
Socioeconomic Impacts of Nuclear Generating Stations

Calvert Cliffs Case Study

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with
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Prepared for
U.S. Nuclear Regulatory
Commission

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ABSTRACT

This report documents a case study of the socioeconomic impacts of the construction and operation of the Calvert Cliffs nuclear power station. It is part of a major post-licensing study of the socioeconomic impacts at twelve nuclear power stations. The case study covers the period beginning with the announcement of plans to construct the reactor and ending in the period, 1980-81. The case study deals with changes in the economy, population, settlement patterns and housing, local government and public services, social structure, and public response in the study area during the construction/operation of the reactor.

A regional modeling approach is used to trace the impact of construction/operation on the local economy, labor market, and housing market. Emphasis in the study is on the attribution of socioeconomic impacts to the reactor or other causal factors. As part of the study of local public response to the construction/operation of the reactor, the effects of the Three Mile Island accident are examined.

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NRC POST-LICENSING STUDY

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CHAPTER 1: INTRODUCTION

1.1 The NRC Post-Licensing Studies

This report—the case study of the Calvert Cliffs Nuclear Power Plant located in Calvert County, Maryland—is one of a series of reports that are being prepared as part of the NRC Post-Licensing Studies. The purpose of this chapter is to describe the objectives of the NRC Post-Licensing Studies, the major components of the studies, and the relationship of research concerning Three Mile Island to the overall study plan, and the organization of this case study report.

1.1.1 Objectives of the Post-Licensing Studies

The Post-Licensing Studies have four main objectives: to determine the socio-economic effects of nuclear power stations; to ascertain the significance of these effects to individuals and groups affected; to identify the determinants of the effects and their significance; and to determine whether currently available assessment methodology could have been used to anticipate the most significant of these effects.

Each of the latter three objectives depends upon clear identification of the effects of the nuclear station—the difference in the socioeconomic conditions as they occurred with the station and those that would have prevailed had the station not been built. Once the effects have been identified and their incidence among groups established, they must be placed in the context of the values of the individuals affected by them to determine their significance. The explication of the effects, the evaluation of those effects, and their significance to local residents permits an analytic consideration of the overall evaluation and the response of local residents to the presence of the nuclear facility in or near their communities.

After determining the patterns of effects caused by the facilities and the meaning of the effects to local residents across sites, the Post-Licensing Studies will turn to an examination of the causes of the documented effects. It is necessary to know what combination of site, project, or other circumstantial determinants appears to be responsible for the effects that ensued and for the levels of significance attached to them by local residents. In short, some plausible explanation for the consequences of constructing and operating the stations must be developed.

The final objective of the Post-Licensing Studies is somewhat different from the preceding three in that it is directly concerned with the methodology of the socioeconomic-assessment process. The central question is whether there are assessment methods currently available that could have been used to foresee the most significant of the socioeconomic effects associated with the nuclear plant. Based on the answer to this question, recommendations will be developed with respect to the assessment methods that can most appropriately be applied to anticipate the effects of the construction and operation of nuclear generating stations.

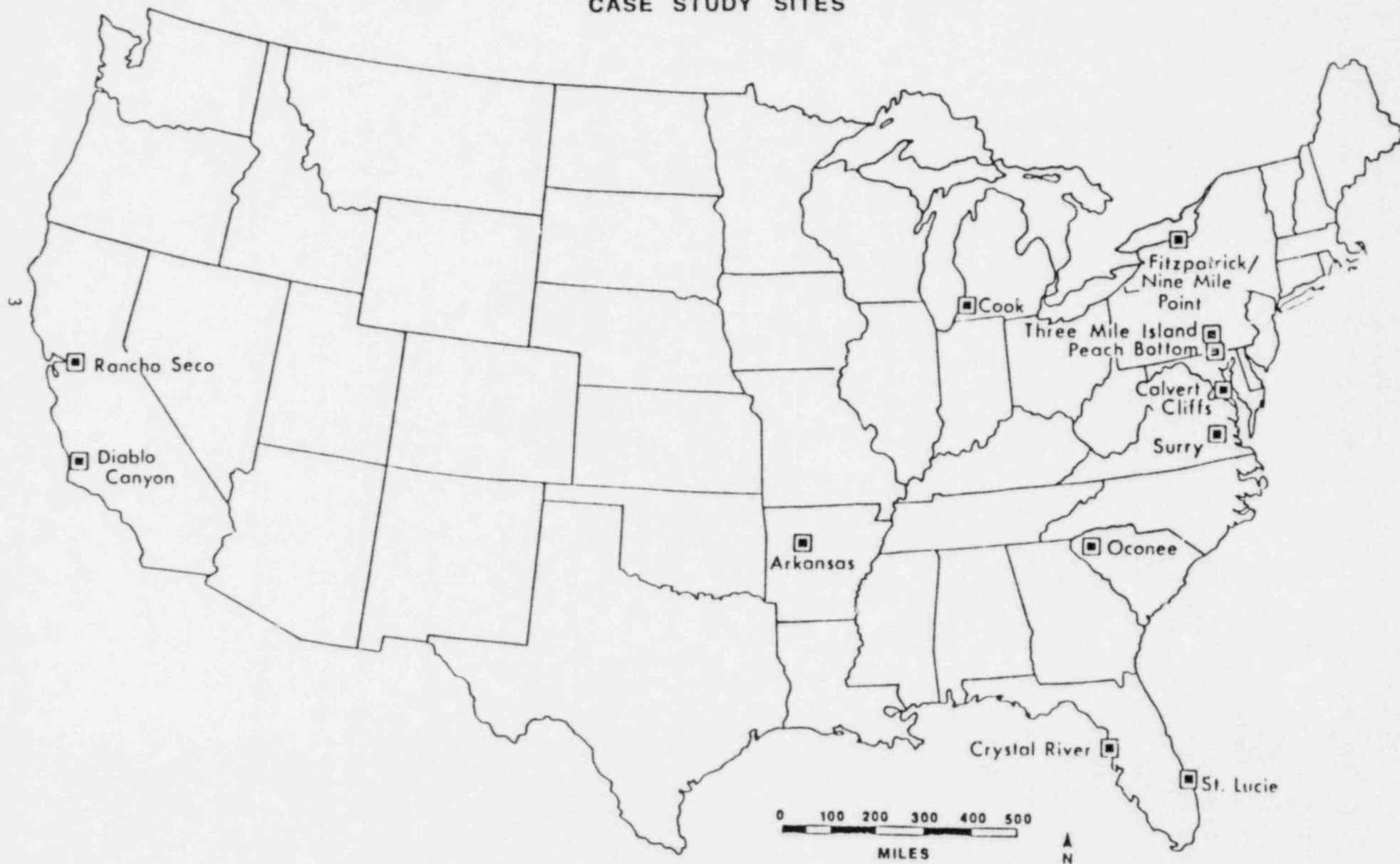
1.1.2 Components of the Post-Licensing Studies

The Post-Licensing Studies have three distinct components: the individual case studies, the cross-site analysis, and the methodological recommendations. The individual case studies are being conducted at twelve sites, as listed in Figure 1-1. The twelve case study reports will meet the first two objectives of the study. They will establish the social and economic effects of the nuclear station, and they will determine the significance of the effects for those persons affected by them.

Once the twelve case studies have been completed, work will begin on the part of the study referred to as the cross-site analysis. The results from all twelve case studies will be utilized to identify more specifically the causal mechanisms responsible for the effects that occurred. Of particular importance will be the establishment of the relative roles of site characteristics, project characteristics, and external forces in determining the consequences of constructing and operating a nuclear plant. The objective is to understand why effects occurred as they did and what was responsible for the significance they assumed. It must be remembered that twelve case studies is a very small sample and will not support rigorous statistical analysis of postulated causal relationships. At the same time, twelve comparable observations are more than have heretofore been available, and it is anticipated that the cross-site analysis will contribute substantially toward an understanding of why the socioeconomic effects occurred as they did and what determined the significance of the effects for the individuals affected by them.

The final component of the study will develop recommendations for methods to be applied in assessing the social and economic effects of proposed projects. The recommendations will be based on an evaluation of the relative success that various assessment methods would have had in anticipating the most significant effects of the twelve

FIGURE 1-1. UNITED STATES NUCLEAR REGULATORY COMMISSION
POST-LICENSING STUDY
CASE STUDY SITES



nuclear stations. Based on these results, methodological recommendations will be made, with an attempt to indicate the relative strengths and weaknesses of the alternatives.

1.1.3 Three Mile Island

Since Three Mile Island was one of the case-study sites, the scope of the Post-Licensing Studies was expanded to include an analysis of the social and economic effects of the accident on the residents of south-central Pennsylvania. Because a reliable data base was necessary to support this effort, the NRC Telephone Survey of 1,500 households was conducted in late July (Flynn, 1979). Since that time, an additional report was prepared. This report described the social and economic consequences of the accident during the six-month period from the end of March through September (Flynn and Chalmers, 1980).

Because of the unique circumstances surrounding the accident, the research at Three Mile Island will culminate in an individual report with two major parts. Part I will describe the pre-construction, construction, and operating experience of the station from late 1966 through 27 March 1979. This part will be based on the same methodology being used at the other eleven nuclear station sites and will be directly comparable to those case study reports. Part II will describe the emergency and the post-emergency periods covering the period from 28 March through the summer of 1981.

In addition to the expanded effort at the Three Mile Island site itself, the accident will affect the Post-Licensing Studies in one other way. Each of the case study sites will be examined for consequences of the Three Mile Island accident. There are two possibilities: the accident may have directly affected social or economic conditions at other sites, or the accident may have caused recognized effects to be evaluated in a different way and, therefore, to assume increased significance in the eyes of local residents. Both possibilities will be investigated.

1.2 Overview of the Case Study Organization

As was explained above, the purposes of the individual case study reports are to describe the socioeconomic effects of the construction and operation of the nuclear station that were experienced by residents of the area being studied and to indicate the significance of those effects to the individuals and groups affected. Each report contains ten chapters, the contents of which are summarized in Figure 1-2.

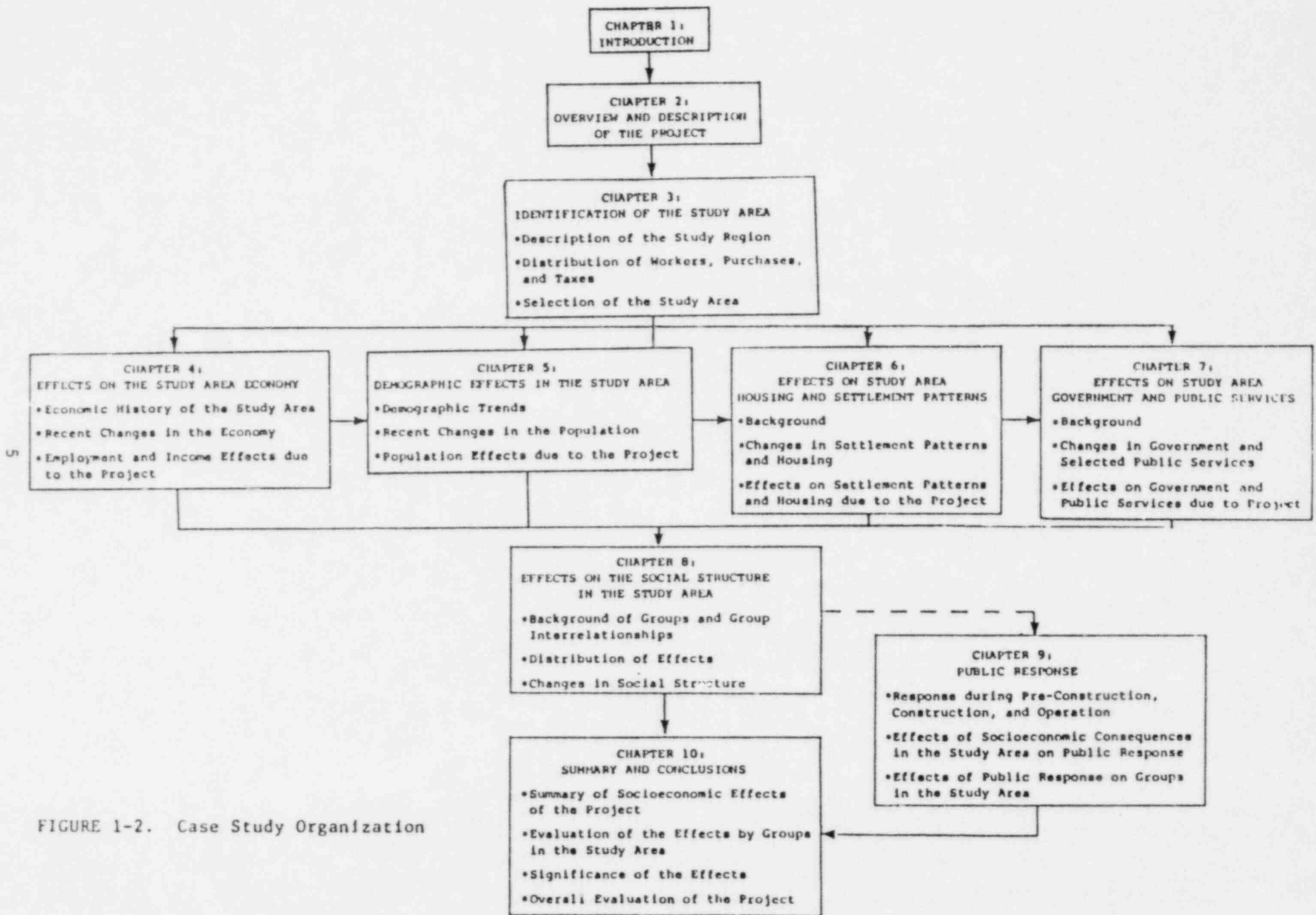


FIGURE 1-2. Case Study Organization

Following this introduction, Chapter 2 describes the project with emphasis on those project characteristics that are important determinants of socioeconomic effects. Chapter 3 then provides a general description of the region in which the project is located, both as an orientation and as a prelude to selecting the smaller study area that will be intensively analyzed in the remainder of the case study. Actual selection of the study area relies on the spatial distribution of project consequences and on the geographic extent of the major social, economic, and political systems that function in the vicinity of the plant. The consequences of the project that are examined in this context are the spatial distribution of the persons directly employed in constructing or operating the nuclear station, the distribution of direct purchases of goods or services made by the utility in order to build or operate the facility, and the spatial distribution, by jurisdiction, of the tax payments from the utility due to the nuclear station. The study area is then defined with reference both to the spatial distributions of these major consequences of the project and to the spatial distribution of the functional, social, economic, and political systems that operate in the vicinity of the station.

The next four chapters trace the effects of the plant on the study area economy, on the size and composition of the area's population, on housing and settlement patterns in the study area, and on government and the provision of public services in the study area. There are several organizing principles used to present this information. First, an attempt is made to describe conditions as they existed in the study area prior to the start of construction and as they changed from that time to the present. An explicit attempt is then made to identify that part of the change, or lack of change, due to construction and operation of the nuclear station. The temporal focus of the attribution of changes to the nuclear facility is on two points in time: the peak year of construction and a recent year during which the station was in full operation.

The second major organizing principle concerns the way in which effects are attributed to the nuclear station. There are two basic approaches to this problem. The first is to identify and control the effects of all other exogenous forces acting on the study area and, after their effects have been isolated, to attribute remaining effects to the nuclear station. The second approach is to make explicit causal arguments that directly tie postulated effects back to some known aspect of the construction or operation of the station. Both approaches require use and acceptance of the same kinds of behavioral hypotheses. Using the first approach, it is necessary to define the direct and indirect effects of other exogenous forces acting on the study area so that the effects

due to the station can be determined as a residual. Using the second approach, the same kinds of hypotheses and behavioral relationships are used to directly argue the nature and extent of socioeconomic effects stemming from the construction and operation of the station. The most convincing case for attributing effects to the nuclear station results from use of both approaches—control of other exogenous influences and identification of direct causal links to the plant. Where possible, both approaches are pursued in the case studies. In general, however, the social and economic changes that have taken place in the areas examined in this study over the ten- to fifteen-year period of investigation are so complex that the second general approach is relied upon more heavily than the first.

Chapter 4 begins with a description of the jobs and income directly associated with the station and then establishes other employment, income, and labor force effects experienced in the study area. Chapter 5 works directly from these estimates of employment change to examine effects on the size and composition of the study area's population, both from the in-migration of workers and their families and from reduced out-migration of local persons induced to remain in the area due to opportunities offered by the construction or operation of the station. Once population change due to the station has been established in Chapter 5, Chapter 6 examines the effects of the combined economic and demographic changes on housing and settlement patterns in the study area. The emphasis is principally on changes in the number, type, and spatial distribution of residences, although, where relevant, effects on patterns of commercial and industrial activity are also described.

Chapter 7 summarizes the major consequences of the station and of its economic, demographic, and housing effects on the local government in the study area. It begins by examining the major local jurisdictions in the study area for evidence of change in organization or structure due to the station. The effects on the revenues of local jurisdictions are then described. Finally, there is a discussion of the combined influence of changed revenues and changed levels of demand for public services on the provision of services in the study area. It was decided that these effects could be shown most clearly by focusing on a smaller number of important services rather than by trying to examine the provision of all public services in the study area. The services chosen are education, transportation, public safety, and social services.

Chapters 4, 5, 6, and 7 proceed in sequence, therefore, to trace the economic, demographic, housing, and governmental implications of constructing and operating a

nuclear station. The geographic focus is the study area defined in Chapter 3. The temporal focus is on the change from pre-construction to the construction peak and on the change from pre-construction to a recent year of full operation. Finally, the attribution of the effects to the nuclear station is achieved primarily through the establishment of direct causal relationships that are linked to effects directly associated with the station.

Chapter 8 examines the social structure of the study area and the ways in which it has been affected by the construction and operation of the nuclear station. The social structure is defined by the groups that exist in the area, their principal characteristics, and their social, political, and economic interrelationships. The chapter begins by identifying a set of functional groups into which the study area population is divided. A profile of each group is then developed. Each group is characterized in terms of livelihood, size, outstanding demographic characteristics, location, property ownership, values and attitudes, and patterns of intragroup interaction. The economic, political, and social interrelationships of the groups are then identified and described. An appreciation of these group characteristics and interrelationships helps to understand the way in which the effects of the project were evaluated and to explain group response to these effects. In addition, the characterization of groups and their interrelationships prior to the project serves as the basis for assessing the degree to which groups and social structure were altered as a consequence of the project.

The final step in the analysis of social structure is to determine the distribution of the economic, demographic, housing, and governmental effects of the station. The distribution of effects across groups provides explanatory information concerning the changes in group structure and characteristics and provides data for interpreting and understanding the group evaluations of the project.

Chapter 8 is designed, therefore, to accomplish two very important objectives. First, it makes operational the concept of social structure so that its constituent parts can be described and so that the effects of the construction and operation of the plant on social structure can be assessed. Second, the approach permits the examination of the effects of the plant on each group. The information on group characteristics and on the project effects accruing to each group provides the basis for determining the project's impact on the groups, discussed in Chapter 10.

Chapter 9 provides another perspective on the socioeconomic effects of constructing and operating the nuclear station by examining the public response to the project. The emergence and expression of public concerns and the issues that arose over the plant during the three study periods—pre-construction, construction, and operations, including post-Three Mile Island—are described and assessed. The issues are described in terms of topic, time of occurrence, actors, positions, and resolution. Unlike the previous five chapters of the case study, which focused on the effects of the nuclear station within the study area defined in Chapter 3, the analysis of public response is regional in scope. The principal sources of information concerning public response are the local and regional press, transcripts of hearings, and key informants.

The analysis of public response focuses on three questions: the extent to which the socioeconomic effects of the station on individuals and groups in the study area played a causal role in the public response to the project; the level of the direct participation of study area residents in publicly responding to the project; and the effects of the public response itself on the residents of the study area. The latter question involves the degree to which issues and confrontations that arose in the course of building and operating the nuclear station were responsible for changes in social or economic conditions within the study area. The strategy of Chapter 9, therefore, is to identify public response to the nuclear project and then sort out the reciprocal causal links from local socioeconomic effects to public response and from public response to local socioeconomic effects.

The overall objectives of the individual case studies are to establish the socioeconomic consequences of constructing and operating a nuclear power station on the residents of the local area in which a station is located and to provide a perspective on the significance of these effects to the people who experienced them. Chapter 10 will focus on the evaluation of the major socioeconomic consequences of the project by each group in the study area. The next step in Chapter 10 is to combine the information on group characteristics, effects, and group-specific evaluations to reach conclusions about the impacts and significance of the effects of the project. Absolutely large effects combined with strong positive or negative evaluations would imply strong significance. Similarly, absolutely small effects would tend to offset strong positive or negative evaluations, or indifferent evaluations could offset large effects and produce low levels

of significance. This process leads to a summary of the significance of the effects of the project.

CHAPTER 2: OVERVIEW AND DESCRIPTION OF THE PROJECT

2.1 Introduction

The purpose of Chapter 2 is to provide an overview of the Calvert Cliffs project, the socioeconomic effects of which are the topic of study in this report. The emphasis in this chapter is on a description of the major characteristics and elements of the project to provide an orientation for the more detailed analyses of the remaining chapters and to facilitate the cross-site comparisons with the other case studies of the research effort.

Information is provided on the project's location, size, type, and site characteristics; on the utility and other major actors involved with the project; on the magnitude and duration of the construction effort; and on the project's operating characteristics. This chapter is principally descriptive and is based on information provided by the utility, contractors, newspaper files, NRC docket materials, other reports, and interviews with a variety of informed people.

2.2 Location

The Calvert Cliffs Nuclear Power Plant, owned by the Baltimore Gas and Electric Company (BG&E), is located on the western shore of the Chesapeake Bay in Calvert County, Maryland. The site is 60 miles south of Baltimore and 38 miles south of Annapolis. Washington, D.C. is about 45 miles to the northwest. As shown in Figure 2-1, Calvert County is a peninsula in southern Maryland formed by the Chesapeake Bay and the Patuxent River. It is rural, with a scattered population, only two incorporated towns (both with fewer than 1,000 residents), and an unincorporated village as the county seat.

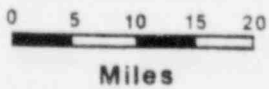
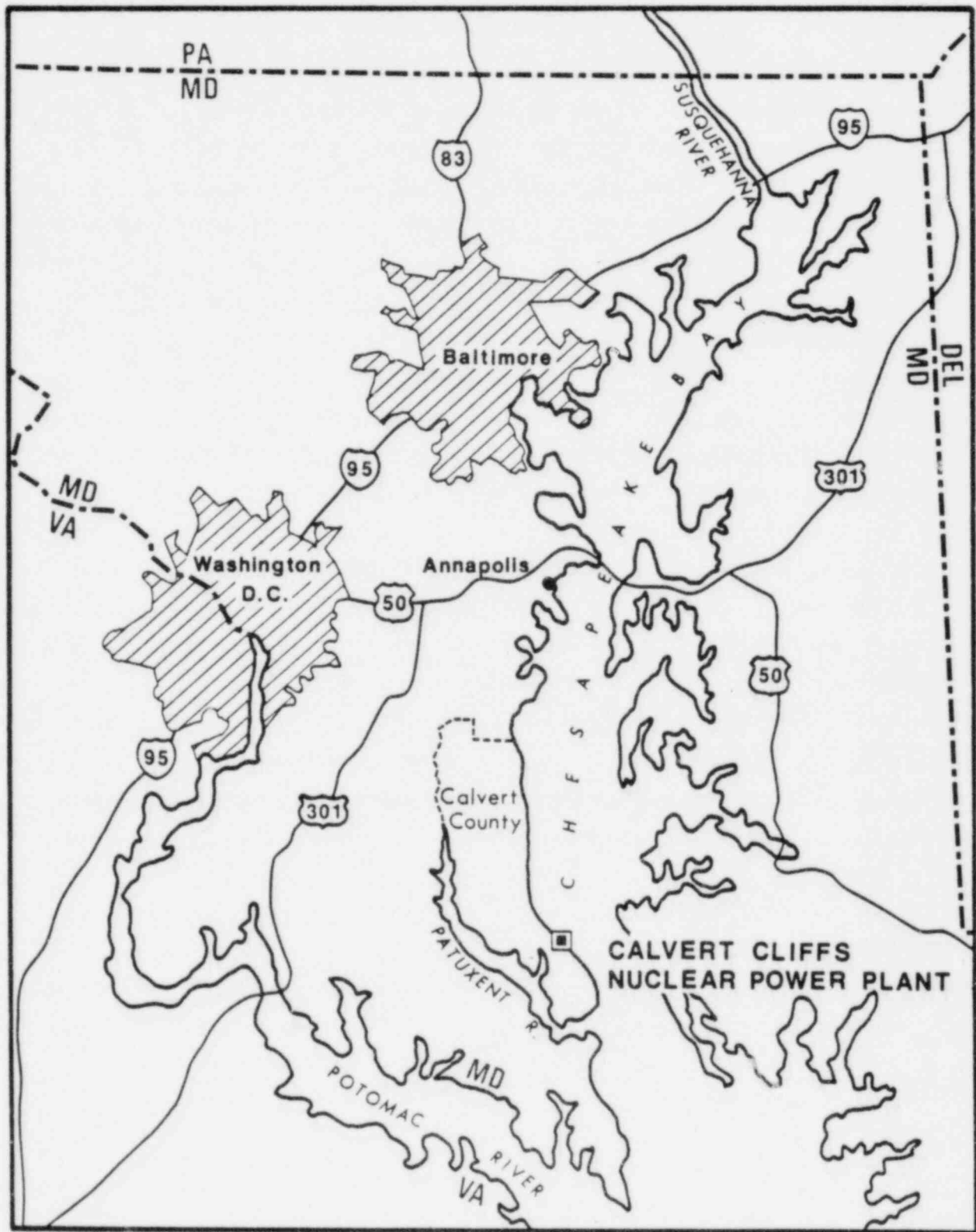
Access to the project site is limited to one state highway, which runs the length of the county and joins with the major transportation networks around Baltimore and Washington, D.C. At the time of project construction, only a single bridge provided the access across the Patuxent River.


2.3 The Utility

2.3.1 Corporate Background

The Baltimore Gas and Electric Company (BG&E), the oldest utility in the United States, adopted its current name on 4 April 1955. The firm was incorporated in Maryland

FIGURE 2-1. LOCATION OF CALVERT CLIFFS
NUCLEAR POWER PLANT



 Urban Area



on 20 June 1906 as Consolidated Gas Electric Light and Power Company of Baltimore, a merger of Consolidated Gas and Electric Light and Power Company and Consolidated Gas Company of Baltimore City. The company and its predecessors were engaged in the production and sale of manufactured gas from 1817 until 1950, at which time they changed over to natural gas distribution and sales. Since 1881, they have also produced and sold electricity. (Moody's, 1977:278.)

In 1979, Calvert Cliffs was the only nuclear plant built by BG&E, although the company had considered others, such as the Perryman site in Harford County northeast of Baltimore. BG&E had been interested in nuclear power for some time before the Calvert Cliffs project went into the design stage: they had cooperated on research in the field including, for example, Unit 1 at Peach Bottom, the 1958 experimental-reactor project built by Philadelphia Electric Company in southeastern Pennsylvania. (BG&E, personal communication, February 1980.) Calvert Cliffs was the first (and in 1979 remained the only) nuclear-fueled power station in Maryland.

2.3.2 Service Area

The service area for BG&E in 1979, shown in Figure 2-2, was approximately 2,300 square miles and included all or portions of eight Maryland counties and the cities of Baltimore and Annapolis. The population served with electricity was estimated at 2,347,000 persons in 1976. The gas distribution service area (which was included in the electrical service area) covered 600 square miles with an estimated population of 1,857,000 people. (Moody's, 1977:278.) Only a small portion of northeastern Calvert County is served by the company, and the nuclear station is located outside the company's service area.

2.3.3 Generating Capacity and Production

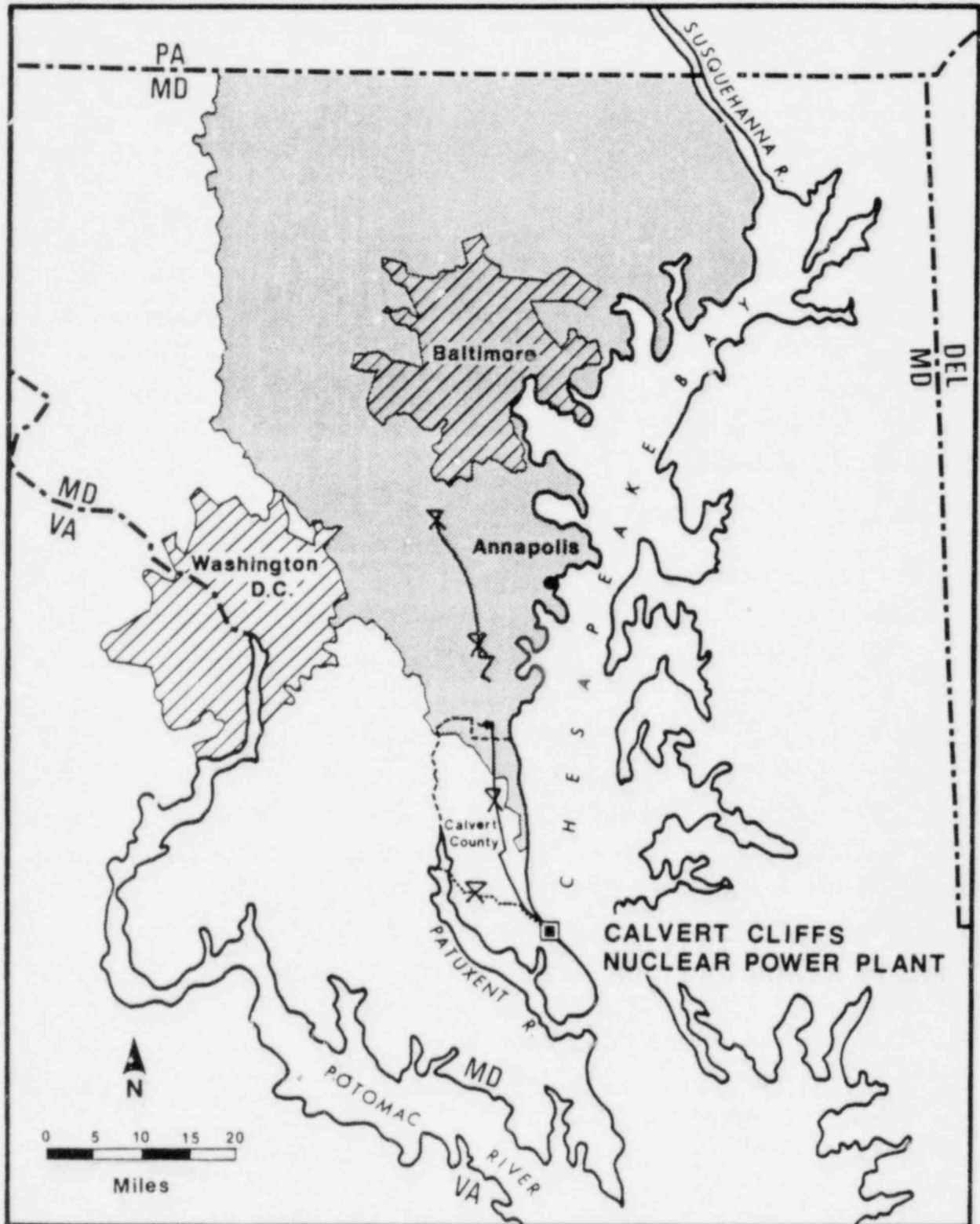
The company's electric generating capacity on 31 December 1977 totaled 5,262 Mw (BG&E, 1978). The nuclear-fueled capacity at Calvert Cliffs was 1,828 Mw or 34.7 percent of the system capacity. In 1977, Calvert Cliffs produced 54.5 percent of the electricity produced by BG&E; for 1979, the figure was 50.6 percent.





2.4 The Project

2.4.1 Project Site

Approximately fifty sites were examined by BG&E in their attempt to find the best location for the power plant. Three sites were purchased, including Calvert Cliffs.

FIGURE 2-2. BALTIMORE GAS AND ELECTRIC COMPANY SERVICE AREA



- | | |
|---|---|
|  Urban Area |  Calvert Cliffs 500 KV Transmission Line |
|  BG & E Service Area |  Calvert Cliffs 500 KV Transmission Line (Planned) |

The total size of the Calvert Cliffs property was 1,135 acres, obtained through the purchase of two adjoining parcels of land. (Nuclear Regulatory Commission, April 1973; BG&E, Engineering Department, personal communication, January 1980.)

The major portion of the property, 985 acres, was purchased in May 1967, after it had been rezoned for use as a power-station site (Morning Sun, 2 June 1967). The property was purchased at a cost of \$1,190,000, or about \$1,200 per acre. At the time of the purchase, approximately two-thirds of the area was woodlands, with most of the remainder used for agriculture, primarily tobacco and corn.

The remaining land for the project site, the 150-acre Camp Conoy, was purchased in late 1968 and cost the company \$400,000, or about \$2,600 per acre. Camp Conoy had been used by the Baltimore Metropolitan YMCA as an educational and recreational facility. As part of the purchase agreement, the YMCA continued to use the camp for an additional three years while the plant was under construction.

The Calvert Cliffs site is located directly on the Chesapeake Bay and has about 10,000 linear feet of shoreline. The cliffs on the eastern shoreline of Calvert County are nearly vertical in many places and in the vicinity of the plant often rise to almost 100 feet. There are fossil deposits in the cliffs, which are considered among the most important in the country and record a period of several million years. Special efforts were taken during construction of the plant to study and preserve the fossil resources.

The main property, known as the "Old Bay Farm," is of historical interest, with records of the property going back to early colonial days. The visitors' center is located in a remodeled tobacco barn, parts of which were built around 1830. The chimneys and foundation of the farm house have been preserved in a permanent display near the visitors' center.

2.4.2 The Plant

The Bechtel Corporation was named as the prime contractor for the project in August 1967 (Morning Sun, 4 August 1967). The plant is a two-unit steam generating station powered by nuclear fuel. Each unit is rated at 880 Mw (Nucleonics Week, 25 January 1979:18). The units use identical pressurized water reactors designed and fabricated by Combustion Engineering. The turbine-generator for Unit 1 was furnished by General Electric; that for Unit 2 was furnished by Westinghouse.

Cooling for the units is once-through, using Chesapeake Bay water. There are no cooling towers at the site. To link the plant to its service area, the company constructed a 500kV transmission line from the switching yard to a substation in Anne Arundel County, a distance of forty-seven miles. Another 500kV line has been proposed and is in the final planning stages. It will connect the plant to the regional intertie system at Chalk Point, a Potomac Electric Power Company facility on the Patuxent River (see Figure 2-2).

2.5 Construction

2.5.1 Announcement

The first public announcement of the Calvert Cliffs project was made on 29 May 1966. The fact sheet prepared by BG&E estimated that it would take two years for planning and acquiring the property and three years for building the first unit. The cost of the first unit was estimated to be between \$50 million and \$75 million. The construction work force was expected to number 500 persons, and the operating personnel were projected to be between 100 and 175 workers. In the announcement, it was stated that the choice of fuel was not final but that it would probably be nuclear. The possibility of an ultimate station capacity of 3,000 Mw (for 4 units) was mentioned. (BG&E, 1966.)

A year later, when the major contractors and suppliers were announced, an updated estimate of costs, work force requirements, and completion dates was disclosed. The overall cost for both units was put at \$302 million, the construction work force was expected to be 600 to 800 persons, and commercial operation was scheduled for Unit 1 in 1973 and Unit 2 in 1975. The station was described as the largest construction project ever attempted by private capital in Maryland.

2.5.2 Schedule and Cost

Construction began in 1968, and both units were completed by 1976. Commercial operation began in May 1975 for Unit 1 and in April 1977 for Unit 2. The total cost of the plant was about \$766 million. In addition, the transmission line to the substation in Anne Arundel County cost \$45 million; the proposed Chalk Point intertie line was estimated at \$8.6 million as of 1979. (BG&E, personal communication, 1979.) The cost and time overruns were attributed to normal construction delays, regulatory requirements, design modifications, financing contingencies, inflation, and labor problems (BG&E, personal communication, 1979).

2.5.3 Construction Period Work Force

The peak construction work force of 2,525 was reached on 30 November 1971 when Bechtel recorded 2,400 workers on site (the additional 125 were BG&E and other personnel). Figure 2-3 shows the average daily construction work force over the history of the project. Table 2-1 shows the average annual employment for the years 1968 to 1976. The peak construction year in terms of average annual employment was 1972, when an average of 2,064 workers were on site.

