3. ". . . an appraisal of short and long term consequences of technological change on affected human communities . . ."[9]

Basically, social impact assessment is the process of predicting the difference between the present and future state of affairs as a result of an intervening technological event, major policy change, or other large-scale action. Even with this basic understanding of social impact assessment a firm definition is still lacking primarily because there is no solid theoretical base. Rather, it is an accumulation of aspects from many social science disciplines. While different aspects of social impact assessment are well grounded in other fields of study, there remains the problem of assembling it into a process for accurately and efficiently assessing impacts in a practical situation. An assessor trained in one field may experience difficulty in utilizing unfamiliar approaches from other disciplines.

Definition of social impact assessment must include definition of the social environment. The social environment can be thought of as the

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[8]Raymond Gold, "Linking Social Impacts with Other Impact Assessment," in Environmental Impact Analysis: Emerging Issues in Planning, ed. R. K. Jain and Bruce Hutchings, (Urbana, Illinois: University of Illinois Press, 1978), p. 30.

[9]Evan Vlachos, et al., Social Impact Assessment: An Overview, (Springfield, Virginia: National Technical Information Service, 1975), p. 3.

sum of the actions and processes of the social units that comprise it.[10] This results in many identifiable social variables (i.e., political or economic structure). For purposes of analysis these variables are grouped together into similar categories and quantified to the greatest extent possible. Although many social variables cannot be quantified, they should be included in the analysis with appropriate recognition of their unique characteristics. In general, these social variables should reflect major demographic, cultural, economic, physical, and institutional characteristics of the area. Thus, any assessment of social impacts should include these major variables.

A representative set of variables is included here as an example of categorizing the social environment. The Social Impact Analysis Group of Oak Ridge National Laboratory has developed the following preferred data list for impact assessments. While this list specifically refers to energy related impacts, it is very comprehensive and is applicable to other types of social assessment. The following are main headings with each one containing many subcomponents not listed here:

1. Regional description,
2. Economic base,
3. Political structure,
4. Demography/Settlement pattern,
5. Social structure,
6. Housing,

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[10] Roland L. Warren, The Community in America, (Chicago: Rand McNally, 1973), p. 152.

7. Education,
8. Recreation,
9. Taxation and spending,
10. Land use planning and zoning,
11. Social services and public facilities,
12. Highways and Transportation.[11]

The above factors are indicators of what makes the community function; they are its working parts. It is also desirable to include community values, interactions, and other psychological or social processes. These variables, however, are not as quantifiable as the above list.

III. METHODOLOGY

There is no standardized, specific methodology for assessing impacts. Rather, there are many approaches based on many social science disciplines. Also, each community and each project is different and each requires consideration of their particular characteristics. Given the relative recency of the study of social impacts, the approaches to its study are under continual development and refinement. In Methodology of Social Impact Assessment, Finsterbusch and Wolf list the following social research methodologies as possible approaches to assessing various social impacts:

Demographic analysis,
Causal modeling,
Community studies,
Social indicators,

[11]Social Impacts Analysis Group, "Preferred Data List—Environmental Report Guidelines," (unpublished manuscript, Oak Ridge National Laboratory, June 26, 1978).

Ethnomethodology,	Archival research,
Survey research,	Remote sensing,
Evaluative research,	Institutional analysis,
Policy analysis,	Multivariate analysis,
Social network analysis,	Social forecasting,
Value analysis,	Matrix methodologies,
Interaction analysis,	Input-output analysis,
Sensitivity analysis,	Risk analysis,
Social profiling,	Public participation.[12]

Many of these research methodologies are well established in their own particular disciplines. Each one relates to a specific part of the social environment. However, most assessments include the impact on the entire social environment, not one portion. Therefore, the primary methodological problem concerns the proper combination of various available social research tools into an approach that can be used to assess impacts on such a broad scale. That is, how does the assessor utilize the specific methodologies from his comprehensive viewpoint?

In theory, the best approach to social impact assessment would involve assigning a specialist to each variable under investigation. In reality, assessment does not occur under situations of unlimited resources and cannot always utilize the most appropriate method. Therefore, the result has often been an assessment that is too broad in scope or too concentrated on certain variables and lacking in others.

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[12]Kurt Finsterbusch and C. P. Wolf, eds., Methodology of Social Impact Assessment, (Stroudsburg, Pennsylvania: Dowden, Hutchinson, and Ross, 1977), p. vii.

Utilization of various research methods is dependent upon the resources of the assessor. There is no way to state which are best, since, of course, the resources to conduct assessments vary with each assessor. Of more importance is the way methodologies, whichever are chosen, can be coordinated to produce a competent assessment. At a generalized level, social impact assessment should follow these steps:

1. Describe the environmental setting in terms of socioeconomic factors. The area of interest for each factor will be dependent upon the relationship of the factor to the alternative under consideration, as well as upon the available data base.

2. Identify critical environmental concerns relative to the socioeconomic factors described above. Primary emphasis should be given to those factors that would be deemed marginal or inadequate in terms of societal standards.

3. Predict changes in the socioeconomic factors as a function of various alternatives under consideration, including the no-action alternatives. Changes would be quantified where possible and qualitatively described as a minimum.

4. Discuss the implications of the changes relative to critical or marginal items defined in step 2. Identify factors that will be changed from satisfactory to marginal or critical.[13]

Steps 1, 2, and 4 above are all fairly straightforward and are especially suited for analysis by planners. Step 3 is the critical area

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[13]Larry W. Canter, Environmental Impact Assessment, (New York: McGraw-Hill, 1977), pp. 163-164.

in the process but is dependent upon the accurate data collection and profiling in the previous steps. Step 3, the prediction of socioeconomic impacts, most often occurs through one of the following methods: multidisciplinary teams, checklists, matrices, scenarios, or modeling.

The multidisciplinary, or ad hoc, approach was frequently used right after NEPA was passed, primarily because more detailed approaches could not be developed until some experience was gathered. In this approach a team of experts identifies and assesses impacts related to their disciplines. Methods of evaluation are left up to each expert. This may result in an uneven assessment that does not give each section equal weighting.[14]

Checklists are more refined than the ad hoc approach but are still a simple method of assessing impacts. There are several types of checklists. Simple checklists identify potential impacts and are useful in identifying significant impacts and structuring the situation.[15] Descriptive checklists go a step further and suggest how to measure the identified impacts. Scaling checklists, a further refinement, attempt to scale the identified impacts according to relative importance. Scaling-weighting checklists reduce subjectiveness of the scaling approach by using mathematically derived weightings for impacts.[16] Checklists are

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[14]Robert Burchell and David Listokin, The Environmental Impact Handbook, (New Brunswick, New Jersey: Center for Urban Policy Research, 1975), p. 215.

[15]Dean Runyan, "Tools for Community-Managed Impact Assessment," Journal of the American Institute of Planners, April 1977, p. 127.

[16]Canter, p. 199.

primarily a good method of standardizing variables and organizing the assessment. The most serious fault of the checklist approach is its emphasis on description.[17]

Matrices are derived from checklists. Usually, community characteristics are listed as a row while project characteristics are listed as a column. Impacts are identified as in a checklist but analysis is taken a step further by the identification of the probable cause.[18] A frequently cited matrix approach was established by Leopold et al., in 1971. The matrix was originally developed for assessment of physical and natural impacts but is applicable on a smaller scale for social impacts. Impacts are ranked according to their magnitude and importance based on numerical values.

The use of scenarios is an advanced form of social forecasting. A scenario is an attempt ". . . to sketch a logical sequence of events in order to show how, under present conditions and assumptions, a future state or set of alternatives states might evolve."[19] In this approach several scenarios of the future social impact of a project will be developed which should then be evaluated by experts.[20] From

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[17]Burchell and Listokin, p. 216.

[18]Canter, p. 176.

[19]Evan Vlachos, "The Use of Scenarios for Social Impact Assessment," in Methodology of Social Impact Assessment, eds. Kurt Finsterbusch and C. P. Wolf, (Stroudsburg, Pennsylvania: Dowden, Hutchinson, and Ross, 1977), p. 211.

[20]Runyan, p. 129.

examination of alternative scenarios, significant impacts can be identified. Scenarios are ". . . conjectures about potential futures rather than exact predictions of what will actually occur."[21] Therefore, scenarios are useful in helping decision makers arrive at broad, somewhat generalized assumptions regarding the future. Their usefulness is based on their ability to identify possible major impacts, not for further analysis.

Modeling techniques have been introduced to social impact assessment to provide a chance for greater analytical assessment. That is, the purpose of modeling is to combine identification, prediction, and evaluation of social impacts into a systematic and comprehensive framework.[22] The Social Impact Assessment Methodology (SIAM) is such an attempt. SIAM establishes the community social system through a set of community impact categories (health care quality—health care facilities, services, etc.). Expected project related changes are fed into the community social system to measure adaptive ability. For example, a population influx may put a strain on available health services. From this identification a decision can be made regarding possible mitigation or further examination.[23] The disadvantages of modeling

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[21]Vlachos, 1977, p. 211.

[22]George A. Watkins, "Development of a Social Impact Assessment Methodology," in Methodology of Social Impact Assessment, eds. Kurt Finsterbusch and C. P. Wolf, (Stroudsburg, Pennsylvania: Dowden, Hutchinson, and Ross, 1977), p. 35.

[23]Ibid., p. 41.

are related to the cost, large amounts of data, inflexibility, and their site-specific nature.[24]

All of these methodologies have serious strengths and weaknesses. Selection of an approach depends on available resources and project characteristics. While many sophisticated methods exist, it is not likely they will be used on a widespread scale. It is usually impossible to utilize many specialists in most practical settings. Therefore, those conducting an assessment must have a broad, generalist understanding of the range of social variables and impacts. Also, great care must be taken to assure that the assessment is not simply a data gathering exercise. Careful analysis of the data is essential if one is to avoid becoming lost in a vast amount of data and losing sight of the main purpose of the assessment: how people are affected. Whatever approach is utilized, all assessments rely a great deal on past experiences, adequate data, and professional judgment.

IV. SOCIAL IMPACT ASSESSMENT AND POWER PLANT CONSTRUCTION

Origin and Process

The relationship between social impact assessment and power plant construction is, like most impact assessments, primarily a result of NEPA. Much of the interest in assessing the social impacts from energy developments resulted from coal and uranium mining in several western states. Several areas have experienced significant negative impacts

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[24] Ibid., p. 36.

from construction of power plants or development of mining. For example, a frequently referenced case study of power plant construction and coal mining development in Sweetwater County, Wyoming has indicated severe negative impacts, including a failure of local services to meet community needs and a deterioration of the overall quality of life.[25] This rural, isolated county was simply unable to absorb the impacts caused by a doubling of the population. Impacts in the western states are generally more dramatic than those in the rest of the country because of the extreme remoteness of many sites and the intensity of development. Not all western impacts are as major as those in Sweetwater County, since "boomtowns" are the exception, not the rule, in energy development projects. However, without an adequate assessment a community does not know what to expect and cannot properly plan to mitigate impacts.

Requirement of an EIS in the energy facility siting process allows the community the opportunity to anticipate impacts. The siting and licensing process varies from state to state and with different types of facilities. Currently, 25 states have power plant siting legislation.[26] The siting process in these states is usually combined under the jurisdiction of one authority with all permits and final approval being issued through that authority. In the other states, including Tennessee, permits are obtained through the various issuing agencies with final

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[25]John S. Gilmore and Mary K. Duff, Boom Town Growth Management, (Boulder, Colorado: Westview Press, 1975), p. 2.

[26]Southern States Energy Board, Energy Facility Siting in the United States, (Atlanta: Southern States Energy Board, 1978).

approval usually by the public utilities commission. Also, many states require environmental impact statements for large public or private projects, of which power plants would certainly apply. In general, state policy toward power plant siting is evolving from one of a mandate to provide cheap, reliable electric power to one having environmental protection on an equal level of importance.

Approval of energy facility siting on the federal level is required for nuclear power plants and hydroelectric facilities. The Nuclear Regulatory Commission (NRC) approves the former while the Federal Energy Regulatory Commission (FERC), formerly the Federal Power Commission (FPC), is concerned with the latter. Power plants generated by coal, oil, or gas generally require federal approval through environmental or safety regulations and may require an EIS.

The typical siting process for power plants has traditionally involved the utilities and state and/or federal authorities. Local involvement has been negligible or nonexistent.[27] Also, many states exempt utilities from several local regulations such as zoning. The rationale behind this has been the overriding importance of improving the regional or state welfare compared to local desires. While this logic still basically holds true today, local governments now usually have a greater involvement in such decisions. This has resulted from the general environmental awareness of this decade and an increasing of local unwillingness to blindly accept state and federal mandates.

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[27]Myhra, 1977, p. 8.

While local concerns still cannot usually override larger concerns, they are more likely to be considered in the siting process.[28]

The siting process for power plants obviously varies greatly depending upon location and fuel cycle and, of course, other local characteristics. The traditional practice of excluding local concerns is becoming obsolete in this age of environmental protection and strengthening of local interests. This local activism is likely to increase particularly in western states where federal policy for increased coal development has potentially serious implications for the quality of life in those areas. Today, if energy development is to progress, the needs of impacted areas must be considered. It is in this light that the importance of assessment and mitigation of impacts becomes obvious. In essence, rational energy development should not be unduly hindered by local interests for the welfare of the nation while local areas experiencing this development should not be sacrificed to meet this national need.

Major Impacts of Power Plant Construction

Potential socioeconomic impacts from power plant construction cover a broad range. One major study has identified three significant impact categories: schools, public services, and housing.[29] Another major

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[28]Roger D. Feldman, "A Challenge to Utilities: Coping with the Siting Process, Today and Tomorrow," presented at the Engineering Foundation Conference on Non-Conventional Power Plant Siting, Rindge, New Hampshire, July 12, 1977.

[29]Martha Curry et al., State and Local Planning Procedures Dealing with Social and Economic Impacts from Nuclear Power Plants, (Seattle: Battelle Institute, 1977), p. 107.

impact concerns the project's fiscal impact on the community. Fiscal impact is a very important consideration in the overall impact assessment because it has a direct relationship to the ability of the community to mitigate impacts in the above three functional areas. Impacts in these four categories result from too great of a demand upon them, thereby causing disruption in their normal functioning ability. A simple example is too few classrooms to accommodate new children of construction workers. Trying to provide new classrooms can, in turn, put a strain on the fiscal resources of the community. The same relationship applies to providing any other additional public and private services. The presence of housing demand does not necessarily mean that the housing market will provide additional units. The local housing industry, for various reasons, may not be able to respond to the demand quickly enough. These reasons can include lack of capital, borrowing ability, adequate knowledge of the actual demand, or other reasons unique to each particular area.

There are two major factors to be considered in the appearance of negative impacts: the size of the population influx and the ability of the community to absorb this influx without causing a disruptive strain on its resources. The size of the population influx, or in-movers, is primarily based on the proximity of the construction site to an adequate, available labor supply. Workers within commuting distance would not be inclined to move into the immediate vicinity of the project. Also, construction workers traditionally commute long periods of time. The major impact in a situation where most workers commuted therefore would be from overcrowding of rural highways at peak hours.

The ability of the community to absorb the in-movers is probably more significant than the actual size of the influx. A community with adequate resources may be able to better absorb a large influx than a community with inadequate resources experiencing a smaller influx.

Since rural public and private services are often inadequate, a major strain could be disastrous. The community's capability to absorb impacts can only be attained through an adequate assessment. In essence, the degree of impacts depends more on community characteristics and reactions than on project characteristics and actions.

Major Problems in Assessing Impacts

Since a major cause of significant community impacts is the size of the population influx, a reasonably accurate projection of in-movers is essential in properly assessing impacts. The intensity of most projected impacts is based on the number of workers expected to move into the community. This in-mover projection is derived from the projection of the work force size required to build the plant. Thus, accuracy in assessing impacts begins with accuracy in work force estimates. The reliability of such estimates is, however, a major problem.

Work force estimates are prepared by the utility and appear in the EIS. They are usually presented as annual estimates with the peak year being the basis for predicting the most intense impacts. For many reasons, work force estimates are often not reliable and do not represent what will actually happen. Therefore, impact projections

based on these estimates may not accurately represent the future either. Obviously, the impact analyst must recognize this deficiency during the assessment process.

Work force estimates are often inaccurate because of the great length of time that passes between publishing of the EIS and actual construction. Building a power plant is a long process dependent upon many variables over which a utility may have no control, including: labor strikes, material shortages, inflation, and government regulations. It is very unlikely that a peak work force projection will hold true when the construction force actually reaches the peak, which can be at least five years or more after the EIS is published. Research currently being conducted by the Social Impact Analysis Group of Oak Ridge National Laboratory is indicating that original work force estimates contained in the EIS for nuclear power plants invariably fall short of the actual work force. The difference between the original estimates and the actual size is usually at least 100 percent.[30]

Even without the problem of accuracy in work force projections, the process of projecting the number of workers who will move into the community is subject to great inaccuracies. As previously stated, there is no standardized methodology for social impact assessment. This shortcoming is especially evident for in-mover projections.

Generally, estimation of in-movers should begin with a survey of available labor within an accepted commuting distance. This is

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[30]Robert B. Braid, Jr., Oak Ridge National Laboratory, Oak Ridge, Tennessee, personal interview, September 25, 1979.

part of the socioeconomic profile of the first part of the assessment process and should include at least the number of workers by craft, commuting patterns, unemployment patterns, and conditions of roads. This will result in a relatively accurate description of labor availability in the area. Then, the estimated number of available workers is compared to the estimated work force requirements with the difference being, roughly, the projected in-movers. However, it should be noted the actual number of in-movers is dependent on the individual decision by the construction worker to move rather than commute. A labor availability survey gives only a general indication of the number that could move. Factors included in the worker's decision to move are not significantly different from those of other movers. These factors include characteristics of the household, community, and the journey to work.[31]

Projections of in-movers do not always follow the above guidelines. In-movers are projected from various methods, which may not be described in the EIS. Often, in-mover ratios from past experience or other studies, or broad ranges of in-movers are used, with no consideration of local variables. Obviously, all in-mover projections, even if properly prepared, are subject to inaccuracy and should be monitored throughout construction.

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[31]Vann Cunningham, "Residential Location Patterns and Worker Inmigration Associated with the Construction of Electrical Generating Facilities," (Master's Thesis, The University of Tennessee, Knoxville, 1979) p. 213.

V. IMPACT MITIGATION AND POWER PLANT CONSTRUCTION

The process and purpose of mitigation varies with each project. Basically, mitigation strategies attempt to reduce the intensity of the negative impacts by either reducing or eliminating their cause or by alleviation of damage caused by the impacts. That is, mitigation can be directed to either avoid or alleviate impacts.[32]

Basis for Impact Mitigation

Impact mitigation at power plant construction sites is not a commonplace occurrence. The policy basis for mitigation has evolved over the past several years through court rulings, federal agency actions, and recent NEPA regulations.[33] Existing or proposed federal legislation has also promoted mitigation of impacts from energy development.

The Calvert Cliffs decision of 1971 (Calvert Cliffs Coordinating Committee vs. U.S. Atomic Energy Commission, 449 F. 2d 1109, D.C. Cir. 1971) had a significant influence on the importance of environmental impact assessment as well as impact mitigation. In this decision concerning construction of a nuclear plant, a federal court ruled that the lead or primary agency is required by NEPA to consider environmental issues on the same level as economic and technical issues. Also, the court interpreted NEPA as giving authority to assure that

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[32]Peelle, p. 138.

[33]Ibid., pp. 133-134.

consideration be given to mitigating impacts.[34] Specifically, the court stated:

> Clearly it is pointless to consider environmental costs without also considering action to avoid them. Such a full exercise of substantive discretion is required at every important, appropriate, and non-duplicative stage of an agency's proceedings.[35]

Two rulings by two federal agencies have also added to the policy basis for requiring mitigation. In separate cases, the NRC and the FPC have required the utility to mitigate social impacts from energy facility construction. The requirements for mitigation were established during licensing proceedings. These actions are significant since these two agencies have the primary responsibility, on the federal level, for approving electrical generating facilities. The FPC ruling is further discussed in Chapter III while the NRC ruling is concerned with the Hartsville Nuclear Plant and is discussed in Chapter IV.

Final NEPA regulations, effective July 30, 1979, require EIS's to ". . . include appropriate mitigation measures not already included in the proposed action or alternatives . . ." (Sec. 1502.14 f) and to discuss ". . . means to mitigate adverse environmental impacts . . ." if not fully covered under the previous requirement (Sec. 1502.16 h).[36] While previous court rulings have interpreted NEPA to include discussion

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[34]Keith S. Watson, "Measuring and Mitigating Socio-Economic Impacts of Constructing Energy Projects: An Emerging Regulatory Issue," Natural Resources Lawyer, Fall 1977, p. 397.

[35]Calvert Cliffs Coordinating Committee, v. AEC, 449 F. 2d 1128, D.C. Cir. 1971.

[36]Federal Register, v. 43, n. 230, p. 55996.

of mitigation measures, the latest regulations specify this need as a requirement of EIS's. Thus, mitigation has become institutionalized by NEPA, just as impact assessment originally was.

Various federal legislation to provide for energy impact mitigation has been either passed or proposed. The Coastal Zone Management Act of 1972 was amended in 1976 to provide financial assistance for coastal communities experiencing energy development.[37] Other existing federal programs related to energy impact aid include legislation dealing with payments in lieu of taxes for federal lands within local boundaries and royalties to state governments for minerals extracted from federal lands.[38]

Congress has considered several bills directly related to assisting energy-impacted communities. The latest version (S.1493), sponsored by a western senator, died in committee in late 1978. The primary reason for its defeat was disagreement over whether to give grants as well as loans to impacted communities. A similar bill in the House (HR. 13559) subsequently failed.[39] The sponsor of S.1493 decided not to again attempt passage of this bill. Rather, it will be included in amendments to a limited impact assistance program to communities affected by coal and uranium development administered by the Farmers Home Administration. This will be within jurisdiction of the Senate Energy

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[37] Federal Register, v. 44, n. 99, p. 29580.

[38] Congressional Quarterly, v. 34, n. 38, p. 2536.

[39] Congressional Quarterly, v. 34, n. 42, p. 3049.

Committee and will enable the impact aid program to be attached to the President's proposals to increase domestic energy production.[40] This recognition of the importance of linking impact assistance or mitigation to the national policy of increased energy production is an example of postNEPA philosophy. That is, acceptance of a major change based on recognition and possible mitigation of subsequent negative impacts.

Briefly, the existing program, authorized by Section 601 of the 1978 Power Plant and Industrial Fuel Use Act will be extended to include all forms of energy development. Key features of the proposed legislation include: $1.75 billion in grants for energy impact aid over the next five years and an additional $1.5 billion in the form of loan guaranties. These grants provide money for states to set up funds for grants and loans to communities to prepare for the expected energy development and to pay for needed services and facilities until local revenue increases to high enough levels.[41]

Obviously, the policy basis for impact mitigation is still evolving. The court rulings, agency actions, and NEPA regulations have accumulated as an ad hoc mandate for mitigation. Passage of additional, comprehensive federal impact legislation will establish mitigation of energy-related impacts as a national priority along with increased domestic energy production.

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[40] Energy Users Report, July 26, 1979, p. 30.

[41] Ibid.

Agreeing on Mitigation

Mitigation agreements are reached primarily between the local impacted communities and the utility creating the impacts. State and federal agencies are also often involved in the process, usually working between the community and the utility. Since mitigation has not been a routine occurrence with most power plant construction, there is no standardized approach to reaching agreements. The main problems which arise relate to disagreement on the need for mitigation, the placement of responsibility for mitigation, and elements of the mitigation program.

The need for mitigation should be settled with a reliable impact assessment prior to construction. Distinction between public and private sector responsibility in mitigating impacts is unclear. A study funded by an association of electric utilities states, ". . . impact management is as much—or perhaps more—a public responsibility than a private industry responsibility."[42] The study goes on to state,

> Although the public role remains to be completely defined, it is clear that government, in its local, regional, state, and federal forms, retains fundamental and major responsibility in planning for and implementing control of impacts.[43]

Another study funded by the Energy Research and Development Administration takes a moderate stance by placing responsibility for short-term impacts to the private developer and longer-term impacts to

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[42]Energy Impact Associates, Social Impact Assessment, Monitoring, and Management by the Electric Energy Industry, (Washington, DC: Atomic Industrial Forum and Edison Electric Institute, 1977), p. 81.

[43]Ibid., p. 82.

government.[44] The argument for placing the responsibility for mitigation in the private sector contends that

> . . . it is not unfair to expect those who construct energy projects to bear this financial burden when the adverse impacts in question are (1) documented and not exaggerated and (2) not offset by benefits from the project or from other sources.[45]

In essence, it is contended that the utility and its customers will be the primary beneficiaries from the project and may actually be the only source from which mitigation can be obtained.

A third party may be required to help in the division of responsibility for mitigating impacts. It is likely that communities and utilities will disagree on how much mitigation assistance is required. This third party can be an agency licensing the project, a council or agency specifically designed to deal with such matters, or as a last resort, a court of law.

The federal government, with the exception of the FPC and NRC rulings, has not been involved with impact mitigation. It is important to note that those rulings by the NRC and FPC settled mitigation agreements between the community and utility. Actual mitigation assistance was not provided by the federal government. The federal government's reluctance to become involved in mitigation is reflected by a high ranking NRC official who stated: "We (NRC) are not in the

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[44]Energy Research and Development Administration, Managing the Social and Economic Impacts of Energy Development, (Washington, DC: Government Printing Office, 1976).

[45]Watson, p. 399.

business of providing technical or financial assistance to localities or to states in the area of community impacts."[46] He indicated NRC's responsibility was in identifying and analyzing impacts. Passage and implementation of federal energy impact assistance legislation will reinforce this general philosophy of leaving the problem to the impacted areas. The federal government would become a source of financial assistance while the actual structure of mitigation policies and programs will be left to the state, counties, and utilities.

Mutual cooperation between the impacted communities and the utility constructing the plant is, of course, the most efficient method of agreeing on mitigation. Reduction of suspicion is based on adequate knowledge and perception of the other side's needs and resources. The goals of both parties, efficient plant construction and maintenance of local quality of life, will be enhanced through mutual cooperation. There are many interests common to both the communities and the utilities. Naturally, local officials should be concerned with maintenance of local quality of life. The utility should also be concerned for several reasons: easier recruitment of experienced and productive workers, greater chance for worker productivity and subsequent profit, and general desire for good relations with the community in which it may be located for several decades.[47] Of course, mutual cooperation by both parties

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[46]U.S. Nuclear Regulatory Commission, Proceedings of the Second State-Federal Power Plant Siting Conference, (Springfield, Virginia: National Technical Information Service, 1976), p. 357.

[47]Stanley A. West, Opportunities for Company-Community Cooperation in Mitigating Energy Facility Impacts, (Cambridge, Massachusetts: Massachusetts Institute of Technology, 1977), p. 6.

requires reasonableness in both parties' positions. Unfortunately, this reasonableness may need to be injected by a third party, such as the state.

Mutual cooperation is, of course, the ideal goal. It is obvious, however, that the main element of mitigation—the amount of assistance to be granted—is open to considerable discussion. The nature of mitigation invites the assuming of adversary positions. The utility may not see the tangible or intangible benefits of providing mitigation aid and the locals may see the utility as a potential source of funding for other areas not directly related to impacts. Difficulties in reaching mitigation agreements are also a result of the previously discussed difficulties in correctly assessing impacts. Since the accuracy of the assessment is often questioned, it is difficult to use the assessment as a solid basis for deciding assistance. Agreement on mitigation is not only hampered by disagreement over the need of and responsibility for mitigation, it is also hampered by lack of an acceptable methodology for deciding exactly how much mitigation is required. For example, exactly how many in-movers constitute a strain on law enforcement and subsequent need for new equipment?

