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# Socioeconomic Impacts of Nuclear Generating Stations

Oconee Case Study

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Prepared by J. Flynn/SIRI

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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 Oconee 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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## CHAPTER 1: INTRODUCTION

### 1.1 The NRC Post-Licensing Studies

This report—the case study of the Oconee Nuclear Station, located in Oconee County, South Carolina—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, 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 socioeconomic 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.

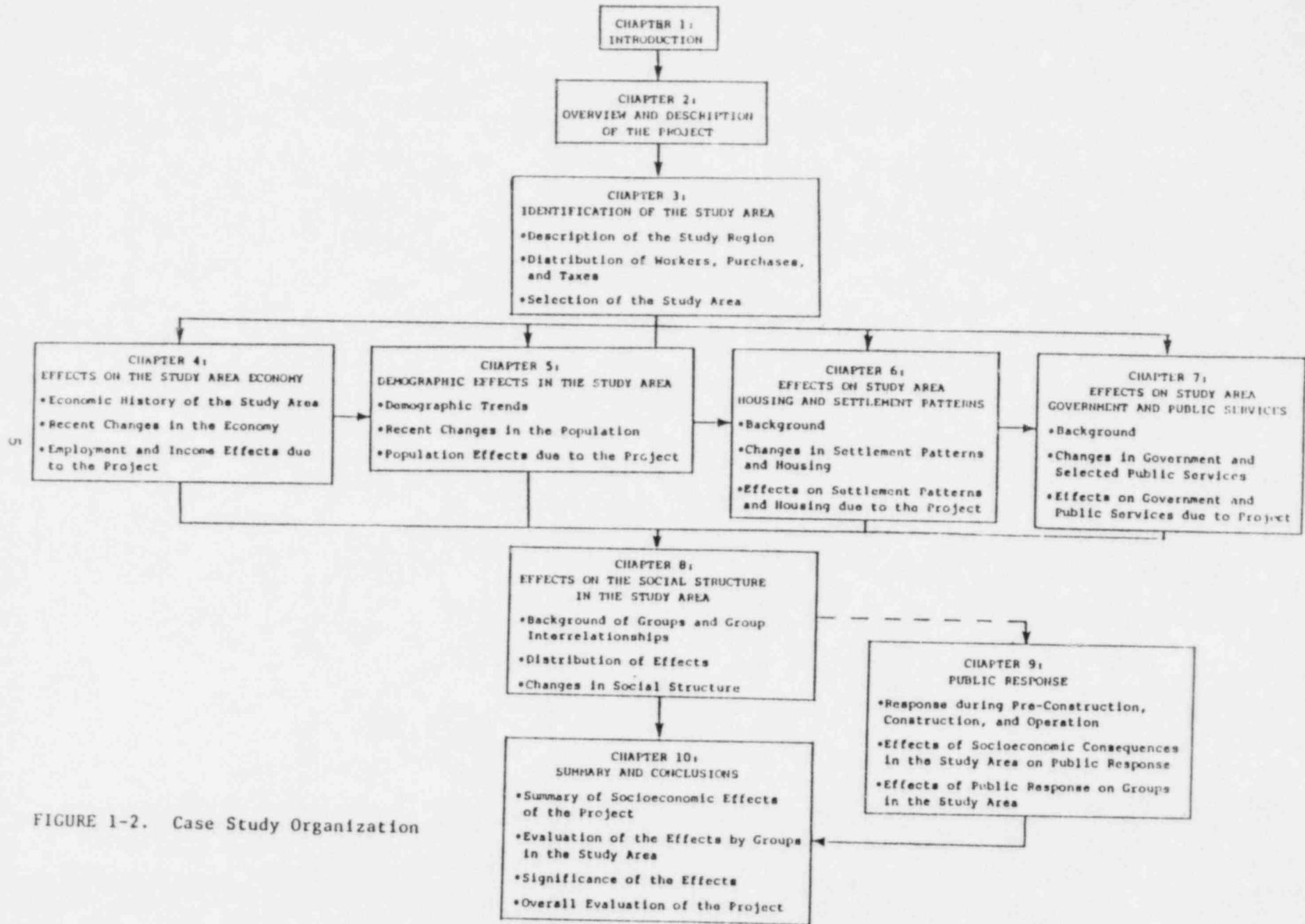


FIGURE 1-2. Case Study Organization

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 characteristics of the Oconee project so that the socioeconomic effects can be studied. The emphasis in this chapter is on a description of the major characteristics and elements of the project which are needed to provide an orientation for the more detailed analysis of the remaining chapters and to facilitate the cross-site comparisons with the other case studies of this research effort.

Information is provided on the project's location, size, type, and site characteristics; on the utility and other major factors involved with the project; on the magnitude and duration of the construction effort; and on the project's operation. This chapter is principally descriptive and is based upon 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 Oconee Nuclear Station, owned by Duke Power Company, is located on Lake Keowee in Oconee County, South Carolina. The station is sited approximately in the center of the tri-county area (Oconee, Pickens, and Anderson counties) which comprises the northwestern corner of the state as shown in Figure 2-1. The Oconee and Pickens county lines border North Carolina to the north; the Oconee and Anderson county lines border Georgia to the west. The station site is 30 miles west of Greenville, South Carolina, and about 110 miles northeast of Atlanta. Nearby cities include Seneca (in Oconee County), Anderson (in Anderson County), and Clemson (in Pickens County) where Clemson University is located.

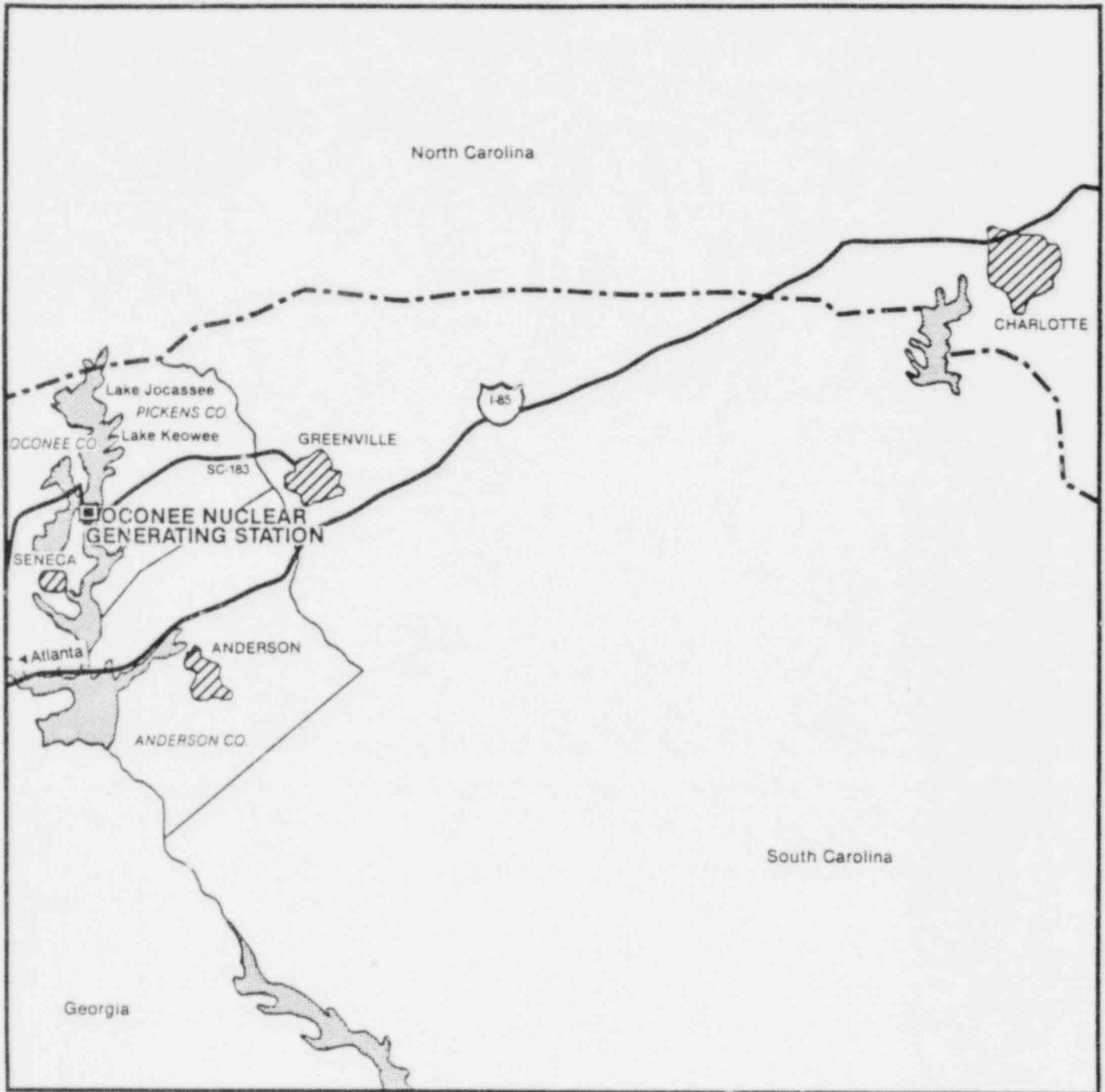
Access to the site is by State Highway 183 (SC-183), a primary state road. The area has an extensive and well-developed road system, including Interstate 85 (I-85), the major link to Greenville and Atlanta.

### 2.3 The Utility

#### 2.3.1 Corporate Background

The Duke Power Company (commonly called Duke), an investor-owned utility, was originally formed in June 1904 and adopted its present title in November 1924. Through

FIGURE 2-1. LOCATION OF OCONEE NUCLEAR GENERATING STATION



Urban Area

a series of mergers, acquisitions, and sales, and the formation of subsidiary companies, Duke Power Company has reached its present configuration. The company is primarily engaged in the generation, distribution, and sale of electricity. It also provides bus transportation in the cities of Greensboro and Durham, North Carolina, and in Anderson and Spartanburg, South Carolina. In addition, it supplies water to six municipalities. (Moody's, 1977:623.)

The company also has five wholly owned active subsidiaries: Mill-Power Supply Company, Crescent Land and Timber Corporation, Eastover Land Company, Eastover Mining Company, and Western Fuel, Incorporated. Mill-Power Supply Company is a wholesale jobber and distributor of electrical equipment, construction materials, and so forth. It also acts as the purchasing agent for virtually all supplies, equipment, and fuel required by Duke Power Company. Crescent Land and Timber Company (formerly South Carolina Land and Timber Company) manages Duke property not used in utility operations, including large portions of the land purchased for the Keowee-Toxaway project. The Crescent Land and Timber Corporation is primarily involved in timber production.

The Eastover Land Company and the Eastover Mining Company were organized in the early 1970s to manage Appalachian coal reserves and to produce low sulfur coal for steam generation. The Eastover Land Company holds title to more than 30,000 acres in Virginia and Kentucky with reserves of about 235 million tons of recoverable coal. The Eastover Mining Company produced about 2.1 million tons of coal in 1979, thus supplying 14 percent of Duke's total coal requirements.

Western Fuel, Incorporated was formed in 1978 to engage in uranium exploration and mining. Using a newly developed method, commercial production of uranium ore was scheduled to begin in 1980. (Moody's, 1977:623; Duke Power Statistical Supplement, 1969-1979, 1979:15.)

Duke Power Company was a partner (34 percent) with three other southeastern utilities in CVNPA, a nonprofit corporation that operated the experimental 17,000 kW nuclear steam generating plant at Parr, South Carolina. This plant produced electricity from 1963 until it was decommissioned in 1967. (Moody's, 1977:625.) The utility is heavily committed to nuclear-powered steam generation; a total of 13 units are in operation, under construction, or designated for future construction. In addition to the

three units at the Oconee station, the following projects are in progress: McGuire, 2 units; Catawba, 2 units; Perkins, 3 units; and Cherokee, 3 units. The McGuire and Catawba projects are near completion, but the construction schedules for Perkins and Cherokee have recently been adjusted and the final outcome for these two sites is unclear. The original target dates (late 1980s to the mid-1990s) will probably not be met. (NUS, 1979:20-22; Duke Power Company, personal communication, 1980.)

### **2.3.2 Service Area**

Duke Power Company provides service to central North Carolina and western South Carolina as shown in Figure 2-2. The company service area (approximately 66 percent of which is in North Carolina) covers about 20,000 square miles with an estimated population of 4 million. The area, known as the Piedmont Plateau, has a high degree of industrialization and is noted for its tobacco goods as well as its textile, chemical, and furniture production. In the past few decades, considerable industrial diversification has taken place.

Duke supplies retail electrical service to more than 200 cities, towns, and unincorporated communities. About 17 percent of the company's electrical energy production is sold to wholesale customers, including 37 municipalities, co-ops, and rural electrical systems. (Moody's, 1977:523-625; Duke, 1979:1,10-11.)

### **2.3.3 Generating Capacity**

As of 31 December 1979, the generating capacity of Duke Power Company totaled 12,048 megawatts (Mw). Of this, the nuclear-fueled capacity of 2,580 Mw (21.4 percent) was supplied entirely by the 3-unit Oconee Nuclear Station. In terms of actual net generation, the Oconee station produced 26.1 percent of the system's power during 1979, down somewhat from the 1978 rate of 30 percent. Coal accounted for 68.5 percent of the 1979 electric energy production, and hydroelectric power contributed 5.1 percent. Oil and gas were used for only 0.3 percent of the total 1979 electric energy production.

## **2.4 The Project**

### **2.4.1 The Project Site**

The station site and its surrounding 1-mile-radius exclusion area cover about 2,000 acres. The property is owned by Duke Power Company, except for a highway right-of-way, a small rural church lot, and less than 10 acres which are part of the United States Army Corp of Engineers' Hartwell Project. The siting of the station was part of the

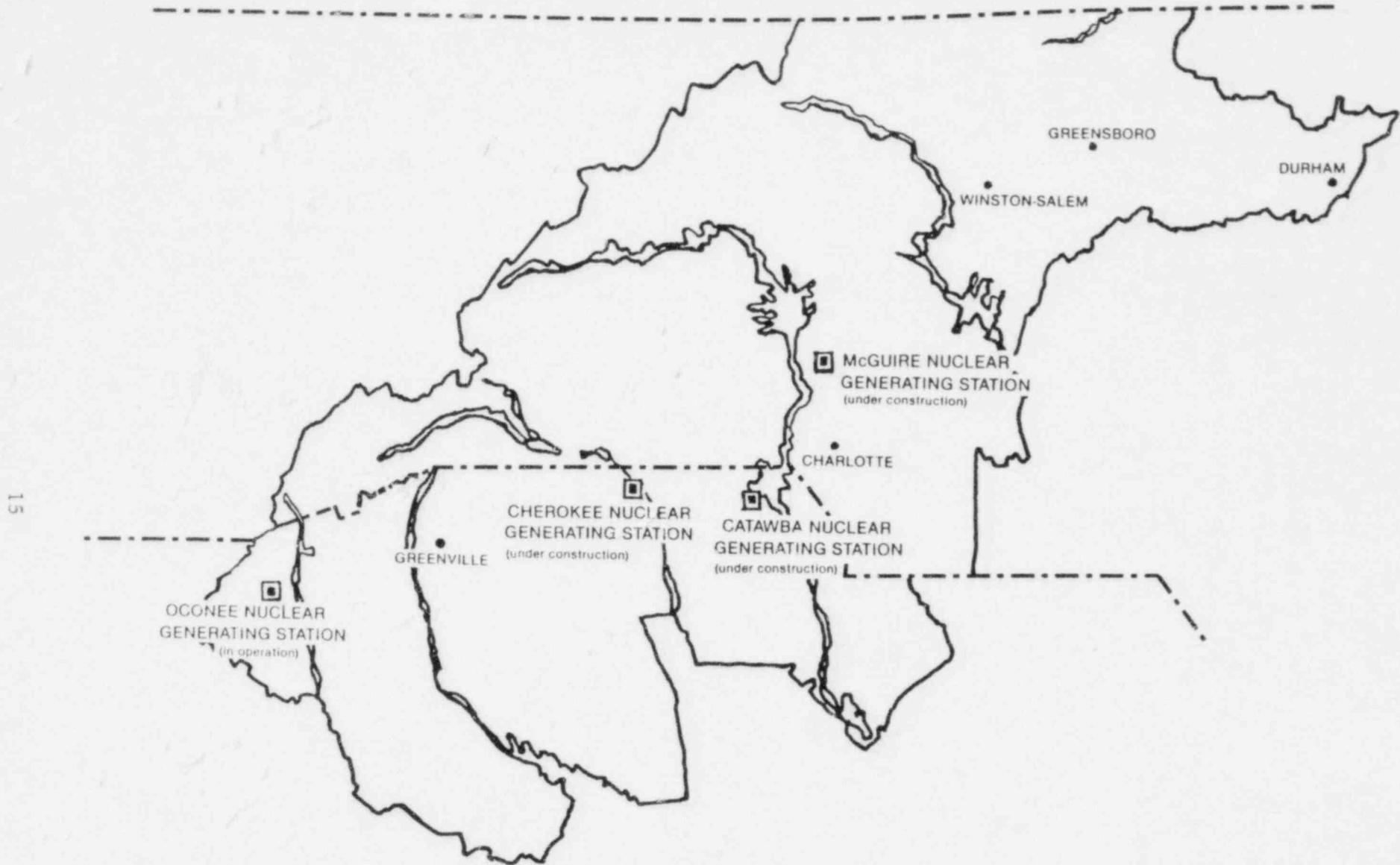


FIGURE 2-2. DUKE POWER COMPANY SERVICE AREA

■ NUCLEAR GENERATING STATION

● Urban Area

corporate decision to proceed on the larger Keowee-Toxaway project, which included the creation of two lakes, Lake Keowee and Lake Jocassee. The total land acquired for the project was 157,000 acres, of which 26,000 acres were flooded to form the lakes (NRC, 1972:9-13). A total of 140 Mw of hydroelectric power can be generated from the two power houses at Lake Keowee and used for peaking purposes. Lake Jocassee is a pumped-storage facility with a 305 Mw peaking power capacity. The construction of the Oconee Nuclear Station was possible because Lake Keowee could provide adequate cooling water for the project; this was the chief purpose of the lake construction. Duke Power Company officials estimate that Lake Keowee would provide adequate cooling for 7,000 Mw of steam generation.

#### 2.4.2 The Plant

Duke Power Company served as its own prime contractor in constructing the Oconee units. Bechtel was an engineering consultant, especially on Unit 1 (Duke, personal communication, 1980). The units were pressurized water reactors designed and built by Babcock and Wilcox Company. General Electric supplied the turbine generators for all 3 units, which were rated at 860 Mw. (NUS, 1979:20.)

The station has a once-through cooling system, using water from Lake Keowee. There are no cooling towers at the site. To integrate the plant into the company distribution system, about 330 line-miles of 230 kV and 500 kV lines were constructed. Five right-of-way paths, varying from 150 to 270 feet in width, were utilized. The Keowee-Toxaway project used approximately 7,800 acres for transmission line right-of-way.

### 2.5 Construction

#### 2.5.1 Announcement

The formal announcement of Oconee Nuclear Station Unit 1 (ONS-1) and Unit 2 (ONS-2) was made at Clemson House on 8 July 1966; Unit 3 (ONS-3) was announced on 1 May 1967 (NUS, 1979:20; Duke, personal communications, 1979). The estimated 1966 cost of the Oconee station was \$207 million for the first 2 units (Keowee Courier, 13 July 1966). With the addition of ONS-3 in 1967, Duke estimated the cost at about \$300 million (Duke, personal communication, 1979). The announcement that the steam generating station would be nuclear powered was not unexpected. The Keowee-Toxaway project had been underway since 1965, and the only question about the steam generating units was whether they would be coal or nuclear fueled.

### 2.5.2 Schedule and Cost

Work on the station site began in May 1967, ten months after ONS-1 and ONS-2 were announced. This was shortly after the 1 May 1967 announcement of ONS-3. Construction permits for all three units were issued on 6 November 1967. The three units went into commercial operation during an eighteen-month period: ONS-1 on 16 July 1973; ONS-2 on 9 September 1974; and ONS-3 on 16 December 1974 (NUS, 1979:20). The final cost of the Oconee Nuclear Station was just under \$500 million. The cost and time overruns were attributed to construction delays, regulatory requirements, design modifications, and inflation. (Duke, personal communication, 1979.)

### 2.5.3 Construction Period Work Force

The construction work force peak was reached in August 1971 when more than 2,700 workers were on site (Duke, 1979; NRC, 1972:165). Aside from the equipment manufacturers and a few engineering consultants from Bechtel, all workers were Duke employees. Table 2-1 shows the average annual construction employment charged to the project by the company for the years 1967 to 1974. The peak construction year was 1971, when an average of 2,347 workers were on site. Average annual employment for both construction and operations workers from 1967 to 1979 is shown in Figure 2-3.

Construction workers at the Oconee Nuclear Station site were hired as regular full-time Duke employees. The job was a nonunion project; the earliest record of a vote on the question of unionization at the site was in November 1968 when the union was voted down 453 to 65: a 7 to 1 margin (Keowee Courier, 20 November 1968). Duke officials estimated that it employed as many as 10,000 individuals on the project. The company hired people with all levels of skills, attracting as many experienced construction workers as possible. An area-wide advertising campaign was undertaken to obtain skilled workers. Duke also provided extensive on-the-job training and special classes and training sessions for certain crafts. Welders were always in short supply, and the company trained and certified hundreds of them, some of whom were later recruited by other contractors in the southeastern region of the United States. It was considered one of the responsibilities of the supervisory personnel to recognize and develop the skills of the most promising workers. Thus, many skilled workers were developed in the process of building the station.

TABLE 2-1

OCONEE CONSTRUCTION WORK FORCE  
 AVERAGE ANNUAL EMPLOYMENT  
 1967-1974

Year	Average Annual Employment
1967	144
1968	466
1969	1,276
1970	2,108
1971	2,342
1972	2,175
1973	1,735
1974	488

Source: Duke Power Company, File Documents, 1979.

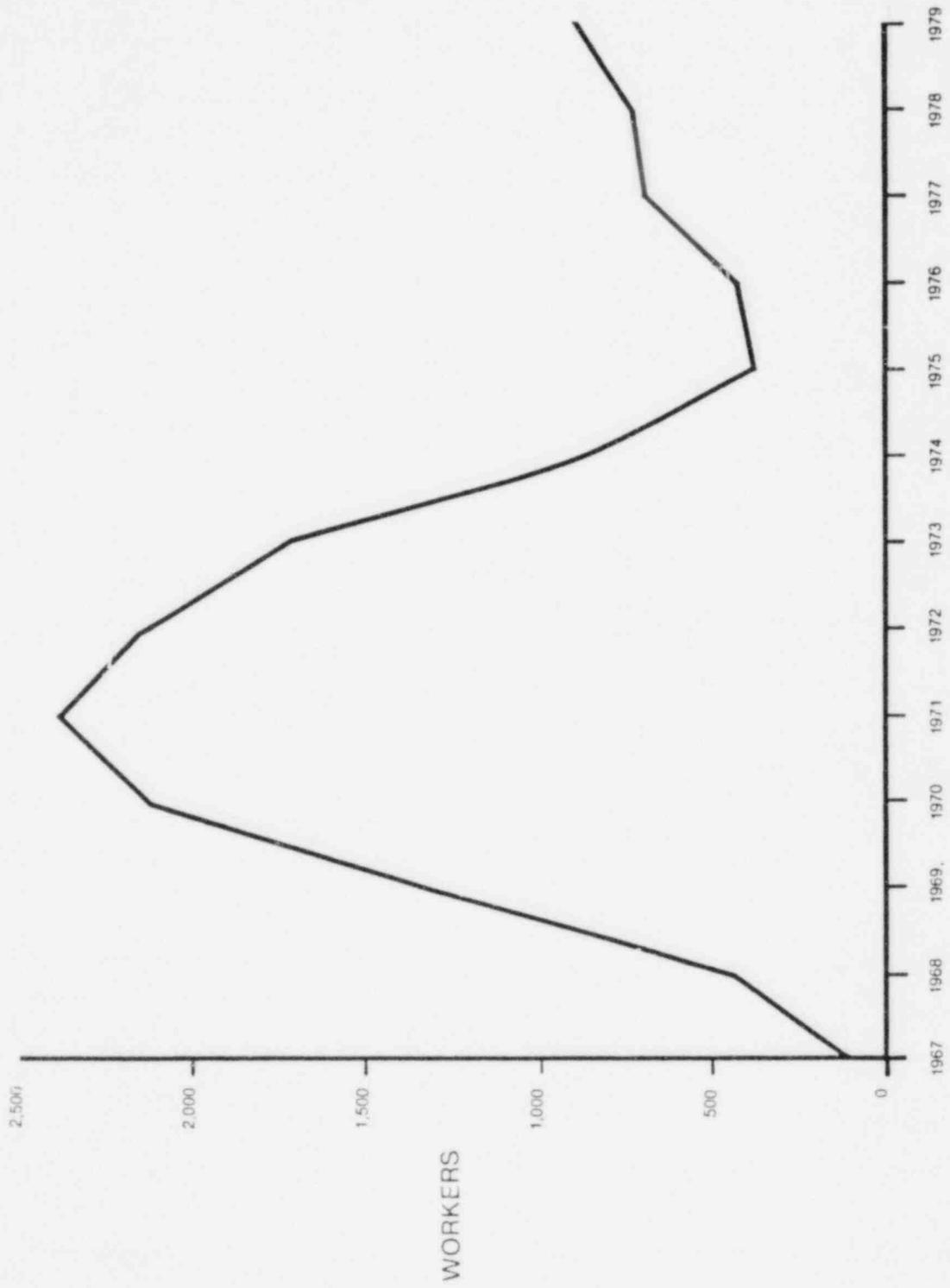


FIGURE 2-3. Average Annual Employment for Construction and Operation, Oconee Nuclear Generating Station, 1967- 1979.

The cadre of construction supervisors came from people having prior experience at Duke, especially from the Marshall Plant at Lake Norman, North Carolina, where work on units 3 and 4 was completed in 1969 and 1970, respectively. The company provided on-site quarters for 150 workers, mostly long-time employees who were weekly commuters. There was also a "mess hall" that served 600 to 700 people per day.

The great bulk of workers lived off site, many commuting daily from their homes in North Carolina and Georgia and from somewhat distant locations in South Carolina. Duke construction people estimate that about 70 percent of the work force was hired locally and that 30 percent transferred to the site or moved into the area to take on-site jobs.

The construction work force was predominantly Anglo-Saxon Protestant. The company attempted to recruit minorities with a goal of obtaining 9 percent. The highest ratio of minorities actually employed was 5.2 percent, however, and the average for the construction period was 4.3 percent. Of this, less than 1 percent of the work force was Native American. Duke is an equal employment and affirmative action employer (Duke, personal communication, 1979).

#### **2.5.4 Construction Experience**

The Oconee Nuclear Station was built as a part of the larger Keowee-Toxaway project on a site near the Lake Keowee dam. Excavation and site work at the station began in 1967 and was coordinated with the progress of the Keowee hydro project, which was under construction and went into commercial operation on 17 April 1971 (The Greenville News, 22 August 1975). Some water impoundment resulted from building the coffer dams (1967-1968), but the actual filling of Lake Keowee was not completed until 1971.