The construction work schedule included a night shift. The night shift in January 1972 was approximately 200 workers; the maximum night shift was 400 workers in September 1973. Overtime was scheduled to meet construction goals and to provide an incentive to attract workers for crafts in short supply. It was a union job, and most of the workers came through Washington, D.C. locals, although crafts were assigned from Baltimore locals and the laborers local in Calvert County.

2.5.4 Construction Experience

The extensive excavation required to prepare the site for the plant produced what is probably the major impact associated with changed land use: it resulted in the movement of over 1.8 million cubic yards of earth. The Calvert Cliffs have long been known as a major storehouse of miocene fossils (miocene fossils are 12-15 million years old). Prior planning by BG&E, the Maryland Academy of Sciences, and the Smithsonian Institute made it possible for scientists to examine these fossil deposits during the excavation process. As a result, the fossils located at the work sites were uncovered, recorded, and preserved.

Bechtel reported thirty-nine work stoppages during the June 1971 to October 1975 period. The vast majority of these stoppages were for one day or less, and each stoppage always involved only a single craft. The longest work stoppage involved the pipefitters and lasted forty-two days in September and October 1975. The issues were contract terms. On three other occasions, disputes lasted four, three, and two days. Resolutions of the disputes, often jurisdictional in nature, were handled on the site through an established grievance procedure.

In June 1973, a defect in the concrete work on the Unit 1 containment structure dome was discovered. The combination of this problem and modifications "required by the Atomic Energy Commission and inspired by the protests of environmentalists"

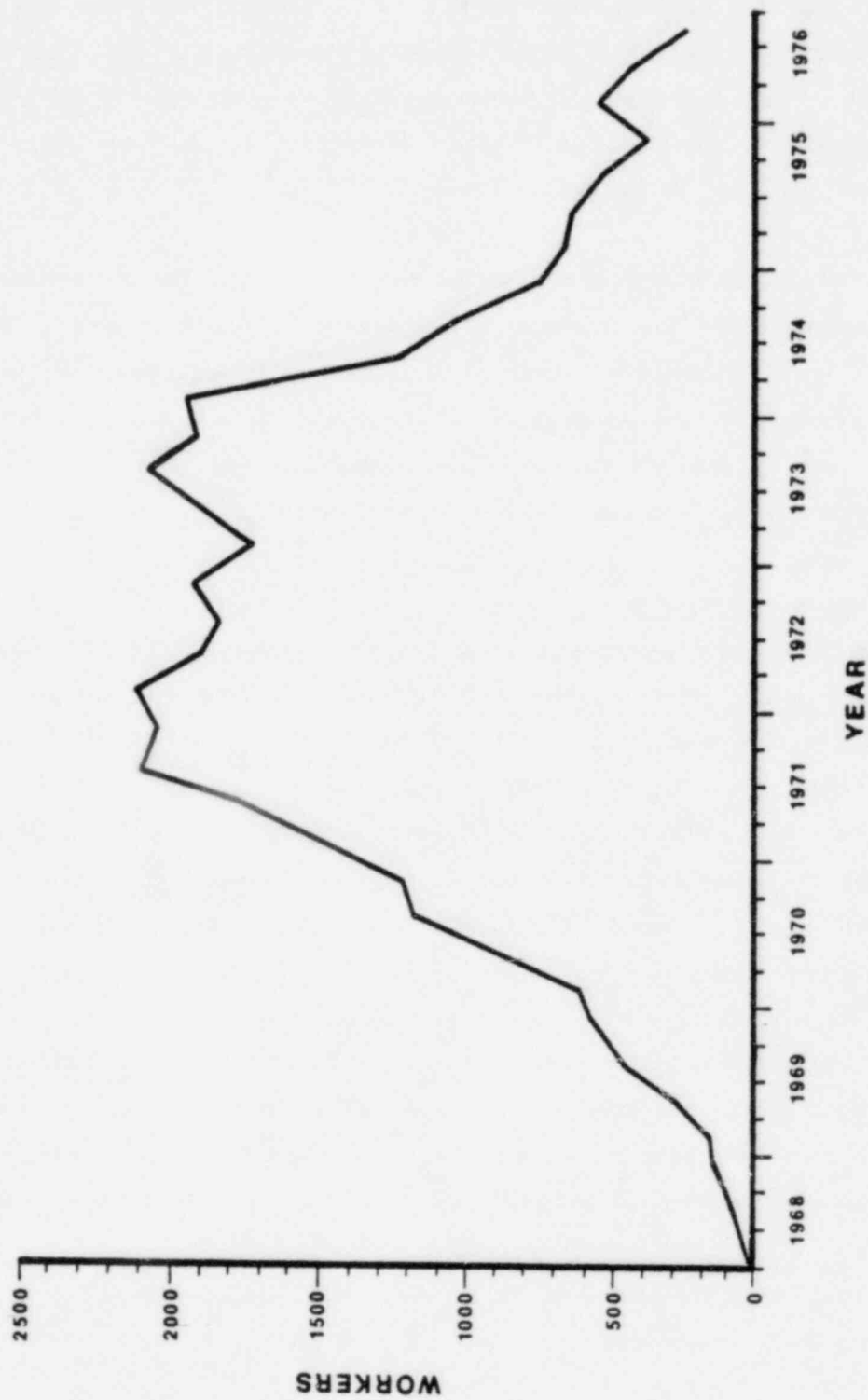


FIGURE 2-3. Average Daily Construction Work Force, Calvert Cliffs Nuclear Power Plant.

TABLE 2-1

CALVERT CLIFFS CONSTRUCTION WORK FORCE
AVERAGE ANNUAL EMPLOYMENT
1968 to 1976

Year	Average Annual Employment
1968	156
1969	487
1970	1,092
1971	2,050
1972	2,064
1973	2,012
1974	1,359
1975	558
1976	300

Source: Bechtel Corporation, memorandum and personal communication, January 1980; BG&E, files and personal communication, July 1979.

contributed more than a year to the total time lag (Washington Post, 22 June 1973). In November 1974, BG&E announced that "technical problems" discovered during the test operation of Unit 1 would delay commercial operation of the plant. The major problem was "higher than expected resistance to water flow in the reactor." (Prince Frederick Recorder, 27 November 1974.)

The construction schedule for Unit 2 was extended so that completion was delayed an additional year. This was done to meet the financial restrictions on BG&E resulting from the economic conditions of 1974-1975. It also included the normal construction delays. (BG&E, personal communication, January 1979.)

2.6 Operations

2.6.1 Schedule and Costs

Commercial operation for Unit 1 began on 8 May 1975, and that for Unit 2 began on 1 April 1977. The operating cost for both units in 1977 was \$56.1 million, which included initial fueling of Unit 2. (BG&E, 1978:432a-4.) Taxes, an additional expense, were about \$12 million in 1979, with over \$11 million going to Calvert County (BG&E, personal communication, January 1979).

2.6.2 Operating Work Force

During the five years that the plant has been in commercial operation, the work force has increased from 193 workers in 1975 to 334 workers in 1979. The utility has assumed direct control over plant security forces, which were formerly provided by contractors, and their number has increased noticeably in the last few years to meet NRC guidelines. Total average annual operating employment was 193 persons in 1975, 203 in 1976, 243 in 1977, 266 in 1978, and 334 in 1979. (BG&E, personal communication, 1980.)

2.6.3 Operating Experience

The operating record of the plant is considered a very good one: for the first six months of 1976, according to Nucleonics Week, Unit 1 produced more electricity than any other nuclear unit in the free world (News American, 28 August 1972). Unit 1 was taken out of service four times for refueling and routine maintenance; Unit 2 was out twice for these reasons (BG&E, personal communication, January 1980). A number of other "outages" took place: Unit 1 was out of service for 6 days for repairs to the steam generator in May 1975 (News American, 15 May 1975); Unit 1 was out for 13 days for repairs to a leaking seal on a pump in August 1975 (Evening Capital, 30 August 1975); and

Unit 1 was out for extensive repairs to a turbine generator section in June 1979 (Morning Sun, 6 June 1979). Additional inspection and modification were carried out during these outages and during the refueling periods. The annual plant capacity factors for 1978 were 63.7 percent for Unit 1 and 71.3 percent for Unit 2; the average for all U.S. plants was 61.7 percent. (Nucleonics Week, 25 January 1979:18.)

2.6.4 Refueling and Major Repairs

The refueling, maintenance, and repair operations require additional personnel for specific periods during the year. Each unit is scheduled for an "outage" period when this work can be done. Because of the special maintenance and repair requirements for each outage, there is a wide range of time and manpower needed for this work. Generally, however, the outages are scheduled for about six weeks, and 375 to 575 additional workers are brought to the site. BG&E supplies about 275 of the workers, with the other 100 to 300 workers being supplied by contractors. Unit 1 has been refueled four times, once in 1976, 1977, 1978, and 1979. Unit 2 has been refueled twice, once in 1978 and once in 1979.

The only two instances that could be classified as major repairs were the NRC-ordered replacement of bolts on the cooling system hangers and some extensive repairs to the Unit 1 turbine generating section, both done in the summer of 1979. (BG&E, personal communication, October 1979.)

2.7 Taxes

Calvert County received the bulk of taxes paid for the Calvert Cliffs plant. BG&E paid about \$30,000 per year in property taxes on the land from the time it purchased the site. When Unit 1 went into commercial operation in 1975, BG&E began to pay taxes on the station as part of the county's assessed base. For fiscal year 1975-1976, the company paid over \$6.8 million to Calvert County. The tax payment was \$7.4 million in 1976-1977; \$11.3 million in 1977-1978 (when Unit 2 was assessed); and \$11 million in 1978-1979. These payments included small amounts for the distribution properties to serve customers along the northern border of the county and for the transmission line right-of-way.

The utility also paid some taxes for the right-of-way to Anne Arundel County and some state taxes that were collected by Calvert County. The taxes paid to Anne Arundel

V
2
5
0
2
4

County were less than \$25,000, and the state taxes were slightly over \$1 million. In both cases, these amounts were quite small when compared to the total revenues of the collecting jurisdictions. (BG&E, personal communication, 1979.)

2.8 Corporate/Community Programs

2.8.1 Emergency Planning

A number of agreements have been made between BG&E and local groups as part of the emergency planning for Calvert Cliffs. Those most essential to the emergency planning are the hospital, civil defense, police agencies, fire and rescue squads, schools, and the Red Cross. The company has provided special training and equipment for the hospital and rescue squad personnel.

The emergency plan was originally adopted before the operation of Unit 1 began in 1975. It was revised in 1976 and has been updated numerous times. In 1979, after the accident at Three Mile Island, a new emergency plan including a public evacuation component was ordered. This plan was scheduled for completion on 1 January 1980. The principal parties involved in the new plan were BG&E, state and local civil defense, and a planning consultant. (BG&E, personal communication, December 1979.)

Prior to TMI, annual drills were held to check the operation of the emergency plan and to meet the requirements of the NRC. The earlier drills concentrated on an assumed radiation exposure to a plant employee or employees; only recently have the drills been concerned with the possibility of public evacuation in the case of a serious accident at Calvert Cliffs.

2.8.2 Visitors' Center

The major facilities available to the public are associated with the visitors' center, which displays the local fossil record, local history, and operational aspects of the project. A total of 474,667 persons signed the registry from August 1969 to January 1979. The greatest number of visitors was recorded during 1971, with July and August of that year showing the highest monthly counts. (BG&E, personal communication, October 1979.)

2.8.3 Other

BG&E has supported a number of programs dealing with scientific work on the Calvert Cliffs miocene fossils. The Maryland Academy of Sciences (MAS) and the

Smithsonian Institute cooperated in the effort to preserve the fossil remains. MAS provided most of the public involvement programs, including a number of public tours during the year. At the local level, BG&E supported development of the Calvert County Marine Museum with its fossil collection and exhibitions. (BG&E, personal communication, October 1979.)

2.9 Chronology of Major Events

The major milestones of the construction period are shown in Table 2-2. The ten-year period covers the time from the formal announcement of the plant in 1967 to the commercial operation of Unit 2 in 1977.

TABLE 2-2

CHRONOLOGY OF MAJOR EVENTS

Date	Event
29 May 1967	Calvert Cliffs project is announced.
1 January 1968	BG&E files license application with AEC.
June 1968	Site preparation work begins.
7 July 1969	Construction permits #63 and #64 are issued by AEC.
30 November 1971	Peak on-site construction work force of 2,525 workers is reached.
31 July 1974	Operating license for Unit 1 is issued.
8 May 1975	Commercial operation of Unit 1 begins.
13 August 1976	Operating license for Unit 2 is issued.
1 April 1977	Commercial operation of Unit 2 begins.

CHAPTER 3: IDENTIFICATION OF THE STUDY AREA

3.1 Introduction

Chapter 3 is designed to describe the region in which the Calvert Cliffs plant is located and to derive a study area for the remainder of the case study. It traces the pattern of three direct project effects: the residential location of workers, the places where purchases for the project were made, and the political jurisdictions that received tax revenues. There were two major considerations in selecting the study area: the direct effects of the project must be great enough to be identified and studied, and the area must correspond as much as possible to the spatial boundaries of the functional social and economic systems that operate in the area.

The preliminary site visit examined a five-county region (Mountain West Research, Inc., 1979). The distribution of direct project effects were calculated for two periods: 1972, which was the peak construction year; and 1978, which was the first full year of commercial operation. An analysis of the scope, magnitude, and distribution of these effects was correlated with the spatial extent of functional social and economic structures in the five-county region and served as the basis for selecting the study area.

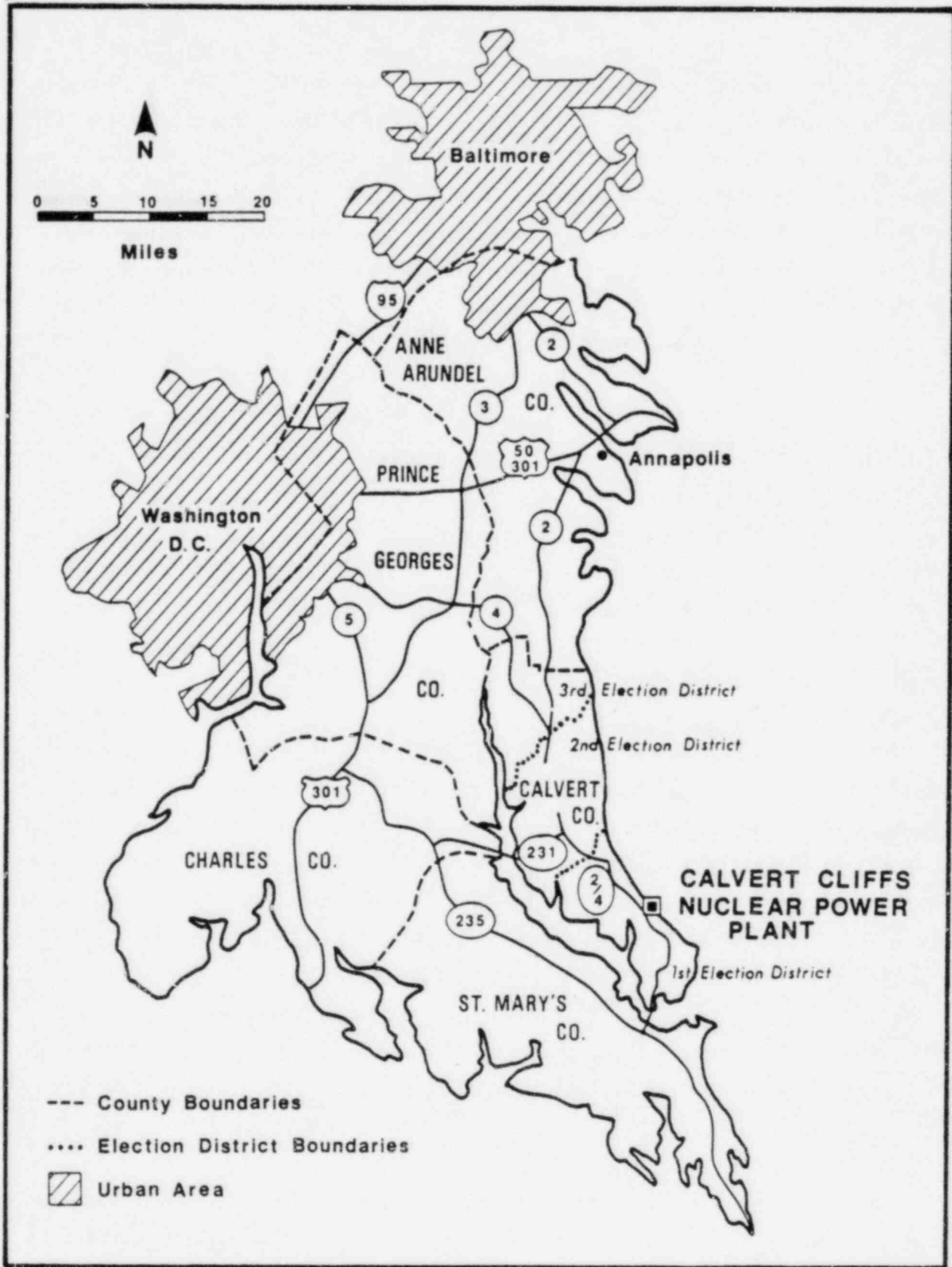
3.2 The Region

3.2.1 Description of the Region

The five-county region, shown in Figure 3-1, was examined and described in the initial study of the Calvert Cliffs Nuclear Power Plant. This region included: the Tri-County Area, composed of Calvert, Charles, and St. Mary's counties; Anne Arundel county, where the state capital of Annapolis is located; and Prince George's county, which is part of the Washington, D.C. metropolitan area. (Mountain West Research, Inc., 1979.) The five-county area is located southeast of Interstate Highway 95 (I-95), the principal link between Washington, D.C. and Baltimore. Anne Arundel and Prince George's counties, adjacent to these major metropolitan centers, are densely populated and have experienced rapid development over the past twenty-five years. In 1970, their populations had risen to 297,539 and 660,567, respectively. (U.S. Bureau of the Census, 1970.)

The Tri-County Area is distinguished by its extensive water frontage and relative isolation. Calvert and St. Mary's counties are both peninsulas, and much of Charles

FIGURE 3-1. STUDY REGION: FIVE COUNTIES IN SOUTHERN MARYLAND



County is bordered by the Potomac River. Historically, the economic base was agriculture, with tobacco the major crop. In 1970, Charles County and St. Mary's County had about the same population, 47,678 and 47,388 respectively, while Calvert County was considerably smaller, with 20,682 persons. The migration trends for the three counties were similar for the 1960-1970 decade, with a net in-migration of whites and an out-migration of blacks. The Tri-County Area had a scattered population and relatively small service centers. Charles and St. Mary's counties historically were tied more closely to Washington, D.C. because of their water access via the Potomac River, while Calvert County's historical ties were to Baltimore and Annapolis.

More recently, highways have met the area's major transportation needs, and Calvert County's orientation has turned toward Washington, D.C. The road system in the area has been upgraded extensively over the past twenty-five years, but the water barriers and other topographical features continue to hinder easy travel. It was not until December 1977 when the lower Patuxent River bridge was opened at the southern end of Calvert County that Calvert and St. Mary's counties had a direct transportation link. At the time of the study (1979) the access to the Calvert Cliffs plant was restricted to one state route, Maryland 2/4, which was only a two-lane road.

3.2.2 Identification of Places within the Region

Although a number of smaller areas and towns were examined, the information concerning the location of workers, purchases, and taxes led to an examination of subcounty areas only in Calvert County.

Calvert County has three election districts, which are about equal in area. The southern section (ED1) contains several residential developments and the two major industrial sites in the county--the Calvert Cliffs nuclear plant and the Columbia Liquid Natural Gas (LNG) facility. The middle district (ED2) contains the county seat, which also serves as the county's retail and service center. The northern district (ED3) has the only two incorporated towns in the county. It is in this northern district that extensive residential development for suburban commuters to the Washington, D.C. area has taken place.

Although Prince George's and Charles counties had places with excess housing and adequate transportation access to the Calvert Cliffs site, none of them received a sufficient concentration of workers, purchases, or taxes to warrant separate

consideration, so no subdivision of these two counties was made. The large population and distance of Anne Arundel County from the site and the lack of access from St. Mary's County similarly resulted in no subdivision of these counties into smaller units. Therefore, the workers were allocated to the following areas within the five-county region: Charles County, St. Mary's County, Prince George's County, Anne Arundel County, and three election districts of Calvert County.

3.3 Distribution of Workers

3.3.1 Introduction

The principal purpose of allocating workers to the local areas is to determine the size of the effects relative to the size of the areas in which they occurred. Employment and income associated with the project are considered to be both important effects in themselves and the cause of further, secondary effects.

Consideration was made of the employment and income effects of the project during two time frames: during construction and during operation. The difference between these periods is noticeable in the number of workers, residential patterns, pay, and commitment by the project's employees to the local community. Because no recorded data were available to show where the construction workers lived, information on this subject was obtained through interviews with key informants. These interviews focused on the peak construction period, 1972. The residential location of operations workers was supplied by BG&E for 1978, the first full year of the commercial operation of both units.

3.3.2 Peak Construction, 1972

The distribution of workers is shown in Table 3-1 for the five-county area, including Calvert County and its election districts.

Several factors were particularly influential in the distribution of workers. Most of the union locals were headquartered in Washington, D.C. Only the Laborers Local 632 had an office in Calvert County. The number of the workers from St. Mary's County was relatively small because there was no direct road access to the site. Throughout the construction period, the demand for housing in Calvert County was far in excess of the supply; realtors reported waiting lists of 50 to 100 or more for rentals. The lack of housing in Calvert County increased the number of workers living in the adjacent counties.

TABLE 3-1

CALVERT CLIFFS WORK FORCE
 BY PLACE OF RESIDENCE
 1972

Location	Total Work Force
South (ED 1)	392
Middle (ED 2)	423
North (ED 3)	240
Calvert County	1,055
Charles County	125
St. Mary's County	60
Prince George's County	400
Anne Arundel County	200
Other	224
TOTAL	2,064

Sources: Bechtel Corporation, file documents, January 1979; key informant interviews, January, July, October 1979.

3.3.3 Operations Period, 1978

The residential location of the operations work force was supplied by BG&E from its personnel files. These data are shown in Table 3-2.

An additional 29 personnel, many of them Calvert County residents, were employed at the site as contract workers. The total on-site employment for 1978 was, therefore, 266 persons. (BG&E, personal communication, 1980.) The residential location of these workers may have been influenced by a company policy that encouraged its operating personnel to locate close to the plant.

The 375 to 575 refueling, maintenance, and repair workers were generally scheduled to be in the county for 90-100 days each year. About half of them stayed in the county, filling the motels, rental rooms, and available housing units. The other half commuted from the outside, generally from the north, although an increasing number came from the southern portion of St. Mary's County once the lower Patuxent River bridge was opened.

3.4 Distribution of Purchases

Almost all the purchases associated with the construction and operation of the plant were made outside the five-county region, which simply could not supply the equipment or materials needed for the project. In addition, BG&E had its purchasing and distribution facilities in Baltimore. Most of the materials and services for construction were obtained by the Baltimore offices. The more bulky items were brought to the site by barge. The amount of these purchases was large but would be untraceable in the huge metropolitan areas of Washington, D.C. and Baltimore.

Locally, the purchases of goods and services were reported to be quite small; in no case was there a report of transactions involving more than a few thousand dollars. Therefore, no significant employment or income effects could be attributed to local purchases for the Calvert Cliffs project.

3.5 Distribution of Taxes

BG&E paid taxes to three public jurisdictions on the assessed value of property associated with the Calvert Cliffs project. The smallest amount, several thousand dollars, went to Anne Arundel County for the transmission line right-of-way in that

TABLE 3-2

CALVERT CLIFFS WORK FORCE
BY PLACE OF RESIDENCE
1978

Prince George's County	Total Work Force
South (ED 1)	151
Middle (ED 2)	30
North (ED 3)	18
Calvert County	199
Charles County	3
St. Mary's County	16
Prince George's County	-
Anne Arundel County	10
Other	9
TOTAL	237

Sources: BG&E, personal communications, 1979; key informant interviews, 1979.

county. The State of Maryland collected slightly more than \$1 million. Calvert County's receipts exceeded \$11 million per year.

3.6 Selection of the Study Area

3.6.1 The Study Area

The Study Area selected for the Calvert Cliffs case study was Calvert County, Maryland. A detailed map of the study area is provided in Figure 3-2.

3.6.2 Rationale

The distribution of the construction work force for 1972 showed that over 50 percent of the workers located in Calvert County. During operation of the station in 1978, more than 84 percent of the work force lived in the county. The construction and operations work force were thus heavily concentrated in Calvert County. In addition, the workers constituted a larger proportion of the population in Calvert County than in any other area—a consequence of the concentration of workers and the relatively small population of Calvert County.

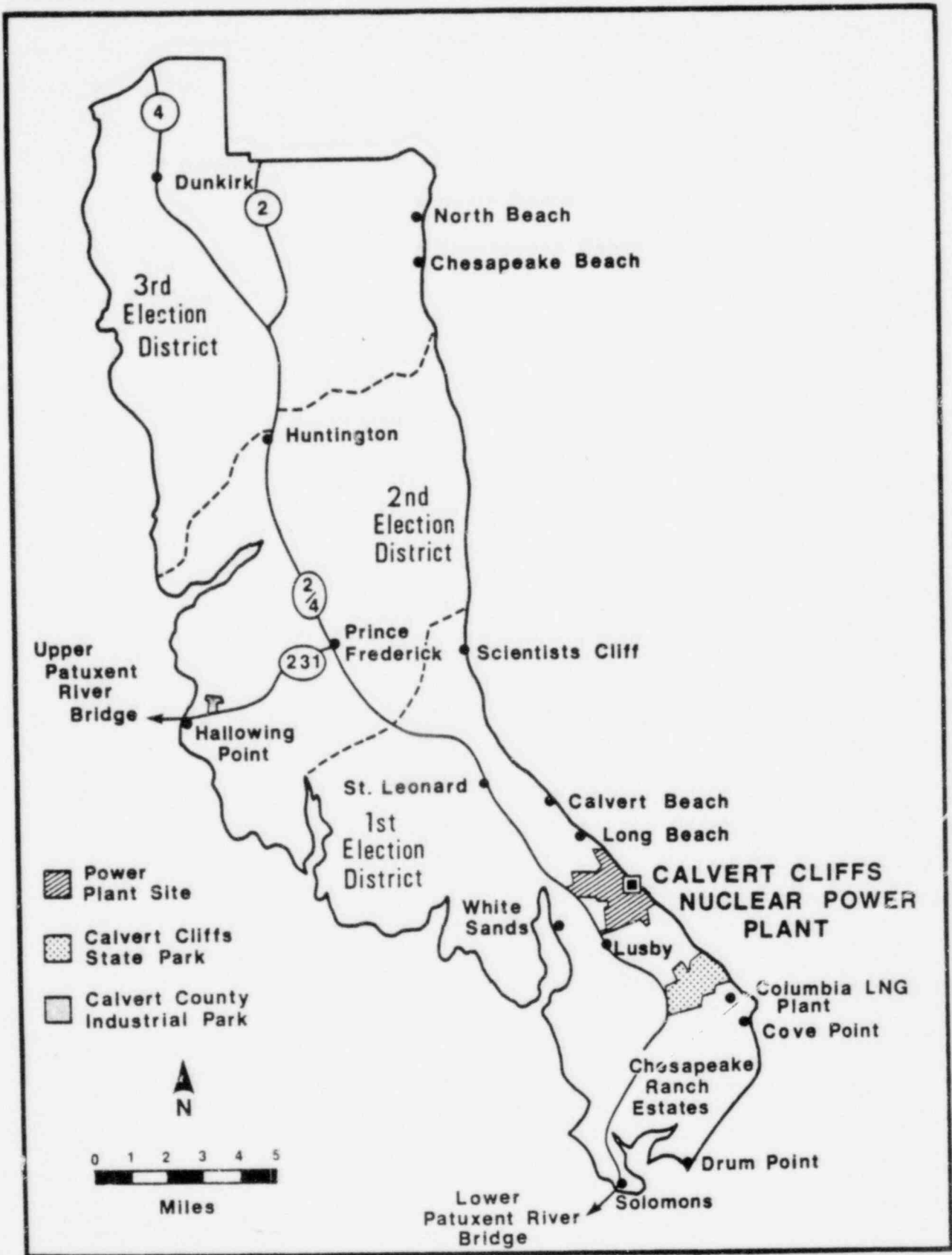
Since the quantity of purchases within the five-county region was very small, little distinction among places was obtained from this information.

A clear distinction does result from consideration of the distribution of taxes. Almost all taxes paid by BG&E for the plant during the operations period went to Calvert County. The state taxes, about \$1 million per year, were only a small proportion of the total state revenues. Taxes paid for the right-of-way in Anne Arundel County were difficult to separate from payments made for other company properties but appeared to be around \$25,000 per year. Once again this was a small amount of that county's revenues. For Calvert County, however, the taxes were very large and significant. Tax payments were over \$6.8 million for fiscal year 1975-1976; \$7.4 million for fiscal year 1976-1977; \$11.3 for fiscal year 1977-1978; and \$11 million for fiscal year 1978-1979. In 1977 and 1978, Calvert Cliffs accounted for about 65 percent of the assessable tax base of Calvert County.

3.6.3 Summary

Calvert County was clearly a potential study area. Since the work force distribution was concentrated in the southern section of the county, the definition of a subcounty area as the study area was considered. Not only were work force effects

**FIGURE 3-2. CALVERT CLIFFS NUCLEAR PLANT STUDY AREA:
CALVERT COUNTY, MARYLAND**



discernible in both the middle and southern sections, but also induced employment and income effects were expected to take place within the established county trade and service patterns. In addition, the fiscal effects were large enough to have definite county-wide impacts. Finally, the insular nature of the county prior to the project period had created a county-wide community with discernible and intertwined political, social, and economic systems, an important consideration in defining it as the Study Area.

CHAPTER 4: ECONOMY OF THE STUDY AREA

4.1 Introduction

The purpose of this chapter is to define the effects of the construction and operation of the Calvert Cliffs nuclear station on the economy of the Study Area. Emphasis is placed on changes in the employment, income, and labor force status of the population. Attempts are also made to assess the impacts of the station on the standard-of-living of the county's residents.

The analysis begins by providing an overview of the economic history of the Study Area. The historical discussion is oriented to the three components of the economic base of Calvert County—agriculture, fishing and seafood processing, and tourism.

A more detailed examination of changes that occurred in the economy of the Study Area over the 1968-1977 period is then made. This period begins with the start of construction at Calvert Cliffs and continues on through the last year for which much of the relevant economic data are available. The discussion is organized around three topics: employment and income changes, labor-force changes, and standard-of-living changes. Throughout this discussion, changes in the relevant data are described without attempting to attribute the changes to the construction and operation of the nuclear station at Calvert Cliffs.

The next sections of the chapter trace out the employment and income effects associated with both the construction and the operation of the station. The analysis of the construction effects is centered on 1972 (the peak construction year), and the analysis of the operation effects focuses on 1978. The approach followed in the case study identifies three different categories of basic employment and income that together determine nonbasic employment and income. Two different methods are used to estimate the size of the nonbasic income and employment effects. The results from these two methods are compared with each other and with the empirically observed experience of the county. A summary of the employment and income effects due to the station, followed by a summary of labor force effects and standard-of-living effects, ends the chapter.

4.2 Economic History of the Study Area

For three hundred years, Calvert County had a small population, a traditional society, a farming and fishing economy, and limited industrial development. Agriculture was the mainstay of the county, with tobacco the primary crop and a major source of income. Calvert County was originally named "Patuxent County" for an Indian word that means "where tobacco grows"; cultivation took place throughout the county, but the richest lands and largest farms were located along the Patuxent River. (BG&E, n.d.:16.) During the Civil War, the county was sympathetic to the Southern cause and was occupied by Union troops, although Maryland did not join the Confederacy. The end of slavery severely limited the operation of large county plantations due to a lack of abundant, inexpensive labor. After the Civil War, the tobacco economy was rebuilt on a smaller scale. Both white and black farmers and landowners were involved in post-Civil War agriculture, although land ownership was dominated by whites. As the tobacco economy was re-established, sharecropping, tenant farming, and day labor gradually increased in importance, with most of the laboring work done by blacks. Although the economic role of tobacco had declined by the time of the study, tobacco remained a major influence in the economy of the county.

The fishing and seafood sector was traditionally another major source of jobs and income. Like tobacco, however, the seafood industry had declined in importance. Historically, the local residents had always made use of the abundant seafood from the Chesapeake Bay and the Patuxent River. In 1867, Captain Isaac Solomon, a Philadelphian, built the first commercial seafood processing facility at the southern tip of the county and established the industry. The area soon became known as Solomons Island, and by 1880 the local fishing fleet exceeded 500 vessels. Nearly all these boats were built in local yards. (Stein, 1976:183.) The seafood was processed and shipped to points all along the Eastern seaboard. The number of county "watermen" who did the actual fishing, oystering, and crabbing diminished greatly and, at the time the study was conducted, they numbered fewer than 100. The processing jobs were similarly reduced with probably fewer than 150 workers at the seasonal peaks. The long-term decline in agricultural and forestry and fisheries employment is shown in Table 4-1.

The loss of these jobs in agriculture and fishing was partly offset by a gradual increase in the population of the county and expansion in trade and service employment. But not enough new economic development occurred to replace the jobs that were lost,

TABLE 4-1**CALVERT COUNTY EMPLOYMENT
AGRICULTURE, FORESTRY, AND FISHERIES
1940-1970**

	1940	1950	1960	1970	Change 1940-1970
Agriculture and Agricultural Services	1,940	1,794	1,130	636	-1,304
Forestry and Fisheries	181	95	35	20	- 161

Source: U.S. Department of Commerce, Bureau of Economic Analysis, 1975.

and the area experienced substantial out-migration, especially by blacks. The lack of adequate job opportunities was a general concern in the county for a long time.

A third major economic base in the county has been the recreation and tourist industry. North Beach and Chesapeake Beach, in the northeastern corner of the county, were developed early in the century for summer recreation. The attractions were the beaches, piers, fishing, amusement parks, and ancillary businesses such as restaurants, bars, and hotels. Later, the Solomons area and places along the Patuxent River were also developed as recreation spots with fishing, marinas, and restaurants.

From 1948 to 1968, the recreation and tourist sector was encouraged by legalized slot machines in the county and in all of southern Maryland. In 1963, Maryland had three times as many federally taxed gambling machines as Nevada (the only other state where they were legal), and the state received more than \$24 million a year in income from gambling. In that year, the State General Assembly passed legislation that phased out the machines by July 1968. This phase-out meant a loss of state revenues as well as a direct loss to the participating counties. Calvert County received \$132,550 from this source in 1960, but only \$80,550 in 1966. The loss of these revenues meant that new taxes, higher tax rates, or an increase in the tax base had to be developed to replace the lost funds if services were not to be cut back sharply.

The largest construction project in the county prior to Calvert Cliffs was an underwater ordnance testing center, built by the Navy near Solomons during World War II. Used for some time after the war, these facilities were later converted into a recreation center for Navy personnel. At the time of the 1970 Census, only 89 permanent military personnel were employed in Calvert County.

The isolation of the county suppressed local economic development. Poor transportation and the peninsula geography have played an important role in the character of the area. From colonial days until well into the 20th century, water transportation was the primary form of travel. This oriented the area towards Baltimore, rather than Washington, D.C., although the latter was closer on an overland route. The Chesapeake Beach Railroad (1899-1935), an excursion line from Washington, D.C. to Chesapeake Beach, provided the only rail service the county has ever had. The line did not penetrate far into the county and was discontinued in 1935. No public airport has ever been built. During the 1950s and 1960s, the road system was substantially

improved with the construction of the upper Patuxent River bridge to Charles County and the expansion of Maryland 2/4 into four lanes (dualization) to Prince Frederick.

A 1966 research report described the county as follows:

It is the smallest in area of the 24 political subdivisions in that state (Maryland)--being under 220 square miles in area. It is surrounded by water on three sides. The county has no railroads nor commercial airports. It is primarily a rural farming community with no town having more than 800 persons. The county ranks 23rd of 24 political subdivisions with respect to population (about 18,000); it ranks last in retail trade, effective buying income, manufactured units produced, and number of production workers; it ranks 16th of 24 in median family income (\$4,566). Blacks constitute 47% of the total population of 18,000 residing in 4,300 households. Ninety percent of the economy is based upon an antiquated antibellum Southern tobacco economy, while forestry, seafood processing and recreation make up the other 10%. Social contacts between the races were essentially based upon Southern rural codes of behavior. (Public Health Study, 1969.)