Monitoring Impacts

There is often a large difference between the projections of the original impact assessment and what actually occurs as construction progresses. Therefore, continuous monitoring of the project is needed to adjust mitigation either to the actual degree of the projected impacts or to impacts not originally considered. Impact monitoring is the

collection and analysis of data on a regular basis as a means of continual assessment of the project's impact. Monitoring consists of two major areas: worker data and community data.

A major part of a monitoring study are worker surveys. These surveys can include the following items:

1. Occupation,
2. Worker family composition,
3. Places of residence,
4. Length of time at current residence,
5. Type of housing,
6. School attendance in workers' families,
7. Previous residence,
8. Length of time at previous residence.[48]

The most important information from such a survey is the establishment of a worker in-moving rate. Also, if properly computed, this information provides a good basis for predicting in-movers on other similar projects.

The other part of a monitoring study should involve the collection of social and economic data to establish community changes, including:

1. Housing starts, vacancy rates, average rents,
2. Capacity and enrollment of area schools,
3. Traffic data,
4. Secondary employment effect,

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[48]Energy Impact Associates, p. 61.

5. Taxes generated,

6. Capacity and demand of public services.[49]

It is difficult to trace these changes directly to the project. Monitoring data should be a major, but not the sole, source of information in conducting the mitigation program.

Major Problems in Mitigating Impacts

A community faces many problems in mitigating impacts. Unless the community can acquire outside assistance, the community will have to mitigate impacts on its own. Unfortunately, the typical rural community may be unprepared to adequately deal with this situation. The Human Affairs Research Center of Battelle Institute concluded the major problems facing a community are early notification of the project, coordination between involved parties, capabilities of local governments, and funding.[50] These issues are generally agreed upon as significant in other literature reviewed.

The local role in the siting of a power plant has traditionally been negligible or nonexistent. This lack of involvement often leads to inadequate knowledge of the utility's plans before the actual construction schedule is announced. Early notification is important to the community if mitigation is to be prepared. Preparation of mitigation studies and plans, and negotiations for funding can require long periods of time.

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[49] Ibid., p. 62.

[50] Curry, p. 110.

Substantial public capital investment may also be required, also requiring adequate lead time. Adequate notification, two to three years, also helps in dealing with the other major problems facing a community.[51]

The utility's reluctance to notify the community several years in advance may be based on several factors. Planning and constructing a power plant is plagued with uncertainties. Many important variables can change between initial siting analysis, construction, and operation. For example: changing economics, technology, energy demand, and government regulations can cause significant changes in original plans and schedules. Even if a well-intentioned utility desires open communication with the community, it may be unable to provide good information because of the absence of such information. Another reason is to prevent speculation or other actions based on unsubstantiated information. Also, it may be risky for a community to set specific mitigation strategies and make large investments if a utility is unsure of its own plans. Thus, uncertainties plague both the community and the utility. Recognition of these uncertainties is as important as early notification.[52]

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[51]U.S. Department of Housing and Urban Development, p. 14.

[52]Energy Research and Development Administration, Managing the Socioeconomic Impacts of Energy Development, (Washington, D.C.: Government Printing Office, 1977), p. 7.

Lack of early notification is one of the components of the second major problem encountered during mitigation, that is, coordination. Problems of coordination also exist among and within the various levels of government involved, including local, regional, state, substate, and federal. Coordinating activities of different levels of government during ordinary affairs is a well known problem. The presence of an unusual situation, such as power plant construction, can intensify this problem. Also, coordination between the various impacted local communities can be difficult. Relationships between cities and counties are often hindered for various political reasons. Power plant construction may add to this common problem by intensifying competition for scarce resources or by causing confusion over jurisdictional responsibilities.

Local government in small rural communities are typically operated by part-time or nonprofessional staff with the possible exception of a city manager, attorney, or engineer. A formalized planning process may be present but it is not likely a professional planning staff would exist. Planning assistance will usually be received from regional planning agencies or consultants. Generally, the local community will lack the resources to identify, analyze, and mitigate impacts without assistance from other sources. This does not, however, mean that small local governments lack the sophistication or capability to understand potential impacts.

The fourth major problem of mitigating impacts concerns funding for communities. The question of funding consists of three major components: source, timing, and possible jurisdictional mismatch of

funds.[53] Money for mitigating impacts is often available from the increased property tax revenues paid by the plant if the utility is investor-owned. In most instances these payments are substantial and may even double or triple the local tax base. Such large payments give the community the opportunity to mitigate negative impacts and to improve the general quality of life in the community. In such instances the monetary benefits of the project have the potential for greatly outweighing any negative impacts and subsequent costs to the community. However, public utilities are exempt from paying property taxes. Areas impacted by public utilities must seek other sources of funding and must seek other forms of assistance, such as in lieu of tax payments or technical assistance.

Even if the potential for large property tax payment is present, the problem of the timing of revenue collection is significant. Impacts, and the need for mitigation, may occur before revenue is collected. Various state laws may exempt a new industry from paying taxes for the first several years of operation or while construction is in progress. For example, Cherokee County, South Carolina, is due to collect $42.4 million annually when Duke Power Company's three unit nuclear plant is fully completed in the 1990's. The county collected $4.1 million in property taxes in 1977.[54] However, state law exempts new industry

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[53]Curry, pp. 115-117.

[54]Elizabeth Peelle, Martin Schweitzer, and Philip Scharre, A Study of the Cherokee Nuclear Station: Projected Impacts, Monitoring Plan, and Mitigation Options, (Springfield, Virginia: National Technical Information Service, 1979), p. 52.

from paying taxes for the first five years of operation and from paying taxes while construction is in progress. Duke Power will only be liable for school taxes during this time.[55] Hence, the county is due to receive substantial increases in revenue which can be used to mitigate impacts but will receive only small amounts when impacts actually occur. Thus, the county will lack front-end financing required to prepare for impacts.

In such instances of difficulty in the timing of revenues, negotiations between the utility and community can result in mutually satisfactory arrangements to mitigate impacts. Such arrangements can include grants, loans, loan guaranties, or prepayment of taxes by the utility. The community must have documented requests of needs and specific mitigation plans. As stated earlier, this requires a large degree of reasonableness on both sides since most mitigation efforts will probably be a mutual effort by public and private parties. An area impacted by a public utility may experience difficulty in the timing of funds primarily because of the difficulty in raising funds.

An additional problem of using increased property tax revenue for mitigation concerns the possible jurisdictional mismatch of funds. A jurisdiction may receive many negative impacts but may not be entitled to receive any tax money. Again, in Cherokee County the additional tax revenue will go only to the county while the county seat, expected to be significantly impacted will not receive any additional revenue.

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[55] Ibid., p. 72.

This problem has also been evident in western coal development where actual mining or power plant construction occurs in a remote section of a county while the workers actually live in the nearby town which itself is isolated from other urban centers.[56]

Solution of this problem of jurisdictional mismatch is made difficult by the previously discussed problem of coordinating local governments. If local governments do not maintain any dialogue on everyday matters they will certainly have difficulty arriving at any revenue sharing agreements. State mandated tax base sharing is a possible solution to this problem. Tax base sharing is the proportional distribution of excessive increases in tax revenue to all jurisdictions within a specified region.[57] While tax base sharing is applicable to many forms of industrial development, Wisconsin has enacted legislation specifically designed to redistribute property tax revenues from power plants.[58]

In summary, the application of mitigation programs is an evolving policy which includes court rulings, federal agency actions, NEPA regulations, and actual or proposed federal legislation. The process of reaching agreements between the impacted community and the utility

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[56]Federation of Rocky Mountain States, Energy Development in the Rocky Mountain Region: Goals and Concerns, (Denver: Federation of Rocky Mountain States, 1975), p. 71.

[57]Andrew Reschovsky and Eugene Knaff, "Tax Base Sharing: An Assessment of the Minnesota Experience," Journal of the American Institute of Planners, October 1977, p. 362.

[58]Eugene Schubert, Economist, Wisconsin Department of Revenue, Madison, Wisconsin, letter to P. Scharre, September 27, 1979.

is not standardized or easily definable because of the relative infrequency of mitigation. Division of responsibilities between the utility and various levels of government is not clear although it is generally assumed a partnership approach is most practical. Major problems present in most attempts at mitigation include lack of early notification, poor coordination between involved parties, capabilities of local governments, and difficulties in acquiring funding.

CHAPTER III

EXAMPLES OF MITIGATION OF IMPACTS FROM POWER PLANT CONSTRUCTION IN THE UNITED STATES

This chapter examines mitigation of social impacts from power plant construction at six sites across the country. This enables the more detailed examination of three sites in Tennessee, contained in Chapter IV, to be viewed in a broader context. The examples discussed in this chapter show the great variety of problems, needs, and approaches that are currently being utilized in mitigating impacts. Recognition of this great variety is particularly important since, as discussed in the preceding chapter, there is no standardized approach to dealing with such impacts. Each project is discussed separately and then compared in both a narrative and matrix form, emphasizing key components. Most of the information on these projects was gathered from various project participants.

I. MISSOURI BASIN POWER PROJECT—WHEATLAND, WYOMING

The Basin Electric Power Cooperative received a state permit in April 1976 to construct a three unit, 1500 MW coal-fired power plant on the Laramie River in Platte County near Wheatland in southeastern Wyoming. This relatively large plant is referred to as the Missouri Basin Power Project (MBPP) or the Laramie River Station. Platte County is sparsely populated, agriculturally oriented, and has had

a declining economy and population for the past several decades.[1] Wheatland, the largest town in the county, had a 1970 population of 2,498 or 39 percent of the total county population.[2]

The MBPP mitigation program originated in the construction permit issued by the Wyoming Industrial Siting Council on April 29, 1976. The Council and its staff, the Office of Industrial Siting Administration, was created by the 1975 Wyoming Industrial Development Information and Siting Act. This Act requires all energy conversion facilities over a certain size to receive a construction permit from the Council. A significant area of concern to the Council in the issuance of a permit is the assessment of socioeconomic impacts.[3]

The socioeconomic impacts associated with construction of the MBPP were projected to be significant in the utility's EIS presented to the Siting Council. Also, social and economic impact studies were prepared by two study teams from the University of Wyoming, financed by the MBPP.[4] The plant was to be completed in eight years and have

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[1]James G. Thompson, Audie Blevins, Jr., and Carl Ellis, A Social Impact Assessment of the Proposed Laramie River Station in Platte County, Wyoming, (Cheyenne, Wyoming: University of Wyoming, Department of Sociology, December 1975), p. 155.

[2]Electric Power Research Institute, Preliminary Case Study of the Laramie River Station, (Denver: Denver Research Institute, February 1979), p. 1.

[3]Robert B. Foster, "Structuring Programs for State Aid to Communities Experiencing Energy Development," (Master's Thesis, Massachusetts Institute of Technology, 1977), p. 82.

[4]See Thompson, Blevins, and Ellis and The Socioeconomic Impact of the Proposed Laramie River Station prepared in 1975 by the Division of Business and Economic Research of the University of Wyoming, Cheyenne.

a work force ceiling of 2,650. Wheatland was expected to receive the majority of in-movers (85 percent) and to increase its population to approximately 8,000. However, a larger number of commuting workers has resulted in a smaller, but still significant, population increase.[5]

As a result of the projection of significant impacts, the Siting Council incorporated a set of conditions in the permit requiring the Applicant (utility) to ". . . take the necessary mitigating actions, as identified within the application and the hearing record, to reduce the socioeconomic impacts of the facility upon present and expected inhabitants."[6] Basin Electric was required "as a minimum" to:

1. Act as a guarantor on a loan from the State Farm Loan Board,

2. Provide financial and/or technical assistance to meet the housing needs of the construction force and the induced population,

3. Provide financial assistance to assure that the capital facilities of the county school district are met in the absence of public sector financing,

4. Provide financial assistance to assure that reasonable operating expenses of the county school districts are met during plant construction in the absence of the public sector revenues,

5. Provide financial assistance to area health and social service centers, as limited by the agreement between the Applicant and local

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[5]Missouri Basin Power Project, Annual Socio-Economic Impact Alleviation Progress Report, (Wheatland, Wyoming: Missouri Basin Power Project, September 1979), p. 1.

[6]Wyoming Industrial Siting Administration, "Laramie River Station and Associated Facilities-Industrial Siting Permit for Units 1, 2, and 3, Docket WISA-75-3," Permit ISC-00-02-76, April 29, 1976, p. 9.

offices, to assure continued services during the construction interval, in the absence of public sector revenues,

6. Provide assistance—federal, technical, or equipment—in developing recreational facilities to assist those needs of area residents during the construction interval,

7. Provide financial assistance to the Platte County Planning Commission as agreed between the Applicant and the Commission.[7]

An important mitigation element not included in this list is the requirement that the construction work force may not exceed 2,250 persons at any time during the construction period.[8] This later requirement was later amended to 2,650.[9] This, in effect, is an attempt to avoid impacts by limiting the eventual number of in-movers.

The MBPP is also required by the Siting Council to develop a program to monitor and evaluate socioeconomic impacts. Monitoring occurs in two forms: annual and monthly reports. The minimum requirements, as required by the permit, are shown in Table 1. The MBPP is also required to provide any other information that might be requested by local or state government. The monitoring is intended to provide a continual assessment of impacts, to evaluate the effectiveness of mitigation, and to contain provisions for implementation of contingency

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[7]Ibid.

[8]Ibid., p. 4.

[9]Carl B. Ellis, Staff Sociologist, Wyoming Office of Industrial Siting Administration, Cheyenne, Wyoming, letter to P. Scharre, September 5, 1979.

TABLE 1

INFORMATION INCLUDED IN MONITORING REPORTS

a. Employment

1. Current numbers of construction force.
2. Inventory of induced (service) employment.
3. Current examination of relationship between 1 and 2.

b. Population

1. Inventory of construction force as to numbers of daily commuters, weekly commuters, and temporary residents.
2. Inventory of service related personnel residing in affected areas.
3. Inventory of family size, and estimate of current population within Wheatland and other Platte County communities.
4. Inventory of classroom population size and teacher-pupil ratio for all education levels.

c. Facilities

1. Inventory of available housing, housing needs, and current vacancy rate of housing units.
2. Current status of mental health and social services facility requirements.
3. Current status of capital facility requirements of Platte County School District No. 1.
4. Current status of water, sewer, and solid waste treatment capabilities for Wheatland and other Platte County communities.
5. Current status of law enforcement and fire protection capabilities and requirements.
6. Current status of recreational facilities.

d. Services

1. Current assessment of adequacy of County and municipal budgets to supply needed services.
2. Assessment of adequacy of operating budgets for Platte County School District Nos. 1 and 2.

measures to mitigate impacts. The recipient of this information is the Project Area Coordinating Council, also established by the Siting Council.

As stated in the permit:

> The Coordinating Council shall be responsible for analyzing developments and changes which might occur in the areas of site influence, and shall recommend and request that specific alleviation plans be implemented.[10]

The Coordinating Council is responsible to the Siting Council and must keep the Council informed as to its activities. The MBPP is required to provide $10,000 annually to the Coordinating Council for administrative purposes. The Coordinating Council may be dissolved at the discretion of the Siting Council when it is determined there is no longer a need for that organization. Membership of the Coordinating Council is on a voluntary basis and consists of:

1. Mayors from each incorporated municipality in Platte County,
2. The Chairman of the Board of County Commissioners of Platte County,
3. The President of School District Nos. 1 and 2, Platte County,
4. Management representative of MBPP,
5. Director of the Office of Industrial Siting Administration,
6. A representative as designated by the "private protestants and, of record" (officially recognized opponents of the plant).[11]

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[10]Wyoming Industrial Siting Administration, "Laramie River Station-Siting Permit," Appendix A, p. 1.

[11]Ibid.

In the event that active voluntary membership in the Coordinating Council is not maintained the Siting Council will appoint a three member Impact Alleviation Monitoring Board comprised of a management representative from MBPP, the Director of the Industrial Siting Administration, and a representative designated by the Council.

The state permit granted the Coordinating Council specific authority to assure mitigation of impacts. The Coordinating Council must make the decision ". . . as to whether public sector finances are adequate to serve the facility and service needs of the induced population."[12] If such needs cannot be met, the Coordinating Council is to request implementation of the Applicant's contingency plans as identified within the permit. The MBPP is then required to undertake such plans. If the MBPP does not respond to the Coordinating Council's satisfaction, a review by the Siting Council can be requested which can revoke or suspend the permit or apply other appropriate penalties. The most significant point of the MBPP mitigation strategy is the absence of a definite mitigation program. Rather, general functional areas and the means to establish detailed mitigation was set up in the form of a monitoring program and a Coordinating Council.

The response of the Basin Electric Power Cooperative has been extensive. The following is a recent summary of mitigation activities:

1. Acting as guarantor on a loan from the Wyoming State Farm Loan Board to the Wheatland-Guernsey Impact Joint Powers Board for a maximum recoverable amount of $3,400,000. Wheatland will be receiving

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[12]Ibid., p. 4.

a loan of $2,821,898 for water, sewer and electrical capital facilities to include a Coal Tax Revenue Grant for $544,000. Guernsey will be receiving a loan for $763,470 for water and sewer capital facilities, to include a Coal Tax Revenue Grant for $666,820;

2. Providing for housing facilities, including: 100 mobile home rentals, 392 mobile home pads, 386 recreational vehicle pads, 204 bachelor quarters, 49 single-family dwelling lots and 500 contingency mobile home pads;

3. Constructing a 12,968 square-foot recreation center in the Black Mountain Subdivision at a cost of $600,000, which incorporates a 2,000 square-foot day care center;

4. Contracting with the Platte County Sheriff's Department for plant security guards;

5. Underwriting the cost of plant access road improvement at a cost of approximately $500,000. Platte County will seek a Coal Tax Revenue Grant from the Wyoming State Farm Loan Board to reimburse Basin Electric. Platte County has no obligation if the grant is not forthcoming;

6. Providing $6.2 million in "front end" money and acting as guarantor for design and construction of school buildings for District 1, Platte County, subject to a buy-back arrangement by the school district;

7. Providing financial assistance to assure reasonable operating budgets to both county school districts during the construction period;

8. Providing financial assistance to the Platte County Planning Commission, to include $1,000 in 1975; $6,000 in 1976; $8,000 in 1977; and $10,000 in 1978;

9. Agreeing to fund the Platte County Branch of the Southeast Wyoming Mental Health Center for three years at $20,000 per year;

10. Funding a University of Wyoming Human Services Team for $63,000 per year for three years.

11. Initiating a socioeconomic monitoring system;

12. Limiting the construction work force to a maximum of 2,250 employees (subsequently amended to 2,650);

13. Subsequently providing Wheatland with grants for policemen ($72,600), park personnel ($28,800), a new well ($70,000), and repaving of airport ($43,000);

14. Pledging technical assistance for securing of federal and state monies. Thus far, grants have been obtained for a Senior Citizens' Community Center ($186,000), twenty-eight unit citizens' apartment complex, and expansions of the county jail and hospital ($320,000).[13]

Various state programs have had a significant role in mitigating impacts from the MBPP. Most important is the establishment of the Siting Council with powers to set conditions in the construction permit. Also significant are programs mentioned in 1 and 5, above. Under Wyoming law, local governments may form Joint Powers Boards which can undertake projects that individual governments might not be able

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[13]Ellis.

to afford.[14] The Wyoming Farm Loan Board has the authority to distribute loans to these Boards, which are available at below market interest rates. The Farm Loan Board also has the authority to distribute grants made available from a special severance tax on coal. Legislation restricts these grants for use on highways, street improvements, or water and sewer projects.[15] Legislation created the Joint Powers Boards in 1974 and the coal severance tax in 1975.

In summary, the mitigation program at MBPP was established by the state Siting Council, not by mutual agreement between the utility and local governments. General commitments for mitigation were set in the siting permit, leaving detailed plans to be made as the need becomes evident. Although subject to scrutiny by the state, an independent Coordinating Council has the authority to require provision of mitigation assistance by the utility. If such assistance does not prove satisfactory the Siting Council has the authority to take decisive action against the utility. Provision of mitigation based on initial impact assessment was not required by the siting permit since, as discussed in Chapter II, the actual impacts may be quite different. The presence of an organization with the power to review and authorize mitigation, such as the Coordinating Council, is essential if the "wait and see" approach is used.

The success of the MBPP mitigation program depends on the commitment of the state Siting Council. If strong state support is not present,

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[14]Foster, p. 79.

[15]Ibid., p. 80.

the Coordinating Council may not be able to force the utility to mitigate impacts. Although the Siting Council may suspend or revoke the construction permit, they would obviously be subject to various pressures in their decision. State support of the program is subject to the prevailing political situation which, of course, may not remain the same throughout the entire construction period.

II. SUNDESERT NUCLEAR PLANT—RIVERSIDE COUNTY, CALIFORNIA

The Sundesert Nuclear Plant was to be constructed in the desert area of southern California near the Colorado River which forms the border between California and Arizona. The site is near the fertile Palo Verde Valley and 16 miles southwest of the town of Blythe. The project has been cancelled as a result of a 1977 California law (AB 1852) that prohibits state approval of new nuclear plant construction until acceptable means are developed for the disposal of high level nuclear waste.[16] Extensive mitigation measures were being planned up until the official plant cancellation in May 1978. Despite termination of the project, the mitigation activities are worthy of examination because of their scope and organization.

Impacts on the sparsely populated, isolated area of California and Arizona were expected to be significant enough to warrant extensive mitigation. Preliminary hearings for a construction permit were being conducted in 1977 before the California Energy Commission. The Energy

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[16]Southern States Energy Board, p. 17.

Commission was created in 1975 with a major responsibility being authority to approve the siting of power plants.[17] The Commission has the authority to impose conditions on the utility that require mitigation of adverse socioeconomic impacts. The Commission also may provide financial assistance to impacted communities for the purpose of reviewing studies, hiring consultants, or augmenting their own staff.

Preliminary approval of the Sundesert plant was granted based on several conditions. One of the Commission's conditions required the utility, San Diego Gas and Electric (SDG&E), to develop a socioeconomic impact mitigation program before final construction approval. Specifically, the utility was required to submit a program

> . . . that addresses specific impacts, provides adequate funding to finance the plan, clearly delineates the relative economic responsibilities of the utility, local agencies, and private groups, and takes into account any time lags between the mitigation expenditures and tax revenues to the impacted communities.[18]

SDG&E showed concern for socioeconomic impacts several years before the above conditions were set. An annual Area Study was prepared between 1975 and 1977 and presented to officials of city, special districts, and county government as well as other community leaders and other citizens of the Palo Verde Valley. The 1975 report identified

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[17]Ibid., p. 15.

[18]California Energy Commission, "Notice of Intention to File Application for Certification of Site and Related Facilities-San Diego Gas and Electric, Docket No. 76-NOI-2," August 5, 1977, pp. 25-26.

problems and benefits of the project. The 1976 report refined and updated the first edition and suggested alternatives to deal with impact problems. The 1977 study also provided updates and outlined a specific mitigation program.[19]

Cooperation between SDG&E and area citizens began in 1974 with the formation of local task forces intended to counsel and assist in the preparation of the first Area Study. These task forces evolved in August 1976 into a formal organization, the Desert Valley Impact Committee, Inc. (DVIC).[20] The DVIC was provided financial support by SDG&E and was recognized as the official representative of the impact area for planning and managing impacts. This impact area included Riverside and Imperial Counties in California and Yuma County in Arizona. The specific goals of the DVIC were to:

1. Identify and evaluate the potential economic and social impacts of the Sundesert Nuclear Project on the residents and the economy of the Palo Verde Valley;

2. Identify and evaluate feasible projects and programs to avoid or minimize anticipated consequences of adverse impacts of the Sundesert Project on the local area;

3. Promote and aid in preliminary planning and early development of plans for essential projects and programs to be implemented by local

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[19]Stone and Webster Corporation, Area Study 1977, (San Diego: San Diego Gas and Electric Company, November 1977), p. 1.

[20]Desert Valley Impact Committee, Inc., Socioeconomic Impacts on the Palo Verde Valley of the Proposed Sundesert Nuclear Plant, (Blythe, California: Desert Valley Impact Committee, June 1978), p. 11.

governmental agencies and other organizations, depending on the licensing status and schedule for construction of the Sundesert Project; and

4. Assist local governmental agencies and other organizations in implementations of plans and programs to minimize the consequences of any adverse impacts of the Sundesert Nuclear Plant construction and operation.[21]

Eventually, the DVIC was intended to represent the Palo Verde Valley citizens before federal and state licensing hearings.[22]

The DVIC was composed of a Board of Directors and nine task forces. The 14 member Board consisted of representatives of area governments and special districts as well as two public members-at-large. The Board appointed a chairman of each task force who in turn appointed an appropriate number of members. The task forces covered the following areas: Housing, Education, Employment, Local Services, Transportation, Agriculture, Land and Water, Business and Tourism, and Taxes. The general purpose of the task forces was to involve local citizens in the evaluation and development of proposed solutions to problems in particular impact areas. Approximately 280 citizens and officials had served on these task forces through the life of the DVIC.[23] Each task force developed recommendations that appeared in the DVIC's final report.

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[21]Ibid., pp. 15-16.

[22]Ibid., pp. 13-15.

[23]Ibid., see pp. 22-102.

Final mitigation strategies were never agreed upon by the DVIC and SDG&E because of the project's termination. However, SDG&E did propose a Community Impact Management Program in its 1977 Area Study. This program, to be coordinated by SDG&E and DVIC, was to have, at a minimum, the following items:

1. An Impact Reduction Strategy,
2. A Resource Allocation Plan,
3. Contingency Plans for Impact Management,
4. A Community Impact Monitoring System, and
5. A Response-Action Agency.[24]

The Impact Reduction Strategy was intended to reduce the number of work force family relocations by providing temporary bachelor quarters, bus transportation, and modification of traditional work schedules to encourage workweek commuting. The key factor in this strategy is the provision of housing facilities. A housing study by SDG&E found that housing availability in the area was traditionally limited and would become a serious problem if the plant was built.[25] The DVIC task force on housing and SDG&E agreed private housing developers should be informed of the housing need in the area to be more responsive to the housing situation as the project progressed. The intent of this housing strategy was to construct enough permanent housing to meet postconstruction needs. Temporary facilities that could be removed or reused

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[24]Stone and Webster, Area Study 1977, pp. 13-17.

[25]Stone and Webster Corporation, Housing Demand Analysis, (San Diego: San Diego Gas and Electric Company, August 1977), p. II-1.

would be utilized for the peak influx of workers. Since the area housing industry could not meet all of these demands, SDG&E agreed to provide temporary on-site housing for 1,000 workers without families. The Task Force stressed, however, that a permanent company town would not be desirable.[26]

The Resource Allocation Plan was never described in detail by SDG&E. The intent of this plan, however, was to compare existing levels of community resources with the projected levels of demands. A Fiscal Impact Study was prepared by SDG&E that analyzed benefits and costs for 19 jurisdictions in the impact area and concluded that short-term costs will be present but will be outweighed by long-term benefits.[27] Regarding the possible difference between existing and projected demands, the 1977 Area Study stated that "resource allocations" would be

> . . . developed for the first two to three years of construction activity. Subsequent allocations will be based upon actual experience.[28]

The source of these allocations was not mentioned.

Contingency plans intended to deal with unexpected changes in impact levels were also never discussed in detail. These plans were to be prepared in 1978 and were specifically intended to address changes in the percentage of the work force that is nonlocal. That is, if

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[26]Desert Valley Impact Committee, Inc., pp. 54-57.

[27]Stone and Webster Corporation, Fiscal Impacts of the Sundesert Nuclear Plant on the Palo Verde Valley Region, (San Diego: San Diego Gas and Electric Company, January 1978), p. 2.1-1.