The Oconee Nuclear Station Visitors' Center was begun in 1968 and opened in the summer of 1969. Since then, more than 1.5 million people have visited the center, which continues to operate as an information center and, to a limited degree, as a community meeting place.

Following the preliminary site work, construction of the station proper began in late 1967; the construction permits for all three units were issued on 6 November 1967. There was a protest by a group of wholesale customers (the Piedmont Electric Cities,

Incorporated) against granting the licenses solely to Duke Power Company. The intervener, a North Carolina nonprofit corporation representing eleven municipal electrical distribution systems, wished to limit Duke's control of wholesale electrical power distribution by obtaining a vested interest of 4 percent in the Oconee Nuclear Station project (NRC, Docket 50-269, 50-270, 50-287, Category A, 3 November 1967). This petition was denied, and the Atomic Energy Commission (AEC) license for all three units was issued on 6 November 1967 to Duke Power Company, which remained the sole owner of the facility.

There were no interruptions or slowdowns of construction work due to labor disputes. The project was a nonunion job, and the majority of the construction work force was hired as regular Duke employees. Many of the workers continued to work for the company at other construction sites following the completion of the Oconee project.

Duke Power Company listed three significant construction delays which, added together, resulted in an approximate eighteen-month lag in the project schedule. A series of delays were caused by reactor coolant pump problems in 1970 and 1971. This was most serious for ONS-1, which was the prototype reactor of the Babcock and Wilcox design. Although construction work was performed around the problems, there were still substantial delays of probably at least five months duration (Duke, personal communication, 1979).

An incore tube failure in the reactor vessel resulted in an approximate eight-month delay in 1972 (Duke, personal communication, 1979; NRC Docket, letter—Duke to AEC, 4 April 1972). Delays of about five months resulted from reactor coolant pump oil fires in 1972 and 1973 (Duke, personal communication, 1979; NRC Docket, letters, 26 January and 4 May 1978).

#### 2.5.5 Keowee-Toxaway Project

The construction of the Oconee Nuclear Station was part of the larger Keowee-Toxaway project that included the dams and hydroelectric facilities of Lake Keowee and Lake Jocassee. Lake Keowee provides the source of cooling water for the operation of the Oconee Nuclear Station in addition to supplying hydroelectric power. Lake Jocassee is a pumped-storage facility and is used exclusively for peak-period electric power generation.

Much of the construction for these dams and power houses took place at the same time as work was being done on the Oconee Nuclear Station. In this case study, the description of the Oconee project has been limited, as much as possible, to the effects of the station itself. The employment, income, and revenue effects could be distinguished to a large degree because the Duke Power Company accounting system separated them. It should be understood, however, that the scope of the total Duke activities was larger than that of the nuclear station. Data on the Keowee-Toxaway project are introduced when necessary to explain the context of the socioeconomic effects.

Much of the machine-intensive work associated with excavation, clearing, and construction of the dams, lakes, and power houses was done by contractors. Duke also did a considerable amount of construction work utilizing company personnel. A detailed analysis of the work force involved in these activities was not attempted for two reasons. First, resources allocated for each case study did not include sufficient funds to undertake the additional tasks. Second, the comparison of Oconee with other sites required station-specific data.

The Keowee-Toxaway power generating complex was honored with the Edison Award by the electric industry. The American Society of Civil Engineers named the project as the Outstanding Civil Engineering Achievement for 1975.

## 2.6 Operations

### 2.6.1 Schedule and Costs

The commercial operation of ONS-1 began on 16 July 1973; ONS-2 went on line 9 September 1974; and ONS-3 followed in a few months, going into operation on 16 December 1974 (NUS, 1979:20). Duke officials estimated that the production cost for 1977 was \$58 million, including \$33 million for nuclear fuel (Duke, personal communication, 1979; Duke, 1969-1979, 1980:12-13). Taxes, an additional expense, were paid to Oconee County in the amount of \$3.7 million for the fiscal year 1977-1978. There was no state property tax, and the plant is not within the jurisdiction of any other taxing authority.

### 2.6.2 Operating Phase Work Force

The operations work force increased from 401 in 1974 to 833 in 1979. Table 2-2 shows the average annual figures. These figures include Duke personnel plus contract workers for security, janitorial and food services, and regular refueling. It does not include new construction at the site.

TABLE 2-2

AVERAGE ANNUAL OPERATING WORK FORCE  
OCONEE NUCLEAR STATION  
1974-1979

Year	Work Force <sup>a</sup>
1974	401
1975	462
1976	482
1977	633
1978	747
1979	833

<sup>a</sup>Includes both Duke employees and contract personnel—security, janitorial, maintenance, etc.

Source: Duke, personal communications, 1979, 1980, and 1981.

### 2.6.3 Operating Experience

The operating record of the station has been good, with the major problems being related to steam generator leaks during 1976 and 1977. During that period there were 12 leaks, including 8 in 1977 (Charlotte Observer, 25 September 1978). These leaks apparently resulted from a valve-testing procedure which was modified in 1977. Only two steam generator leaks were reported in 1978.

The most serious adverse operating incident occurred in January 1977 when about 50,000 gallons of radioactive contaminated water escaped from the Oconee Nuclear Station and was washed into the Keowee River-Lake Hartwell system. Some of the contaminated water was taken into the Clemson University water supply system, although state health officials reported that the levels of iodine-131, cesium, and cobalt were "not of significant levels to present a danger to public health" (Greenville News, 12 February 1977). Duke Power Company spokespersons later admitted that it had been a mistake not to notify the public about the spill (Greenville News, 6 March 1977). The utility eventually paid a fine of \$16,000 imposed for a number of violations including one that led to the spill (Anderson Independent, 15 June 1977). One outcome of the spill and the resulting publicity was the formation in the Clemson area of a local antinuclear group, "People for a Clean Environment."

During 1978, Duke Power Company proposed to make 420 shipments of nuclear waste from the Oconee Nuclear Station to storage at its McGuire Nuclear Station near Charlotte, North Carolina. The McGuire station was about 75 to 80 percent complete at the time and had finished construction of its spent-fuel storage facilities. The shipments were proposed for the 1979 to 1981 period. The plan resulted in a number of hearings and meetings, including presentations to numerous local boards and commissions by Duke personnel. At the time of the study, no shipments of waste materials had been made. The utility had, however, modified the storage of spent fuel and had not abandoned plans to move some waste in the near future (Duke, Public Relations Dept., personal communications, 1981).

Questions about station security were raised in 1978 and resulted in a 1979 NRC report which found the station in full compliance with the agency's security norms. The report did note a number of infractions which Duke Power Company spokespersons reported had been corrected. (Greenville News, 26 September 1979.) Security forces, equipment, and procedures have been upgraded repeatedly during the operation of the plant in order to meet changing NRC guidelines.

The post-TMI period resulted in a number of modifications to the station, including upgrading of plant equipment, control facilities, personnel, and personnel training. The eventual costs for these changes may amount to as much as \$60 million when completed (Duke, Engineering Department, personal communications, 1980 and 1981).

## 2.7 Taxes

Oconee County receives the bulk of the taxes paid by Duke for the Oconee Nuclear Station. The State of South Carolina requires an appraisal ratio of 10.5 percent of assessed valuation for industry. The assessment is based upon actual construction costs less exemptions and depreciation. Industrial facilities can be exempt from taxation for a period of five years after the start of construction; however, they become tax liable when they begin commercial operation. The Oconee Nuclear Station exceeded the five-year exemption during construction and became liable for taxes on ONS-1 in 1973 for the 1974 tax year. ONS-2 and ONS-3 went into commercial operation in 1974. In 1976, pollution-control facilities and equipment were exempted from all property taxes. Taxes paid for the station to Oconee County for the tax years 1974 to 1978 are shown in Table 2-3.

## 2.8 Corporate/Community Programs

### 2.8.1 Emergency Planning

Duke Power Company has made a number of agreements with local, state, and federal agencies as part of the emergency planning for the Oconee Nuclear Station. The most essential agreements have been made with local police and fire agencies, the Oconee Memorial Hospital, local county Civil Preparedness offices, and state emergency response agencies such as the South Carolina Highway Patrol and the South Carolina Department of Health and Environmental Control. Altogether, agreements exist with more than a dozen public agencies.

The emergency plan was originally adopted before the commencement of operation of ONS-1. It was revised and updated several times after that, most notably in 1979 after the Three Mile Island accident. Following the accident, consideration of a more effective evacuation process was undertaken, both by the counties and the Joint Legislative Committee on Energy (Charlotte News, 5 October 1979). The NRC established a deadline of 1 July 1981 as the date for a completed evacuation plan for the Oconee Nuclear Station (Greenville News, 28 August 1980).

TABLE 2-3

OCONEE NUCLEAR STATION  
 TAXES PAID TO OCONEE COUNTY  
 1974 to 1978

Year	Property Tax
1974	\$1,549,166
1975	3,469,857
1976	3,541,725
1977	3,517,830
1978	3,688,605

Source: Duke Power Company, personal communications, 1979 and 1980.

### 2.8.2 Visitors' Center

The Oconee Visitors' Center was opened in July 1969 and has proven to be a very popular tourist attraction. More than 1.5 million people visited the facility between 1969 and early 1981. Many of the programs presented at the center are especially designed for school classes, and the center staff maintains close contact with school personnel in the region.

### 2.9 Chronology of Major Events

The chronology of major events is shown in Table 2-4.

**TABLE 2-4**  
**CHRONOLOGY OF MAJOR EVENTS**  
**OCONEE NUCLEAR STATION**

Date	Event
2 January 1965	Announcement of Keowee-Toxaway project, including construction of Lake Keowee and Lake Jocassee
1 December 1966	Application to AEC for construction permits for ONS-1 and ONS-2
3 May 1967	Application to AEC for construction permit for ONS-3
11 November 1967	Construction permits issued for all three Oconee units
— August 1971	Peak on-site construction work force of 2,762 recorded
6 February 1973	Operating license issued for ONS-1
16 August 1973	Commercial operation begins for ONS-1
6 October 1973	Operating license issued for ONS-2
19 July 1974	Operating license issued for ONS-3
9 September 1974	Commercial operation begins for ONS-2
16 December 1974	Commercial operation begins for ONS-3
17-18 January 1977	Accidental release of radioactive effluents into Hartwell Reservoir
13 June 1977	Duke fined \$16,000 by NRC for noncompliance with operating requirements, citing the January 1977 "spill"
18 May 1979	NRC approved continued operation of Oconee Nuclear Station following changes in equipment, training, and operations in the wake of the TMI accident

## CHAPTER 3: IDENTIFICATION OF THE STUDY AREA

### 3.1 Introduction

Chapter 3 describes the region where the Oconee Nuclear Station is located and designates the study area for the remainder of the case study. Three direct project effects are traced: the residential location of workers, the places where purchases for the project were made, and the political jurisdictions that received the tax revenues. There were two major considerations in selecting the study area: the direct effects of the project must have been great enough to identify and study; and the area must correspond as much as possible to the spatial boundaries of functional social and economic systems that operate in the region.

The preliminary site visit examined a six-county region which has been designated as the Appalachian Region of South Carolina (Mountain West Research, Inc., 1979). The western portion of this region, known locally as the tri-county area, was discussed in some detail. The distribution of direct project effects was calculated for two periods: 1971, the peak construction year, and 1978, a year of full-scale commercial operation. The direct effects of the project during these representative periods were analyzed in terms of their scope, magnitude, and distribution. They were compared to social and economic structures of the six-county region and served as the basis for selecting the study area.

### 3.2 The Region

#### 3.2.1 Description of the Region

The tri-county region shown in Figure 3-1 was examined and described in the preliminary study of the Oconee Nuclear Station. The area included Oconee, Pickens, and Anderson counties. Anderson, South Carolina, the largest city in the tri-county area with a population of about 30,000, is 21 miles south of the site. The major nearby SMSA is the Greenville-Spartanburg area, about 30 miles east of the station. The population of this SMSA is in excess of 250,000 (South Carolina Statistical Abstract, 1976:10).

The area immediately surrounding the Oconee Nuclear Station is rural and recreational in character with only a few small villages and hamlets located near the site. The estimated 1970 population within 6 miles of the station was 3,400. Seneca, South Carolina, a city of approximately 7,000, is about 8 miles to the southwest of the site. (AEC, 1970.) Historically, the economic base of the immediately surrounding regions has been agriculture, timber, and textiles.

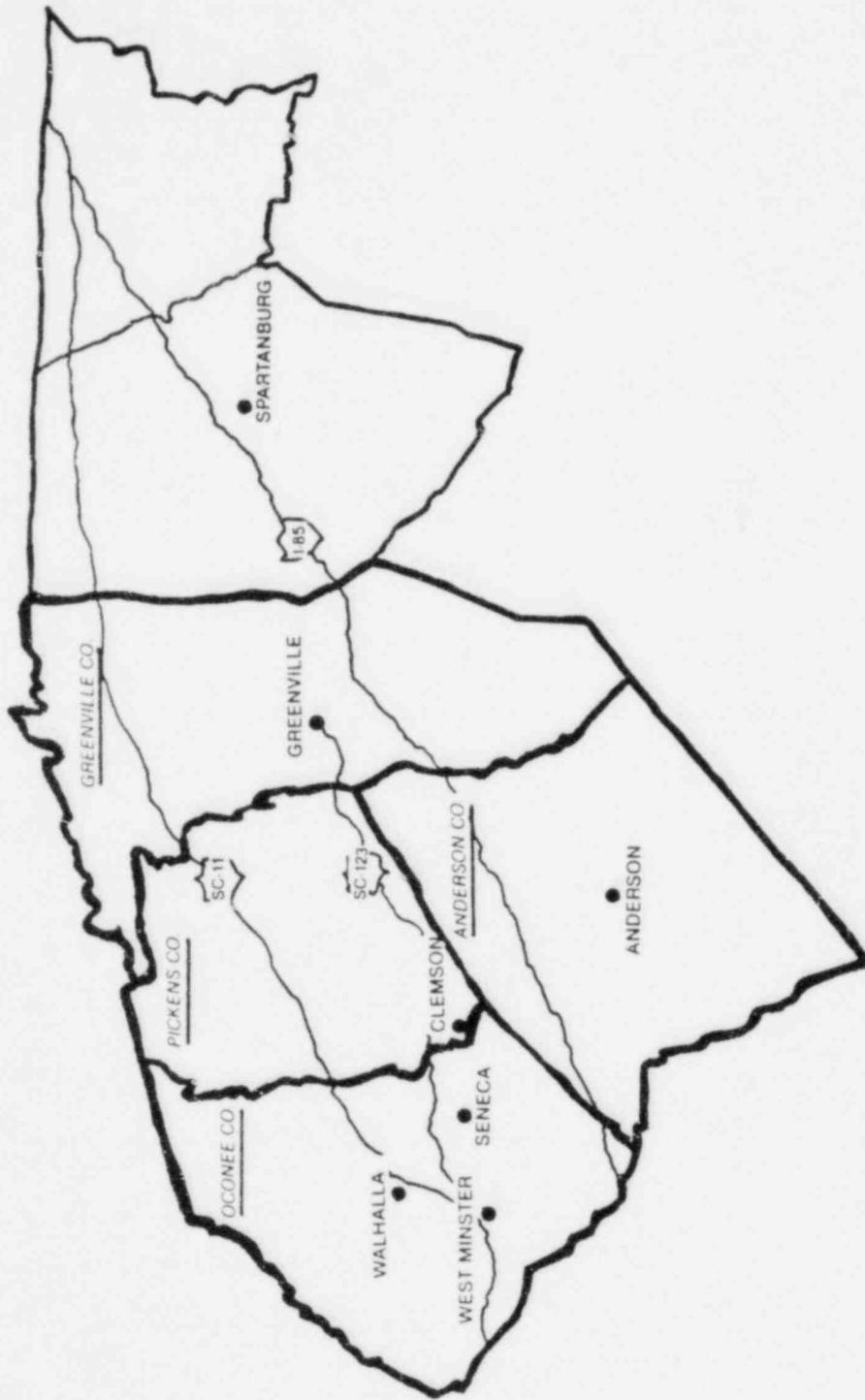


FIGURE 3-1. STUDY REGION: FOUR COUNTIES IN NORTHWESTERN SOUTH CAROLINA

● Urban Area

The county populations in the tri-county area at the time of the 1970 census were: Anderson County—105,474; Pickens—58,956; and Oconee—40,728. In the 1960 to 1970 period, Pickens County grew at an average annual rate of 28 percent, while Anderson's rate was about 0.7 percent, and Oconee's rate was only 0.1 percent. The City of Anderson declined in population, and the growth in Pickens County was mainly the result of expansion from the Greenville SMSA, which was one of the fastest growing areas of South Carolina during that decade. Expansion of Clemson University and Pickens County's annexation of a small part of Oconee County also contributed to the growth rate of Pickens County. Overall, the tri-county area did not experience significant growth during the period preceding the Duke Power Company Keowee-Toxaway project.

Transportation in the area includes both rail and highway facilities. The establishment of the rail system in the late nineteenth and early twentieth centuries determined the location of several towns including Seneca, the largest city in Oconee County. The highway system has been changed and upgraded in the last two decades. The completion of the major interstate roads (I-85 and I-26 meet near Greenville) has been accompanied by significant growth in the trucking industry. In the area immediately surrounding the Oconee Nuclear Station, the road system was extensively rebuilt to allow for the creation of Lake Keowee. In addition, South Carolina Highway 11 (SC-11) is a modern, scenic 2-lane road which provides an alternative tourist route through Oconee County. South Carolina Highway 123 (SC-123) is a major 4-lane road which links the Seneca area with Pickens County and Greenville. The Oconee County Airport accommodates private planes and is located 6 miles east of Seneca. Commercial service by Eastern and Republic airlines is provided to the Greenville/Spartanburg Jet-Port about 47 miles from Seneca.

### **3.2.2 Identification of Places within the Region**

Although a number of areas and towns were considered, the information on the location of workers, purchases, and taxes led to examination of sub-county areas only in Oconee, Pickens, Anderson, and Greenville counties. Communities in Georgia and North Carolina supplied some of the construction work force, but the numbers were not great enough to include these areas in detailed analyses.

As shown in Table 3-1, Greenville County accounted for more than 19 percent of the peak construction work force (450 workers) of which almost half (200 workers) came

TABLE 3-1

OCONEE NUCLEAR STATION WORK FORCE  
BY PLACE OF RESIDENCE  
1971

Location	Number	Work Force Percent of Total Work Force
Oconee County	595	25.4
Seneca (260=11.1%)		
On-site (150=6.4%)		
Other (185=7.9%)		
Pickens County	220	9.4
Anderson County	225	9.6
Greenville County	450	19.2
Greenville City (200=8.5%)		
Georgia	360	15.4
North Carolina	210	9.0
South Carolina (not listed)	235	10.0
Other	<u>47</u>	<u>2.0</u>
TOTAL	2,342	100.0 <sup>a</sup>

<sup>a</sup>Totals may not add due to rounding.

Sources: Duke, personal communications, 1979, 1980, and 1981; Key informant interviews, 1979, 1980, and 1981.

from the City of Greenville. In addition, Duke Power Company made regular purchases of small, readily available hardware items and standard construction materials in the city of Greenville. A large truck made the trip from the site to Greenville several times a week, and Duke employees estimated that these local purchases could have ranged from several thousand dollars a year to a couple of hundred thousand dollars a year during the construction period. (Duke, Purchasing Department, personal communication, 1979.) The large population of the Greenville area and the massive amount of ongoing business activity made the effects of the Oconee Nuclear Station untraceable in the larger context of socioeconomic activity.

Pickens County, which includes the City of Clemson, was the residential location of more than 9 percent of the peak construction workers (see Table 3-1) and almost 27 percent of the operations work force as shown in Table 3-2. It did not experience any significant purchases, and the only tax revenues it received were from the hydroelectric portion of the Keowee-Toxaway project, not from the Oconee Nuclear Station. Anderson County had about 9.6 percent of the construction work force and 10.6 percent of the operations work force; it did not receive any direct tax revenues from the Oconee Nuclear Station.

Oconee County accounted for the greatest proportion of the work force residential location during both the construction period (25.4 percent) and the operation period (58.5 percent). Duke's purchases of goods and services were quite small and do not appear to have affected the county economy. Taxes, however, were substantial, and in 1978 the revenues from the Oconee Nuclear Station were almost \$3.7 million dollars—roughly 28 percent of the total county budget of \$13.1 million.

Oconee County proved a likely choice for the study area due to the distribution of workers and the tax revenues. An area of special concern is the town of Seneca, which is the nearest sizable community to the nuclear station. While some effects might be traced in Pickens County, perhaps most clearly in the City of Clemson, the limited resources allocated to the case study were concentrated on an in-depth analysis of Oconee County. It should be noted, however, that there are close ties between the Clemson area in Pickens County and the Seneca area in Oconee County.

TABLE 3-2

OCONEE NUCLEAR STATION WORK FORCE  
BY PLACE OF RESIDENCE  
1978

Location	Operations		Contract		Refueling	
	Number	Percent <sup>a</sup>	Number	Percent <sup>a</sup>	Number	Percent <sup>a</sup>
Oconee County	321	58.5	58	61.0	11	10.6
City of Seneca <sup>b</sup>	199		36		7	
Pickens County	147	26.8	27	27.9	93	89.4
Anderson County	58	10.6	10	11.1	—	—
Greenville County	4	1.0	—	—	—	—
State of Georgia	7	1.3	—	—	—	—
Other	11	2.0	—	—	—	—
TOTAL <sup>c</sup>	548	100.0	95	100.0	104 <sup>d</sup>	100.0

<sup>a</sup>Total may not add exactly due to rounding.

<sup>b</sup>Number of workers is included in Oconee County figure.

<sup>c</sup>Total on-site employment, 1978: 747.

<sup>d</sup>Three units times 45 days times 200 workers times 8 hours per day divided by 2,080 hours (average annual employment) equals 104 average annual workers.

Sources: Duke, personnel records, 1979; Duke Worker Survey, 1978; Duke, personal communications, 1979, 1980, and 1981; Key informant interviews, 1980, and 1981.

### 3.3 Distribution of Workers

#### 3.3.1 Introduction

The allocation of workers to the local areas makes it possible to estimate the size of the effects relative to the size of the areas in which they occurred. Both employment and income are considered to be important effects in themselves and the causes of further, secondary effects.

Two time periods were used in evaluating the employment and income effects: the peak construction period and a full-scale operation period. The differences between these periods are noticeable in the number of workers, residential patterns, wages, and project workers commitments to the local communities. Because no recorded data were available to show where the construction personnel lived, information on this subject was obtained through interviews with key informants, including workers employed on the site during the construction phase. These interviews focused on the peak construction year, 1971. The 1978 residential location of operations workers was supplied by Duke from its survey records; estimates for contract employees (security, janitorial, and temporary) were based on interviews with key informants. The year of commercial operation that was focused on was 1978.

#### 3.3.2 Peak Construction, 1971

The distribution of workers (see Table 3-1) was influenced by several factors. The project was a nonunion job, and Duke served as the prime contractor for the construction. Many of the supervisory, engineering, and administrative personnel were sent to the site from other projects, but the majority of the construction workers were hired at the site. The company provided on-the-job training, and for some crafts, especially welders, instructional programs were set up. The construction workers were hired as regular Duke employees, and many of them still work for the company at other construction sites. There was a turnover in the workers, and one key informant estimated that for the entire term of the construction period as many as 8,000 to 10,000 individuals may have been employed by Duke. These figures would include the summer hiring of Clemson University students and the fluctuations in the number of long-distance daily commuters due to varying economic conditions in the region. For the most part, however, the wage rate paid by Duke was at the top of the scale for the region, and there was a large supply of potential workers.

The number of in-migrants to the area appears to have been minimized due to the local hiring practice. Workers commuted daily from some distances, and the project employed an unusually large proportion of workers from the immediately surrounding areas. The company provided on-site bachelor quarters for about 105 workers. These were largely used by weekly commuters. Although other people did move into the local communities, their number was relatively small and does not appear to have put an unusual strain on housing or public services.

### **3.3.3 Operations Period**

The residential location of the operations work force for 1978 was provided by Duke (see Table 3-2). In addition to the 548 personnel directly employed by Duke for operations, the utility contracted 47 security workers and 48 janitorial employees in 1978. Refueling normally required about 200 additional people for six weeks for each unit per year. Although this works out to 69 workers on an average annual basis, in 1978 the average annual refueling and maintenance work force was 104 workers.

### **3.4 Distribution of Purchases**

Almost all purchases associated with the construction and operation of the station were made outside the local region. Some standard construction materials were purchased in the Greenville SMSA, but these items only supplemented the major purchases. Since local and regional purchases for construction and operation of the station were quite small, in terms of the economic volume of the area, no significant employment or income effects could be attributed to local purchases for the Oconee project.

### **3.5 Distribution of Taxes**

Duke Power Company pays taxes for the Oconee Nuclear Station to Oconee County. The property was assessed at \$5.6 million for 1973, and this was increased to almost \$25 million for 1974 when all three units were in commercial operation. There have been gradual increases in the assessed value due to modifications at the station. The 1977 tax paid to Oconee County (received by the county in 1978) was about \$3.7 million, or 17.2 percent of the total county budget of \$13.5 million. The station does not pay any state property taxes, and it is not located within the jurisdiction of any municipality.

### 3.6 Selection of the Study Area

#### 3.6.1 The Study Area

The study area selected for the Oconee Nuclear Station case study was Oconee County, South Carolina. A detailed map of the study area is provided in Figure 3-2.

#### 3.6.2 Rationale

The distribution of the work force for 1971 showed that over 25 percent resided in Oconee County, including the 150 who lived at the on-site facilities. Greenville County, including the City of Greenville, accounted for 19 percent of the work force and Pickens and Anderson counties each had about 9.5 percent. Overall, the tri-county area provided almost 45 percent of the total work force. Commuters also came from Georgia, North Carolina, and other parts of South Carolina.

The significance of the construction work force was most noticeable in Oconee County since it had the smallest total population in the Appalachian region and was the residential location of the largest number of workers. Although Greenville County also had a large concentration of workers, the number was not significant because of the large population and the economic system which prevailed in the Greenville SMSA.