This description may slightly overstate the economic role of tobacco just prior to the start of the Calvert Cliffs project. The county's 1967 Comprehensive Plan estimated that "about 17 percent of the county's employment is related to tourism and recreation," which implies a somewhat reduced role for agriculture. There is little doubt, however, that the economy remained rurally oriented and undeveloped when compared to the rest of the state, especially the counties immediately to the north.

4.3 Changes in the Economy during the Study Period

There was substantial growth in both employment and income in Calvert County between 1968 and 1977. Employment by place of work is shown in Table 4-2, and income for both place of work and place of residence is shown in Table 4-3.¹ For county workers, employment increased from 1968 to 1974, and income increased from 1968 to 1973; both then declined through 1977.

¹Employment by place of work measures the level of activity occurring within the county, but because some of the jobs located in the county are filled by persons who commute daily into the county to work, the place-of-work figures include these nonresidents. The income or employment data on a place-of-residence basis are just the opposite. Income earned by residents of the county is included even if it has been earned outside the county.

TABLE 4-2

**EMPLOYMENT BY PLACE OF WORK BY INDUSTRIAL SECTOR
CALVERT COUNTY
1968-1977**

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Total Employment	5,098	5,562	5,847	7,751	7,903	8,426	8,505	8,001	7,346	7,389
Agriculture (Wage and Salary)	167	203	186	171	139	148	159	174	192	178
Construction	206	253	576	2,314	2,319	2,552	2,437	1,937	1,029	785
Manufacturing	238	256	220	210	246	207	194	173	181	158
TCPU	97	99	98	117	126	124	125	130	(D)	201
Trade (Wholesale & Retail)	751	801	799	869	868	833	881	876	(D)	1,007
FIRE	97	240	217	206	221	283	387	(D)	(D)	250
Service	1,088	1,142	1,144	1,171	1,212	(D)	(D)	(D)	(D)	1,239
Government	1,035	1,128	1,168	1,257	1,366	1,658	1,716	1,753	1,919	1,947

(D): Not shown to avoid disclosure of confidential data; included in totals.

Source: Bureau of Economic Analysis, April 1979, Employment by Type and Broad Industrial Sources, 1968-1977 (unpublished data).

TABLE 4-3

INCOME BY PLACE OF WORK BY INDUSTRIAL SECTOR
CALVERT COUNTY
1968-1977
(Thousands of Constant 1972 Dollars)

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Total	23,418	26,641	36,039	65,351	68,714	83,180	71,332	59,922	40,188	36,635
Agriculture	1,959	1,958	2,139	1,628	2,113	5,466	5,464	4,076	2,074	2,054
Construction	2,059	2,641	9,862	37,948	39,098	(D)	34,866	24,797	15,592	11,296
Manufacturing	1,293	1,504	1,267	1,302	1,700	1,616	1,564	(D)	1,309	1,089
TCPU	695	767	812	946	1,028	1,052	1,021	1,092	(D)	1,659
Trade	4,759	5,323	6,126	6,669	6,927	(D)	6,843	7,073	6,901	7,178
FIRE	662	1,398	1,414	1,401	1,670	1,921	1,997	(D)	(D)	1,660
Service	4,337	4,573	5,822	6,439	6,364	(D)	(D)	(D)	(D)	8,586
Government	7,245	8,012	8,597	9,018	9,814	12,307	12,896	12,643	13,403	13,601
Net Income by Place of Residence	60,012	65,097	75,057	84,275	93,532	107,862	107,959	102,547	120,991	125,272

Source: Bureau of Economic Analysis, Regional Economic Information System, April 1979, unpublished data.

4.3.1 Employment and Income

During the 1960s, the major sources of employment were the government, service, and trade sectors. The other sectors, including agriculture, provided few jobs. In 1963, only eighteen manufacturing firms, with 233 employees, were located in the county; in 1958, there had been 316 employees in manufacturing. In 1963, the government and service sectors each employed about 1,000 workers, with the trade sector accounting for more than 750 of them. Most of the retail stores were located in Prince Frederick. (Dando and Rabenhorst, 1969:21.)

Total employment in the county went from 5,098 workers in 1968 to 7,903 workers in 1972 and to 8,505 workers in 1974, a 9 percent annual rate of increase between 1968 and 1974 (see Table 4-2). Between 1974 and 1977, employment declined by 1,116 to 7,389 workers. The construction sector showed the greatest variation, increasing by over ten fold to the 1973 peak, before declining sharply in 1976 and 1977. This decline continued as the major construction projects in the county were completed—Calvert Cliffs, Columbia LNG, Memorial Hospital, and the lower Patuxent River bridge. Between 1968 and 1977, trade showed a steady increase, an annual growth rate of about 3 percent. Services were also up but did not grow as rapidly, increasing by 1.3 percent annually. Government employment increased at a steady, rapid pace—6.5 percent annually. The number of government employees almost doubled during the 1968-1977 period. Wage and salary employment in agriculture declined between 1968-1972 as construction work increased, and then leveled at about the 1968-1969 average. The number of farm proprietors remained fairly constant over the study period.

Income by place of work (earned in the county) followed the same pattern as the employment figures for the construction, trade, service, and government sectors (as shown in Table 4-3). Overall, county income by place of work increased (in constant 1972 dollars) through 1973 and then declined steadily so that the figure in 1977 was almost at the 1970 level.

Income by place of residence (earned by residents of the county) showed a steady increase over the ten-year period, rising from about 2.5 times the income by place of work in 1968 to almost 3.5 times in 1977. In constant dollars, the income to residents more than doubled; the annual rate of increase was 7.6 percent. These data underscore the importance of the suburban in-migration to the county, as most of the increase was due to commuters who worked in the Washington, D.C. metropolitan area.

4.3.2 Labor Force

Just prior to the construction of Calvert Cliffs, which began in 1968, total employment in the county was approximately 5,000 workers (BEA, 1980). Unemployment had been consistently higher than the state or national rates for some time, usually by a percentage point or more. The labor force participation rates were generally close to the national rates but somewhat less than those for Maryland (U.S. Bureau of the Census, 1960, 1970). The labor force was not highly skilled, and a substantial amount of the retail trade and industrial activity was seasonal. Out-migration of younger workers and commutation to jobs out of the county, especially from the northern section, were common.

Data on the labor force characteristics are incomplete; the available data are shown in Table 4-4. By 1972, the year of peak construction, the labor force had risen to 7,070 and, by 1978, it had climbed to 12,956 (BEA, 1980). As the construction work peaked and then decreased, the unemployment rates responded very quickly. Unemployment rose from 346 in 1972 to 1,347 in 1975, an increase of 1,001 persons. These data are recorded by place of residence, so they do not count daily or weekly commuters who would have filed for unemployment outside Calvert County. The average unemployment rates in 1976 and 1977 were even higher than they were in 1975, although the labor force had decreased by about a thousand workers. These figures suggest substantial out-migration, especially of construction workers, and perhaps some withdrawal of local residents from the labor force.

Much of the increase in the labor force during the 1968-1978 period was the result of the in-migration of people who worked outside the county. Few of these suburbanites were unemployed; most of the unemployment was experienced by county natives or long-term residents. The unemployment rates would be much greater, therefore, if they were compared to the employment by place of work (as shown in Table 4-2). In 1977, for example, employment by place of work was 7,346 persons, while unemployment was 1,568 persons, or 17.6 percent, if the labor force were defined on this basis.¹ The addition of commuters who work outside the county to the labor force tends to lower the

¹For comparison, this approach gives an unemployment rate of 4.4 percent for 1972.

TABLE 4-4

CALVERT COUNTY LABOR FORCE, BY PLACE OF RESIDENCE
ANNUAL AVERAGES
1970, 1972, and 1974-1979

	1970	1972	1974	1975	1976	1977	1978	1979
<u>Calvert County</u>								
Labor Force	5,800	7,070	11,120	11,102	10,134	10,527	12,956	13,148
Employment	5,324	6,724	10,631	9,755	8,737	8,959	11,901	12,085
Unemployment	476	346	489	1,347	1,397	1,568	1,055	1,063
Unemployment Rate	8.2%	4.9%	4.4%	12.1%	13.8%	14.9%	8.1%	8.1%
<u>Maryland</u>								
Unemployment Rate	—	4.9%	4.7%	6.9%	6.7%	6.1%	5.6%	5.9%

Sources: Maryland Department of Employment Security, 1970; Maryland Statistical Abstract, 1973 and 1975; Department of Human Resources, 1979.

unemployment rates for the county and hides, somewhat, the condition of the work force that is employed at jobs within the county.

4.3.3 Standard-of-Living

The type of employment, the required skill levels, the pay rates, and the seasonal nature of much of the local work meant that the income and standard-of-living in Calvert County were traditionally low. The data for 1970 show a poverty incidence of 19 percent for Calvert County, almost twice the 10.1 percent rate for the State of Maryland and about half again the 13.7 percent rate for the United States. The county's per capita income was \$2,468, only 70 percent of the Maryland figure of \$3,540, and 79 percent of the United States average of \$3,139. (U.S. Bureau of the Census, 1970.) Measured in these terms, the standard-of-living in Calvert County was the lowest in southern Maryland.

One measure of the standard-of-living is per capita income (on a place-of-residence basis), which is shown in Table 4-5 in constant 1972 dollars for the 1968 to 1975 period. This table shows the trend in average earnings of county residents, which is heavily influenced by income earned outside the county. As in the case of employment in the county, the per capita income increased with the work in the construction sector and decreased as that work declined, but the overall trend was for the average income of county residents to increase.

Another way of investigating changes in the standard-of-living of residents in the Study Area is to calculate the average annual income of workers by dividing total income (by place of work) by the number employed (by place of work). This yields an estimate of average earnings for persons employed in the study area, as shown in Table 4-6. As employment and income increased in the construction sector (see also Tables 4-2 and 4-3), the average wage increased rapidly, more than doubling by 1973. When construction activity began to slow, average earnings fell almost to 1969 levels.

A third measure of the standard-of-living is income received by long-term county residents. By using the income and employment data (Tables 4-2 and 4-3), and by subtracting the commuters from the construction work force, the income per employee for Calvert County natives can be approximated as shown in Table 4-7.

TABLE 4-5

CALVERT COUNTY PER CAPITA INCOME
1968-1975
(Constant 1972 Dollars)

	1968	1969	1970	1971	1972	1973	1974	1975
Per Capita Income	\$2,996	\$3,197	\$3,614	\$3,836	\$4,084	\$4,544	\$4,298	\$3,916

Source: Bureau of Economic Analysis, Regional Economic Information System, April 1979, unpublished data.

TABLE 4-6

AVERAGE INCOME PER WORKER, BY PLACE OF WORK
 CALVERT COUNTY
 1968-1977
 (Constant 1972 Dollars)

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Employment	5,098	5,562	5,847	7,751	7,903	8,426	8,505	8,001	7,346	7,386
Earnings (\$000)	\$23,418	\$26,641	\$36,039	\$65,351	\$68,714	\$83,180	\$71,332	\$59,922	\$40,188	\$36,635
Average Income	\$ 4,593	\$ 4,790	\$ 6,164	\$ 8,431	\$ 8,695	\$ 9,872	\$ 8,387	\$ 7,489	\$ 5,471	\$ 4,958

Source: Bureau of Economic Analysis, Regional Economic Information System, April 1979, unpublished data.

TABLE 4-7

INCOME PER EMPLOYEE
CALVERT COUNTY LONG-TERM RESIDENTS
1968, 1972, and 1977
(Constant 1972 Dollars)

	1968	1972 ^a	1977
Total County Income, Place of Work (\$000)	\$23,418	\$40,000	\$36,635
Employment, Place of Work	5,098	6,120	7,386
Income per Employee	\$ 4,594	\$ 6,536	\$ 4,960

^aSubtracts employment and income for movers and commuters working at Calvert Cliffs at peak construction: 1,783 workers, \$28,714,000 income.

Sources: BEA, 1979; Maryland Statistical Abstract, 1970, 1973, 1975; BG&E, personal communication, 1980.

These figures show a substantial rise between 1968 and 1972, and an equally substantial decline between 1972 and 1977. In constant dollars, the 1977 income figure is about the same as the 1968 figure. Family income may have increased somewhat due to larger numbers of earners per household, but, as a relative measure of the condition of workers in the county, the data suggest that workers were only slightly better off at the time of the study than they were in 1968. It also suggests that, during peak construction, they were substantially better off than in 1968.

4.3.4 Summary

The period from 1968 to 1978 was one of rapid economic change for Calvert County. Employment and income in the county increased rapidly through 1974, but decreased thereafter. The average earnings of persons employed in the county followed the same general pattern.

Contemporaneous with this cycle in economic activity occurring within the county, the income and employment of county residents were being affected by the steady influx of suburbanites commuting daily to jobs in the Washington, D.C. and Baltimore areas. A reduction in the apparent unemployment rate, a reduction in the apparent incidence of poverty, and an increase in per capita income were the result of this influx. When an attempt is made to control for this effect, however, it appears that earnings per employee among long-term county residents were about the same as they were in 1968. A similar condition existed with the unemployment rate in the county, which rose from being equal to the state rate during the 1972-1974 period to being approximately twice the state rate during the 1975-1977 period. But even this is an underestimation of the unemployment rates prevailing among long-term residents of the area. The unemployment rates of the long-term residents were probably another 4 to 6 percentage points above the 12-15 percent rate experienced by the county as a whole during the mid-1970s.

4.4 Employment and Income Effects in the Study Area due to the Project

This analysis will begin by describing the work force and the purchase of goods and services required to construct and operate the generating station. Persons directly employed for the construction of the plant are called "direct" basic employees, and the income they earn is counted as "direct" basic income at their place of residence. The focus of the discussion will be on 1972, the year of peak construction employment.

In addition to direct employment and income, local income and employment may have resulted from the purchase of goods and services for the construction and operation of the plant. If, for example, \$1,000 of materials was purchased locally, some fraction of the purchase would accrue as income to local residents. For materials produced locally, the ratio of locally-generated-income-to-total-purchases could be quite high. Materials produced elsewhere and only distributed locally would result in a lower ratio of local-income-to-purchases, which would reflect only the distributor's margin. Income and employment generated in this way, in response to the purchase of goods and services by the utility, are referred to as "indirect" basic income and employment.

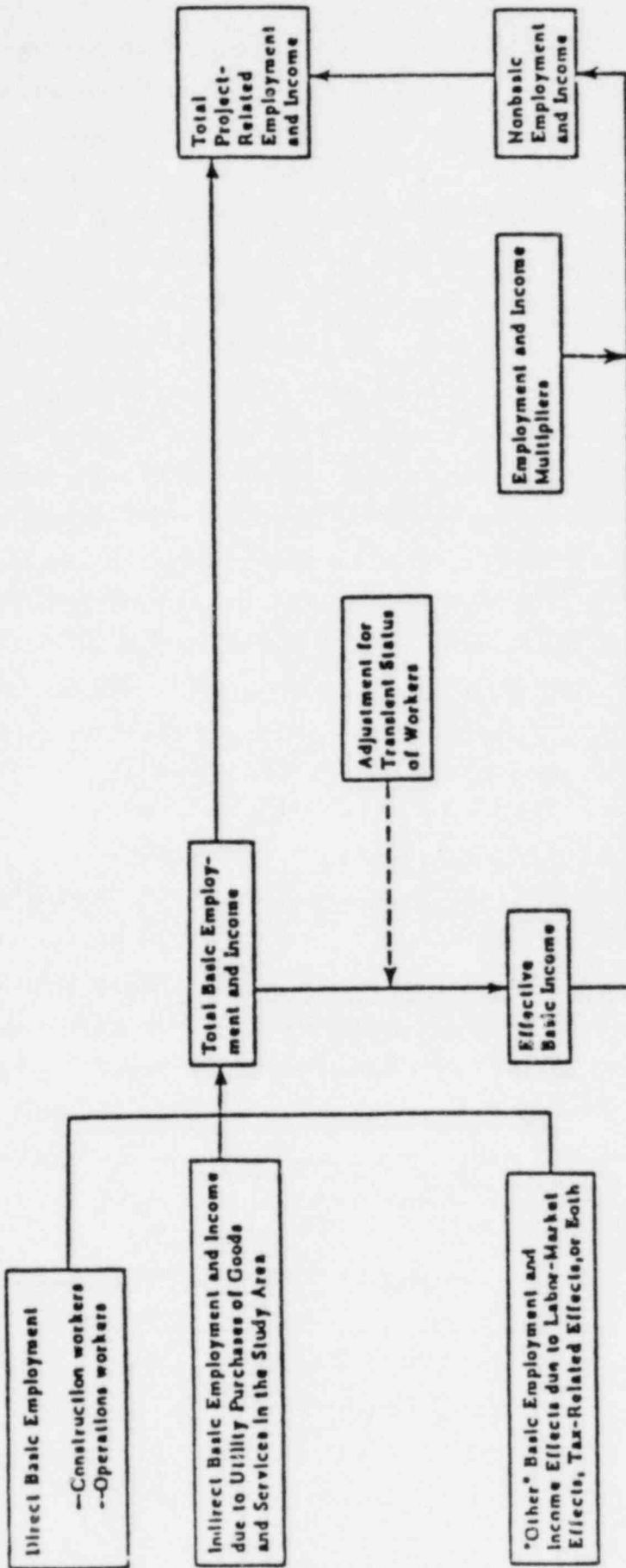
A third group of income and employment effects is referred to as "other" basic income and employment. This category includes labor market effects due to labor shortages, higher wages, or changes in activity that are a response to the favorable fiscal impacts of the station. To the extent that such responses changed the income or employment of local residents, the change would be categorized as "other" basic income and employment. Figure 4-1 summarizes the three major sources of change in basic income and employment—direct basic, indirect basic, and "other" basic.

"Nonbasic" income and employment is that which results when the basic income is spent and respent in the local economy. In general, the larger the local economy, the smaller the income leakages due to imports and the larger the multiplier. Once a multiplier appropriate to the size of the local economy has been estimated, the change that direct basic income produces in nonbasic income and employment can be calculated. Nonbasic employment can then be added to the three categories of basic employment to arrive at an estimate of the total employment effect of the construction of the Calvert Cliffs plant.

4.4.1 Direct Basic Income and Employment for 1972

The employment due to the Calvert Cliffs project was shown in Chapter 2. The peak construction year was 1972, as measured by the average annual employment at the site. The average annual employment for 1972 was approximately 2,064 workers, including those directly administered by the prime contractor, the Bechtel Corporation, and those accounted for separately by BG&E. (Bechtel, personal communication, January 1979; BG&E, file records, October 1979.)

FIGURE 4-1
ESTIMATION OF PROJECT-RELATED EMPLOYMENT AND INCOME EFFECTS



The work force is divided into three groups because each has very different implications for potential social and economic impacts. These groups are: (1) nonmovers--employees who were residents of Calvert County before construction began; (2) movers--those who moved into Calvert County because of their employment at the site (who may be further divided into those with their family present and those who are single or with family absent); and (3) long distance commuters--those workers commuting daily from outside the area.

Table 4-8 shows the 1972 work force by place of residence and by their status as nonmovers, movers, and long-distance commuters from outside Calvert County. These data estimate that about 51 percent of the peak construction work force lived in Calvert County, with the remaining 49 percent commuting daily from outside the county. Slightly more than half the workers living in the county are estimated to have been movers. Of these 580 workers, 60 percent are estimated to have been workers with family present, and 40 percent were workers who were single or with family absent. This estimate seems reasonable based on a recent study of 28 worker surveys at 13 nuclear power plants. In this research, 75 percent of the surveys recorded that between 51 and 72 percent of the movers had their family present (Malhotra,1979:104).

4.4.2 Indirect Basic Income and Employment for 1972

Indirect basic income and employment result from purchases of goods and services made for the construction or operation of the station. In the case of the Calvert Cliffs project, these purchases were made at a number of locations outside of Calvert County. For example, the reactor vessels were constructed by Combustion Engineering in Chattanooga, Tennessee. Standard construction materials were obtained in the Baltimore and Washington, D.C. metropolitan areas. While these purchases were large amounts for a single project, they were only a small fraction of the annual activity in these metropolitan areas and cannot be considered the source of significant impacts.

No indirect basic income and employment have been assigned to Calvert County, although the company was active in the local economy when goods and services were available. There were reports that they purchased office furniture, surveying services, and ads in local newspapers. A local lumbering firm clear-cut the station site. However, none of these transactions could be construed as large enough to warrant attempts at quantification, since they were at most only a few thousand dollars.

TABLE 4-8

CALVERT CLIFFS CONSTRUCTION WORK FORCE, PLACE OF RESIDENCE, AND INCOME
1972

	Nonmovers		Movers				Daily Commuters from Outside Calvert Co.		TOTAL	
	Work Force	Direct Basic Income ^a (\$000)	Family Present		Single/Family Absent		Work Force	Direct Basic Income (\$000)	Work Force	Direct Basic Income (\$000)
			Work Force	Direct Basic Income (\$000)	Work Force	Direct Basic Income (\$000)				
South (ED1) ^b	119	\$1,905	157	\$2,515	116	\$1,858	--	--	392	\$ 6,278
Middle (ED2)	238	3,812	104	1,666	81	1,297	--	--	423	6,775
North (ED 3)	118	1,890	87	1,393	35	561	--	--	240	3,844
Calvert County	475	\$7,607	348	\$5,574	232	\$3,716	--	--	1,055	\$16,897
Outside Calvert County	--	--	--	--	--	--	1,009	\$16,160	1,009	\$16,160
TOTAL									2,064	\$33,057

^a Assumes average annual income equals \$16,016 (Bechtel, personal communication, 1980).

^b The geographical division of the county corresponds to the established election districts (ED), where ED1 is the southern third of the county, ED2 is the middle third, and ED3 is the northern third.

Source: Bechtel Corporation, file documents, January 1979; key informant interviews, January, July, October 1979.

4.4.3 Other Basic Income and Employment for 1972

The construction of a facility such as a nuclear generating station may result in some wage-induced effects that are classified as "other" basic income and employment. Wage-induced effects might occur in agricultural areas or areas experiencing underemployment. In such areas, the higher wages paid at the construction site might attract workers from lower-paying jobs. During periods of shortages in the skilled crafts, the establishment of apprenticeship programs at the construction site, on-the-job training, and acceptance of craftsmen with less than first-rate credentials may attract workers from competing employers. Theoretically, this could result in a marked increase in wage rates throughout the local economy. In a rural area, farmers who depend upon large numbers of seasonal laborers might be expected to be especially hard hit.

In calculating the basic income effects of plant construction, both the loss of income due to an absence of workers in other sectors of the local economy and marked increases in wages must be considered. However, a decline in the number of workers employed in a competing economic sector does not necessarily result in a loss of income in that sector. Agricultural workers may be replaced by others, especially in areas of high unemployment or underemployment. Greater labor force participation, longer work hours, greater family involvement, improved production techniques, and labor-saving equipment all may substitute for losses in an established work force and prevent an overall loss of basic income.

The farmers in Calvert County depend upon tobacco as the major cash crop. In the late 1960s, the county had about 6,600 acres of tobacco; by the late 1970s, this had decreased to about 4,500 acres. The net yield remained about the same, however. Maryland tobacco is a labor-intensive crop that is ideal for part-time work, although some steps in the process must be completed at an exact time. The crop is air-cured in specially constructed barns, and barn capacity has always been a major controlling factor in planning the crop size and the required work force. (Maryland Extension Service, personal communication, October 1979.)

The long-term trend in Calvert County has been for employment in the agricultural sector to decrease. In 1950 there were 1,889 people employed in agriculture, or 43.5 percent of the county labor force of 4,334. This dropped to 1,165, or 22.3 percent, in 1960 and to 656, or 8.9 percent, in 1970. (Bureau of Economic Analysis, August 1975.) Table 4-9, which presents farm proprietors and farm wage and salary

TABLE 4-9

CALVERT COUNTY FARM PROPRIETORS
AND FARM WAGE AND SALARY EMPLOYMENT
1971-1975

	1971	1972	1973	1974	1975
Farm Proprietors	760	749	741	733	725
Farm Wage and Salary Employment	168	148	168	232	253
TOTAL	928	897	909	965	978

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Measurement Division, unpublished data, computed by Mountain West Research, Inc., 1979.

employment for the 1971 to 1975 period, shows a decreased work force in 1972 and a slightly increasing work force after that time. Many farmers, especially those growing tobacco, complained about the loss of their workers and the increase in wage costs. A county extension agent reported that farm laborers, who were paid about \$1.50 per hour in 1969 to 1970, received \$3.50 to \$4.00 or more per hour in 1978. Despite the complaints of the farmers, it is difficult to argue that there was a measurable impact on direct basic income caused by the Calvert Cliffs project. This pattern of labor rates is very similar to that in other parts of the larger Tri-County Area and in the other southern Maryland counties, if one takes into account that Calvert County is somewhat more rural, and appears to reflect, in large part, general wage inflation rather than an induced effect from the Calvert Cliffs plant.

The conclusion, therefore, is that wage-induced effects do not appear to have been responsible for any significant changes in aggregate levels of employment or income due to changes in levels of wages or shifts of local workers to employment at the nuclear plant.

4.4.4 Nonbasic Employment and Income for 1972

The construction of the Calvert Cliffs Nuclear Power Plant resulted in significant increases in basic income and employment. The purpose of this section is to estimate the induced or nonbasic consequences to the local economy. That is, how much additional income and employment was generated in Calvert County from the income earned by Calvert Cliffs workers?

The technique for estimating the nonbasic income and employment effects is based on a county-specific adaptation of the Regional Interindustry Multiplier System (RIMS) developed by Ronald Drake for the Regional Economic Analysis Division of the United States Department of Commerce, Bureau of Economic Analysis. The technique is well documented elsewhere (U.S. Water Resources Council, 1977) and will not be described in detail here. In general, the technique develops industry-specific input-output types of multipliers based on national interindustry relationships (at the 496-sector level of disaggregation) adjusted to reflect the availability of required inputs from local suppliers. In the simplest case, if an industry does not exist in the local economy, any requirements from that industry are assumed to be supplied by imports from outside the local economy. If an industry exists in an area in the same, or greater, proportion (relative to the size of the local economy) as the industry is in the national economy, it is

assumed to be able to meet local demands. If it exists in the local area less than in proportion to its national representation, some of the demand is assumed to be supplied locally and some is assumed to be imported.

Estimates were made for Calvert County based upon the national 1976 input-output table with the result that \$1,000 of basic income would be expected to generate \$156 in nonbasic income and 0.0296 nonbasic jobs (Drake, personal communications, 1980). The dollar amounts are in 1972 constant dollars. These relationships provide the basis for estimating the nonbasic income and employment effects due to the construction and operation of Calvert Cliffs.

In calculating the proportion of the total direct income for 1972 (see Table 4-8) that should be included for estimating nonbasic employment and income, several factors are taken into account. An adjustment is made for movers who are single or with family absent. This category of movers spends considerably more of their income outside the county than do the nonmovers and movers with families present. Interviews with workers and local businessmen indicate that local spending by the single and family-absent workers was only about half that of the nonmovers and movers with family present. Therefore, only 50 percent of their income is assigned to the base for calculating nonbasic income and employment.

Commuters from residences outside the Study Area spent money locally on such goods and services as gas, liquor, meals, and incidental items. The amount spent on such purchases was considerably less than that spent locally by nonmovers or movers with families. Key informants, especially local businessmen, estimated that a typical daily commuter spent about twenty-five dollars a week in the county. This was only about 20 percent of the local spending by nonmovers and movers with families.¹

The total income calculated as the base for deriving the nonbasic employment and income was \$18.3 million. This includes all the income from the nonmovers and movers with families, 50 percent of the income of movers who were single or with family absent,

¹If more goods and services had been available locally, local spending by movers and nonmovers would have been greater, and local spending by long-distance commuters as a percentage of their spending could have been significantly less than 20 percent.

and 20 percent of the income of daily long-distance commuters from outside the Study Area. The application of the RIMS multipliers indicates that direct basic income produced an estimated \$2.8 million in nonbasic income and an estimated 542 nonbasic jobs.

To check these estimates, a further analysis was made of the longitudinal data on county employment and income. County employment was first separated into basic and nonbasic components for each industrial sector. The split was made by using average sectoral nonbasic-employment-to-personal-income ratios for counties similar in size to Calvert County.¹ These ratios were used to estimate nonbasic employment by industrial sector. The estimates were then subtracted from total employment in each sector to derive basic employment. Table 4-10 reports the derived totals for 1968 and 1972. As can be seen in the table, nonbasic employment appears to have increased by 821 jobs between 1968 and 1972.

All of this change in nonbasic employment cannot be assumed to have been due to the Calvert Cliffs project because other changes in basic income may have been occurring in the county. To examine this possibility, the sectoral basic employment estimates were multiplied by average annual earnings by sector to derive an estimate of basic income earned by residents of the county.² Basic income in the county increased by about \$23.5 million from 1968 to 1972 (see Table 4-10). But the estimates presented earlier in this chapter showed that the Calvert Cliffs nuclear station was responsible for an adjusted increase in basic income of \$18.3 million. Thus, Calvert Cliffs amounted to 77.9 percent of the change in basic income and, on this basis, 77.9 percent of the change in nonbasic employment could reasonably be attributed to the project as well. This method yields an estimate of 639 nonbasic jobs due to the Calvert Cliffs project.

¹The research on which these relationships are derived is based on a systematic examination of nearly 1,000 counties west of the Mississippi River. The technique is based on concepts first presented in Chalmers et al., 1978. The more recent work is reported in Anderson et al., 1980.

²Eighty percent of the income earned by long-distance commuters employed at Calvert Cliffs was excluded, as was 50 percent of income earned by movers with family absent, since inclusion of the total income would overestimate the effective basic income in the county.

TABLE 4-10

BASIC AND NONBASIC INCOME AND EMPLOYMENT
 CALVERT COUNTY
 1968 and 1972
 (Thousands of Constant 1972 Dollars)

	1968	1972	Change from 1968 to 1972
Total County Employment	5,098	7,903	2,805
Basic	3,849	5,833	1,984
Nonbasic	1,249	2,070	821
Basic Income	\$17,564	\$41,062	\$23,498
Basic Income due to the Calvert Cliffs Project	--	\$18,300	\$18,300

Source: Social Impact Research, 1980.

Based on the RIMS projection, the effect of the Calvert Cliffs project on 1972 nonbasic employment is estimated at 542 jobs. Nonbasic income of 2.8 million was projected using RIMS. In comparison, the previously shown estimates (see Table 4-10) show 639 jobs and \$4.2 million in income. The findings of these two methods are similar, and the results could be summarized by estimating that approximately 600 nonbasic jobs and \$3.5 million in nonbasic income resulted from the Calvert Cliffs project in the local economy for 1972.

4.5 Employment and Income Effects in the Study Area due to Operation of the Plant

4.5.1 Direct Basic Employment and Income for 1978

The average annual employment at Calvert Cliffs for 1978 was 266 workers (BG&E, personal communication, 1980). Approximately 168, or 63 percent, of these workers were movers. It was estimated that there were 60 nonmovers, or 23 percent of the work force. The average income for operating personnel was \$14,520, in constant 1972 dollars.

Between 375 and 575 refueling, maintenance, and repair personnel were brought in to work during the scheduled outages. They were usually scheduled for 90-100 days per year. These workers are equivalent to 120 full-time workers in terms of average annual employment. Their pay rates were about the same as those of regular BG&E operating workers, and they were paid a per diem subsistence of \$35 plus transportation. In terms of effective income spent for local purchases, these workers are rated at 50 percent of the operations employees who were full-time residents of the county. The long-distance commuters are accounted for in the same manner as they were during the construction period. Twenty percent of their income is estimated to have been spent in the same manner as was that of nonmovers and movers with family present.

4.5.2 Indirect Basic Income and Employment for 1978

No indirect basic employment or income has been assigned for the operating period. Almost all goods and services required to operate the plant were purchased outside the Study Area.

4.5.3 Other Basic Employment for 1978

Calvert County collects a large proportion of its revenues from the plant; currently, the station makes up about 65 percent of the total assessable base for the

county. The addition of these monies to the local government could be expected to result in "other" basic employment that would not otherwise exist. It is important to distinguish this "other" basic employment in the government sector from nonbasic governmental employment because of the multiplier effect of basic income. Much public employment is directly a function of economic and demographic growth (for example, school personnel, sanitation workers, police, and so forth). Thus, only if there had been an increase in government employment beyond that expected to accompany associated population, employment, and income growth would part of the government employment growth be classified as "other" basic.

In estimating the number of other jobs due to this effect of the plant, it is recognized that government is quite variable according to local conditions, political values and attitudes, and public expectations. However, increases in population and income generally result in changes in public services. Recent research done by Mountain West Research on small counties in the United States has been used as a general guide in estimating the expected increase in nonbasic employment due to economic growth. Generally, in the smallest class (first order) of counties, we would expect an increase of 10.5 nonbasic employees in the state and local government sector for each \$1 million (constant 1972 dollars) increase in personal income in the county (Anderson, 1980).

From 1970 to 1977, there was an increase of \$34.9 million in personal income to residents of the county, calculated in constant 1972 dollars. We would, therefore, expect an increase in state and local government employment of about 368 workers. The actual increase in employment was 568, a difference of 200 workers. The greatest annual increase was 226 workers between 1975 and 1976. The first unit of Calvert Cliffs began operation on 8 May 1975, and the first tax payment by BG&E was \$6.9 million for fiscal year 1975-1976. For fiscal year 1977-1978, this increased to over \$11 million with the addition of Unit 2 to the assessed base of the county. The operation of the Columbia LNG Plant at Cove Point also increased tax revenues in the county by more than \$1.5 million for fiscal year 1978-1979. (Calvert County Planning Department, personal communication, October 1979.)

The additional tax revenues were anticipated for some time prior to their payment, and a number of public programs were expanded or established as a result. At the county level, it appears that this increase may have anticipated the future revenues as far as public-sector employment is concerned. In calculating "other" direct income

and employment due to the tax revenues, it appears that approximately 200 employees were added to the state and local government sector in excess of what would have been the expected increase due to rising personal income in the county. These employees are estimated to have had an average annual salary of \$8,500 in constant 1972 dollars. (Calvert County Planning Department, personal communication, October 1979.)

The basic employment and income due to operation of the plant for 1978 are shown in Table 4-11.

4.5.4 Nonbasic Employment and Income for 1978

In determining the proportion of the \$7.3 million in basic income that should be used to estimate the nonbasic effects on the local economy, the same assumptions are made for the operating period as were made for the construction period. Nonmovers and movers with family present are treated as full-time residents. Weekly commuters are treated as movers who are single or with family absent; 50 percent of their income is assigned to the base for calculating the nonbasic employment and income. Daily commuters had 20 percent of their income assigned to the base. The income base, calculated according to these criteria, totaled \$5.7 million. Applying the RIMS multipliers results in estimates of \$890 thousand in nonbasic income and 169 nonbasic jobs.

Table 4-12 shows the calculations that can be used to provide another estimate of the nonbasic effects of the plant. The year 1977 is used for these calculations because it is the latest year for which the necessary BEA income and employment data are available. Following the same procedure as described in Section 4.4.4, it can be seen that 34.9 percent of the total change in basic income from 1968 to 1977 was due to the Calvert Cliffs project. Applying this percentage to the change in nonbasic employment of 860 jobs yields an estimate of 300 nonbasic jobs due to the operation of the Calvert Cliffs project. Average income for these jobs was estimated at \$4,960 for 1977 (see Table 4-7). Therefore, estimated nonbasic income would be \$1.5 million.

The two estimates of nonbasic activity during the operation period are quite different. They tend to indicate, however, that nonbasic employment during operation was between 200 and 300 workers, and that total nonbasic income was in the vicinity of \$1.25 million.

TABLE 4-11

CALVERT COUNTY BASIC EMPLOYMENT AND INCOME DUE TO THE OPERATION
OF THE CALVERT CLIFFS NUCLEAR POWER PLANT
1978
(Thousands of Constant 1972 Dollars)

	Nonmovers		Movers		Weekly Commuters		Daily Commuters		TOTAL	
	Work Force	Income	Work Force	Income	Work Force	Income	Work Force	Income	Work Force	Income
Operations	67	\$ 973	156	\$2,265	-	-	43	\$ 624	266	\$3,862
Outages (Refueling/ Repair/Maintenance)	12	174	-	-	54	\$784	54	784	120	1,742
Other Basic	95	808	95	808	-	-	10	85	200	1,701
TOTAL	174	\$1,955	251	\$3,073	54	\$784	107	\$1,493	586	\$7,305

Source: Social Impact Research, Inc., 1980.