[28]Stone and Webster, Area Study 1977, p. 17.

less workers than anticipated commute, more will move in the area and additional mitigation will be needed.[29]

SDG&E recognized that monitoring of impacts is essential so mitigation can properly address actual impacts. As a result an impact monitoring system was prepared by SDG&E that would reevaluate and update ". . . projected impacts and the absorptive capabilities of the area."[30] Again, this proposal was not developed further because of the project's termination.

The fifth portion of SDG&E's impact management program was the formation of a "response-action agency," that is, the DVIC. It was intended that the DVIC plan and implement mitigation policies.[31]

The Sundesert project is a good example of an attempt to rectify or avoid some of the major problems faced when mitigating impacts, as discussed in Chapter II. Early notification of the project was never an issue. SDG&E initiated community contacts that were at first "open and low key" and then supported community participation through task forces and the DVIC.[32]

The problem of capabilities of local governments was also addressed by SDG&E. The Environmental Report issued by SDG&E was the most extensive

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[29]Ibid.

[30]Ibid.

[31]Ibid.

[32]Charles R. Cavanaugh, "The Sundesert Nuclear Plant and the Community: A Case Study of Community Involvement," presented at the AIF Symposium Social/Economic Impacts of Large Energy Facilities, St. Louis, January 17-18, 1977, p. 2.

ever completed for a nuclear plant. Also, SDG&E provided separate studies on archaeological sites, housing, educational facilities, and fiscal impacts. Therefore, the capabilities of the local governments were well researched so that local jurisdictions should have been well informed of their capabilities and potential problems.

The issue of funding impact mitigation was not decided at the time the project was stopped. The major source of funding was intended to be the increased property taxes. Despite the fact that half of the facilities would be owned by public utilities and would be tax exempt, a large amount of revenue would become available. This increased property tax would have gone primarily to Riverside County while small amounts would have gone to various special districts. Thus, two funding problems found in similar projects were evident here; the jurisdictional mismatch of funds and the timing of revenue collection and mitigation expenditures. Although these problems were not resolved, they were recognized.

The preliminary state approval by the State Energy Commission concluded that SDG&E submit an impact mitigation program

> . . . that takes into account any time lags between mitigation expenditures and tax revenues to the impacted jurisdictions.[33]

This problem was also addressed by the DVIC whose Taxes Task Force recommended that the project sponsors be required, as a condition for final state approval, to pay in advance for socioeconomic impact mitigation programs. The task force did not consider this to be prepayment of taxes and concluded that no tax credit should be given

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[33]Desert Valley Impact Committee, p. 93.

in the future. It is also important to note that the DVIC wanted all project sponsors, irregardless of tax-paying status, to provide front-end money. The problem of Riverside County receiving all of the tax revenue while other jurisdictions receive significant impacts was also recognized by the task force. Recommendations were made that encouraged further study of developing agreements between jurisdictions for sharing revenues.[34] A final problem related to funding was the passage of Proposition 13 by California voters in June 1978. The effect of this property tax limitation on the project's approach to mitigation was not studied. However, some changes in the tax-paying status of SDG&E would be likely and, therefore, would further complicate the issue of how much SDG&E was obligated to pay.

The Sundesert approach to mitigation is an important example for other areas to examine for several reasons. The most important feature was the early recognition by SDG&E that significant impacts would occur and that it had a responsibility to inform the community and take a role in mitigating impacts. Another important feature is the strong community representation in the form of the DVIC. The DVIC provided not only a unified representative to SDG&E, it also was intended to have the major role in determining mitigation.

In general, it is important to recognize that most of the activities discussed in this section were initiated solely by SDG&E and the DVIC. The only action taken by the state was the imposition of mitigation

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[34]Ibid.

conditions in the preliminary siting approval. However, unlike the previously discussed Wheatland project, the planning for and mitigation of impacts was entirely a product of utility-community cooperation. Of course, the State Energy Commission required mitigation as part of final construction approval. A by-product of the DVIC experience is the intention of the Commission to become more active in organizing for impact mitigation. The primary emphasis is to be in organizing local agencies to identify potential impacts and in arbitrating conflicts between local agencies and the utility.[35]

Despite this comprehensive approach taken at Sundesert, several major problems were never resolved because of the project's termination. If the project would have continued the following problems would have required a great deal of negotiation between participants. It is doubtful, based on other examples discussed in this thesis, that SDG&E and the other sponsors would have agreed completely to the DVIC's funding proposals. However, based on SDG&E's prior concern for impact mitigation, a compromise may have been possible.

The other important issue, not even raised by either party, was the granting of authority for imposing mitigation assistance. That is, who decides how much assistance the local jurisdictions deserve from SDG&E? The potential for conflict is raised if SDG&E must pay based solely on DVIC's wishes. It is likely that any utility would have room

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[35]Gregory M. Newhouse, Environmental and Engineering Division, California Energy Commission, Sacramento, letter to P. Scharre, October 3, 1979.

for disagreement with an organization comprised solely of local officials and citizens. The two entities may simply not be objective enough in their perspectives. This issue would have probably been decided in the issuance of the final state approval for construction.

III. SKAGIT NUCLEAR POWER PLANT—SKAGIT COUNTY, WASHINGTON

Puget Sound Power and Light Company is expected to receive an NRC construction permit in the spring of 1980 for a two-unit nuclear power plant (2500 MW).[36] State approval of the project by the State Energy Facility Site Evaluation Council (EFSEC) occurred in January, 1977.[37] The site is located in Skagit County, Washington, about 75 miles northeast of Seattle. Skagit County is agriculturally oriented and has recently experienced an outmigration of population.[38] Before state and federal approval, Puget Power had to obtain local permission in the form of a zoning change.

Power Power announced construction plans in January 1973. The Skagit County Planning Commission was developing an updated comprehensive zoning plan which was to leave the current zoning unchanged as forestry-recreation and residential. The exact zoning required for a power plant

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[36]Ted VanDecar, Environmental Engineer, Puget Sound Power and Light, Bellevue, Washington, letter to P. Scharre, October 4, 1979.

[37]Washington Energy Facility Site Evaluation Council, "Site Certification Agreement for Skagit County Nuclear Project, Units 1 and 2 between the State of Washington and Puget Sound Power and Light," January 5, 1977.

[38]David Myhra, "Energy Development," Practicing Planner, September 1976, p. 17.

was unclear and after studying many alternatives, the Planning Commission approved an "Unclassified Use Permit" for Puget Power. However, this approach was not approved by the County Commissioners because it could be challenged in court as spot zoning.[39] Spot zoning is the singling out of a parcel in the middle of a particular zone for another purpose which is in conflict with the surrounding area.

The Planning Commission decided to include this siting problem as one of the first steps in updating its zoning. The new zoning plan, finished in November 1973, established an industrial zone which coincided with the project site. However, state law required an EIS to be completed to assess the impacts of the zoning plan. The Planning Commission required Puget to submit its official Environmental Report for supporting material.[40]

The potential for adverse socioeconomic impacts on the county was recognized during examination of the zoning issues. The construction work force was expected to reach a peak of 3,600. Ninety percent of this work force was expected to commute. Therefore, under certain assumptions regarding numbers of dependents, a population influx of approximately 1,100 was expected.[41] Impacts were expected to be especially significant in education and law enforcement. Skagit County

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[39]Michael Stimac, "The Impact of Zoning on Nuclear Plant Siting," presented at the Power Plant Siting Conference, Oregon Chapter of the American Nuclear Society, Portland, August 1974, p. 2.

[40]Ibid., p. 3.

[41]Myhra, "Energy Development," p. 18.

decided mitigation assistance would be required and utilized the zoning conflict in receiving such assistance from Puget Power.

Skagit County and Puget Power agreed that the best approach to solving both the rezoning and mitigation issues was the granting of a "contract rezone" under the new comprehensive plan. A contract zone is granted in return for certain conditions provided by the grantee. In late November 1973 Puget Power submitted its Environmental Report and an application for a contract rezone. The application requested that the actual location of facilities be classified as industrial while the remainder of the site be classified as forestry-recreation. As a condition in this contract rezone, Skagit County wanted Puget Power to provide payments for mitigating impacts in education and law enforcement. After thorough study and several public hearings, the rezoning was granted in March 1974.[42] Puget Power then applied for a Site Certification before the State EFSEC. The EFSEC has the authority to conduct hearings and make recommendations to the Governor concerning site applications. The final authority for approving site applications lies with the Governor.[43]

The most important features of this approach to impact mitigation are the authority the local government had in approving the project and the nature of the impact payments by Puget Power. In contrast to most

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[42]"Agreement executed March 26, 1974 by and between Skagit County, Washington and Puget Sound Power and Light," (mimeographed).

[43]Southern States Energy Board, p. 120.

states which exempt utilities from local ordinances when siting facilities, Washington specifically allows local land use plans and zoning ordinances to be seriously considered in the siting process.[44]

The nature of the impact payments is important because of their relation to Puget's property tax obligations. All mitigation payments made by Puget will be considered as prepayment of property taxes that must be paid when the plant begins operation. When completed the plant will more than double the existing (1973) tax base.[45] The education payments can cover such areas as portable classrooms and other facilities, transportation, and costs related to reopening facilities. Puget Power will also make a monthly payment to each school district for each project-related student.[46] Payments for law enforcement will be made to all police offices in the county and will begin when there are at least 50 construction workers are on the project and will continue as long as 50 are employed.

The state approval, granted through the EFSEC in January 1977, broadened the mitigation obligations of Puget Power.[47] The state license included the rezone contract conditions, a monitoring plan, and several other features. These additional features require Puget to:

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[44]Ibid.

[45]Puget Sound Power and Light, Skagit Nuclear Project, Units 1 and 2—Environmental Report, (Bellevue, Washington: Puget Sound Power and Light, 1974), p. 8.1-10.

[46]Myhra, "Energy Development," p. 19.

[47]Ibid.

(1) pay any valid claims filed against it by the state, any state agency, or any local government arising from actual or anticipated impacts and adds that the burden of establishing the validity of any such claim shall be upon the claimant and, (2) provide Puget land for any needed temporary housing. The EFSEC will have the final decision regarding any disputes over these conditions.[48]

The EFSEC has imposed socioeconomic mitigation conditions at two other power plant construction sites in Washington. The Washington Public Power Supply System, a public utility, is constructing two nuclear units in Benton County (Units 1 and 4) and two in Grays Harbor County (Units 3 and 5). At Units 1 and 4, the Supply System was required in August 1975 to provide an impact study at the start of construction and three years into construction. The utility was also required to ". . . evaluate, negotiate in good faith, and to honor . . ." claims by local jurisdictions for increased financial burdens caused by the project.[49] At Units 3 and 5, the Supply System was required in October 1976 to monitor impacts during construction and provide quarterly reports to the EFSEC. They were also required to ". . . pay any valid claims filed against it . . ." by the state or any local

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[48]Washington Energy Facility Site Evaluation Council, "Site Certification-Skagit Nuclear Project," pp. 33-34.

[49]Washington Energy Facility Site Evaluation Council, "Site Certification Agreement between the State of Washington and the Washington Public Power Supply System, Units 1 and 4," August 8, 1975.

jurisdictions.[50] The EFSEC will be the final arbiter of any dispute over the mitigation program at either side.

There are various procedures for determining the exact amount of mitigation to be paid. The education payments will be based on a preset formula. The amount required for mitigating law enforcement will be decided by a three member board consisting of the county sheriff, police chief of the town nearest the site, and the county judge. The issue of final authority on the validity of any other claims has not been resolved, primarily because of the delay in licensing (the plant was originally scheduled to begin construction in 1975).[51] It is essential for this issue to be settled before claims arise. As mentioned in other examples, it is unlikely that the utility and community will completely agree on the level of impacts and how much mitigation is deserved. Although the state has the authority to settle such disputes, the process might work more efficiently if procedures were established.

The monitoring program conducted by Puget Power will cover primary and secondary impacts of the project during construction. The state site certification required Puget, Skagit County, and the EFSEC to agree on monitoring procedures. A broad range of community and project-related data will be gathered, including: economy, housing,

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[50]Washington Energy Facility Site Evaluation Council, "Site Certification Agreement between the State of Washington and the Washington Public Power Supply System, Units 3 and 5," October 27, 1976.

[51]VanDecar.

public services, and demography. Project characteristics include taxes, work force numbers, and work force characteristics.[52]

Skagit County is one of only two examples in this chapter that involves local approval of power plant construction. With this authority, local government through planning and zoning, can have a greater influence over the degree of potential community impacts. This authority must be based on adequate information and plans and should not be wielded in an unreasonable manner. For example, Skagit County included the siting issue in the update of the comprehensive plan and did not try to inhibit improvement in the regional welfare by prohibiting the plant. Instead, the County realized it could receive benefits from the plant and that methods were available to mitigate the adverse impacts. Two important features of this mitigation example relate to local involvement. First, local plans and ordinances had authority in the siting process and were not ignored or abused by either party. Second, the community and the utility established a mitigation agreement without the aid of a third party, although the state later became involved.

The state, through its siting council, did not play as crucial a part in developing mitigation as in the MBPP case. The contract rezone was finalized before state involvement and solved two problems: siting approval and impact mitigation. State involvement, however, broadened the scope of the mitigation of other impacts besides education

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[52] Ibid.

and law enforcement, in the event they arise. Monitoring, often considered an essential element in mitigation, was also included by the state. Finally, any disputes arising out of the mitigation program will be resolved by the EFSEC. Therefore, although a third party was not required to establish the original mitigation agreement, one was required to broaden the agreement and ensure its proper implementation.

Despite the state's late and limited role, the overall success of the program still very much depends on the state's influence. The state, through its licensing actions, has already shown its interest in adequately mitigating impacts. It is essential that this interest does not wane since the state is the final arbiter of any disputes over mitigation. If a dispute arises and the state decides to either not use its authority or to use it unreasonably, the mitigation program may not succeed. As noted in the Wheatland example, the political climate on the state level is subject to many changes over the length of construction, thereby possibly varying the degree of state support.

The basis for the successful development of the program was the presence of a local comprehensive planning process. This process included the siting issue into current county planning and showed innovation through the use of a contract rezone. The presence of an up-to-date comprehensive plan and zoning ordinance strengthened the county's bargaining position with the utility by proving the county had definite intentions for its own future, which included the power plant. In essence, it proved the county was both aware of its ordinary

problems and needs and intended to incorporate the project into county development goals. A utility may be less likely to seriously listen to a community's request for impact mitigation if that community is not even concerned with the everyday, nonproject related development of the county.

IV. BATH COUNTY PUMPED STORAGE PROJECT—BATH COUNTY, VIRGINIA

The Virginia Electric and Power Company (VEPCO) is constructing a large pumped-storage hydroelectric project (2150 MW) in Bath County, Virginia, located midway along the West Virginia border. Preliminary work began in 1974, but full-scale construction did not begin until March 1977 after Federal Power Commission (FPC) licensing.[53] The only state approval required was by the State Corporation Commission which has the authority to consider the adverse environmental effects in granting construction approvals.[54] The project site is in a very isolated portion of the state, at least a two hour drive from any city larger than 25,000. VEPCO realized the need for additional housing for in-moving workers and bought 600 acres of land in adjacent Highland County for the purpose of building a mobile home park. This purchase created the potential for significant socioeconomic impacts for Highland County and was the reason for development of a mitigation

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[53]Don Spangler, Lynda Given, and Sue Guenther, Coping with Growth-Energy Impacts in Five Appalachian Counties, (Washington, D.C.: National Association of Counties, 1979), p. 30.

[54]Southern States Energy Board, p. 117.

agreement supported by the FPC.

The major reason for possible significant impacts is the extremely rural character of Highland County. The total population of Highland County in 1970 was 2,500 and had been declining for the past five decades. The average yearly per capita income is about $2,000 and the median age is forty.[55] Both Highland and Bath Counties have low income levels and high unemployment rates with few manufacturing jobs. Although larger, Bath County has experienced much the same decline in population and economy.[56] The potential presence of a construction work force of about 2,000, many of whom were expected to reside in Highland County, made both VEPCO and the local governments concerned about potential impacts.

VEPCO and Highland County agreed that some form of mitigation assistance by the utility was necessary. Highland County could not receive any increased property tax revenue since practically all of the project's facilities were located in Bath County. Several months of negotiating before the start of FPC licensing hearings led to this agreement in principle only. A detailed agreement for the actual arrangement of mitigation assistance, however, could not be agreed to by the two parties.[57] As a result, Highland County intervened in the FPC licensing hearings in an attempt to persuade the FPC to

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[55]Watson, p. 396.

[56]Spangler, Given, and Guenther, p. 30.

[57]Federal Power Commission, "Presiding Administration Law Judge's Initial Decision Issuing License for the Bath County Pumped Storage Project, with Conditions," September 20, 1976, p. 57.

require, as a condition in the license, VEPCO to mitigate impacts in certain areas. The disagreement between the two parties was based on both a difference in the mitigation policy to be established and the actual mechanisms for providing mitigation. VEPCO was

> . . . willing to reimburse Highland County, as well as other nearby jurisdictions, for most of the additional governmental costs incurred as a result of the influx of construction workers, to the extent those costs exceed new tax and other revenues resulting from the influx.[58]

VEPCO agreed to be obligated for costs and services provided by the government but not for new mitigation programs in areas that local government was not formerly providing. In contrast, Highland County wanted a formal agreement with VEPCO that required mitigation payments covering a broad range of impacts.[59]

In addition to dispute over the basic policy for mitigation, VEPCO and Highland County also disagreed over the actual process for conducting mitigation. Highland County wanted VEPCO to establish an escrow fund in order to provide front-end financing. VEPCO preferred to reimburse Highland County for mitigation expenditures. Highland County wanted a series of license conditions stating VEPCO's obligation in detail while VEPCO did not want the imposition of licensing conditions but preferred to cope with problems as they arose. The FPC staff took a middle position that recommended a ". . . generalized obligation to mitigate unspecified socioeconomic impacts . . . ."[60] The FPC staff

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[58]Ibid., p. 46.

[59]Ibid.

[60]Ibid., p. 48.

contended that VEPCO and Highland County had the responsibility to resolve the numerous specific issues. However, they also concluded that the FPC ". . . has a responsibility to mitigate socioeconomic impacts . . ." from the project.[61]

Faced with these varied opinions the FPC license took a compromising route. This route required VEPCO and Highland County to negotiate ". . . for an agreement under which VEPCO would compensate the County for additional expenses of . . ." the following areas: (1) education, (2) law enforcement, (3) solid waste disposal, (4) general government costs, (5) welfare and social services, and (6) any other activity which is mutually agreed upon.[62] The FPC decision was compromising by requiring an agreement be reached wherein VEPCO would provide compensation but not including many areas Highland County had desired. Nor did the FPC include procedures for payment. The FPC denied Highland County's contention that VEPCO had the obligation to mitigate in the following areas: (1) fire and emergency services, (2) human and community relations, (3) health care services, (4) local businesses and the local labor force, and (5) land use planning.

The FPC did not decide the detailed procedures for mitigation. Rather, the license required mitigation to be carried out in certain areas with the two parties deciding on the specific components. The license further required an agreement be reached by a certain deadline

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[61] Ibid., p. 47.

[62] Ibid., p. 86.

(six months) and that if bargaining was not conducted in "good faith" the FPC had the authority to:

1. Order the licensee to take such steps to mitigate socioeconomic impacts, including the payment of money, as the Commission deems necessary or appropriate,

2. Rescind or suspend one or more of the licensee's obligations, and

3. Take such other or further action as the Commission deems necessary or appropriate.[63]

Though not required by the FPC license, VEPCO reached similar mitigation agreements with Bath County and nearby Pocahontas County, West Virginia.[64]

Briefly, the agreements for Highland and Bath Counties require VEPCO to pay the differences between the additional costs of providing certain governmental services to the in-moving workers and their families and whatever taxes or other revenues received because of their presence. Procedures for determining costs, revenues, and payments were included in the agreement. The agreement for Pocahontas County is simpler. They were provided with a single payment for specific items.[65]

Most of the mitigation for Highland County has been for education. The County is currently in the process of requesting assistance for law

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[63]Ibid., p. 87.

[64]Spangler, Given, and Guenther, p. 32.

[65]F. Kenneth Moore, Project Manager, Bath County Pumped Storage Project, Virginia Electric Power Company, Richmond, Virginia, letter to P. Scharre, November 2, 1979.

enforcement and for the building and zoning department. Practically no other mitigation payments have been made by VEPCO since impacts have been less than anticipated.[66]

In summary, both VEPCO and Highland County agreed in the early project stages that some form of mitigation assistance would be required. This agreement on the concept of mitigation is an important step toward agreeing to specifics of mitigation. Since such specifics could not be agreed to, a third party, the FPC, was needed to inject neutral judgment and make the final decision. In other examples discussed in this chapter the state has often assumed that responsibility.

Unlike some of the other projects examined, a local impact committee was not formed. There was not a large number of jurisdictions in this particular example and the project was on a smaller scale. Also, no formal impact monitoring program was established. That is no regular reports containing typical monitoring information was required. However, an informal monitoring program is present since mitigation is required when certain preestablished indicators, such as the number of children in school, are reached. Also, the FPC required VEPCO to submit a report, at least annually, on the progress of mitigation.[67]

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[66]John M. Lohr, Highland County Attorney, Monterey, Virginia, letter to P. Scharre, September 27, 1979.

[67]Federal Power Commission, p. 87.

V. SUSQUEHANNA STEAM ELECTRIC STATION—LUZERNE COUNTY, PENNSYLVANIA

The Pennsylvania Power and Light Company (PP&L) is currently constructing a two unit nuclear plant (2100 MW) referred to as the Susquehanna Steam Electric Station. The site is in Salem Township, Luzerne County in east central Pennsylvania. Salem is a rural township with a population of less than 4,000. It is also on the fringe of the Wilkes-Barre metropolitan area.[68] The mitigation program for this project is quite different from others discussed in this chapter. It is the result of community and utility cooperation, with no participation of a third party either in planning or implementation.

State involvement in the development of monitoring and mitigation for the plant was not required. In fact, in Pennsylvania, no state approval is required to build a power plant if the site is properly zoned or a variance is granted. If not, the utility can apply to the state Public Utility Commission for exemption from local ordinances.[69] Federal involvement was through the NRC licensing process. Neither state nor federal authorities imposed mitigation conditions on PP&L. Rather, the monitoring program was developed internally by PP&L and

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[68] Pennsylvania Power and Light Company, A Monitoring Study of Community Impact—Susquehanna Steam Electric Station, (Allentown, Pennsylvania: Pennsylvania Power and Light Company, June 1976), p. 4.

[69] Southern States Energy Board, p. 97.

the mitigation agreements were reached by mutual agreement between PP&L and the local communities.[70]

PP&L had produced two monitoring reports, one in June 1976 and the other in December 1978. The 1976 study established the procedures for collecting information and identified the potential impact areas. The most important conclusion of this study was the low number of in-moving construction workers discovered. Therefore, community impacts were not considered to be very great at that time.[71] The 1978 study used the same approach as the previous study, primarily a survey of workers and interviews with local officials and businessmen.[72] The purpose of this study was to review impacts since 1976 and to examine the progress of recommendations made in the earlier study. Again, it was found that no excessive demands were placed on any community facilities or services in spite of almost a doubling of the workforce from the original projection of 2,500.[73]

Despite the overall absence of serious impacts, mitigation was necessary for several impact areas. According to PP&L, mitigation was established in response to needs mutually perceived by PP&L and the

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[70]Bernard J. Bujnowski, Community Services Department, Pennsylvania Power and Light Company, Allentown, Pennsylvania, letter to P. Scharre, October 5, 1979.

[71]Pennsylvania Power and Light Company, pp. 4-7.

[72]Pennsylvania Power and Light Company, A Monitoring Study of Community Impact—Susquehanna Steam Electric Station, (Allentown, Pennsylvania: Pennsylvania Power and Light Company, December 1978), pp. 1-6.

[73]Ibid., p. 28.

local communities when additional burdens were placed on communities in providing services and facilities.[74] Citizen project advisory committees also provided much input. This mutual arrangement was essential for financing mitigation since the area was due few property tax benefits. While PP&L is obligated to pay property taxes, Pennsylvania law does not allow local governments to retain utility taxes. Utilities are taxed by the state which returns a share of the revenue to each jurisdiction in the state.[75]

Mitigation has been implemented in several areas. PP&L financially supported the following measures: (1) additional police personnel for traffic control for a small community, (2) expanded health care facilities and training at a hospital and, (3) expanded training for local emergency services.[76] Mitigation has been conducted on this limited scale because impacts have not been very significant during the past five years of construction. One other product of the mitigation program was the establishment of a local mitigation advisory committee, composed of local officials and citizens. This committee is concerned with a reservoir project related to the plant. This committee and the earlier committees meet on a regular basis to develop recommendations for mitigation measures as well as to communicate local concerns to the utility.[77]

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[74] Bujnowski.

[75] Pennsylvania Power and Light Company, Monitoring Study, 1976, p. 7.

[76] Pennsylvania Power and Light Company, Monitoring Study, 1978, p. 7.

[77] Bujnowski.

The two most significant features of the Susquehanna approach to mitigation are the limited number of participants and the absence of a specific mitigation agreement prior to construction. Mitigation was agreed to by the local government and PP&L only. This is the only example discussed in this chapter in which no conditions were imposed upon the utility requiring mitigation. No third party, such as the state or federal government was utilized, even as a mediator or advisor. Apparently local officials felt able to deal effectively with PP&L and were confident of an equitable mitigation program or felt powerless and had no other alternatives. Since no state licensing was required, the local government's only other alternative for assistance would have been through the NRC.

There were no official agreements requiring PP&L to mitigate impacts in specific areas. Basically, PP&L agreed to monitor impacts and deal with them as they arose. Specific impact categories were established for monitoring, however. The success of the Susquehanna mitigation program depends entirely on the relationship between PP&L and the impacted communities. Unlike other examples, no established means of arbitrating disagreements through a third party exists. Undoubtedly, the Susquehanna arrangement is a result of mutual trust between PP&L and the local communities, and a small level of adverse overall impacts.

VI. COAL-RELATED PROJECTS—MERCER COUNTY, NORTH DAKOTA

Mercer County, North Dakota, has great potential for receiving significant negative socioeconomic impacts in the near future as a result

of a variety of energy development. This development consists of coal mining, three operating coal-fired power plants, two proposed coal-fired power plants, and a coal gasification plant. Mercer County, located in west-central North Dakota, is sparsely populated and agriculturally oriented.[78] Mercer County is facing many of the problems common to impacted communities. However, one of the major problems confronting the county not experienced by others discussed in this chapter is the presence of several large-scale projects. The abundance of projects not only creates more potential for impacts but also increases the difficulty of relating specific impacts to specific projects and assigning responsibility for mitigation.

Concern over potential impacts from energy development was expressed in 1977 through a study sponsored by the U.S. Department of Energy (DOE). The general purpose of the study was to develop ". . . the methodologies and analytical tools needed by communities to undertake comprehensive energy planning and management."[79] A major result of the DOE study was the formation of the Mercer County Energy Development Board (EDB). The Board is comprised of representatives of all the political jurisdictions in the county. The EDB has two major areas of concern:

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[78]Allan D. Garnaas, "Controlling and Managing Energy Boomtowns," Practicing Planner, June 1979, p. 23.

[79]U.S. Department of Energy, Comprehensive Community Planning for Energy Management and Conservation, (Springfield, Virginia: National Technical Information Service, 1977), p. 1.