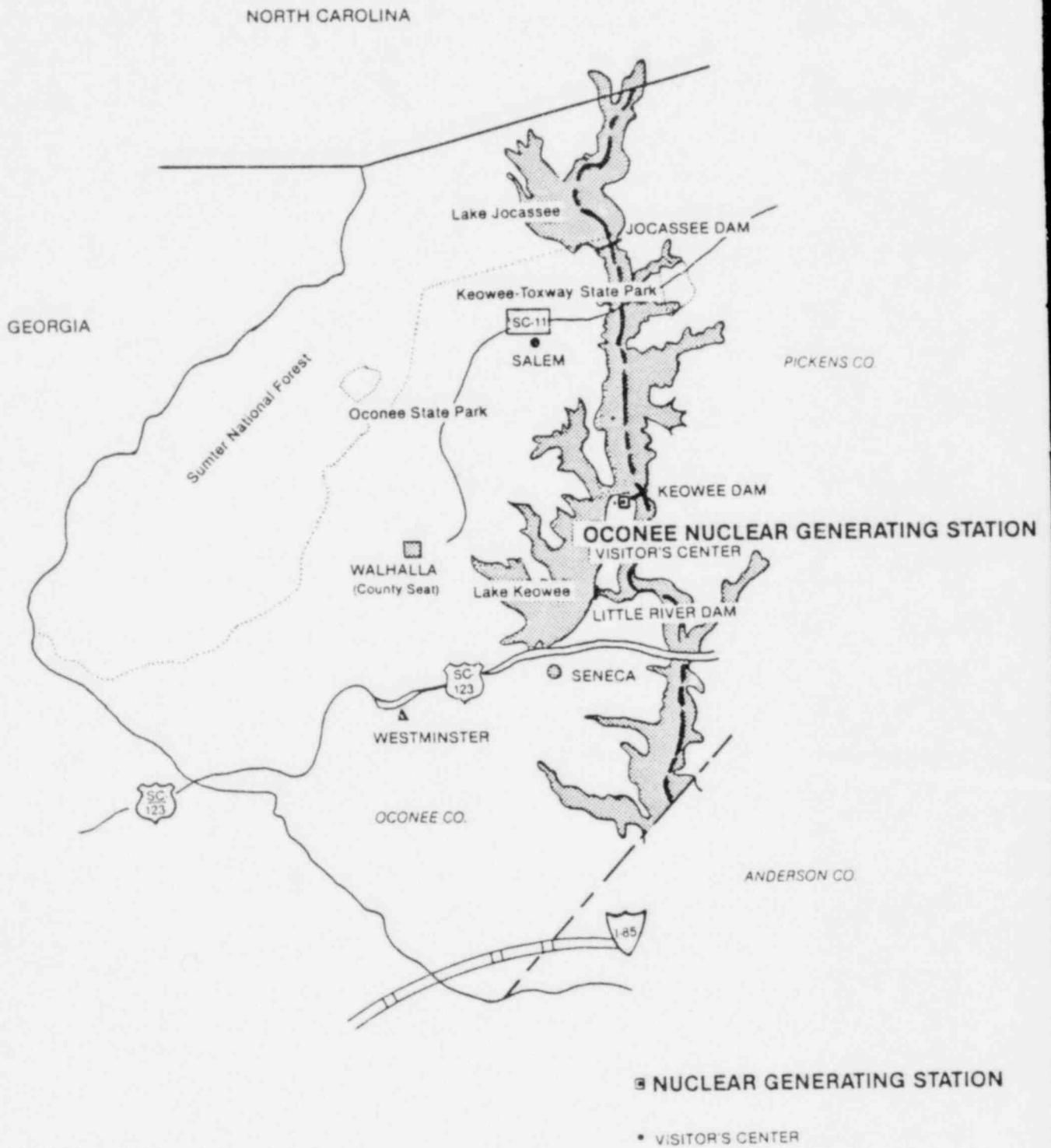
Although the purchases within the region were only estimated, no reports of a significant quantity of expenditures were recorded for the tri-county area. The purchases in the Greenville area were reported to be modest in terms of the plant requirements and small in terms of the economic activities of the Greenville SMSA. This variable was not a significant factor in determining the study area.

A clear distinction does result from consideration of the distribution of the tax revenues. Oconee County is the only local jurisdiction to receive significant tax payments. These payments began in 1974 (assessed for 1973) at over \$1.5 million. Taxes were increased to almost \$3.5 million in 1975 when payments were made for the assessed value of all three units. They have increased slightly since then due to changes at the station which have increased the plant valuation.

#### 3.6.3 Summary

Oconee County was clearly a potential study area due to the employment and tax effects. The remainder of the tri-county area, including Pickens and Anderson counties,

FIGURE 3-2. OCONEE NUCLEAR POWER STATION STUDY AREA:



was another possibility. However, the larger economic and population bases of these counties, along with the lack of tax revenues and purchases, made selection of the whole tri-county area less attractive than concentrating on Oconee County. Seneca, which is located in Oconee County and is the city nearest to the station, was another possible choice for a study area. It was not chosen because the tax revenues were paid to the county and were administered from the county seat at Walhalla. Also, the large rural population of Oconee County, which was involved in all aspects of the employment generated by the station, would not have been represented if the study area had been limited to Seneca. Finally, Oconee County exhibits a distinctive social, political, and economic unity that made it an interesting and productive choice as a study area, given the time/cost limitations of the study and the overall goals of the entire research project. Thus, Oconee County was selected 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 construction and operation of the Oconee Nuclear Station on the economy of Oconee County. In particular, changes in employment, income, and labor force status are emphasized. Efforts are also made to assess the impacts of the station on the standard-of-living of the county's residents.

The analysis begins with an overview of the economic history of the county. The historical discussion is oriented toward the major components of the economy—agriculture, manufacturing, tourism and related services, and local government.

A more detailed examination of changes that occurred in the economy of the Study Area over the 1967 to 1978 period is then made. This period begins slightly before the start of construction at the Oconee Nuclear Station and continues through the last year for which much of the relevant economic data were available. The discussion centers on 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 Oconee Nuclear Station.

The next sections of the chapter trace the employment and income effects associated with both the construction and operation of the station. The analysis of the construction effects centers on 1971 (the peak construction year), and the analysis of operations effects focuses on 1978 (the most recent year for which county economic data exist). The approach used in the case study identifies three categories of basic employment and income that together determine nonbasic employment and income. The chapter ends by first summarizing the station's effects on the local economy and then summarizing the effects on local residents.

### 4.2 Economic History of the Study Area

The area now known as Oconee County was once part of the Cherokee Nation in the decades preceding the Revolutionary War. With the coming of the colonists to the Carolinas, trade was established with the Cherokees in which thousands of deer skins and pelts were obtained and exported to England. In 1753, Fort Prince George was erected in the Keowee Valley and later became a trading post. The county was also known for its

fertile bottomlands which supported corn and peach trees. In the late eighteenth century, the Cherokees were driven from the area permanently (South Carolina Planning Division, 1970:3-4). Thereafter, a plantation economy, which lasted until the Civil War period, was established.

Following the Civil War, towns became more important as trade centers for the county's natural resources of lumber and food products (Industrial Statistical Abstract, 1978:2). The Town of Seneca was connected by rail to Charlotte and Atlanta in the 1870s under the authority of the Atlanta and Richmond Air Line Railway (South Carolina Community Planning Division, 1970:4). Thereafter, the area took on increasing and lasting importance as a milling center for both lumber and textiles.

Between 1950 and 1970, employment in the county grew from 4,339 jobs to a total of 17,680 jobs (an average of 1.4 percent per year). In addition, significant changes occurred in the composition of the work force. Table 4-1 shows the employment numbers and percentages by category.

The overall increase in total employment of 4,339 jobs between 1950 and 1970 can be largely accounted for by the increase of 1,194 jobs in construction and 4,570 jobs in manufacturing. With the exception of services, agriculture, and government, the employment shares of the other sectors also increased during the time period. The services sector, while growing in absolute terms between 1950 and 1970, declined in relative terms by 14.2 percent. There has been an abrupt and continuing decline in agricultural employment in the county. In absolute terms, agricultural employment declined by almost 3,000 jobs between 1950 and 1970. In addition, the agricultural sector greatly declined in importance in the local economy. The number of farms fell from 2,800 in 1950 to 1,045 in 1964, while the amount of farmland fell from 248,309 acres to 128,445 acres. However, the average size of farms increased from approximately 88 acres to 123 acres each. (Hammer, Greene, Siler Associates, 1971:23.)

The trade and services sectors of the county economy remained relatively undeveloped. In 1963, Oconee County residents had a per capita retail sales figure of \$850 (73.1 percent of the state figures of \$1,162); by 1967, the figure had risen to \$1,589 (64.3 percent of the state figure). This was primarily the result of purchases of goods and services outside the county and, to a lesser extent, the slightly lower per capita income of county residents. The local capture rate of potential retail expenditures was

TABLE 4-1

OCONEE COUNTY EMPLOYMENT  
BY PLACE OF RESIDENCE  
1950-1970

	1950		1960		1970	
	Number	Percent <sup>a</sup>	Number	Percent <sup>a</sup>	Number	Percent <sup>a</sup>
Agriculture	3,359	25.20	1,381	9.10	397	2.20
Mining	5	0.04	0	0	16	0.09
Contract Construction	726	5.40	869	5.70	1,920	10.90
Manufacturing	4,803	36.00	7,239	47.60	9,373	53.00
TCPU	327	2.50	349	2.30	732	4.10
TRADE	1,502	11.30	2,059	13.50	2,060	11.70
FIRE	93	0.70	169	1.10	266	1.50
Services	2,251	16.90	2,890	19.00	2,558	14.50
Government	275	2.10	255	1.70	358	2.00
TOTAL <sup>a</sup>	13,341	100.14	15,211	100.0	17,680	99.99

<sup>a</sup>Totals may not be exact due to rounding.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Employment by Industry, 1940-1970: Decennial Series for United States, Regions, States, Counties, 1975.

only 64.7 percent in 1963 and 66.7 percent in 1967. (Hammer, Greene, Siler Associates, 1971:19; South Carolina Division of Research and Statistical Services, 1977:9,85.)

The Oconee County economy prior to the construction of the plant was primarily involved in manufacturing. There were 9 textile plants accounting for over 66 percent of manufacturing employment in 1960 and slightly over 50 percent in 1970. In addition, there were 5 apparel producers, 5 metal-working firms, 1 rubber company, and 1 firm producing electrical machinery; these firms accounted for 30 percent of all manufacturing employment in 1970. Lastly, 5 major sawmills and several small custom mills produced over 32 million board-feet of lumber in 1970 and employed 350 people. The agricultural sector's main cash components included cattle, dairy products, and field crops such as apples (Hammer, Greene, Siler Associates, 1971:8-24).

In 1960, about 1,572 workers (10.3 percent) commuted out of the county to work, mostly to Anderson and Pickens counties, while 2,093 persons commuted in from neighboring areas, again largely from the same two counties. In 1970, it was estimated that 2,700 workers (15.3 percent) commuted out of the county to work, while 3,000 persons commuted into Oconee County (Hammer, Greene, Siler Associates, 1971:42-43).

#### **4.3 Economic Changes during the Study Period**

The annual changes in Oconee County employment by place of work for the period 1967 to 1978 are shown in Table 4-2. The income data are shown in Table 4-3, which includes adjustments for workers who lived outside the county and commuted to jobs in Oconee County.

##### **4.3.1 Employment and Income in the Local Economy**

During the period 1967 to 1978, manufacturing, retail trade, services, and government were the principal sources of employment aside from the Oconee project. The construction sector, which was largely employed at the Oconee Nuclear Station, ranged from 38.6 percent of total construction workers in 1967, to 88.6 percent in 1971, to 46.8 percent in 1974. This made a significant contribution to the overall employment and income figures during the building of the plant, especially between 1969 and 1973. Between 5.9 percent and 9.7 percent of total employment in the county was in contract construction at the Oconee Nuclear Station for the five-year period between 1969 and 1974.

TABLE 4-2

OCONEE COUNTY EMPLOYMENT BY PLACE OF WORK  
FULL- AND PART-TIME  
1967-1978

Item	1967 <sup>a</sup>	1968 <sup>a</sup>	1969 <sup>a</sup>	1970 <sup>a</sup>	1971 <sup>a</sup>	1972 <sup>a</sup>	1973 <sup>a</sup>	1974 <sup>a</sup>	1975 <sup>b</sup>	1976 <sup>b</sup>	1977 <sup>b</sup>	1978 <sup>b</sup>
Total County Employment <sup>c</sup>	19,751	19,995	21,723	23,454	24,062	25,034	25,301	24,923	23,115	24,671	25,344	26,873
Number of Proprietors	2,223	2,166	2,254	2,180	2,201	2,202	2,178	2,208	2,198	2,227	2,328	2,410
Farm Proprietors	1,131	1,088	1,067	1,055	1,043	991	960	950	942	962	962	962
Nonfarm Proprietors	1,092	1,078	1,187	1,125	1,158	1,211	1,218	1,258	1,256	1,265	1,366	1,448
Total Wage and Salary												
Employment	17,528	17,829	19,469	21,274	21,861	22,832	23,123	22,715	20,917	22,444	23,016	24,063
Farm	296	251	200	193	176	161	156	169	180	136	124	118
Nonfarm	17,232	17,578	19,269	21,081	21,685	22,671	22,967	22,546	20,737	22,308	22,892	23,945
Private Sector	12,777	12,907	14,309	15,646	15,938	16,538	16,404	15,300	12,958	14,303	14,552	15,197
Agriculture, Services, Forestry, and others	(L)	10	15	21	29	41	39	38	56	75	80	99
Mining	0	0	(D)	(D)	(D)	(D)	(D)	(D)	0	0	0	0
Construction	229	326	372	359	300	384	474	554	428	533	578	495
Manufacturing	9,424	9,329	9,538	9,933	9,483	9,670	10,265	9,885	8,268	9,332	9,387	9,640
Nondurable Goods	6,543	6,406	6,402	6,643	6,571	6,760	7,386	6,969	5,624	6,432	6,131	6,056
Durable Goods	2,881	2,923	3,136	3,290	2,912	2,910	2,879	2,916	2,644	2,900	3,256	3,584
Transportation, Communications, and Public Utilities	(D)											
Wholesale Trade	154	135	158	188	217	274	271	202	228	270	275	310
Retail Trade	1,021	1,052	1,133	1,313	1,561	1,619	1,660	1,629	1,535	1,595	1,704	1,773
Finance, Insurance, and Real Estate	177	177	190	189	333	348	233	333	282	304	274	399
Services	(D)	(D)	1,316	1,320	1,358	1,465	1,233	1,237	(D)	(D)	(D)	(D)
Government Sector	4,455	4,671	4,960	5,435	5,747	6,133	6,563	7,246	7,779	8,005	8,340	8,748
Federal, Civilian	122	127	133	135	134	133	127	131	97	144	140	147
Federal, Military	333	310	312	321	325	280	321	344	307	296	246	243
State and Local	4,000	4,234	4,515	4,979	5,288	5,720	6,115	6,771	7,375	7,565	7,954	8,358

<sup>a</sup>Estimates based on 1967 SIC.

<sup>b</sup>Estimates based on 1972 SIC.

<sup>c</sup>Consists of wage and salary jobs plus number of proprietors.

(D) Not shown to avoid disclosure of confidential data.

(L) Less than 10 wage and salary jobs.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *Employment by Type and Broad Industrial Sources, 1967-1978*.

**TABLE 4-3**  
**PERSONAL INCOME BY PLACE OF WORK**  
**OCONEE COUNTY**  
**1967-1978**  
(Thousands of Constant 1972 Dollars)

Item	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Total County Wage and Salary	\$90,954	\$99,247	\$117,339	\$132,429	\$137,578	\$147,603	\$150,687	\$142,184	\$128,223	\$144,426	\$153,186	\$162,407
Proprietor's Income	9,296	9,598	9,506	8,532	8,930	9,999	11,209	8,423	6,825	7,851	8,532	8,634
Farm	1,921	1,933	1,803	1,743	2,224	2,339	3,432	1,877	541	851	520	346
Nonfarm	7,375	7,665	7,703	6,789	6,706	7,660	7,777	6,547	6,285	7,000	8,012	8,288
Industry Income												
Farm	2,394	2,365	2,186	2,126	2,575	2,677	3,803	2,269	961	1,194	856	685
Nonfarm	97,857	106,480	124,659	138,835	143,933	154,925	158,094	148,339	134,087	151,081	160,862	170,355
Agriculture, Services, Forestry, Fisheries, and others	119	117	92	194	220	296	300	256	389	439	499	543
Mining	0	0	(D)	(D)	(D)	(D)	(D)	(D)	0	0	0	0
Construction	1,947	2,949	3,456	2,914	2,602	3,655	4,314	4,388	3,577	4,396	4,773	4,767
Manufacturing	54,986	55,909	58,884	60,377	57,506	62,255	64,693	61,262	51,462	61,842	65,676	67,558
TCPU	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Trade	9,352	9,924	10,285	10,708	11,539	12,444	12,878	11,795	11,103	11,759	12,158	12,841
FIRE	1,480	1,552	1,634	1,599	2,611	2,785	1,812	2,630	2,223	2,505	2,377	3,363
Services	(D)	(D)	6,415	7,066	7,218	6,418	6,714	6,715	(D)	(D)	(D)	(D)
Government	22,740	25,071	27,757	31,483	34,333	38,786	42,281	45,072	47,494	49,695	54,159	57,335
Federal	1,271	1,335	1,540	1,704	1,799	2,098	1,824	1,773	1,441	1,656	1,418	1,456
State/Local	21,470	23,736	26,217	29,779	32,534	36,688	40,457	43,299	46,053	48,039	52,741	55,879

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

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Information System, (unpublished data), Personal Income by Major Sources 1959-1978, April 1980.

The wage and salary employees in manufacturing make up the largest single source of total employment in the county. In 1967, 47.7 percent of the county work force was engaged in manufacturing. The general trend in manufacturing employment was downward in relative terms, although slight absolute increases occurred between 1967 and 1978. The 1978 wage and salary employment in manufacturing was only 35.9 percent of total employment.

Government employment showed an overall increase for the 1967-1978 period with annual variations occurring in both directions between 1973 and 1978. The overall increase in the relative share of total employment is due entirely to the state and local government sector. In the 1975 to 1978 period, federal employment fluctuated between 386 and 495 workers, but generally it remained close to 400. State and local government employment, on the other hand, increased from 4,000 in 1967 to 8,358 in 1978, a 6.93 percent annual rate of increase.

The agricultural sector, which includes farm proprietor earnings and farm wage and salary employment, accounted for 7.2 percent of the total employment in 1967. The general trend in agricultural employment was downward, with some annual variation occurring in the the mid-1970s. Employment in agriculture accounted for only 4.0 percent of total employment in 1978.

Both finance, insurance, and real estate (FIRE) and trade have shown slight increases in relative terms while services has shown moderate declines. The transportation, communications, and public utilities (TCPU) sector grew rapidly due to employment at the Oconee Nuclear Station. Although Bureau of Economic Analysis (BEA) reports no longer include specific data for TCPU, employment in the TCPU sector is included in the BEA totals and, since the number of construction workers on site is known, it is estimated that TCPU employment increased from 215 workers in 1970 to 934 workers in 1974 (see Table 4-2).

The significance of the construction sector was even greater in terms of income by place of work than it was for employment by place of residence because construction worker earnings were considerably higher than were earnings of workers in other sectors. Construction income ranged from 10.8 percent to 19.0 percent of Oconee County income by place of work between 1969 and 1974.

Table 4-4 shows the total income (by place of work) divided by total employment (by place of work). This yields an estimate of the average earnings for people employed in the Study Area and an indication of their standard-of-living. As employment and income increased in the construction sector, the average wage for the Study Area increased rapidly, by more than 3.9 percent per year between 1967 and 1973. When construction activity slackened, average earnings fell to \$5,842 in 1975 before rising by 2.9 percent per year between 1975 and 1978, reaching \$6,365 in 1978.

Farm proprietors' income showed considerable variation from year to year, which reflected the relative success of cattle and dairy products and their markets. Farm proprietors' income declined after 1973 due to lower cattle production. Market conditions, an important income factor in this sector, revealed rising costs of production coupled with a falling demand. Farm proprietors' income fell from \$3,432 thousand (in 1972 dollars) to \$346 thousand (in 1972 dollars) between 1973 and 1978. Nonfarm proprietors' income exhibited a cyclical pattern in terms of growth between 1967 and 1978. From 1967 to 1969, nonfarm proprietors' income rose to 7.7 million—an increase of more than \$300 thousand. It then fell by \$1 million over the next two years, rose to \$7.8 million in 1973, fell by \$1.5 million over the next two-year period, and then increased by 9.6 percent per year for the next three years, reaching \$8.3 million in 1978.

The wage and salary income increased steadily in the state and local government sector, growing by an average 8.8 percent per year. In services (the annual figures for services have been deleted for 1967, 1968 and 1975-1978 by BEA), the progression of increase is not demonstrated. Wage and salary income in the trade sector showed increases in every year except 1974 and 1975. The same applies to the manufacturing sector with the addition of 1971 as a year in which wage and salary income declined.

#### **4.3.2 Employment and Income of Local Residents**

Total 1967 employment in Oconee County at the start of construction of the Oconee Power Station project was 19,751 (BEA, 1980). As can be seen in Table 4-5, the county unemployment rate was 4.6 percent in 1967, compared to 4.7 percent for the state. The Oconee County rate dropped to 4.2 percent in 1971, but was 15.1 percent in 1975; the rates for South Carolina were 5.4 percent and 8.7 percent, respectively. Historically, Oconee County rates had been 77-98 percent of the state rates prior to 1974. After 1974, the Oconee County unemployment rates were generally equal to or greater than the state rates. The ratio of Oconee County unemployment rates to South

TABLE 4-4

AVERAGE ANNUAL INCOME PER WORKER BY PLACE OF WORK  
CCONEE COUNTY  
1967 to 1978

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Employment	19,751	19,995	21,723	23,454	24,062	25,034	25,301	24,923	23,115	24,671	25,344	26,733
Total Earnings <sup>a</sup>	\$100,250	\$108,845	\$126,845	\$140,961	\$146,508	\$157,602	\$161,896	\$150,607	\$135,048	\$152,277	\$161,718	\$171,041
Average Income <sup>b</sup>	\$5,076	\$5,444	\$5,839	\$6,010	\$6,089	\$6,296	\$6,399	\$6,043	\$5,842	\$6,172	\$6,381	\$6,365

<sup>a</sup>Recorded in thousands of constant 1972 dollars.

<sup>b</sup>Constant 1972 dollars.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, unpublished data, April 1980.

**TABLE 4-5**  
**OCONEE COUNTY LABOR FORCE**  
1960, 1967-1980

	1960	1967	1968	1969	1970 <sup>a</sup>	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980 <sup>b</sup>
Population <sup>c</sup>	40,204	39,000	39,400	40,000	40,728	42,000	42,800	43,000	43,300	43,500	43,900	43,900	44,800	N/A	48,604
Civilian Labor Force	15,199	17,400	17,900	19,700	17,930	18,320	18,300	17,980	17,510	17,682	18,444	18,116	18,475	18,860	18,529
Unemployment <sup>d</sup>	638	800	750	700	660	770	580	590	1,240	2,670	1,660	1,250	1,090	1,040	1,260
Employment	14,561	16,600	17,150	19,000	17,270	17,550	17,720	17,390	16,270	15,012	16,784	16,866	17,385	17,640	17,269
Unemployment Rate (%)	4.2	4.6	4.2	3.6	3.7	4.2	3.2	3.3	7.1	15.1	9.0	6.9	5.9	5.6	6.8 <sup>f</sup>
South Carolina Unemployment Rate (%)	4.7	4.7	4.3	3.9	4.8	5.4	4.4	4.1	5.9	8.7	6.9	7.2	5.7	5.0 <sup>e</sup>	6.9

<sup>a</sup>Data on employment were changed from "place of work" to "place of residence" beginning with 1970.

<sup>b</sup>For first 5 months only.

<sup>c</sup>1960, 1970, and 1980 from U.S. Census of Population; other years are from Bureau of Economic Analysis (unpublished data), April 1980.

<sup>d</sup>By place of residence.

<sup>e</sup>Preliminary.

<sup>f</sup>Based on first five months only.

N/A means not available.

Sources: South Carolina Budget and Control Board, Division of Research and Statistical Services, 1977:62; Wilbur Smith and Associates, 1980:4-4; South Carolina Appalachian Council of Governments (S.C.A.C.O.G.), O.E.D.P. for the S.C. Appalachian Region, 1977:41; S.C.A.C.O.G., Appalachian Statistics, 1978:48-56; S.C.A.C.O.G., O.E.D.P. for Oconee County, South Carolina, 1976:26; South Carolina Employment Security Commission, Research and Statistics Section, South Carolina's Manpower in Industry, May 1971:5,45; U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States, 1979:405; Barbara Wessinger, Research and Statistics Section, South Carolina Employment Security Commission, April 3, 1981.

Carolina rates ranged from 96 percent to 174 percent. The county labor force was not highly skilled, and the median number of school years completed by those 25 years and older in 1970 was 9.2 for Oconee County compared to 10.5 for the state and 12.2 for the nation. In addition, the occupational structure of Oconee County showed a deficiency in professional, technical, and managerial workers—occupations which are in particular demand by industries looking to relocate. About 13.8 percent of the resident labor force commuted to jobs out of the county in 1973, especially to Pickens County,<sup>1</sup> while 12 percent of the jobs in Oconee County went to workers who were not county residents. Out-migration of people for education, training, and employment was common. In 1960, out-migration represented about 11 percent of the county population; during the 1970-1977 period, net out-migration was estimated at 5.4 percent of the 1970 population.

In 1960, the county labor force participation rate for males, as shown in Table 4-6, was slightly below the state and national figures. By 1970, however, the rate had risen to 80.5 percent, which was greater than the state (77.6 percent) and national (72.9 percent) figures. Between 1960 and 1970, the state rate grew slightly while the national rate declined. For both 1960 and 1970, the female labor force participation rate for Oconee County remained 10 to 13 percent above the state rate and 25.5 to 25.8 percent above national rate. During the decade, the female labor force participation rate rose between 15 and 18 percent for each jurisdiction.

Personal income by place of residence (earned by residents of the county) showed a steady increase until 1973 (7.9 percent per year), moderate decreases in 1974 and 1975 (4.6 percent per year), a strong increase in 1976 (9.1 percent per year), and moderate increases through 1978 (5.1 percent per year) as shown in Table 4-7. All the components of personal income by place of residence followed the same pattern of increases and decreases with the exception of transfer payments, which peaked in 1975, declined in 1976 and 1977, and began increasing again in 1978. The component of dividends, interest, and rent more than doubled during the 1967 and 1978 period.

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<sup>1</sup>The economic attraction of Pickens County is due, in part, to Pickens County's annexation of Clemson University.

TABLE 4-6

OCONEE COUNTY LABOR FORCE PARTICIPATION  
1960, 1970

	1960 <sup>a</sup>		1970 <sup>b</sup>	
	Male	Female	Male	Female
Oconee County	65.7	43.3	80.5	49.8
South Carolina	76.1	38.3	77.6	45.3
United States	77.4	34.5	72.9	39.6

<sup>a</sup>Percent aged 14 years and older.

<sup>b</sup>Percent aged 16 years and older.

Sources: U.S. Department of Commerce, Bureau of the Census, Census of Population: 1970, Characteristics of the Population, Vol. I, Tables 64 and 121; U.S. Department of Commerce, Bureau of the Census, Census of Population: 1960, Characteristics of the Population, Vol. I, Table 53.