TABLE 4-12

BASIC AND NONBASIC INCOME AND EMPLOYMENT
 CALVERT COUNTY
 1968 and 1977
 (Thousands of Constant 1972 Dollars)

	1968	1977	Change from 1968 to 1977
Total County Employment	5,098	7,389	2,291
Basic	3,849	5,280	1,431
Nonbasic	1,249	2,109	860
Basic Income	\$17,564	\$33,881	\$16,317
Basic Income due to the Calvert Cliffs Project	--	\$ 5,700	\$ 5,700

4.6 Summary of Economic Effects on the Study Area

The Calvert Cliffs project produced economic change through the on-site employment of workers and the payments of taxes to the county. There were no significant local purchases of goods and services by BG&E or the construction contractor and therefore no indirect employment.

4.6.1 Direct Income and Employment Effects

Construction Period

The 2,064 average annual on-site construction workers at peak construction (1972) were identified as movers, nonmovers, and commuters. At peak construction, there were 1,055 workers residing in the county. They had a total income of \$16.9 million in 1972. An additional 1,009 workers commuted to the site from outside the county; these commuters earned \$16.2 million in 1972.

Construction period movers were estimated to total 580 workers at peak construction (see Table 4-7). This group was divided into movers with families (348 workers) and movers who were single or with family absent (232 workers). Although a few union craftsmen lived in Calvert County prior to the project and worked on the site, most of the nonmovers were employed as laborers, drivers, or craft helpers. Some craftsmen, mostly carpenters, became union members either permanently or temporarily when there were manpower shortages. The total number of nonmovers at peak construction was about 475 workers, approximately 23 percent of the work force.

Operations Period

Basic employment and income for 1978 during the first full year of commercial operation of both units was estimated at 586 workers. This figure is based on the average annual employment of operations personnel; maintenance, repair, and refueling workers; and "other" basic employees (see Table 4-11).

4.6.2 Other Income and Employment Effects

Income and employment resulted from the utility's purchase of goods and services in the county. Although several minor purchases were made, none were large enough to contribute measurable income or employment to the county. Timber on the actual location of the plant was sold to a local firm, which clear-cut it. Moving an oyster bar was partly contracted to local watermen. A local real estate firm acted as the utility's

agent in obtaining the transmission line right-of-way. Some office furniture and supplies were purchased locally, as was a small amount of rock and gravel. Furthermore, a Prince Frederick surveyor did some work for the company. In sum, the company seems to have purchased what goods and services were available locally, but very little of the huge amount of materials and equipment needed could be obtained in the county. Most purchases were made in Baltimore and brought by barge to the site. Overall, therefore, no specific indirect income or employment effects have been assigned to the plant's construction.

4.6.3 Nonbasic Employment and Income Effects

The basic employment due to the plant resulted in income for the workers which they, in turn, spent. A portion of those expenditures was made in Calvert County and resulted in nonbasic employment and income. These figures were estimated at about 600 nonbasic jobs and \$3.5 million in nonbasic income at peak construction (1972).

The nonbasic employment for an operations year (1978) was estimated at between 200 and 300 workers. Nonbasic income was \$1.25 million.

4.6.4 Summary of Employment and Income Effects

The total basic and nonbasic employment effects in Calvert County for 1972 included workers on the site and those in the local economy. Movers, nonmovers, and nonbasic workers totaled 1,595. Their total income was about \$20 million.

For the operations year (1978) the basic county employment of movers, nonmovers, and weekly commuters was estimated at 479 jobs. The income to these employees was \$6.9 million.

4.6.5 Labor Force Effects

Construction Period

The Calvert Cliffs project had a dramatic effect on the county's labor force during construction. In January 1970, with approximately 700 workers on-site, the county's unemployment rate was 8.2 percent of an estimated civilian labor force of 5,800. (Maryland Department of Economic Development, 1970.) By 1972, this figure had dropped to 4.9 percent, and it was reduced even further--to 4.4 percent--in 1974. During this time, national unemployment rates were also dropping, but the rates for Calvert

Cliffs dipped below the national rates. Traditionally, the county rates had always been higher, usually by at least a full percentage point. Moreover, during this time, the labor force almost doubled, to 11,120 (see Table 4-4). When construction slowed at Calvert Cliffs in 1975, the labor force began to decline, and unemployment increased rapidly to 12.1 percent. Furthermore, in 1977, when Unit 2 was completed and put into commercial operation, unemployment reached 14.9 percent. Employment by place of work in the county (see Table 4-2) clearly shows the rise and fall of employment with a leveling out in 1976 and 1977. The unemployment rate for these last two years declined to 8.1 percent, about what it was in 1970. The difference between the 1976-1977 and the 1970 rates is that the population and labor force grew rapidly after 1970, so the 8.1 percent unemployment rate really means that a larger proportion of native and long-term residents were out of work in 1976 and 1977 than was the case in 1970. Overall, however, these data show a clear pattern of lower unemployment rates and increased employment for the county workers during construction.

Key informants believe that there were greater labor force participation rates, less underemployment, and more occupational mobility due to the employment opportunities during the construction of the Calvert Cliffs station. Although data on these areas are not generally available for the period under discussion, some inferences can be made through an analysis of the available information. For example, county employment as a proportion of the total population rose from about 28 percent in 1970 to 34.5 percent in 1972; and after the construction period, it declined to less than 25 percent in 1977. As in the case of the unemployment rates, these data closely parallel construction employment and support the informants' reports of greater labor force participation, apparently in the range of a 7 to 10 percentage point increase.

There were several immediate effects on the county labor force. Occupational mobility changed since agricultural workers were able to transfer to construction jobs. They, in turn, were replaced by others--the unemployed, the underemployed, and new labor force participants. Another aspect of change was the upgrading of skills by local craftsmen who were employed on the project. The construction project was a union job.

Nonbasic employment was estimated at 600 workers at peak construction. When added to the on-site construction employment, the total labor force effect was about 1,655 jobs in 1972, or 21 percent of the Calvert County employment by place of work (in-county employment).

In summary, the Calvert Cliffs project resulted in much lower unemployment rates in the county, almost half of what they were before and after construction. For a short period after construction, unemployment was extremely high, and for one quarter of 1977 it topped 15 percent. It took about three years to moderate the unemployment rates. The labor force was expanded by more than 1,500 jobs because of the project, and labor force participation increased as a result. Also, a good deal of occupational mobility resulted from the sudden increase in employment opportunities.

Operations Period

The operating work force at Calvert Cliffs was only about 10 percent of the peak construction employment. In addition, the operating and administrative personnel were highly trained people, mostly recruited from outside the Study Area because there was no local supply for these positions. Some local people were employed as clerical, security, and maintenance workers, and these jobs were highly regarded by local workers even though they were the lower-paid positions at the plant. The operations work force made up about 5 percent of the in-county employment.

The total effect of plant operation on the labor force includes the "other" basic and the nonbasic workers. The "other" basic have been estimated at 200 government employees hired because of tax revenues produced by the plant. The nonbasic employment, about 240 jobs, when added to the basic employment categories, brings the total effect to about 719 jobs. This number represents 9.7 percent of the in-county work force.

While these estimates show that the operation of the plant made a significant contribution to local employment, there is little quantified data to measure the operation workers' impact on the local labor force. The operating employees were largely newcomers, and the on-site work force was quite stable, with only small annual increases; as a result, the direct effects were slight in terms of unemployment and labor force participation rates. Overall, however, plant operation resulted in an important and stable addition to the county's employment base.

4.6.6 Standard-of-Living Effects

The Calvert Cliffs construction workers were by far the highest paid employees in the county, with average salaries of \$16,016 in 1972 (Bechtel, personal communication, 1980). The average annual wage for the county was \$4,590 in 1968 and \$4,960 in 1977

(constant 1972 dollars). At peak construction in 1972, however, the average annual wage was \$8,690 (see Table 4-11), about 90 percent higher than before the project and 75 percent higher than after the project. The wages paid to Calvert Cliffs employees placed them at the top of the income bracket for county workers and dramatically raised the local average. Part of the reason for the high wages was the fact that the project was a union job contracted with labor unions headquartered in Washington, D.C. and Baltimore, one of the highest wage-rate areas in the country.

Per capita income rose from \$2,996 in 1968 to \$4,517 in 1973 and then declined gradually to \$4,200 in 1977. The effect on the in-county work force was much more dramatic than these figures indicate. These data include income to suburbanites and other workers who commuted out of the county, and there has been a steady, rapid increase in higher-paid people moving into the county. Average earnings increased from \$4,593 in 1968 to \$9,872 in 1973 and then declined to \$4,958 by 1977 (see Table 4-5). The increase and decrease clearly follow the pattern of Calvert Cliffs construction employment. The 1977 average income of the people who worked in the county was about the same as it was in 1969, when figured in constant 1972 dollars.

The area of retail sales was mentioned in the recollections of key informants as one that experienced significant impacts. The additional demand for goods and services was \$5.4 million in 1972. Retail facilities were noticeably more crowded, and services often suffered due to increased demand and the turnover in experienced help. Prices rose, but it is not clear that these increases were any different than what was happening generally in the regional economy. Availability of goods and services does not seem to have been a problem. Probably this was because the business community was already responding to a general increase in the population and income of the area. Also, it was accustomed to dealing with broad fluctuations in seasonal demand because of the established tourist sector of the economy.

CHAPTER 5: POPULATION

5.1 Introduction

The purpose of Chapter 5 is to determine the population effects of the Calvert Cliffs project in Calvert County and to explain the relationship between the project and its population effects. The first step in this chapter is to examine the demographic trends in the Study Area. The second step is to determine the demographic implications of the basic and nonbasic employment created by the project. Two sources of population increase are considered: increases due to the in-migration of workers and their household members for project-related employment, and increases from diminished out-migration of local residents and their household members due to project-related employment. These estimates are formulated in an annual series, which are then stated as a percentage of the Study Area population to measure the population impacts of the project. Further demographic effects will be addressed in Chapter 8, where the impacts on groups in the county will be considered.

5.2 Demographic Trends

The population of Calvert County from 1790 to 1977 is shown in Figure 5-1. As seen in this figure, the county population fluctuated around 10,000 persons from the late 1800s to the mid-1900s. Starting in about 1940, the population began to increase, growing rapidly from 10,484 in 1940, to 20,682 in 1970, and to 30,000 in 1977. Between 1940 and 1950, the annual rate of population increase was about 1.4 percent; between 1950 and 1970, the rate rose to 2.7 percent; and between 1970 and 1977, it reached 5.4 percent.

The racial composition of the population has been significantly affected by migration trends. From 1840 to 1860, when slaves were the main source of agricultural labor, blacks made up about 60 percent of the population. Since that time, the proportion of blacks in the population has steadily declined; it was less than 50 percent in 1910 and under 40 percent in 1970. Up until 1930, this declining proportion was due mainly to an actual decrease in the numbers of blacks. Between 1930 and 1975, the size of the black population increased, despite a net out-migration in all years except 1970-1974; but because the increase was much smaller than that for the white population during this period, the proportion of blacks in the county continued to decline--to less than 28 percent in 1977 (Maryland Center for Health Statistics, 1979).

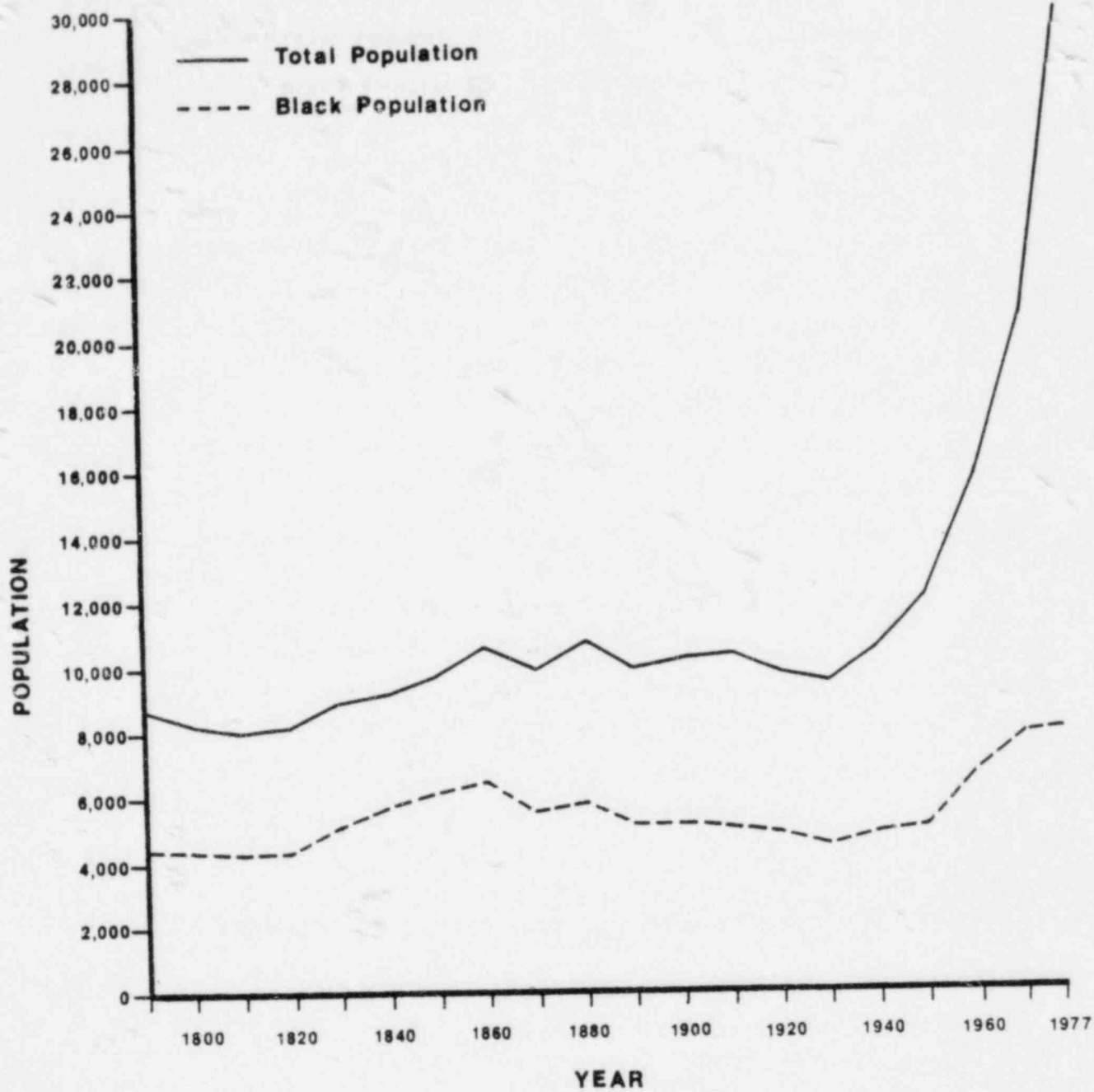


FIGURE 5-1. Population of Calvert County, 1790-1977.

The consistent pattern in Calvert County since 1940 has been for whites to in-migrate and for blacks to out-migrate. Net migration between 1950 and 1960 was 780 persons, with 1,200 white in-migrants and 420 black out-migrants. (U.S. Bureau of the Census, 1960.) These trends continued during the 1960 to 1970 period, when net migration was 2,070 persons, with 2,890 white in-migrants and 820 black out-migrants. (Maryland Department of State Planning, 1976.) At the time the project started, blacks numbered about 8,000 persons and made up slightly less than 40 percent of the county's population.

Historically, the number and proportion of elderly persons (60 years of age or over) in the county were very similar to comparable rural areas. In 1960, the elderly numbered 1,764 persons, or 11 percent of the county population. This number increased to 2,780 persons in 1970, so that between 1960 and 1970, the number of elderly in the county grew by 1,016 persons, and their proportion of the population increased from 11.0 percent to 13.4 percent. Some of this increase was due to the aging of the native population, and some to a net in-migration of elderly during this period. According to figures prepared by the Department of Agriculture, there was a net in-migration of 669 elderly persons during the 1960-1970 decade. (U.S. Department of Agriculture, 1975:20.)

The other important population trend that was well established by the time the Calvert Cliffs project was announced in 1967 was the in-migration of suburbanites. The suburbanites, principally white families headed by adults in the prime working ages, settled primarily in the northern district, within commuting distance of Washington, D.C. Their in-migration contributed substantially to the increase in county population (see Figure 5-1).

5.3 Changes in the Population during the Study Period

Because of the characteristics of the available data, the period covered by this section begins in 1970 and continues through 1977. The county population increased more rapidly during this period than at any time in the past. Figure 5-2 shows the county's total population as well as data for the black population during the seven-year period. Between 1970 and 1977, the county population increased by 9,318, or 45.1 percent. This was an average annual increase of 5.5 percent, about twice the rate of the previous two decades. Table 5-1 shows the population change up through 1975, when construction employment at Calvert Cliffs was sharply reduced, and for 1975-1977, when the transition from construction to operation took place. Table 5-2 shows the Study Area population by election district for the years 1970 and 1975

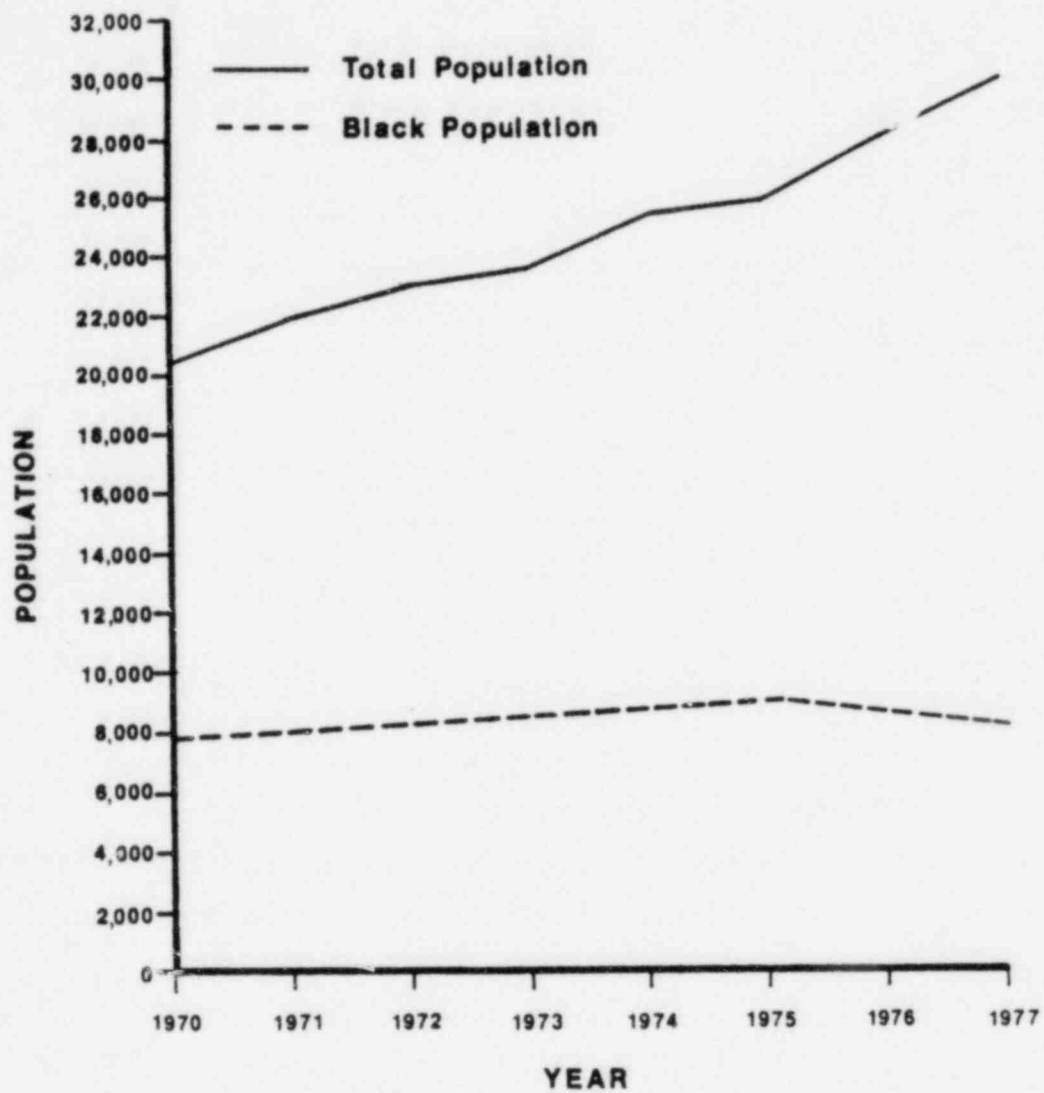


FIGURE 5-2. Population of Calvert County, 1970-1977.

TABLE 5-1

STUDY AREA POPULATION BY RACE
1970, 1975, and 1977

Year	Population			Average Annual Rate of Change (Percent)		
	White	Black	TOTAL	Whites	Blacks	TOTAL
1970	12,888	7,794	20,682	--	--	--
1975	16,971	8,994	25,965	5.7	2.9	4.7
1977	21,790	8,210	30,000	13.3	-4.5	7.5

Sources: U.S. Census, 1970; Maryland Department of State Planning, 1976; Maryland Center of Health Statistics, 1979.

TABLE 5-2

STUDY AREA POPULATION BY ELECTION DISTRICT
1970 and 1975

District	Population		Population Percentage		Average Annual Rate of Change (Percent)
	1970	1975	1970	1975	
North (ED3)	8,067	10,134	39	40	4.7
Middle (ED2)	6,211	7,348	30	29	3.4
South (ED1)	<u>6,404</u>	<u>7,855</u>	<u>31</u>	<u>31</u>	<u>4.2</u>
TOTAL	20,682	25,337	100	100	4.1

Source: Maryland Department of State Planning, 1978.

The white population increased dramatically during both the time periods shown; between 1975 and 1977, it increased by over 13 percent per year. The black proportion of the population dropped from 37.7 percent in 1970 to only 27.4 percent in 1977. Between 1975 and 1977, the number of blacks declined, indicating substantial out-migration. These data suggest that there was a halt to the traditional out-migration of blacks during the first five years of the decade; there may even have been a slight black in-migration. This reversal of the historical trends was of short duration, and substantial black out-migration again occurred between 1975 and 1977 as the total number of blacks in the county decreased by 784 persons in two years. During the same two-year period, the number of whites increased by 4,819 persons.

The elderly (60 years of age and older) increased both in number and in proportion of the population as the county became a popular choice for retirement. Between 1970 and 1975, the elderly population increased by 1,024, to a total of 3,804 persons. They made up 13.4 percent of the county population in 1970 and 14.6 percent in 1975. These figures were significantly higher than the elderly proportion for the state, which was 11.3 percent in 1970 and 12.0 percent in 1975. This trend apparently continued through 1977, although there is not enough data to provide exact numbers on the more recent changes.

During this same 1970-1975 period, there was also a slight change in the spatial distribution of the population. The population in the northern section of the county (ED3) increased at a faster rate (4.7 percent per year) than it did in the other two sections, although the population in the southern section also increased by over 4 percent (See Table 5-2). The middle section had the lowest rate of population increase, 3.4 percent. The increase in the northern district was primarily due to new suburban residents who commuted to work out of the county. The southern section was a favored destination for retired persons and was the location of two major industrial sites, the Calvert Cliffs nuclear station and the Columbia LNG Plant. The growth in the middle section was due to employment increases in the government, service, and trade sectors.

5.4 Population Effects due to the Project

5.4.1 Introduction

Population effects directly attributable to the construction and operation of the Calvert Cliffs project have been considered in two categories:¹ population change due to in-migration and population change due to reduced out-migration. For both categories, employment due to the project is the force driving the population change.

In Chapter 4, the number of plant-related workers in Calvert County was determined for both basic and nonbasic employment. The number of workers who moved into the county and the number of workers who were already residents of the county were determined for the plant-related basic employment. The following sections present estimates of the two categories of population effects due to the construction and operation of the Calvert Cliffs station.

5.4.2 Population Effects during the Construction Period

Population Change due to In-Migration

Employment at Calvert Cliffs encouraged an in-migration of workers and their households, which increased the Calvert County population. The project created an estimated 2,664 jobs, of which 2,064 were basic and 600 were nonbasic. As was shown previously (see Table 4-8), the basic jobs were distributed as follows: 475 went to nonmovers; 348 went to movers with family present; 232 went to movers who were single or with family absent; and 1,009 went to daily long-distance commuters who lived outside the county. It is estimated that about 80 percent (480 of the 600 nonbasic jobs created by the Calvert Cliffs project) went to nonmovers. The remaining 20 percent was about equally divided between movers, who filled about 60 jobs, and daily long-distance commuters who lived outside the county. The average household size for the State of Maryland was applied to estimate the population effects due to in-migration as shown in Table 5-3.

¹Although it is theoretically possible that a project could cause out-migration or prevent in-migration or both, neither case appears to apply for Calvert Cliffs and, therefore, neither one is pursued.

TABLE 5-3

EMPLOYMENT AND POPULATION INCREASE DUE TO IN-MIGRATION
 CALVERT COUNTY
 1972

	Workers	Additional Household Members	Total
Movers, with Family ^a	348	1,009	1,357
Movers, Single or with Family Absent	232	--	232
Nonbasic Movers	60	139	199
Total Population Increase	640	1,148	1,788

^aHousehold size for families is calculated at 3.90, based on an average household size of 3.32, the average for Maryland in 1972 (Maryland Statistical Abstract, 1972).

Source: Social Impact Research, Inc., 1980.

Assuming the proportion of population increase to total construction employment was the same for the entire construction period, an annual series was constructed to show the population effects of the project. This series is shown in Table 5-4.

This series probably understates the population effects at the beginning and end of the construction period when a relatively greater proportion of the work force might have been movers to Calvert County. However, since the employment due to the project during the middle period (1971 through 1973) was fairly constant, it appears reasonable that the population effects also remained stable over this three-year period.

Population Change due to Diminished Out-Migration

Population increases from the construction of Calvert Cliffs may also have resulted from diminished out-migration. When workers who would normally leave an area to obtain employment stay because they find work at local jobs, the population will be increased over what it would have been without those jobs. The maximum population effect from reduced out-migration will occur if all locally hired residents are mobile, perceive other job opportunities, and will out-migrate if not employed. The minimum population effect will occur if the best alternative for these locally-hired residents is to remain unemployed in the county, in which case there will be no population increase from diminished out-migration.

A realistic position between these extremes was obtained by examining 1970 data on the composition of available labor in Calvert County. These data were prepared by the Maryland Department of Economic Development and are shown in Table 5-5. The largest group identified in this profile of available workers consisted of those who commuted to jobs outside the county. They apparently had made an accommodation to the lack of employment opportunity in the county, and their residence in the county did not depend upon changes in the local labor market. Many of the unemployed women were considered to be relatively unlikely to have left the county, even if employment opportunities did not arise. The underemployed, on the other hand, were considered more likely to perceive opportunities elsewhere because they were actively involved in the job market and were thought to be somewhat more likely to leave if continued under-employment persisted. However, their out-migration was probably less likely than that of the young unemployed. The remaining groups, who made up about 40 percent of the available labor pool, were considered likely to have out-migrated over time. In addition, under the labor market conditions implied in these data, many additional workers were

TABLE 5-4

POPULATION INCREASE DUE TO IN-MIGRATION
 OF BASIC AND NONBASIC WORKERS AND HOUSEHOLD MEMBERS
 CALVERT COUNTY
 1968 to 1976

	1968	1969	1970	1971	1972	1973	1974	1975	1976
Population Increase due to Plant	135	422	946	1,775	1,788	1,742	1,177	483	260

Source: Social Impact Research, Inc., 1980.

TABLE 5-5

ESTIMATE OF LABOR POTENTIAL
CALVERT COUNTY
1970

Potential Workers	Number
Unemployment Insurance Claimants	300
Unemployment Insurance, Claimants with Claims Expired	26
Other Unemployed	330
Underemployed	400
High School Graduates Entering the Labor Market	225
Commuters out of the County Available for In-County Employment	850
Women Unemployed but Available for Employment	<u>130</u>
TOTAL	<u>2,261</u>

Source: Maryland Department of Economic Development, 1970.

likely to have been dissatisfied and available for out-migration. Overall, a reasonable estimate appears to be that as many as half the local residents who assumed jobs due to Calvert Cliffs would have left the county in the absence of the project, while half would have remained. Based on this estimate, increased population due to reduced out-migration was calculated.

At peak construction, local residents (nonmovers) were employed to fill 475 basic jobs at the Calvert Cliffs site and 480 nonbasic jobs, 80 percent of the total nonbasic employment. Thus, in 1972, 955 local residents were employed due to the project. If it is assumed that half of these employees would have out-migrated without the jobs, 478 workers remained in the county in 1972 due to the employment created by the project. An analysis of out-migration for the county during the 1960-1970 period shows that the greatest out-migration was by those between 16 and 30 years of age. Given this age characteristic, it is estimated that half of the potential out-migrants were single and that half had households of the average size for Maryland. Thus, the increase in the county population due to diminished out-migration was 1,032 persons for the year 1972. The annual series shown in Table 5-6 was constructed using the same procedures that were used for estimating the population increases due to in-migration.

Total Population Effects

The total population effect of plant construction is the sum of the increase due to in-migration and the increase due to diminished out-migration. As shown in Table 5-7, the total population effect of plant construction rose to a high of 2,819 persons in 1972.

5.4.3 Population Effects during the Operations Period

As in the construction period, during the operations period, county population increased as a result of the employment of in-migrants in basic and nonbasic jobs. The number of movers who obtained basic jobs in 1978 was estimated at 251 (see Table 4-10).¹

In Chapter 4, nonbasic employment due to the plant was estimated at between 180 and 300 jobs. For the purpose of the calculations below, it will be assumed that 240

¹No population increase was assigned as an effect of the maintenance, repair, and refueling workers since they were solely temporary residents.

TABLE 5-6

POPULATION INCREASE^a
 DUE TO DIMINISHED OUT-MIGRATION
 CALVERT COUNTY
 1968-1976

	1968	1969	1970	1971	1972	1973	1974	1975	1976
Population Increase	78	244	546	1,025	1,032	1,006	680	279	150

^aThe amount by which Calvert County population would have been smaller if the employment due to the Calvert Cliffs Project were eliminated in that year.

Source: Social Impact Research, Inc., 1980.

TABLE 5-7

POPULATION DUE TO CONSTRUCTION
OF THE CALVERT CLIFFS NUCLEAR POWER PLANT
CALVERT COUNTY
1968-1976

	1968	1969	1970	1971	1972	1973	1974	1975	1976
In-Migration	135	422	946	1,775	1,788	1,742	1,177	483	260
Diminished Out-Migration	78	244	546	1,025	1,032	1,006	680	279	150
TOTAL	213	666	1,492	2,800	2,820	2,748	1,857	762	410

Source: Social Impact Research, Inc., 1980.

nonbasic jobs were created in 1978. It is estimated that about 80 percent of these employees were nonmovers; 15 percent were movers; and 5 percent were commuters living outside Calvert County. This means that 192 of the nonbasic jobs were held by nonmovers and 36 were held by movers.

The total number of movers who held basic and nonbasic jobs in 1978 was, therefore, 287 persons. By 1978, the average household size for Maryland had declined to 3.02, the figure used to calculate the effect of these movers on the county population. The total population increase due to in-migration was thus estimated at 867 persons for 1978.

The estimates of population increase due to diminished out-migration were calculated for 1978, an operations year, in the same manner that they were calculated for 1972, the peak year of construction. The number of nonmovers obtaining basic employment in 1978 was 174. In addition, 192 of the 240 nonbasic workers were nonmovers. Altogether, then, 366 basic and nonbasic workers with jobs due to Calvert Cliffs were classified as nonmovers in 1978. As before, it was assumed that half of these workers would have out-migrated in the absence of these jobs. Also it was estimated that half of the potential out-migrants would have taken average-size families with them and that half would have been single out-migrants. Based on these estimates, the population increase in Calvert County for 1978 due to diminished out-migration was 369 persons.

The total population increase due to in-migration and diminished out-migration during 1978 was estimated at 1,236. An annual series for 1975 to 1979 was constructed based on this figure and on the assumption that the increased population for each year would be the same proportion of the operations work force as it was in 1978. The resulting annual series is shown in Table 5-8.

5.4.4 Summary

With these data, it is possible to estimate the proportion of the county population that resulted from the construction and operation of the Calvert Cliffs plant. These figures are shown for 1968 to 1979 in Table 5-9.

The greatest population impacts appear to have occurred during the peak construction years (1971-1973), when the effects of in-migration and diminished

TABLE 5-8

POPULATION DUE TO OPERATION
 OF THE CALVERT CLIFFS NUCLEAR POWER PLANT
 CALVERT COUNTY
 1975-1979

	1975	1976	1977	1978	1979
Population Workers and Households	897	943	1,130	1,236	1,552

Source: Social Impact Research, Inc., 1980.

TABLE 5-9

POPULATION DUE TO CONSTRUCTION AND
OPERATION OF THE CALVERT CLIFFS NUCLEAR POWER PLANT
CALVERT COUNTY
1968-1979

Year	Population Effects		Total	Percent of Calvert County
	Construction Period	Operations Period		
1968	213		213	1.1
1969	666		666	3.1
1970	1,492		1,492	6.7
1971	2,800		2,800	12.1
1972	2,820		2,820	11.5
1973	2,748		2,748	10.9
1974	1,857		1,857	6.9
1975	762	897	1,659	6.2
1976	410	943	1,353	4.7
1977		1,130	1,130	3.7
1978		1,236	1,236	4.1
1979		1,552	1,552	4.8

Source: Social Impact Research, Inc., 1980.

out-migration totaled between 10 percent and 12 percent of the county population. During the operation period, the population effects were smaller and relatively less important because of the smaller size of the operations work force and the increase in total county population due especially to the rapid suburbanization in the northern section. Even at the reduced proportion shown for the operations period, however, the plant must be evaluated as a significant factor in contributing to the size of the county population.

CHAPTER 6: SETTLEMENT PATTERNS AND HOUSING

6.1 Introduction

The purpose of Chapter 6 is to identify the effects of the Calvert Cliffs project on settlement patterns and housing in Calvert County. In this chapter, the historical trends are examined with particular attention to the changes that took place during the study period, 1968-1979. Based on the analysis of the preceding chapters, estimates are made of the Calvert Cliffs effects on new construction, upgrading of existing housing units, and conversions of seasonal housing. The effects on cost and availability of housing units, based on key informant interviews, and information describing the numbers and specific locations of project-related people are also discussed. The chapter concludes with a summary of the effects of the Calvert Cliffs project on settlement patterns and housing in Calvert County.

6.2 Settlement Patterns

6.2.1 Factors Influencing the Settlement Patterns of the Study Area

The settlement patterns in Calvert County were strongly influenced by a number of factors: the topography of the county, the transportation routes, the location of natural resources, and the historical and demographic trends. The county is a peninsula with more than 110 miles of shoreline, including numerous bays and inlets along the Patuxent River. The best water access on the Chesapeake Bay was limited to the North Beach-Chesapeake Beach area and Solomons, due to the cliffs and the rugged shoreline. Prior to World War I, water transportation was the primary form of transport, and internal transportation was confined to a limited road system. A short excursion rail line from Washington, D.C. to Chesapeake Beach, which was discontinued in 1935, was never used as a significant transportation link for the county.

The road system was improved and expanded during the 1950s and 1960s as it became the dominant transportation mode and an important factor in recent county development. The bridge across the Patuxent River to Charles County (Maryland Route 231) was opened in 1954. In the early 1960s, Maryland Route 2/4, the county's main road, was expanded to four lanes as far south as Prince Frederick. Much more recently, in December 1977, the lower Patuxent River Bridge, which crosses the Patuxent River to St. Mary's County at Solomons, was completed.

The transportation improvement that produced the greatest changes in population, settlement patterns, and housing was the four-lane development of Maryland 2/4. This change made the northern half of the county quickly accessible to the Washington, D.C. area. Furthermore, it attracted commercial development; the new trade and service facilities at Prince Frederick were located to take advantage of the road.

Another major factor in determining settlement patterns was the county's natural resources. The best agricultural properties were developed from the bottom lands along the Patuxent River. Several large plantations were established in these areas, which are generally located west of Maryland 2/4. Smaller farms were also established, however, and the widespread agricultural development resulted in a scattered population throughout the county, with many black families living near the larger farming operations.

The abundant marine resources were responsible for the developments at Solomons, North Beach-Chesapeake Beach, and the smaller waterfront locations. The Solomons area, located where the Patuxent River flows into the Chesapeake Bay, was the most intensively involved in the seafood industry's development. These same places also became recreation and tourist attractions. The North Beach-Chesapeake Beach was the oldest resort center, but it declined in the late 1920s and the 1930s, and post-war development was concentrated in the southern section of the county.