> . . . to plan for and manage energy-related growth in the county and to ensure that energy conservation considerations and technologies are fully incorporated into the planning and development process.[80]

The major duties of the EDB are to prepare and update a growth management plan for the county and to provide technical assistance to local governments, primarily in the form of preparing zoning ordinances, subdivision regulations, and grant applications.[81] An important part of the growth management plan is a monitoring program. The bulk of the monitoring program is conducted by an Inter-Industry Technical Assistance Team composed of representatives of the various utility companies involved in the county. Funding for the EDB has been provided by DOE through a three-year grant with additional funding for studies provided by several state agencies.[82] Generally, the EDB acts in an advisory capacity.

Local government has the opportunity to participate significantly in impact mitigation in Mercer County. For example, a rezoning permit granted for the coal gasification project contained some impact mitigation conditions. These conditions are not as extensive with regards to socioeconomic considerations as the Skagit County example and are related only to road construction and maintenance.[83]

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[80]Garnaas, p. 22.

[81]Ibid., p. 24.

[82]Robert M. Stroup, Executive Director, Mercer County Energy Development Board, Hazen, North Dakota, letter to P. Scharre, November 9, 1979.

[83]U.S. Department of Interior, Final Environmental Statement—ANG Coal Gasification Company, North Dakota Project, (Billings, Montana: U.S. Department of Interior, Upper Missouri Basin Region, January 1978), pp. 4-16 through 4-18.

The state has played a significant role in establishing mitigation in Mercer County through imposing conditions on the utilities and through several state programs. The State Public Service Commission was granted the authority to approve siting of power plants and transmission lines in 1975. However, the state does not have the authority to exempt utilities from local regulations in the siting of plants.[84] The Public Service Commission imposed several conditions in the coal gasification project primarily related to provision of technical assistance in acquiring funds. The utility was also required to assist in meeting housing needs of construction workers by providing, if necessary, a construction worker camp.[85] The Commission may suspend or revoke construction approval if the conditions are not satisfactorily followed.[86]

Taxing policies of North Dakota have been beneficial to impacted communities. All coal conversion facilities in North Dakota have been subject to in-lieu of property tax payments since 1975. The state receives over half of this tax with the remainder distributed to local governments which may also collect ad valorem taxes on the land the facilities are on.[87] Since public utilities pay the same amount of

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[84]Catherine Lu, State Responses to the Adverse Impacts of Energy Development in North Dakota, (Cambridge, Massachusetts: Massachusetts Institute of Technology, 1977), p. 19.

[85]Stroup.

[86]Ibid.

[87]Lu, p. 23.

in-lieu payments as private utilities there is a more equitable distribution of benefits than under standard property tax laws. However, a major problem does exist under this taxing procedure. Prepayment of taxes is not permitted under state law, thus, preventing the use of tax revenues for front-end financing.

A severance tax on coal mined, established in 1975, is another source of mitigation funds. Local jurisdictions are entitled to receive 40 percent of the revenues from coal severance taxes. Most of this revenue is distributed by the State Coal Impact Office while a small amount is returned to the counties based on their share of the state's total coal production.[88] Decisions regarding payments are made by the Director of the Impact Office. In 1979 the Impact Office distributed a total of $2.7 million of which Mercer County and its taxing jurisdictions received $1.6 million. These funds are primarily used for streets and highways, schools, and law enforcement.[89] Payments by the Impact Office are made for significant expenses met by a community as a result of coal-related activity. Payments are not made for impacts caused by out of state coal-related activity or for services traditionally financed by other private sources.[90]

In addition to taxing mechanisms, the state was responsible for two other areas concerned with impact assessment and mitigation. The

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[88] Ibid., p. 29.

[89] August W. Keller, Director, North Dakota Coal Impact Office, Bismarck, North Dakota, letter to P. Scharre, October 19, 1979.

[90] Ibid.

first area concerns the formation of joint powers boards through which local governments can undertake projects together. Under state law a local board may develop plans, monitor construction, and acquire funding subject to debt limits for local governments.[91] The EDB is an example of a joint powers board. The second area concerns an attempt to develop an accurate information base and forecast system. The Regional Environmental Assessment Program (REAP) was established in 1975 to collect data on environmental, economic, and sociological characteristics on computer systems and provide impact forecasts.[92] However, REAP ceased operations in 1979 when funding was vetoed by the governor.[93]

Mitigation in Mercer County has involved local, state, and federal governments through regulatory powers or various programs designed to aid impacted communities. The state has been particularly influential in mitigation through the series of measures adopted in 1975. However, in contrast to other projects discussed in this chapter the utilities present in Mercer County were not required to provide large amounts of financial assistance. Rather, financial assistance has been provided by taxes in various forms.

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[91]U.S. Department of Energy, p. 24.

[92]Lu, pp. 36-38.

[93]John A. Graham, Director, North Dakota Legislative Council, Bismarck, North Dakota, letter to P. Scharre, September 12, 1979.

VII. SUMMARY AND COMPARISON

The examination of the six mitigation programs has resulted in identification of the following key areas of concern:

1. Origin of mitigation,
2. Basis of authority,
3. Form of mitigation,
4. Local organization for mitigation,
5. Primary characteristics of the program.

The following discussion and matrix (Table 2) emphasizes the importance of each category and the differences and similarities between them.

Origin of Mitigation

Mitigation originated in a variety of ways for these six projects. Mutual cooperation between community and utility would seem to be the most favorable, efficient approach. Mitigation for the Susquehanna and Sundesert projects was based on mutual cooperation between the community and the utility. The entire mitigation program for Susquehanna was established and has been conducted solely by the utility and the community. At Sundesert, utility-community cooperation several years before the proposed start of construction led to a working relationship. However, the cancellation of the project prevented any final arrangements for mitigation. Also, the state siting council would have required impact mitigation if the construction permit had been issued. It is evident from these two examples that utility-community cooperation can either result in mitigation or can greatly aid in the process.

TABLE 2

KEY AREAS OF CONCERN FOR MITIGATION PROGRAMS

Project	Origin of Mitigation	Form of Mitigation	Basis of Authority	Local Organization	Primary Program Characteristics
Missouri Basin Power Project	State siting permit	Conditions contained in siting permit	Impact coordinating council supported by state siting authority	Project Area Coordinating Council composed of local government and utility officials	General initial commitments with specific mitigation to be developed as impacts arise
Sundesert Nuclear Plant	Mutual cooperation between community and utility and eventual state siting permit	Proposed utility mitigation program and eventual conditions in siting permit	State siting authority	Desert Valley Impact Committee composed of local government officials with significant citizen participation on task forces	Project cancellation prevented final development of mitigation details
Skagit County Nuclear Plant	Local rezoning permit and state siting permit	Conditions contained in local and state permits	State siting authority	No local organization	Specific mitigation areas contained in local permit and a broader, generalized commitment in state permit. Utility assistance considered as prepayment of taxes.
Bath County Pumped Storage Project	Federal Power Commission construction approval	Conditions contained in federal permit	Federal Power Commission	No local organization	Six specific mitigation areas required by Federal approval with details arranged between community and utility
Susquehanna Steam Electric Station	Mutual cooperation between community and utility	Informal agreement between community and utility	Utility	Impact Advisory Committee composed of local officials and citizens	General commitment by utility to mitigate impacts as they arise
Mercer County Coal-Related Projects	Local rezoning permit and state siting permit. Also, significant impetus from state tax policies and DOE study	Conditions contained in local and state permits	State siting authority	Energy Development Board composed of local government officials	Specific technical assistance commitments by utility contained in state permit. Limited financial assistance by utility. Reliance on coal-related taxes for financial assistance

Mitigation originated through the actions of local government for the Skagit County and Mercer County projects. At both sites, the utility was required to receive a rezoning permit in order to begin construction. As a condition in the rezoning, the utility was required to undertake certain mitigation measures. This option is not available in most other states since most utilities are exempt from local regulations that may prohibit siting of energy facilities. The Skagit rezoning was more concerned with socioeconomic issues than was Mercer County. Also, the state siting council later expanded the scope of the Skagit mitigation program beyond the rezoning agreement. These two examples indicate that local governments must not always be absent from the siting process.

State government has played a key role in mitigation in most of the examples discussed in this chapter. The mitigation program at the MBPP site in Wyoming originated through the state siting permit. This permit contained procedures for the utility and community to follow for mitigation of impacts. While state siting councils played key roles in the Sundesert, Skagit, and Mercer County examples, mitigation did not originate solely on the state level. State taxing policies were an essential part of establishing mitigation for the Mercer County project.

The federal government was instrumental in starting mitigation at two sites, the VEPCO project and in Mercer County, though by different procedures. The FPC required VEPCO and Highland County to reach a satisfactory agreement before the construction permit was issued. At

Mercer County, the federal government had a less authoritative role but was influential through the DOE study.

Form of Mitigation Agreement

Closely linked to characteristics of the origin of mitigation is the form of the mitigation agreement. As with the previously discussed methods of starting mitigation, all three levels of government may be included or left out entirely. The most informal agreement occurred with the Susquehanna project where the utility simply agreed to monitor impacts and mitigate burdensome impacts. No governmental unit was involved.

State and local participants were involved in the mitigation agreements for the Skagit County, Mercer County, and Sundesert programs. In Skagit and Mercer Counties mitigation is present in two forms: a county contract rezone agreement and in the state siting permit. At Sundesert, mitigation was proposed through the utility's Community Impact Management Program and would have eventually been included in the state siting permit. The mitigation agreement for the MBPP project was present in the sole form of the state siting permit. The federal government was involved in formulating the mitigation agreement for only one project, Highland County, through issuance of the FPC permit.

Basis of Authority

A clear understanding of the basis of authority for conducting mitigation is essential. The utility and the community may disagree on the exact amount of necessary mitigation assistance. Therefore,

a final decision-making authority may be required to arbitrate disputes. The basis for this authority may be found in local, state, or federal governments.

The Susquehanna approach did not include a mechanism for arbitration of disputes primarily because no specific mitigation agreement was reached prior to construction. No course of action for the local jurisdictions were outlined in the event they believe PP&L's assistance is lacking. In both cases, the distribution of assistance is left solely to the utility.

The Skagit County mitigation agreement relies on two bases of authority; local and state. The local support derives first from the contract rezone which sets forth a specific formula for education payments and, second, for a local board dealing with law enforcement. The state support is found in the siting agreement that grants the state siting council final authority over disputes. It is important to note that this feature is dependent on the amount of support offered by the state.

The MBPP, Sundesert, and Mercer County projects rely on support by the state siting councils in resolving disputes. While this is an important measure of support for the local jurisdictions, it may not always work in their favor. It is essential that the state be supportive of equitable mitigation. During the course of a construction period the political character of a state may change which subsequently may change the state's concern for mitigation.

The only example in which authority is found on the federal level is for the VEPCO example. The FPC has final authority over any disputes. Of course, the concern of the FPC, like the states, is subject to change.

Local Organization for Mitigation

Organizing for impact mitigation ranges from a state-formed multimember group to the complete absence of any organization. The impact coordinating council for the MBPP site is a result of conditions in the state siting permit and is composed of various members, including: local, state, and utility officials. The MBPP council has authority to establish mitigation needs and order mitigation assistance. It was intended that the Sundesert impact council have such authority, also.

The Sundesert, Mercer County, and Susquehanna programs have impact councils composed of only local officials and citizens. The latter two act in an advisory capacity only. No formal local impact committees were established in either Highland or Skagit Counties. Apparently, in these counties the local officials were confident that mitigation could be agreed to and implemented without such an organization. A major reason for this is the low level of expected impacts.

The purposes of these local impact councils range from actual implementation of mitigation (MBPP) to providing advice, preparing plans, and coordinating (Mercer County). Impact monitoring is also an important part of each council. The councils must overcome the tendency for jurisdictions to be uncooperative in making decisions or sharing resources.

Primary Characteristics of the Program

An important feature evident in comparing these six programs is the wide variance in procedures for implementing mitigation despite the presence of many similar problems. These differences are largely the result of unique project and community characteristics and the absence of standard, well-known procedures for mitigation.

No specific, prearranged mitigation program was outlined for the Susquehanna or Mercer County projects. That is, no procedures for utility payment of mitigation assistance was devised. Rather, in the Susquehanna project, PP&L pledged to monitor impacts and to pay for mitigation mutually as perceived by both parties. While a few transportation-related matters were included in the Mercer County example, a definite program of financial assistance for mitigation was not developed. Instead, communities must primarily rely on current or future tax revenues.

Procedures for provision of mitigation were established at the Skagit and MBPP sites. These procedures are generalized and intended to be responsive to those impacts which may arise. They outline the process of providing mitigation; they do not preset specifically the areas for mitigation before construction begins. The MBPP program, through the state permit, provided a minimum number of functional areas for mitigation and required monitoring to identify other areas of need. The local impact council was granted authority over mitigation disbursement while the state has final authority over disputes. In the Skagit County example, impacts are to be mitigated according either to

a local board's decision, an education formula, or proof of any valid claim against the utility. Therefore, in Skagit County certain functional areas were established as well as a procedure for mitigating other areas. Any payments by the utility are also to be accounted for as prepayment of taxes.

Highland County and VEPCO established a more specific program than the two examples above by establishing specific areas for mitigation and specific formulas for assessing costs, benefits, and payments. Therefore, the process for deciding the proper amount of assistance required has been set, unlike other examples which leave such matters to the discretion of the utility or local council.

Summary

The following questions should be posed in examining responses or developing proposals for mitigation.

1. How should mitigation be originated for the project; through mutual cooperation, imposition of conditions by a third party, or other regulations?

2. What form should the mitigation agreement take; informal, contractual, or some other form such as a siting permit?

3. Where should the authority to implement mitigation be located; in local, state, or federal government or the utility?

4. How should the local jurisdictions organize to mitigate impacts? If an organization is present, does it include other parties and does it have any authority?

5. What should be the key characteristics of the mitigation program? Should it follow a specific formula, generalized procedures, or negotiations?

These questions are important to consider in the examination of the three Tennessee projects in Chapter IV. Recognition of any similarity of mitigation in Tennessee to these six examples will put those three sites in a broader context and will ease problem identification.

CHAPTER IV

ASSESSMENT AND MITIGATION OF IMPACTS FROM POWER PLANT CONSTRUCTION IN TENNESSEE

This chapter provides an examination of current or proposed socioeconomic mitigation programs at three power plant construction sites in Tennessee. These sites, Hartsville, Phipps Bend, and Clinch River, are the only power plant construction projects in Tennessee with major socioeconomic mitigation features. A comparison of these three sites is provided based on the five key features of mitigation programs developed in Chapter III. It is important to recognize the differences and similarities between the nationwide examples and those in Tennessee. Many of the same problems are faced and many of the same key features of mitigation programs are utilized. However, each impact area and project are different and require mitigation programs developed for that site's characteristics.

I. POWER PLANT CONSTRUCTION IN TENNESSEE

Practically all of the electrical power used in Tennessee is generated by hydroelectric, coal, or nuclear plants built and operated by the Tennessee Valley Authority (TVA). TVA is a corporate agency of the United States that has evolved from its origin in 1933 as a multipurpose regional development agency into the nation's largest producer of electricity. TVA was originally concerned with steam plants to meet increased demands for electrical power. Since 1966

TVA has undertaken extensive nuclear plant development with seven plants either operating or under construction throughout the region (see Figure 1). Four of these plants (10 units) are currently under construction in Tennessee. The Watts Bar and Sequoyah plants are scheduled for operation in the near future. Significant socioeconomic impact mitigation programs were not developed for these two plants.

TVA is not the only organization that has proposed nuclear facilities for Tennessee. In the mid-1970's three other plants were proposed for the Oak Ridge area, where extensive U.S. Department of Energy operations are located. The most controversial of these is the Clinch River Breeder Reactor Plant, which has been indefinitely postponed. The two other facilities proposed were a nuclear fuel recovery and recycling center and a centrifuge plant for nuclear fuel processing. The recovery center has been cancelled while the centrifuge plant is under construction near Portsmouth, Ohio.

Electrical power generation in Tennessee has evolved from reliance upon hydroelectricity during the beginning of TVA to a current reliance predominately on coal. As projects are completed in the near future, nuclear power will become the primary source of electrical generation. In essence, Tennessee has experienced significant amounts of power plant construction in the past decade. This construction will continue throughout the next decade as remaining projects are completed.

Hartsville Nuclear Plant

The proposed four unit TVA Hartsville Nuclear Plant (3675 MW) is located in north-central Tennessee in Trousdale and Smith Counties about

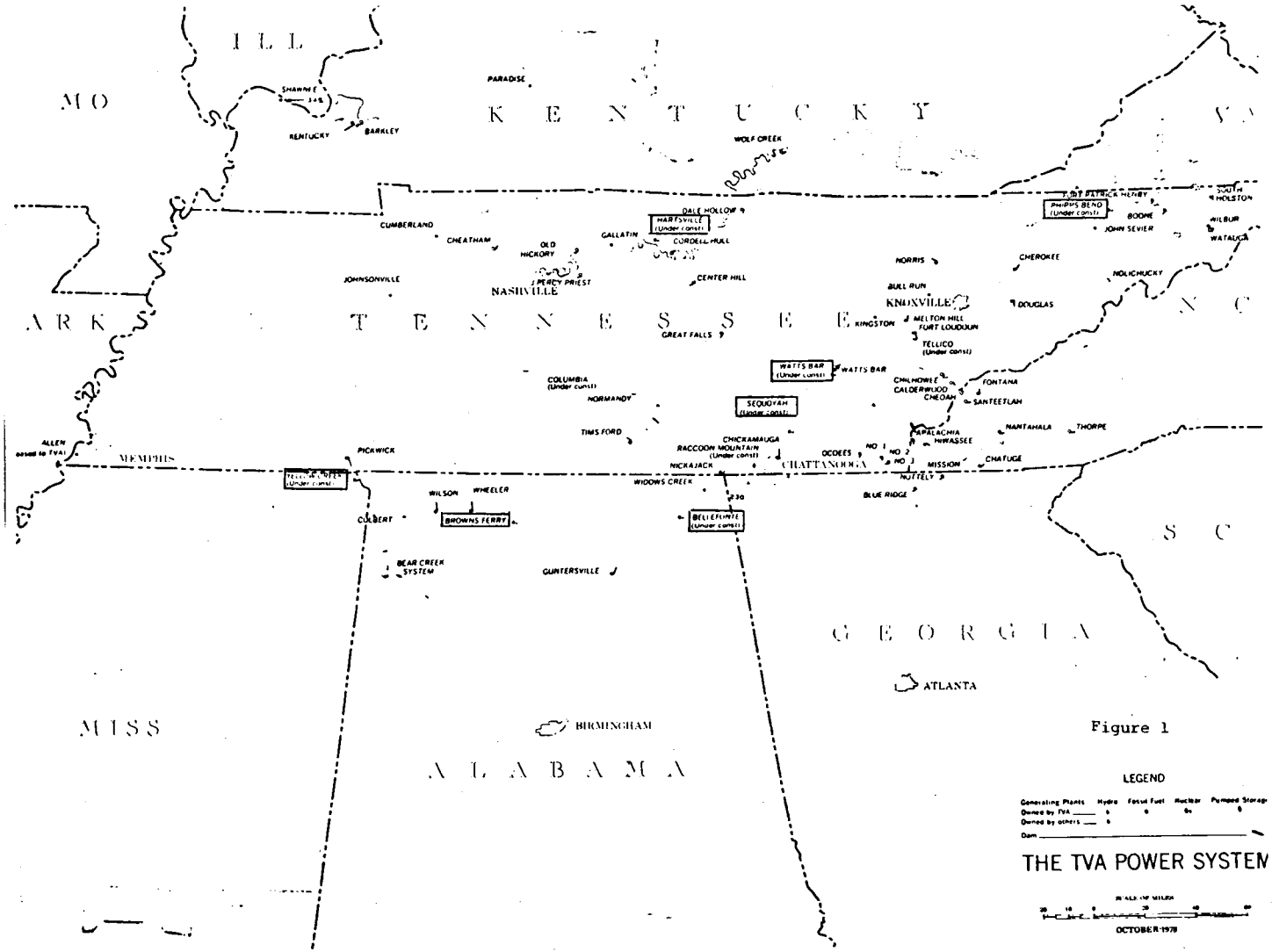


Figure 1

Figure 1. The TVA Power System.

40 miles northeast of Nashville. Most of the facilities are located in Trousdale County. The site, which is along the Cumberland River, covers 1,940 acres of which 300-350 acres will actually be used for facilities.[1] Site preparation and limited construction began in April 1976 and full-scale construction began in May 1977.[2] Construction on two of the units was indefinitely postponed during this summer. The primary reason for this cutback was reevaluation of TVA power projections which advised less power would be needed in the future than was originally projected. The other two units should be completed in 1983 and 1984.[3] When all four units are complete the Hartsville Nuclear Plant will be the world's largest as well as the largest construction project ever completed in Tennessee.[4]

Trousdale County is the smallest county in land area in Tennessee and has a current population of about 5,171.[5] Hartsville is the only incorporated community in Trousdale County and had a 1970 population of approximately 2,243. The immediate area around the plant is

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[1]U.S. General Accounting Office, Electric Energy Options Hold Great Promise for the Tennessee Valley Authority, (Washington, D.C.: Government Printing Office, November 1978), p. 1-1.

[2]Tennessee Valley Authority, "Hartsville Nuclear Plants," (public information pamphlet, July 1978).

[3]James White, TVA Program Coordinator, Hartsville Nuclear Plant, Hartsville, Tennessee, personal interview, August 1, 1979.

[4]TVA, "Hartsville Nuclear Plants."

[5]Tennessee Valley Authority, Hartsville Nuclear Plants—Socioeconomic Monitoring and Mitigation Report (Knoxville: Tennessee Valley Authority, October 1979), p. 5.

sparsely populated with about 12,000 residents within ten miles of the site.[6]

The final EIS published by TVA in May 1975 projected a total construction period of eight years with a peak work force of 5,300, including subcontractors. Also, the first unit was scheduled for completion in December 1980.[7] These projections do not represent the current situation. The TVA work force, excluding subcontractors, reached a peak of almost 6,900 during this past summer.[8] Also, as stated above, completion of the first unit is not expected until 1983 while the other two units have been indefinitely postponed. In August the TVA work force, not including subcontractors, was about 6,400. By December the work is expected to level off at about 5,300 and is not expected to increase.[9] These construction cutbacks and layoffs are important considerations in assessing and mitigating impacts because now instead of a short period of peak work force present there will be an extended period of peak work force. Therefore, impacts and subsequent mitigation may change from original intentions as a result of a different impact period.

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[6]Tennessee Valley Authority, Final Environmental Statement—Hartsville Nuclear Plants, Volume I, (Chattanooga: Tennessee Valley Authority, May 1975), p. 2-1.

[7]Ibid., p. 4-1.

[8]White.

[9]Ibid.

The large projected work force and the small size of Trousdale County resulted in establishment of a five county impact area. These nearby counties, Macon, Wilson, Smith, and Sumner, were projected to receive impacts along with Trousdale County. All five counties have been included in the mitigation program.

Phipps Bend Nuclear Plant

The proposed two unit TVA Phipps Bend Nuclear Plant (2574 MW) is located in northeast Tennessee along the Holston River in Hawkins County. The site is approximately 70 miles northeast of Knoxville, 15 miles southwest of Kingsport, and 2.5 miles east of the small community of Surgoinsville. The site boundary contains approximately 1,270 acres of which 190 acres will contain facilities. Preliminary construction on both units began in 1977. Construction on the second unit was indefinitely postponed this past summer for the same reason stated for the Hartsville postponement. The first unit should be completed by late 1985.[10]

The population of Hawkins County in 1975 was 3,284. There are four incorporated communities in Hawkins County. In 1975 the populations of these communities were as follows: Rogersville, 4,114; Surgoinsville,

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[10]James N. Point, TVA Program Coordinator, Phipps Bend Nuclear Plant, Rogersville, Tennessee, personal interview, August 20, 1979.

1,285; Mt. Carmel, 3,121; and Church Hill, 3,263.[11] There is a population of approximately 18,000 within ten miles of the plant site.[12]

The final EIS published by TVA in April 1977 projected a total construction period of eight years with a peak work force of 2,750, including subcontractors.[13] The actual work force is following this projection and is expected to peak at around 2,800 during the summer of 1980. In August 1979, the work force was estimated to be around 2,200.[14] However, it is important to note that although the projection may hold true, work is only underway on one unit. Also, the EIS stated the first unit would be completed by April 1984 in contrast to a recent estimate of late 1985. As in Hartsville, although to a lesser degree, the original work force estimate and construction has been altered. Therefore, the potential for changes in the assessment and mitigation of impacts are possible because of the possibility of an extended period of peak work force present if the second unit is constructed.

In general, the impacts from the construction of the Phipps Bend Nuclear Plant were not expected to be severely disruptive. In contrast to Hartsville which expected serious impacts, the Phipps Bend area is not as sparsely populated and has been experiencing substantial growth.

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[11]U.S. Department of Commerce, Bureau of the Census, County and City Data Book, 1977, (Washington, D.C.: Government Printing Office, 1978), pp. 881-882.

[12]Tennessee Valley Authority, Final Environmental Statement—Phipps Bend Nuclear Plant, Volume I, (Chattanooga: Tennessee Valley Authority, April 1977), p. 2-1.

[13]Ibid., p. 4-1.

[14]Point.

Also, the work force was approximately half of what was projected for Hartsville. Impacts were expected to be experienced outside of Hawkins County, thereby resulting in the establishment of a two county impact area of Hawkins and Sullivan Counties.

Clinch River Breeder Reactor

The site of the proposed Clinch River Breeder Reactor Plant (CRBRP) is located in east central Tennessee along the Clinch River in Roane County. The site is approximately 25 miles west of Knoxville, ten miles southwest of Oak Ridge, and seven miles east of Kingston. The site is within the city limits of Oak Ridge on federally-owned property and contains 1,364 acres of which 37 acres would contain facilities. Before cancellation of the project, construction was to begin in 1975 and end in 1983.[15]

The CRBRP is a demonstration project of the U.S. Department of Energy and is intended to further develop breeder reactor technology as well as provide 975 MW of electricity. The CRBRP has several participants. The project began as a joint effort between the Commonwealth Edison Company, TVA, and the Atomic Energy Commission. The Commission later became part of the Energy Research and Development Administration (ERDA) which later became part of DOE. A nonprofit organization, Project Management Corporation (PMC), was formed to

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[15]U.S. Nuclear Regulatory Commission, Final Environmental Statement—Clinch River Breeder Reactor Plant, (Springfield, Virginia: National Technical Information Service, 1977), p. i.

have overall responsibility for construction of the project and during the first five years of operation. After this demonstration period TVA was given the option of buying the plant. In 1976 the overall management responsibility was shifted from PMC to ERDA.[16]

In contrast to conventional nuclear reactors, a breeder uses uranium more efficiently. However, the doubts regarding the safety of a breeder reactor are the main reason for the attempt at cancellation. President Carter vetoed a bill in 1977 funding the CRBRP over concerns regarding breeder technology as well as possible encouragement of nuclear weapons proliferation from the plutonium created by the reactor.[17] Despite opposition from the President and the Senate Energy Committee, the CRBRP has not been absolutely cancelled. The U.S. General Accounting Office recently advised in a report to continue work on the project while Congress continues to appropriate funds for the project.[18] The CRBRP also maintains a staff in Oak Ridge. Therefore, the CRBRP has yet to be officially cancelled and the possibility for its eventual construction still exists.

The population of Roane County in 1975 was 40,955. There are three incorporated communities in Roane County. In 1975 the population of these communities were as follows: Kingston, 4,079; Rockwood, 5,226; and Harriman, 8,367. The city of Oak Ridge had a 1975 population of

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[16]Ibid., p. 1-1.

[17]Congressional Quarterly, v. 34, n. 42, p. 1501.

[18]Energy Users Report, August 2, 1979, p. 17.