TABLE 4-7

DERIVATION OF PERSONAL INCOME BY PLACE OF RESIDENCE  
 OCONEE COUNTY  
 1967-1978  
 (Thousands of Constant 1972 Dollars)

Item	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Total Labor and Proprietors' Income, Place of Work	\$100,250	\$108,845	\$126,845	\$140,961	\$146,507	\$157,602	\$161,897	\$150,607	\$135,048	\$152,276	\$161,718	\$171,041
Less: Social Security Insurance	4,301	4,611	5,845	6,616	7,147	7,690	8,457	7,894	7,255	8,529	8,782	9,212
Net Labor and Proprietors' Income, Place of Work	95,949	104,234	121,000	134,345	139,360	149,912	153,440	142,713	127,793	143,747	152,936	161,829
Plus: Residence Adjustment	-10,911	-11,882	-14,351	-17,462	-18,646	-20,367	-20,989	-20,751	-21,398	-23,325	-25,299	-26,861
Net Labor and Proprietor's Income, Place of Residence	85,038	92,352	106,649	116,883	120,714	129,545	132,451	121,962	106,395	120,422	127,637	134,968
Plus: Dividends, Interest, and Rent	8,263	8,835	9,802	10,561	11,301	12,008	13,286	14,407	14,765	15,931	17,243	18,247
Plus: Transfer Payments	10,139	10,940	11,748	13,479	14,709	15,600	17,418	19,951	27,366	25,673	25,240	25,716
Personal Income by Place of Residence	103,440	112,127	128,199	140,923	146,724	157,153	163,155	156,320	148,527	162,026	170,120	178,931
Per Capita Personal Income <sup>a</sup>	2,652	2,846	3,206	3,443	3,494	3,675	3,793	3,612	3,417	3,693	3,873	3,997

<sup>a</sup>1972 dollars (not thousands of dollars).

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, unpublished data, April 1980.

The residency adjustment has two major components. The majority of the wages and salaries paid for construction of the Oconee Nuclear Station went to commuters outside Oconee County. This is shown in the rapidly increasing negative adjustments made between 1968 and 1972. At the same time, the proportion of the Oconee County work force that commuted out of the county to work increased from 10.3 percent in 1960 to 15.1 percent in 1970 (Hammer, Greene, Siler Associates, 1971:42; Wilbur Smith and Associates, 1980:2-20). This trend reversed itself during the 1970s. In 1973, the proportion of Oconee County residents who commuted out of the county to work was 13.8 percent. (S.C.A.C.O.G., 1976:61.) Estimates for 1979 show the proportion fell to around 11.7 percent (Wilbur Smith and Associates, 1980:2-21). The percentage of in-commuters holding jobs in the county fell from 12-13 percent in the early 1970s to 7 percent in 1976. By 1979, this proportion had grown to 15 percent of the nonfarm wage and salary jobs located in Oconee County (Wilbur Smith and Associates, 1980:2-18).

The Oconee County economy before 1970 was dominated by the manufacturing sector which, in 1963, paid its production workers the lowest average weekly wage (\$64) in the 6-county Appalachian region. This was only 92.6 percent of the state's average weekly wage for similar work (City and County Data Book, 1967). When combined with the existence of a moderately large agricultural sector (6 to 9 percent of the labor force during the 1960s), which had occasion to hire seasonal workers for harvesting the apple crop, it was not surprising that the income and standard-of-living in the county were low compared to the state and nearby urban areas. During the period 1959 through 1966, per capita income of Oconee County varied between 88.2 percent and 90.3 percent of the state's per capita income. However, beginning in 1967, the industries which began locating and expanding in the county required more skilled and educated workers. The textile and apparel industries in Oconee County, which were already paying lower wages than were surrounding counties, began to lay off workers. The latter condition encouraged the unskilled and undereducated workers to migrate out of the county, while the former condition raised the incomes of those local residents who were able to get the higher-paying jobs and induced people to in-migrate to fill those jobs made available by new industry. The effects of these two conditions upon income in the county is clearly shown in the 1969 data on poverty incidence. In Oconee County in 1969, 17.9 percent of all persons had incomes below the poverty level--27 percent greater than the national figure of 13.7 percent. At this same time, the poverty rate for the State of South Carolina was 23.9 percent. In 1969, the county's per capita income was about 102.5 percent of the state average and only 90.4 percent of the national average (U.S. Bureau of the Census, 1970).

The increasing standard-of-living, which was attributable to the economic conditions discussed previously, is corroborated by per capita income data from the Bureau of Economic Analysis, shown in Table 4-8 (in constant 1972 dollars) for the 1967 to 1978 period. In particular, changes in per capita income directly reflect the increase in the number of high-paying construction jobs created by the building of the Oconee Nuclear Station. The ratio of county per capita income to state per capita income increased during the construction period and then declined. The overall effect of new industry locating and/or expanding in Oconee County raised the county/state per capita income ratio from 90.3 percent in 1966 to 96.2 percent in 1978.

#### **4.3.3 Summary**

The period between 1967 and 1978 brought about noticeable changes in the employment and income characteristics of Oconee County. Despite the agricultural sector's continued decline in importance to the Oconee economy in terms of proprietors and wage and salary workers, overall employment increased rapidly. This was due to two factors: the direct and indirect effects of the construction of the Oconee Nuclear Station and the rapidly expanding state and local government sector. The general pattern showed an increase in income for county workers and residents during the construction period, a decline afterwards for several years, and then another increase after 1976. Although the severity of the decline was enhanced by the 1974-1975 national recession, it was moderated by employment in the operations work force and the continuing refueling, repair, and maintenance work at the site.

#### **4.4 Economic Changes in the Study Area due to the Project**

The purpose of this section is to describe the effects of construction and operation of the Oconee Nuclear Station on the Oconee County economy. Three elements of economic activity will be presented: (1) employment and income by place of work; (2) changes in the labor force status of county residents; and, (3) project effects on the standard-of-living of county residents.

An economic base analysis is used to describe these economic changes. The analysis assumes that the economic activities of the Oconee project—employment, purchases, and taxes—affected the economic activities in the county. In order to determine the total economic effects of the project, both the direct project effects and their resulting activities in the Study Area economy must be quantified. When these total economic effects of the project have been estimated, a summary will be made of the impacts on the county labor force and standard-of-living.

TABLE 4-8

OCONEE COUNTY PER CAPITA INCOME  
(Constant 1972 Dollars)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Oconee County	2,652	2,846	3,206	3,443	3,494	3,675	3,793	3,612	3,417	3,693	3,873	3,997
South Carolina	2,807	2,943	3,127	3,269	3,292	3,477	3,682	3,688	3,688	3,898	4,008	4,153
County/State(%) <sup>a</sup>	94.5	96.7	102.5	105.3	106.1	105.7	103.0	97.9	92.7	94.7	96.6	96.2

<sup>a</sup>Percentage of county per capita income to state per capita income.

Sources: South Carolina Appalachian Council of Governments (S.C.A.C.O.G.), Appalachian Statistics, June 1980; 64-65; S.C.A.C.O.G., Overall Economic Development Plan for Oconee County, South Carolina, 1976:50; Graham, Robert E. Jr., Personal Income in South Carolina by Type, Source, and Geographic Areas, 1929-1969, 1971:37; U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economics Information System, unpublished data, April 1980; U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States, 1979:14,445.

#### 4.4.1 Estimation of Project-Related Employment and Income Effects

This analysis will begin by describing the work force and the purchases 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.

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 were 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, reflecting only the distributor's margin. Income and employment generated in these ways in response to the purchases of goods and services by the utility are referred to as "indirect" basic income and employment.

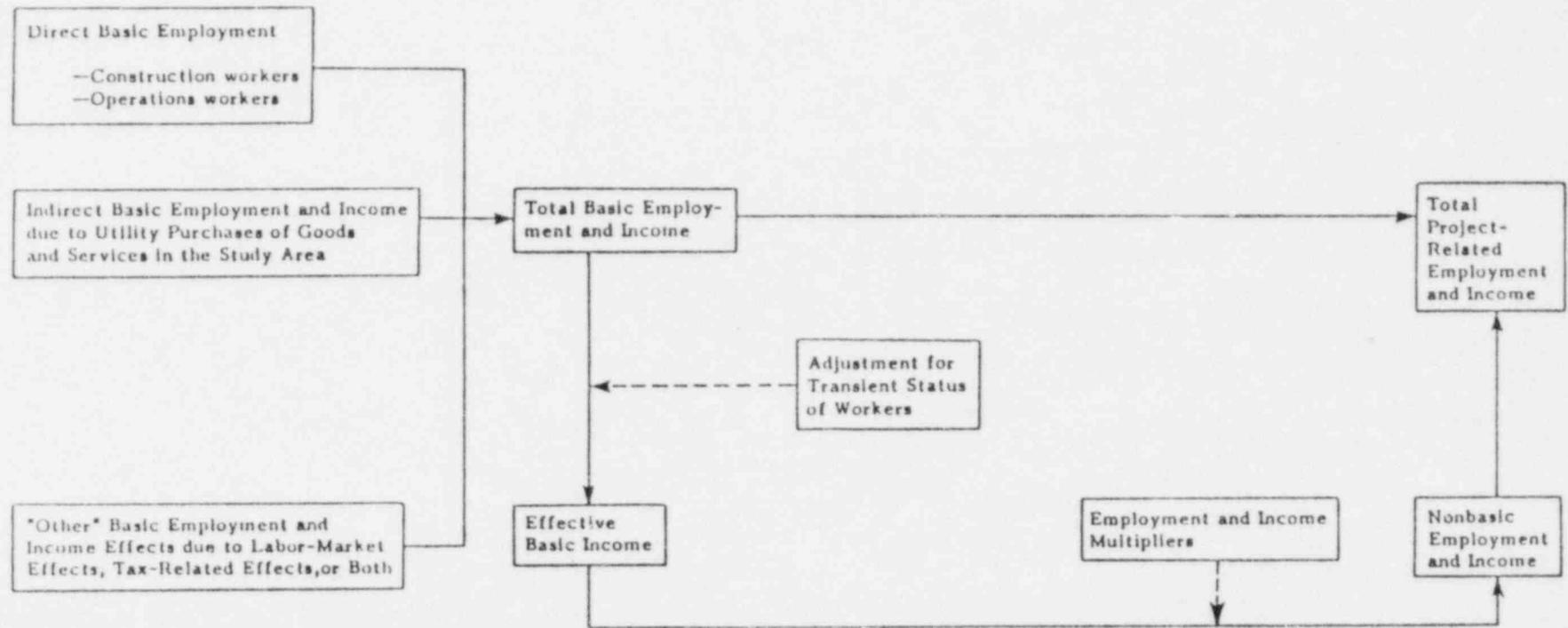
A third group of income and employment effects is referred to as "other" basic income and employment. This category includes labor market effects due to labor shortages, higher wages, or changes in activity that are a response to the favorable fiscal impacts of the station. To the extent that such responses 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.

A significant portion of the direct basic income was earned by workers who lived outside the county or who only resided in the county during the work week. As a result, less of this income was spent in the county than was the case for county residents. To account for these differences, the total project-related basic income was adjusted in terms of its effect on the local economy. The adjusted income total is referred to as effective basic income. For example, if one group of project workers spent only 25 percent as much time in the county as local residents earning comparable incomes, only 25 percent of that group's income would be designated as effective basic income.

"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

FIGURE 4-1

## ESTIMATION OF PROJECT-RELATED EMPLOYMENT AND INCOME EFFECTS



multiplier appropriate to the size of the local economy has been estimated, the changes 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 Oconee Nuclear Station.

The method for estimating the nonbasic employment and income response to an increase in effective basic income is based on the Regional Interindustry Multiplier System (RIMS) developed by Ronald Drake (for the Regional Economic Analysis Division of the U.S. Department of Commerce, Bureau of Economic Analysis). The RIMS approach is well documented elsewhere (U.S. Water Resources Council, 1977; Anderson, 1980) and, therefore, is not described in detail here.<sup>1</sup>

#### **4.4.1.1 Employment and Income Effects of the Project in 1971**

##### **Direct basic employment and income effects of the project in 1971**

The direct basic employment and income occurring as a result of the project were determined by recording data on those workers employed for the construction or operation of the plant. Direct basic employment and income can be counted either at the place of work or at the place of residence. The determination of direct basic employment and income by place of work is straightforward and is derived from project employment and wage data.

The Oconee Nuclear Station is located entirely in Oconee County. Consequently, in terms of employment and income by place of work, all the effects accrued to the county. At peak construction in 1971, the average annual direct basic employment was 2,342 and direct basic income was \$24.6 million.

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<sup>1</sup>In general, the RIMS 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 suppliers in the county. In the simplest case, if an industry does not exist in the county economy, any requirements from that industry are assumed to be supplied by imports from outside the county economy. If an industry does exist in the county at the same, or greater, proportion to the county economy as the industry is to the national economy, the county demands from that industry are assumed to be met within the county economy. If an industry represents a smaller proportion of the county economy than it did of the national economy, some of the county demand is assumed to be supplied from in the county and some is assumed to be imported.

The derivation of direct basic employment and income by place of residence requires information about commuting patterns and the residential location of direct basic employees. Only 25.4 percent of the direct basic employees working at the plant site in 1971 were Oconee County residents. It was estimated that about 595 direct basic employees, earning \$6.2 million in income from the project, were residents of Oconee County. The majority of the direct basic workers were daily commuters from outside the county.

#### **Indirect basic employment and income effects of the project in 1971**

The second component of basic employment and income is the indirect basic, which is defined as the profits, earnings, and employment resulting from purchases of goods and services for the construction and operation of the plant. In the case of Oconee County, no significant purchases of goods and services were made in the local economy. Such expenditures were made through the utilities' main purchasing offices in North Carolina, or in nearby urban areas such as the Greenville SMSA, which was outside the county.

#### **"Other" basic employment and income effects of the project in 1971**

The "other" basic employment and income effects would be those that resulted from measurable changes in local work force availability or cost due to the plant, and employment and income generated by tax payments made on behalf of the plant.

In 1971, there were no apparent wage-induced effects on county employment and income due to the construction of the plant. Employment and wages in agriculture, usually considered to be the sector most vulnerable to such effects, continued to show wide annual variations due to the small number employed in the county and the dependence of that sector on weather, market conditions, and other factors involved in farm production. Interviews with key informants did not produce any evidence that agricultural labor was seriously affected by employment at the Oconee Nuclear Station. Numerous local persons said that workers in the manufacturing sector obtained work in the construction phase, but the plant managers who were interviewed said that such employment did not affect the wage rates paid in the textile or other manufacturing firms.

There were no tax-induced effects due to increased county revenues from the Oconee project in 1971. This is because there were no property taxes paid by the Duke Power Company on the Oconee Nuclear Station during its construction. Property tax

payments commenced in 1974. For the peak construction year, therefore, no "other" direct basic employment and income effects were attributed to Oconee County as a result of the Oconee Nuclear Station.

#### **Total basic employment and income effects of the project in 1971**

The total basic employment and income effects due to the Oconee Nuclear Station project consist only of the direct basic components. The indirect and "other" basic components are not a factor in evaluating the plant effects upon the county economy.

The total average annual basic employment by place of work for 1971 was 2,342 jobs; estimated direct basic income was \$24.6 million. Most of these jobs were filled by workers who lived outside the county. In 1971, approximately 595 workers earning \$6.2 million were residents of Oconee County.

#### **Nonbasic employment and income due to the project in 1971**

Nonbasic employment and income result from the expenditure and re-expenditure of basic income in the local economy. The amount of nonbasic employment and income generated by the project in the local economy depends on two factors: (1) the amount of "effective" basic income created by the project, and (2) the size of the nonbasic-to-basic employment and income multipliers in the local economy.

Effective basic income. In order to account for the income that was available to be spent in Oconee County, four groups of workers were identified. These workers were grouped according to their residential location and their financial commitments outside the Study Area. These groups were:

1. Nonmovers—employees who were residents of the Study Area prior to their employment on the project and who did not move because of this employment;
2. Movers accompanied by families—employees who moved into the Study Area because of their employment on the project and were accompanied by families;
3. Movers unaccompanied by families (including single employees)—employees who moved into the Study Area because of their employment on the project and were not accompanied by families; and
4. Daily long-distance commuters—employees who lived outside the Study Area but commuted daily to the project site.

Table 4-9 shows the distribution of the project-related basic employment and income for these four groups. In 1971, about 595 (25.4 percent) of the 2,342 project-related construction jobs in the Study Area were held by workers residing in the county. Of these workers, 260 lived in Seneca, 150 lived on site, and 185 lived elsewhere in the county. The majority of the remaining job holders (38.2 percent) lived in South Carolina's Appalachian region (excluding Oconee County), with the final 36.4 percent residing in other areas of South Carolina, Georgia, North Carolina, and other states.

The basic income of each group was weighted in accordance with the average percentage of income which was available for expenditure in the local economy. Using interviews with workers, and examining shopping patterns and outside financial commitments, the weighting factors were derived. The total weighted income was considered to be spent (effective) in the local economy. The standard for weighting the earned income of the various groups was the group of nonmovers who had a designated factor of 1.0. Movers with families were also weighted by a 1.0 factor. Movers unaccompanied by families (and singles) were assigned a weighted factor of 0.4. The daily long-distance commuters were assigned a weighting factor of 0.05 since they purchased very little in the county besides occasional gas, food, and drink.

The effective incomes for each group (actual income times weighted factor) were: nonmovers—\$3,097.8 thousand; movers accompanied by families—\$1,050.1 thousand; movers unaccompanied by families—\$2,100.2 thousand; and daily long-distance commuters—\$917.3 thousand. The total effective income for Oconee County in 1971 was estimated to be \$7,165.4 thousand.

Nonbasic-to-basic multipliers. The effective basic income served as the basis for determining the nonbasic employment and income effects of the project. Based on the RIMS analysis, the following multipliers were determined for Oconee County: each \$1,000 of effective basic income was estimated to produce 0.0224 nonbasic jobs and \$124 in nonbasic income in the county. (Drake, personal communication, 1980.) When applied to the project-related effective basic income (\$5,905.3 thousand), these multipliers indicate that the project resulted in 132 nonbasic jobs and \$732.3 thousand in nonbasic income in Oconee County in 1971.

The majority of the nonbasic workers were estimated to be local residents (nonmovers) based upon the considerations of labor force availability, commuting

TABLE 4-9

DISTRIBUTION OF BASIC EMPLOYMENT AND INCOME  
OCONEE COUNTY  
1971

	Direct Basic Employment <sup>a</sup>	Direct Basic Income <sup>b</sup>
Nonmovers	295	\$3,097.8
Movers Accompanied by Families	100	\$1,050.1
Movers Unaccompanied by Families (and Singles)	200	\$2,100.2
Daily Long-Distance Commuters	1,747	\$18,345.2
<b>TOTAL</b>	<b>2,342</b>	<b>\$24,593.3</b>

<sup>a</sup>No indirect or "other" basic employment was identified.

<sup>b</sup>In thousands of constant 1972 dollars; based on average annual earnings of \$10,501.

Source: Social Impact Research, Inc., 1981.

patterns, local wage scales, and key informant estimates. Even though in-commuters held 12-13 percent of the county jobs in 1971, there were sufficient unemployed residents to take up all the induced nonbasic jobs. In addition, since the average annual wages (in constant 1972 dollars) for these jobs were quite low (\$5,519) compared to the 1971 county average (\$6,089), it is assumed that approximately 92 percent of the nonbasic jobs (121 positions) were filled by nonmovers, with the remaining 8 percent (11 positions) going to commuters from outside the county.

These figures are in constant 1972 dollars and are based on the 1976 national input-output tables. Since the structure of the Oconee County economy did not change substantially between 1971 and 1976, the 1976 relationships are considered appropriate for this analysis.

#### **Total employment and income due to the project in 1971**

The total employment and income effects of the project on Oconee County in 1971 resulted from direct basic employment at the site and nonbasic employment in the local economy. The total 1971 employment effect was about 716 workers; the income from the project was estimated at \$6.6 million. In 1971, this level of employment was 4.0 percent of the civilian labor force in Oconee County; the income provided by the project was 4.5 percent of the personal income by place of residence.

#### **4.4.1.2 Employment and Income Effects of the Project in 1978**

##### **Direct basic employment and income effects of the project in 1978**

The direct basic employment by place of work in 1978 was 747 (which includes security workers; personnel required for refueling, repair, and maintenance; and janitorial employees). The total direct basic income was \$7,786 thousand. The majority of the direct basic employees resided within the jurisdiction of Oconee County. It is estimated that 379 direct basic employees were Oconee County residents and that they earned approximately \$3.3 million in 1978.

##### **Indirect basic employment and income effects of the project in 1978**

No indirect basic employment was recorded for the operations period of the Oconee Nuclear Station.

### **"Other" basic employment and income effects of the project in 1978**

Oconee County collected a large proportion of its revenues from the plant; in 1978, the Oconee Nuclear Station registered 44.6 percent of the total assessed valuation of the county and paid approximately \$3.7 million in property taxes (Office of South Carolina Tax Commission, 1978). The addition of these monies to the local government could be expected to result in "other" basic employment in the government sector 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 effects of basic income.

In estimating the number of other basic jobs due to the effect of the plant, it is recognized that government employment is quite variable according to local conditions, political values and attitudes, and public expectations. However, changes in population and income generally result in changes in public services. Recent work done by Mountain West Research, Inc., on medium-sized counties (in terms of market area) in the United States has been used as a general guide in estimating the expected increases in nonbasic employment due to economic growth. Usually, in the medium-sized class (3rd order) of counties, an increase of 11.63 nonbasic employees in the state and local government sector is expected for each \$1 million (constant 1972 dollars) increase in personal income in the county (Anderson, 1980).

Between 1967 and 1978, the annual personal income (in 1972 dollars) of county residents increased to \$75.5 million (see Table 4-7). Therefore, it is expected that state and local government employment would increase by 878 workers. The actual increase in employment was 4,358, a difference of 3,480 workers. The largest annual increases occurred during the 1973 to 1975 period—656 employees were added between 1973 and 1974, and 604 employees were added between 1974 and 1975. During the operations period, the taxes paid by the Oconee Nuclear Station ranged from 22.5 percent to 31.6 percent of all county revenues. After 1977, this percentage remained fairly stable at around 27 percent.

An examination of data for the neighboring counties revealed an average increase of 10.83 state and local employees per \$1 million increase in personal income (in constant 1972 dollars). These figures imply that state and local government services increased at about the same rate in this section of South Carolina as for the nation as a whole.

During the pre-operation stage, when no property taxes were being paid, Oconee County showed increases in state and local government employees of 35.43 workers per \$1 million increase in personal income (in 1972 dollars). Assuming that this rate of increase in nonbasic government employees held during the operations period, the yield would be 801 nonbasic employees. The actual increase in state and local government employees was 70.22 per \$1 million of personal income (in constant 1972 dollars), or 1,587 workers. Therefore, "other" basic workers not accounted for by nonbasic workers would total 786. Because there were numerous construction projects and industry relocations underway during the 1970s, not all of the 786 workers were hired in direct response to tax revenues generated from the Oconee Nuclear Station. It is estimated that 217 (27.6 percent) of the 786 "other" basic workers were hired as a result of tax revenues generated directly from the plant. This percentage represents the average ratio of the property taxes paid by the Oconee Nuclear Station to the total county revenues collected each year for the 1974 to 1978 period. The average income of "other" basic workers (in constant 1972 dollars) was estimated to be \$6,686 per year, producing \$1,450.9 thousand in total yearly income. Of these 217 "other" basic workers, 28 (13 percent) were estimated to be daily long-distance commuters. These figures are based on existing commuting patterns and the fact that wages in the government sector were higher than the county average in 1978. Basic employment and income for Oconee County are shown in Table 4-10.

#### **Nonbasic employment and income effects in 1978**

The income from each category of worker--nonmovers, movers accompanied by families, movers unaccompanied by families (and singles), and outside commuters--were weighted in the same manner as was done for 1971 in order to determine the total effective basic income for the county. Table 4-11 shows the basic income, weighted factor, and effective basic income for each category and for the county. Of the total basic income produced by the project, only about 57.7 percent is applied to the county as effective basic income. The remainder is assigned to commuters who reside outside the Study Area.

Conversion of the effective basic income to nonbasic employment and income was done as it was for the 1971 data. The same RIMS multipliers were used for Oconee

TABLE 4-10

DISTRIBUTION OF BASIC EMPLOYMENT AND INCOME<sup>a</sup>  
 OCONEE COUNTY  
 1978

	Direct Basic		Other Basic		TOTAL	
	Employment	Income <sup>b</sup>	Employment	Income <sup>c</sup>	Employment	Income
Nonmovers	317	\$3,304.4	189	\$1,263.7	506	\$4,568.1
Movers, Accompanied by Family	48	\$500.3	—	—	48	\$500.3
Movers, Unaccompanied by Family (or Singles)	14	\$145.9	—	—	14	\$145.9
Daily Outside Commuters	368	\$3,836.0	28	\$187.2	396	\$4,023.2
TOTAL	747	\$7,786.6	217	\$1,450.9	964	\$9,237.5

<sup>a</sup>Thousands of constant 1972 dollars.

<sup>b</sup>Average salary was \$10,424, in constant 1972 dollars.

<sup>c</sup>Average salary was \$6,686, in constant 1972 dollars.

Source: Social Impact Research, Inc., 1981.

TABLE 4-11

ESTIMATED EFFECTIVE BASIC INCOME  
OCONEE COUNTY  
1978

Basic Income Category	Basic Income <sup>a</sup>	Weighted Factor	Effective Basic Income <sup>a</sup>
Nonmovers	\$4,568	1.00	\$4,568
Movers Accompanied by Families	500	1.00	500
Movers Unaccompanied by Families (and Singles)	146	0.40	58
Daily Outside Commuters	<u>4,023</u>	0.05	<u>201</u>
TOTAL	\$9,237		\$5,327

<sup>a</sup>Thousands of constant 1972 dollars.

Source: Social Impact Research, Inc., 1981.

County. The estimated nonbasic employment was 119 jobs, and the estimated nonbasic income was \$661 thousand (in constant 1972 dollars).<sup>1</sup>

#### **Total employment and income effects of the project in 1978**

The total employment and income effects due to the project in Oconee County for 1978 are shown in Table 4-12. The total number of new jobs created by the project in Oconee County was 687, including 379 direct basic, 189 "other" basic, and 119 nonbasic. Total income generated by the project was just under \$5.8 million.

#### **4.4.2 Effects of the Project on the Study Area Economy, 1967-1978**

The Oconee Nuclear Station project produced change through the on-site employment of workers, payments of taxes to Oconee County, and nonbasic employment and income resulting from expenditures of effective basic income. These effects have been estimated for the peak year of construction (1971) and for an operations year (1978).

Table 4-13 outlines an estimate of the annual employment effects of the project for Oconee County. These figures are intended to present a sense of the magnitude and duration of the Oconee Nuclear Station's effects on the county economy. When site preparation began in 1967, the 144 workers on site accounted for only 0.7 percent of the 19,751 people employed in the county. By 1971, at peak construction, the Oconee project had become the largest employer in the county, employing 9.7 percent of the county work force (see Table 4-2). The rate declined gradually over the next two years, then dropped to 1.7 percent in 1975 when all three units were in commercial operation. The gradual annual increases in employment at the station have maintained the proportion of the Oconee plant's share of the county work force, which also increased during this period, from 23,115 in 1975 to 26,873 in 1978 (see Table 4-2). The significance of employment at the Oconee Nuclear Station for the county from 1967-1978 is illustrated in Figure 4-2.

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<sup>1</sup>Based on the RIMS multipliers for Oconee County, it is estimated that each \$1,000 of effective basic income will produce 0.0224 nonbasic jobs and \$124 in nonbasic income.