Several residential developments were established, their locations determined primarily by their access to water and recreational amenities. Most of these developments originally were designed for summer or holiday use, some as early as the 1930s. Scientist Cliffs, Long Beach, and Calvert Beach were all started before World War II. After the war, Drum Point, located just north of Solomons Island, was developed. This was followed by the Chesapeake Ranch Club Estates in the late 1950s. Another recent development, White Sands, with access to the Patuxent River, was located just west of Maryland 2/4 and near the Calvert Cliffs site.

Prince Frederick, the county seat, developed as the governmental center and the county's trade and service center. As the population grew and the agricultural focus of the economy lessened, Prince Frederick developed into a more diverse service center. The growth in commercial facilities after the 1960s was along Maryland 2/4, which was located just a few blocks west of the courthouse square. At the time of the study, the

Prince Frederick area served as the location for the larger retail stores including three chain groceries; banks; automobile, truck, and farm equipment dealers; and the offices of the two weekly newspapers. The public buildings and facilities in Prince Frederick included the courthouse, county hospital, fairgrounds, historical society, public and private schools, jail, and library. Several of the traditional congregations have their church buildings in or near the village. Not far away, about three miles west of Prince Frederick, the Hallowing Point park, with extensive athletic facilities, was built in the late 1970s. A mile or so further west along Route 231, the county's Industrial Park was developed.

The only incorporated towns in the county are North Beach and Chesapeake Beach, both located in the northeastern corner of the county on the Chesapeake Bay. Other settlement centers in the northern section are located at Huntingtown and Dunkirk. The newer Northern High School and the county's first public park, both constructed in the 1970s, were located near Dunkirk. Numerous residential developments, mainly built for suburbanites working in the Washington D.C. area, were located in this area.

Summary

Prince Frederick, located along Maryland 2/4 in the middle of the county, developed as the center of community life. It was the governmental seat, and the major retail and service facilities located there. The centers at North Beach-Chesapeake Beach and Solomons developed as places where water-oriented activities were located. The extensive waterfront properties, especially along the Chesapeake Bay, were the location of new residential developments, as was a large area of the county that had easy access to the Washington, D.C. area. The scattered population, which was an historical characteristic of the county, resulted from the dominant agricultural focus of the economy.

6.2.2 Population Distribution

The data available on population change over time are recorded for the two incorporated towns, North Beach and Chesapeake Beach, and for the three election districts (EDs). Other locations, such as Dunkirk, Prince Frederick, or Solomons, may be equally important, but a demographic history cannot be reconstructed since they do not have defined boundaries nor recorded population figures. Thus, the election districts,

which divide the county into roughly equal land areas, provide the only long-term account of population trends at the subcounty level.

Early in the century, these districts had about equal populations, in addition to having about equal land areas. This has gradually changed so that the 1975 population estimates showed 31 percent of the county population in the southern district (ED1), 29 percent in the middle district (ED2), and 40 percent in the northern district (ED3). (Maryland Department of State Planning, 1976.)

6.3 Housing

The southern rural character of the county, heavily influenced by the role of tobacco as the major crop, was reflected in housing patterns and conditions. Before the Calvert Cliffs project began, there had been some suburban development in the northern areas of the county. Several waterfront developments along the Chesapeake Bay had been started, some as early as the 1930s. For the most part, however, overall housing was dominated by the county's long-time agricultural background.

The county's housing stock was almost entirely single-unit houses; there were no apartment developments. The 1970 Census recorded 7,906 housing units, an increase of 32.3 percent over the 5,978 units recorded in 1960. Of these, 5,540 were occupied—1,488 by blacks and 4,052 by whites. The remaining 2,366 units were vacant because they were seasonal units, were unsuitable for habitation, were for sale or rent, or because of the owner's personal preference. (Calvert County Planning Office, 1974.) These data suggest rapid change in the housing stock during the decade of the 1960s. The most useful description of housing conditions prior to the project was provided by a large-scale public health study, which began field work in 1963 and was completed in 1966. The study examined 4,181 of the 4,382 households identified in the county. A few of the outstanding characteristics are shown in Table 6-1.

These data show clear evidence of poverty and inadequate housing, especially among blacks. Forty-four percent of all home owners (71 percent of all black owners and 34 percent of all white owners) valued their homes at less than \$10,000 at the time of the 1966 survey. Furthermore, 43 percent of all black owners and 14 percent of all white owners valued their homes at under \$5,000. While these data show a serious housing problem based on housing values, they probably understate the situation since they do not include rental and tenant units.

TABLE 6-1
CALVERT COUNTY HOUSING
 1966

	White		Black		TOTAL
Total Households	2,804		1,377		4,181
Housing Units Owned	2,201		854		3,055
Bathroom Facilities, Outdoors Only	280 (10%)		1,060 (77%)		1,338 (32%)
Water Supply					
Hot and Cold, Inside	2,468 (88%)		275 (20%)		2,759 (66%)
Outdoors Only/No Water	224 (8%)		1,074 (78%)		1,295 (31%)
Percent Owned	78.5%		62%		73%
Reported Value of Owned Housing ^a under \$10,000	34%		71%		44%
Reported Value of Owned Housing under \$5,000	14%		43%		22%

^a2,941 respondent households.

Source: Public Health Study, 1966.

The data from this survey allow the examination of housing quality by race of resident, a refinement not possible with the 1960 and 1970 Census figures. They show that 88 percent of the white households compared to only 20 percent of the black households had both hot and cold water inside. Of all 4,181 household units, 1,420 (34 percent) had no inside water, and 1,338 (32 percent) had only outdoor bathroom facilities. About 1,400 units (33 percent) could be classified as seriously substandard; at least 1,050 units (75 percent) of these were occupied by blacks. The poor quality of housing in Calvert County shows clearly in data from the 1960 Census, the 1970 Census, and the housing survey done by the Calvert County League of Women Voters in the winter of 1970-1971.

New housing development in Calvert County was rapid during the 1960s and 1970s. However, during that period, the number of poor people in substandard and marginal housing did not decrease dramatically, although they became a much smaller proportion of the population. Table 6-2 shows annual housing-starts, by election district, for the 1965 to 1977 period.

The number of new housing starts was subject to influence from a variety of social and economic conditions, many of which were beyond local control. The data show overall trends for housing over a twelve-year period and give a good indication of where the county's in-migrating population located. Overall, the number of housing starts per year in Calvert County declined gradually between 1965 and 1969. This downward trend was sharply reversed in 1971, with significant increases in housing starts persisting through 1977. Abrupt increases took place between 1970-1971 and 1975-1976. The increased building continued in spite of the major construction slowdown that began in 1975. The drop in housing starts in 1974 and 1975 may also reflect an immediate response to the first gasoline crisis and subsequent reactions by commuters from the Washington, D.C. area. The great majority of new housing units in the county were detached, single-family houses.

During the three years (1965-1967) prior to the start of construction at Calvert Cliffs, approximately 54 percent of the housing starts were located in the southern district. Only 18 percent were in the middle district, and 28 percent were in the northern district. Between 1968 and 1972, in addition to the increase in total housing starts, this pattern also shifted. Of the 1,311 new houses built during this period, 40 percent were in the southern district, 21 percent in the middle district, and 39 percent in

TABLE 6-2
NEW HOUSING STARTS BY ELECTION DISTRICTS
CALVERT COUNTY
1965-1977

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	TOTAL
North (ED3)	72	59	42	30	53	86	185	161	239	148	244	357	394	2,070
Middle (ED2)	44	34	35	32	43	55	80	66	99	64	106	194	175	1,027
South (ED1)	<u>115</u>	<u>114</u>	<u>105</u>	<u>94</u>	<u>98</u>	<u>109</u>	<u>181</u>	<u>137</u>	<u>181</u>	<u>148</u>	<u>146</u>	<u>155</u>	<u>179</u>	<u>1,762</u>
TOTAL	231	207	182	156	194	250	446	364	519	360	496	706	748	4,859

Source: Calvert County Planning Department, 1971 and 1979.

the northern district. Between 1973 and 1977, this shift in activity from the south to the north continued—only 29 percent of the 2,829 new units were built in the southern district, while 49 percent were built in the northern district, and 23 percent were built in the middle district. The early dominance of the southern district (which actually continued through 1970) was probably due to the promotion of residential developments such as the Chesapeake Ranch Club Estates, Drum Point, and White Sands, all located in the south. The shift to the northern district reflected the influx of the suburbanites seeking housing in Calvert County.

The total increase in units shows that the northern section recorded over 300 more units than the southern section and twice as many as the middle section. The immigration of people buying these houses altered the overall statistical picture. Average assessed values and other measures, such as ownerships, rose due to this new construction.

Some key informants said that substantial housing improvements were made to the older stock as a result of increased income to the local work force during the 1970s. Although substandard and marginal housing made up a progressively smaller proportion of the stock, this was less due to upgrading than to the rapid increase in the number of new units, most of which were purchased by in-migrants. Improvements in the housing occupied by native residents were much slower and more modest than the aggregate statistics for the county seem to indicate; there was still considerable substandard housing occupied by the poor in the county at the end of the study period. In addition, code and zoning regulations adopted during the last decade made it difficult to improve housing incrementally, perhaps inhibiting initiative in this area by the poorer residents.

During the construction period (1968-1977), the demand for both rental and sale property was very high due to the influx of workers. In response, a number of seasonal properties were converted to year-round use so they could be rented; this was especially the case for waterfront units in the southern section. Key informants reported a high level of real estate sales as well as long lists of construction workers looking for rental units. Rapidly increasing prices due to this excess demand were clearly apparent by 1970 and continued through 1974 when Unit 1 was complete.

Construction workers often paid two or three times the former rental rates, which resulted in sharp increases in rents. BG&E was concerned about the housing market, and

the utility gathered information on property, realtors, and rentals, which was supplied to employees. Early in the construction phase, BG&E and Bechtel considered providing extra on-site housing. However, this alternative was rejected because neither the utility nor the contractor wanted to create a temporary "company town" of trailers and mobile homes. In addition, both felt that the wages paid to construction workers would allow them to obtain adequate housing. This turned out to be an optimistic evaluation. There never was enough local housing, and the other newcomers and residents of the area were forced into competition with highly paid construction workers.

There was a general expectation that housing demand would decline sharply and that prices might decrease when construction at Calvert Cliffs was completed. There was a decline in demand, especially for rentals, after 1975. As the construction work force declined, realtors no longer had lists of 50-100 people waiting for a unit. However, the decreased demand was never sufficient to reduce property values, and in the late 1970s new highs in property values and housing starts were recorded. During construction, every available unit was promptly occupied. After construction began to wind down, there was still full utilization of the housing stock, although the supply and demand were closer to being balanced.

The operating personnel for the plant were able to obtain housing, and about 84 percent lived in the county, most quite near the station. Between 1972 and 1975, BG&E built and arranged financing for twenty-four housing units in the southern district to provide housing for their operating personnel who were being assigned to the plant. Between 1975 and 1978, regular market availability of housing was adequate to meet the needs of new operating personnel.

6.4 Summary

The location of the Calvert Cliffs plant in the southern district (ED1) resulted in an increase in the number of basic employees residing in that section. The development due to nonbasic employment growth centered on the Prince Frederick area in the middle district (ED2). This growth was markedly different from the suburban development in the northern district (ED3), which was focused economically and socially outside the county. The opening of the lower Patuxent River bridge in December 1977 put the Lexington Park area in competition with Prince Frederick in terms of retail trade. However, the political and social effects were concentrated in the county, and even in the area of retail shopping, the county held its own as the business community near

Prince Frederick expanded. The churches, schools, public facilities, and social groups located in the middle and southern districts all developed in response to the plant's population effects. Overall housing quality improved--due more to the increase in housing stock than to improvements in previously substandard housing. The greatest beneficiaries of this growth were the several types of in-migrants. There was some upgrading of older housing units and some purchase of new units by native residents. A significant proportion of this improvement was made possible by the employment of residents in basic and nonbasic jobs created by the construction and operation of the plant. However, housing for the indigenous population remained a major county problem; it did not improve as rapidly as the overall statistics would suggest.

CHAPTER 7: LOCAL GOVERNMENT AND PUBLIC SERVICES

7.1 Introduction

The purpose of Chapter 7 is to describe the basic structural components of the local government in the Study Area, indicate the level of services, and describe specific areas of services over the study period. The objective is to focus on changes in public services that have resulted from the construction and operation of the Calvert Cliffs plant. The discussion highlights changes associated with significant social or political consequences rather than providing a detailed fiscal analysis of the county government.

Once the background description of the county government is outlined, a summary of the budgets for the study period will be presented. Discussions of revenues and expenditures will concentrate on the response the county made to the increased revenues resulting from plant operation. This examination will include both the increased assessable base of the county and the consequences in terms of increased expenditures, reduced tax rates, or both.

The discussion of public services focuses on employment and service trades in four areas: education, transportation, public safety, and social services. These services have been chosen because they are thought to be responsive to socioeconomic changes in the community, they are often cited as impacted services in the literature, and they would be indicative of other public services effects experienced in the Study Area.

7.2 Governmental Structure

At the time of the 1970 Census, all of Calvert County was classified as rural; the only two incorporated towns, Chesapeake Beach and North Beach, both had less than 1,000 people. Consequently, the county provided the only local government service for nearly all of the county. Both legislative and administrative functions were directed by a county commission from Prince Frederick, the county seat and site of the county courthouse. The compensation, powers, and duties of the commissioners were set by the Maryland State Assembly. The authority to alter the form of the county's governing body, to change the powers of the governing body, and to change the organization and functions of the county government was reserved to the Maryland State Assembly and exercised through Public Local Law. In addition, many essential functions of county government had to be initiated or approved by the General Assembly. This authority

provided state assembly representatives and senators with a great deal of influence in local government affairs. (Nash, 1967:129.)

Calvert County is represented in the state government by two representatives in the State Assembly—a member of the House of Delegates, and a state senator who represents Calvert County and part of Ann Arundel County. At the time of the study, the state senator was an Ann Arundel County resident. Prior to this appointment, the senate seat had been held for more than thirty years by two Calvert County residents, both of whom were interested in county governmental affairs. The state comptroller, a former senator, is a Calvert County resident and active in local affairs. The state influence in county governmental affairs under the commission format makes these state representatives powerful figures in local government and increases the importance of Annapolis, the state capital, to local county government.

The country is divided into three election districts. Before World War II, these areas had about the same number of people. Gradually this balance changed: by the late 1970s, about 40 percent of the population lived in the northern district (ED3), about 28 percent lived in the middle district (ED2), and about 32 percent lived in the southern district (ED1). Prior to the 1978 election, the county commission had three members, one from each election district. This was changed for the 1978 election to a five-member commission, which had one member from each of the districts, plus two at-large members. Both the at-large commissioners lived in the southern district, which, consequently, had three members on the commission at the time of the study.

During the study period, the greatest changes in county government administration were in the executive functions; the creation of an administrative director's position was particularly significant. Public administration was strengthened, especially in the areas of budget and fiscal control, county planning, and land use. Additions to the county government over this time period included the Department of Parks and Recreation, the Engineering Department, the Housing Office, the Office on Aging, and others. Professional staff provided data collection and analysis, as well as day-to-day administration, in areas where the work was previously done by volunteer citizen appointees. Thus, although the Planning Commission, for example, still supervised this area of public service, it was assisted and guided by a professional planning staff. (President, County Commission, personal communication, 1979.) The number and wages of county government employees increased dramatically during the

study period, financed by increases in the assessed base of the county. Existing properties were reassessed, and new properties were added to the base, especially the new housing stock and two major industrial sites, the Calvert Cliffs Nuclear Power Plant and the Columbia LNG Plant.

The county commission underwent two significant changes. The "old commission," as it was often referred to locally, had been in office for twelve years and had set the policies for land use that resulted in the Calvert Cliffs project. The three commissioners were local farmers, although one was also a successful businessman. None of these men ran for office in 1970, and an entirely new commission, composed of two businessmen and a doctor, was elected. In 1978, as previously mentioned, another major change took place when the commission was expanded to five members. The two businessmen were joined by three additional businessmen, and the doctor was defeated in his bid for re-election.

An effort by some county residents to change from the commission form of government to Charter Home Rule¹ was defeated in the 1976 election. This proposal would have made local government more autonomous and would have reduced the State Assembly's role in county administration. The primary opposition to the proposal came from the county's state senator, who exercised a great deal of control over local government through his state assembly position. As the owner of the largest circulation newspaper in the county, he was in a position to effectively campaign against the charter proposal. (Calvert Independent, October-November, 1976.)

7.3 The County during the Study Period (1968-1979)

7.3.1 The County Budget

The data available on the county budget for 1968 to 1979 are summarized in Table 7-1. The overall increase in the budget during this period was more than 500 percent, in constant 1972 dollars. The changes in government and public services that took place in Calvert County were among the most significant impacts of the Calvert Cliffs Nuclear Power Plant. These changes can be expressed in terms of the two controlling economic variables--revenue and expenditures. The revenue effects are outlined first.

¹Charter Home Rule is a form of local rule that separates the executive and legislative functions and provides for more local control of county administration.

TABLE 7-1

CALVERT COUNTY BUDGET
FISCAL YEARS 1968-1979
(Thousands of Dollars)

	1968 ^b	1969	1970	1971 ^a	1972 ^f	1973	1974	1975	1976	1977	1978	1979
General Government	\$235.4			\$370.7	\$388.3	\$476.7	\$573.1	\$691.0	\$785.5	\$821.5	\$915.7	\$1,040.4
Public Safety	97.6			239.4	283.7	317.0	391.4	499.1	740.4	1,063.4	1,292.5	1,860.4
Public Works ^a	6.5			12.0	52.3	97.1	179.3	281.1	837.4 ^j	461.7	649.9	547.0
Health	58.1			101.9	138.7	203.7	255.9	255.6	257.0	316.7	466.7	643.7
Social Services	56.4			134.3	101.9	104.3	118.6	113.7	181.2	94.8	134.4	171.7
Education	1,361.7			2,019.8	2,712.4	3,566.6	4,099.4	4,494.2	5,736.3	7,129.8	8,428.9	9,570.4
Parks and Recreation	20.9 ^c			32.9	21.1 ^e	54.9	83.1	142.2	196.1	370.9	482.5	510.0
Economic Development	-0-			28.0	30.5	27.8	27.7	-0- ⁱ	124.2	135.2	59.0	167.9
Capital Projects	n.a. ^d			457.1	180.0 ^h	84.1	129.5	171.3	646.0 ^k	3,726.0	8,484.7	4,672.8
Other	225.4			68.6	229.7	358.0	625.2	508.2	4,626.7	2,459.7	2,700.4	2,197.4
TOTAL	2,041.1			3,464.7	4,138.6	5,289.5	6,483.2	7,156.4	14,776.8	16,479.7	23,614.7	21,372.7
Constant 1972 \$	2,510.6			3,586.6	4,138.6	5,013.3	5,545.9	5,657.2	11,093.7	11,712.7	15,621.9	12,953.2
Annual Rate of Increase (Constant 1972\$)				12.6	19.5	21.1	10.6	2.0	96.1	5.6	33.4	-17.1

^aIncludes highway maintenance and lighting

^bEstimated by Naah, 1967:121-123.

^cLibrary only

^dNot available, no amount included for this year

^eAzzaretto, 1973

^fCalculated from fiscal year 1972 budget

^gAdditional 25,000 for capital outlay

^hDoes not include school capital expenses under new state program

ⁱNo monies listed in fiscal year 1975 budget for economic development

^jAdditional \$600,000 to road maintenance

^k\$416,566 park and recreational capital outlay; \$110,700 public works capital outlay

Sources: Skok, 1970; Calvert County Budgets, 1972-1979

7.3.2 Revenues

During the study period, the major source of revenue for Calvert County was the property tax. The assessment of the value of land, improvements, personal property, public utilities, and corporations was made by the state assessors. The property tax rate, stated in terms of the tax per \$100 of assessed value, was set by the county commission. Table 7-2 shows these figures for 1968 to 1978.

In constant dollars, revenues increased at an average rate of 20.1 percent per year for the 1968-1978 period. The assessable base in 1978 was more than 18 times that of 1968. In terms of per capita valuation, Calvert County went from being one of the poorest counties in the state to being one of the richest. The assessed value of land, improvements, and personal property increased by more than a factor of three (constant dollars) due to increased building in the county and rising property values. The most dramatic increases were in the public utilities and corporation assessments. In 1975, when Calvert Cliffs became liable for taxes and the tax base rose by \$267 million (current dollars), this category increased substantially every year, with the addition of Unit 2 in 1977 and the Columbia LNG plant in 1978. As shown in Table 7-3, the BG&E property in the county, almost entirely the Calvert Cliffs plant, made up almost 66 percent of the county's assessable tax base in 1978.

The large increase in the assessable tax base resulted in substantially increased revenues and progressively lower tax rates. These two aspects of county finances were important results of the Calvert Cliffs project. The value of the tax payments by BG&E for Calvert Cliffs is shown in Table 7-3. The value of the reduced tax rate to county taxpayers is presented in Table 7-4, where the calculations assume that the tax rate levied in 1970, 1971, and 1972 was acceptable to county taxpayers and would have been maintained in the absence of the increased tax base and revenue. Therefore, the difference between the revenues that would have collected at that rate (\$2.77 per \$100 of assessed value) and those actually collected for each year constitute the tax savings to county taxpayers due to the reduced rates. Since these reduced rates were primarily the result of revenues received from BG&E for the Calvert Cliff's property, the savings can, in some sense, be attributed to the project.

Another source of local revenue is the "piggyback" income tax which allows Maryland counties (and Baltimore City) to collect from county residents an amount equal

TABLE 7-2

CALVERT COUNTY ASSESSABLE TAX BASE, RATE, AND REVENUES
1968, 1970-1978
(Thousands)

Fiscal Year	Property Tax Rate Per \$100	Assessable Base (Current \$)			Revenues		Annual Rate of Change (Constant 1972 Dollars)
		Land Improvements Personal Property	Public Utilities, Corporations	Total	Current \$	Constant 1972 \$	
1968	2.25	\$49,102	\$6,500	\$55,602	\$1,251.0	\$1,478.7	--
1969	2.25	n/a	--	--	--	--	--
1970	2.77	75,951	10,798	86,719	2,402.1	2,596.9	32.5
1971	2.77	85,688	12,355	98,043	2,715.8	2,811.4	8.3
1972	2.77	97,681	14,293	111,974	3,101.7	3,101.7	10.3
1973	2.70	113,474	25,108	138,583	3,741.7	3,546.6	14.3
1974	2.60	128,249	29,750	157,999	4,108.0	3,514.1	- 0.1
1975	2.55	154,077	283,385	437,462	11,155.3	8,818.4	150.9
1976	2.55	194,922	308,842	507,830	12,949.7	9,722.0	10.2
1977	2.30	233,714	511,313	745,027	17,135.6	12,178.8	25.3
1978 ^a	2.10	280,500	519,400	799,900	16,797.9	11,176.2	- 8.2

^aEstimated, Dunkel, 1978.

Source: Dunkel, 1978; Social Impact Research, Inc., 1980.

TABLE 7-3

BG&E PROPERTY IN CALVERT COUNTY AS A PERCENTAGE
OF THE ASSESSABLE TAX BASE
FISCAL YEARS 1975-1978
(Current Dollars)

Fiscal Year	County Tax Base	BG&E Assessment	
		Dollars	Percent of County
1975	\$437,462	\$268,849	61.5
1976	507,830	291,436	57.4
1977	745,027	489,896	65.8
1978	799,900 ^a	524,914	65.6

^aEstimated, Dunkel, 1978.

Sources: Dunkel, 1978; BG&E, personal communication, 1979; Social Impact Research, Inc., 1980.

TABLE 7-4

**CALVERT COUNTY POTENTIAL TAX REVENUES AT \$2.77 RATE
AND ACTUAL REVENUES AT THE APPLIED RATES
1973-1978
(Thousands of Dollars)**

	Potential Revenues (@ \$2.77)			Actual Revenues		Difference	
	Current \$	Constant 1972 \$	Rate	Current \$	Constant 1972 \$	Annual \$	1972 Constant \$
1973	\$3,838.7	\$3,638.6	2.70	\$3,741.7	\$3,546.6	\$ 97.0	\$ 92.0
1974	4,376.6	3,743.9	2.60	4,108.0	3,514.1	268.6	229.8
1975	12,117.7	9,579.2	2.55	11,155.3	8,818.4	962.4	760.8
1976	14,066.9	10,560.7	2.55	12,949.7	9,722.0	1,117.2	838.7
1977	20,637.2	14,667.5	2.30	17,135.6	12,178.8	3,501.6	2,488.7
1978	22,157.2	14,742.0	2.10	16,797.9	11,176.2	5,359.3	3,565.8

Source: Social Impact Research, Inc., 1980.

to between 20 percent and 50 percent of the resident's state income tax. In 1973-1975, Calvert County collected the maximum 50 percent; in 1976-1978, it collected the minimum 20 percent. In 1977, twenty counties, plus Baltimore City, collected the maximum 50 percent; one county collected 40 percent; one county collected 35 percent; and two, including Calvert County, collected the minimum 20 percent. Following the logic of the preceding argument, Table 7-5 shows the rates, the revenues, and the tax savings to county taxpayers from the reduction in the piggyback tax rate occasioned by the revenues from the Calvert Cliffs project.

The reductions in the property tax rate and in the piggyback tax rate provided very substantial reductions in taxes for county taxpayers. These tax savings are shown in Table 7-6. The savings realized by Calvert County taxpayers amounted to 14.2 percent in 1976, 20.4 percent in 1977, and 28.6 percent in 1978. In other words, the taxes paid were lower by these percentages than they would have been if taxes had been paid at the 1970-1972 rates. The greatest absolute savings have gone to the individuals and corporations with the most valuable properties and the highest incomes. For example, at the \$2.77 rate, BG&E would have paid \$14.5 million on 1978, about \$3.5 million more than their actual payment.

An additional source of revenues that could have been affected was the state payments to the county. The data in Table 7-7 shows these revenues for the 1970-1980 period.

The state's contributions to some county programs are determined by evaluating the local assessable tax base and tax rate to ensure that a fair effort is being made by the local communities. Overall, the county's share of state funds did not change dramatically over the decade of the 1970s: it was 0.8 percent in 1970 and 0.9 percent in 1980. However, the absolute value increased from \$3.51 million in 1970 to \$11.05 million in 1980 (in current dollars), a 12.2 percent annual rate of increase. The major increases to the tax base of the county correspond with the dramatic drops in the equivalent tax rate of the state-provided monies. The decline from \$3.44 per \$100 in 1975 to \$1.45 per \$100 took place in 1976 when Unit 1 of the Calvert Cliffs plant became taxable. Additional declines occurred when Unit 2 came on the tax roles in 1977 and when the Columbia LNG plant was finished in 1978.

TABLE 7-5

**CALVERT COUNTY PIGGYBACK TAXES
1973-1978
(Thousands of Dollars)**

Fiscal Year	Rate	Amount Collected		Potential (@ 50%)		Difference	
		Current \$	1972 Constant \$	Current \$	1972 Constant \$	Current \$	1972 Constant \$
1973	50%	\$ 740	\$701.4	\$ 740	\$ 701.4	0	0
1974	50%	950	812.7	950	812.7	0	0
1975	50%	1,200	948.6	1,200	948.6	0	0
1976	20%	530	397.9	1,325	994.7	\$ 795	\$596.8
1977	20%	550	390.9	1,375	977.3	825	586.4
1978	20%	800	532.3	2,000	1,330.7	1,200	798.4

Source: Calvert County Annual Budgets, 1973-1978; Social Impact Research, Inc., 1980.

TABLE 7-6

POTENTIAL AND ACTUAL REVENUES COLLECTED
 ASSESSABLE TAX BASE AND PIGGYBACK TAX
 CALVERT COUNTY
 1973-1978
 (Thousands of Dollars)

Fiscal Year	Difference: Assessable Tax Base		Difference: Piggyback		TOTAL	
	Current \$	1972 Constant \$	Current \$	1972 Constant \$	Current \$	1972 Constant \$
1973	97.0	92.0	0	0	97.0	92.0
1974	268.6	229.8	0	0	268.6	229.8
1975	962.4	760.8	0	0	962.4	760.8
1976	1,117.2	838.7	795	596.8	1,912.2	1,435.5
1977	3,501.6	2,488.7	825	586.4	4,326.6	3,075.1
1978	<u>5,359.3</u>	<u>3,565.8</u>	<u>1,200</u>	<u>798.4</u>	<u>6,559.3</u>	<u>4,364.2</u>
TOTAL	11,306.1	7,975.8	2,820	1,981.6	14,144.1	9,957.4

Source: Social Impact Research, Inc., 1980.

TABLE 7-7

MARYLAND STATE AID TO CALVERT COUNTY
1970-1989
(Thousands of Current Dollars)^a

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
<u>DIRECT ASSISTANCE</u>											
Shared Taxes	241	260	289	367	397	430	517	564	648	779	1,045
Percent of State Total ^b	.5%	.5%	.5%	.6%	.6%	.6%	.8%	.8%	.9%	1.0%	.8%
Education	2,472	3,209	2,802	3,037	2,872	3,227	3,503	3,415	3,408	3,720	4,357
Percent of State Total	.9%	1.0%	.8%	.9%	.7%	.7%	.7%	.7%	.6%	.7%	.7%
Transportation	524	394	413	241	449	492	544	574	729	632	671
Percent of State Total	.7%	.5%	.5%	.3%	.5%	.6%	.6%	.5%	.6%	.5%	.5%
Health	83	102	92	111	123	126	137	153	171	179	190
Percent of State Total	.7%	.7%	.6%	.5%	.4%	.4%	.4%	.5%	.5%	.4%	.4%
Public Safety	38	40	35	32	33	37	146	144	169	361	255
Percent of State Total	.1%	.1%	.1%	.1%	.1%	.2%	.3%	.3%	.3%	.5%	.4%
<u>PAYMENTS IN BEHALF</u>											
Education	212	263	364	557	785	1,138	1,475	2,664	3,260	3,831	4,349
Percent of State Total	.4%	.4%	.5%	.7%	.8%	.9%	1.0%	1.4%	1.4%	1.5%	1.5%
Health	23	30	56	56	68	68	68	68	72	75	84
Percent of State Total	.8%	.8%	.8%	.8%	.7%	.7%	.5%	.5%	.4%	.4%	.4%
Other	27	36	70	70	76	76	77	77	77	79	94
Percent of State Total	1.8%	1.5%	1.8%	1.8%	1.4%	1.3%	1.3%	1.3%	1.2%	1.2%	1.2%
Total	3,513	4,213	3,981	4,300	4,632	5,445	6,342	7,640	8,514	9,658	11,046
Percent of State Total	.8%	.8%	.7%	.7%	.7%	.7%	.7%	.8%	.8%	.8%	.9%
Equivalent											
Tax Rate/\$100 ^c	4.62	4.88	4.06	3.84	3.34	3.44	1.45	1.52	1.15	1.18	1.29
State Rate/\$100 ^d	2.83	2.95	3.19	3.01	3.19	3.37	3.38	3.39	3.37	3.52	3.53

^aData from Maryland computer files, provided by Thomas Rymer, Esq., Maryland House of Delegates.

^bCalvert County is one of the smallest counties in the state; in 1975, the county contained approximately 0.6 percent of the state population and ranked 16th of 24 political subdivisions.

^cThe total amount of money provided by the state is equal to the amount that would be raised at the stated rate on the assessed base of the county. In other words, the \$3,513,000 provided in 1970 would have required an additional property tax of \$4.62 per \$100 assessed value if it had been raised in the county.

^dThe \$2.83 rate per \$100 (1970) means that the total amount of state aid to political subdivisions was equal to the amount of money that would have been raised if this rate had been applied to the assessed base of the entire state.

Source: Social Impact Research, Inc., December 1979.

During the 1970-1980 period, some changes occurred in the pattern of direct assistance from the state. Calvert County's proportion of shared taxes increased, as did its proportion of direct assistance for public safety. However, its proportions for education, transportation, and health all decreased.

Some revenue collection and payment programs were administered by the state on behalf of the local jurisdictions. Such programs usually involved formulas to address specific needs or circumstances. School construction funds, for example, were tied to the growth or decline of the school population and were funded entirely by the state. Basic transportation funds came from gasoline taxes, which were collected by the state. In addition, many programs in this category could be increased, decreased, created, or discontinued according to state policy decisions.

For Calvert County, the state payments for education increased both proportionately and in absolute terms between 1970 and 1980. In the health and "other" categories, although the state payments increased in dollar value, the county share decreased. Fears on the part of county residents that the increased tax revenues from the Calvert Cliffs nuclear station and the Columbia LNG plant would lead to large losses of state aid do not appear to have been substantiated. However, this could be changed with modifications in state law. Several attempts were made during this period to either distribute BG&E revenues to state programs or to change the state aid formulas so that the county would pay a greater share of jointly funded programs.

When the revenues from Calvert Cliffs are seen in the context of all the county revenues, including those received from the state rather than just those collected on the assessable base, the share is smaller but still significant. Prior to 1976, the county received about \$30,000 per year in taxes from BG&E: in fiscal years 1976 to 1979, the payments by the Baltimore Gas and Electric Company on behalf of Calvert Cliffs provided from 45 percent to almost 52 percent of the total revenues collected by Calvert County, as shown in Table 7-8.

7.3.3 Expenditures

Two categories of expenditures indicate the trends that have taken place in Calvert County since the Calvert Cliffs project was first announced. One, program development, is best indicated by county employment data. The other, capital projects, can be illustrated by a description of the new and improved public facilities in the

TABLE 7-8

BG&E TAX PAYMENTS AS A PROPORTION OF TOTAL COUNTY REVENUES
 1976-1979
 (Thousands of Current Dollars)

Year	Total County Revenues	BG&E Tax Payments Calvert Cliffs	Percent of County Revenues
1975		0	0
1976	\$14,776.8	\$ 6,852.9	46.38
1977	16,479.7	7,431.6	45.10
1978	23,614.7	11,267.6	47.71
1979	21,372.7	11,023.2	51.58

Source: Calvert County Annual Budgets, 1975-1979; BG&E, personal communication, 1979; Social Impact Research, Inc., 1980.

county. This section presents an overview of these two areas; a more detailed description of selected public service is reported in the following portions of this chapter.

County employment in 1967 was 77 persons, with an additional 331 persons employed by the school district (Nash, 1967:121). Annual employment figures are difficult to determine due to special programs, seasonal hiring, part-time employees, and the special characteristics of some elected offices. An analysis of the 1972 budget indicates that the county employed 104 workers that year. The county administrator reported that in late 1979, 258 persons were listed as county employees. These figures show an increase in county employment of 181 persons, or 235 percent, for the twelve-year period. This was an average annual growth rate of 10.6 percent. The greatest growth occurred between 1972 and 1979. Nevertheless, both the overall employment increase and the annual rate of increase were well below the growth of the county budget, even in constant dollar terms.

Capital projects are a second major category of budget expenditures. The 1967 budget did not include any expenditures for capital projects. In the last half of the 1970s, the situation was markedly different. Although the county obtained state and federal aid whenever possible, there was substantial local involvement in almost every capital improvement project undertaken during this period. The following list of projects contrasts the efforts during the late 1970s with those prior to the study period.

The largest county project, in terms of total cost, was the construction of the \$12 million county hospital, opened in 1978. Other county construction projects during this period included remodeling of the courthouse, building a new jail, purchasing an existing building for expansion of county facilities, contracting a long-term lease on the old hospital (part of the \$12 million new hospital package), establishing the new Marine Museum, and building a new housing project for the elderly.

The county built two recreation parks, one at Dunkirk in the northern district and the second at Hallowing Point in the middle district. At the time of the study, a third park was planned for the southern district, and other projects, including additional public water access, were under construction. Expenditures for road construction and lighting increased considerably. In 1976, the county made a special one-time expenditure of \$600 thousand to upgrade local roads. In 1978 and 1979, annual public works expenditures

were over half a million dollars. Capital projects were budgeted at \$3.7 million in 1977, \$8.5 million in 1978, and \$4.7 million in 1979. These capital project expenditures did not include school buildings since the state assumed responsibility for school construction in 1972.

Overall, the expenditures for personnel and for capital projects rose rapidly as the revenues of the county increased. An examination of how the local public services changed over the study period in the areas of education, transportation, public safety, social services, and other specially impacted services is made in the following sections.

7.4 Selected Public Services

The public services described here are those that are most responsive to public demand and most often cited in the literature as being affected by large-scale projects. In dealing with these services, it has been necessary to present an overview that condensed extensive data for an extended period. The objectives are to identify responses to project impacts made by the public services and to record structural changes that had important consequences for county residents.

7.4.1 Education

Public education in Calvert County was provided through one school district under direction of a six-member Board of Education appointed by the governor. Funding came from federal, state, and local tax revenues. Education was the largest item in the county budget, but, due to the structure of government, the county exercised only limited control over the operation of the schools.