26,949 and is located in both Roane and Anderson Counties with most of the land in Roane County being undeveloped or containing DOE facilities.[19] When compared to the other sites in this chapter, the CRBRP is located in the most urbanized area.

The final EIS published by the NRC in February 1977 projected a total construction period of eight years with a peak work force of 2,400.[20] In general, the impacts from construction of the CRBRP were not expected to be severe primarily because of the site's proximity to an adequate labor supply. However, originally impacts were expected to be greater because of the other two proposed facilities. Despite the lack of a projection of severe adverse impacts, mitigation was an area of concern for local government officials.

II. ASSESSMENT OF IMPACTS

Form of Assessment

Environmental impact statements were required for all three projects as part of the NRC licensing process. Briefly, the process begins when a utility applies to the NRC for a construction permit. This application includes two important documents: an Environmental Report and a Preliminary Safety Analysis Report which are also made available to the public. The Environmental Report provides the basis

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[19]U.S. Department of Commerce, County and City Data Book, 1977, pp. 881-882.

[20]NRC, Final Environmental Statement—Clinch River Breeder Reactor Plant, p. 4-2.

for preparation of the EIS by NRC staff which can recommend approval or denial of the permit. The EIS is published in two forms: a draft and a final statement. The draft EIS is circulated for comments to the general public and government agencies. The EIS is then revised by the staff and published in final form. Comments on the draft statement along with staff responses are included in the final EIS.

The Atomic Safety and Licensing Board of the NRC conducts public hearings on the plant with the EIS and other documentation serving as the basis for most of the testimony. Private citizens, government officials, and public groups may participate in these hearings. The Board then makes a recommendation to the NRC which makes the final decision. Some preliminary construction may begin before issuance of the permit if the Board approves a limited work authorization. Before the plant can begin operation the utility must complete an identical approval process and receive an operating license. In some states, such as the California, Wyoming, and Washington examples of Chapter III, there is an additional state licensing usually similar to the federal process. No state licensing was required for the three Tennessee examples.

Environmental impact statements were published by both TVA and the NRC for the Hartsville and Phipps Bend plants. The sole EIS prepared for the CRBRP was published by the NRC. This arrangement of dual impact statements is the result of disagreement over which agency would be the "lead agency" in the preparation of the EIS. For the construction approval of two earlier TVA plants it was agreed that TVA would be the lead agency for the assessment of impacts. The NRC was given the opportunity

to contribute information and analysis but TVA was given final authority over the contents of the final EIS. During the permit hearings for a third TVA plant the Atomic Safety and Licensing Board

> . . . expressed concern that the agreement did not ensure that the staff would conduct the full process of inter-disciplinary study, cost-benefit analysis, and weighing of alternatives presented by . . .

NEPA and NRC regulations.[21] The issue was resolved by permitting both the NRC and TVA to independently prepare EIS's. The NRC considers TVA's EIS in the same manner as TVA's Environmental Report and relies more on the recommendation of the NRC's EIS when making the final decision. However, both statements are similar in content.

Major Impact Areas

Hartsville. TVA relied heavily on past experience for its projection of in-movers. TVA has collected data on work force characteristics of various construction projects over the past ten years.[22] The Hartsville EIS utilized past experience at a nearby steam plant construction project. From that project the available supply of the five largest labor crafts were gathered. These figures were compared to the projected number required with the difference being the in-movers.

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[21]U.S. Nuclear Regulatory Commission, Atomic Safety and Licensing Appeal Board, "In the Matter of Tennessee Valley Authority, Phipps Bend Nuclear Plant, Docket Nos. 50-553 and 50-554," November 9, 1978, pp. 536-537.

[22]George R. DeVeny, "Construction Employee Monitoring: The TVA Experience," (unpublished manuscript, Tennessee Valley Authority, 1977).

It was established that 25 percent of the other crafts would be in-movers. During the peak year of construction when an original projection of 5,000 workers were to be present, the projection of in-moving workers was estimated to be 2,700.[23]

Past experience was also used for estimating the number of workers who bring their families and the geographic distribution of the new population. Past TVA surveys have indicated that from 50 to 75 percent of in-movers bring their families. For the Hartsville project a middle range of 65 percent was selected. Each family was estimated to have one school age child. At peak construction the total population influx was estimated to be 6,100.[24]

The projection of the in-moving worker's residential location and the impact area delineation was based on TVA surveys of other projects. Those surveys show that 70 to 80 percent locate within 20 miles of the site and 45 to 65 percent locate within ten miles of the site. The five counties in the impact area fall within these figures. Since Hartsville and Carthage are within ten miles of the plant, 50 percent of the in-movers were projected to locate in Smith and Trousdale Counties, primarily near incorporated communities. Between these two counties, 30 percent were assigned to Trousdale County and 20 percent were allocated to Smith County. The remaining 50 percent were allocated as follows: Macon County, 10 percent; Wilson and Sumner Counties,

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[23]TVA, Final Environmental Statement—Hartsville Nuclear Plant, p. 4-13.

[24]Ibid.

20 percent each.[25] These estimates were based on the following: the population of each county and principal communities, distance of communities from the site, past and projected growth of each county, vacant housing data, and past TVA surveys.[26]

Based on the estimates of in-movers six major areas of impacts were assessed. These impact areas are as follows: Housing, Education, Water and Sewer Facilities, Local Government Budgets, Health and Medical Services, and Traffic. The main housing impact was projected to be a significant increase in new mobile homes for Trousdale, Smith, and Macon Counties, where few mobile home regulations existed. All of the public school systems in the impact area were projected to be deficient in some manner in absorbing new students, particularly the Trousdale County system. Only Smith County was expected to lack the required excess capacity in its water and sewer systems. The impact area of Local Government Budgets includes such services as police and fire protection and solid waste collection. In general, the cost of providing these services during the construction period was expected to be greater in the areas of emergency, public health, and environmental health services. Regarding traffic impacts, TVA projected four sections of highway that would become congested beyond capacity.[27]

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[25]Ibid., pp. 4-16 - 4-17.

[26]Ibid., p. 4-16.

[27]Ibid., pp. 4-18 - 4-27.

Phipps Bend. In contrast to Hartsville, the projection of population influx in the Phipps Bend EIS was not based on one particular project. Rather, TVA used a whole range of project experience to establish estimations. These estimations were based on comparisons between the similarities and differences between the past projects and the Phipps Bend site. The EIS states that 30 percent of the work force would relocate in the area and 70 percent would bring families with an average of one school age child per family.[28] At construction peak it was projected that there would be a total population influx of 1,800.[29]

In estimating the geographic distribution of in-movers, TVA used the same parameters contained in the Hartsville EIS. Based on those percentages, TVA estimated that Hawkins County would receive 65 percent of the movers and Sullivan County would receive 35 percent. In Hawkins County, Surgoinsville and Rogersville were projected to each receive 20 percent of the in-movers and the Church Hill-Mt. Carmel-Kingsport area 25 percent. In Sullivan County, the remaining 35 percent was expected to move to the Kingsport area.[30] No specific methodology was given for deriving these estimations.

Based on the estimates of in-movers seven major areas of impacts were assessed. These impact areas are as follows: Housing, Education,

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[28]TVA, Final Environmental Statement—Phipps Bend Nuclear Plant, p. 4-14.

[29]Ibid., p. 4-42.

[30]Ibid., p. 4-16.

Water and Sewer Facilities, Recreation, Local Government Budgets, Health and Medical Services, and Traffic. No significant impacts on housing were projected, although mobile home development was projected. The three school systems in the impact area were expected to experience deficiencies in providing for the new students. A few water and sewer systems, particularly in Surgoinsville, were expected to not have sufficient excess capacity during the construction period. Most of the impact area was projected to contain adequate recreational facilities for the new population with the exception of the Church Hill-Mt. Carmel-Kingsport area. In the area of local government budgets, TVA projected that any additional costs experienced in providing services would be offset by additional revenues. These revenues were projected to be from increased property taxes and in-lieu of tax payments by TVA. The major impact in the health area was expected to be a shortage of services in environmental health matters. Regarding traffic impacts, TVA expected acceptable levels of service to be maintained on the major highways.[31]

Clinch River. In preparing the in-mover projection, the NRC staff relied heavily on TVA experience. The EIS projected that 44 percent of the work force would move into the area on the basis of TVA data and on the availability of local labor. This rate was also used under the assumption the other two proposed nuclear facilities in the area would be built. At construction peak it was projected that 1,230 construction

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[31] Ibid., pp. 4-16 - 4-22.

workers would move into the area.[32] The EIS did not contain an estimation of the total population influx, that is, the number of dependents expected.

No specific estimates were used in discussing the distribution of in-movers. The EIS simply states that

> . . . the highest concentration of in-movers construction workers will be in the Rockwood-Kingston-Lenoir City strip west of Knox County . . . .[33]

Similar descriptions were used for describing the desirability of other areas.

The Clinch River EIS contains specific discussion on three areas of social impact: schools, waste water treatment, and municipal water supply. The EIS never determines if the project will have a negative effect on the provision of the services and facilities. The discussion on schools provides projected school enrollments for the peak year of construction and the presence of any excess capacity.[34] There is no relation of this data to any projection of in-movers. The discussions on waste water treatment and water supply are concerned with current capacities and possible expansion of facilities. Again, this data is not related to the projection of in-movers. Other possible impacts are described as

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[32]NRC, Final Environmental Statement—Clinch River Breeder Reactor Plant, p. 4-18.

[33]Ibid., p. 4-8.

[34]Ibid., pp. 4-8 - 4-12.

> . . . inflated rents, inconvenience associated with traffic delays, public congestion in local businesses, public services and recreation areas.[35]

Such impacts are addressed in the following manner: "The staff considers these costs to the local society to be relevant in terms of the CRBRP construction."[36]

Economic impacts, public and private, are discussed in a separate section. Impacts on the private sector are discussed in terms of direct and indirect effects of the construction payroll. Impacts on public finances are treated in a cursory manner. The difference between the type of taxes generated by a private project and a public project, like the CRBRP, are compared. Also, the presence of two forms of in-lieu of tax payments by the federal government is mentioned.[37] However, none of these discussions include any projection of revenue from project construction. No relation between the provision of additional services and the receipt of additional revenues is established. This discussion, in general, does not indicate whether revenues are expected to be greater or less than costs.

Comparisons. According to these three environmental impact statements the most serious impacts were expected at Hartsville. This projection is the result of the larger than average work force in an area with less than average capacity to absorb such impacts. Lesser,

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[35] Ibid., p. 4-14.

[36] Ibid.

[37] Ibid.

but still significant, impacts were projected for Phipps Bend. The Clinch River EIS never definitely states what impacts the area should expect. The brevity and vagueness of the socioeconomic portion prevents any clear presentation of possible impacts.

The TVA statements basically follow an identical format. This format is detailed and covers many separate impact areas. Specific projections were presented regarding the percentage of in-movers expected and the general area where they were expected to locate. The basis for some of these projections is not always clearly defined. For example, the Phipps Bend EIS contains a percentage distribution of the Hawkins County share of the in-movers to the various communities without stating the basis for the distribution. Both TVA statements stress the importance of past experience and professional judgment in assessing impacts. Of course, methodologies for assessing socioeconomic impacts tend to be generalized thereby placing the use of past experience and professional judgment in a prominent role. In comparison to the Clinch River EIS, the TVA statements cover impacts in detail and estimate whether specific impacts are expected, even though the basis for such estimates may be vague.

In contrast to the TVA statements, the Clinch River EIS contains a vague discussion of only a few impact areas. Other areas are briefly acknowledged or ignored entirely. In essence, the EIS states such a project can have impacts but never states the type or degree of impacts expected.

III. MITIGATION OF IMPACTS

Origin of Mitigation Programs

Hartsville. The need for impact mitigation first became evident during the Hartsville project before issuance of the NRC construction permit. In many aspects, the Hartsville experience was an example for the other two sites to follow in establishing mitigation primarily because it was the first such program in the state.

Potential socioeconomic impacts were first discussed in the draft EIS published by TVA in November 1974. Possible need for impact mitigation was also included in the EIS. While mitigation strategies were discussed, no definite programs were developed at that time. The EIS stated that:

> A number of strategies under consideration have been or will be discussed and evaluated with state and local bodies having relevant authority and expertise.[38]

TVA intended the draft EIS to be an acknowledgement of the need for TVA to assist in mitigating impacts, not to contain a specific mitigation program.[39]

Criticisms of TVA's assessment of impacts and generalized commitment for mitigation came from state, regional, and local governments. The

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[38]Tennessee Valley Authority, Draft Environmental Statement—Hartsville Nuclear Plants, Volume I, (Chattanooga: Tennessee Valley Authority, November 1974), p. 4-12.

[39]George R. DeVeny, Office of Community Development, Tennessee Valley Authority, Knoxville, personal interview, June 15, 1979.

state of Tennessee, through its office of Urban and Federal Affairs, expressed discontent over several sections of the draft.[40] Both development districts with jurisdictional responsibility for the five county impact area expressed serious dissatisfaction with the assessment of impacts and commitment to mitigation.[41]

Local governments expressed their concern over the need to mitigate impacts through the NRC construction permit process. As part of the permit-granting process, individuals or groups may be allowed to intervene in the hearings. That is, a party may be allowed to become a part of an action, such as the licensing hearings, to protect their own interests. The Trousdale County judge and the superintendent of Trousdale County schools filed a petition to intervene on December 24, 1974. The mayor of Hartsville filed a separate petition on the same date. Both petitions were accepted despite opposition from TVA.[42] Intervention allowed local governments the opportunity to participate in the permit hearings. Intervention would permit local governments the opportunity to be part of the licensing hearings and to present arguments to the NRC concerning the impacts of the project and any special considerations that should be included in the licensing.

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[40]TVA, Final Environmental Statement—Hartsville Nuclear Plants, Appendix A.

[41]Ibid.

[42]U.S. Nuclear Regulatory Commission, Atomic Safety and Licensing Board, "In the Matter of Tennessee Valley Authority, Hartsville Nuclear Plant, Docket Nos. STN 50-518 through STN 50-521," April 20, 1976, p. 489.

According to the mayor of Hartsville, James Donoho, the primary reason for local intervention was the absence of other alternatives. In short, Donoho admitted intervention was the result of "ignorance" of what should be done in such a situation and that the quality of their petitions reflected this fact.[43]

The state of Tennessee, through the Attorney General's Office, also filed a petition to intervene on December 31, 1974. This petition was accepted by the NRC without opposition from TVA.[44] This intervention was the result of the concerns of several state offices. The problem of potentially large impacts came to the state's attention through the review process of the draft EIS. A staff member from the Tennessee State Planning Office was assigned the duty of reviewing project-related material for the State Office of Federal and Urban Affairs, which at that time conducted A-95 reviews. This staff member, Jack Thomas, was later assigned to the state energy office (now the Tennessee Energy Authority) and was involved in both the Phipps Bend and Clinch River projects. As the review process continued the state decided to intervene through the attorney general's office with the assistance of an attorney from the state energy office. The basis of this intervention was the state's concern regarding the intentions of TVA to adequately mitigate impacts.[45]

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[43]James Donoho, Mayor of Hartsville, Hartsville, Tennessee, personal interview, August 1, 1979.

[44]NRC, Atomic Safety and Licensing Board, April 20, 1976, p. 488.

[45]Jack A. Thomas, Special Projects Coordinator, Tennessee Energy Authority, Nashville, Tennessee, personal interview, June 12, 1979.

Negotiations concerning mitigation continued and were undoubtedly hastened by the interventions.[46] Before actual testimony in the hearings began, TVA reached agreement on mitigation with the state and the local governments. As a result of these agreements, both the local and state interventions were withdrawn in September 1975.[47] The mitigation program agreed to by TVA, the state, and local governments is included in the final EIS. Also, in late 1975, TVA assigned a mitigation program coordinator to the project with an office in Hartsville.

The mitigation program was also included in the NRC construction permit.[48] Despite opposition from TVA, the construction permit was conditioned so that TVA was required to fulfill the mitigation agreements. TVA contended that the NRC did not have the authority to impose such conditions. The NRC, through the Atomic Safety and Licensing Board, found TVA's arguments inadequate based on the Calvert Cliffs decision and on a 1974 decision involving the Detroit Edison Company.[49]

In summary, the concept of mitigation at Hartsville was first proposed by TVA in their draft EIS. Failure to reach satisfactory agreements resulted in several interventions. These actions produced pressure on both sides to reach agreements on mitigation. The entire

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[46]DeVeny, interview, June 15, 1979.

[47]NRC, Atomic Safety and Licensing Board, April 20, 1976, p. 518.

[48]Ibid., p. 529.

[49]Ibid., p. 494.

process was hindered by the lack of a definite method for agreeing to mitigation. For example, Mayor Donoho intervened out of the frustration of knowing some measures had to be taken to protect Hartsville's interests and not having any alternative courses of action. Confusion over how to agree on mitigation by all the participants was the result of inexperience regarding impact mitigation. The NRC had an essential role in establishing mitigation by allowing local and state intervention and by imposing conditions in the construction permit. It is important to recognize that TVA was not forced by NRC to mitigate impacts. TVA first introduced the concept of mitigation at Hartsville and eventually agreed with procedures for mitigation. However, TVA did not agree with the imposition of permit conditions by the NRC.

Phipps Bend. In contrast to Hartsville, establishment of mitigation at Phipps Bend did not follow a complex process. Several factors influenced this situation. A major factor was the experience TVA was gaining at Hartsville, as shown by the assignment of a mitigation program coordinator in July 1975, two years before construction began. Another significant factor was the relatively small level of impacts expected.

As with Hartsville, the draft EIS for Phipps Bend, published in September 1976, acknowledged the possible need for mitigation. In the EIS TVA proposed to "take any action, in advance if necessary, to mitigate as practicable, any significant adverse effects."[50] The

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[50]Tennessee Valley Authority, Draft Environmental Statement—Phipps Bend Nuclear Plants, Volume I, (Chattanooga: Tennessee Valley Authority, September 1975), p. 4-22.

commitment was generalized and discussed areas of mitigation. No specific strategies were developed.

Criticism of TVA's assessment of impacts and mitigation commitment were expressed by the First Virginia-Tennessee Development District and the regional office of the State Planning Office. These two agencies jointly agreed that the impacts were not adequately addressed by TVA and that a specific mitigation program should be established.[51]

Despite this criticism, there was no intervention by any local governments. The presence of the TVA program coordinator, James Point, had helped to prevent the confusion apparent at Hartsville that had influenced those local interventions. Point worked with local officials and citizens and made assurances regarding TVA's intentions to mitigate. The majority of local officials were satisfied with TVA's commitments and did not intervene.[52] However, another explanation for the local lack of action concerned their reluctance to create conflict

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[51]TVA, Final Environmental Statement—Phipps Bend Nuclear Plant, Appendix A.

[52]Consensus of the following interviews and correspondence: J. B. Howe, Hawkins County Judge, Rogersville, Tennessee, personal interview, August 20, 1979; Jack Pierce, Mayor of Surgoinsville, personal interview, Rogersville, Tennessee, August 20, 1979; Jim Sells, Mayor of Rogersville, personal interview, Rogersville, Tennessee, August 20, 1979; and Sidney Snodgrass, Mayor of Mt. Carmel, Tennessee, letter to P. Scharre, October 9, 1979.

and possibly cause delay or cancellation of the project.[53] Also, local officials may have been inclined to trust TVA because of the presence of another TVA facility in the county, the John Sevier Steam Plant, and a former TVA Board member, William Jenkins, a Rogersville resident.

The confidence expressed by local officials prevented the state from taking a strong position. Although the state, through the Attorney General's office, did intervene on behalf of the local officials, their role was described as "low key."[54] The intervention was concerned with persuading the NRC to include mitigation conditions in the construction permit. The state energy office also assisted in the intervention and advised local communities.[55]

As with Hartsville, TVA was opposed to the imposition of environmental conditions in the construction permit by the NRC. The NRC again found TVA's opposition arguments unacceptable and included generalized conditions in the permit. However, in contrast to Hartsville, no specific reference to mitigating socioeconomic impacts was included among the conditions. The NRC required TVA to

> . . . be alert to the possibility of unforeseen circumstances arising that could affect the environment unfavorably, and if such do arise, consult with NRC in devising appropriate solutions.[56]

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[53]P. C. Snapp, Director, Upper East Tennessee Section, Tennessee State Planning Office, Johnson City, Tennessee, personal interview, August 22, 1979.

[54]William Barrick, Assistant Attorney General, State of Tennessee, Nashville, Tennessee, personal interview, June 12, 1979.

[55]Thomas.

[56]NRC, Atomic Safety and Licensing Appeal Board, November 9, 1978, p. 549.

Also, in contrast to Hartsville, no specific agreements between TVA and local jurisdictions were reached at Phipps Bend. Rather, TVA established an overall commitment in the final EIS to monitor and mitigate impacts.[57] The origin of the Phipps Bend program is in most respects more informal and generalized than for Hartsville. General mitigation commitments were made by TVA while the NRC reiterated its authority to impose permit conditions although these conditions did not specifically mention socioeconomic impact mitigation.

Clinch River. In contrast to Hartsville and Phipps Bend, a commitment by the project sponsor specifically intended to mitigate impacts was never made for the CRBRP. Mitigation was arranged through existing programs with only certain local governments. The suspension of the project precluded the final decision regarding the scope of mitigation that would have been made if the NRC construction permit process had been completed.

The location of the proposed CRBRP on federal property has a significant bearing on the nature of the mitigation program that existed at the project's cancellation. The city of Oak Ridge and Anderson and Roane Counties are eligible under the Atomic Energy Community Act of 1955, as amended, to receive annual assistance payments from the Federal government. Before 1975, only Oak Ridge was included under the Act while Anderson and Roane Counties received small amounts of

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[57]TVA, Final Environmental Statement—Phipps Bend Nuclear Plants, p. 4-23.

assistance. However, the Act was amended in 1975 and the county assistance levels have been comparable to those of Oak Ridge.[58] These in-lieu of tax payments are intended to ease the burden of providing public services and facilities in areas that have atomic energy facilities. These tax exempt facilities occupy most of the property in such communities and, therefore, reduces the tax base.

The DOE annual assistance payments program was the only mitigation strategy finalized before the project's suspension. All three agreements are primarily based on a formula related to the prevailing property tax rate. However, the Roane County agreement includes a factor for the number of DOE-related employees in the county outside of Oak Ridge. Therefore, if the CRBRP was built, Roane County would receive a certain payment for those project-related employees living in the county.[59] A contract regarding these payments was reached in 1976 and is good until 1986. Discussions were held in 1976 with Anderson County but no contract was signed. However, Anderson County continues to receive assistance payments.[60] The city of Oak Ridge could not negotiate for such an agreement at that time because its annual assistance contract was not up for renewal.[61]

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[58]U.S. Department of Energy, Analysis of Annual Assistance to Communities at Atomic Energy Facilities, (Washington, D.C.: Government Printing Office, 1978), p. II-3.

[59]Ibid., p. III-17.

[60]Ibid., Appendix B, p. 12.

[61]Lyle Lacy, City Manager, Oak Ridge, Tennessee, telephone interview, September 14, 1979.

The DOE-Roane County contract satisfied the county government's concern over funds for mitigation. Previous to the contract, Roane County had intervened in the NRC licensing process for the specific reason of resolving mitigation. This intervention was withdrawn when the contract was signed.[62] Roane County's concern over potential impacts and the need for mitigation was first expressed in extensive comments on the quality of the draft EIS.[63] Similar concern was also expressed by the city of Oak Ridge in comments on the draft EIS and in its intervention in the licensing process.[64] Concern for other nearby jurisdictions was expressed by the East Tennessee Development District.[65]

Various efforts were made to include other jurisdictions in a mitigation program. The CRBRP project manager contends that discussions were underway in 1976 and 1977 with the state energy office regarding mitigation assistance for other local communities not included in the in-lieu of tax payments. Although, the project manager claims there is no legal basis to use CRBRP funds for direct or indirect assistance to provide services or facilities, he does contend that impacts should be assessed and mitigated. He also states the CRBRP project would be in favor of continuing discussions with the state regarding mitigation if

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[62]S. Wallace Brewer, Roane County Judge, Kingston, Tennessee, personal interview, September 12, 1979.

[63]NRC, Final Environmental Statement—Clinch River Breeder Reactor Plant, Appendix A, p. 31.

[64]Ibid., p. 35.

[65]Ibid., p. 42.

the project receives final approval.[66] However, Thomas of the state energy office contends that DOE had no intentions of extending mitigation responsibility past the regular annual assistance payments.[67]

Other local concerns over acquiring mitigation from DOE were expressed in an attempt at intervention by fourteen counties and municipalities. These jurisdictions were represented by the state Attorney General's office and the state energy office. This petition to intervene was denied by the NRC for several reasons. The primary reasons were: that it was filed in July 1976, over a year past the deadline; that insufficient reasons were given for the late filing; and that the petition was not procedurally sound. Despite a second opportunity to correct the defects in the petition, the petition was again considered inadequate by the NRC. For example, the relationship between the fourteen jurisdictions and the state was never clarified to the NRC's satisfaction. Another factor of concern to the NRC was the relationship of this intervention to the state's previous intervention regarding impacts on the state's educational system.[68]

Obviously, the attempts at forming a mitigation program for communities in the CRBRP area did not follow a comprehensive, coordinated

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[66]Lochlin W. Caffey, Director, CRBRP Project, Oak Ridge, Tennessee, letter to P. Scharre, September 17, 1979.

[67]Thomas.

[68]U.S. Nuclear Regulatory Commission, Atomic Safety and Licensing Board, "In the Matter of Project Management Corporation, Clinch River Breeder Reactor Plant, Docket No. 50-537," August 26, 1976, pp. 153-161.

approach. Despite the concern of the CRBRP project manager, no effort similar to those at Hartsville and Phipps Bend was made by DOE to assure mitigation. Attempts by local governments were divided between those eligible for DOE funds and those who are not. The intervention effort by those fourteen local jurisdictions and the state proved extremely inadequate. In general, many separate efforts were concerned with the mitigation issue but none dealt with impacts on the entire area.

In comparing these examples it is evident that despite many similarities, each site experienced different approaches to the origin of mitigation programs. The concern of the utilities ranged from specific commitments at Hartsville, a general commitment at Phipps Bend, and use of an existing program at Clinch River. State concern consisted of separate interventions, state-supported intervention, and legal and technical advice. The widest array of responses is evident in the local roles taken which ranged from successful negotiations for assistance to a poorly attempted intervention or no attempt whatsoever. In summary, the origin of mitigation at these three sites did not follow a specific pattern. Although important similarities existed, each site faced particular problems and responded in a different manner.

Form of Mitigation

Hartsville. The Hartsville mitigation program is described in the final EIS and is incorporated in the NRC approval for plant

construction. TVA is bound by the NRC permit to follow the program as outlined in the EIS. The program covers seven areas—impact reduction and planning and coordination, housing, education, water and sewer, local government budgets, health and medical services, and traffic—that is specific about providing mitigation, if necessary. For example, regarding local government budgets, TVA states that it

> . . . will provide the necessary assistance—financial, technical, or equipment—in a timely manner so that small community budgets are not significantly burdened by long or short term indebtedness associated with in-moving construction workers.[69]

Similar statements are made for the other impact areas.

Phipps Bend. The Phipps Bend mitigation program is similar to Hartsville's by its presence in the final EIS. The program covers seven areas—impact reduction and planning and coordination, housing, education, water and sewer, recreation, local government budgets, and health and medical services. However, in contrast to Hartsville, the commitment to mitigate in most of the areas is vague. For example, with regards to local government budgets, TVA states that: "Should the monitoring program identify deficits to local government budgets due to project impacts, mitigating actions may be necessary."[70] The only area with a more specific commitment is in education.