TABLE 4-12

TOTAL EMPLOYMENT AND INCOME DUE TO THE PROJECT  
 OCONEE COUNTY  
 1978

	Employment	Effective Income <sup>a</sup>
Direct Basic	379	\$3,862
Indirect Basic	—	—
"Other" Basic	189	1,264
Nonbasic	<u>119</u>	<u>661</u>
TOTAL	687	\$5,787

<sup>a</sup>Thousands of constant 1972 dollars.

Source: Social Impact Research, Inc., 1981.

TABLE 4-13

ESTIMATED ANNUAL EMPLOYMENT EFFECTS  
 OCONEE COUNTY  
 1967-1979

Year	Employment (by Place of Work)
1967	144
1968	466
1969	1,276
1970	2,108
1971	2,342
1972	2,175
1973	1,735
1974	889
1975	462
1976	482
1977	633
1978	747
1979	833

Source: Social Impact Research, Inc., 1981.

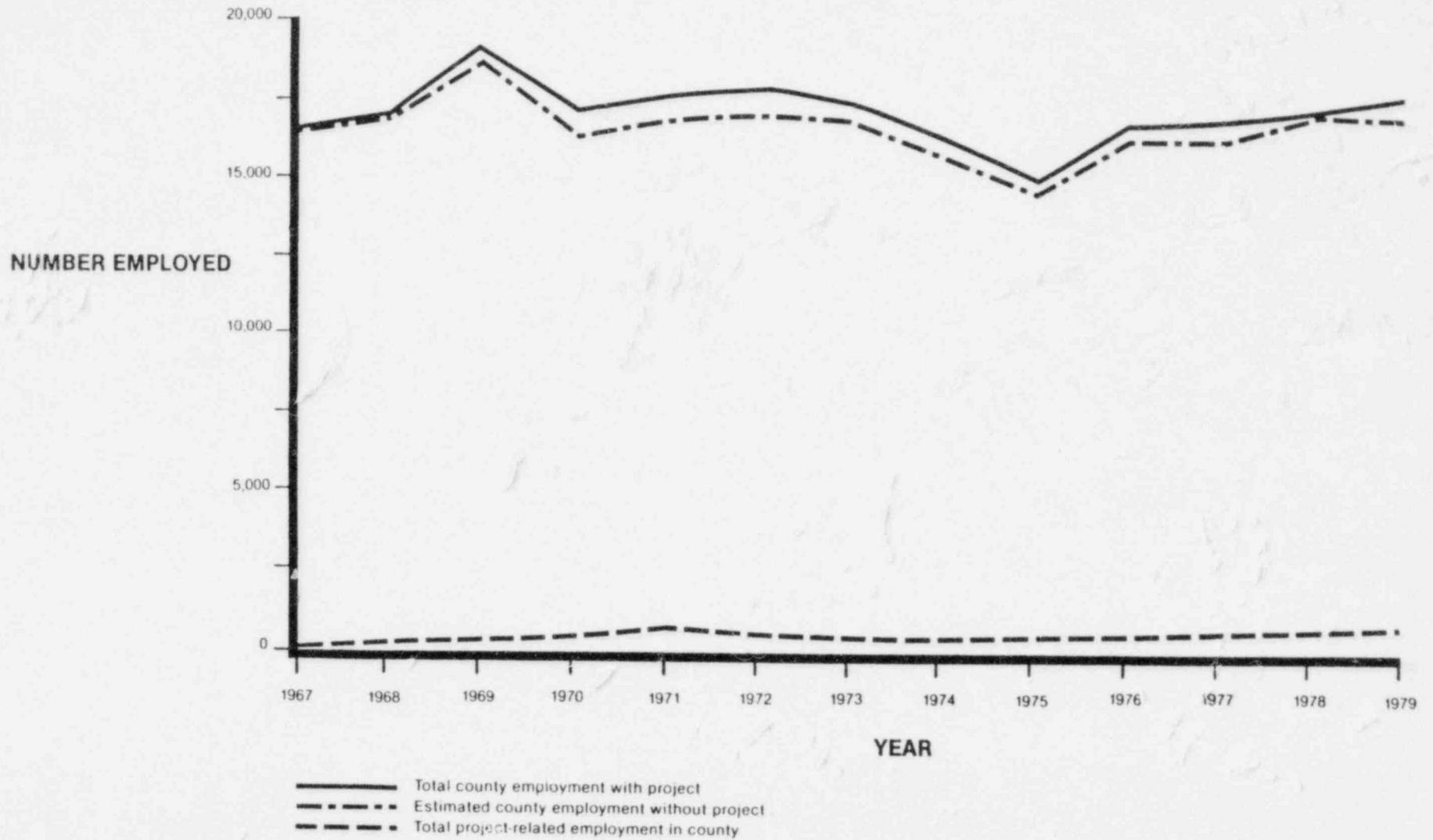


FIGURE 4-2. PROJECT-RELATED EMPLOYMENT BY PLACE OF WORK IN OCONEE COUNTY, 1967-1979.

#### 4.4.3 Effects of the Project on the Residents of Oconee County

As shown in Table 4-14, the Oconee project had a significant effect on the employment of county residents after 1969. Although the actual percentage of employed Oconee County residents working in project-related jobs is difficult to determine, it appears that by 1969 about 1.2 percent of the county residents held project-related jobs (about 0.8 percent were working on the project itself). By 1971, 1.8 percent of the county residents were working in project-related jobs, and about 80 percent of these workers were working on the project itself. In 1975, the three units were in commercial operation, and construction had been completed. The percentage of residents in project-related jobs fell to 1.1 percent, but less than half of these were working on site. The major gains in employment were in the "other" basic category, and were due to tax revenues paid on behalf of the station. After the beginning of operation, employment increased and 1979 estimates indicated that employment of county residents was similar to what it had been at peak construction. The on-site work force was much smaller than it was at peak construction, but the larger proportion of county residents who were operations employees coupled with the "other" basic employment resulted in greater employment for the Study Area. Due to the lower wages, however, income for 1979 was somewhat below that recorded for 1971, even though the number of workers was greater.

The labor force participation rates increased for both males and females during the 1960-1970 period. The increase for men was dramatic, rising from 86.3 percent of the state rate to 103.7 percent (see Table 4-6). Women's rates, always high due to employment in textile and textile-related jobs, declined somewhat—from 113.1 percent of the state rate to 110 percent. This was due to increased female employment in the state, which had risen more quickly than it had in either Oconee County or in the nation (see Table 4-6). During this period, the male labor force participation rate for the county increased from 60 percent of the workers to 62 percent; female participation declined from 40 percent to 38 percent.

Data for average annual income per worker by place of work between 1967 and 1978 (see Table 4-4) show a steady, rapid increase in per worker income as the Oconee project employment increased. In 1973, the average wage was \$6,399 compared to \$5,076 in 1967, an average annual increase of almost 4 percent (26.1 percent for the period 1967 to 1973). The average annual income per worker declined in 1974 and 1975 due to the national economic downturn and the conclusion of construction at the Oconee Nuclear Station. After 1975, average wages increased, and in 1977 and 1978 were near

TABLE 4-14

ESTIMATED ANNUAL EMPLOYMENT AND INCOME EFFECTS ON THE RESIDENTS OF OCONEE COUNTY  
1967-1979

	Direct Basic		"Other" Basic		Nonbasic		TOTAL	
	Employment	Income <sup>a</sup>	Employment	Income <sup>a</sup>	Employment	Income <sup>a</sup>	Employment	Income <sup>a</sup>
1967	37	\$367	—	—	8	\$44	45	\$411
1968	118	\$1,171	—	—	24	\$133	142	\$1,304
1969	324	\$3,215	—	—	66	\$364	390	\$3,605
1970	535	\$5,309	—	—	109	\$602	644	\$5,911
1971	595	\$5,905	—	—	121	\$668	716	\$6,573
1972	552	\$5,478	—	—	112	\$618	664	\$6,096
1973	441	\$4,376	—	—	90	\$497	531	\$4,873
1974	327	\$3,245	79	\$528	83	\$458	489	\$4,231
1975	234	\$2,369	178	\$1,190	84	\$466	496	\$4,025
1976	245	\$2,480	184	\$1,231	88	\$486	517	\$4,197
1977	321	\$3,249	182	\$1,217	106	\$584	609	\$5,050
1978	379	\$3,836	189	\$1,264	119	\$661	687	\$5,761
1979	422	\$4,271	193	\$1,291	131	\$728	746	\$6,290

<sup>a</sup>Thousands of constant 1972 dollars.

Source: Social Impact Research, Inc., 1981.

the high point reached in 1973. Some of the increase in income went to commuting workers, however, and did not affect the Oconee County economy or the resident labor force. In order to estimate the effect this might have had on the county's average annual wage, the figures for 1971 and 1978 were calculated with the movers and the commuters excluded, as shown in Table 4-15. These figures show a clear pattern of increased income per employee from 1967 to 1978, although it is somewhat less than the case when commuters and movers are included. The increase from \$5,076 to \$5,678 in 1971 represents a rise of 11.9 percent and, for the entire 11-year period, the increase was 24 percent. The large population and labor force in the county moderated the effect of the Oconee wages on the overall income per employee. The higher wage rates are shown, however, by the fact that the average income per worker was about \$400 higher in 1971 when the movers and commuters were included, and almost \$100 higher in 1978 when operations workers who moved or commuted were included.

Key informants believed that there were significant changes in the labor force during the construction and operation periods and that many of the changes were associated with the Oconee project. They reported that a significant number of county residents were hired, especially during the construction period, and that their work skills were often upgraded. A number of construction workers remained employed by Duke, some commuting to the new construction sites at McGuire and Catawba. For others, their construction experience contributed to their job mobility in the county. After operations began, a number of local residents were hired as clerical, security, and maintenance workers. Not many local people could have been hired for the highly-trained administrative and operating positions. The "other" basic employees who were hired by local county officials included a large proportion of local residents, but even in these cases many of the highly skilled positions had to be filled by movers or commuters.

The county economy realized only limited benefits in terms of the goods and services resulting from the plant. This was due to the fact that almost all project purchases were made outside the area, and the market share of the county was a relatively modest one in the area. Still, the 119 nonbasic jobs estimated for 1978 were mostly obtained by local residents, and the project was viewed as an important contributor to the local employment and income base.

TABLE 4-15

INCOME PER EMPLOYEE  
RESIDENTS OF OCONEE COUNTY  
1967, 1971, 1977

	1967	1971	1978
Total County Income			
Place of Residence (\$000)	\$100,250	\$125,012	\$166,372
Employment, Place of Work	19,751	22,015	26,415
Income Per Employee	\$5,076	\$5,678	\$6,298

Source: Social Impact Research, Inc., 1981.

## CHAPTER 5: POPULATION

### 5.1 Introduction

The purpose of Chapter 5 is to describe the effects of the Oconee Nuclear Station on the population of Oconee County. The historical background of the county population is described first. The demographic implications of the basic and nonbasic employment due to the project are then addressed. Two sources of project-related population increases are considered: those due to the in-migration of workers and their family members, and those due to diminished out-migration of local residents. These estimates are expressed in terms of an annual series and evaluated as a percentage of the total county population. Further demographic effects are addressed in Chapter 8 where the project impacts on the groups in the Study Area are analyzed.

### 5.2 Demographic Trends

The population of Oconee County grew continuously during the ninety years between 1870 and 1960, generally at an average annual rate of about 1.5 percent. The number of inhabitants increased by a factor of 3.8 during this time period: from 10,536 in 1870 to 40,204 in 1960. The county's share of South Carolina's population also increased notably: from 1.49 percent in 1870 to a high of 1.92 percent in 1940, before declining to 1.69 percent in 1960 (U.S. Census of Population, 1970:728-731).

During the 1960s, the county population declined for a number of years, falling to 39,000 in 1967. Subsequently, the population began to rise again due to the construction of the Oconee Nuclear Station, which reached peak construction employment in 1971. The overall effect on the population size was an increase of 1,154 for the decade, or an increase of 0.29 percent per year. The reasons for the slight growth in the population during the 1960s are related to annexation and out-migration. In 1967, a portion of Oconee County, including part of Clemson University, was annexed by Pickens County. This area had an estimated population of 4,000 in 1966 (South Carolina Statistical Abstract, 1976:10) according to the South Carolina Office of the Secretary of State. During the 1960s, the county continued to experience heavy out-migration in response to higher wages paid outside the county. About 11.5 percent of the 1960 net county population out-migrated.

During the 1970s, the annual estimates and intercensal counts revealed a rising county population based on industry diversification efforts, which attracted new firms

and resulted in improved regional economic conditions and increased real estate sales. The first count 1980 census report (47,122 persons) confirmed a rising county population at substantially higher growth rates. During the 1970s, an additional 6,918 people became residents of Oconee County, representing an average annual increase of 1.60 percent between 1970 and 1980.

The population figures are shown in Table 5-1 and Figure 5-1 for the 1900 to 1980 period, with annual estimates for 1965 through 1980. The annual variation in the estimates never exceeded differences of 1.69 percent for any year, except 1979 and 1980. In fact, the 1.69 difference was recorded during 1972 and 1973 when the construction work force at the Oconee Nuclear Station fell from 2,175 to 1,735 people. Because the annual variation is small, the figures provide a useful basis for assessing the demographic impact of the Oconee Nuclear Station.

### **Migration**

During the 1950 to 1960 period, Oconee County recorded 9,899 births and 2,818 deaths—a net natural increase of 7,081. The population counts for these census years was 39,050 in 1950 and 40,204 in 1960, a difference of only 1,154. This implies a net out-migration of 5,927 for the decade. Between 1960 and 1970, births fell to 8,631 while deaths rose to 3,485. Therefore, the net natural population increase was only 5,146. Meanwhile, the population increased by 524, which implied a net out-migration of 4,622 during the 1960s. (South Carolina , Appalachian Council of Governments, June 1976:15; South Carolina Division of Research and Statistical Services, 1973:11.)

During the 1970 to 1977 period, 5,400 births and 2,900 deaths were estimated for Oconee County. The Bureau of Economic Analysis (BEA) estimated the population for the county in 1977 at 43,900, an increase of 3,228 persons over the 1970 figure. Therefore, the estimated net migration for the first seven years of the 1970s would be 728 people moving into the county (Oconee County Planning Commission, June 1979:12; BEA, 1980; U.S. Bureau of the Census, 1970).

Both the rate of natural increase and the rate of net out-migration decreased after 1950. The average annual rate of natural increase was 1.67 percent in the 1950s, declined to 1.21 percent for the 1960s, and dropped to 0.85 percent between 1970 and 1977. The net out-migration declined from 1.43 percent per year between 1950 and 1960,

TABLE 5-1  
 OCONEE COUNTY POPULATION  
 1900-1980

Year	Population <sup>a,b</sup>	Average Annual Rate of Change (Percent)
1900	23,634	
1910	27,337	1.47
1920	30,117	.98
1930	33,368	1.03
1940	36,512	.90
1950	39,050	.68
1960	40,204	.30
1965	39,100	-.55
1966	39,200	.26
1967	39,000	-.51
1968	39,400	1.03
1969	40,000	1.52
1970	40,728	1.82
1971	41,800 <sup>c</sup>	2.63
1972	42,800	2.39
1973	43,100 <sup>c</sup>	.70
1974	43,300	.46
1975	43,700 <sup>c</sup>	.92
1976	43,900	.46
1977	43,900	.00
1978	44,800	1.59
1979	46,000	2.68
1980	47,122	2.44

<sup>a</sup>U.S. Bureau of the Census, and U.S. Bureau of Economic Analysis.

<sup>b</sup>U.S. Bureau of the Census, Historical Statistics, 1977:731.

<sup>c</sup>South Carolina Statistical Abstract, 1976:13.

Source: Social Impact Research, Inc., 1981.

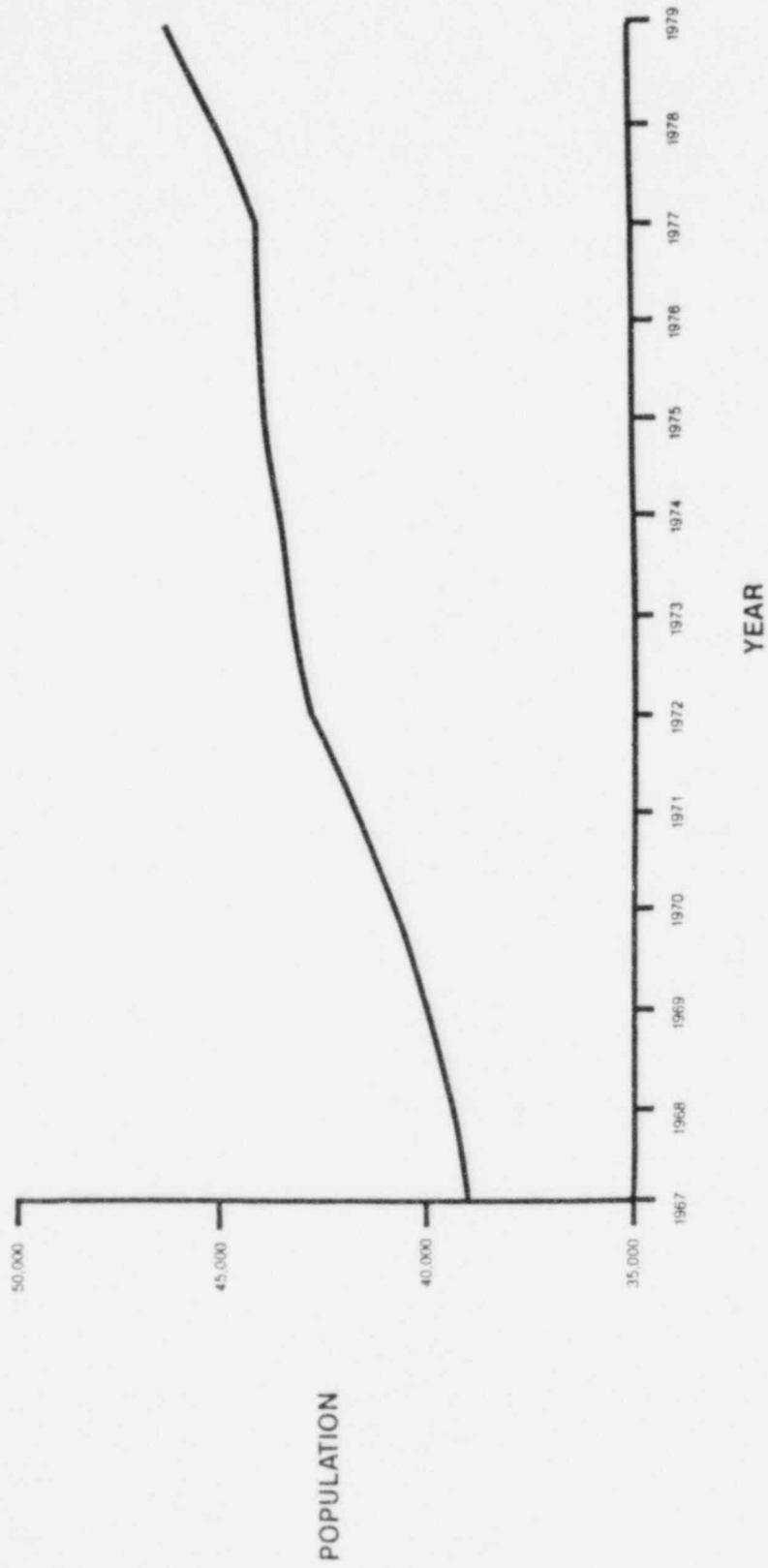


FIGURE 5-1. POPULATION OF OCONEE COUNTY, 1967-1979

to 1.09 percent per year between 1960 and 1970. During the period 1970 to 1977, the net out-migration rate reversed and became net in-migration at an average annual rate of 0.18 percent per year.

### **Race and Age**

Blacks were first brought to Oconee County and the rest of South Carolina as slaves to work as agricultural laborers and domestics. At the time of the 1790 Census, blacks made up approximately 40 percent of the state population. This proportion gradually increased to about 60 percent by 1880, but then declined to 30.5 percent in 1970 (U.S. Bureau of the Census, 1979:34).

Traditionally, Oconee County had a much smaller proportion of black residents than the state. In 1890, the county recorded 26.8 percent black residents compared to almost 60 percent for the state. For the 1960 Census, the rates were 10.7 percent black residents in Oconee County compared to 34.8 percent in South Carolina; by 1970, the county rate had declined further to 9.9 percent.

At various times in the past, at least five different Native American tribes inhabited the Oconee County area. The most recent were the Cherokees who were routed from their settlement at Seneca in 1796 when the village was destroyed by a military action. At the time of the 1970 Census, only 16 individuals were listed as Native American residents of the county.

The 1960 and 1970 age distributions for Oconee County and South Carolina are shown in Table 5-2. The county birth rate has been somewhat lower than the state birth rate. In 1974 the Oconee County birth rate was 15.9 per thousand population while the state rate was 17.4 per thousand. The proportion of the county population under 20 years of age was somewhat smaller than that of the state in both 1960 and 1970. For the adult working ages (20-64) the county proportion was somewhat larger. The 65-and-older age group was somewhat smaller than the state average in 1960 but considerably larger than the state rate in 1970 (119 percent of the state figure). This was the result of in-migration of elderly retired people, which was greatly accelerated by the recreational development associated with the Keowee-Toxaway project.

TABLE 5-2

OCONEE COUNTY and SOUTH CAROLINA AGE DISTRIBUTION  
PERCENT OF TOTAL POPULATION  
1960 and 1970

Age Group	Oconee County		South Carolina	
	1960	1970	1960	1970
0-4	10.6	8.8	12.4	9.1
5-19	32.0	29.3	32.9	32.2
20-44	3.8	33.2	32.1	32.6
45-64	16.7	21.2	16.3	18.8
65+	5.8	8.7	6.3	7.3

Sources: South Carolina Appalachian Council of Governments, Appalachian Statistics, 1978:11; South Carolina Appalachian Council of Governments, Overall Economic Development Plan for Oconee County, South Carolina, 1976:16,17.

The average household size in Oconee County was 3.7 in 1960 and 3.2 in 1970. This compares to the state rates of 3.8 in 1960 and 3.4 in 1970. (U.S. Bureau of the Census, 1960 and 1970.) The current estimates of average household size is 2.9 persons for Oconee County. The decline in household size for the two-decade period (1960-1980) was more than 13 percent.

### **5.3 Changes in the Population during the Study Period**

The study period began in 1967, the year construction began on the Oconee Nuclear Station. Commercial operation of ONS-1 began on 16 July 1973, ONS-2 on 9 September 1974, and ONS-3 on 16 December 1974.

The South Carolina Division of Research and Statistical Services provides population estimates for the state, the counties, and the cities. The estimated Oconee County population for 1 July 1967 was 39,000. The 1980 Census first count report was 47,122, an increase for the entire period of 8,122, or 20.8 percent (an average annual rate of 1.5 percent). The greatest growth periods were 1970-1971, and 1971-1972 (the peak construction period) when annual increases were about 2.5 percent.

### **5.4 Population Effects due to the Project**

#### **5.4.1 Introduction**

The population effects directly attributable to the construction and operation of the Oconee Nuclear Station have been considered in two categories: in-migration and

diminished out-migration.<sup>1</sup> Employment due to the station was assumed to be the driving variable for population increases in both these categories.<sup>2</sup>

In Chapter 4, the number of plant-related workers in Oconee County was estimated for both basic and nonbasic employment. These estimates include in-migrants and local residents who obtained employment because of the Oconee Nuclear Station project. The following section presents estimates of the two categories of population effects due to construction and operation of the Oconee project.

#### **5.4.2 Population Effects in 1971**

##### **Population Change due to In-Migration**

The effects of the project-related employment on in-migration was quite small. At peak construction in 1971, the project created 2,342 basic jobs and 121 nonbasic jobs in the county. The total employment effect for Oconee County was about 716 workers, of which in-migrants filled about 300 positions (see Table 4-9). Approximately 200 of these in-migrants were movers unaccompanied by families or single, while 100 were movers accompanied by families. There is no evidence of in-migration to fill the nonbasic jobs which resulted from the project-induced employment and income.

The average household size for South Carolina in 1970 was 3.4, and this figure has been used to estimate the population effects of movers with accompanying families. In 1971, project-related in-migration to Oconee County included 100 movers with families, for a total of 340 persons (at an average household size of 3.4), and 200 movers unaccompanied by families or single. In 1971, the total in-migration due to the plant was about 540 persons.

##### **Population Change due to Diminished Out-Migration**

Although the Oconee County population increased in the recent past, it also had a long history of out-migration which tended to diminish over time. This section examines

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<sup>1</sup>Although it is possible that a project could cause out-migration or prevent in-migration, neither case appears to apply to Oconee County.

<sup>2</sup>The possibility that unemployed people seeking work could contribute to population increase was considered, but no evidence for such a change was found.

the possibility that employment of local residents due to the Oconee Nuclear Station project diminished the out-migration trend and increased the county population more than it would have been otherwise. The maximum population effect from diminished out-migration would have occurred if all the local residents who were employed in project-related jobs would have moved from the county if not employed. The minimum effect would have occurred if these workers would have remained unemployed in the county without the project-related jobs, in which case no population increase due to diminished out-migration would have taken place.

The effect of diminished out-migration was estimated by examining out-migration trends, employment and out-commuting trends, and interviews with key informants, including county residents who were construction workers at the Oconee Nuclear Station site. The gradual decline in the rate of out-migration after 1950 was due to a diminishing birth rate and increased employment opportunities in the county. Available data on commuting showed a steady increase in net in-commuters from 1960 to 1979. In 1960 there were 279 more out-commuters than in-commuters; by 1979 this had reversed to 2,060 more in-commuters than out-commuters (Hammer, Green, Siler Associates, 1971:42-43; Wilbur Smith Associates, 1980:2-21).

The higher wage rates paid at the project site and the opportunities for training attracted numerous local workers. Some people viewed the construction work as only temporary, but all those who worked for Duke were hired as permanent company employees. Some clerical jobs went to local women, and many of the nonbasic jobs were reported to have gone to family members of long-time residents.

Overall, key informants estimated that about 75 percent of the nonmovers hired for basic and nonbasic employment would have remained in the county regardless of their project-related work, and 25 percent would have out-migrated. Most of these potential out-migrants reportedly were young and unmarried, people who had not already adjusted to the county employment opportunities. Very few members of this group were thought to represent households, perhaps only one-fourth of the 25 percent of likely out-migrants. Therefore, the diminished out-migration was estimated at 25 percent of the nonmovers employed in both basic and nonbasic jobs. In addition, about one-fourth of this number were assumed to have had households of the average size (3.2 persons) for Oconee County in 1970. The total number of nonmovers was estimated to have been 416. The addition to the county population because of diminished out-migration at peak

construction was about 104 workers and 57 household dependents, for a total of 161 persons.

#### **Total Population Effects in 1971**

The total population effects of the Oconee Nuclear Station project on the county population is shown in Table 5-3. At peak construction, the total increase in the county population was about 701 persons more than it would have been otherwise. This was about 1.8 percent of the county population in 1970.

#### **5.4.3 Population Effects in 1978**

##### **Population Changes due to In-Migration**

In 1978, as in 1971, the county population increased due to project-related jobs. In Chapter 4 (see Table 4-12) the employment of direct basic workers residing in Oconee County was estimated at 379; "other" basic was 189; and nonbasic was 119. The total number of project-related jobs in 1978 was 687. There were 48 movers accompanied by families, and 14 movers unaccompanied by families or single (see Table 4-10). The population increase due to in-migration (using the South Carolina 1980 average family size of 2.9 persons) was 153.