Historically, the Calvert County public schools suffered from inadequate funding and limited programs. Before the 1964-1965 school year, the public schools were racially segregated, with one system for whites and another for blacks. Following integration, two new private schools were opened near Prince Frederick, joining a Catholic school located in Solomons that had been in existence for some time. The enrollment in the private schools was primarily white, and the two new schools were mainly attended by well-to-do students. Over the years, these new schools became firmly established in the county.

During the study period, post high school education in the county was limited to an adult education program at the high school; the county had no college, university, or

community college, so residents who continued their education had to go out of the county. At the time of the 1970 Census, only 4.9 percent of the 20 and 21 year-olds in the county were enrolled in school, the lowest percentage in the state (U.S. Bureau of the Census, 1970). In 1979, at the time of the study, local officials were considering proposals to establish community college classes in the county.

A vocational-technical program was initiated just prior to the Calvert Cliffs project as part of an attempt to improve employment opportunities for local young people and to support industrial or manufacturing expansion. This program was designed to work in conjunction with the county economic development effort, especially for the recruitment of tenants to the Industrial Park.

Changes in education after 1968 are summarized in the budget, enrollment, and funding data shown below. School construction, determined by enrollment and facilities needs, was taken over by the state in 1972. Therefore, the school building program has been a state expense and has not affected county revenues.

Table 7-9 shows public school enrollment from 1969 through 1978. During this period, there was a steady increase in enrollment and a noticeable change in racial composition. Although black enrollment declined by only 475 students between 1971 and 1978, the black proportion of the school population dropped from 52.0 percent to 35.1 percent as white enrollment grew by 2,080 pupils. Enrollment in the private schools was about 275 when the project started and was approximately 450 in 1979. Some of these private students resided outside the county. At peak construction (1972), enrollment in the private schools was approximately 525, which was 75 to 80 persons more than the 1979 enrollment.

Enrollment in the county public schools increased at an average annual rate of 3.5 percent during the study period as shown in Table 7-10. The increases for specific years were very uneven, fluctuating between 1.3 percent and 5.1 percent. The influx of suburban families was one of the primary causes of increasing school enrollments, and their in-migration to the county was affected by a number of external factors. The growth of in-county employment, including Calvert Cliffs movers, also influenced school enrollments. The irregular increases and the influence of the suburbanite families makes it difficult to pinpoint the effect of Calvert Cliffs. Moreover, the pattern of in-migration of Calvert Cliffs movers has not been fully determined. It was the opinion of

TABLE 7-9

CALVERT COUNTY PUBLIC SCHOOL ENROLLMENT
1969-1978

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
White	n/a	n/a	2,935	3,126	3,413	3,750	3,951	4,350	4,622	5,015
Nonwhite	n/a	n/a	3,182	3,161	3,119	3,082	2,972	2,885	2,785	2,707
Total	5,606	5,891	6,117	6,287	6,532	6,832	6,923	7,235	7,407	7,722
Percent										
White	n/a	n/a	48.0	49.7	52.3	54.9	57.1	60.1	62.4	64.9

Source: Maryland State Department of Education, Annual Reports, 1971 to 1978, Public School Enrollment, by Race, Sex, and Single Years of Age; Board of Education of Calvert County, Annual Reports, 1969-1970, 1970-1971.

TABLE 7-10

CALVERT COUNTY PUBLIC SCHOOL ENROLLMENT
BUDGET AND REVENUE SOURCES
1969-1978

	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78
Enrollment	5,606	5,891	6,117	6,287	6,532	6,832	6,923	7,235	7,407
Annual Increase		5.1%	3.8%	2.8%	3.9%	4.6%	1.3%	4.5%	2.4%
Total Budget (\$000 Current \$)	3,800	4,368	5,116	6,036	7,189	7,968	9,614	11,278	12,796
Per Pupil Cost	\$ 678	741	836	960	1,101	1,166	1,387	1,559	1,728
Annual Change		9.3%	12.8%	14.8%	14.7%	5.9%	19.0%	12.4%	10.8%
Total Budget (\$000) Constant 1972 \$	4,294	4,722	5,296	6,036	6,814	6,816	7,600	8,467	9,095
Per Pupil Cost	\$ 766	802	866	960	1,043	998	1,096	1,170	1,228
Annual Change		4.5%	8.0%	10.9%	7.7%	-3.5%	9.8%	6.8%	5.0%
Revenue Sources									
Local	43.7%	47.0%	n/a	n/a	52.5%	51.7%	56.5%	62.5%	64.2%
State	52.1%	49.0%	n/a	n/a	36.1%	37.9%	34.7%	28.2%	25.5%
Federal	4.1%	4.0%	n/a	n/a	11.3%	9.8%	8.7%	8.9%	9.1%
Other	0.1%	—	n/a	n/a	0.1%	0.6%	0.1%	0.4%	0.3%

Source: Maryland State Department of Education, Annual Reports, 1971 to 1978, Public School Enrollment, by Race, Sex, and Single Years of Age; Board of Education of Calvert County, 1969-1978, Annual Reports.

several key informants that the movers with family present tended to be those who worked longest on the project. In other words, they would come early in the construction cycle and leave late, compared to other workers. Therefore, their impact on enrollment at peak construction would be difficult to estimate from the annual figures. Another consideration is that the movers might tend to have fewer school children than the average for the population and that those with school-age children would be more likely to be commuters, either on a daily or a weekly basis.

The annual change that seemed most informative for estimating the school enrollment effects of Calvert Cliffs was the 1975-1976 figure, which was recorded in the fall after the massive layoffs at Calvert Cliffs. The 1.3 percent increase over the previous year was noticeably smaller than the annual average increase for the study period, 3.5 percent, and the increase for the preceding year, 4.6 percent, and the following year, 4.5 percent. The difference in the actual enrollment and these two points of comparison was 2.2 percent and 3.2 percent, or between 159 and 232 students.

School administrators estimated that at peak construction as many as 250 pupils in the school system may have been children of Calvert Cliffs workers. (Assistant to the School Superintendent, personal communication, 1979.) The implications of the enrollment data for 1975-1976 would seem to indicate that this is a reasonable estimate.

Another way of looking at school enrollment would be to estimate the number of pupils one would expect from the movers. A total of 580 movers at peak construction was estimated (see Table 4-8). Assuming that each mover provided a 0.6 increase in the school enrollment (Battelle, 1979), the local school population would have been increased by 348 students. It is possible that as many as 75 to 80 students attended the private schools in the county. This approach, therefore, would estimate that there were 270 to 275 additional enrollments in the public schools. This seems to be basically compatible with the estimates of school officials.

Using the 0.6 students per worker as an approach for measuring the effects of workers on the local school enrollments would result in an increase in enrollment of about 36 students due to in-migration of 60 nonbasic workers. The enrollment due to diminished out-migration of 478 workers was 287 students.

Overall, then, at peak construction as many as 670 pupils in the local schools were the dependents of basic and nonbasic workers who resided in the county because of the Calvert Cliffs project. The average cost per student for 1972 and 1973 was \$960. Assuming that up to 100 of these students attended private schools, the estimated cost to the school district for 570 students was \$547 thousand. The county share of these costs was about 50 percent, or almost \$275 thousand.

The most meaningful budget figures for the county schools are those given in constant dollars; these figures show an increase in real spending of about 9.8 percent per year between 1969 and 1977 (see Table 7-10). The rate of increased spending was over two and a half times the rate of enrollment increase.

The figures on revenue sources for education show that the local share increased greatly—from just over 40 percent of the total cost in 1968 to almost 65 percent in 1977-1978. Local revenues increased from 1.9 million in 1969-1970 to \$5.8 million in 1977-1978 (constant dollars). Therefore, the average annual increase in costs to the county was 15.0 percent. The federal share more than doubled during this same time, increasing from 4.1 percent in 1969-1970 to 9.1 percent in 1977-1978. The state's share decreased from over 50 percent in 1969-1970 to about 25 percent in 1977-1978. However, the state assumed responsibility for school construction in 1972, so its overall contribution to the school district depends on the building program.

The county budget for fiscal year 1976 shows a rather large increase in school expenditures of about \$1.24 million, which was used to improve teacher salaries (traditionally low) and to upgrade services. Some of the increase was used to cover the reduction in the state share of education costs. The increased revenues to the county may have made it easier to pay the local share of education costs. However, the actual real increase in expenditures on education was less in 1976 and 1977, after payment began for Calvert Cliffs, than it was in 1972 and 1973, when the county had not yet received the dramatic increases in revenues.

7.4.2 Transportation

Calvert County does not have a railroad or public airport, nor is there any public water transportation. The only publicly developed mode of transportation is the road system. All construction and maintenance efforts on the road system are performed by the State Roads Commission, which obtains most of its funding from gasoline and road

use taxes. Counties are assigned a share of these special revenues, which are then applied to local road expenditures. The county commissioners can establish priorities for spending funds earmarked for road work, and they can contract for additional work by providing the needed funds to pay for it.

Maryland 2/4 is a state road, and its improvement was primarily a state responsibility. It was the single major road for the county, and widening it into four lanes as far south as Prince Frederick in the 1960s helped spur residential development in the northern district. A short additional link south of the county seat was opened in 1979, but the remainder of the road was narrow, winding, and dangerous. The State Roads Commission had delayed further work, however, citing reduced tax revenues as the reason. The uncompleted section of the road included the only access to both Calvert Cliffs and the Columbia LNG plant. Completion of the road, an important county concern for a number of years, will apparently require special action by the State Assembly or the governor if it is to be done soon.

County appropriations for highway lighting and maintenance (supplementing funds from gasoline taxes, which accrued to the county and were administered by the state) increased from about \$50,000 in 1973-1974 to more than \$200,000 in 1979. (As noted previously, a special one-time expenditure of \$600,000 was made for road repairs and upgrading in fiscal year 1976.) This area of public services did not involve any county employment except for administration. The additional maintenance effort after 1975 resulted in significantly better county roads. Moreover, the county took over some formerly private roads and improved them, so the public road system has been expanded.

During construction, the major effects of the project on transportation were on traffic density, which was increased due to workers driving to the site. During peak construction, as many as 2,000 workers were employed on site during the day shift. Local residents, police, and former workers all mentioned the problems of heavy traffic, which were especially acute when the day shift let off. Bechtel, the contractor, installed a light at the intersection of Maryland 2/4 and the site access road to help control traffic at that point. One cause of the traffic problem was that, in the vicinity of the site, Maryland 2/4 had a designed capacity of only 800 vehicles per hour.

The state highway average daily traffic count is shown in Table 7-11 for two points—just south of the Calvert Cliffs access road and near the north boundary of the

TABLE 7-11

CALVERT COUNTY AVERAGE DAILY TRAFFIC
AT TWO SELECTED POINTS
1968-1976

Year	Maryland 2/4 at Lusby	Maryland 2/4, North of St. Leonards
1968	2,800	3,200
1970	3,125	4,500
1971	3,200	4,600
1972	3,700	5,000
1973	4,200	5,200
1974	4,600	5,900
1975	5,000	6,200
1976	5,250	6,300

Source: State Highway Administration, Traffic Statistics.

site. All traffic to the project, except that originating in St. Leonards, Calvert Beach, and Long Beach,¹ would pass one of these two points.

These data show a definite increase in traffic from 1968 up to the peak construction years, 1971-1973, some of which was undoubtedly due to the project. However, it is interesting that the reduction in the construction work force in 1975 did not result in a lower traffic count; the statistics for 1976 show continued increase. This implies that the major traffic increases were probably due to general population increase rather than merely to the construction work force. These traffic counts do not record the congestion caused by shift changes, which was reported as the most acute traffic problem.

Overall, the major transportation system in the county (the roads) were affected in two ways. Heavy use of Maryland 2/4, the main road in the area, resulted from the general growth in the county and was especially noticed during the shift changes when Calvert Cliffs was under construction. This highway is a state road, and its improvement has been very slow. A second effect on transportation was the result of increased county revenues. The county spent additional amounts on improving the road system once it began to receive the increased revenues from Calvert Cliffs.

7.4.3 Public Safety

The major elements of the public safety component were the police, fire, rescue, and Civil Defense (preparedness and communications). Prior to the Calvert Cliffs project, the police services were provided by a professional police contingent of four officers from the sheriff's office and eleven Maryland State Police officers. The Civil Defense Department had a secretary and a half-time director; the program was mostly concerned with the threat of nuclear war, riot, and natural disasters. Fire and rescue services were handled by volunteer departments and squads.

The trend in all these areas of public safety was to increase services in order to serve a growing population and upgrade the levels of service. The sheriff was responsible for: (1) acting as an agent of the court, serving processes, collecting fines, and so forth; (2) general law enforcement; and (3) operation of the county jail. A majority of the

¹This could have been as many as 250 workers at peak construction.

sheriff's resources traditionally went to items 1 and 3, leaving only a limited capacity for general law enforcement. A rather unique arrangement with the Maryland State Police (MSP) alleviated this situation. The MSP provided patrol and criminal investigations. A "Resident-Trooper" program was established with a 1973 Law Enforcement Assistance Administration grant, and 9 troopers were assigned to the county. This program was later expanded to 12 resident-troopers, in addition to 24 state police assigned to regular duty in the county. The number of MSP personnel in the county was 11 in 1967, 18 in 1972, and 36 in 1979. For the sheriff's office, these numbers were 4 in 1967, 6 in 1972, and 16 in 1979. In addition, there were about 35 personnel who operated the jail and corrections services in 1979. (Calvert County Sheriff, personal communication, 1979.)

The effects of the project on local police services were mainly in terms of traffic problems. Police complained about speeding, careless driving, accidents, intoxicated drivers, and congestion. Workers complained about speed traps and harassment by the police. There was speculation by the police about gambling, illegal drug use, and prostitution connected with the construction work force, but no one was ever arrested for such offenses, and the amount of this activity was never considered serious enough to require extra police services (Calvert County Sheriff, personal communication, 1979). Almost all the increases in police services were made in response to the increasing population of the county rather than to the Calvert Cliffs project. Funding for these upgraded services came from increased county revenues.

The county fire and rescue services were entirely volunteer units throughout the study period. Service calls increased from approximately 1,600 in 1968 to more than 4,000 in 1976 (Calvert County Planning Department, file documents, 1979). The rate of increase was steady and thus appears to have been a result of general population growth rather than project-related effects. Calvert Cliffs provided its own on-site security, fire services, and rescue protection and relied on the local public safety resources for back-up. Increased revenues supported the fire and rescue services through grants for upgrading equipment and facilities. However, the manpower for these services remained wholly volunteer, partly as a matter of policy on the part of the county commission. The volunteer nature of these services was thought to have important social and civic benefits. (President, County Commission, personal communication, 1979.)

The Civil Defense office experienced almost no impact during construction, but it served as the main county agency in dealing with the safety implications of plant operation. The office was responsible for the coordination of county efforts in emergency planning, drills, and emissions monitoring. Following the accident at Three Mile Island, these duties became more public, and there were significant changes in the planning process. The director of the Civil Defense office was involved in emergency planning for both Calvert Cliffs and the Columbia LNG plant.

Communications for all public safety activities were handled through the Calvert County Control Center, which was under the direction of the communications supervisor. The facility was operated 24 hours per day, and the communications equipment included land lines, radio, teletype, and computer terminals.

Overall, the effects of the project during construction were most noticeable for police services. Fire and rescue services were affected to the degree that the project increased the local population, and Civil Defense was affected by the safety concerns of operating the plant. Increased revenues from the taxes paid by Calvert Cliffs supported improvements in public safety and allowed the county to fund services to meet the needs of a rapidly increasing population.

7.4.4 Social Services

The Department of Social Services was a state agency funded almost entirely by state and federal funds. The number of social service programs increased from 16 in 1968 to 18 in 1979. The two additions were Emergency Assistance and Child Support Enforcement, programs which were added through the state. Despite the increase in programs, the number of employees in the department increased only slightly; the Child Support Enforcement program received one CETA worker and three contract workers. Otherwise, the number of employees (42) remained at about the same level as it was in 1968.

One program considered important and representative of the demand for social services in the county is the Aid to Families of Dependent Children (AFDC). In 1968, this program served 206 families (906 recipients). In 1973, the number of families rose to 369 (1,354 recipients). The average case load for the first six months of 1979 was 555 families (1,699 recipients). (Director of Social Services, personal communication,

1980.) The general trend was toward a slightly increasing case load; the annual average rate of increase was 5.8 percent over the study period.

Some additional social services were provided for the elderly through the Council on Aging and the Nutrition Program, part of which were funded by the federal government. A new 50-unit elderly housing project, which was being built near Prince Frederick at the time of the study, was largely funded by HUD and administered through the county.

Although there is some feeling that local workers benefited from employment during construction and then required increased social services once the project was completed, there is no firm data to support such impressions (Director of Social Services, personal communication, 1979). Overall, there does not appear to have been any significant impact on social services during either the construction or the operation periods due to project-related personnel or the increased local tax revenues.

7.5 Summary

The growth in county government resulted in a number of administrative changes that were made in order to deal with increased revenues, expansion and improvement of public services, population increases, public support for programs, and the requirements for operating and maintaining new facilities. The creation and expansion of the Planning Department, the development of the county administrator's position, the establishment of a Parks and Recreation Department, and the improvement of the county's Economic Development office all exemplify the administrative growth and increase in services provided during the study period.

With the exception of some specific additional tasks required of the Civil Defense Director, nothing in these developments could be specifically attributed to Calvert Cliffs. Most of the changes were made to provide better administration and planning for public services, not to respond to the particular demands of the Calvert Cliffs workers. The county expressed an interest in better communications between itself and BG&E concerning the operation of Calvert Cliffs. Responsibility for plant/ county relations was shared by several county officials, including the commissioners, the executive administrator, the Civil Defense Director, and the special assistant to the commission. However, no structural change in the county administration was made by the county for this purpose. The major effect of the plant was through its tax payments to the county.

to the county. The massive increase in revenues changed the tax rates, the governmental structure, and the public services in Calvert County. These changes are some of the major impacts resulting from the Calvert Cliffs project.

CHAPTER 8: SOCIAL STRUCTURE

8.1 Introduction

The definition of the Study Area was based upon a number of criteria, among which was the need to identify a functioning social system. To understand the effects of the Calvert Cliffs project on the structure of the social system, the groups that constitute this system are identified. Then the plant's effects, identified in Chapters 4 through 7, are distributed among these groups to allow examination of the effects of the project on the groups and the social structure. This chapter provides a basis for the examination of the public reponse to the project and the evaluation and significance of the project which are addressed in Chapters 9 and 10.

8.2 Social Structure at the Beginning of the Study Period

8.2.1 Identification of Groups

Eight groups were identified to help explain the often complex interactions that took place in Calvert County during the study period. At the beginning of the study period in the late 1960's these groups were: (1) the elite, (2) the business and professionals, (3) the black community, (4) the watermen, (5) the native countians, (6) the retirees, (7) the newcomers, and (8) the suburbanites. These groups are described in terms of their livelihood, size and demographic characteristics, geographical location, property ownership, selected attitudes and values, cohesion, and patterns of intragroup relationships.

8.2.2 Group Profiles

The Elite Group

The elite of Calvert County were members of established families who had historically owned major properties and had participated in the tobacco plantation system. Most of the elite traced their family residence in the county to colonial times. Many of the elite families were identified in Stein's History of Calvert County, Maryland (1976).

In addition to administering their own properties, leaders from this group often gained distinction for their public services. Stein especially identified notable jurists, legislators, public officials, and leaders in the professions who were members of the elite families. Members of this group had a wide variety of choices for their occupations since they were supported by their family resources and influence.

The elite made up only a small portion of county society, probably around 200 people, or 1 percent of the population. They were white, principally of English or Scottish ancestry.

The family estates were located on large tracts of prime agricultural land, especially along the rich Patuxent River bottom lands. In addition to the cultivated fields and pastures, it was common for these estates to include extensive woodlands.

The elite placed a high value on family and land, and they had a strong sense of their historical place. Group membership could be attained only by birth or marriage. A strong sense of community responsibility and identification was evidenced among members of this group, and there was a tendency to support limited growth or development that would not drastically alter the social structure or the natural environment. The group was very cohesive, constituting a small, socially active stratum. They were interrelated through marriage and kin ties with various branches of the local families and with their social peers in neighboring counties.

The Business and Professional Group

The business and professional community was largely oriented toward providing goods and services to an isolated, rural area. Retail trade and services accounted for the majority of the occupations of the business and professional group. Most of the businesses and professional offices were quite small and were operated by a local owner. Professional services were concentrated in law and medicine with specialized services available only outside the county; for example, before the mid-1960's, there was no drug store in Prince Frederick, and doctors dispensed drugs from stocks they kept in their offices.

There was some business activity connected with the seafood and tourist industries, but both were relatively small sectors and operated on a seasonal basis. The businessmen in these sectors were somewhat on the fringe of the business and professional community. The real estate development entrepreneurs were more active members of the business group. Over the years, a number of developments were undertaken and promoted by people who moved in from outside the country. As promoters and sales-oriented businessmen, these individuals often became very active in the local business and professional group. A small number of businessmen were involved

in manufacturing. In 1967, there were 18 manufacturing firms in Calvert County; 12 firms were sawmills, and 3 were boat builders. (Dando and Raberhorts, 1969.)

The business and professional group, including their households, probably accounted for about 5 percent of the county population. In the last half of the 1960s, this was nearly 1,000 people, most of whom were white, Protestant, and native-born.

The main retail and service center was Prince Frederick, which contained over 37 percent of the county's retail establishments in 1967. Huntington, Chesapeake Beach-North Beach, and Solomons each had about 12 percent. The tourist and seafood sectors were principally located in these last two areas, where there was adequate water access. Real estate developments were located in two distinct areas: the northern district developments were constructed mainly for suburbanites, and the southern district developments were for full-time residents or for seasonal recreational use. The homes of the businessmen and professionals were widely dispersed and tended to be located in middle class residential areas, often in waterfront developments along the Chesapeake Bay.

The members of this group almost always owned their own homes; a number also owned their business properties. Several of them had acquired large land holdings, which, in a couple of cases, were equal in value to the properties of the elite. Ownership or control of property was highly valued, as was protection of individual property rights.

The business and professional group strongly supported economic growth, change, and development. The high value they placed on public participation and county residence manifested itself in their active involvement in civic and community affairs, including local politics.

Within the group itself, there was a common desire to achieve the best possible economic conditions for the business sector of the county. The Board of Trade, the Jaycees, and other business groups and professional associations were concerned with improving the local economy. These organizations often took sides on political issues that had business or professional implications, such as zoning regulations. Group members frequently served on committees, boards, and commissions that helped to decide local business-related issues.

The social activities of group members were based on the immediate family, group, and community activities. Churches, schools, and social contacts involving the activities of children, such as Little League baseball, were frequently the basis of family, group, and community social interaction. Trade, fraternal, and political organizations were more specifically group-oriented. The high level of social interaction between group members was often mentioned as one way that people got ahead in their businesses.

This social and economic interaction between members, their commonly held values and attitudes, and their close identification with the local community created a cohesive group, although there were rivalries within the group, often expressed in the specific issues of local politics. The level of group interaction was strongest in the Prince Frederick area and less intense for members who were located some distance away.

The Black Community

Members of the black community in Calvert County were largely descended from the pre-Civil War slave population. Over the years, a number of them acquired small properties, and many earned their living as farmers, tenants, or sharecroppers. A large population, however, worked for wages as agricultural laborers, casual day laborers, seasonal workers in the seafood industry, domestic help, and unskilled and semi-skilled workers. A few blacks commuted to jobs outside the county; about twenty black county residents were members of the Tri-County Laborers Union, Local #832, located in Prince Frederick. A few service businesses, such as service stations, bars, restaurants, beauty salons, and funeral homes were operated by blacks. These establishments were patronized almost exclusively by other blacks. These black business people did not exercise an influence in the black community analogous to that exercised by businessmen in the white community, and they had almost no significant influence on larger county affairs. There were a few black professionals in this group, mostly school teachers and ministers, who were group leaders. These professionals were usually not county natives.

The blacks made up a disproportionate share of the lower class. The 1966 Public Health Study classified county households into five social classes. The lowest social class contained 58.3 percent of the blacks in the county, compared to 10.1 percent of the whites. The lowest two classes together accounted for 94 percent of the blacks. No blacks were found in the highest social class.

Because of the limited socioeconomic opportunities, blacks have traditionally shown a net out-migration, generally to the urban areas of Washington, D.C. and Baltimore. Prior to the start of the Calvert Cliffs project, blacks numbered about 7,500 persons, about 40 percent of the county population.

In 1966, about 62 percent of the blacks owned their own houses. The value of these properties was very low; about 44 percent said their houses were worth less than \$5,000, and 71 percent estimated the value at under \$10,000 (Public Health Study, 1966). Blacks generally lived inland from the waterfront areas, with concentrations near the larger, labor-intensive agricultural lands. There was little residential mobility for this group.

The black community formed a large, complex social system based on racial identification. Their economic resources were marginal, and employment opportunities were very important to the group. They supported growth and development that might offer better job opportunities. Their political activities were limited, and their influence in local public affairs was minimal.

The Watermen

The watermen were those who did the commercial fishing, crabbing, and oystering in the Chesapeake Bay and along the Patuxent River. The watermen supplied the seafood processing plants but were considered apart from those who worked in the plants. The reduction in seafood resources, the relatively modest incomes, and the demands of the work had combined to gradually reduce the number of watermen. In the late 1960s, this group probably numbered around 350, including household members—a number only slightly larger than the number of the elite group.

The watermen's homes were located near the fishing bases, around the Solomons area and along the Patuxent River. Generally they were homeowners, with little additional property. The watermen were concerned with the preservation of seafood resources and were actively involved whenever questions arose concerning the water quality in either the Chesapeake Bay or the rivers. Developments that had only land-related effects were generally not treated as vital issues by members of this group.

Group membership was determined by occupation, with new members tending to come from the existing families. The members of the watermen's group had a strong

attachment to the county and placed a great deal of emphasis on their traditional place in the social structure. Participation by this group in the Watermen's Association (a cohesive organization with members from Calvert, St. Mary's, and Charles counties) was high, reflecting a strong sense of group identification. Their social and political standing in the county was greater than was their economic contribution. They were considered colorful representatives of the county's past.

Native Countians

The native countians were, to a certain extent, a residual group. Their economic roles in the county were complex, ranging from laborers at subsistence wage levels to successful large farmers just a notch below the elite. The group included craftsmen, the few manufacturing production workers employed in the county, small landowners, and members of the general work force. A common pattern was for family members to work together on the land, especially where small acreages of tobacco were involved. In many cases, agriculture was a secondary job for the main family worker, with employment in the local economy the primary source of income.

The group was large, perhaps 35 percent of the county population, second in size only to the black community. The native countians were white, native born, often Methodists, with close kin ties and a rural background.

The native countians were widely distributed throughout Calvert County, but were especially noticeable in the middle and southern districts, where there were numerous small communities with distinct local characteristics and many smaller agricultural holdings. They frequently exhibited a strong sense of identification with their own small neighborhoods within the county.

The values and attitudes of this group tended to coincide with those of the business community, perhaps because the native countians associated their own well-being with the vitality of the local economy. Many of the local businessmen were closely tied to this group. The rural-agricultural background that most members of this group shared probably helped account for their pro-development positions and their belief that individuals ought to control the use of their own property.

As a group, the native countians were less cohesive than many of the others due to their size, economic diversity, and geographical dispersion. There appear to have been

few leaders that were exclusively members of this group. Much of their intragroup social activity was at a subgroup level though club activities and kin ties, and at the common level with church, school, and club activities that were often geographically determined. An extensive social interaction in which physical proximity was an important factor was maintained in the towns of Lusby, Solomons, and Huntington. At the same time, the county itself provided a larger context for group interaction.

Retirees

In addition to the native elderly population, a continuing in-migration of retired people resulted in a separate, viable group in Calvert County. Prior to the Calvert Cliffs project, this group was just gaining recognition as a distinct part of the social structure. The retirees tended to live along the Chesapeake Bay, often in developments that were designated as recreation properties. A typical pattern was for a couple to buy or build a vacation home in one of these developments and gradually spend more time there as retirement grew nearer, finally making a complete move to the county.

The retirees selected the area for its environmental amenities, and they felt an obligation and interest in preserving the area. They resisted rapid growth or development, while realizing that local workers needed jobs. They favored low taxes, due to their restricted incomes, but, because of their special requirements (medical care, for example) they also favored the development of certain service programs and facilities.

The retirees were oriented toward civic, community, and social activities and fit into the county easily. Often they were former government workers and possessed exceptional administrative and bureaucratic skills along with a concern for the community. They were active on local boards, commissions, and committees. The League of Women Voters and various other civic associations were strengthened by their support.

Newcomers

The newcomers were people who moved into the county as permanent workers and residents, not as retirees. Some were employed in local businesses, and others were employed as teachers, church workers, government employees, or craftsmen. For the most part, this group had modest, but adequate, incomes. They often located in the southern residential developments, or on small rural residential acreages. Members of

this group placed a definite value on home ownership. As a group, they were moderately cohesive and often knew other newcomers as social and business associates. They favored some growth and development, particularly proposals that would provide a better base for local employment. At the same time, they had selected the county for its rural-recreational amenities and wanted to preserve those qualities. Their cohesiveness was not exclusiveness, however, and they appeared to value integration into county society, often forming strong bonds with their peers among the native countians.

Suburbanites

In the early 1960s, Maryland Route 2 from Washington, D.C., and Maryland Route 2/4 south to Prince Frederick, were developed into four lanes (dualization). This facilitated the first influx of suburbanites into the northern district. By the time that the Calvert Cliffs project was announced, the suburbanites were characterized by their participation in two distinct locales: they lived in the county but worked in the Washington, D.C. area. Some were professionals; others were government workers or middle-management people in business.

The suburban households tended to be family-oriented and especially concerned about amenities, such as homes, schooling for their children, roads, shopping, and public services. Much of the social and business orientation of this group was away from the county toward the city or its environs.

As a social group, the suburbanites were neither well organized nor effective in county affairs. The social contacts they had in the area were often determined by the neighborhoods in which they lived, by their church, and by school connections. They had little sense of themselves as a distinct functional social group although they tended to characterize the other county groups as distinct from themselves. They were interested in maintaining a rural atmosphere as opposed to the extensive residential development in their former locations, citing Prince George's County as an example of the undesirable consequences of over-development. Suburbanites were very achievement-oriented, tending to believe in fair play and equal treatment as opposed to preferential treatment based on social class or friendship. During the period before the announcement of the Calvert Cliffs project, a strong trend of rapid increases in the size of this group had been established.

8.2.3 Interaction among the Groups

The interaction patterns among the groups during the period before the Calvert Cliffs project began construction were complex and varied a great deal among individuals within each group. The following discussions are intended to outline the dominant links between groups and help establish an understanding of the county's overall socioeconomic structures.

Economic

The elements of economic interaction among groups--employment and income--are considered here. Employment-based interaction among groups was determined by the activity in different economic sectors and the established employer-employee relationships. Only two groups were not directly involved in the county labor market: the retirees and the suburbanites. The watermen were fairly independent and were not involved in any employer-employee relationships. Some native countians who were successful full-time farmers were also outside the main labor force employment patterns.

The majority of the employers in the county were members of either the business and professional group or the elite group. Local government, including the school district, was an additional large employer, but its policies were largely controlled by the two private-sector employer groups. The major employee groups were the native countians, the newcomers, and the blacks. Trade, service, and manufacturing workers were largely native countians and newcomers. Agricultural, domestic, and seasonal workers were often blacks. The strongest links were between the business community and the white workers, and between the elite (and other large-scale farmers) and the blacks.

The patterns of interaction between the farm-labor employers and the black workers involved black intermediaries who exercised a great deal of influence over hiring for jobs. These intermediaries were prominent figures in the black community. In addition to having a voice in employment arrangements, they served as a medium through which black people approached the white leaders about housing arrangements, credit and loans, recommendations to local agencies, and other social-commercial needs. They provided an important link between the black community and the white population.

The only union in the county was the Laborers Local #832, which serviced the Tri-County Area. It had been moved to Prince Frederick by the business agent, apparently for personal reasons. The membership of 200 included only about 20 Calvert County workers and almost all its work was outside the county. The leadership and membership of the union was primarily black. The union had very little influence in local labor relations, and most of the members commuted out of the county to work.

Basic income to the local economy came from three main sources: agriculture, seafood, and tourism. Agriculture, almost entirely tobacco, was by far the largest source of income, perhaps two-thirds of the amount produced by all three sectors. Because the farmers were the source of a large proportion of the economic activity in the county, the activities of the business and professional group were oriented toward agricultural services. Other consumers were important to local businessmen, of course, especially to the retail trade sector. However, the limited shopping facilities in the county meant that many people did their buying in adjoining areas. Members of the business and professional group directly controlled the income from tourism and the locally processed resources such as lumber and seafood.

Political

Political control, prior to the study period, was closely tied to the economic positions of the groups. Farmers, with the large operators and the elite providing leadership, controlled the county government, holding all three positions on the county commission. Members of the business and professional group were well organized through their trade and professional associations, and they were very active in the political parties. The state delegate, state senator, and state comptroller were all members of this group.

The other groups were not very well organized politically and exercised little control over local public affairs. The watermen, native countians, and newcomers were only active as voters. The retirees had high voting rates and were active in community affairs, but they were too few and had come to the county too recently to acquire leadership positions. The suburbanites were unorganized politically and were not motivated to become involved in local public affairs. The blacks, who were not well organized, were a numerical minority of decreasing proportion and they were isolated from influence in the political system. The potential strength for the blacks was their voting numbers, but they lacked an adequate organizational structure and reliable

political allies who might have helped provide a majority position on specific issues or campaigns.

Social

The major social interactions among people took place within the groups. Much of the intergroup social relationships in the county followed the economic and political patterns. Other social contacts among groups focused on civic and community activities. The racial distinction, typical of Southern rural values and standards of behavior, effectively eliminated full social interaction between the blacks and the other groups. As was the case for labor force participation, white-black social interaction went through selected black representatives. For the most part, however, whites and blacks lived in basically separate social settings.

The well-organized civic and community activities of the business and professional group made them an important social factor in many local areas. Extensive social interaction between newcomers, native countians, and businessmen was part of the volunteer fire and rescue operations. Church and school activities not only made intergroup contact possible, but in many cases multigroup participation was a primary object of the programs. The annual agricultural fairs encouraged interaction between the native countians who were involved in agriculture and the other groups. The elite mixed freely with other group members through the activities of such organizations as the Historical Society and the Garden Club. Appointments to public boards and committees were often made so that several groups were represented.

The watermen were somewhat distinct socially and were not active participants in many intergroup activities. The suburbanites were active in school and church affairs, but much of their social life was oriented toward areas outside the county. The retirees were often very active in social, civic, and community affairs and had extensive contact with the county leadership. Newcomers tended to integrate with their peers in the native countian group and mix with them socially at church, school, and recreational events.

Study Area Cohesion

Calvert County was for so long an isolated socioeconomic area that it developed an unusual degree of social cohesion. The residents commonly identified themselves as county people, and native birth and family associations were matters of pride. Prior to

the study period, significant growth in the numbers of retirees, newcomers, and suburbanites began to produce a more diversified societal mix. The presence of these groups did not destroy the cohesiveness of the county although it did exert a moderating effect. Many of the in-migrants admired aspects of the county's social structure and wanted to preserve and enjoy some of the distinctive local qualities. The inevitable trend, however, was toward a more pluralistic and diverse society based on the nature of the incoming groups, which had become a significant portion of the population.

8.3 Distribution of Project Effects to Groups

8.3.1 Introduction

The construction workers employed on the Calvert Cliffs project have been treated up to this point as either effects of the project or the means by which effects were transmitted to the Study Area. This is a useful and accurate perspective, as far as it goes. From another point of view, however, the construction workers and their households can be seen as a group in the Study Area that experienced the project effects in a way that was, if not the same as the experience of the other groups, analogous to it. Therefore, the construction workers are briefly described and then added as a temporary group in the Study Area.

The occupations of construction work force personnel were considerably more diverse than the name implies. In addition to the craft workers and unskilled and semiskilled workers, there were engineering, administrative, clerical, and security personnel. In Chapter 4 (Table 4-8), it was estimated that 1,055 construction workers lived in the county, 475 nonmovers and 580 movers. The nonmovers were already members of county groups. The movers comprised a new group, construction workers, who were present temporarily in the county during the construction period. Altogether, these workers and their household members were estimated to number 1,589 (see Table 5-3). About three-quarters of this population located in the middle and southern districts, mostly in established residential developments. Many of the construction workers rented, although some bought homes and several purchased land and built homes. Most of these workers were white and Protestant, very much like the skilled workers in the newcomers group.