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[69]TVA, Final Environmental Statement—Hartsville Nuclear Plant, p. 4-34.

[70]TVA, Final Environmental Statement—Phipps Bend Nuclear Plant, p. 4-28.

Clinch River. At the suspension of the project, the only mitigation agreed to for the CRBRP was the DOE annual assistance payments program. These payments are based on specific formulas and contracts and are under the sole discretion of DOE. Therefore, these payments could not have been expanded or otherwise changed by the NRC in issuance of the construction permit.[71]

Basis of Authority

The basis of authority concerns the location of final authority for allocating mitigation and resolving any disputes that may arise between the utility and the community. In some of the examples discussed in Chapter III such authority was often found in the body that approved construction of the project, such as the state siting council. Specific references were often made regarding the proper course of action in the event of disagreement over mitigation. However, the situation for Hartsville, Phipps Bend, and Clinch River is not as well defined.

Although the NRC required TVA to fulfill the mitigation obligations contained in the Hartsville EIS, no specific process for arbitrating possible disputes were included. As the program was established, local governments have the opportunity to provide information and advice regarding needed mitigation but have no authority in the decision over the final amount of necessary mitigation. If disagreements arise over the amount of necessary mitigation, the local governments have no

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[71]NRC, Atomic Safety and Licensing Board, August 26, 1976, p. 151.

preestablished course of action to follow to gain satisfaction. Local government officials at the Phipps Bend project lack a specific requirement on TVA as well as any process for dispute resolution. A process for deciding mitigation disputes for the CRBRP is not required since the limited mitigation agreement is based on specific formulas and contracts.

The problem of how to deal with disputes, as well as why they arise, can be illustrated through actual examples. The following discussion of such problems at Hartsville and Phipps Bend best illustrate the origin of such problems and the absence of a definite process for solving them.

A dispute, unresolved at this time, has occurred at Hartsville concerning the amount of mitigation required for impacts on local government budgets. This impact area includes services other than education or roads, such as police and fire protection and solid waste disposal. Until this year TVA has provided the town of Hartsville with funds to offset increased costs in providing services, primarily for law enforcement and traffic control. For example, in fiscal 1978, TVA granted Hartsville $96,000.[72] This funding was based on the assessment that Hartsville's costs in providing services exceeded benefits resulting from the project.

TVA has proposed a significant reduction in funding for local government budgets for fiscal 1979-80 to $27,000. The basis for this

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[72]White.

reduction is an examination of Hartsville's budget that concludes the town's surplus has increased from approximately $200,000 in 1975 to ayproximately $920,000 in 1979. TVA claims that it is responsible for some of that increase and that a large amount of mitigation is not necessary with such a large budget surplus. Another reason for the cutback is the recent reduction in employment at the project. In addition, TVA claims the previous funding levels may have been too high because they were based on estimates and perceived impacts while this year's funding is based on detailed study. In essence, the TVA program coordinator, James White, contends that TVA had previously given Hartsville "the benefit of the doubt" in funding because an adequate data base had not been collected. Now that the situation has been assessed in more detail, mitigation is being allocated according to more precise measurements of impacts.[73]

The dispute over mitigation results from the great disparity between Hartsville's request and TVA's offer. Hartsville requested $154,835 for 1979-80 for a variety of services. Mayor Donoho considers TVA's offer inadequate for several reasons. Donoho contends that TVA should mitigate all impacts regardless of the financial status of the community. He believes the town is being penalized for sound fiscal management. Hartsville has lowered property taxes and doubled sales taxes since construction began. The fact that some of the increased revenues are due to TVA employees is irrelevant according to Mayor Donoho since the

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[73] Ibid.

town, not TVA, took steps to raise the revenue and collect the surplus. Donoho contends that the need for mitigation is greater this year than before because impacts are greater, not less. He points to the apparent increase in crime and subsequent doubling of the police force. The basis of the mayor's argument is that Hartsville should not have to use increased revenue, even if some is project-related, to mitigate impacts. If all their increased revenue is funneled back into mitigation, the mayor contends, how can the town ever improve its quality of life beyond preconstruction levels?[74]

Another mitigation dispute at Hartsville illustrative of the lack of a decision-making authority concerns transportation. Briefly, all parties agree that the main road to the plant site is overburdened and requires improvements. The dispute concerns the interpretation of the 1975 agreement between TVA and the state regarding traffic mitigation. In short, the two agencies cannot agree on who is responsible for making the road improvements.[75] Meanwhile, Hartsville and Trousdale County simply wish TVA and the state would resolve their differences and make the improvements. Their frustration is illustrated by their recent request to the Governor for help in solving the problem.[76]

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[74]Donoho.

[75]Richard Baker, "The Development of a Methodology to Identify Transportation Impacts Resulting from the Construction of Nuclear Facilities in Rural Areas," (Master's Thesis, The University of Tennessee, Knoxville, in preparation).

[76]Bethel Brown, President, Hartsville Project Coordination Committee, Hartsville, Tennessee, letter to Governor Lamar Alexander, August 15, 1979.

Similar problems exist at Phipps Bend. Hawkins County Judge J. B. Howe has expressed discontent over the local jurisdiction's lack of any role in allocating mitigation. Judge Howe basically contends that the impacts on the county are greater than TVA acknowledges and that, therefore, more mitigation should be granted. His most serious concerns are regarding impacts on a landfill, law enforcement, and emergency services.[77]

This thesis is not concerned with judging the validity of either TVA's or the local governments' positions. These examples, however, do illustrate the origin of such problems and the absence of a process for solving them. Based on these examples, the issue can be generalized as follows: the utility and the community may not agree on the level of impacts and the amount of necessary mitigation; therefore, who should have the authority to make the final decision? In the examples in this section this authority rests with the utility, TVA. Thus, the community must trust the utility to equitably allocate mitigation and to generally maintain the integrity of the program. Of course, TVA is perfectly capable of administering such a responsibility. However, it is possible that any utility may not adequately perform that duty. It is equally possible that a community may make unreasonable mitigation requests, either intentionally or unintentionally. In any event it is obvious that disputes may arise and that a process should be available to resolve such disputes.

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[77]Howe.

There are some alternatives for local officials to take in the event of mitigation disputes. For example, at Hartsville local officials could present a case to the NRC and attempt to prove that TVA has not fulfilled the obligation contained in the construction permit. However, since such a process was not set forth in the licensing it is doubtful that the NRC has followed the development of the mitigation program. In short, the NRC would have to examine the situation "cold," with no guarantee the same staff would be available as before. If the NRC were to agree with local officials it would have to force TVA to comply by ordering a halt to construction, a very extreme position indeed. Other alternatives include filing a suit or attempting to apply political pressure possibly through congressmen. All these alternatives are undesirable because they do not follow a preestablished course in which distinct lines of authority are laid out.

The presence of a final decision-making authority does not preclude the possibility of inequity in resolving disputes. Whatever body granted such authority will undoubtedly be subject to various pressures in their decision. However, the presence of such an arbitrating mechanism could increase the possibility of fairly solving disputes.

Local Organization for Mitigation

Hartsville. The Hartsville Project Coordination Committee (HPCC) was chartered in September 1975. The HPCC is composed of local government officials and is intended to provide coordination between local governments in the five county area in dealing with impacts from

construction of the plant. The HPCC was established approximately the same time as mitigation was agreed to between TVA and the various intervenors. Therefore, the HPCC did not have a role in establishing the original mitigation program. Rather, they have been concerned with implementation of the mitigation.

The purposes of the HPCC contained in the charter are:

1. To provide a forum for information and communication among local governments and the TVA in the five-county impact area associated with the Hartsville Nuclear Plants.

2. To assist the TVA in developing specific procedures for timely mitigation of socioeconomic impacts.

3. To monitor, in conjunction with the TVA, the socioeconomic impacts of the construction project as they might occur and to identify areas where mitigation programs need to be developed, modified, or adjusted to meet altered projections or changed conditions.

4. To help develop the capability of local governments to identify and capitalize on the developmental opportunities afforded by the construction project.

5. To suggest alternative methods of combining TVA mitigation programs with long-range planning where appropriate.

6. To develop staff capabilities to adequately respond to the needs of the Corporation in a timely, efficient, and professional manner.[78]

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[78]Hartsville Project Coordination Committee, "Charter of the Hartsville Project Coordination Committee," Hartsville, Tennessee, September 18, 1975, (mimeographed).

No organization of local governments concerned with impacts existed before formation of the HPCC. Neither was there much information coordination in the five county area.[79] However, as issues of mitigation began to surface the need for such an organization became evident. TVA acknowledged that the HPCC would be an integral part of the continuing monitoring and mitigation of impacts.[80]

The 16-member Committee is composed of the county judges and mayors, or their representatives, of the five county impact area. A Board of Directors, one member from each county, is elected annually by the entire membership. The HPCC staff consists of an executive director, administrative assistant, a secretary, and a part-time attorney. TVA provides, through an annual contract, $50,000 to support HPCC activities. Originally, TVA intended on providing a portion of the cost for HPCC staff. However, other funding sources have not been abundant and TVA continues to provide annual assistance to cover virtually all of the administrative expenses of the staff. The only other source of funds for the HPCC has been from the Comprehensive Employment Training Act (CETA) for secretarial salary.[81]

The purposes of the HPCC contained in the charter are broad and do not establish specific guidelines. In general, the purpose of the

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[79]Consensus between Donoho and Ray F. Foley, Trousdale County Judge, Hartsville, Tennessee, personal interview, July 31, 1979.

[80]TVA, Final Environmental Statement—Hartsville Nuclear Plant, p. 4-29.

[81]Frank McKee, Executive Director, Hartsville Project Coordination Committee, Hartsville, Tennessee, personal interview, July 31, 1979.

HPCC was to coordinate local governments in the mitigation of impacts and to work with TVA in monitoring impacts and devising necessary mitigation. However, the HPCC was granted no authority to carry out these responsibilities. The means by which the HPCC and TVA were to work together were never established. Therefore, instead of providing impact studies independently or with TVA, the HPCC has concentrated on coordinating local governments by acting as an information forum and by representing the locals in their mitigation requests.[82]

Frank McKee, the executive director of the HPCC, also contends that in addition to a lack of authority, the HPCC also lacks staff and funds to conduct detailed impact studies. Therefore, the HPCC staff attempts to be informed of impacts and identify needs of the local communities and bring them to the attention of TVA. McKee contends his only available tools are negotiation and influence.[83]

Despite the absence of a close partnership in monitoring impacts, the HPCC and TVA do have open lines of communication and confer frequently on mitigation matters. For example, the TVA program coordinator and often other TVA officials regularly attend HPCC meetings (about one every two months) and present information or explain TVA positions. Disagreements have occurred between the HPCC and TVA regarding the actual level of impacts and amount of mitigation. These disagreements are based primarily on disputes over the accuracy of

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[82] Ibid.

[83] Ibid.

TVA data, including in-mover estimates, which mitigation funding is largely based on.[84]

The purpose of the HPCC as an information forum was illustrated during an August 10th meeting. In that meeting Mayor Donoho expressed his frustration and concern over the TVA reduction in mitigation for local government budgets for Hartsville. James White responded to these contentions by agreeing there was indeed a dispute and by defending TVA's position. While the HPCC did not take an official position on the matter they did show concern and ask to be informed as to its progress.[85]

There are several other examples of HPCC activities. An industrial development committee was formed in 1979 to develop employment opportunities for those workers to be laid off from the project. An informal, but important, activity of the HPCC staff is to serve as a placement center for area residents seeking employment on the project. Often residents are unfamiliar with the union hiring process and need assistance.[86]

One of the most significant actions by the HPCC concerns their role in adoption of state legislation in 1976 regarding in-lieu of tax payments by TVA. These payments are made by TVA to states and local governments in the TVA region on its properties and operations. The

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[84]Consensus between White and McKee.

[85]Hartsville Project Coordination Committee, Hartsville, Tennessee, Minutes of August 10, 1979, Meeting, (mimeographed).

[86]McKee.

HPCC staff recognized that the payments were a potential source of mitigation assistance and that local governments received a small percentage of the revenues. The HPCC staff encouraged HPCC members to lobby with state legislators to change the law and increase the local portion of the payments.[87] The most recent attempt by the HPCC staff to obtain mitigation is the previously discussed resolution to the Governor regarding the need for a solution of the dispute between TVA and the state on transportation impacts.

Phipps Bend. The purposes of the Phipps Bend Energy Growth Coordination Committee (PBEGCC) as contained in its charter are almost identical to those of the HPCC.[88] The PBEGCC is, like the HPCC, intended to coordinate local governments in the mitigation of impacts and devising mitigation. However, the two committees are not similar in their actual activities. The differences are primarily regarding the absence of much TVA-PBEGCC interaction and the functions of the PBEGCC staff.

The ten member PBEGCC is composed of the county judges and mayors, or their representatives, of Hawkins, Sullivan, and Greene Counties. Greene County, however, has not been included in TVA mitigation efforts

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[87]Cleve Smith, Attorney, Hartsville Project Coordination Committee, Hartsville, Tennessee, personal interview, July 31, 1979.

[88]Phipps Bend Energy Growth Coordination Committee, "Charter of the Phipps Bend Energy Growth Coordination Committee," Johnson City, Tennessee, no date, (mimeographed).

to date. A five member executive committee is elected annually by the entire membership to conduct the business of the PBEGCC.[89]

The PBEGCC does not receive TVA funding. Rather, its staff is supported by an annual $40,000 grant from the Appalachian Regional Commission (ARC). The Tennessee Department of Economic and Community Development is allocated a certain amount of funds from the ARC each year. Before construction began at Phipps Bend the state submitted a proposal to obtain funds for establishing an impact coordination committee similar to the HPCC. Initial ARC funding for the committee began in October 1976.[90] The ARC has provided grants for several other similar impact programs and other energy-related programs. The ARC is concerned with energy development impacts in the region and is watching the progress of such projects as Phipps Bend with great interest.[91] The grant is administered through the Upper East Tennessee Section of the Tennessee State Planning Office (TSPO) located in Johnson City. Thus, in contrast to the HPCC, the staff for the PBEGCC is provided through TSPO whose primary responsibility is to provide planning assistance to local governments. TSPO has assigned two staff members, located in Johnson City, to the PBEGCC.

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[89]Phipps Bend Energy Growth Coordination Committee, "Operational Design for the Phipps Bend Energy Growth Coordination Committee," Johnson City, Tennessee, no date, (mimeographed).

[90]Richard Walker, Tennessee Department of Economic and Community Development, Nashville, Tennessee, personal interview, June 12, 1979.

[91]Masood Malik, Appalachian Regional Commission, Washington, D.C., telephone interview, August 23, 1979.

The PBEGCC and TVA have not established a working relationship. The PBEGCC had no role in establishing TVA's mitigation commitment. In fact, the Committee was not acknowledged by TVA in their final EIS, in contrast to the recognition of the HPCC in the Hartsville EIS. Thus, the PBEGCC was not granted any responsibility in impact mitigation by either TVA or the NRC. This situation has not changed since that time. James Point, the TVA program coordinator, has preferred to work with local governments on an individual basis instead of through the PBEGCC. Point contends an intermediary body is not needed to adequately mitigate impacts.[92]

Since a working relationship does not exist between TVA and the Committee, other activities have been pursued. The PBEGCC staff has produced several impact studies for the purpose of providing local officials with information in negotiating with TVA for mitigation. These studies include: an overall assessment of impacts on public services; a study of health needs for Hawkins County; a study of vocational training and employment for Hawkins County; a proposed capital improvements program; and a critique of TVA mitigation efforts and staff proposals for mitigation. The staff must also submit quarterly and annual progress reports to the ARC. The staff generally responds to requests by the Committee members. For example, the staff

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[92]Point.

recently undertook a small study concerning a location for a new landfill on TVA property.[93]

Clinch River. The purposes of the East Tennessee Energy Projects Coordinating Committee (ETEPCC) as contained in its charter are almost identical to those committees related to the Hartsville and Phipps Bend projects. Thus, like those two committees, the ETEPCC was intended to work with the project sponsor in monitoring impacts and devising mitigation. However, the ETEPCC was not similar to either committee in its activities primarily because of the nature of the DOE commitments and the suspension of the project.

The ETEPCC was chartered in June 1976, and while never officially dissolved, ceased operations around February 1978. The 14 member Committee was composed of the county judges and mayors, or their representatives, of Anderson, Campbell, Knox, Loudon, and Morgan Counties.[94] The city of Oak Ridge, located in Anderson and Roane Counties, and Roane County did not join the Committee. A five member board of directors managed the business of the ETEPCC.

Like the PBEGCC, the ETEPCC received a $40,000 grant from the ARC. This grant was also coordinated through the state Department of Economic

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[93]Roberto Hernandez and Lynn Patillo, Phipps Bend Energy Growth Coordination Committee Staff, Tennessee State Planning Office, Johnson City, Tennessee, personal interviews, August 22, 1979.

[94]East Tennessee Energy Projects Coordination Committee, "Charter of the East Tennessee Energy Projects Coordination Committee," Knoxville, Tennessee, June 25, 1976, (mimeographed).

and Community Development. In contrast to Phipps Bend, the grant supporting the ETEPCC staff was administered through the Committee, not an outside organization like TSPO. The Committee staff consisted of two professionals—a growth management advisor and aide—and a secretary. An office was located in Clinton in Anderson County.[95]

As with the Hartsville and Phipps Bend Committees, the ETEPCC was granted no authority to assist in developing mitigation procedures or monitoring impacts. Also, the Committee was not acknowledged in the final EIS as an instrument for developing mitigation. Given this absence of authority and generally vague goals the staff of the ETEPCC established their own specific objectives.

Foremost among the Committee's objectives was the preparation of an independent assessment of the impacts of construction of the CRBRP and of proposals for monitoring and mitigation of the impacts. Annual and quarterly progress reports were also required by the ARC. The intent of these studies was to provide the state with information for its intervention on behalf of the local governments in the NRC licensing hearings.[96] The Committee staff prepared two studies during its existence. The impact assessment study was published in May 1977 and consisted of impact studies regarding public services for each of the 14 jurisdictions.[97] The second study, published in December 1977,

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[95]Braid.

[96]Ibid.

[97]Robert B. Braid, Jr. and Stephen D. Kyles, The Clinch River Breeder Reactor Plant: An Analysis of the Impacts of Its In-Migrant Construction Workers on Local Public Services, (Clinton, Tennessee: East Tennessee Energy Projects Coordination Committee, 1977).

contained proposals for mitigating impacts and continual monitoring throughout the construction period. The staff's primary conclusions were that incremental impacts on the provision of public services were quite possible and that DOE was responsible for mitigating such impacts.[98] The ETEPCC wanted to obtain a commitment from DOE in three areas: front-end financing for public services impacts, a specific plan for mitigation, and a monitoring program.[99]

The ETEPCC and DOE did not have a working relationship. The two met only twice and never agreed on any sort of mitigation commitment. The absence of Oak Ridge and Roane County from membership undoubtedly hurt the Committee's bargaining position with DOE. The ETEPCC was, however, very involved with the state through the Attorney General's office, the state energy office, and the Department of Economic and Community Development. The ETEPCC would probably never have organized had it not been for the availability of ARC funds and the participation of the energy office.[100]

In comparing these examples it is evident that despite almost identical charters, each organization faced different situations and

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[98]Robert B. Braid, Jr. and Stephen D. Kyles, The Clinch River Breeder Reactor Plant: Suggested Procedures for Monitoring and Mitigating Adverse Construction Period Impacts on Local Public Services, (Clinton, Tennessee: East Tennessee Energy Projects Coordinating Committee, 1977).

[99]Dale C. Workman, Knox County Attorney, former President of the East Tennessee Energy Projects Coordination Committee, Knoxville, Tennessee, personal interview, September 11, 1979.

[100]Consensus between Braid and Workman.

had to conduct their activities accordingly. At Hartsville, the HPCC was an acknowledged part of the TVA mitigation program and is funded by TVA. The HPCC primarily spends time with coordination and representing local governments regarding mitigation. The HPCC does not prepare impact studies or monitoring reports. In contrast, neither the Phipps Bend or Clinch River Committees are funded by the project sponsors or were acknowledged as part of the mitigation program. Both staffs have been concerned primarily with preparing impact studies to support local contentions. The PBEGCC staff is part of the area TSPO office while the ETEPCC staff was independent. None of these three organizations was granted any authority to implement the goals contained in their charters and had no role in developing the mitigation programs.

Major Characteristics of Mitigation Programs

Hartsville. The Hartsville mitigation program is based on the premise that existing local capacity should be utilized as much as possible before mitigation assistance is required.[101] That is, if local services and facilities are not overburdened by impacts, mitigation will not be necessary. For example, concerning local government budgets:

> TVA will provide the necessary assistance—financial, technical, or equipment—in a timely manner so that small community budgets are not significantly burdened by long or short indebtedness associated with in-moving construction workers.[102]

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[101] TVA, Final Environmental Statement—Hartsville Nuclear Plants, p. 4-27.

[102] Ibid., p. 4-34.

The key factor in not overburdening facilities or services is reducing the level of impacts. TVA established reduction of impacts as "the first priority" of the mitigation program.[103] A summary of TVA mitigation expenditures is contained in Table 3.

Also, TVA acknowledged that some front-end financing based on the initial assessment of impacts was necessary. In other areas, mitigation was to be allocated as impacts occurred. A good example of front-end financing involves education mitigation. TVA created a fund based on estimated needs for the various educational systems. Seventy-five percent of this fund was granted to the individual school boards before construction began for expansion of facilities. The remaining 25 percent was to be allocated according to actual impact levels.[105] For example, the Trousdale County school system built more classrooms in anticipation of new students but has not required any of the remaining 25 percent funds because fewer students than projected have moved into the County.[106]

For most of the other impact areas, mitigation is allocated according to impacts as they occur. This provision of mitigation is

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[103]Ibid., p. 4-28.

[104]Ibid.

[105]"Agreement Among the Tennessee Department of Education; The Boards of Education of Macon County, Sumner County, Smith County, Trousdale County, and Wilson County, Tennessee, and the Boards of Education of the Lebanon and Watertown Special School Districts of Tennessee; and the Tennessee Valley Authority," Contract No. TV-43987A, no date, (mimeographed).

[106]Patricia Langford, Trousdale County School System, Hartsville, Tennessee, personal interview, July 31, 1979.

TABLE 3

HARTSVILLE NUCLEAR PLANT SUMMARY OF TVA MITIGATION EXPENDITURES AS OF MARCH 31, 1979

Item	Expenditures to Date
Education	$1,440,759
Housing	423,000[1]
Local Planning and Coordination Assistance	231,021
Water and Sewer	380,000[2]
Health	180,772
Local Governments	591,853
Employee Transportation	1,803,683
TOTAL	$4,979,088

[1]Includes $60,000 interest-bearing loan.

[2]Includes $125,000 noninterest-bearing loan.

Source: Tennessee Valley Authority, Socioeconomic Monitoring and Mitigation Report—Hartsville Nuclear Plant, October 1979.

based on several factors. A significant basis for mitigation assistance are semiannual monitoring reports, prepared by TVA. These reports summarize mitigation to date and give results of the semiannual survey of workers. This survey gives information regarding the number of in-movers, characteristics of in-movers and families, and their residential location. Based on impact monitoring the TVA staff makes recommendations regarding the amount of mitigation required by local governments. However, the key figure in allocating mitigation is the on-site program coordinator.

The program coordinator has final discretion over the amount of mitigation to be granted, subject to TVA Board review. The program coordinators at both TVA projects agreed that the monitoring reports are an essential source for deciding on mitigation but that a broader view is needed.[107] One of the major reasons for not narrowly following the monitoring reports is that they are published six months after the worker's survey is taken. Thus, the program coordinator makes final judgment on the amount of required mitigation assistance based on monitoring data, staff recommendations, the requests of the HPCC, and professional judgment.

Negotiations between the local governments and the program coordinator play a large role in allocating mitigation. Local officials, through the HPCC, make requests for mitigation based on what they believe impacts to be. While the HPCC provides some data to back up the requests, TVA contends that such requests are often unsubstantiated

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[107]Consensus between White and Point.

and based on perceived impacts.[108] At this point in the process the coordinator must make a decision. This decision may be tempered with negotiations and compromise. The approach taken depends largely on the coordinator. The first Hartsville program coordinator, Richard Swisher, contends that the process of mitigation is primarily one of negotiation and compromise.[109]

According to Swisher and White, TVA's mitigation assistance in the first few years of construction went beyond the scope of the mitigation program outlined in the final EIS. Mitigation was granted according to projections of what impacts would be as well as perceptions of what impacts were at that time. It was not until 1979 that TVA began allocating mitigation based on a more complete data base. This resulted in reduction in the amount of mitigation offered by TVA in contrast to the previous general rise in mitigation assistance. One result of this change was the dispute between Hartsville and TVA over the correct amount of mitigation for local government budgets.

The roles of the various participants at Hartsville is now evident. TVA staff prepares monitoring reports and makes recommendations regarding the amount of necessary mitigation. The local governments, through the HPCC, make requests for mitigation based on what they believe the

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[108]White.

[109]Richard Swisher, former TVA Program Coordinator, Hartsville Nuclear Plants, Hartsville, Tennessee, and former Mitigation Branch Chief, Knoxville, Tennessee, currently with TVA Power Division, Chattanooga, Tennessee, telephone interview, September 21, 1979.

impacts to be. The local officials, though, have no authority in the allocation of mitigation. This authority rests solely with the on-site program coordinator. Thus, instead of the original intent of having the HPCC and TVA work together to monitor impacts and devise mitigation, the program has evolved into one of negotiating for mitigation. Such a process can result in disputes, such as with Hartsville, and the taking of adversary positions. In essence, TVA has funded the HPCC to be a potential adversary in the process of negotiating for mitigation. The original intent was for the HPCC to be a partner in the mitigation program.

The characteristics of negotiation and compromise are illustrated with the following example. This example is important since it also illustrates a major problem with implementation of the program; the existence of a credibility gap between TVA's monitoring data and local perceptions of impacts.

A TVA survey of workers taken in March 1977, indicated that a total of 52 in-moving workers and families were living in Hartsville. Mayor Donoho and Frank McKee doubted TVA's data and were positive the figures were actually higher. Therefore, Hartsville conducted a special census in May and concluded a total of 204 in-movers and families were living in the town. This census was taken by the local Lion's Club and certified by TSPO. Negotiations and a reanalysis of information by TVA resulted in a compromise figure of 124 in-movers.[110] Donoho and

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[110]Tennessee Valley Authority, Hartsville Nuclear Plants—Socioeconomic Monitoring and Mitigation Report, (Knoxville: Tennessee Valley Authority, April 1978), p. 4.

McKee contend that the census proved that TVA data was inaccurate and have based most of their continued suspicion of TVA data on that dispute.[111] TVA contended that the discrepancy was based on inadequacies in the first TVA survey form and that some workers moved into the town since the original survey.[112] The program coordinator at that time, Swisher, claims that TVA agreed to the compromise so that the dispute could be solved, not because Hartsville's data was correct. In short, he contends this is a good example of giving the local officials the "benefit of the doubt," and that this was a common occurrence during the first years of the program.[113] Another important result of this dispute was its development as a basis for continued doubt regarding the validity of TVA's data.[114] Thus, the mitigation program has been characterized by the HPCC's doubts over the accuracy of TVA's surveys and have subsequently disagreed over the correct level of assistance.

Phipps Bend. The Phipps Bend mitigation program is based on the same premise as Hartsville's: that existing local capacity should be utilized as much as possible before mitigation assistance is required. Also, reduction of impacts is established as the "first priority" of

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[111]Consensus between Donoho and McKee.

[112]TVA, Hartsville Nuclear Plants—Socioeconomic Monitoring and Mitigation Report, April 1978, p. 4.

[113]Swisher.