##### **Population Change due to Diminished Out-Migration**

Diminished out-migration, as defined previously for 1971, could apply in those cases where workers and their households stayed in the county due to employment in project-related jobs when they would have out-migrated without such employment. This category applies to the 625 nonmovers identified in 1978. The total number of nonmovers includes 317 direct basic, 189 "other" basic, and 119 nonbasic as shown in Table 5-4. The assumptions made in determining the 1971 diminished out-migration were also applied to 1978; about 25 percent of the workers were thought to reside in the county because of their project-related employment, and one-fourth of these workers represented households of 2.9 persons, the average size for Oconee County in 1980. Altogether, the county population increase due to diminished out-migration in 1977 was approximately 230 persons.

#### **Total Population Effects in 1978**

In 1978, the total population increase due to the project was estimated to have been about 383 persons, or 0.9 percent of the total county population (see Table 5-4).

TABLE 5-3  
 POPULATION EFFECTS DUE TO OCONEE NUCLEAR STATION  
 OCONEE COUNTY  
 1971

	Workers			Population		TOTAL
	Direct Basic	Nonbasic	Total Workers	In-Migration	Diminished Out-Migration	
Nonmovers	295	121	416	—	161	161
Movers Accompanied by Families	100	—	100	340	—	340
Movers Unaccompanied by Families or Single	<u>200</u>	<u>—</u>	<u>200</u>	<u>200</u>	<u>—</u>	<u>200</u>
TOTAL	595	121	716	540	161	701

Source: Social Impact Research, Inc., 1981.

TABLE 5-4

POPULATION EFFECTS DUE TO OCONEE NUCLEAR STATION  
 OCONEE COUNTY  
 1978

	Workers				Population		
	Direct Basic	"Other" Basic	Non Basic	TOTAL	In-Migration	Diminished Out-Migration	Population Effect TOTAL
Nonmovers	317	189	119	625	—	230	230
Movers Accompanied by Families	48	—	—	48	139	—	139
Movers Unaccompanied by Families or Single	<u>14</u>	<u>—</u>	<u>—</u>	<u>14</u>	<u>14</u>	<u>—</u>	<u>14</u>
TOTAL	379	189	119	687	153	230	383

Source: Social Impact Research, Inc., 1981.

#### 5.4.4 Summary

An annual series of project-related population effects has been prepared based on the estimates for 1971 and 1978. This series applies the same assumptions about in-migration and diminished out-migration as were used for the two targeted years. The results are shown in Table 5-5. The greatest effects were at peak construction from 1970 to 1973. As the employment increased in recent operations years, the population effects rose substantially. The 1979 population effects were almost 50 percent greater than they were in 1974. Due to the increasing county population, however, these operations period effects were less than 1 percent of the Oconee County total.

TABLE 5-5

POPULATION INCREASE DUE TO OCONEE NUCLEAR STATION  
OCONEE COUNTY  
1967 - 1979

Year	Workers			TOTAL	In-Migration	Population			Total County Population <sup>a</sup>
	Direct Basic	"Other" Basic	Non-basic			Diminished Out-Migration	Total Population Effect	Percent of County Population	
1967	37	—	8	45	33	10	43	0.1	39,000
1968	118	—	24	142	107	32	139	0.4	39,400
1969	324	—	66	390	294	88	382	1.0	40,000
1970	535	—	109	644	486	145	631	1.5	40,728
1971	595	—	121	716	540	161	701	1.7	41,800
1972	552	—	112	614	501	149	650	1.5	42,800
1973	441	—	90	531	400	119	519	1.2	43,100
1974	327	79	93	499	111	167	278	0.6	43,300
1975	234	178	84	496	111	166	277	0.6	43,700
1976	245	184	88	517	115	173	288	0.7	43,900
1977	321	182	106	609	136	204	340	0.8	43,900
1978	379	189	119	687	153	230	383	0.9	44,800
1979	422	193	131	746	166	250	416	0.9	46,000

<sup>a</sup>From Table 5-1.

Source: Social Impact Research, Inc., 1981.

## CHAPTER 6: SETTLEMENT PATTERNS AND HOUSING

### 6.1 Introduction

The purpose of Chapter 6 is to identify the effects of the Oconee Nuclear Station project on settlement patterns and housing in Oconee County. In this chapter, the historical trends are examined with particular attention to the changes that took place during the study period, 1967 to 1978. Based upon the analyses made in the preceding chapter, estimates are made of the Oconee Nuclear Station effects upon new construction, upgrading of existing housing, and increased use of mobile homes. The effects on costs and availability of housing units, based upon key informant interviews and local housing studies, are used to describe the project-related effects. The effects of the creation of Lake Keowee and Lake Jocassee were probably the most important causes of housing and settlement pattern change in the county. These effects were considered but were not studied in extensive detail because: (1) the socioeconomic effects of the lake portion of the Keowee-Toxaway project were conceptualized as distinct from the actual nuclear station, and (2) research resources limited the scope of each case study to data that were compatible with the other study areas. Nevertheless, the background and historical change sections of the chapter give considerable attention to the effects of the lakes. The chapter concludes with a summary of project-related effects on the settlement patterns and housing in Oconee County.

### 6.2 Settlement Patterns

The settlement patterns in Oconee County were determined by a number of factors: (1) the location and nature of natural resources, especially the agricultural and forest potential; (2) transportation routes; (3) historical, economic, and social trends; and (4) the recreational amenities. During the period 1965 to 1975, Duke Power Company completed the hydroelectric portion of the Keowee-Toxaway project. This work included the creation of two lakes. Lake Keowee began hydroelectric power production in the spring of 1971; Lake Jocassee was completed in July 1975.

The creation of these two lakes resulted in major changes in land ownership, transportation patterns, housing stock, and potential land uses. Almost 1,000 people were relocated due to the purchases of property made in the period 1964 to 1967. More than 200 houses, including 12 farmhouses and 57 tenant units, were removed. About 120 summer cabins were removed, and approximately 26,000 acres were inundated (AEC,

1972:91-93). Lake Keowee now forms the northern boundary of the community of Seneca and it has served as the focus for new home construction since the late 1960s.

It took four years to clear the structures and timber from the lake area. The Crescent Land and Timber Company, a Duke subsidiary, supervised several hundred workers who cut 17.5 million board feet of pine sawtimber, 15 million board feet of hardwood sawtimber, and 51,800 cords of pulp wood. This work was completed in 1969. (Greenville News, 22 August 1975.)

Management of the watershed area was provided by the Crescent Land and Timber Company and the South Carolina Department of Parks, Recreation and Tourism. The Keowee-Toxaway State Park, which contained about 1,000 acres, was deeded to the state by Duke Power. Over 100,000 acres around parts of Lake Keowee and Lake Jocassee were given over to the South Carolina Wildlife Resources Commission. More than 18,000 acres of this area was used to protect game such as deer, bear, and wild turkey. There were 19 locations with public facilities on the two lakes, ranging from the Visitors' Center at the Oconee Nuclear Station to campgrounds, boat launches, marinas, and complete recreation areas. Many of these areas were maintained by the Duke Power Company while others, such as the marinas and retail shops, were operated by private owners. Publicly administered areas included the state park and the areas devoted to wildlife propagation. (Duke Power Company, personal communications, 1979, 1980, and 1981; South Carolina Appalachian Council of Governments, 1975.)

The county road system was extensively changed due to the Keowee-Toxaway project. During the period 1967 to 1970, about 21.5 miles of road, including six major bridges, were constructed at a cost in excess of \$5 million. (Duke Power Company, personal communications, 1980 and 1981; Seneca Journal, 13 September, 1967; Greenville News, 11 April 1968; News, 25 November 1969.) The construction of South Carolina Route 11 (SC-11), which was financed 70/30 by the federal and state governments, was closely connected to the Keowee-Toxaway project. Duke Power Company paid for the Keowee River crossing bridge on SC-11. The Oconee County sections connected to Interstate 85 (I-85) and provided a modern two-lane highway to Keowee-Toxaway State Park and other recreation areas in South Carolina. (South Carolina Appalachian Council of Governments, 1975.) Overall, the road system of Oconee County was substantially altered by the Keowee-Toxaway project. The new roads were constructed to modern standards, but in many cases the routes were longer than those which existed before the

lakes were filled. The addition of SC-11 to the road system provided a major improvement in access to the upper portions of the county.

The construction of the Atlanta and Richmond Air Line Railway track through Oconee County in the mid-1870s resulted in the establishment of Seneca as a railroad junction. Seneca was divided into 659 lots of 1.5 acres each and 16 surrounding farms of 15-20 acres each. A small mill was established and eventually the city became the major retail, manufacturing, and distribution center for the county (City Planning Design Studio, Clemson University, 1970).

The overall economic trends moved from being agriculture and forestry based to manufacturing, retail and wholesale trade, and recreation based. The exception was the establishment of some apple orchards during the past 25 years. Generally, however, the manufacturing and trade expansions resulted in population growths in Seneca, Walhalla (the county seat), and, to a more modest degree, Westminster. The creation of the two lakes (Lake Keowee and Lake Jocassee) resulted in significant recreation development and determined to some extent, the location of new housing construction. (County Planners, personal communication, 1980.)

#### **6.2.1 Population Distribution**

There were four incorporated places in Oconee County. The 1980 estimated populations were: Seneca—8,022; Walhalla—3,774; Westminster—2,838; and Salem—321. Utica, an unincorporated town immediately adjacent to Seneca, had an estimated 1980 population of 1,312. The area around Seneca, especially along the lake front, grew rapidly. New communities, such as Keowee Keys, Normandy Beach, and Port Santorini, were built as upper-price-range residential areas (houses over \$50,000). Generally, the trend was for the incorporated areas to increase their population at a greater rate than the county as a whole, as shown in Table 6-1. During the 1970-1980 decade, Seneca grew by 33.1 percent; this compared to 20.8 percent for Westminster, 3.1 percent for Walhalla, and 6.6 percent for Salem. For a long time, there was a tendency for the population to concentrate in the south-central part of the county where the three main communities (Seneca, Walhalla, and Westminster) were located within a triangle having about 10 miles on each side. This area contained about 80 percent of the county population as of 1960. While this percentage dropped to 78.4 percent in 1970 (due to the 1967 annexation of the Clemson campus area by Pickens County), local key informants reported that the greatest growth took place in this triangle. Therefore, they expected the detailed 1980

TABLE 6-1

POPULATION BY INCORPORATED PLACES  
 OCONEE COUNTY  
 1960, 1970, AND 1980

Area	1960	1970	1980
Oconee County (Total)	40,204	40,728	47,122
Oconee County Communities			
Seneca (Utica)	5,227	6,027 1,299	8,022 1,312
Walhalla	3,431	3,662	3,774
Westminster	2,413	2,521	2,838
Salem	206	301	321

Sources: U.S. Department of Commerce, Bureau of the Census, 1960, 1970, and 1980; SCACOG, 1978.

census reports to show another increase in the triangle's proportion of the county population. (Oconee County planner, personal communication, 1980; realtor, personal communications, 1980 and 1981.)

As shown in Table 6-2, during the study period agricultural land use trends were toward fewer farm operators, a decreasing number of acres in agricultural production, and a slightly larger average farm size. The decline in the number of farms during this period was 28.9 percent; the overall decrease in farmland was noticeably less at 22.3 percent. The trend had been for owners of the smaller farms to rely more on outside employment for income and relegate the farm production to a secondary role. In 1974, about 64.1 percent of the farm owners had a principal occupation other than farming. By 1978, this had increased to 66.7 percent. (1978 Census of Agriculture, 1980:2.)

Forest resources accounted for approximately 280,000 acres, about 70 percent of the total county land area (SCACOG, 1980). The Crescent Land and Timber Company, a Duke subsidiary, was the county's largest private land holder and owned title to more than 100,000 acres. A considerable portion of this land was devoted to public use, including wildlife preservation, watershed protection, recreation, and production of forest products. In the whole county, about 30,000 acres of woodland were held as parts of farms and designated as woodland and woodland pasture. There was a gradual increase in woodlands as the number of farms declined (1978 Census of Agriculture, 1980:2).

The commercial development in the county had been concentrated at Seneca, and the county administrative growth had taken place at Walhalla, the county seat. The area near the Seneca by-pass, United States Highway 76 (US-76), and United States Highway 123 (US-123), which was located north of the downtown area and south of the Lake Keowee shoreline, had been the area of major new commercial development in the county, and numerous stores, motels, restaurants, and businesses were located along the by-pass. The development in Westminster had been much slower, and the improvement in highways had resulted in more money being spent outside the town market area.

### 6.3 Housing

#### 6.3.1 Housing Prior to Construction of the Oconee Nuclear Station

Historically, the three main bases for employment in Oconee County were agriculture/forestry, manufacturing, and retail trade. The nature of the land did not

TABLE 6-2

SELECTED FARM CHARACTERISTICS  
OCONEE COUNTY  
1969-1978

	1969	1974	1978
Total Number of Farms	772	615	549
Total Acres of Farmland	90,771	75,949	70,568
Percent of County Land in Farms	21.7	18.1	16.8
Average Size of Farm (acres)	118	123	129

Source: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, 1974 and 1978.

encourage large agricultural operations, such as the plantation system common to other areas of South Carolina in the nineteenth century. Rather, small and scattered farms were more common.

The textile mills, which made up the original manufacturing base of the county, tended to be surrounded by "mill villages" which were often owned by the textile company and provided housing only for employees. These villages tended to be fairly small and, since they were so specialized, they also tended to be separated from each other. Although Utica was adjacent to Seneca and not far from Newry, both remained distinct and separate housing areas long after the residences were no longer owned by the mills. The scattered small farms and the practice of locating mill housing in discrete villages resulted in a dispersed housing pattern in the county.

Concentration of housing in the larger commercial centers of the county (Seneca, Walhalla, and Westminster) did not take place to the degree that might otherwise have been expected. Originally, Seneca was envisioned as a major market center but its growth disappointed its backers even though it did become the largest town in the county. It served as a retail center for the surrounding county but it did not attract the large population and housing development that it was originally designed to accommodate. Rather, the local county residents tended to maintain their scattered patterns of housing. The formation of Lake Keowee was the major variable in changing the historical housing patterns. Once the lake boundaries were defined, the opportunities to locate new housing in waterfront developments dominated new housing construction. The recreational attractions of the lake not only drew long-term residents to the new housing but attracted in-migrants, including numerous retired people. These housing changes were not due directly to the Oconee Nuclear Station but rather to the creation of Lake Keowee. Nevertheless, the two projects were closely interrelated and Lake Keowee would not have been built without the power station portion of the Keowee-Toxaway project. Also, the housing effects of Lake Keowee took place during the time in which the Oconee Nuclear Station was being built and operated, and the planning of real estate developers was significant prior to the start of the actual construction on the station.

### 6.3.2 Changes in the Housing Stock during the Study Period

County housing data for 1960 and 1970 are shown in Table 6-3. County data on new housing units for the period 1970 to 1980 were not available. The best annual data

TABLE 6-3

SELECTED HOUSING CHARACTERISTICS  
 OCONEE COUNTY  
 1960 and 1970

	1960	1970
Total Population	38,623	40,728
White	34,322	36,646
Black	4,301	4,082
Total Number of Housing Units	11,757	14,032
Owner Occupied	6,278	8,838
White	5,822	8,243
Black	456	595
Renter Occupied	4,167	3,914
White	3,591	3,423
Black	576	491
For Sale	54	123
For Rent	329	288
Trailers	96	1,433

Source: U.S. Department of Commerce, Bureau of the Census, U.S. Census of Housing, 1960 and 1970.

were collected for multifamily developments (4 units or more) in a series of surveys conducted by the South Carolina Appalachian Council of Governments. Some data on Walhalla, Westminster, and Seneca were available from a variety of sources. However, these data were not presented in an annual series and they did not provide the basis for constructing a table of housing change such as was completed for the other case studies. The 1980 census data available at the time when data were being gathered listed only the total number of housing units--20,226. This was an increase of 44.1 percent over the 1970 figure of 14,032. (Annual rate of increase was 3.7 percent.) County records of annual new housing starts were not aggregated to annual data, and the physical records for the period before 1975 were in storage and did not lend themselves to review. Therefore, much of the evaluation of housing effects relied upon the perceptions of key informants and was very qualitative. Table 6-4 shows the data that were available.

There was a significant increase in multifamily housing units (units having 4 or more separate dwellings) during the study period. In 1969, there was a total of 175 multifamily units: 10 of these units were unsubsidized, while 165 of them were low rent units which were subsidized through various government programs. By 1979, the county had 711 multifamily units--346 unsubsidized and 365 subsidized. Thus, while the subsidized housing increased by 200 units (121.2 percent), the unsubsidized units (those operated by private owners) increased by 336 units (336.0 percent). The period of greatest growth in the private sector came between 1971 and 1974 when 248 units were built. The construction of multifamily units peaked in 1972 and 1974 with 80 units being built each year. Almost all these units were built in Seneca (216 units), and only one other project (32 units) was built in Walhalla.

For the period 1975 through 1980, there were 2,293 building permits issued for single-family dwellings, an average annual rate of 382 units. These new buildings were concentrated in the Seneca and Lake Keowee areas. (Oconee County Assessor, personal communication, 1981.)

In early 1981, there were 5,621 mobile homes listed by the Oconee County Assessor. This number was up considerably (292 percent) from the 1970 census report of 1,433 mobile home units. Mobile home residential units were classified as being permanently located on the owner's property (2,987 units), or temporarily located on rented property (2,634 units). The assessor also estimated that there may have been as many as 1,500 seasonal mobile units in the county, mostly registered or licensed in

**TABLE 6-4**  
**HOUSING UNITS ADDED, BY TYPE**  
**OCONEE COUNTY**  
**1971-1980**

YEAR	Single Family Units	Multi-Unit Structures <sup>a</sup>	Mobile Homes	Seasonal	TOTAL
1970 <sup>b</sup>	11,715	765	1,433	119	14,032
1971	N/A	96 <sup>b</sup>	N/A	N/A	96
1972	N/A	176	N/A	N/A	176
1973	N/A	24	N/A	N/A	24
1974	N/A	80	N/A	N/A	80
1975	282	52	N/A	N/A	334
1976	414	20	N/A	N/A	434
1977	436	40	N/A	N/A	476
1978	417	38	N/A	N/A	455
1979	443	84	N/A	N/A	527
1980	301	N/A	5,621 <sup>c</sup>	1,850 <sup>d</sup>	20,226 <sup>e</sup>

<sup>a</sup>Multiunit structures only for 4 or more units per structure, 1971-1980. (SCACOG, 1979.)

<sup>b</sup>1970 Census. Total units for Oconee County by type. Multiunit structures includes two or more units per structure.

<sup>c</sup>Current registered number, Oconee County Assessor, 1981.

<sup>d</sup>Estimate, including about 1,500 seasonal mobile home units, Oconee County Assessor, 1981.

<sup>e</sup>Preliminary count, 1980 Census.

Sources: U.S. Dept. of Commerce, Bureau of the Census, U.S. Census of Housing, 1970 and 1980; SCACOG, 1979; Oconee County Assessor's Office, 1981.

North Carolina and Georgia. These units were used for weekend, vacation, or occasional recreational use.

### **6.3.3 Effects of the Oconee Nuclear Station on Housing in the Study Area**

The effects of the Oconee project on housing have been considered for three categories: (1) effects on the size of the housing stock due to project-related demand (i.e., provision of new housing); (2) effects of upgrading or conversion of existing structures; and (3) effects on the cost and availability of housing units.

#### **6.3.3.1 Effects on the Size of the Housing Stock due to Project-Related Demand**

The project-related housing demand estimates are based upon the characteristics of the workers and their accompanying household members (see Table 5-5). These figures show total in-migration and diminished out-migration estimates on an annual basis for the period 1967 to 1979. The estimates for housing units takes into account the fact that the company provided on-site accommodations for 150 workers and these units are not considered as additions to the housing stock of the Study Area. At peak construction, in 1971, the population increase which would affect the Study Area housing conditions was estimated at 551 persons. (Total population effect of 701 minus 150 on-site workers equals 551 persons.) The on-site units were removed after construction of the Oconee Nuclear Station was completed and they do not apply to the operations period.

Table 6-5 shows the estimated annual housing demand of project-related personnel for the years 1967 to 1979. The greatest demand for housing in the county took place between 1970 and 1972. The greatest project-related demand was 167 units at peak construction (1971). This was about 1.2 percent of the 1970 housing stock as reported by the 1970 Census. The 1980 Oconee County housing stock was reported as 20,226 units in the preliminary census figures. The project-related demand for 1979 was about 0.7 percent of the county housing stock.

Mobile homes constituted a large proportion of the new units added to the county housing stock. In-migrants using mobile homes tended to rent space in one of several mobile home parks while long-term residents were more likely to put mobile homes on their own land. (private realtor, personal communications, 1981.)

TABLE 6-5

OCONEE NUCLEAR STATION  
 OCONEE COUNTY ANNUAL HOUSING REQUIREMENTS  
 OF PROJECT-RELATED POPULATION  
 1967 to 1979

Year	Project-Related Population Increase <sup>a</sup>	Project-Related Housing Demand (Units) <sup>b</sup>
1967	43	13
1968	139	42
1969	382	85
1970	631	145
1971	701	167
1972	650	152
1973	519	112
1974	278	54
1975	277	93
1976	288	96
1977	340	114
1978	383	128
1979	416	139

<sup>a</sup>Shown in Table 5-5.

<sup>b</sup>Household size for movers with family present estimated at 3.4 (average size for South Carolina, 1970 Census; movers unaccompanied by families (and singles) at 2.5 due to rooming together arrangements; 150 on-site bachelor quarters accounted for; diminished out-migration household size at 3.2 (average for Oconee County, 1970 Census); 1978 household sizes were based upon SCACOG estimates; 3.1 for movers with families; 2.9 nonmovers (diminished out-migration).

Source: Social Impact Research, Inc., 1981.

### 6.3.3.2 Effects on the Housing Stock through Project-Related Upgrading or Conversion

The creation of Lake Keowee, as distinct from construction of the Oconee Nuclear Station, had profound effects on upgrading and changing the housing stock of the county. The changes were of two kinds—removal of units from areas that were to be flooded, and construction of new units in waterfront lake developments. After the impoundment and development of the lakefront areas, there were some additional recreational, retirement, and residential development in the mountain areas adjacent to the lakes.

Key informants stated that most of the project-related upgrading was done by nonmovers who improved their own homes. There was some improvement of rental properties, but this occurred mostly because of overall economic conditions and only a small amount directly resulted from the Oconee project.

### 6.3.3.3 Effects on the Housing Market

The increased population in Oconee County during the decade 1970-1980 was in sharp contrast to the period 1960-1970; there was an actual decline in population prior to 1967. When the Keowee-Toxaway project began, it coincided with a reversal in the downward population trend, and consequently in the housing demand. Since the population had not grown between 1950 (when it was 39,050) and 1967 (when it was estimated at 39,000), there was little reason to increase the housing stock except for the needs of specific individuals. Once the population growth and housing needs began to increase in the mid-1960s, there was a steady demand and vacancy rates were extremely low. As late as 1977, the vacancy rate in Seneca was only 3 percent, and 60 of the 96 vacant units were judged to be in a deteriorated or dilapidated condition. Therefore, the functional vacancy rate was even smaller, approaching 1 percent. (Clemson Architectural Foundation, 1978:91.)

Rental rates in the county rose from a 1970 median of \$51.00 per month (as reported in the 1970 Census) to between \$120.00 and \$250.00 per month in 1979 for nonsubsidized multifamily development units (SCACOG, 1979). Data on median contract rents for recent years were not available, however, making it difficult to compare either the facilities or the clientele for the different years covered by the study period. There had been a rise in rents and a major expansion in the housing market due to construction of new rental properties, the increase in mobile homes, and constant additions to the single family housing stock. The perception of key informants in the real estate sector

was that rents increased beyond the effects of inflation due to the increased demand and the in-migration of people who had larger incomes than did the local residents. According to those reports, developments in the housing market worked to the disadvantage of young people trying to establish households, families wanting to upgrade their housing, and the elderly. At least one realtor pointed out, however, that these conditions were apparently common in numerous other areas of the country and not necessarily an effect of the Oconee Nuclear Station.

#### 6.4 Summary

The effects of the construction and operation of the Oconee Nuclear Station on housing and settlement patterns in the county were relatively modest. The project-related population accounted for only about 1.2 percent of the housing demand at peak construction and 0.7 percent for 1979. Duke Power Company incorporated the power station with the larger Keowee-Toxaway project which involved the purchase of large tracts of land, the creation of two lakes, construction of hydro-electric facilities in two places, rebuilding over 21 miles of roads, removal of about 327 housing units (including 120 summer cabins), and relocation of about 1,000 people. These events had a profound effect on the housing and settlement patterns of the county. Not only were there immediate changes in the local conditions, but these changes determined many of the future development patterns. The concentration of subsequent housing development on waterfront property was one example. In interviews with key informants, it was often difficult to distinguish between the effects of Oconee Nuclear Station and those resulting from the overall Keowee-Toxaway project. This was especially the case since many of the major housing and land use effects of the creation of the lake took place during construction and operation of the power station. The evaluation of housing and settlement pattern effects attempted to maintain a distinction between the power station and the other elements of the Keowee-Toxaway project.

Key informants thought that there had been some upgrading of the local housing stock due to wages paid to nonmovers, but there was no estimate of the extent of these improvements and no dollar amounts could be determined. The increase in rents was thought to have been partly influenced by the project. However, the company provided facilities for 150 workers on site, and some of the change in the real estate market seemed to follow national and regional trends. The development of Oconee County as a retirement and recreation area also changed the real estate and housing markets.

Land changes due solely to the Oconee Nuclear Station project, as distinct from the overall Keowee-Toxaway project, were modest. The power station site occupied about 510 cleared acres, and about 2,000 acres were included in the exclusion area. The 510 acres were designated as industrial rather than rural/agricultural. There were no additional commercial or industrial developments in the county as a direct result of the power station. The Clemson Holiday Inn, located in nearby Pickens County, served as the major motel facility for temporary workers at the Oconee Nuclear Station. The much smaller, locally owned motels in the Seneca area also received project-related visitors, but this demand was not considered a significant factor in local commercial development.

## CHAPTER 7: LOCAL GOVERNMENT AND PUBLIC SERVICES

### 7.1 Introduction

The purpose of Chapter 7 is to describe the basic structural components of local government in Oconee County, indicate the levels 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 Oconee Nuclear Station. These discussions highlight changes associated with significant social or political consequences rather than provide a detailed fiscal analysis of the county government.

Following a background description of the county government, a summary of the budget for the study period will be presented. An analysis of revenues and expenditures concentrates on the increased county revenues from the project. These analyses include consideration of the effects on the assessed tax base of the county, reduced tax rates, increased expenditures, and other results.

The discussion of public services focuses on employment and service trends in four areas: education, transportation, public safety, and social services. These areas have been chosen because they are (1) thought to be responsive to socioeconomic change in the county; (2) they are often cited as impacted services in the literature; and (3) they would be indicative of other public services effects experienced in the Study Area.