The members of the construction worker group tended to value growth and to equate new construction with progress. On the whole, they were very mobile and had a very limited attachment to the areas near their work sites. They appeared to place little

emphasis or value on participation in civic or community affairs or on voting. The volunteer fire departments and the rescue squads enrolled several construction workers, but that seemed to have been the exception among civic groups. The construction workers tended to rely on members of their own group for much of their social interaction and dealt most easily with their peers in the native countian and the newcomer groups. The temporary nature of their residence in the county was a major point distinguishing them from the newcomers. The management, administrative, and professional workers in this group associated with the business and professional group and were more active in the community than the manual workers were. Overall, the construction workers were a highly visible, relatively unintegrated addition to the county social structure.

8.3.2 Distribution of Economic, Demographic, Housing and Settlement Patterns, and Public Service Effects to Groups

The effects on the economy, demography, housing and settlement patterns, and government and public services were identified and described in Chapters 4 through 7. They are summarized in the appropriate sections below and are distributed among the groups described earlier in this chapter.

Economic Effects

The two major types of economic effects were employment and income. Tax revenues, another economic effect, were considered only in terms of the "other" basic employment they created. The other aspects of revenues were treated as government and public service effects.

Two distinct employment and income periods were distinguished—the construction period and the operations period. The initial distributions of the employment for 1972 and 1978 developed in Chapter 4 are shown in Table 8-1.

The allocation of employment to groups was based on interviews with key informants about the hiring practices in the county and on the field research data accumulated by the case study manager. These estimates were stated in quantitative terms for heuristic purposes but should be understood to have been basically qualitative judgements.

Construction Period. The 1,055 basic jobs held by movers and nonmovers in 1972 (see Table 8-1) were distributed in the following way: native countians—175;

TABLE 8-1

EMPLOYMENT EFFECTS
CALVERT CLIFFS
1972 and 1978

Employment Type	1972	1978
Basic Employment		
Nonmovers	475	174
Movers, with family present	348	251
Movers, single/married family absent	232	54 ^a
Commuters, daily long-distance	<u>1,009</u>	<u>107</u>
Subtotal	2,064	586
Nonbasic Employment		
Nonmovers	480	192
Movers, family present	60	36
Movers, single/married, family absent	—	—
Commuters, daily long-distance	<u>60</u>	<u>12</u>
Subtotal	600	240
TOTAL	2,664	826

^aTemporary weekly commuters associated with refueling/repair work who were not assigned to any group.

Source: Social Impact Research, Inc., 1980.

newcomers—50; blacks—250; and construction workers—580. Similarly, the 540 nonbasic jobs held by movers and nonmovers in 1972 were distributed to four groups as shown in Table 8-2: native countians—260; newcomers—100; blacks—150; and business and professionals—30. Daily long-distance commuters were assigned the remaining 1,069 jobs, which did not accrue to any Study Area group.

In Chapter 4, the total basic and nonbasic income as well as the average annual income for both basic and nonbasic employees for 1972 (peak construction) and 1978 (operation) were estimated in constant 1972 dollars. Using the 1972 average annual income for basic jobs (on-site construction work) of \$16,016, the 1972 direct basic income to groups was estimated as follows: native countians—\$2.8 million; newcomers—\$0.8 million; blacks—\$4.0 million; and construction workers—\$9.3 million.

Total nonbasic income in 1972 was estimated at about \$3.5 million, and total nonbasic employment at 600 jobs, 540 of which went to persons residing in Calvert County. The average annual wage, estimated in Chapter 4, was \$5,072 for nonbasic workers. Applying this to the distribution of workers shown in Table 8-3 results in the following estimate of wage and salary distribution by group: native countians—\$1.3 million; newcomers—\$0.5 million; blacks—\$0.8 million; and business and professional—40.2 million. About \$0.3 million was earned by the 60 long-distance commuters. This left approximately \$0.4 million (11 percent) as proprietors' income from the nonbasic total net income. This amount is included in the income allocated to the business and professional group (see Table 8-3).

The total employment and income effects due to Calvert Cliffs for 1972 are summarized in Table 8-4.

Operations Period. As in the construction period analysis, the allocation of basic and nonbasic workers to county groups represented estimates based upon interviews with key informants and the analysis of the county patterns of employment. These estimates should be treated as basically qualitative although they have been presented in a quantitative format for heuristic purposes.

With this reservation in mind, the distribution of basic and nonbasic employment was distributed for 1978 (the operations year) as follows: native countians—185;

TABLE 8-2

APPROXIMATE DISTRIBUTION OF BASIC AND NONBASIC EMPLOYMENT
EFFECTS DUE TO CALVERT CLIFFS
BY GROUP
1972

Group	Employment			Percent
	Basic	Nonbasic	Total	
Native Countians	175	260	435	27.3
Newcomers	50	100	150	9.3
Black Community	250	150	400	25.1
Construction Workers	580	—	580	36.4
Business and Professionals	—	30	30	1.9
TOTAL	1,055	540	1,595	100.0

Source: Social Impact Research, Inc., 1980.

TABLE 8-3

APPROXIMATE INCOME EFFECTS DUE TO CALVERT CLIFFS
BY GROUP
1972

Group	Income ^a			Percent
	Basic	Nonbasic	Total	
Native Countians	\$ 2.8	\$ 1.3	\$ 4.1	20.4
Newcomers	0.3	0.5	1.3	6.5
Black Community	4.0	0.8	4.8	23.8
Construction Workers	9.3		9.3	46.3
Business and Professional	—	0.6	0.6	3.0
TOTAL	\$16.9	\$3.2 ^b	\$20.1	100.0

^aMillions of constant 1972 dollars.

^bDaily commuters received \$0.3 million. Total estimated nonbasic income was \$3.5 million.

Source: Social Impact Research, Inc., 1980.

TABLE 8-4

APPROXIMATE EMPLOYMENT AND INCOME DUE TO CALVERT CLIFFS
BY GROUP
1972

Group	Employment		Income	
	Number	Percent	Amount ^a	Percent
Native Countians	435	27.3	\$ 4.1	20.4
Newcomers	150	9.3	1.3	6.5
Black Community	400	25.1	4.8	23.8
Construction Workers	580	36.4	9.3	46.3
Business and Professionals ^b	30	1.9	0.6	3.0
TOTAL	1,595	100.0	\$20.1	100.0

^aMillions of dollars.

^bDue to added nonbasic employment.

Source: Social Impact Research, Inc., 1980.

newcomers—315; blacks—135; business and professionals—18.¹ The basic-nonbasic split is shown in Table 8-5. Long-distance and temporary weekly commuters were allocated the remaining 173 jobs, which, therefore, did not accrue to any county group.

The average annual incomes for the operations period were estimated in Chapter 4. In constant 1972 dollars, the average annual wage for operating personnel was \$14,520; for "other" basic, it was \$8,500; and for nonbasic workers, it was \$4,960. Based on these estimates of average income per worker and the number of workers per group, the distribution of income due to the Calvert Cliffs project in 1978 is calculated as before, using the total estimated nonbasic income (\$1.25 million) due to the project for 1978 to determine the proprietor's income. The income effects resulting from these calculations are shown in Table 8-6.

The employment and income effects for the groups are summarized in Table 8-7 for the operations year 1978.

Demographic

The demographic effects for the county were estimated in Chapter 5 (Table 5-9) for the 1968 to 1979 period. There were two major components of the population estimates: (1) increases due to in-migration, and (2) increases due to diminished out-migration. The population estimates were based on basic and nonbasic employment, the residential status of the workers, and the average household sizes for the state. The following distribution of population effects by groups uses the same assumption about the work force, migration patterns, household size, and residential status as were made in Chapter 5. In-migration at peak construction was 1,788, and diminished out-migration was 1,032, giving a total of 2,820 persons who were residents of the county in 1972 due to the Calvert Cliffs project (see Table 5-7). Based on the previously described employment patterns for groups (see Tables 8-4 and 8-7) the population effects of the project on the Study Area groups at peak construction were derived. These figures are shown in Table 8-8.

¹Operations workers were allocated to the newcomers group since they became permanent county residents. The weekly commuters (refueling, maintenance, and repair workers) were treated as long-distance daily commuters and were not assigned to an in-county group.

TABLE 8-5

**APPROXIMATE DISTRIBUTION OF EMPLOYMENT EFFECTS
DUE TO CALVERT CLIFFS
BY GROUP
1978**

Group	Basic	Nonbasic	Total	Percent
Native Countians	100	85	185	28.3
Newcomers	251	64	315	48.2
Black Community	74	61	135	20.7
Business and Professionals	—	18	18	2.8
TOTAL	425	228	653	100.0

Source: Social Impact Research, 1980

TABLE 8-6

APPROXIMATE INCOME EFFECTS DUE TO CALVERT CLIFFS
BY GROUP
1978

Group	Income ^a	Percent
Native Countians	\$1.7	27.4
Newcomers	3.4	54.9
Black Community	0.9	14.5
Business and Professionals	0.2	3.2
TOTAL	\$6.2	100.0

^aMillions of constant 1972 dollars.

Source: Social Impact Research, Inc., 1980.

TABLE 8-7

APPROXIMATE EMPLOYMENT AND INCOME EFFECTS DUE TO
CALVERT CLIFFS
BY GROUP
1978

Group	Employment		Income	
	Number	Percent	Amount ^a	Percent
Native Countians	185	28.3	\$1.7	27.4
Newcomers	315	48.2	3.4	54.9
Black Community	135	20.7	0.9	14.5
Business and Professionals	<u>18^b</u>	<u>2.8</u>	<u>0.2^c</u>	<u>3.2</u>
TOTAL	653	100.0	\$6.2	100.0

^aMillions of constant 1972 dollars.

^bDue to added nonbasic jobs only.

^cIncludes proprietors' income.

Source: Social Impact Research, Inc. 1980.

TABLE 8-8

APPROXIMATE POPULATION EFFECTS DUE TO CALVERT CLIFFS
BY GROUP
1972

Group	In-Migration	Diminished Out-Migration	TOTAL
Native Countians	—	547	547
Newcomers	100	—	100
Black Community	—	485	485
Construction Workers	1,589	—	1,589
Business and Professionals	99	—	99
TOTAL	1,788	1,032	2,820

Source: Social Impact Research, Inc., 1980.

For the operations year 1978, the population effects, as estimated in Chapter 5, were an increase of 867 persons due to in-migration and 369 persons due to diminished out-migration—a total population increase of 1,236. As before, the estimated distribution of these individuals is based on the employment and demographic assumptions outlined in Chapter 5, Section 5.4.3. This distribution is shown in Table 8-9.

These calculations estimate the population impacts on the Study Area groups at peak construction and at full operation. These figures do not indicate an annual increment to the population of the groups. Rather, they represent an estimate of the additional members in the group during the specified year due to the Calvert Cliffs project. Over the entire construction period, the number of people present due to the project gradually increased during the peak construction years, then decreased as the work was completed and as the smaller operating work force was established.

Housing and Settlement Patterns

The settlement patterns of the county were affected by the location of the Calvert Cliffs site in the southern part of the county. During both the construction and operation phases, workers employed at the site were concentrated nearby. There was growth in the southern district due to basic employment on site, and in the middle district due to the nonbasic employment concentrated at Prince Frederick. In addition, trade and service facilities expanded at Prince Frederick and along the main highway (Maryland Highway 2/4). Part of this expansion was due to the income produced by the Calvert Cliffs project.

There were two types of housing effects that had impacts on the county groups. First, there were the effects of the in-migrants on the housing market, both for sales and rentals. Second, there were the effects on the housing of nonmovers who changed residences within the county or upgraded their existing dwelling units.

Four of the county groups did not experience significant impacts on their housing as a result of the project: the elite, the watermen, the suburbanites, and the retirees. The other four groups experienced greater effects from changes in housing.

Construction Workers. Little housing was available for the construction workers and their household members. At peak construction, average annual employment at Calvert Cliffs was over 2,000 workers. Approximately 75 percent, or 1,500, of these jobs

TABLE 8-9

APPROXIMATE POPULATION EFFECTS DUE TO CALVERT CLIFFS
BY GROUP
1978

Group	In-Migration	Diminished Out-Migration	TOTAL
Native Countians	—	216	216
Newcomers	813	—	813
Black Community	—	153	153
Business and Professionals	<u>54</u>	<u>—</u>	<u>54</u>
TOTAL	867	369	1,236

Source: Social Impact Research, Inc., 1980.

were held by people who resided outside the county prior to construction. Of this total, about 580 persons, or less than 40 percent, found housing in the Study Area, and only 248 persons, or 16.5 percent, moved into the county with their families. During the construction period, workers continuously sought housing, frequently with limited success; waiting lists for rental units were often 50 to 100 names long, according to local realtors.

Business and Professionals. Several elements of the business and professional group were directly affected by the high demand for housing during the construction period. Those associated with real estate firms were especially busy since they handled rentals as well as sales. Home construction workers, repair and remodeling workers, and building suppliers worked at capacity as the supply of adequate units constantly lagged behind demand. A group of local investors built a sixteen-unit motel at St. Leonards, and other individuals converted spare rooms into living quarters for weekly commuters. New business and professional group members faced the same problems in locating housing as did all in-migrants; waits of a year to locate or build the desired residence were common.

Native Countians. The native countian group was about 75 percent homeowners prior to the announcement of the project, so the majority of this group did not have to compete for housing. The 25 percent that rented inevitably had to pay increased rents, and young people who wanted to become owners had to deal with the highly competitive market. In both cases, the extensive social ties of the native countians mitigated these adverse effects.

Income to this group from basic and nonbasic employment due to the project was used to upgrade some of the existing housing. Some families upgraded recreation units for rental to construction workers, and some land was sold to in-migrants as building sites.

The Black Community. As was the case for the native countians, those blacks who were residents of the Study Area prior to the project possessed existing housing units. The major impact on black housing came from the upgrading of the existing units and the building of new houses. This was made possible because of income from the basic and nonbasic jobs created by the Calvert Cliffs project. Also, housing in the black community was generally of poor quality, and its improvement was a priority item for many families. The completion of construction meant a substantial loss of income for

the black group, resulting in some losses of houses to repossession and some failures to maintain upgraded units.

The Retirees. The retirees were largely unaffected by the housing effects except in two instances. If they were in-migrants looking for housing, they had to compete with everyone else for the available houses and for the labor and materials to build a house. Some people who were in the process of preparing for retirement already owned houses that were easily rented. In several cases, the cost of upgrading seasonal units to year-round use was paid for by rental income.

The Newcomers. Newcomers to the county were often at a disadvantage in finding local housing. Not only was the demand far in excess of the supply, but the construction workers earned considerably more money than did most other workers in the county. For many newcomers, rising rents and sales prices meant that they had to live outside the county and commute to work. These conditions moderated as construction was completed, but there was no drop in prices although the availability of units was better.

A large number of the operations work force were newcomers who purchased houses in the areas near the Calvert Cliffs site. These units included twenty-four houses built by BG&E specifically for the operations personnel.

Government and Public Services

Chapter 7 provided an overview of the effects of the Calvert Cliffs project on the county government and public services. Changes in the management and provision of public services were attributed to the increased population, additional service needs, and new revenues. These factors, especially the new revenues, resulted in more government employment, program development and expansion, new services, capital improvements, and reductions in the tax rates. The greatest effects of the project were the large revenues paid by the utility beginning with fiscal year 1975.

The focus in this section of Chapter 8 is on the impacts experienced by the groups in the county as a result of these changes in local public services. The period of greatest change was after fiscal year 1975 when the Calvert Cliffs revenues were available to the county government. The construction workers as a group were excluded from the

following discussion because most of them had left the area by the time these major effects took place.

Most of the public services provided by the county benefited the groups in a comparable way. Road improvements, for example, extended to most areas and groups in the county. The following discussion highlights only those public services that were especially important to the group or that resulted in differential benefits.

The Elite. The major benefit to the elite was the reduced tax rate that was a consequence of the tax payments made on the Calvert Cliffs property. In 1978, taxes for the elite were 28.6 percent below what they would have been without the project, that is, at the rates in effect from 1970 through 1972.

Business and Professionals. As with the elite, the lower tax rates were a major benefit. In addition, the utilization of plant-related revenues for the construction of the new \$12 million hospital benefited the doctors over and above the tax benefit received by all county residents.

Native Countians. For the large-scale farmers and landowners, the tax rate reductions were very significant. Local government employment and improved schools especially benefited the native countians. This group also made more use of the new park than did most other groups.

The Black Community. The improvement of public schools significantly benefited the black group. They obtained some local government jobs and made extensive use of the parks. The tax rate reductions were important but, as the poorest group in the county, the black residents proportionately benefited the least of all county groups.

Newcomers. Many of the out-of-county people hired by the county became part of the newcomers group. The decreased tax rates were important to the entire group, as were upgraded services such as schools, parks, and public safety.

The Elderly. Tax rate reductions were very important to the elderly, who were active in efforts to decrease county spending. They also benefited from special programs for the elderly, such as the Council on Aging and the Nutrition Program. A housing

program for the elderly was expected to benefit mostly older county natives or long-term residents rather than in-migrating retired people.

Suburbanites. Tax reductions benefited the suburbanites and attracted increased numbers to the county. Much of the improvement in public services took place in the northern district to accommodate new suburban residents. Schools, roads, and medical services were especially important.

The Watermen. The watermen did not obtain any special benefits from the effects of Calvert Cliffs on the local public services.

8.4 Changes in the Groups during the Study Period

The effects of the Calvert Cliffs project produced a number of changes in the groups over the study period. This section summarizes the overall change in each group over the study period and examines the role of the project effects in these changes.

The Construction Workers. The construction workers were a temporary group that was established early in the construction period, expanded rapidly during the peak work period, and disappeared when the project was completed. The major intragroup change was in the size of the group. Limited housing constrained the expansion of this group, especially during the peak construction period, 1971-1973. It appeared that most of the families in this group planned to stay in the county for an extended period. The single people in this group, almost exclusively men who were unmarried or not accompanied by their families, were quite transient—changing jobs, living arrangements, and place of work quite often—although their number within the group remained relatively stable.

The Elite. The elite were a very stable group that changed little of its basic characteristics or structure over the study period. They were not significantly affected by the employment, income, or settlement pattern and housing changes. The benefits they obtained from changes in government revenues and public services did not result in alterations to the group characteristics or structure.

Business and Professionals. The business and professional group expanded and diversified during the study period. Some of this growth was due to increasing markets and opportunities that were created by trends distinct from the Calvert Cliffs project. However, a significant portion of the change was due to the Calvert Cliffs project.

Business associations were supported by project-related people, and the BG&E public relations representative served a term as president of the Board of Trade. The disposable income from both the construction and operation work forces was important to the local economy and helped encourage expansion of the trade and service sectors. For example, trade increased from \$19 million in 1967 to over \$37 million in 1972 (Maryland Statistical Abstract, 1977). New businesses were attracted to the area, and as the economy expanded, new management and marketing concepts were established in the county. Older locally owned enterprises were replaced by franchise, chain, and licensed outlets. A new weekly newspaper was established which had an office in Prince Frederick and printing facilities outside the county. The smallest local weekly stopped publication.

The Black Community. Construction work employment was the greatest effect of the project on this group. Blacks were in an unusually good position to obtain jobs since the Laborers Union Local #832 was located in Prince Frederick, and it was operated by blacks. The Calvert Cliffs project was a union job. In addition, utility personnel talked to local black leaders about job and training opportunities as part of their efforts to obtain local support for the project (black minister, personal communication, 1979). While the training opportunities did not materialize as expected, blacks did obtain an unusually large share of jobs on the project compared with past employment opportunities in the county.

At peak construction, about 250 blacks worked on-site; overall, 500-600 persons from the black community held jobs on the project. This had several results: (1) allowed blacks to obtain additional construction work on the Columbia LNG plant, the lower Patuxent River bridge at Solomons, and the new Memorial Hospital; (2) strengthened the Laborers Union in Prince Frederick; (3) diversified job opportunities; (4) provided as much as \$4 million a year additional income to the black community; (5) provided a source of jobs that was independent of local control; and (5) lowered unemployment substantially. During the construction period, the population of the black community grew (although not as fast as the white population), and the 100-year history of out-migration was halted. Housing was improved, while settlement patterns remained much the same.

The end of construction at Calvert Cliffs completed a "boom and bust" cycle for the black community. The other construction projects were still in progress, but they

were completed by 1978, and they were, in any case, much smaller than the Calvert Cliffs project with fewer jobs for blacks. The Laborers Union, which had increased its membership from 200 in 1968 to over 800 at peak construction, had dropped to 225 by 1979 (business agent, personal communication, 1979). Unemployment rose to over 20 percent for blacks, and the jobs available paid much less than did construction work. After 1975, blacks out-migrated at a greater rate than they had during any previously recorded period. Blacks, who made up almost 40 percent of the population prior to the project, accounted for only 28 percent in 1977. Several workers lost their houses, and housing maintenance and improvement were substantially reduced during the post-construction period.

Employment of blacks in local government and public services was greater than it had been in the past, but it was far below replacement for lost construction jobs, and it was at much lower pay. Baltimore Gas and Electric would not release figures on black employment for the operation of Calvert Cliffs. However, local black informants stated that the number of blacks employed in plant operations was small and confined mostly to the lower-paid jobs in security and maintenance.

The black community in 1978 was receiving better public services than they had in the past, and there were a greater number of blacks employed in government and local businesses than had been the case prior to the project. However, this did not solve the overall problems of blacks, especially in employment, economic opportunities, and housing. As a result of this continuing poor economic situation, the black community experienced substantial out-migration during the 1975-1979 period.

The Watermen. The seafood industry in Calvert County was not affected by the construction and operation of Calvert Cliffs to any measurable extent. The Watermen's Association was active in presenting its point of view. This did not result in any significant change within the Watermen's Association, however.

The Retirees. The retired population grew rapidly during the study period and was very active in the evaluation of public services that took place in connection with the increased revenues from Calvert Cliffs. The actual intragroup changes due to the plant were difficult to characterize since there were two contrary views. One perspective said that the location of the plant in the midst of a prime retirement area limited potential development that would have attracted more retired people. The other perspective

contended that the revenues from the plant provided public services and facilities that encouraged the in-migration of retired people.

The Newcomers. The newcomers were somewhat affected by the plant construction employment since there were skilled workers in this group who obtained jobs at the construction site and in connection with home-building and other nonbasic work. The major effects on the newcomers were from trade, services, and other construction projects.

The major changes for the newcomers took place in connection with plant operation at the conclusion of construction. The operations work force was, to a large extent, newcomers (84 percent), and between 125 and 150 construction workers remained in the county and, thereby, became newcomers. In addition, employment by local government as a result of the Calvert Cliffs revenues increased the newcomer group. Overall, the basic and nonbasic employment associated with the project substantially increased the newcomer group.

The Suburbanites. The suburbanites were not directly affected by the employment, income, or housing effects resulting from the project. During the study period, suburban growth was very rapid, and by 1978 this group made up almost one-third of the total county population. The major effects of the project on the group were from tax revenues, which resulted in tax rate reductions on property and income and on financing of public services. Because these benefits were provided with minimum effort on the part of the suburbanite group, their intragroup structure remained relatively unorganized. Recent concern with the perceived risk of the operation of the plant and the role of the utility in local public affairs, along with other issues, prompted some efforts to reorganize. For the most part, however, the group remained much the same, only much larger.

8.5 Changes in the Interrelationships of the Groups

The effects of the Calvert Cliffs project on the county as a whole and on the internal organization of the groups resulted in some important changes in group interaction. In some cases, the effects of the project were only part of larger trends that were already underway--changes that took place for a variety of reasons, including the project. The final result was to alter the socioeconomic structure of the Study Area. Since the links between groups were complex, and since the time period covered

by the study was over a decade, only the major links between groups were discussed. As in Section 8.2, the economic, political, and social interrelationships among groups were examined.

Economic

The business community changed in a number of ways that affected the employment and income links between the groups. The trend of population growth due to suburbanites, retirees, and newcomers, especially those oriented toward recreation, continued, thus reducing the influence of agriculture on the trade, service, and government sectors of the economy. The elite and the large landowners continued to lose economic influence, while the suburbanites, retirees, and newcomers increased their influence.

The other major labor market changes resulted from the introduction of the Calvert Cliffs project as a local employer and from the influx of construction workers as employees. The traditional role of the black intervener who mediated between the white employers (especially large-scale farmers) and the black laborers disappeared as hundreds of blacks discontinued their roles as agricultural, day-labor, seasonal, and other low paid workers. The new-style retail and service businesses led the way in adopting more open employment procedures, and jobs began to be filled more on the basis of qualifications than on personal acquaintances and family connections. Several aspects of the labor market were made more formal as the work force increased in size. The Maryland Department of Human Resources, which handles the state unemployment compensation program, opened a full-time office in Prince Frederick in 1976. (Prince Frederick Program Manager, personal communication, 1979.) The increase in local and state government employment resulted in administrative changes for personnel hiring and personnel management. Interestingly, all BG&E hiring for the Calvert Cliffs plant was handled from Baltimore. The rise and decline of construction-period employment resulted in low unemployment rates at peak construction and very high rates when construction was completed. For many blacks and native countians who were unskilled workers, the result was that they had to return to their former work or accept new jobs at much lower pay than they had received for construction work if they wanted to remain in the county. Many workers from the black, native countian, construction worker, and newcomer groups out-migrated. (See Tables 4-3, 4-4, and 4-6.) Income to the workers decreased sharply (see Table 4-6), and out-migration increased. Following the end of construction, the relative position of the workers returned to its pre-project condition

and continued through the operations period. The employers regained the dominant position in the employer-employee relationships. Most operations workers were newcomers and did not seriously affect the other labor relations of the county.

Income to local business dropped as construction ended. However, this was offset by the population and income increases of other groups in the county and the immigration of operations workers. The result was that the trade and service sectors did not suffer but, instead, continued to expand.

Political

The most significant change in the political structure took place when the business and professional group came to power as a result of the 1970 elections for the county commission. The "old" commission, which had been in office for twelve years, was made up of three farmers, one of whom was also a successful businessman. They retired together, and a completely new commission was elected: two businessmen and a doctor. When the commission membership was expanded to five for the 1978 election, five businessmen were elected, and the doctor was defeated in his re-election bid. All the commissioners were native born.

The successful political alliance was made up of the business and professional group, the elite, native countians, and newcomers. There was support for individual candidates by some retirees, suburbanites, and blacks, and there was sharp competition within the business and professional group for the seats. The county's traditional democratic domination was less absolute in the late 1970s than it had been in earlier times.

The retired group was active in civic affairs and in the local political campaigns. The suburbanites were relatively uninvolved, with the newcomers less politically active than were their peers in the business and professional group or the native countian group. The watermen, basically unchanged from the pre-project period, behaved politically much like the working-class native countians. The political organization of blacks produced several candidates, but they were not able to elect any of them.

Overall, the business and professional group significantly increased its political power. The elite were still influential but less powerful. The retiree group increased its relative position. The native countians, watermen, and newcomers maintained their

places. The suburbanites were unorganized, but their rapidly increasing numbers provided enough potential votes to slightly increase their position. The blacks lost influence due to their reduction in numbers, which was not completely offset by their attempts at better organization. As a group, the construction workers were not involved in local political affairs.

Social

The social activities of the Study Area continued to be focused on intragroup activities and especially oriented toward families. Within these general outlines, however, some notable changes took place. The major trend of the county was away from the distinctive isolated and agricultural social setting of the county to a more contemporary, suburban atmosphere. Family life for suburbanites, for example, focused on the nuclear family rather than the extended family and kin ties of the traditional county social order.

The social aspects of political and economic activities became more "modern" and were based on the professional style of contemporary, pluralistic social standards. The older county social order began to seem somewhat quaint—a past to be valued for its qualities of close interpersonal relationships, but one which was outmoded and being superseded by the progressive trends. Local history was in the process of being formalized as a residential attraction.

The place of the elite and native countians was changed as a result of this pervasive shift in social sensibilities. They no longer played the same vital roles they once did; the forces of modern suburban life reduced their influence and their roles in county life at the same time that their history was being acclaimed.

For the blacks, the result was a more independent existence, somewhat like the position of blacks in the larger national society. However, the change did not alter their relative place in the social and economic structure. The remaining blacks had a different relationship with the suburbanites, retirees, newcomers, and new business and professional members than they had with the older county groups. This did not significantly alter their social position for the better, however.

The overall social trends were only partly due to the effects of Calvert Cliffs. The other elements that were involved in population increase—modernization of trade

and services, professionalization of public services, and expansion of the economy--were also very important. The Calvert Cliffs project was an important contributing factor, however, and as an especially visible example of the most advanced industrial technology, it was a powerful symbol of the changes that were underway.

CHAPTER 9: PUBLIC RESPONSE

9.1 Introduction

The public response to the Calvert Cliffs project includes an area much larger than Calvert County. The public evaluation and response took place at the regional, state, and national levels. This was due to several reasons: the scope of the project; its importance to the large BG&E service area; the media interest in Baltimore and Annapolis; the proximity of the site to Washington, D.C. with its federal agencies and national news networks; rising interest in environmental effects during the project period; the importance of the Chesapeake Bay to Maryland; and the nature of the policy questions involved, which were resolved through administrative hearings and litigation.

This chapter describes the major issues that arose in connection with the project. These descriptions provide the background information for understanding the evaluation and response of Study Area residents to the project. Sometimes the issues appeared to bypass the Study Area altogether, while at other times the local groups were actively involved. The objectives of the chapter, therefore, are to provide a perspective on the role played by Study Area residents and Study Area socioeconomic concerns in the regional public response to the project. It will also identify any socioeconomic effects that the regional public response had on the Study Area. The following chronological description of the issues outlines the recorded responses at the regional, state, and national levels and the role that local groups played in this process.

9.2 Public Response during the Preconstruction Period

The intention of Baltimore Gas and Electric to build a plant at Calvert Cliffs was announced in May 1966. There was little immediate public reaction, although there was strong support from the county business community. On-site excavation began in June 1968.

Siting

The original 985-acre site for the Calvert Cliffs plant was purchased from a local county family for about \$1.1 million. BG&E had inspected the site in late 1965 after the state comptroller, the member of the selling family who was acting as the agent, offered the location for sale. The sale was contingent upon the rezoning of the site for industrial use. The county did not have a zoning ordinance, but the county commissioners passed an interim zoning ordinance in June 1966, and a contract on the property was signed late in

the year. Permanent industrial zoning was made when the county adopted its first comprehensive zoning ordinance in July 1967.

In 1967, the General Assembly passed a bill introduced by Calvert County's state senator and supported by BG&E, which transferred the capital stock tax liability (about 75 percent of the assessed value of the Calvert Cliffs Nuclear Power Station in 1978) from Baltimore City, where BG&E headquarters were located, to Calvert County, where the facilities were located. Baltimore City opposed the bill, estimating that their tax loss could be \$11 million a year. The state comptroller testified in favor of the bill without mentioning his role in selling the property. When this role was revealed, his critics implied that the relationship between the state comptroller and BG&E constituted a conflict of interest. They were upset when it was revealed that prior to its sale for \$1.1 million, the property had been assessed by the county assessor at \$32,770 and taxed at \$786. Finally, they questioned the arrangement by which Calvert Realty, operated by the state comptroller's wife, was hired as BG&E's agent to obtain transmission line rights-of-way in the county. (Evening Sun, 25 October 1967.)

Calvert County people generally found these actions by the state comptroller, the most powerful local politician, acceptable or unremarkable. Most of the criticism came from people outside the county, especially from Baltimore City, which had lost a considerable tax resource.

Permits and Hearings

Work on the Calvert Cliffs site began in the summer of 1968 after the company had obtained local permits to construct an access road and some ancillary buildings. The application for an Atomic Energy Commission (AEC) license was filed in January 1968, site preparation began in early summer, and a request to begin work prior to issuance of an AEC construction permit was made in October 1968. In January 1969, the AEC authorized some specific site work prior to issuance of a construction permit. This early site work did not result in any recorded opposition; the applications were supported by the county commissioners, the Jaycees, the state representatives, and one of the United States senators from Maryland.

Public Relations

BG&E made a serious long-term effort to obtain as much local support for their project as possible. Prior to the time the project was announced, BG&E had assigned a

public relations man to work in the county. He was instrumental in organizing the Jaycees as official hosts for BG&E. His close cooperation with the county commissioners and his regular appearance at commission meetings earned him the unofficial title of the "fourth commissioner." The company helped formulate the county's first zoning ordinance and, later, the comprehensive plan.

The utility coordinated and publicized the miocene fossil deposits that were developed as the excavation of the site took place. A special trip to view the Rochester Gas and Electric nuclear station at Ginna on Lake Ontario in New York was sponsored in May 1968. The 100 guests included 36 people from Calvert County. An extensive effort was made by BG&E to demonstrate that its official policy was to act as a "good neighbor." Company employees worked hard to gather local support for the company and for the Calvert Cliffs project from all segments of the county population. They talked to the business community about expected increases in local income and spending. They met with black leaders about construction employment. An audio-visual program was designed to explain and promote the project, and local people presented it to numerous county organizations.

9.3 Public Response during the Construction Period

The construction period ran from June 1968 until April 1977, when Unit 2 went into commercial production. News stories on the work and on the local area began to appear by August 1968 (St. Mary's Beacon, 1 August 1968).

Permits and Hearings

Calvert Cliffs was not only a large and complex engineering feat, it was an equally demanding administrative and legal test. More than forty permits and licenses were required before the station began commercial production of electricity. Some of these authorizations were processed without much notice, simply as a routine matter. In several cases, however, the issuance of a permit or license was made only after extended controversy, opposition, and even litigation had ensued. The public hearings were the occasions where many of the conflicts between the utility and opponents of Calvert Cliffs had their most forceful expression.

The NRC docket, newspaper files, and utility records provide an extensive account of the details in each permit process. This aspect of the Calvert Cliffs story is extremely interesting in its own right, but much of the detail is beyond the scope of this

study. In focusing upon the socioeconomic impacts on the local area, this history has been summarized to identify the major issues and concerns, actors, positions, and outcomes.

AEC Construction Permit. The application for a construction permit was made in January 1968, and permits for both units were issued in July 1969. A special permit for preliminary work was issued in January 1969. Public hearings were held on 12 May and 13 May 1969 at Prince Frederick, Calvert County, Maryland. The AEC limited testimony to questions concerning the radiation hazards of the plant.

The major oppositon to the plant came from the Chesapeake Environmental Protection Association (CEPA), an Annapolis-based group with concerns about the effects of the transmission line right-of-way (ROW) on Anne Arundel County, the thermal effects of plant operation on the Chesapeake Bay, and the potential radiation hazards. The testimony by seven Johns Hopkins scientists for CEPA questioned AEC regulations concerning radiation and its future effects on public health. (Washington Post, 13 May 1969.)

Another group, the Chesapeake Bay Foundation (CBF), asked for an independent study to determine the threat the plant posed to the bay and the public. CBF was a public interest group, based in Annapolis, with a prestigious membership and a primary concern with the use and conservation of Chesapeake Bay.

A University of Maryland economics professor, who was a county property owner, represented himself as speaking for the Calvert and Piney Point Citizens Associations, and the Potomac and Patuxent River Associations. He opposed the plant because of the radiation danger and said the plant would inhibit rather than enhance economic development. (Washington Post, 13 May 1969.)

Support for the plant was presented by the utility and its consultants. Calvert County people who testified in support were Board of Trade members, residents of Drum Point, a retired judge, the state senator, citizens living near the site, and other county residents.

Maryland Public Service Commission. Hearings on the BG&E application to the Public Service Commission (PSC) for a permit to build the transmission line from Calvert

Cliffs to the substation at Waugh Chapel in Anne Arundel County (47 miles) were scheduled for 26 May 1969 in Annapolis.

CEPA was the principal intervener, with much of its support and membership coming from people who resided along the proposed ROW. CEPA and the "people's counsel" for the PSC argued that a state law required the commission to issue a "certificate of public convenience and necessity" for construction of any new plant begun after 1 July 1968. They asked that the question of the ROW be set aside until the prior question of a construction certificate was addressed. The commission set a hearing date in June 1969 to consider this issue. At the June hearing, the utility argued that construction at Calvert Cliffs had begun in June 1968 and that the project was, therefore, exempt from the requirement to obtain a PSC construction certificate. The PSC upheld the company position; consequently, CEPA appealed this decision through the Maryland court system to the Court of Appeals (Maryland's highest court). The Court of Appeals found that construction had not started before 1 July 1968. The PSC promptly issued a stop-work order until the utility obtained the required certificate of convenience and necessity.