[114]Consensus between White, Swisher, Donoho, and McKee.

the mitigation program.[115] However, the Phipps Bend program is generally not as specific as Hartsville's. The final EIS contains no statements with regards to avoiding long or short term indebtedness although program coordinator Point agrees that is a major consideration in mitigation decisions. Point summarizes the mitigation program as being established with no definite goals, other than the commitment to mitigate impacts, and as having no firm structure or process. He contends a rigid set of guidelines could restrict the program's flexibility.[116] A summary of TVA mitigation expenditures is contained in Table 4.

The process for allocating assistance for the Phipps Bend program is also very similar to Hartsville's. The program included the provision of some mitigation early in the project with the remainder to be based on actual impacts. Examples of early mitigation assistance include funds for education and water systems. TVA has budgeted approximately three million dollars to assist in construction of a new high school. In conjunction with an ARC grant TVA has connected seven water systems in Hawkins County.[117]

As in Hartsville, most mitigation is allocated according to the actual level of impacts. Semiannual monitoring reports are also prepared

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[115]TVA, Final Environmental Statement—Phipps Bend Nuclear Plant, p. 4-23.

[116]Point.

[117]Tennessee Valley Authority, Phipps Bend Nuclear Plants—Socioeconomic Monitoring and Mitigation Report, (Knoxville: Tennessee Valley Authority, March 1979), p. 4.

TABLE 4

PHIPPS BEND NUCLEAR PLANT SUMMARY OF TVA MITIGATION EXPENDITURES AS OF OCTOBER 1, 1979

Item	Expenditures to Date
Education	
Hawkins County	$1,113,871
Kingsport City	99,085
Water	150,000
Recreation	135,021
Emergency Services	109,102
Law Enforcement	94,059
Medical Services	93,220
Public Health	22,750
Solid Waste	---
TOTAL	$1,817,108

Source: Tennessee Valley Authority, Socioeconomic Monitoring and Mitigation Report—Phipps Bend Nuclear Plant, December 1979.

by TVA staff for the Phipps Bend project. Other similarities to Hartsville include the placement of the program coordinator as the final decision maker, the process of requests for mitigation by locals, and the presence of negotiation. However, a major difference exists between the two programs in the way mitigation is allocated by the program coordinator.

At Phipps Bend the program coordinator works with each separate government in mitigating impacts, not through the impact coordinating committee. Point contends for reasons of efficienty it is better to direct his concern toward the immediate problem. Point has had very little contact with the PBEGCC staff in either assessing the levels of impact or allocating mitigation assistance.[118] This is in sharp contrast to the representative, sometimes adversary, role the HPCC has assumed.

There are other differences in the administration of the Hartsville and Phipps Bend mitigation programs. Requests by local officials tend to be informal, such as telephone conversations, at Phipps Bend while requests at Hartsville are in written form with substantial explanation of the need. This is a result of Point's close working relationship with the various communities. For example, in the four years while program coordinator, Point attended or participated in over 365 meetings with local officials, citizens, or groups. Another difference concerns the type of assistance granted for local government budgets. Point

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[118]Point.

has preferred to avoid financial grants and concentrate on allocating equipment such as police cars instead of police salaries. The main reason for this policy is that it is difficult to end payments for salaries when the impacts are no longer present.[119]

The primary characteristic of the Phipps Bend program is the emphasis on individual relationships between TVA and local governments, bypassing the impact coordinating committee. This approach is the result of program coordinator Point's intentional development of the program in that direction. Point acknowledges this individualized, informal approach would probably not be possible with a project as large as Hartsville. Since the allocation of mitigation has such a great dependency on negotiations, Point acknowledges that personalities can play a significant role in the administration of the program.[120]

The Phipps Bend approach to mitigation has undergone criticism. The PBEGCC staff and TSPO director have criticized the approach for not fostering coordination among local governments. They contend that Point's approach has only encouraged fragmentation between local governments. They contend TVA has seriously hindered the effectiveness of the PBEGCC and staff. In addition, the PBEGCC staff contends that TVA generally does not admit to the actual level of impacts and that greater amounts of mitigation assistance are necessary.[121]

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[119]Ibid.

[120]Ibid.

[121]Hernandez and Patillo.

The majority of the mayors of Hawkins County are satisfied with TVA's response to mitigation.[122] However, one of these mayors offered the following opinion regarding TVA's mitigation. While basically satisfied with TVA's response to impacts, he contends that Point's approach may have been individualized for other means than efficiency. Rather, it could have been a "divide and conquer" strategy. That is, satisfy the needs of the various communities so that they will not need coordination and cooperation as a means to gain objectives.

Clinch River. The mitigation assistance established as of the CRBRP's cancellation is in definite contrast to those at Hartsville and Phipps Bend. In fact, there was no official program established to specifically mitigate impacts although certain local governments were involved in an attempt. This section is concerned with major characteristics of the DOE program and of the proposed program by the ETEPCC.

The DOE payments program is characterized by inflexibility. In contrast to Hartsville and Phipps Bend, negotiations and compromise do not play a role in the granting of assistance payments. Allocation of funds is based on a specific formula and cannot be adjusted. The only opportunity for negotiation occurs during contract renewal. Therefore, some impacts may occur that are not related to the contractual agreements. For example, transportation impacts cannot be resolved on their own merits under the DOE program.

While the DOE program was not specifically designed to mitigate impacts from the CRBRP, the conditions granted Roane County made it

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[122]Consensus between Pierce, Sells, and Snodgrass.

more responsive to such impacts. The program was designed to assist communities with the general impacts related to the federal government's presence in the area. The applicability of the program to impacts of the CRBRP is hindered by many factors.

The DOE program is not uniformly applied to Anderson and Roane Counties and the city of Oak Ridge. Only Roane County's agreement is related to the presence of the CRBRP. The agreements for the other two do not include the project as a special consideration. Also, the program cannot be expanded to other surrounding communities without approval from Congress.

Another major shortcoming of using the DOE assistance program for CRBRP impact mitigation is the possible unavailability of funds. Originally, these funds for atomic energy communities were not intended to continue indefinitely. These communities were to become self-sufficient as they grew and became less dependent on the federal government for employment. However, federal operations at these sites have continued to have a significant role in the community's fiscal structure.[123] Serious attempts to reduce or eliminate DOE funding have been made in recent years. In fiscal years 1977 and 1978 the DOE funding recommendations were reduced or eliminated by the Office of Management and Budget but were later restored by Congress. In 1979 the DOE budget omitted assistance for these communities but Congress once again appropriated adequate funds.[124]

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[123]U.S. Department of Energy, Analysis of Assistance at Atomic Energy Facilities, p. V-6.

[124]Ibid., Appendix B. p. 13.

In general, the DOE program is a good source for mitigation but cannot be considered a comprehensive mitigation program. The primary fault with using DOE assistance for mitigation is that it is not related to any mitigation strategy or plans. For example, Roane County Judge Brewer admitted most of his efforts were on renegotiating the DOE contract, giving little thought to developing a strategy for mitigation.[125]

The 14 jurisdictions belonging to the ETEPCC sought mitigation commitments from DOE through the NRC licensing process. Anderson County was the only member eligible for DOE annual assistance funds. Despite DOE claims that no impacts would occur outside Roane and Anderson Counties and that CRBRP funds could not legally be used for mitigation, the ETEPCC and the state believed that mitigation conditions could be imposed during NRC licensing.

The ETEPCC proposed impact monitoring be conducted jointly by DOE and local governments through the ETEPCC. They intended for the Committee to have a significant role throughout project construction by acting as the ". . . primary conduit of information between local government and DOE."[126] The ETEPCC also sought a guarantee of funding from DOE for administrative purposes since there were no assurances the ARC grant would continue throughout the construction period.

The basis for the ETEPCC's mitigation proposals was the contention that DOE should mitigate all impacts, not simply those that might

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[125]Brewer.

[126]Braid and Kyles, Suggested Procedures for Monitoring and Mitigating, p. 83.

result in hiring new employees or constructing new facilities.[127] The ETEPCC wanted DOE to provide front-end financing for needed capital improvements and to compensate local governments for deficits incurred in providing services.[128] A methodology for assessing per capita cost-revenue deficts were established in the ETEPCC's 1977 impact study.[129]

It is evident that both the established DOE assistance program and the proposed ETEPCC program are more structured than either the Hartsville or Phipps Bend mitigation programs. The DOE program follows a strict procedure with no place for negotiations and compromise which are major parts of the TVA approach. While less exact, the ETEPCC proposal followed a cost-revenue methodology and was more specific in its objective for mitigation than programs for the other two sites.

Comparison. Despite many similarities between the Hartsville and Phipps Bend programs, several significant differences do exist. The primary similarities include: the mitigation commitment by TVA in its draft EIS; continuous impact monitoring by TVA; the importance of the on-site program coordinator; and the absence of specific formulas or procedures for mitigation and the subsequent reliance on negotiations.

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[127] Ibid., p. 67.

[128] Ibid.

[129] Braid and Kyles, The Clinch River Breeder Reactor: An Analysis of the Impacts, p. 1-8.

The difference between the two programs concerns the general basis or commitment of the program and the roles taken by the program coordinator. Comparison of all three mitigation programs is contained in Table 5 following this discussion.

TVA was committed to generally mitigate impacts at both sites. The commitment for Hartsville was more specific than for Phipps Bend. At Hartsville, agreements were signed between TVA and various other participants, including: the state Departments of Transportation and Education, Trousdale County, and the town of Hartsville. The program as described in the final EIS is also more specific than that included in the Phipps Bend EIS. For example, the Hartsville EIS commits TVA to mitigate impacts on local government budgets which may cause indebtedness while the Phipps Bend EIS simply states mitigation may be necessary.

The most significant difference between the mitigation process at Hartsville and Phipps Bend are the direction the program coordinators have taken the program and the role taken by the coordinators. Given the loosely defined guidelines for both mitigation programs the development of the program rested almost entirely with the coordinator. The program coordinator was given a great deal of liberty in conducting the program. The coordinator is essentially an autonomous decision-maker. He is associated with TVA staff and accepts their recommendations but has sole discretion over mitigation matters, subject to policy guidelines, budget limitations, and TVA Board review. Originally, the coordinator had direct access to the TVA general manager's office, bypassing middle management. This enabled the coordinator to discuss

TABLE 5

KEY AREAS OF CONCERN FOR MITIGATION PROGRAMS IN TENNESSEE

Project	Origin of Mitigation	Form of Mitigation	Basis of Authority	Local Organization	Primary Program Characteristics
Hartsville Nuclear Plant	General TVA commitment to mitigate impacts contained in Draft EIS	Program outlined in Final EIS and incorporated into NRC construction permit	Rests solely with TVA	Hartsville Project Coordinating Committee composed of local government officials from five-county impact area. Funded by TVA and acknowledged as part of mitigation program. Staff operates independently. Major activities include coordinating local governments and representing them in mitigation requests to TVA	Several specific initial commitments. Assistance by TVA has included front-end financing and annual payments. Semiannual monitoring reports provide much of the basis for mitigation. TVA Program Coordinator has key role by making the actual decision regarding adequate levels of assistance. Negotiations and compromise between TVA and local officials, through local impact coordinating committee, are a significant part of the allocation process. Development and direction of the mitigation program based largely on the role taken by Program Coordinator.
Phipps Bend Nuclear Plant	General TVA commitment to mitigate impacts contained in Draft EIS	Program outlined in Final EIS	Rests solely with TVA	Phipps Bend Energy Growth Coordinating Committee composed of local government officials from three-county impact area. Funded by ARC. Not acknowledged by TVA as part of mitigation program. Staff operates through local State Planning Office. Major activities involve preparing information to support local requests for mitigation to TVA.	Several general initial commitments. Assistance by TVA has included front-end financing and annual payments. Semiannual monitoring reports provide much of the basis for mitigation. TVA Program Coordinator has key role by making the actual decision regarding adequate levels of assistance. Negotiations and compromise between TVA and local officials is significant part of the allocation process. Local impact coordinating committee is not included in this process. Development and direction of program based largely on role taken by Program Coordinator.
Clinch River Breeder Reactor	Existing federal assistance program for atomic energy communities. Only Roane County obtained commitment related specifically to CRBRP impacts.	Contracts between DOE and the city of Oak Ridge and Anderson and Roane Counties	Rest solely with DOE, subject to availability of funds	East Tennessee Energy Projects Coordinating Committee composed of local government officials from five-county impact area. Funded by ARC. Suspension of CRBRP precluded final determination of committee role in mitigation. Staff operated independently. Major activities included preparing impact studies to support intervention in NRC construction permit process.	Comprehensive program designed specifically for CRBRP impacts never finalized. Existing DOE annual assistance program included three jurisdictions with only Roane County obtaining project-related commitment. DOE funding subject to availability of Congressional appropriations. Proposed mitigation modeled after TVA approach but gave local governments more authority, particularly in impact monitoring. Mitigation was to be based on procedures for assessing incremental impacts on public services, not just those causing bonded indebtedness.

problems with top-level TVA management and make faster decisions.[130] In early 1978 the position of Mitigation Branch Chief was established. This position was responsible for general oversight of TVA's three program coordinators. However, he did not act as a "middleman" between the coordinators and the general manager.[131] Recent reorganization of TVA has changed this structure. Currently, the mitigation branch chief and each on-site coordinator reports to the division director instead of the general manager. The effect of this change has not yet been assessed but Swisher, White, and Point agree that not having direct access to the general manager could possibly hinder the efficiency of the program.

The original Hartsville coordinator began his duties after mitigation commitments had been finalized and construction had almost begun. Swisher, the coordinator for nearly three years, established the general character of the program as one based on negotiations and compromise. Lacking an adequate data base and primarily relying on projections and perceptions, Swisher attempted an approach based on frequent personal contact with HPCC staff and members. Swisher was comfortable with this approach which involved much personal interaction and what he describes as "politicking."[132]

James White, the second coordinator, assumed a somewhat different situation and a different role. By the time White became coordinator

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[130]Swisher.

[131]Ibid.

[132]Ibid.

in early 1978 monitoring had established an adequate data base and TVA contended impacts were not as significant as projected. Subsequently, TVA began a policy of reducing mitigation. White relied heavily on the available data base in allocating funds. Thus, he relied less on negotiations than Swisher and more on the staff assessment and generally depended on quantitative measures of impacts. Also, he admitted he was less comfortable in the "negotiator" role than Swisher and was not as compromising. A new coordinator began at Hartsville in September. Thus, the character of the coordinator's role may again change. Obviously, the role taken by each coordinator is very dependent on personality as well as the current phase of the mitigation program.

At Phipps Bend, James Point has developed the role of program coordinator somewhat differently than Swisher or White. He has preferred to work with each local government individually, avoiding the impact coordinating committee. In general, he has kept the mitigation program less formal than at Hartsville. Point had the benefit of being on the job two years before construction began and having fewer jurisdictions to work with. Therefore, he had a greater opportunity to develop the program as he desired. Like Swisher, Point relied heavily on negotiation to allocate mitigation but admits that his approach could sometimes be described as "argumentative."[134] A new coordinator began at Phipps Bend in November. As at Hartsville, the character of the mitigation

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[133]White.

[134]Point.

program may change with a new coordinator. In summary, the TVA approach to mitigation is heavily dependent on the program coordinator, the direction he takes the program, and the nature of his interrelationship with local officials.

In comparison to the TVA mitigation programs, the DOE assistance program at the CRBRP relies on a definite methodology for allocating funds. The TVA approach relied more on negotiation between local governments and the program coordinator. One of the most significant differences between mitigation established at the CRBRP and the TVA projects is the absence of a commitment by DOE to mitigate impacts, other than through the annual assistance program. TVA first presented their commitment in the draft impact statements. Thus, while the DOE commitment was less specific than TVA's, the procedures for allocating mitigation were more exact.

The ETEPCC mitigation proposals also were more specific than Hartsville and particularly Phipps Bend's. The ETEPCC staff based much of their proposals on the example set by Hartsville.[135] Impact monitoring was to be the basis for allocating mitigation. However, in contrast to the TVA projects, the ETEPCC intended local governments to have a significant role in monitoring. It was proposed that the worker's survey be jointly developed, tabulated, and analyzed by the ETEPCC and DOE.[136] This approach could help avoid the problems

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[135]Braid.

[136]Braid and Kyles, Suggested Procedures for Monitoring and Mitigating, p. 83.

encountered at Hartsville over local suspicion of the validity of TVA data. Another difference between the TVA approach and the ETEPCC proposal was the intention of having a definite methodology for allocating mitigation. Also, the ETEPCC wanted DOE to mitigate all impacts on public services, not just those that may cause indebtedness. In essence, the ETEPCC wanted a broader, more definite commitment from DOE to mitigate impacts and a more definite methodology for allocating mitigation than was present at Hartsville or Phipps Bend.

CHAPTER V

ELEMENTS OF COMMUNITY RESPONSE TO POTENTIAL IMPACTS

The response a typical rural community should follow in the event of power plant construction nearby consists of two phases: assessment and mitigation. A community must be concerned with both phases since the former provides the basis for the latter. This chapter presents the elements of community action, emphasizing the areas and issues a community may have to contend with. These guidelines are not detailed and are intended to provide a community with the basis to develop specific, detailed plans. For this chapter it is assumed the impacted community is small, rural, and is not opposed to the construction of a large power plant nearby. It is also assumed an EIS must be prepared.

I. ASSESSMENT PHASE

A community must not ignore the impact assessment either in preparation or in final form. The initial assessment provides the basis for developing the mitigation program. If a community is unaware of the potential impacts of the project, it will be less able to adequately conceive of mitigation needs. In addition, a community needs to review and adjust accordingly its own goals, plans, and budgets to be better prepared for the project.

The local government is an essential source of information in preparing the socioeconomic sections of the EIS. By providing information, local officials are given an opportunity to participate somewhat in

the assessment. Their cooperation will only help to facilitate a proper assessment. Throughout preparation of the assessment local officials should attempt to be aware of the purpose and components of the effort so that review of it can be made easier.

Adequate review of the socioeconomic impact assessment contained in the draft EIS is essential. Comments on the draft are included in the final EIS and must be responded to by the assessors. Local officials may offer criticism throughout the preparation of the assessment. However, this comment stage is an opportunity for those criticisms to become part of the official record. Criticisms of the draft EIS, some being extremely negative, were made for all the projects discussed in Chapter IV. Many of these criticisms were made by the substate development districts. Such an organization is an excellent source for assistance if local capabilities to conduct a thorough review are minimal.

Socioeconomic impacts represents only a portion of the entire EIS. An independent assessment may be necessary if the socioeconomic portion of the EIS is conceived as inadequate. Inadequacy can result from either a poor assessment or by the presence of impacts too significant to be fully covered without a separate, detailed study. A local government will probably not have the resources to conduct a separate assessment or to hire a consultant. However, as indicated by Chapters III and IV, independent assessments can be made. For example, an ARC grant was acquired for the CRBRP, utility-funded university studies were prepared for the Wheatland project, additional

utility-funded studies were prepared for the Sundesert project, and a study on coal development impacts was completed for Mercer County by DOE. Thus, a community need not be bound by the results of the official EIS.

In addition to being concerned with project impacts, the community should also have "its own house in order." That is, the community should be aware of its own problems and capabilities in order to maximize benefits from the project. Having a thorough assessment of potential impacts is less effective if the community has no concept of its own growth characteristics or goals for future growth. Goals, plans, and budgets should be revised and project impacts should be taken into account. The measures taken by Skagit County are the best example of including the project in community plans.

Community awareness and/or participation in assessment of impacts is essential if a case is made for mitigation assistance. A community needs an accurate assessment of impacts from the project as well as a recent assessment of its own capabilities. This knowledge will aid the community in protecting its own interests. For example, various local governments near the CRBRP attempted intervention over a year past the NRC deadline. Also, in contrast to Roane County and Oak Ridge, no comments were filed on the draft EIS by these governments. Therefore, their bargaining position for mitigation assistance was greatly hindered by their apparent lack of concern in the early part of the licensing process.

In summary, a community should be involved early in the impact assessment process especially if a case must be presented for assistance.

Requests and decisions should be made on the basis of fact and research rather than perceptions of impacts. It is important for the local government to utilize all available assistance during the assessment process such as development districts and other forms of state or regional planning assistance. Communication with other similarly impacted communities could also be of service. The development of a community-utility cooperative working relationship during the assessment process is also important and can extend into the mitigation phase. A good foundation based on mutual respect and cooperation can facilitate overcoming obstacles that may arise during development and implementation of mitigation.

II. MITIGATION PHASE

If the draft EIS is an accurate, acceptable assessment of impacts the possible need for mitigation should be evident. Local officials should now begin to consider proposals for mitigation. Disagreement over the adequacy of the draft EIS will result in contrasting views over the need for mitigation. In either case it is important for the community to become concerned with the need for mitigation at this early point in the project. Early concern can result in a strengthening of the community's bargaining position and also in inclusion of mitigation in the final EIS. Therefore, at this point the community should be fully aware of the utility's general concern for mitigation.

If the utility is favorable toward providing mitigation, development of more specific aspects of the program should begin. If an impasse

is present at this point, the local jurisdiction must develop strategies to convince the utility that mitigation is necessary. An independent assessment might convince skeptical utility officials mitigation is needed. Or perhaps the utility may be merely unfamiliar with the concept of mitigation and needs relevant information. If, however, the utility fails to acknowledge significant impacts or opposes mitigation as a general policy the community must investigate other measures.

Agreeing to Mitigation

The first area the community should examine in attempting to persuade the utility concerns the presence of any local leverage applicable to the utility. The best examples of such leverage is present in the Skagit County contract rezone agreement. Since in most states utilities are exempt from most local ordinances the use of local leverage is not always present and was not utilized in many examples in this thesis. In any event, the community should investigate the possibility of such alternatives.

The most common strategy used by local jurisdictions in this thesis to influence utility consideration of mitigation was through the efforts of a state or federal siting authority. In many of the examples the disagreement was not over mitigation as a policy but over the actual form of mitigation as a program. If the siting authority is to impose mitigation conditions on the utility, the community should present a well-documented need. Precedent examples should also be

used in presenting the local need. The siting authority can act in a variety of ways. For example, the Washington authority greatly expanded the local Skagit agreement; the FPC provided a compromise agreement between VEPCO and Highland County; the Wyoming authority actually developed the program; and the NRC approved what was satisfactory to TVA and local governments at Hartsville. Thus, the local government should attempt to present its case so to influence the authority to rule favorably. It is possible that the siting authority may be unfamiliar with the concept or practice of mitigation. Therefore, the most satisfactory approach for all participants would be for all utility-community agreements to occur without siting authority involvement. The agreement can then be included in the siting approval to assure implementation.

Local governments may require assistance in acquiring mitigation either directly from the utility or indirectly through a siting authority. In Tennessee, the state provided assistance through the state energy office and the attorney general's office. These offices collaborated on interventions in the NRC licensing process and either represented local governments or intervened separately. State concern was the result of a combination of personal concern by certain state officials: concern over impacts that would affect the state, and a responsibility of the state to protect local interests if local governments desire such assistance.[1] Several state officials were

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[1]Thomas.

concerned with the seemingly large amount of impacts from the many proposed power plant construction projects in the state in the past decade.

While state assistance can be available in several forms there can be drawbacks. Despite concern of state officials the amount of state support can depend greatly on the concern of the governor. If such assistance is not politically feasible or does not follow the present administration's policies state agency support will be less influential. In Tennessee, support from the governor was present when the state became initially involved at Hartsville. The change of administrations resulted in less support for the problems and led to eventual withdrawal of state concern as the CRBRP was suspended.[2] In essence it is possible for local concerns to become secondary to state concerns. Therefore, if state assistance is necessary it appears to be in the community's best interest not to grant all authority for interaction with the siting agency to the state. A preferable approach would be for the state to provide financial and technical assistance with the intervention remaining the responsibility of the community. While not evident in any examples in Tennessee, another concern for local governments could be the independence a siting authority located on the state level would have from state politics.

If a mitigation agreement cannot be arranged through the efforts of a siting authority other measures are available for the community.

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[2]Barrick.

Hopefully, both parties will agree on the general need for mitigation and the scope or components of a program. If not, possible recourse for the community includes: filing suit against the utility, attempting to apply pressure through effective public information or through political means, or abandoning the idea of utility-financed mitigation and seeking assistance elsewhere. If, however, there is general consensus on the need for mitigation but no agreement can be reached, the concept of environmental mediation can be utilized.

Environmental mediation is a means to resolve environmental disputes through negotiation rather than through the legal process. The number of environmental disputes has greatly increased the passage of NEPA. Instead of relying on the courts to provide solutions, environmental mediation has become an increasingly popular approach, although still considered as an "emerging concept."[3] In short, ". . . mediation is a voluntary process that encourages disputants to work together to resolve conflicts."[4] To assist in the process an impartial mediator is employed to conduct the negotiations. Thus, the disputants must agree to use environmental mediation and must bring in an outside party to conduct the process.

The process of environmental mediation is briefly summarized in the following nine steps:

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[3]Lawrence Susskind, "It's Time to Shift Our Attention from Impact Assessment to Strategies for Resolving Environmental Disputes," in EIA Review—Volume 2, ed. Lawrence Susskind, (Cambridge, Massachusetts: Massachusetts Institute of Technology, October 1978), p. 7.

[4]Ibid.

1. Identify the parties that have a stake in the outcome,
2. Ensuring that each interest group is adequately represented,
3. Identifying the key issues and narrowing the agenda of points in conflict,
4. Generating a sufficient number of alternatives,
5. Agreeing on the boundaries and time horizon for impact assessment,
6. Weighing, scaling, and amalgamating judgments about impacts,
7. Identifying possible compensatory actions,
8. Implementing the bargains that are made, and
9. Holding the parties to their commitments.[5]

There is no standard or model agreement to strive for in mediation. However, a survey of individuals involved in mediation concluded:

> . . . that at a minimum, the agreement should specify the actions to be taken, when and by whom, and the penalties to be incurred by the parties for failure to perform under the terms.[6]

The nature of this type of agreement is such that it is ". . . binding on the parties only because they have promised one another they will abide by it."[7] Ideally, the agreement should contain the requirement that

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[5]Lawrence Susskind, James R. Richardson, and Kathryn Hildebrand, Resolving Environmental Disputes—Approaches to Intervention, Negotiations, and Conflict Resolution, (Cambridge, Massachusetts: Massachusetts Institute of Technology, June 1978), p. 25.

[6]David O'Connor. "Environmental Mediation: State of the Art," in EIA Review—Volume 2, ed. Lawrence Susskind, (Cambridge, Massachusetts: Massachusetts Institute of Technology, October 1978), p. 14.

[7]Ibid.

if the agreement fails, mediation will be resumed before legal or other actions are taken.[8]

Mediation assistance can be acquired through private firms or mediation centers specifically designed to negotiate environmental conflicts.[9] One important aspect of mediation is its applicability to solving problems as they arise during the mitigation program in the same mediation framework. The utility and the community will have an established method for resolving disputes. If mediation is to be used it is essential that all parties be willing to participate and to compromise.

Thus, there are several options available for a community to follow in the process of receiving a utility commitment for mitigation. It is essential be become involved early in the attempt to reach an agreement for mitigation since the utility may be either unwilling to participate or may disagree on key issues. Agreement should be reached before issuance of the final EIS and final construction approval. Also, all of the approaches mentioned require financial and technical resources which may be unavailable to a small community. Therefore, assistance should be requested from any available source, which in the three Tennessee examples was state government.

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[8] Ibid.

[9] Susskind, Richardson, and Hildebrand, p. 20.

Areas of Concern to Communities in Developing Mitigation

Several key areas confront a community in developing a mitigation program after the utility has agreed to contribute. The community should consider the inclusion of each area in its strategy for a successful mitigation program. The concerns raised in this section are based primarily on issues present in the Hartsville, Phipps Bend, and Clinch River mitigation programs.