### 7.2 Governmental Structure

In 1940 Oconee County was predominately rural with 92 percent of its population classified as living in rural areas. By 1970, 68.3 percent still resided in rural areas while 31.7 percent lived in the five incorporated towns, the largest incorporated area being Seneca with 6,027 people. (U.S. Census, 1940 and 1970.) Consequently, the county provided the local government services for most of the Study Area. Solid waste collection, communication services, fire protection, law enforcement, and recreation were also provided by the large incorporated areas. (Oconee County Planning Commission, 1979:26-75.) However, the role of the towns was limited to their own incorporated boundaries, and the areas of public services analyzed for this chapter were primarily the responsibility of the county or the state. Although the towns did not receive any additional revenues directly from the Oconee project, they did receive monies which were passed through the county government in the form of grants, rebates, and refunds. The total pass-through allotment amounted to less than \$2,500 during

FY 1973. By FY 1975, these passed-through monies amounted to \$100,000. Between 1975 and 1981 these funds more than doubled. In addition, the towns did not experience any major political or population change during the 1970s with the exception of Seneca which grew by 3.8 percent per year. Each town had a council-mayor form of government which provided both legislative and executive supervision of town services such as water, sewers, roads, fire, police, and recreation. (Oconee County Council, Budget Ordinances for 1973, 1975, and 1980; City of Seneca, 1978:55-56.)

Prior to 1975, the Oconee County government was run by the local delegates to the state legislature with minor day-to-day areas of responsibility invested in a Board of County Commissioners. The basic theory of this historical organization was that the county served as a creation of the state to provide necessary local services. The source of the state legislators' authority was their control over local enabling legislation and yearly appropriations for county services. In effect, the county had no autonomous legislative authority but had to rely on the State General Assembly to enact laws that were applicable to the county. The state delegates from the county reviewed budgets for local services (including education) in formal hearings prior to the enabling and appropriations bills being submitted to the State General Assembly. In this way the state legislative delegation exercised an administrative review and planning control over all county services.

The County Board of Commissioners was composed of five members, each elected from a specific district. The county supervisor was elected at large and served as chairperson of the board. The Board of Commissioners exercised very limited authority: it helped coordinate county services between departments, developed county-level policies, received financial reports and performed necessary audits, and made recommendations to the legislative delegation about new laws and appropriations. The main duties of the board were limited to review of the county cash flow and the tasks assigned to the supervisor. The specific duties of the supervisor were focused on the county's physical assets: control over the use of county buildings, construction and maintenance of roads, and supervision of the chain gang and other county prisoners. (SCACOG, 1974:1-10.)

The actual decision making for county services was decentralized to the department level, with the Board of Commissioners providing an after-the-fact review of expenditures, and the legislative delegation reviewing policy and overall spending

proposals. In a review of the procedures, the South Carolina Appalachian Council of Governments (SCAGOG) report characterized the process as one which hindered "public accountability" and prevented "responsible internal control over spending." (SCACOG, 1974:11-13.) Finally, the SCACOG report said that the traditional procedures resulted in a lack of uniform conditions for county employment since personnel policies and administration were decided at the department level. In effect, the county did not have an overall administrative head nor a uniform set of operating procedures.

The control and administration of county government underwent a significant change in 1975 when Oconee County adopted the county-council form of government. The five members of the council were elected on an at-large basis with staggered terms. The county supervisor's position was changed to that of the principal county administrator.

The county council assumed the power to appropriate money, set tax rates, issue bonds, and impose standards and procedures for the administration of county affairs. Personnel administration, including pay scales, salaries, and job descriptions, was brought under a uniform county employment standard with the right to hire and fire employees still exercised by department heads (SCACOG, 1974:15-20).

This change in county government provided significant local control of county services. There was a major expansion of the legislative functions, increased overall administrative control, and greater local involvement in county affairs. These changes required considerable adjustment by county personnel and resulted in a number of changes in the organization of county government.

During the study period, the scope and type of county services were expanded and a number of new departments were established. A county-wide solid waste disposal capability, a Parks and Recreation Program, and a Council on Aging were implemented, while major expansion took place in public safety, social services, health, and education institutions. The county added several administrative positions including building inspector, public defender, county planner, and personnel officer.

### 7.3 The County Budget during the Study Period (1967-1980)

#### 7.3.1 The County Budget

The data available on the county budget for 1967 to 1980 are summarized in Table 7-1. Line items included under each budget function are: (1) General

TABLE 7-1  
 OCONEE COUNTY BUDGET  
 FISCAL YEARS 1967-1980  
 (Thousands of dollars)

Budget Functions <sup>a</sup>	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
General Administration	\$475.5	\$514.7	\$583.8	\$726.5	\$685.9	\$725.2	\$784.7	\$940.6	\$2,080.2	\$2,501.2	\$2,980.9	\$1,957.3	N/A	\$3,432.3
Public Safety	107.5	119.5	136.6	167.9	233.4	259.9	270.0	307.3	368.5	431.0	557.4	739.5	N/A	954.2
Public Works	18.9	22.3	23.5	96.6	113.5	102.5	83.4	156.6	360.2	325.1	369.7	345.3	N/A	549.6
Health	33.3	53.3	66.5	139.8	86.3	93.5	90.9	149.8	202.9	203.3	211.7	210.4	N/A	187.6
Social Services	52.7	59.5	70.1	85.1	109.2	119.5	144.0	250.6	257.2	311.4	332.4	347.6	N/A	471.8
Parks and Recreation	38.9	47.4	52.5	67.9	71.1	80.8	93.2	215.9	275.0	315.5	303.1	232.8	N/A	337.6
Education <sup>b</sup>	3,332.0	3,655.5	4,214.6	4,448.8	4,780.9	5,438.9	6,006.4	7,447.3	8,195.7	9,144.5	9,704.9	9,964.9	11,896.9	12,314.5
Other	28.3	28.8	28.8	29.3	510.4	447.8	76.7	746.3	1,134.7	1,474.8	2,648.3	1,723.5	N/A	1,130.7
Capital Outlays	—	—	—	33.0	34.5	237.5	673.4 <sup>c</sup>	35.5	2,531.9	2,532.7	1,794.4	3,992.7	N/A	1,713.0
Total Expenditures	4,087.1	4,501.0	5,176.4	5,794.9	6,625.2	7,505.6	8,222.7	10,249.9	15,406.3	17,239.5	18,902.8	19,514.0	20,633.8	20,091.3
Constant 1972 Dollars	5,027.2	5,320.3	5,489.0	6,264.8	6,858.4	7,505.6	7,794.0	8,768.1	12,178.9	12,942.6	13,434.8	12,983.4	12,505.3	11,338.2
Annual Rate of Change (Percent)	—	5.8	9.9	7.1	9.5	9.4	3.8	12.5	38.9	6.3	3.8	-3.4	-3.7	-9.3

<sup>a</sup>Line items included under each budget function are detailed in Section 7.3.1.

<sup>b</sup>Figures for years 1967 and 1968 include capital outlay.

<sup>c</sup>Includes all federal revenue-sharing appropriations.

N/A - Not available.

Sources: South Carolina State Legislature, Oconee Delegation Budget Appropriations Bills for FY 1967-FY 1974; Oconee County Council, County Budget Ordinances 75-11, 76-3, 77-6, 78-7, 80-7; Oconee County School District, Operating School Budget for FY 1969-FY 1980.

Administration: Auditor, Board of Assessment Appeals, Board of Registration, Boards and Commissions, Clerk of Court, Comptroller, Co-op Extension, Coroner, Council of Governments, County Council Delegation, Election Commission, Juvenile Court, Magistrates, Motor Pool, Personnel, Planning and Development Commission, Probate Judge, Probation Office, Public Defender, Purchasing, Refund to Towns, Salary Adjustments, Solicitor, Supervisor, Tax Assessor, Tax Collector, Treasurer, Tri-County Technical College, Veteran Affairs, Road Work Expenditures, Salaries and Travel (excluding law enforcement expenditures); (2) Public Safety: Law Enforcement—salaries and operation, Law Enforcement Center Operations, Police Academy, Rural Fire Control, Civil Defense, Communications; (3) Public Works: Aeronautics, Public Buildings, Sewer Commission, Building Inspector, CCS Commission, Soil and Water; (4) Health: County Physician, Hospital, Ambulance Service, Health Department; (5) Social Services: Public Welfare, Lunacy and Inquest, Retirement and Social Security, Tri-County Mental Health Commission, Lakeview Rest Home, Children's Home, Oconee/Pickens Office of Equal Opportunity, Unemployment Insurance, Oconee/Anderson Speech and Hearing, DMR Grant (Aid to Retarded Citizens), Association for Retarded Citizens, Anderson/Oconee Council on Aging, Charitable Medical Services, Department of Social Services, Juvenile Services, (6) Parks and Recreation: Arts Commission, PRT Commission, Lunney Museum, Home Demonstration Agent, Farm Agent, 4-H Club, Apple Festival, Pendleton District Historical Commission; (7) Education: Operating Funds (state and local), Delinquent Taxes; (8) Other: Humane Society, National Defense Contingency Funds, Uncollected Taxes, CETA and other Federal Monies, Education Debt Costs, Bond Premiums; (9) Capital Expenditures: All Capital Outlays. The county records were incomplete in many respects, with the deficiencies of the earlier years being the most obvious. This was due to limitations in both the records systems and the availability of personnel.

The 1978 budget was 258.3 percent greater than the 1967 budget (in constant 1972 dollars). The changes in the annual budgets were modest between 1967 and 1973, increasing by 7.6 percent per year. After 1973, there were significant increases in the budget. Between 1967 and 1977, the average annual rate of increase was 10.3 percent per year (in constant 1972 dollars); after 1977, the budget decreased at an average annual rate of 5.5 percent (in constant 1972 dollars). For the entire period (1967 to 1978), the average annual rate of change was 9.4 percent. The greatest increase in any one year was in FY 1975-76 when the county budget increased by almost 3.5 million dollars (in

constant 1972 dollars). These changes can be expressed in terms of the two controlling economic variables—revenues and expenditures.

### **7.3.2 Revenues**

During the study period, the major source of revenue for the county was the property tax. The methods for assessing the value of land improvements, personal property, public utilities, and corporations changed over the study period. Generally, the assessment of property had been directed by the county (the exception being industrial property) with the tax rates being set by the Oconee County Council. Table 7-2 shows the assessed values and tax rates for FY 1971 through FY 1980.

The value of the Oconee Nuclear Station was set by the South Carolina Tax Commission and reported to the counties. The Tax Commission also made a determination of the current ratio of assessed property valuation to the full market value for each county. In 1980, the ratio for Oconee County was 70 percent of market value, based on 1975 assessments. Prior to 1975, the county determined its own assessment schedule. Upon the adoption of State Act 208 in 1975, the county had to comply with the state-mandated assessment schedule and procedures for valuation. This meant that the residential and agricultural property in Oconee County that was being assessed at 2.5 percent during 1975 had to be raised to 4 percent of market value; utility-industrial property in Oconee that was being assessed at 9.5 percent was raised to 10.5 percent. Two categories remained the same—commercial property assessments at 6 percent and retail-inventory and personal property assessment at 10.5 percent. The state allowed the county a 7-year period to reach the mandated assessment schedule. Oconee County reassessed its real property in 1975, with another assessment scheduled for 1981. The county tax rate on real property must be the same for all classes—residential, commercial, industrial, and so forth. Therefore, the county rate for 1975 (see Table 7-2) would apply to the Tax Commission's valuation of utility properties in the jurisdiction. (County Treasurer, personal communication, 1980.)

Another difference is that, according to state law, industrial property is depreciated for purposes of valuation while other types of property tend to appreciate substantially. In addition, pollution-control facilities and equipment were exempted from property taxation in 1976. Also, after 1978, all new manufacturing establishments or additions of more than \$50,000 were exempt from county taxes (including school and municipal taxes) for a period of five years upon yearly application to the South Carolina

TABLE 7-2

OCONEE COUNTY TAX BASE, RATE, AND REVENUES  
(Thousands of Current Dollars)

Fiscal Year	Assessed Value <sup>a</sup>			Taxes Paid					
	Property Tax Rate per \$100	Oconee County Land and Improvements	Oconee Nuclear Station <sup>b</sup>	County Property Taxes	Oconee Units 1,2,3	Total County Revenue	Percent Local Revenue	Percent State Revenue	Percent Federal Revenue
1967	N/A	—	0	N/A	—	4,087.1 <sup>d</sup>	33.1	66.1	0.8
1968	N/A	—	0	N/A	—	4,501.0	32.8	66.4	0.8
1969	N/A	—	0	N/A	—	5,176.4	29.5	69.1	1.4
1970	N/A	—	0	N/A	—	5,794.9	34.7	63.6	1.7
1971	1.39	19,253.4	0	2,676.2	—	6,625.2	40.7	58.2	1.1
1972	1.39	20,708.7	0	2,878.5	—	7,505.6	42.3	57.2	0.5
1973	1.39	19,787.7	1,438.5 <sup>c</sup>	2,668.4	200.0	8,222.7	35.5	56.1	8.4
1974	1.39	35,391.6	19,272.7 <sup>c</sup>	4,857.0	2,678.9	10,249.9	40.7	52.0	7.3
1975	1.39	53,330.6	26,235.0	7,284.3	3,646.7	15,406.3	52.6	37.5	9.9
1976	1.35	55,810.0	26,058.0	7,317.9	3,517.8	17,239.6	54.8	(—45.2 <sup>e</sup> —)	
1977	1.35	59,133.9	27,323.0	7,747.0	3,688.6	18,902.8	46.5	35.5	18.0
1978	1.35	61,201.9	27,572.4	8,023.1	3,722.3	19,514.0	44.7	34.9	20.4
1979	1.35	64,717.9	26,807.5	8,531.8	3,619.0	20,633.8	N/A	N/A	N/A
1980	1.35	67,972.5	26,506.0	9,005.1	3,578.3	20,091.3	48.2	40.5	11.3

<sup>a</sup>Assessed values were raised from 2.5 to 4 percent for residential and 9.5 to 10.5 percent for industrial classes (Act 208, 1975).

<sup>b</sup>Includes additional properties owned by Duke in Oconee County assessed at approximately \$3.2 million.

<sup>c</sup>Oconee Nuclear Station assessments differ from those in Table 2-3 because the assessments were taken at different times, the assessments were continually changing as units were brought into operation, and there were other Duke properties located in Oconee County besides the nuclear power plant.

<sup>d</sup>Based on local/total education expenditures of 28 percent recorded in 1968.

<sup>e</sup>Combined federal and state percentage.

N/A - Not available.

Sources: South Carolina Tax Commission, Property Tax Division, Oconee County Assessed Valuations, Millage Rates, and Taxes, 1973-1980; Oconee County, County Tax Levy, 1971 and 1972; Oconee Preliminary Site Visit Report, 1979:40; Oconee County Council, Budget Ordinances Nos. 75-11, 76-3, 78-7, and 80-7; South Carolina State Legislature, Oconee Delegation Budget Appropriations Bills for FY 1967 - FY 1974.

Tax Commission. Consequently, the assessed valuation and the amount of taxes paid by industry would tend to decrease over time unless there were substantial new construction or improvements.

The overall increase in the county's assessed value was due to several factors, including increased residential property values in the county. However, the most significant increases resulted from the construction of the Oconee Nuclear Station which added both real and personal properties to the county tax base. Abrupt increases in real property taxes were paid by Duke on behalf of the Oconee Nuclear Station during the study period (see Table 7-2). During the construction period, Duke paid no property taxes on improvements at the Oconee Nuclear Station. In FY 1973, Duke tax payments amounted to 2.4 percent of total county revenues. By 1974, this had increased to 26.1 percent. After 1974, tax payments decreased; in 1978 they were 19.1 percent of the county total. This proportion may increase again if significant improvements are made in the future.

The reduction in the tax rate between 1976 and 1980 was due to the policies of the newly implemented county-council form of government and the substantial addition to the tax base of the Oconee Nuclear Station assessed valuation.

State and federal revenues were an important part of the Oconee County budget, ranging from 45.2 percent to 70.5 percent of the total between 1967 and 1978. The federal share generally increased over this time period but it was affected by both the programs in operation and the local level of revenues. The state share showed a steady downward trend, from 69.1 percent in 1969 to 34.9 percent in 1978. It rose after 1978, possibly due to the newest method of school district financing which tied state aid to locally generated revenue. The local share was affected by the Oconee Nuclear Station, local reassessment, and changes in the tax rate. It increased between 1969 and 1972, decreased between 1972 and 1973, increased dramatically between 1973 and 1976, declined substantially between 1976 and 1978, and increased after that time.

### 7.3.3 Expenditures

Two categories of public service expenditures indicate the trends that were established in Oconee County after the Oconee Nuclear Station project was first announced. The first category, program development, was best indicated by county

employment data. The second, capital projects, can be illustrated by a description of the new and improved public facilities in the county.

County employment included about 86 full-time equivalents (FTEs) in 1967, with an additional 683 FTEs employed by the Oconee County School District (1967 Census of Government). The employment in 1977 was 1,381 FTE employees, 287 county workers, and 1,094 school district employees (1977 Census of Government). Employment by the county and the school district increased by 79 percent in this ten-year period. This growth was substantially lower than the increase in county revenues and expenditures which more than doubled during this period (in constant 1972 dollars).

Capital expenditures were held down to low levels between FY 1967 and FY 1971. Beginning in FY 1972, however, moderate increases in capital outlays occurred in absolute terms. Expenditures were made primarily in the purchase of new police cars and fire equipment. In 1973, major capital improvements occurred in the form of the construction of the Tri-County Technical Building, a public service building, a county landfill area, and a mobile unit for the library. In addition, large outlays were made on repairs to roads, the jail, and the courthouse. (South Carolina House Bills: 1972 Session - Bill No. 3583; and 1973 Session - Bill No. 1999.)

Between 1973 and 1975, and coinciding with the implementation of the county-council form of government and large increases in revenues from the Oconee Nuclear Station, capital expenditures increased by more than 375 percent (\$1.86 million). Capital expenditures in 1975 included a \$900,000 addition to the county hospital and \$752,000 in school building improvements. After 1975, other major capital projects included the construction of a law enforcement center (\$1.4 million), library (\$0.5 million), school buildings (\$2.0 million), and other county improvements totaling \$3.3 million. (Oconee County Council, Budget Ordinances No. 75-11, 76-3, 77-6, 78-7, and 80-7.) The latter included extensive highway repair and sewer construction as well as numerous small items. Federal money helped defray over 75 percent of the construction costs on the library. In addition, over \$300,000 in federal grants and revenues were expended on sewers after 1978.

Overall, the expenditures for personnel and county programs increased rapidly as the revenues of the county rose during the study period. The capital expenditures were important, given the level of county revenues. They rose from 0.6 percent of the budget

in 1969 to 20.5 percent in 1978. The following section examines how public services have changed during the study period in several targeted areas.

#### 7.4 Selected Public Services

The public services described here were those that were 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 were to identify responses to project impacts made by public services and to record structural changes that had important consequences for county residents.

##### 7.4.1 Education

Public education in Oconee County was provided by one school district which was under the direction of a nine-member Board of Trustees who were elected every four years. The Superintendent of Schools was also an elected official who served as the chairperson of the board. The Board of Trustees approved the amount of funds to be raised locally, after which it submitted the budget bill to the County Council who made the final assignment of millage (Director of Fiscal Affairs, Oconee School District, personal communication; 1981). Education was the largest item in the county budget and it provided a major proportion of the local government employment.

To properly present the changes in public education that took place, a brief description of the recent history of county schools is necessary. Prior to 1966, the county operated two school systems, one for the black population and another for the white population. In the summer of 1967, the United States Department of Health, Education, and Welfare cited the Oconee County School District for noncompliance with desegregation guidelines. The charges included: (1) operating one or more schools with an all black or virtually all black faculty and student body, while at the same time operating one or more separate and distinct schools (containing the same grades) with an all white or virtually all white faculty and student body; (2) racial discrimination in teacher assignments; (3) employing black teachers who were less qualified to teach than were their white counterparts; and (4) inferior accreditation standing for the black schools compared to that of the white or predominantly white schools. (Keowee Courier, 23 August 1967.)

After 1967, efforts at desegregation continued. In the Seneca area where most of the black population resided, integration went on very smoothly because there was no strong antagonism to blacks. By 1969, total integration of the schools was achieved without a large exodus of white students from public to private schools. In fact, in FY 1974, there were no students enrolled in private schools in Oconee County. (South Carolina Division of Research and Statistical Services, 1977:20.) After 1977, four or five private schools began operation with about 100 students enrolled. These schools were started primarily by church groups in response to their concerns over drugs, sex education, and lack of emphasis of religious values in public schools. (Administrator, Oconee School District, personal communication, 1980.)

Another change that occurred during the study period was the loss of black teachers. In 1966, there were 34 black teachers in the school system. However, when they retired or left, they were not replaced by blacks. The result of these actions was that only 8 to 10 black teachers were left in the whole program. In addition, there were no black executives in the school system.

State accreditation of all Oconee County public schools became a goal of the school district in 1967. By early 1969, all county schools became fully accredited by the South Carolina State Department of Education. (Keowee Courier, 15 January 1969.)

Changes in the public school system are summarized in Table 7-3 where enrollment, number of teachers, and local expenditure data are displayed for the period 1966-1967 to 1980-1981. Over the period, enrollment increased by 652 students. Between FY 1967 and FY 1969, enrollment increased by 588. From FY 1969 to FY 1977, enrollment grew by 583 students. After FY 1977, enrollment fell by 519 students. The overall change throughout the 1970s was relatively small, with enrollment never falling below 10,000 students.

The number of instructional personnel fluctuated between 429 and 541 during the period 1967-1980, rising and falling in response to enrollment changes. The county emphasis on improving the school programs was shown in the changing student/teacher ratios. In FY 1967, the Oconee County school ratio was 22:1 compared to the state ratio of 25.46:1 (measured for all elementary and secondary schools). The county and state ratios declined in almost every year through FY 1972, with the Oconee County ratio always remaining below the state ratio. In 1971, the Oconee County ratio of 19.58:1

TABLE 7-3

OCONEE COUNTY PUBLIC SCHOOL INFORMATION  
1966/1967 - 1980/1981

Fiscal Year	Enrollment	Number of Instructional Personnel	Pupil/Teacher Ratio		Oconee County Expenditures (Operations) <sup>a</sup>	Expenditures (per Pupil) <sup>a</sup>		
			Oconee County	South Carolina		Oconee County	South Carolina <sup>b</sup>	Oconee County Rank in State <sup>c</sup>
1966/67	N/A	N/A	N/A	26.19	N/A	N/A	\$316.98	N/A
1967/68	9,438 <sup>d</sup>	429	22.00	25.46	\$3,332,000	\$353.04	351.69	N/A
1968/69	9,755 <sup>d</sup>	444	21.97	24.57	3,655,500	374.73	383.27	N/A
1969/70	10,026	456	21.99	23.78	4,214,600	420.37	457.39	53
1970/71	10,097	463	21.81	23.53	4,448,800	440.61	507.73	58
1971/72	10,145	486	20.87	24.09	4,780,900	471.26	568.31	61
1972/73	10,219	522	19.58	23.89	5,438,900	532.23	626.36	17
1973/74	10,305	526	19.59	23.35	6,006,400	582.86	699.67	36
1974/75	10,268	524	19.60	22.89	7,447,300	725.29	813.67	18
1975/76	10,412	531	19.61	22.10	8,195,700	787.13	905.24	16
1976/77	10,529	538	19.57	21.99	9,144,500	868.51	986.73	17
1977/78	10,609	541	19.61	21.58	9,704,900	914.78	1,116.96	13
1978/79	10,221	530	19.28	21.75 <sup>e</sup>	9,964,900	974.94	1,167.63 <sup>e</sup>	20
1979/80	10,092	519	19.45	20.39 <sup>e</sup>	11,896,900	1,178.84	1,312.21 <sup>e</sup>	21
1980/81	10,090	517	19.52	N/A	12,314,500	1,220.47	N/A	N/A

<sup>a</sup>Includes state aid to education.

<sup>b</sup>For school districts only.

<sup>c</sup>Position of all South Carolina school districts (92 total) based on average daily attendance.

<sup>d</sup>Numbers calculated under a different accounting system from later enrollment figures.

<sup>e</sup>Includes kindergarten pupils because state took over funding of kindergarten grade from federal government in 1978.

N/A: Not available.

Sources: South Carolina Division of Research and Statistical Services, South Carolina Statistical Abstract 1976; Oconee County School District, personal communications, 1980 and 1981; South Carolina Department of Education, Management and Information Division, personal communications, 1981.

was 82 percent of the state ratio. After 1972, the county ratio remained fairly constant through FY 1977 while the state ratio continually declined during the same period. In 1977, the ratio was 19.61:1 for Oconee County (90.9 percent of the state ratio). The student/teacher ratio in Oconee County fell to 19.28:1 in FY 1978 and then rose back to 19.45:1 in FY 1979; the state ratio in 1978 was 21.75:1 and in 1979 it was 20.39:1.

Local expenditures per pupil in the Oconee County School District increased substantially during the study period. In addition, the ranking of the county was elevated when compared to the recorded average amount spent by all 46 South Carolina counties. For the 1969/1970 school year, Oconee County spent \$420.37 per student, 91.9 percent of the state average of \$457.39; the school system ranked 53 out of the 92 school districts. During 1971-1972, the per pupil expenditures gradually increased in real dollars but fell to 82.9 percent of the state average. The county placed 61st in the state among the school districts in terms of per pupil expenditures. During 1974-1975, which coincided with the first substantial tax payments by Duke for its Oconee plant, local operational expenditures rose by over \$1.4 million even though enrollment levels declined. The result was a dramatic increase in per pupil expenditures, reaching \$725.29 or 89.1 percent of the state average. During the same period, Oconee County rose to 18th place in the school district rankings. After 1974-75, county per pupil expenditures fluctuated between 81.9 percent and 89.8 percent of the state's average per pupil expenditures. The variation in the per pupil expenditures at the county level was linked to the school district financing method where the amount of state aid received was tied to the local revenue effort. However, a minimum was placed on the level of state aid so that a district could not receive less state aid than it received in the previous year. (South Carolina Department of Education, personal communications, 1981.)

The 1977 county/state comparison of per pupil expenditures for Oconee County (county expenditures were 81.9 percent of state expenditures) coincided with the lowest percentage of local-to-total operating education expenditures for Oconee County since FY 1973, whereas the 1979 figure (89.8 percent) coincided with the highest percentage of local-to-total operating education expenditures for Oconee County since FY 1974. In 1978-1979, the Oconee County per pupil expenditure was \$974.94 per student (83.5 percent of the South Carolina average) and the county was ranked number 20 out of 92.