On 6 November 1970, the judge of the Calvert County Circuit Court stayed the stop-work order and assumed jurisdiction over the case until the PSC acted on the permit. The judge's decision came the day before the stop-work order was to have taken effect. This occasion was the closest that the company ever came to halting construction at Calvert Cliffs. The plant was estimated to have been about 25 percent complete at that time. (Poindexter, 1974; Morning Sun, 17 November 1970.)

The role of the PSC was broadened, therefore, to cover certification for construction of the plant as well as permission to locate the transmission line right-of-way. The resulting procedures were long and hotly contested. Authorization for the ROW was made on 17 April 1970 and reaffirmed on 12 August 1970. The order modified 7.2 miles of the route in Anne Arundel County to minimize the impact on fourteen historical sites. There were no changes in the Calvert County portion of the line because no residents opposed the route. (Evening Capital, 18 April 1970.) The PSC action was cited as the first time that a regulatory commission anywhere in the country had modified a ROW route for aesthetic or environmental reasons. (Morning Sun, 18 April 1970.)

The PSC certification for construction of Calvert Cliffs was issued 19 January 1971. It contained three major conditions: (1) that radioactive emissions be limited to 1 percent of AEC standards; (2) that the PSC maintain jurisdiction over the design and construction; and (3) that the PSC could require backfitting of technological improvements in the future.

Maryland Department of Water Resources. Baltimore Gas and Electric obtained eight permits from the Maryland Department of Water Resources between January 1968 and September 1970. The major permit was for use of Chesapeake Bay waters to cool the plant. Public hearings were held in February and March 1970. The permit was issued in May 1970 and contained twenty-one restrictions. The most demanding restrictions applied to the thermal standards, the use of "biocides" for cleaning condenser tubes, and the maintenance of radioactive water discharges of only 1 percent of the AEC standards. The permit allows the use of 3.5 billion gallons of water a day.

Generally the conservation groups hailed the restrictions as a victory for the public interest. The utility considered litigation on the question of whether the state could supersede federal standards, but in the end, BG&E accepted the conditions. The county watermen had worked for strict water quality standards through the regional Watermen's Association.

The "Calvert Cliffs Decision." The National Environmental Policy Act (NEPA) became law on 1 January 1970. In June 1970, the Calvert Cliffs Coordinating Committee, Incorporated (a coalition of Maryland groups led by the CEPA and the CBF), the National Wildlife Federation, and the Sierra Club asked the AEC to halt construction of Calvert Cliffs until a proper environmental report could be prepared. (Evening Capital, 26 June 1970.) This request was rejected by the AEC in August 1970, and on 26 November 1970 the conservationists filed suit. BG&E intervened in the case. At the same time, the utility filed an environmental report with the AEC. The United States Court of Appeals for the District of Columbia handed down the now famous "Calvert Cliffs Decision" on 23 July 1971. The court characterized the AEC procedures as a "mockery" of the NEPA and ordered the agency to prepare "a full and fruitful" environmental review of Calvert Cliffs. The court case subsequently led to major revisions in the AEC's rules and regulations for implementing the NEPA (Poindexter, 1974; Washington Post, 24 July 1971). There is no record of any Calvert County group being involved in this litigation.

Operating License. The major actions on the AEC operating license were taken in 1973. In February, BG&E, the AEC, and the CEPA met for a "pre-hearing" conference in Washington, D.C. As a result of that meeting, a joint "stipulation" was agreed to by the parties. The utility agreed to develop alternatives to the once-through cooling process in the event that the current plan resulted in ecological damages. (Evening Sun of Hanover, 27 April 1973.)

Since the CEPA was the only intervener and since it was satisfied with the agreement, a public hearing was not held. There was no local opposition expressed by county groups. The AEC issued the Environmental Impact Statement for Calvert Cliffs and recommended approval of the operating licenses in April 1973. The operating license for Unit 1 was issued on 31 July 1974; the license for Unit 2 was issued on 13 August 1976.

The Calvert Cliffs-Chalk Point Transmission Line. In the summer of 1973, BG&E proposed a right-of-way corridor for a transmission line between Calvert Cliffs and the Potomac Electric Power Company (PEPCO) plant at Chalk Point just across the Patuxent River in Charles County. This project was part of the regional inter-tie system. Fourteen local, state, and federal agencies exercised some authority over the Chalk Point link, including the Calvert County Planning Commission and the Calvert County Department of Inspection and Permits.

The Chalk Point ROW was immediately opposed by about thirty-five residents of the Port Republic area. The County Planning Commission opposed the line and urged the state Public Service Commission to consider a plan that would include a common corridor for the Columbia LNG pipeline and the future needs of the Southern Maryland Electrical Co-op. The county's delegate to the state assembly opposed the company route while the state senator supported the proposal. (Prince Frederick Recorder, 20 December 1973.)

A lengthy administrative process of hearings on the Chalk Point ROW resulted in the development of several alternative routes. In April 1978, BG&E appealed some of the conditions that the PSC had attached to the Chalk Point ROW. By October 1979, a final route was determined. It was an alternative favored by the Calvert County Planning Commission.

The involvement of local groups in the Chalk Point ROW proposal was determined more by geography than by social or occupational affiliation. The people who would have had the transmission line on or near their property opposed it. Others were concerned out of sympathy with their neighbors or concern for the overall aesthetic results, but generally to a much lesser degree.

Summary of Hearings. The hearings were most intense between 1969 and 1973, at which time the agreement among the AEC, BG&E, and the CEPA on future water use requirements was signed. The major opponents of the Calvert Cliffs plant were people who lived outside Calvert County, mostly in Annapolis and Anne Arundel counties. There was some additional regional opposition, and even national concern at times. In 1970, Senator Muskie held United States Senate hearings on Calvert Cliffs.

Other Issues

During the early 1970s, the state foresaw the possibility of as many as ten nuclear plants being sited on the Chesapeake Bay. (News American, 12 November 1972.) BG&E had proposed a station at the Perryman site in Harford County and by February 1972 had ordered over \$60 million worth of equipment. This project was cancelled in November 1972. (News American, 21 November 1972.) The prospect of several nuclear stations was instrumental in changes at the state level, including the establishment of the Power Siting Program in the Department of Natural Resources. (News American, 7 April 1971.)

Indeed, one of the questions posed by opponents outside the county concerned state policy for future nuclear plant siting. There was a widespread belief that many more nuclear stations would be built in Maryland, most along the Chesapeake Bay. Calvert Cliffs was seen as a test for the future control of nuclear power and utilities' construction plans. However, for Calvert County people, these larger questions were not as important as the immediate consequences of the Calvert Cliffs project, which was already underway.

The concerns expressed by opponents of Calvert Cliffs and reflected in state program changes could be classified in five areas: (1) public safety and radiation effects; (2) environmental effects, especially thermal effects and water quality; (3) transmission line right-of-way effects, especially aesthetic and land values; (4) public control over resource management; and (5) social and economic impacts of siting, construction, and operation of plants.

Numerous groups in Maryland opposed either the entire Calvert Cliffs project or some aspect of it. The most determined and effective opponents were the CEPA and the CBF, with the others being much less active. Within Calvert County, there was very little organized opposition before 1973. The Calvert County Civic Association was listed in 1969 as the first opponent of Calvert Cliffs in the county (St. Mary's Beacon, 9 October 1969). This group was headed by a University of Maryland economics professor, a part-time resident of the county, who spoke against the plant at the construction permit hearings. The association itself probably represented about a dozen people at that time.

The nature and extent of the regional and state concern can be indicated by the studies of Calvert Cliffs that were undertaken. The governor appointed a task force in 1969 to study the project and report recommendations to the state. Commonly called the Eaton Commission, after its chairman, it had only one Calvert County resident as a member. The Maryland Academy of Science created a study group for much the same purposes, also in 1969. The Chesapeake Bay Foundation conducted some research and regularly called for more. BG&E itself funded extensive studies by consultants, much of the work started from the earliest days of the project. Later research included work by the Department of Natural Resources (News American, 7 September 1979; Morning Sun, 17 December 1972), the Maryland State Health Department (News American, 24 August 1971), the Edison Electric Institute (Morning Sun, 27 November 1972), Johns Hopkins University, and Calvert County.

During the construction period, county people were active supporters of the plant rather than opponents. There was a sense in which the county identified with the project as a local effort and resisted outside opposition. BG&E was considered to be a fine company and a good neighbor. In the case of the Chalk Point ROW, however, opposition to BG&E plans came from groups and residents in the county as well as from the county itself.

Calvert County Bond Issue. In February 1973, BG&E asked Calvert County to issue \$77 million in tax-exempt revenue bonds to help finance pollution control equipment at Calvert Cliffs. The procedures for doing this had been approved by the State Assembly in 1972, which meant that the money could be raised at the cost of the interest rate on tax-exempt bonds, which was lower than company-issued bonds. This bond process did not obligate the county to make payments or reduce its bonding

capacity. The purpose was to encourage the use of pollution-control equipment and to assist Maryland in the competition with other states for new business facilities. There were suggestions that the county should negotiate some contribution from the company in return for the bond issue, but the county commission agreed to the plan without a quid pro quo. The bonds were sold in July 1973 at 2 3/4 percent below the prevailing BG&E bond rate. The issue of \$67 million in bonds resulted in an estimated savings to the company of \$15 million over the 25-year period.

Public Relations. The media were often used in the public relations efforts of BG&E on behalf of Calvert Cliffs and in attacks by opponents as a prelude to the hearings. A classic example was a CEPA ad announcing a rally to prepare for PSC hearings in 1970: CEPA was pictured as David, while BG&E was portrayed as a huge, menacing Goliath.

In its turn, the utility launched an ad campaign to gain support for Calvert Cliffs and to "educate" the public. The campaign itself became an issue when opponents objected to the inclusion of advertising costs in the establishment of utility rates. Although the PSC ruled that such expenses were legitimate business costs and the company never admitted publicly that there were problems with the effort, the advertising was eventually discontinued. The company did not become involved in a similar advertising effort again.

In the county, BG&E worked diligently at maintaining its support from, and good relationships with, community groups. The Jaycees showed the company-produced movie on Calvert Cliffs dozens of times, and local business, government, and social leaders had quick access to the company through the resident public relations expert. Finally, the company sent its best spokespersons to numerous meetings to explain the Calvert Cliffs work and reassure the groups about the project.

9.4 Public Response during the Operation Period

In many cases, there was no clear division between the construction and operation periods. Many of the permits and licenses that were applied for and contested during the construction period concerned operating conditions. Also, the operation of Unit 1 overlapped with the construction of Unit 2 so that both periods existed simultaneously. Even the Chalk Point ROW controversy was really over a construction portion of the project, although much of it took place while both units were in commercial operation.

Given these qualifications, however, it is still possible to distinguish the nature of community-utility relations during these two periods. The three main areas of interest for the community were taxes, safety, and thermal standards.

Taxes

The problems with taxes began early, even before any tax payments were made. In November 1974, BG&E announced that, due to technical difficulties, Unit 1 would not go into commercial operation before the end of the year. This meant that a significant portion of the tax liability for the plant was delayed for a year. The cost to the county in lost revenues was estimated at \$9 million (Washington Sunday Star, 17 November 1974).

When the plant was assessed in May 1975, the county commission objected that the valuation was only \$253 million instead of the \$350 million that they expected. The commission met with state officials, and the valuation was raised to \$267 million (Prince Frederick Recorder, 29 May 1975).

One major difference between the county and BG&E resulted in litigation. The county commission president proposed a tax discount plan that would reduce property taxes by 30 percent if paid thirty days before the deadline. Any single tax bill was limited to a maximum discount of \$1,000. Objections that the plan created an illegal two-tier tax system were brought forward by BG&E and the owner of an office building in Prince Frederick. Other political figures in the county also opposed the idea, including the state senator and one of the county commissioners. The tax proposal was modified somewhat and enacted as a county ordinance in December 1975. The plan allowed the county to lower residential tax bills through an early payment discount without lowering the BG&E bill substantially because the tax rate would remain high. The utility took the matter to court. The local judge ruled in favor of the county, but on appeal the scheme was declared unconstitutional. Another, similar plan with smaller discount rates was abandoned when BG&E once again threatened suit.

The ability of the county to collect taxes and the share of state-controlled programs and public services it was required to pay for were finally decided by the State Assembly. Various representatives of other Maryland counties viewed Calvert Cliffs as a potential revenue source for state programs; thus, each session of the State Assembly involved efforts to transfer some portion of the tax payments from Calvert County to

the state. These efforts were not successful during the study period (through the 1980 State Assembly session), but they were a perennial concern to Calvert County groups.

Operations Safety

Calvert Cliffs had the reputation of being a well-designed and well-operated station. Nucleonics Week rated Unit 1 as the top producer in the free world for the first six weeks of 1976.

It might be said that although the early operations period generated some dissatisfaction with Calvert Cliffs, it did not generate issues. The areas of concern were utility-community cooperation, especially the relationship between the company and local officials. Emergency planning, procedures for notifying the local community of operating problems at the plant, and plans for transmission lines or other changes to the facilities were mentioned. Spent fuel storage was an additional item, but one for which the utility was generally held to be blameless.

The thermal standards for water use became an issue again when the utility filed an amendment with the Department of Water Resources to allow discharges of up to 14 degrees and maximum water temperatures of 97 degrees. The original permit allowed a 10-degree increase with a 90-degree maximum. The county opposed the request and asked for public hearings. (Prince Frederick Recorder, 12 June 1975.) BG&E opposed new hearings. The utility position was upheld by DWR, and the changes in the cooling water permit were allowed. CEPA, individual watermen from Calvert County, and the Watermen's Association protested the water permit revisions allowed by the Department of Water Resources.

The change in the relationship between the county and Calvert Cliffs during the operation period was understated but clear. Differences developed in many areas, a contrast to the earlier period when county residents were allied against outsiders who opposed Calvert Cliffs. Some of this solidarity was still evident in the response to an on-site demonstration by the Potomac Alliance in August 1977. The alliance group, ten to fifteen individuals, released about 1,000 balloons from the visitors' center at Calvert Cliffs and sponsored an antinuclear movie at the public library in Prince Frederick. Two articles in the Calvert Journal Gazette (which was no longer being published by the fall of 1979) attacked the security and operating procedures at Calvert Cliffs. (Calvert Journal Gazette, 18 August 1977, 25 August 1977, and 1 September 1977.) The movie

was attended by only a "few" people (Calvert Independent, 14 September 1977), and local respondents reported that the incidents were the actions of people from outside the county and did not represent the views of even a small minority of county residents. The stories did result in several letters-to-the-editor that defended the plant and BG&E's presence in the county.

9.5 Response to the Accident at Three Mile Island

The accident at Three Mile Island, Pennsylvania, which occurred in late March and early April 1979, was an important news event for Calvert County. Local weekly newspapers and the daily publications from Annapolis, Baltimore, and Washington D.C. all carried news items that compared the crippled TMI to Calvert Cliffs. Reporters interviewed local citizens, and news stories discussed the plant design, its operating history, evacuation planning in case of emergencies, and changes in design or operation of the facility.

Two regional groups were involved in public efforts to restrict or shut down the Calvert Cliffs operation. The Chesapeake Energy Alliance, a Baltimore City group of about forty people, interrupted a city council meeting during the accident period (Morning Sun, 3 April 1979). In May, a group based in Washington, D.C. which called itself "Greater Washington Americans for Democratic Action," attempted to get enough signatures on a petition to place an antinuclear referendum on the November ballot. The referendum would have allowed the public to vote on the question of extending storage of nuclear waste onsite at Calvert Cliffs. However, the petition drive did not obtain the required 10,120 signatures and, consequently, did not appear on the ballot. (Saturday Sun, 2 June 1979.)

The reaction of county people and organizations was one of concern during the accident period, and was followed by greater attention to the emergency planning and plant operations after the accident. There was no recorded instance of organized opposition by any major group of county residents. One small group, The Concerned Citizens of Mutual, about a dozen people who had opposed the construction of the plant and the location of the Chalk Point transmission line right-of-way, supported the efforts to deny extension of the nuclear waste storage permit (Prince Frederick Recorder, 12 December 1979). Overall, however, the immediate perception that Calvert Cliffs might be a serious potential danger to the community was limited to a few individuals, and the general concern with plant operation quickly abated.

During the field interviews, which were conducted in the summer and fall of 1979, the respondents inevitably reported that they were sure the plant was well operated and basically safe. Nevertheless, they also reported that they were not as confident after the accident as they had been before. Moreover, in considering the role of the plant in their daily lives, they often talked about it in terms of an informal risk assessment. The risk posed by Calvert Cliffs was compared to the risks posed by traffic accidents, the health hazards of other methods of electrical generation, and the prospect of doing without the electrical production.

Proposed changes in the emergency planning and evacuation for a potential accident at Calvert Cliffs were outlined in a public meeting that took place in Prince Frederick on 28 February 1980. The NRC, BG&E, and Civil Defense personnel spoke to about fifty citizens and local officials. The newspaper account reported that most people were satisfied with the arrangements and plans (Prince Frederick Recorder, 5 March 1980).

9.6 Summary

9.6.1 Public Concerns over the Station

The major issues that were raised in connection with the Calvert Cliffs plant were focused on water quality effects and public safety. The questions of assessing these effects, mitigating their impact, monitoring and controlling them during plant operations, and providing adequate planning for potential problems were all complex political issues. The administrative processes of government agencies, such as permit procedures and public hearings, were involved. Legislation at the state and national levels, the political efforts of interested parties, and the reporting of the news media were all parts of the public involvement process. The Calvert Cliffs plant was an extremely visible project and one that had a long, complex history involving numerous public issues. Moreover, the plant-related issues reached a wide geographic area that included Annapolis, Baltimore, and Washington D.C.

9.6.2 Role of Study Area Groups in Public Response

None of the Study Area groups actively initiated or strongly supported the opposition to the Calvert Cliffs project. Consequently, this opposition was mostly expressed as a regional or national response. The most interested local group was the watermen who supported strict regulation and standards of water quality, especially with regard to thermal standards, and who voiced this position publicly, both as individuals and

through the Watermen's Association. Their role, however, was not that of organizers or initiators, but rather as somewhat limited participants, and they did not have a strong influence on the cause of the overall public response. Some individuals and small subgroups were concerned about the anticipated effects, which were expressed as regional issues. The Concerned Citizens of Mutual, mostly recreational property owners who were part-time residents, were sometimes associated with the larger regional groups. Overall, the county residents who actively opposed the project were not influential in the formation or direction of public response to the Calvert Cliffs project. Indeed, they played a very minor role even in the support of the larger public response.

Within the county, antiproject sentiments were considered such a minority opinion that they were tolerated with rather good humor. These dissidents were generally dismissed as people who did not fully understand the county's needs or the benefits of the project.

Local support for the project was widespread among the groups. The black community, the newcomers, and the native countians all supported the project because of its employment and income benefits. The suburbanites and the retirees were more accepting of the project than supportive; their evaluation was based on the long-term fiscal and public service advantages. The business and professional group strongly supported the project and, subsequently, so did the local political leaders. They not only supported the project in the county, but they willingly presented testimony at public hearings, made statements of support on specific issues, and helped pass local legislation such as the zoning ordinance and the bonds to finance plant pollution control costs.

9.6.3 Effects of Public Response on Groups in the Study Area

If anything, the effect of regional opposition to the project resulted in more local support, by all the groups, rather than less. In a similar way, the periodic attempts by legislators in Annapolis to expropriate some portion of the project revenues resulted in massive support for preserving the tax funds. One of the primary ways for state representatives to obtain cross-group support was to defeat these attempts to remove Calvert Cliffs' revenues from the county. The greatest solidarity on behalf of the project came during the first half of the construction period when most of the major hearings were held and the important permits and licenses were granted.

Following the issuance of the operating license, which involved an agreement between the CEPA, BG&E, and the AEC, the regional issues were largely settled. Within the county, the support of Calvert Cliffs as an operating plant was no longer so unified or intense as it had been in the context of regional opposition. The business and professional group still supported the utility company on most issues, but other groups such as the retirees, suburbanites, and blacks, along with many native countians, were ready to oppose BG&E and support the local side in differences with the company.

CHAPTER 10: EVALUATION AND SIGNIFICANCE OF THE SOCIOECONOMIC EFFECTS OF THE CALVERT CLIFFS NUCLEAR POWER STATION

10.1 Introduction

The purpose of Chapter 10 is to summarize the effects of the project and to characterize the evaluation of those effects by groups in the Study Area. The time period covered by the study was fifteen years, from 1965 when the initial consideration of the site was undertaken, to 1979 when field work was completed. The project was the largest construction effort ever attempted by a private company in Maryland history. The final cost of construction was about \$766 million, and at peak construction about 2,525 workers were on site. The cost of operating the plant was over \$55 million annually, and in 1978 the plant generated more than \$12 million in taxes to the county and the state. The operating work force was over 300 persons in 1979.

The study focused on three time periods: preconstruction, peak construction (1972), and the first full year of commercial operation (1978).

10.2 Summary and Distribution of the Socioeconomic Effects of the Calvert Cliffs Project Among Groups in Calvert County

10.2.1 Economic Effects

The major economic effects due to Calvert Cliffs were the basic and nonbasic employment and income, as summarized in Table 10-1. At peak construction, almost 1,600 of the people working on the project were living in Calvert County. Although the utility made no significant purchases in the Study Area for construction or operation of the plant, a considerable amount of money from the basic income was spent in the county. Most of this went to the business and professional community or to their employees. Perhaps 5 percent of the income went to other groups for rents, private sales, and direct purchases of property, which further distributed income among county residents.

Nonbasic income was allocated to the business and professional group as proprietors' income and to the other groups as wages and salaries. The wages and salaries were allocated to the various county groups on the basis of nonbasic employment. The nonbasic income was estimated at \$3.5 million in 1972 and at \$1.25 million in 1978.

TABLE 10-1

APPROXIMATE EMPLOYMENT AND INCOME EFFECTS DUE TO
CALVERT CLIFFS BY GROUP
1972 and 1978

Group	1972		1978	
	Employment	Income ^a	Employment	Income ^a
Native Countians	435	\$4.1	185	\$1.7
Newcomers	150	1.3	315	3.4
Black Community	400	4.8	135	0.9
Construction Workers	580	9.3	—	—
Business and Professionals	<u>30</u> ^b	<u>0.6</u> ^c	<u>18</u>	<u>0.2</u>
SUBTOTAL	1,595	\$20.1	653	\$6.2
Commuters	<u>1,069</u>	<u>16.4</u>	<u>173</u>	<u>1.8</u>
TOTAL	2,664	\$36.5	826	\$8.0

^aMillions of constant 1972 dollars.

^bDue to increased nonbasic employment.

^cIncludes proprietors' income.

Source: Social Impact Research, Inc., 1980.

The group in the county that held the largest number of jobs in 1972 was the construction workers. This group had 580 plant-related jobs at peak construction. The native countians were estimated to have held the next largest number because they also obtained more nonbasic jobs than did any other group. The black community obtained an unusually large share of the construction jobs because of the great number of laborers that were hired, and the black control of the county's only union, Laborer's Local #882.

The elite, retirees, and suburbanites were not directly affected by the employment and income resulting from the project. Although some watermen were paid to move an oyster bar, their employment was not generally affected by nor related to the plant. Numerous local people received income from rented property, including some of the retired people who were in the process of moving to the county full time. Most rental income went to native countians or to businessmen connected with the real estate market.

10.2.2 Population Effects

The population effects estimated in Chapter 5 and Chapter 8 were based on the employment figures discussed above. Two aspects of migration were included, in-migration and diminished out-migration. The distribution of these effects to the county groups for 1972 and 1978 (see Chapter 8) are summarized in Table 10-2.

At peak construction (1972), approximately 2,820 additional people resided in Calvert County due to the Calvert Cliffs project—11.5 percent of the total county population. The groups in the county were differentially affected by this population increase. The group that received the greatest population effects, a group which was in fact established because of the project, was the construction worker group. In 1972, the construction worker group had about 1,600 members, all due to the project. These additional people made up about 6.5 percent of the total county population in 1972, an increase due solely to in-migration. The native countians and the black community received about equal population effects from the project; the native countians increased their size by about 547 persons, and the black community increased by about 485 persons. Both these groups increased in size largely as a result of diminished out-migration, as discussed in Chapter 5.

The major difference in 1978, when compared to 1972, was the fact that the construction worker group left the county. An estimated 125 to 150 workers plus their

TABLE 10-2

**APPROXIMATE DISTRIBUTION OF POPULATION EFFECTS DUE TO
CALVERT CLIFFS BY GROUP
1972 and 1978**

Group	1972	1978
Native Countians	547	216
Newcomers	100	813
Black Community	485	153
Construction Workers	1,589	—
Business and Professionals	<u>99</u>	<u>54</u>
TOTAL	2,820	1,236

Source: Social Impact Research, Inc., 1980.

families (approximately 378 to 453 persons altogether) became permanent county residents as members of the newcomers group. The newcomers (shown in Table 10-2) were mainly the operations workers who moved into the county. As was the case in 1972, population increases for native countians and blacks came from estimated decreases in out-migration.

The elite and the watermen were largely unaffected by the project. The business and professional group grew because of the nonbasic employment and income due to Calvert Cliffs, but their proportion of the population was not dramatically affected. The suburbanites and retirees were groups that rapidly increased for reasons not associated with the employment and income effects of the plant.

10.2.3 Housing Effects

The housing effects of the Calvert Cliffs project were the result of the in-migration of workers to the county. The housing stock was never sufficient to meet the demand, and real estate people reported that waiting lists for rentals were commonly 50-100 names long. As a result of this demand, rents and property values rose, new houses were built, seasonal units were converted to year-round use, and rooms were rented. Most of the increased rental costs were paid by in-migrants--especially the construction workers, new business and professional people, and other newcomers. The native countians and blacks had substantial renters in their groups (about 20 percent and 40 percent, respectively), and there was some pressure on prices for these groups. New households that formed within these groups were most vulnerable to the sudden cost increases. These two groups spent money on upgrading their existing houses, and a number of new houses were built. Unfortunately, the data do not allow an accurate estimate to be made by county group. The elite and watermen were least affected; both groups having a high percentage homeowners. Suburbanites and the retirees bought a large proportion of the new houses, and there may have been some influence on final costs. The rapid increase in both these groups due to causes not related to Calvert Cliffs makes it difficult to estimate what the project-related effects might have been for these particular groups. A number of retirees who owned seasonal units (as well as other recreational property owners) upgraded them to year-round use and rented them to the in-migrants.

There were also reports that some newcomers who were not earning wages comparable to those paid construction workers, such as school teachers or new nonbasic

and government employees, were forced to live out of the county during the construction period.

Finally, there was some expansion of commercial facilities during this period, part of it no doubt due to the increased business activity resulting from Calvert Cliffs. There were additions to the retail trade facilities at Solomons, but the most extensive development took place in Prince Frederick.

10.2.4 Government and Public Service Effects

The increased population that resulted from the project required additional public services and meant that public facilities were more intensively utilized than they would have been otherwise. The impacts on education, transportation, public safety, and social services were examined. The effects due to the project took place as even larger population effects and public service demands were being made by other in-migrants, especially the suburbanites. For that reason, traffic congestion was a visible impact during peak construction; other demands in public services were less obvious since they were part of the general county growth trends.

The revenue effects of the Calvert Cliffs plant were the most obvious and significant impacts on the county government, public services, and facilities. BG&E paid taxes on the property from the time it purchased the property in 1967; however, the large revenues came in fiscal year 1975 when the completed Unit 1 was included in the county assessed base, and this amount was further increased in 1977 when Unit 2 began commercial operation. In 1978, BG&E tax payments to Calvert County were over \$11 million. This was slightly over 65 percent of the revenues collected from the county's assessable tax base and about 50 percent of all county revenues.

The county used this income to upgrade and expand services, establish new programs, make capital improvements, and lower the tax rates for both property taxes and the local share of state income taxes. In fact, the tax savings to county taxpayers were estimated at 28.6 percent in 1978 when compared to the rates in effect during the 1970 to 1972 fiscal years. The savings to BG&E were about \$3.5 million, based on these assumptions.

In many cases, the benefits of Calvert Cliffs tax revenues were equally shared by the Study Area groups. Public facilities such as the hospital, museum, jail, parks and

schools; the expanded courthouse and library; and other capital improvements can be assumed to benefit the community as a whole. New roads would also fall in this category, with the exception that the county took over a number of private roads, which were then improved.

The groups most affected by the tax rate reductions were those who owned the largest properties and those who were liable for the largest income tax payments. While, to some degree, all groups benefited in these ways, the elite, the large landowners among the native countians, the business and professional group, and the suburbanites were most positively affected.

10.2.5 Social Structure Effects

There were two types of social structure effects that took place as a result of the Calvert Cliffs project. First, there were changes within the groups. Second, there were changes in the relationships among groups. It should be kept in mind that there were numerous influences from sources other than Calvert Cliffs that were responsible for social structure change and, in many cases, the plant-related effects supplemented other trends of change. The following discussion is meant to summarize the social effects on each Study Area group. It is followed by a discussion of changes in group interaction.

Changes in Group Characteristics

The construction workers were a temporary group that expanded rapidly when construction got underway, leveled off as the county capacity to accommodate them was reached, and then dispersed when the project was over. Their major characteristics did not change over the study period.

The elite were a long-established and very stable group. They were not directly affected by the economic, demographic, or housing changes that resulted from the project. Consequently, they did not change much during the study period.

The business and professional group changed dramatically over the study period. The group expanded and diversified, which included the addition of BG&E as a locally active business and employer. A new weekly newspaper was established, and the business and professional group gained control of local government. The management, marketing, and service aspects of the group were modernized extensively. The rather quaint rural,

agricultural orientation of the county was changed to a more contemporary, suburban atmosphere.

There was a large-scale change within the black community during the construction period. Employment and income due to the project diversified the livelihood base of the group and provided an abrupt increase in black income. The out-migration patterns were halted, housing was improved, and a sense of community independence was achieved. The traditional intermediaries between the black community and the white power structure were eliminated. Following construction, blacks experienced high unemployment and pressure to return to their old jobs. Out-migration resumed at an accelerated pace. However, new employment opportunities in the local economy were more available, so some of the independence was maintained. The lack of adequate work meant that some workers lost their houses, and home maintenance and improvements were substantially reduced.

As a group, the watermen experienced little noticeable effects from the construction and operation of Calvert Cliffs. The retirees group grew rapidly as a group during the study period, but their characteristics did not change due to the plant. The suburbanites group also increased in number and, by 1979, accounted for as much as one-third of the county population. However, the growth of the group was unrelated to the nuclear station.

Changes in Interrelationships

The construction and operation of the Calvert Cliffs plant introduced BG&E into the Study Area as an important element in the local economy. Representatives of BG&E became members of the business community and the company became the county's largest employer. This resulted in several changes in the structure of the local economy. Prior to the plant, the elite group and large-scale farmers from the native countians group had been the major employers in the Study Area and the traditional focus of the business community. The roles of these groups were substantially reduced because of the project. The increased suburban growth strengthened the business and professional group, along with the suburbanites, newcomers, and retirees, who increased in importance as sources of income to the local economy. Although the position of the black community improved during construction then decreased once construction was over, it was nonetheless somewhat better off after the project was implemented than it had been prior to the project. The watermen's group remained basically outside these major changes.

The political changes followed the economic trends and resulted in an adjustment in the political structure. The elite and native countians were still influential, but less so than they once were. Business and professional leaders acquired a dominant local role in public affairs. Blacks were less influential due to their decreasing proportion of the population and their failure to develop functional alliances with other groups. The newcomers and suburbanites increased in size and potential influence but remained relatively unorganized politically. The retirees group became active in civic, community, and political affairs in the Study Area and, therefore, gained in local importance.

Few changes in social interrelationships took place for the elite or the watermen as they continued to be somewhat isolated and self-contained groups. The native countians changed a great deal, assuming the main role in integrating newcomers, suburbanites, and retirees into the county social structure. The business and professional group played the other major role in integrating in-migrants to the county through the social aspects of the county economic and political activities. The blacks remained a distinct group socially.

10.3 Evaluation of Project Effects by the Groups in the Study Area

In Chapter 8, the major groups in the county were identified, and the characteristics of each group were described. The effects of the Calvert Cliffs project were discussed as they applied to each group. The issues that resulted from construction and operation of the nuclear station were discussed in Chapter 9. This section considers the relationship between the effects of the project and the characteristics of the groups in presenting each group's evaluation of the project.

The Elite

The elite, who generally had an interest in the well-being of the county, felt that the project provided employment, income, and fiscal benefits to the county. They had an obvious interest in the lower property tax rates due to their extensive property holdings, and they often cited the additional tax revenues and upgrading of public services as the most significant effects to group members. Despite their recognition of the fiscal and public services benefits to themselves and the employment and income benefits to the Study Area, their overall evaluation of the consequences of the project was mixed, for they also viewed the project as an impetus for the changes that would inevitably erode their traditional way of life.

The Business and Professionals

The business and professional group supported the project from its first announcement. Members of this group often cited the project as "the best thing that ever happened to the county," both in terms of its actual effects and in terms of its portent of future growth and expansion. This group promoted the project, testified in its favor at the hearings, and defended it during the operation period. The tax revenues were often considered the most important effect by members of this group and the source of numerous local improvements. The income effects and general expansion of economic activity were both highly valued by members of this group.

The Native Countians

The native countians generally supported the project. Some members of this group received direct benefits from construction employment, and they associated the project with improvements in public services which they considered important.

The Watermen

The watermen were cautious in their evaluation of the project. With their economic dependence upon marine life, they were concerned about the effects of plant operation on the water quality in the Chesapeake Bay. Few watermen received direct employment or income effects from the project, but the fiscal effects were appreciated. Given their relatively separate economic and social position and their limited participation in political affairs of the county, they were generally rather unconcerned about most of the other project effects. They were somewhat suspicious of the utility and of local and state government action with regard to the quality of the water in the Chesapeake Bay.

The Black Community

The economic benefits resulting from the tax revenues were very important in the blacks' overall evaluation of the project. The most important effects were the employment and income during plant construction, which were evaluated as especially beneficial by the black community. They saw that their declining economic and political position prior to the project was mainly attributable to a lack of job opportunities in the county. The fact that there was little job training during construction and little hiring of local blacks in connection with plant operations was a disappointment to them--a disappointment that was especially acute because of their severe need for employment and income opportunities. The importance of education to the future economic and

social mobility of members of this group and their dependence on public schools resulted in a positive evaluation of improvements in the school system due to the revenues received from the project.

The Newcomers

A large number of newcomers had moved into the area because of employment as construction and/or operations workers at Calvert Cliffs or because of nonbasic employment that the project helped support. They were strong project supporters and cited the economic benefits—employment, income, and tax revenues—as the major reason for their support. In addition, economic development and growth, both represented by the project, are valued by many members of this group.

The Suburbanites and the Retirees

The suburbanites and the retirees rated the tax revenues as the major benefit and the reason for their support of Calvert Cliffs. They tended to be less enthusiastic than were the long-time residents in evaluating the plant operations, health risks, and the role of the utility. Members of these groups did not actively support the project during the construction period, but they were very involved in the decisions regarding expenditure of the tax revenues. They tended to support the idea that there ought to be more and better public control over the plant's operation, especially following the Three Mile Island accident.

Summary

Generally, the plant was rated by the groups as a positive addition to the Study Area. Economic effects—employment, income, and fiscal—were rated as the most important impacts of the project. Changes in social groups were evaluated both positively and negatively, depending on whether the results strengthened the group's position in the social structure or not. The changes in county life as it developed from its rural tobacco economy and society to a more modern form were also seen as both positive and negative. The general assessment of the risks posed by the operation of the plant seemed to be that such problems could be handled, although improved operational procedures might be called for after the Three Mile Island accident.

There was no doubt that many thoughtful people were uneasy or even saddened when certain qualities of life suffered because of the rapid, large-scale development. At the same time, the county's ability to address social problems with adequate, or at least

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There was no doubt that many thoughtful people were uneasy or even saddened when certain qualities of life suffered because of the rapid, large-scale development. At the same time, the county's ability to address social problems with adequate, or at least

substantial, resources made the personal and group relations much easier than they otherwise would have been. Prior to the Calvert Cliffs project, there was a somewhat grim acceptance of the limitations imposed by poverty and the bleak economic prospects for the county. The dramatic changes of the 1970s altered that perspective. By the end of the decade, the future looked better than it had a decade and a half before, yet there remained a pessimistic undercurrent that touched those who felt that important values were being lost by the major developments in the county. The elite wondered about the erosion of their values and way of life. The black community saw a bleak future, after the temporary experience of jobs and income, so they were migrating out of the Study Area. Other groups were more optimistic as they received the long-range benefits of the power station. The Calvert Cliffs Nuclear Power Plant, because it was such a dramatic and significant project, was inevitably intermixed with the feelings of groups and individuals about their life in the county.

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Evening Capital	Sun Magazine
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