The initial agreement. Chapter III contained a variety of examples of mitigation agreements. These agreements included federal and state licensing conditions, local zoning actions, contractual agreements, and none at all other than a general commitment to mitigate impacts. The characteristics of the Hartsville and Phipps Bend agreements differed: the Hartsville program was outlined in more detail in the final EIS than was Phipps Bend's and was included as part of the NRC construction approval. The only mitigation agreed to for the CRBRP was the DOE agreement for annual assistance payments in contractual form.

A mitigation agreement can provide an assurance that the utility will contribute to mitigation as well as a description of the commitment's characteristics. The agreement should outline the responsibilities of both the community and the utility. The actual form of the agreement depends on actual characteristics of the project and the utility-community relationship. Based on problems raised by local officials in Trousdale and Hawkins Counties, it is advisable for the locals to

receive as specific an agreement as possible. Those officials contend that because of nonspecific agreements TVA has the opportunity to offer less than adequate mitigation. However, both TVA program coordinators contended that a relatively unstructured program offers the opportunity to adapt the program to impact changes. A strictly structured program would not be able to change if impacts differed from the original assessment. Thus, a balance between the two opinions is desirable. Local officials should strive for an agreement structured enough to assure assistance but flexible enough to assure that it is responsive. Arrival at this type of agreement will be more likely if the following issues are taken into account.

Basis for mitigation. A mitigation program should be based on some premise regarding the purpose and scope of mitigation activities. Establishment of such basic policies and guideposts from which impacts can be measured can enable a more equitable distribution of assistance. The community and the utility need to know what mitigation will be based on so to reduce the possibility of confusion as the program is implemented. Thus, provision of a definite basis for mitigation is equivalent to delineation of specific program goals and objectives.

Mitigation at the three Tennessee sites was based on a variety of considerations. For example, at Hartsville the basis for mitigation of local government budgets was established as the prevention of short or long term bonded indebtedness. While this is not a strict guideline it does provide a framework for distributing mitigation.

No such framework for local government budgets was established at Phipps Bend. TVA simply acknowledged that if impacts arose, mitigation may be necessary. The strictest basis for mitigation was present for the CRBRP. For example, in Roane County DOE assistance was provided according to a formula and the number of DOE employees living in the county. The ETEPCC proposal wanted mitigation to be based not only on local indebtedness but on all impacts related to the provision of public services. It was proposed all impacts be mitigated, regardless of their permanent effect on local fiscal structure. Thus, in Tennessee the basis for mitigation ranges from a strict allocation formula to a general commitment to mitigate impacts should they arise.

A specific basis for mitigation cannot be recommended for all communities since characteristics of various projects and communities are much too diverse. However, it is important for a community to obtain a clearly defined commitment stating the basis for utility provision of mitigation assistance. The community should feel secure in that commitment and should know exactly when mitigation can be received. This does not imply that such a commitment need be detailed or related to a specific allocation formula. In fact, a community may feel secure in accepting a generalized commitment. The important point to emphasize is that the community fully realize what the commitment represents, whether it be detailed or vague, as well as the shortcomings of each degree of commitment. The presence of a clear basis for mitigation does not guarantee the prevention of disputes since, as evidenced in Hartsville, interpretations of the goals and

objectives are subject to variances. However, the potential for such disagreement should be lessened if the basis for provision of mitigation is made absolutely clear.

Selection of characteristics for the mitigation commitment will depend on the community's knowledge of the importance of the commitment and the community's relationship with the utility. A distrusting community would probably prefer as specific a commitment as possible while the opposite would be true for a community with few suspicions or with other means of leverage over the utility. For example, the Hawkins County Judge admittedly had few suspicions regarding TVA's initial intentions to mitigate impacts. However, he now contends the program should have been more structured with a more definite basis for providing mitigation. He accepted the generalized TVA commitment at Phipps Bend without fully realizing its shortcomings and being prepared to deal with them.

Mitigation assistance. A great variety of mitigation assistance was presented in Chapters III and IV. A community should be concerned with two considerations when agreeing to the type of mitigation: the type of assistance and the timing of its delivery. Simply agreeing that mitigation will be provided does not give the community a definite idea regarding what can be expected. For example, if provision of law enforcement mitigation is agreed to, it may be preferable for the community to know it will receive funds specifically for salaries and equipment instead of simply funds to mitigate.

There are two major types of mitigation assistance: financial and technical. Financial assistance can be obtained from the utility or from other sources such as the federal government or various forms of taxation. The types of financial mitigation presented in this thesis consists of the following: direct grants, loans, loan guarantees, tax revenues, and equipment or facilities. Direct grants from utilities were utilized in every example in this thesis although the process for allocating grants varied. The specificity of those grants can vary greatly. For example, at the TVA sites funds were granted for specific purposes, while at the CRBRP, Roane County was to receive funds based on the number of DOE related residents without any specific purposes. Thus, if the mitigation program includes grants, the community should decide whether it wants specific or unrestricted grants and attempt to form the program in that manner. Unrestricted grants offer the community more freedom in spending funds. However, specific grants may be more responsive to current situations since they will most likely not be related to an inflexible allocation formula.

Loans or loan guarantees were utilized in only one example, the Wheatland project. In that example, the utility acted as a guarantor on a loan from a state agency. A community should investigate the possibility of such a mechanism but should make sure loans agree with the purpose of the program. That is, if the program states the utility will mitigate impacts, is a loan actually fulfilling that purpose?

A source for grants and loans not utilized in any of the examples is under the Section 601—Farmers Home Administration funds, as

discussed in Chapter II. These funds are available for communities impacted by coal and uranium mining. A community should keep abreast, perhaps with aid from the state, about such federal programs including the impact funds available from the Coastal Zone Management Act. Also, funds may be obtained from sources not related to a specific program, such as the ARC grants for the Phipps Bend and Clinch River projects.

Property tax revenues, if available, are a potentially abundant source for mitigation. Two examples in Chapter III, Skagit County and Sundesert, are eligible for significant property tax revenues. At Skagit County, mitigation by the utility was to be considered as prepayment of taxes due when the plant begins operations. At Sundesert, the local mitigation council's proposals did not consider any mitigation assistance as prepayment of taxes. If substantial tax revenues are due, their potential for mitigation should be examined with emphasis on the major problems faced with property taxes—timing and jurisdictional mismatch. Consideration of prepayment of taxes for mitigation is also a viable opportunity for the community to examine. This approach may also be acceptable to the utility since it merely involves an expenditure of funds sooner than normal.

Depending on state law, other tax revenues may be available for mitigation purposes. Mercer County is eligible to receive a coal conversion tax after the plant begins operation and a severance tax on coal currently being mined. Such taxes are found frequently in western states experiencing significant energy development and should be utilized accordingly. A community should investigate such options,

if available in their state. Also, a community can attempt to influence legislation so such revenues can be made available or increased. The HPCC's influence on changing TVA in-lieu of tax distribution in Tennessee is an excellent example of the role a community can take in determining or developing state mitigation policy. Based only on examples discussed in this thesis it is obvious a wide divergence in the tax laws exists. Thus, a community should investigate the problems and opportunities presented by the tax situation and attempt to influence changes if appropriate.

Provision of equipment or facilities is another type of mitigation assistance utilized by many examples in this thesis. Examples include direct granting of police, fire, or emergency equipment, and construction of school facilities and mobile home parks. Provision of equipment or facilities is, in contrast to some direct grants, a restrictive method of providing mitigation in that a community is limited in spending options.

Technical assistance involves the preparation of studies, plans, grants, or other means of advice or aid in coping with impacts. Technical assistance can be provided during the assessment or mitigation phase of the project. An example of significant technical assistance during assessment is the Sundesert project in which the utility prepared several impact studies on specific areas of concern. During the mitigation phase, examples of technical assistance include preparation of grant proposals (Wheatland, Wyoming), architectural drawings (Phipps Bend), and mobile home ordinance (Hartsville). Assistance may be

provided to the local communities or to state or substate planning agencies.

Once the type of mitigation assistance has been considered, the next essential consideration is the timing of the delivery of the assistance. Mitigation assistance from the utility can be available in several forms: front-end financing, reimbursements, an escrow or trust fund, or offered as impacts arise. Selection of the type or types of delivery depends on the nature of the impacts. If the impact assessment was thorough the community should be aware of when mitigation is needed and which alternative fits their fiscal capabilities. A community should not foreclose any options by simply agreeing to a lump sum at the start of construction or to a limited trust fund. Mitigation should be obtainable throughout the construction period to ensure local capability to deal with unexpected impacts.

The mitigation process. The preceding sections dealt with important factors of concern to a community in developing a mitigation program. A community should now understand the concerns present when reaching agreement with the utility, the importance of establishing a clearly delineated basis for mitigation, and an awareness of the various types of assistance available. With an awareness of these issues the community should be concerned with the process of mitigation. That is: How is the mitigation agreement to be implemented?

Three significant issues face a community in establishing the implementation of the mitigation program with the utility. Of concern

first is the means by which the current level of impacts will be agreed to throughout the construction period. Second, the method for deciding and disbursing mitigation assistance will need to be established. Finally, a community should be concerned with opportunities for resolution of disputes with the utility.

Impact monitoring is the most prevalent method of assessing the current level of impacts from a project. Formal monitoring programs were established for all the projects discussed in Chapter III with the exception of the Highland County program. In Chapter IV, both TVA projects utilize monitoring as a major part of the mitigation program. An informal monitoring program exists for Roane County for the CRBRP through an accounting of the number of DOE-related persons in the county.

Monitoring can include many variables reflecting the impacts of the project on the community. The discussion on monitoring in Chapter II provides a general guide for the components of a program. Other actual monitoring efforts should be examined and adapted to the project.

The primary concern regarding monitoring evident from Chapter IV is the nature of the role granted to the community. Local officials at both Hartsville and Phipps Bend expressed concern over the validity of TVA monitoring data and the absence of a local role in the monitoring effort. Local officials at the Clinch River project, through the ETEPCC, recognized this problem by proposing a significant role for local governments in monitoring.

Two major considerations should concern a community regarding monitoring. First, a community should be fully aware of its designated

role in monitoring, if any, and comprehend the potential shortcomings of not having a role. Second, if the community is granted a role in impact monitoring it must be capable of fulfilling such a responsibility. The community must have the resources to adequately participate in the process. For example, the ETEPCC staff was to provide the technical capabilities for local governments in monitoring impacts of the CRBRP.

The second significant issue facing a community in establishing the implementation of the mitigation agreement is the actual method for distributing assistance and the location of the authority over this mechanism. That is: Who decides how much mitigation is necessary and how is this decision reached? Chapter III presented a variety of methods for reaching a decision, ranging from structured to flexible. Examples of structured approaches include: the designation of specific impact areas for the Highland County program, the utilization of severance tax money in Mercer County, and the educational assistance for Skagit County. Examples of flexible approaches include the Wheatland, Sundesert, and Susquehanna projects which base assistance on impacts as they arise with no specification of certain areas. The local role in deciding the amount of mitigation is quite diverse. The most active local role was exhibited at Skagit County and Wheatland. In the former a local panel decided the amount of law enforcement mitigation required, while in the latter the coordinating council, composed of mostly local officials, decided the amount of required mitigation. The least amount of designated local involvement occurred at the Susquehanna project.

Both TVA projects have flexible mechanisms for appropriating mitigation. For most impact areas mitigation is based on an assessment

of the current levels instead of being tied to a present formula or initial lump sum payment. The DOE assistance program is an excellent example of the structured approach to mitigation. Assistance is based on a preset formula that, while changing throughout the project, responds only to impacts linked to the formula. Local officials have a small role at all three sites. For the TVA projects local officials can make requests and attempt to influence the program coordinator's decision but have no actual authority or responsibility. The only opportunity for local participation at the CRBRP is during contract negotiations with DOE. Local officials interviewed at Hartsville and Phipps Bend are desirous of a more significant role in distributing mitigation. They contend that their interests are not being protected by having such a limited role.

Obviously a variety of approaches are possible for the community's role in developing an implementation strategy. Two basic considerations confront a community in this matter. First, a community should fully understand the mechanism for distributing mitigation, including its shortcomings. Second, a community should be fully aware of their role in the process. Based on issues contained in Chapter IV, a community should prefer to have a greater voice in the process. The advantage for a community of having a role in the process is based on the suspicion that the utility will not adequately allocate mitigation funds without some local influence.

The decision by local officials to obtain a signficant role depends on several factors. If the program is very structured, such as the DOE

assistance funds, a lesser role will be required. In contrast, an unstructured approach, such as utilized by TVA, will probably require a significant amount of negotiation. Thus, if local officials seek a role they should realize the importance of negotiating, in addition to providing sufficient proof of their claims. A community should consider the possible shortcomings of negotiating with a large utility and take account of any leverage they may have over the utility.

An allocation process based on community-utility cooperation will undoubtedly require a mechanism for resolving disputes. No such mechanism existed at either TVA project or for the CRBRP. However, several of the projects in Chapter III contained a means for dispute resolution. The process for resolution relied on the presence of a third party with final authority over disagreements. This third party was a siting authority on either the state or federal level which was specifically granted the power to force community or utility fulfillment of the mitigation agreement. If such a third party is available the possibilities for its use as a mediation mechanism should be examined. If no authority is present it would be advisable for the community and utility to recognize the likelihood of disputes and establish a mediating body. This body could be composed of state officials involved or concerned with impacts, local representatives, and utility officials. Also, the concept of environmental mediation could be proposed as a means to resolve disputes, if agreeable to all parties.

Local impact committee. The preceding discussion has identified the many issues facing a community and several options that can be

taken. In pursuing these options it may be necessary to coordinate actions of local impacted jurisdictions. The examples of such coordination discussed in Chapters III and IV indicate the variety of approaches available to a local impact committee.

Two major considerations confront local officials in the formation of an impact coordination committee. Of concern first is the role designated for the committee in the mitigation process. The committees at Hartsville and Phipps Bend contend their role is either limited or nonexistent. This limited participation reduces their influence over the amount of mitigation allocated. Thus, if the committee intends on possessing influence it should seek inclusion or acknowledgment at the origin of the program. The second major consideration involves the amount of authority granted the committee. The Hartsville committee was acknowledged as part of the mitigation program but was granted no authority to fulfill its goals and purposes. The Wheatland committee was granted the most extensive authority of any discussed in this thesis. They were granted the responsibility of assessing the current level of impacts and the proper amount of mitigation required.

With establishment of a designated role in the mitigation process and granting of an acceptable degree of authority, the committee can direct its concerns to other issues regarding the nature of the organization. A committee should follow the general guideline reiterated throughout this thesis: be involved in the early project phases. The committee must form in time to represent the local communities' interests in the best possible manner. The membership of the committee

is an issue also present in the formation phase. Most of the committees discussed in this thesis consisted solely of local officials. However, as illustrated by the Wheatland project, the committee can consist of other individuals. The inclusion of state and utility officials will help provide a broader perspective and facilitate the granting of authority to the committee. It is unlikely that a committee composed solely of local officials will be granted a significant role in the distribution of mitigation funds.

The establishment of committee purposes and tasks is dependent on the authoriy granted to the committee. There are a great variety of options available to a committee. These options include: preparing impact studies and mitigation proposals or programs, representing local communities in negotiations for mitigation funds; coordination and provision of information between local governments and the utility, monitoring of impacts, and a role in the allocation of funds. The committee must maintain a professional staff to conduct many of these activities. Therefore, annual funding for the committee is essential. Funding is available from several sources, with the most popular being the utility. Other sources similar to the ARC should be investigated during the formation of a committee. Annual funding must be assured if the committee is to maintain a competent staff and influence throughout the project.

The final consideration confronting an impact committee relates to the necessity for nonpartisan cooperation between local governments. The committee should represent all of the communities in unity to

maintain an advantageous bargaining position. As with any association of local governments, dissension among members could be detrimental to the overall benefit of the whole. The concerns of one community should become the concerns of all.

III. PARADIGM FOR RESPONSE

The issues and concerns presented in this chapter are summarized in Figure 2. Indicated in this paradigm are the steps a community should follow from initial assessment through the mitigation phase. More specific guidelines are not possible without examination of a particular community.

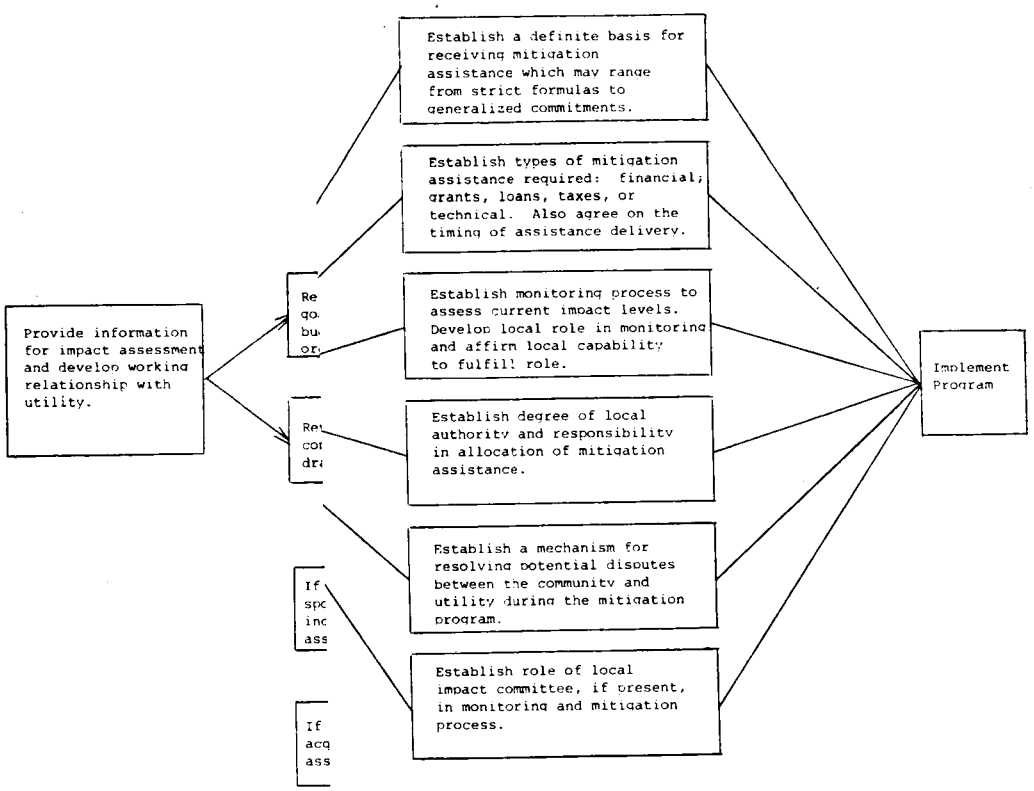


Figure 2. Community Response to Potential Impacts.

CHAPTER VI

SUMMARY AND CONCLUSIONS

I. SUMMARY

As a result of NEPA, the assessment of environmental impacts has become an integral part of determining the feasibility of many large-scale projects. Concern with social or economic impacts is included in this national policy although traditionally receiving less emphasis than other impact areas. The methodologies for assessing social impacts are varied and under continual development. At best, such an assessment predicts the probable changes on the social and economic environment resulting from a proposed project or policy. Also, studies may examine impacts after project completion, although the most common form is the predevelopment EIS.

With increased domestic energy production as a national priority, the need for a more accurate assessment of social impacts from such development, including power plant construction, is increasingly being stressed. In some western states the intensity of social impacts from energy development are expected to be particularly significant. The assessment of impacts is based primarily on the new population expected in the area as a result of construction or operation of the project. This projection is derived from the estimate of the work force required to build the project. However, these estimates included in the EIS often prove inaccurate and, therefore, reduce the validity of the in-mover

projection and subsequent assessment. A variety of facilities provides the basis for most assessments. Concern over other sociological or psychological impacts may also be considered, although rarely do they receive in-depth study in environmental impact statements.

The policy basis for impact mitigation is evolving through various mechanisms including NEPA, court cases, federal agency actions, and federal legislation. There are no standard policies for assigning responsibility for mitigation or procedures for implementing mitigation. Thus, mitigation involves several parties including the utility and local, state, and federal governments with each party having varying degrees of responsibility. Establishing the framework for developing and implementing mitigation between the various participants is often a major problem since the issues may be unfamiliar to all involved. Major problems facing a potentially impacted community include: lack of early notification of the project, poor coordination between involved parties, limited capabilities and resources of local governments, and funding. The problem of funding for mitigation concerns source and timing of funds and equal distribution of funds to those impacted.

Mitigation responses to power plant construction impacts across the country are quite varied. Although similar problems are faced by impacted communities, the approaches to mitigation reflect varied characteristics of communities and projects. The scope of mitigation ranges from concentration on specific impact areas to attempts at comprehensive mitigation of all impacts. The mitigation program may be based on general commitments or specific procedures of varying degrees

of preciseness. In those programs that do not follow strict mitigation formulas impact monitoring often plays a significant role in the decisions regarding an adequate level of mitigation assistance.

Local governments may take a variety of roles in mitigation depending on their resources, authority, and interest. Impacted communities often organize coordinating committees to promote effective mitigation. These committees may take a wide range of responsibilities from providing information and advice to actually implementing the mitigation program. State government involvement depends primarily on legislative authority and often consists of siting and mitigation approval and a general third party role in facilitating community-utility agreement. The federal government becomes a participant in those matters under federal jurisdiction, usually with authority to approve the project and any necessary mitigation.

There are many other key features of mitigation programs that have significantly different characteristics. The origin of mitigation can occur in a variety of ways, including mutual cooperation and actions by local, state, or federal government that impose mitigation conditions as part of the project approval. Disputes are likely to arise over the implementation of mitigation. Thus, many programs contain mechanisms for resolving disputes with such authority placed in a third party such as the state siting authority. Mitigation assistance is available from a variety of sources, including state and federal governments and the utility, and in a variety of forms, including grants, loans, and technical assistance.

There has been a significant amount of power plant construction in Tennessee during the past decade. Impact mitigation programs of significant size have been proposed or implemented at three sites. Environmental impact statements were required for all three projects as part of the NRC licensing process. The most significant impacts were projected for the Hartsville project with a lesser degree expected for the Phipps Bend plant. The Clinch River EIS contained the briefest socioeconomic assessment and did not project large-scale impacts.

Mitigation programs were established at Hartsville and Phipps Bend. The origin of the Hartsville program is largely based on intervention in the NRC construction permit process by local and state government. Although TVA had established a general mitigation commitment in the draft EIS, the intervenors were not satisfied and desired a clearer delineation of responsibility. Negotiations between TVA and the intervenors resulted in more specific agreements regarding mitigation. The mitigation program was contained in the final EIS and included in the construction permit as conditions upon TVA. The origin of mitigation at Phipps Bend was not marked by such serious disagreements. Again, TVA included a general mitigation commitment in the draft EIS. However, only the state intervened on socioeconomic grounds. The local communities were satisfied with TVA's intentions and did not obtain specific agreements. A similar general commitment was included in the final EIS while the NRC construction permit was conditioned only to require TVA to show concern for environmental problems and devise solutions. No mitigation commitment was granted for the CRBRP outside of the regular DOE assistance payments. However, the state had

intervened on behalf of several local governments in order to include mitigation conditions in the NRC construction permit.

Although the NRC required TVA to fulfill the mitigation obligation contained in the Hartsville EIS, no specific process was outlined for resolving disputes. Therefore, TVA has final authority over the disbursement of mitigation assistance while local governments can contribute only information and advice. Disagreement over the level of impacts and proper amount of mitigation have arisen at both Hartsville and Phipps Bend with local officials expressing discontent over their lack of options for solutions. The limited mitigation agreement for the CRBRP did not require a process for dispute resolution since mitigation is based on specific formulas and contracts.

Impact coordinating committees with nearly identical charters were organized for all three projects. Despite this similarity all three committees undertook different roles. The Hartsville committee is funded by TVA, and is concerned with coordination between local governments and representing them in mitigation requests. In contrast, the Phipps Bend and Clinch River committees are funded by ARC grants and are not acknowledged by TVA as part of the mitigation program. Both committees are concerned with preparing studies to support local contentions. The staff for the Hartsville and Clinch River committees are independent while the Phipps Bend staff is part of the area TSPO office. None of these committees were granted authority to implement their goals or had a role in developing the mitigation programs.

The significant differences between major characteristics of the three mitigation programs reflect the wide variety evidenced in the

nationwide examples. Although the Hartsville and Phipps Bend programs had many similar features, primarily the presence of a program coordinator, a monitoring effort, and the importance of negotiations, there were two major differences. First, the TVA commitment at Hartsville was more specific in that a major premise of the program was avoiding local indebtedness. Also, specific agreements were signed between participants. The Phipps Bend program never exhibited such definite characteristics. Second, differences also existed between the program coordinator with each one assuming roles based on the current program phase and their approach to personal interaction in general. The CRBRP mitigation program was in definite contrast to TVA's. Reliance was on allocation formulas instead of negotiations and the absence of any mitigation commitment by DOE, specific or generalized.

The foremost general recommendation for a community to follow in the event of power plant construction is to be involved in both the assessment and the mitigation phases. The guidelines contained in Chapter V are intended to indicate the various areas of concern awaiting a community and present a generalized process for addressing those concerns. By adapting the paradigm to the particular characteristics of the project the community should be able to identify the options available and prepare specific strategies and plans. Important considerations for the community during the assessment phase include commenting on the draft EIS, assessing local capabilities, and acquiring necessary assistance. During the mitigation phase the community should be particularly concerned with the following:

1. Establishment of a concise mitigation agreement with a specific scope and purpose,
2. Agreement on the type of assistance and the timing of its delivery,
3. Establishment of the local role in monitoring and allocation of assistance, and
4. Establishment of a mechanism for resolving community-utility disputes.

II. CONCLUSIONS

A community impacted by power plant construction, or any type of energy development, is confronted with various potential positive or negative impacts. Positive effects may include stimulation of the local economy through increased employment and sales, an increased tax base, and improvement of public services and facilities through mitigation measures. Negative impacts may consist of a serious strain on the delivery of public services and facilities, housing shortages, and traffic congestion. The following specific conclusions of this study indicate the community does indeed have many available alternatives in addressing impacts.

1. Responses to impact mitigation from energy development across the country are extremely varied. There are no standard policies or processes for a community to follow. The development of each mitigation program reflects the particular characteristics of the project and the community.

2. Preconstruction impact assessment is essential, although it does not provide the sole basis for mitigation. Conditions change as construction progresses and the mitigation program should reflect such divergences from the initial assessment, such as through a monitoring system.

3. Assistance for communities in mitigating impacts is available from a variety of sources. These sources include the utility and state and federal agencies and programs. Government programs for impacted communities have increased greatly in the past decade.

4. A community is not powerless to respond if the utility either refuses to mitigate or no agreement on specifics of mitigation can be reached. Even if a community has limited resources and authority, measures can be taken which may influence the utility or a third party to provide or impose mitigation.

5. A community must be aware of and prepared for mitigation if local interests are to be protected. This involves early involvement and acquisition of assistance in the assessment and mitigation phase.

6. A community should obtain a definite role with specific responsibilities in the mitigation program. Whether this role is significant or slight, it is essential a community be aware of its authority and limitations before mitigation progresses.

A community has little opportunity for influencing the actual presence of impacts. However, great opportunities do exist for obtaining significant responsibilities in dealing with those impacts and subsequently enhancing those which are positive and alleviating

or reducing those which are negative. The paradigm developed from the research contained in this thesis can be helpful to a community desirous of a major role in determining its future development. It is hoped this research will not only aid various potentially impacted communities but also provide insight and guidance for all other participants in the process of assessing and mitigating impacts.

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