During the mid-1970s, and coinciding with Duke tax payments on the Oconee station and changes in the form of county government, school expenditures increased

significantly. During the 1974-1975 school year, per capita operating education expenditures increased by 23.4 percent (to \$171.99) and per capita debt costs increased by 119.6 percent over the levels recorded in previous years. Improvements in the school system had a very high priority and, with the increase in the local tax base, extensive capital improvements were undertaken beginning in FY 1975. Table 7-4 shows the current dollar and per capita costs of school expenditures. The increase and decline in capital outlays, interest, and debt costs were directly related to the construction of the Salem Elementary School. Capital expenditures peaked in 1976 while debt costs peaked in 1975. Over the entire period, operating expenses increased in terms of dollar amounts and per capita ratios. The Oconee County per capita total expenditures were only 85 percent of the state total in 1971; this increased to 99.6 percent in 1976, and declined to 78.8 percent in 1978. This pattern reflected the cost effects of capital outlays. In 1979, county per capita education fell to 76.4 percent of the respective state per capita figure.

The data on enrollments did not show any significant increases that could be associated with Oconee Nuclear Station employment patterns. In part, this was due to the fact that daily long-distance commuters made up almost 75 percent of the peak construction work force and 49 percent of the 1978 operations work force. In addition, local informants reported that there were very few families with school-aged children who moved into the county. The total number of children of workers who moved into the county to take project-related jobs was no more than 140 students in 1971 and 43 students in 1978 (see Chapter 5). The number of students in the school system due to diminished out-migration could only be guessed, since these children were already in attendance prior to the employment of their parents in basic and nonbasic jobs. Using assumptions developed in Chapter 5 concerning diminished out-migration, the retention of students from this source would not have been more than 31 children for 1971, the peak construction year, and 35 children for 1978 (see Chapter 5). These figures assumed that all children of employees who worked at the Oconee Nuclear Station were of school age. The direct effect on the school system of employment at the Oconee Nuclear Station was only a maximum of 1.7 percent of 1971 enrollment levels. The direct effect of the Oconee Nuclear Station 1978 operations work force on school enrollment was no more than 0.7 percent of total enrollment in 1978.

The major effects of the Oconee Nuclear Station on the school system were through the increased revenues that the county collected and spent for education. These expenditures, in turn, significantly affected the quality of education as evidenced by

TABLE 7-4

OCONEE COUNTY SCHOOL COSTS  
1971-1979

Fiscal Year <sup>a</sup>	Operation and Maintenance		Capital Outlays		Interest and Other Debt Costs		Total Expenditures		South Carolina Per Capita
	Amount (\$000)	Per Capita <sup>b</sup>	Amount (\$000)	Per Capita <sup>b</sup>	Amount (\$000)	Per Capita <sup>b</sup>	Amount (\$000)	Per Capita <sup>b</sup>	
1971	\$4,780.9	\$114.38	—	0	\$462.1	\$11.06	\$5,243.0	\$125.44	\$147.65
1972	5,438.9	127.08	—	0	393.5	9.19	5,832.4	136.27	157.16
1973	6,006.4	139.36	—	0	303.6	7.04	6,310.0	146.40	191.86
1974	7,447.3	171.99	—	0	669.4	15.46	8,116.7	187.45	220.26
1975	8,195.7	187.54	\$1,041.9	\$23.84	752.0	17.21	9,989.6	228.59	235.50
1976	9,144.5	208.30	1,172.8	26.72	572.1	13.03	10,889.4	248.05	249.07
1977	9,704.9	221.07	663.7	15.12	557.4	12.70	10,926.0	248.88	285.38
1978	19,964.9	222.43	536.9	11.98	581.2	12.97	11,083.0	247.39	313.88
1979	11,896.9	258.63	—	0	582.5	12.66	12,479.4	271.29	355.31
1980	12,314.5	261.33	—	0	465.2	9.87	12,779.7	271.20	N/A

<sup>a</sup>Beginning July 1.

<sup>b</sup>Per capita amounts derived from population figures contained in Table 5-1.

N/A - Not available.

Sources: South Carolina Tax Commission, Property Tax Division, Oconee County Assessed Valuation, Millage Rates, and Taxes, 1973-1980; Mill Rates Applied to School Operations and Debt Service for Oconee County, 1971-1972; South Carolina Department of Education, personal communications, 1981; Oconee County Council, Budget Ordinances, Nos. 75-11, 76-3, 77-6, 78-7, and 80-7.

declining pupil/teacher ratios, increasing per pupil expenditures, and extensive capital improvements.

#### 7.4.2 Transportation

The main mode of transportation in Oconee County was the road system which was limited largely to state primary and secondary routes. Of the 793 highway miles located in Oconee County in 1975, only 4.04 miles consisted of interstate highway and 188 miles consisted of state primary roads. The rest were state secondary roads and county roads.

The stretch of Interstate 85 (I-85) which passes through Oconee County provided highway access to Atlanta to the southwest (2 or 3 hours), and easy access to Greenville and Spartanburg to the northeast. There were only two interchanges which connected I-85 directly with the Oconee County local road system: the interchanges with South Carolina 11 (SC-11) and South Carolina 59 (SC-59). The main route for local traffic, as opposed to through traffic, was United States Highway 123 (US-123) which connected Atlanta and Greenville via Seneca and Westminster. Parts of US-123 were widened to a four-lane road with a median; however, it was not a limited access road within the county. The other main highways included United States Highway 76 (US-76) from Westminster toward Chattanooga, and SC-28 from Seneca to Westminster (four-laned road) and on toward the Smoky Mountain National Park. (Rand McNally Road Atlas, 1977.) During construction of the Keowee-Toxaway Project, Duke Power Company spent \$5 million on relocating 21.5 miles of roads. One of these roads was Oconee County Highway 183 which, upon relocation, ran directly past the proposed site for the Oconee Nuclear Station. (See Chapter 6.)

The county was responsible for maintaining the primary and secondary road system under its jurisdiction. Funds for the construction and upkeep of roads were provided through state and local contributions. In 1970, Oconee County spent between \$300,000 and \$350,000 on its highways. By 1975, this figure had doubled. Expenditures on roads in 1980 were four times the level of expenditures in 1970. (Oconee County Council, Budget Ordinances, Nos. 75-11 and 80-7; South Carolina Legislature, House Bill No. 2853, 1970.)

Main rail service to the area was provided by Amtrac whose Washington-Atlanta-New Orleans line served Seneca and Westminster. The old Carolina and Northwestern

freight line, operated by Amtrac, ran from Anderson City to Seneca and Walhalla via Pendleton. The Southern Railway System provided freight service.

Air passenger service to Oconee County was provided through the Greenville/Spartanburg Jet Port at Greer, which was located 47 miles east of Seneca. The facility was serviced by Eastern and Republic airlines. In addition, there were 11 air cargo services operating out of this airport, including Eastern Air Lines and Emery Air Freight. Local air service was provided at the Oconee County Airport, located 6 miles east of Seneca. The airport was largely limited to propeller-driven aircraft as its runway was only 3,000 feet long. The runway was lighted and airport services include Unicom, charter flights, tiedowns, fuel scales, and hanger storage.

There were 37 authorized interstate and/or intrastate motor freight companies that served Oconee County but only one of them maintained a terminal within the county. In addition, express service was provided by United Parcel Service. (South Carolina National Bank, Economic Development Department, Community Profile, 1979 - Westminster, Seneca, and Walhalla.)

Greyhound Bus Lines made daily stops in the town of Westminster, and Travelways, Incorporated offered charter bus service out of Seneca.

#### **7.4.3 Public Safety**

The major public safety components were the police, fire, and emergency preparedness services. Police services were provided by the county sheriff, state police, and the municipal police departments of Seneca, Walhalla, Westminster, and West Union. Fire protection was handled by the Oconee County Rural Fire Department with 16 volunteer firefighter units and the city fire departments of Seneca, Westminster, and Walhalla. Throughout the study period, the county also maintained an office of emergency preparedness or civil defense.

The sheriff's office was responsible for: (1) enforcing the criminal and civil code, including criminal investigations; (2) acting as an agent of the court—serving processes, collecting fines, and so forth; and (3) keeping the peace—including routine patrol and traffic control in Oconee County excluding the incorporated areas. Additional responsibilities related to the Oconee project included control of demonstrations and

traffic problems, but these problems were never significant. (Oconee County Sheriff, personal communication, 1980.)

The sheriff was an elected county official, but the county council maintained effective control of the public safety functions through its authority over the budget. The budget for the county sheriff increased at an annual rate of 10.4 percent between 1967 and 1980 (including about 15.1 percent per year between 1973 and 1975). The number of police officers steadily increased: from 12 in 1967, to 17 in 1971, to 22 in 1978. The deputies operated on 3 shifts to provide 24-hour police protection. (South Carolina Legislature, House Bills 1806 (1967), 1973 (1971), and 1999 (1973); Oconee County Council, Budget Ordinance, No. 78-7.) Municipal police officers totaled 38 in 1978, with 17 in Seneca and 12 in Walhalla. The county sheriff's office accounted for 45.4 percent of all law enforcement expenditures and 24.5 percent of all arrests made in FY 1978.

There have also been improvements in equipment and office space for the sheriff's office. Nineteen police vehicles were purchased between 1971 and 1980 to continually upgrade the county public safety fleet which totaled 18 in FY 1978. During FY 1976 and FY 1977, the \$1.9 million Law Enforcement Center was constructed in Walhalla. The 20,000-square-foot, 120-bed facility housed the offices of the Oconee County Sheriff's Department, the County Wide Communications Center, the Magistrate's Court, other county offices, and quarters for minimum- or maximum-security county prisoners.

The sheriff's office also operated the county emergency communications system which employed 5 dispatchers and 3 records keepers. The communications system provided communication between and within law enforcement agencies of the county and region on a totally dedicated police frequency. The Rural Fire Department had a separate channel from the law enforcement agencies; however, the same dispatcher served both agencies. As of 1978, the 911 emergency number was still not activated but efforts were underway at that time to implement the frequency. In addition, it was recommended that all public schools in Oconee County be tied into the county-wide emergency communications system.

County-wide fire protection was provided by the Oconee County Rural Fire Department and the municipal fire departments. The facilities of the Rural Fire Department totaled 16 stations, including those in the county rural areas and the five

incorporated municipalities. The fire stations located in Seneca, Walhalla, and Westminster were shared between the county and the city firefighters, and the equipment of both jurisdictions was housed there. Each station had a primary service area but responded to other service areas when the need arose. The stations that housed the equipment were owned by the communities they served and at least one pumper (with a capacity of 500/750 gallons-per-minute) per station was provided by the county.

The facilities and equipment of the largely volunteer Rural Fire Department grew after 1974 with the addition of two new fire stations, each equipped with a 500-gallons-per-minute pumper. In addition, 8 four-wheel-drive vehicles (2 ambulances and 6 units for fighting grass fires) were purchased in January 1979. These purchases augmented the existing 14 pumpers and 2 tankers owned by the county, and the 8 pumpers, 2 autos, and one pickup truck owned by the incorporated municipalities. The number of volunteers increased by 40 between 1970 and 1980, mostly to staff the two new stations. The 1978 figures showed 20 volunteers per station plus one fire marshall for the county fire department. All volunteer firefighters attended a free, seven-week, 42-houring training session. In addition, the incorporated municipalities employed 17 full-time firefighters and 72 volunteers in 1978. The cost of county facilities, equipment, and operations was funded through the county general tax levy. Expenditures on county fire protection rose from \$2,000 in 1967 to \$26,000 in 1971. Between 1971 and 1978, expenditures increased at an annual rate of 19.8 percent, reaching \$92,000 in 1978. By comparison, municipal fire protection expenditures were \$247,300 in 1978. (South Carolina State Legislature, House Bills 1806 (1967) and 1973 (1971); Oconee County Council, Budget Ordinance No. 78-7.)

The Oconee County Civil Defense agency was located in the Law Enforcement Center that had been constructed according to federal and state emergency-operations-center specifications. The director of civil defense, who worked closely with fire and law enforcement agencies, had six organized, volunteer rescue units on call in case of emergency. The Civil Defense Agency also had an Emergency Medical Services ambulance with radio-equipped contact to the hospital. (Oconee County Planning Commission, 1979:45.) The agency was supported through federal and county tax revenues. Government support increased from \$3,500 in 1967 to \$17,500 in 1971. After 1971, expenditures increased by 10 percent per year, reaching \$34,000 in 1978. (South Carolina Legislature, House Bill 1806 (1967) and 1973 (1971); Oconee County Council, Budget Ordinance No. 78-7.)

#### 7.4.4 Social Services

The Department of Social Services was overseen by a locally appointed Public Welfare Board. The department handled those social services that required local administration such as Social Security, Aid to Families with Dependent Children (AFDC), mental health services, nursing homes, charitable medical services, food stamps, and aid to developmentally disabled citizens. These services were funded by the federal, state, or local government, and the department was, in fact, a mixture of programs emanating from all three levels. Direct services provided by agency staff included information and referral, case management, adoption, homemaker services, life skills education, substitute care for children, transportation (limited to certain medical needs), home evaluation and supervision for family courts and other agencies, protective services for children and adults (for the senile or developmentally disadvantaged), and licensing of foster homes and day care facilities. The latter services also received a large portion of their funding from the Appalachian Regional Commission (ARC). During FY 1979, ARC funding comprised 58.5 percent of all funds expended on child development. (ARC, 1980:26, 27, and 64.)

There was a significant expansion in the scope and extent of social services during the study period. In 1967, social services in Oconee County consisted primarily of public assistance and food stamps. By 1970, however, the charitable medical services program was started and a juvenile service caseworker was hired by the Family Court. Between 1970 and 1974, there was little expansion in social services. However, beginning in FY 1974 and coinciding with the large increase in local tax revenues, a number of additional services were offered at the county level. The new services included operation of the Children's Home, the Anderson-Oconee Speech and Hearing Clinic, the Alcohol and Drug Abuse program, and the Lakeview Rest Home. In addition, two new councils were formed: the Council on Aging and the Association of Retarded Citizens. One final significant change occurred in 1977—the formation of a separate Department of Juvenile Services.

Throughout the study period, the change in the scope of social services was reflected both in total expenditures and total employment. Total employment in social service agencies in 1967 was 17-20 people (including 5 board members), all working in the Public Welfare Department. (Children and Family Supervisor, Department of Social Services, personal communication, 1981.) In 1971, there were approximately 29 people employed in social services in Oconee County; 25 of these worked in the Department of

Social Services and the other 4 worked in either juvenile services or charitable medical services. By 1978, employment in agencies dispensing social services had increased to approximately 61 people. The Department of Social Services had 44 employees (including 5 board members), the Department of Juvenile Services had 7 employees, the Alcohol and Drug Abuse Program had a staff of 5, and the remaining 5 workers were employed by the Association of Retarded Citizens, the charitable medical services, or the Lakeview Rest Home. (Children and Family Supervisor, Department of Social Services, personal communications, 1980; Oconee County Council, Budget Ordinance No. 78-7.)

Data on expenditures for social services in Oconee County are shown in Table 7-5. These figures show the increases that resulted from the changes in scope and expansion of social services offered in Oconee County. The largest yearly increase in the total budget (57.05 percent) occurred between FY 1973 and FY 1974. The next largest increase (22.87 percent) occurred between FY 1971 and FY 1972. The average rate of increase between 1967 and 1980 was 11.5 percent per year (in constant 1972 dollars). County support for social services increased at a faster rate than did the total county budget during FYs 1974, 1978, 1979, and 1980. The county share of the total budget varied from 83.5 percent in FY 1973 to 90.6 percent in FY 1975, and declined to 71.3 percent in FY 1977 before rising to 87.9 percent in FY 1980.

In comparison to other nearby jurisdictions, Oconee County social service expenditures did not increase as rapidly. In February 1972, the Oconee County Social Service Department handled 102 AFDC cases per 10,000 people—1.55 times the Pickens County caseload rate of 66 cases per 10,000, and 72 percent of the Anderson County rate of 141 AFDC cases per 10,000 people. (City and County Data Book, 1972.) By 1976, caseloads per 10,000 people for Oconee County fell to 121 percent of the caseload rate for Pickens County and to 56 percent of the caseload rates for Anderson County. This trend in AFDC caseload rates continued through 1980 when Oconee County's 35 AFDC cases per 10,000 people for August was only 64 percent of the Pickens County rate and 39 percent of the relevant Anderson County rate. (South Carolina Department of Social Services, Statistical Report, 1980:5.) The relatively lower AFDC caseloads were also confirmed by local informants. It was stated that AFDC caseloads have been low since 1967; during 1980, Oconee had the lowest AFDC caseload in the state. This was primarily due to the large number of jobs located in the county, notwithstanding the high number of minimum wage positions. (Children and Family Supervisor, Oconee County Department of Social Services, personal communications, 1980.) This same trend was

TABLE 7-5

ANNUAL BUDGET FOR OCONEE COUNTY  
DEPARTMENT OF SOCIAL SERVICES<sup>a</sup>  
1967/1968 - 1980/1981

Fiscal Year	Total Budget <sup>b</sup>	Average Annual Rate of Change (Percent)	County Share	Average Annual Rate of Change (Percent)
1967/68	\$64,800	—	N/A	N/A
1968/69	70,331	8.5	N/A	N/A
1969/70	79,209	12.6	N/A	N/A
1970/71	92,000	16.2	N/A	N/A
1971/72	113,043	22.9	N/A	N/A
1972/73	119,500	5.7	N/A	N/A
1973/74	136,493	14.2	\$113,981	—
1974/75	214,363	57.1	186,989	64.1
1975/76	203,320	-5.2	184,153	-1.5
1976/77	233,783	15.0	N/A	-8.6
1977/78	236,247	1.1	168,395	-8.6
1978/79	231,271	-2.1	178,372	5.9
1979/80	N/A	7.3	N/A	14.6
1980/81	266,253	7.3	234,097	14.6

N/A: Not available.

<sup>a</sup>Employees in the Department of Social Services are funded through state and federal outlays.

<sup>b</sup>Included in the budget total (in constant 1972 dollars) are expenditures on public welfare, lunacy and inquest, retirement and social security, Tri-County Mental Health Services, the Lakeview Rest Home, Children's Home, Oconee-Pickens O.E.O., unemployment insurance, Oconee/Anderson Speech and Hearing Clinic, aid to retarded citizens, council on aging, charitable medical services, the Department of Social Services, and Department of Juvenile Services.

also evident in the food stamps caseload rates between 1976 to 1980 for the same jurisdictions.

Although the increase in social services was dramatic in relative terms, the increase in amounts of actual dollars was small. In FY 1975, when the county share increased by 64.05 percent, the \$186,989 (constant 1972 dollars) actually expended in local funds accounted for only 2.1 percent of the total county budget. It was difficult to conclude that county social services had been significantly affected by the income from the Oconee Nuclear Station since the local increased costs were very small and the expansion of social services was actually lower than that experienced by the neighboring counties.

### 7.5 Summary

The growth in county government resulted from a change in the structure of government which provided for more local control of public services, and a rapid increase in the county tax base, especially the addition of the Oconee Nuclear Station. In addition, the population grew by 1.3 percent per year during the study period. The demand for increased services came from a desire for better public facilities and programs, and from an increasing population. Increased levels of public services were provided and tax rates declined somewhat due to Oconee Nuclear Station's significant effect on county revenues.

The major effort at increased services was in the public school system. This resulted in substantial construction and improvements in school facilities, increased expenditures for school programs, decreased class sizes, and full accreditation of all schools. The county school district was also fully integrated during this period. Schools required from 51.1 percent to 81.5 percent of the total county expenditures during the study period. Evidence of the increasing quality of public school education in Oconee County was shown by the county's relative rankings regarding local expenditures per pupil. Oconee County went from ranking 61 out of 92 school districts in 1971 to 20 out of 92 in 1978; during this period enrollments remained fairly stable.

The other target areas also showed significant change due to increased revenues. Transportation expenditures increased fourfold between 1970 and 1980, public safety expenditures grew by 19.2 percent per year over the study period with substantial improvements in police protection and firefighting equipment and buildings. However,

the county fire department was still staffed by volunteers. The change in social services expenditures was dramatic between 1967 and 1978—18.73 percent per year (in current dollars) which reflected substantial increases in both personnel and the scope of services offered. Nonetheless, although the county bore a large share of the cost of the programs, local funding for social services amounted to only 1.5 percent of the total county budget in 1978.

Additional major changes in county programs and administration were financed in large part with revenues provided by the Oconee Nuclear Station. Among the most visible new personnel were the county engineer, building inspector, public defender, county planner, recreational director, and park superintendent. In addition, there were large increases in capital expenditures beginning in FY 1975. The share of the county budget devoted to capital improvements went from 0.6 percent in 1970 to 16.4 percent in 1975, to 20.5 percent in 1978. These changes also reflected the changeover to a county-council form of government in 1975.

There were few changes in county government to provide services directly related to the siting of the Oconee Nuclear Station. Most on-site services were provided by the utility. The requirement for emergency planning was also accomplished without adding additional county personnel. Emergency planning was essentially carried out through letters of agreement (between the Duke Power Company and existing county agencies) which outlined safety contingency arrangements. Additional responsibilities that were required for emergency situations were assumed by existing county officers. The use of volunteer personnel for public safety services and the acceptance of additional work responsibilities by county personnel were well-established patterns of behavior in Oconee County.

## CHAPTER 8: SOCIAL STRUCTURE

### 8.1 Introduction

The purpose of Chapter 8 is to identify and examine the effects of the Oconee Nuclear Station on the social structure of Oconee County. First, the important cultural and class distinctions are discussed, followed by identification of the important groups and an outline of their interaction patterns. Second, the economic, demographic, housing, and local government effects due to the plant (Chapters 4 through 7) are then distributed among the groups.

The information on the social structure, groups, and group interaction was based on interviews with key informants in the Study Area. Secondary data, including local histories, also were used to substantiate the information provided by the key informants and to further define the groups.

### 8.2 Social Structure at the Beginning of the Study Period

#### 8.2.1 The Cultural Heritage of Oconee County

The physical boundaries of Oconee County stretch from the Appalachian Mountains to the Piedmont section of South Carolina. There exists a dual cultural heritage in the county, one related to the folk traditions of the Appalachian Mountains and the other to the more agricultural and industrialized history of the Piedmont section. The Appalachian heritage can more easily be understood by reference to the lifestyle of the mountain people who have relied upon subsistence agriculture and resource exploitation (mainly forestry in Oconee County). Historically, these people have been fiercely independent, small land holders with their primary social roots in close, intimate, and somewhat isolated communities. Hunting and fishing have provided important food sources as well as playing a symbolic role in the traditional life of the mountain people.

The Piedmont area was originally based upon an agricultural economy with cotton as a primary cash crop. Following the Reconstruction Period, numerous local textile mills were built and employment in manufacturing grew rapidly. Major transportation routes (both the railroads and, later, the interstate highway system) were located mainly in the Piedmont section and provided the base for urban and industrial development in the region.

During the study period, the manufacturing sector of the Piedmont region expanded considerably, and the textile industry ceased to maintain the highly dominant position it once held. However, for the areas on the fringes of the major development locales, such as Oconee County, textiles and the related apparel businesses continued to be the mainstays of the manufacturing employment base. The Piedmont area, a crescent-shaped region that extended from Georgia through South Carolina and included most of central North Carolina, contained most of the nation's textile mills. Greenville, South Carolina, was often referred to as the "textile capital," and 60 percent of the textile work force in the United States was said to live within a hundred miles of the city. (Hughes, Working Times, 1980:339.)

The textile industry had two recognized giants—Burlington Industries and J. P. Stevens. However, both firms together held less than 10 percent of the textile market; there were about 4,000 small firms, almost three-quarters of which were still family owned in the late 1970s. (Hughes, 1980.) Historically, these small firms exercised significant social, political, and economic control, especially in the less urbanized local communities. The image of southern paternalism was substantiated by the experience of countless communities with the operation of local textile mills. The interest of the owners in the behavior of the workers and the social functioning of the communities went well beyond the usual work-place concerns. In the past, owners and managers were interested in the workers' housing, shopping, community interaction, education, religion and moral standards, and racial attitudes. The level and scope of these interests abated over time, however, and most companies sold their "mill" houses, gave up their company stores, and racially integrated their work forces. In Oconee County, most of the textile industry was consolidated prior to the study period. The major plants were owned by large companies—J. P. Stevens (2 facilities), Deering-Milliken, Cone Mills, and Jantzen—and operated by professional management people who were brought into the county for that purpose. Although these managers were interested in local civic affairs, they did not have the same interest in local social conditions as did the earlier mill owners. The basic patterns of owner/workers interaction still remained, however, and were taken into account in describing the social structure of Oconee County.

Two important work force characteristics developed: (1) the wage rates in the region tended to be substantially lower than national averages for manufacturing; and (2) the work places were mostly nonunion and in many cases antiunion. Also, the influential position of business interests in local and state politics produced very

favorable public policies (including the tax structure) for industry. As a result, numerous firms located new facilities in the area and the region experienced considerable industrial growth.

Oconee County clearly exhibited the patterns of development that were dominant in the region prior to the start of construction at the Oconee Nuclear Station. In addition, it had important elements of the cultural heritage of the Appalachian Mountains. These elements helped distinguish the important groups in the county and served as the basis for describing the group interactions.

### **8.2.2 Identification of the Social Groups**

Five groups of Oconee County residents were identified to help explain the often complex interactions that took place during the study period. These groups were: (1) the business/professional group; (2) the blacks; (3) the retirees; and two subgroups of workers, (4) the general workers; and (5) the textile workers (mill workers and those employed in allied businesses).

The analysis of group composition and interaction was based upon examinations of historical developments in the county, interviews with key informants, examination of secondary data, and personal observations gathered during three field trips. The premise of this study was that relationships among people in a community follow patterns of behavior and that functional groups could thus be identified and described. The analysis of group change and interaction in Oconee County was viewed in the context of the traditional paternalistic work system and the heritage of the Appalachian Mountain culture. These elements were assumed to have been primary factors in both inter- and intra-group relations.

### **8.2.3 Group Profiles**

Based upon a review of the literature on community organization, social structure, and large-scale project effects, seven attributes were identified as essential to the analyses of project effects on the Study Area social system. These attributes were:

1. Size of the group;
2. Livelihood of group members;
3. Demographic characteristics;
4. Geographic characteristics;
5. Property ownership characteristics;

6. Dominant attitudes and values toward growth, environment, community participation, and planning; and
7. Patterns of interaction among group members (cohesion).

Each group profile took into account these attributes and focused on the characteristics that were most distinctive of group membership. Some indication of the diversity within each group was intended, as well as a description of the model characteristics. Indications of group changes over the study period were highlighted, while the stable characteristics also were described.

#### **8.2.3.1 The Business/Professional Group**

The business/professional group in Oconee County included those engaged in wholesale and retail trade, insurance, real estate, transportation, communications and utilities, government services, and manufacturing. The manufacturing sector is the largest in terms of employment and it accounted for over 58 percent of the county nonfarm employment in 1970. The major influential people in the business/professional group were those with top management positions in the larger companies, and the entrepreneurs, often native residents who had long-term interests in civic affairs.

In the manufacturing sector, textiles and related enterprises dominated. The historical pattern of local textile plant ownership had been replaced, however, by consolidations within the industry. Most of the plants were owned by large companies. (J. P. Stevens, Deering-Milliken, and Cone Mills all had facilities in the county.) The business/professional group included the managers of these plants. Textile plant managers held regular meetings to discuss mutual problems such as the labor supply, market conditions, public and private services, and other related matters. These people were somewhat of a subgroup within the business/professional group. Many were immigrants from other areas, although they often became long-term residents. The manager of a large local apparel plant had been a resident since the plant was opened in the late 1950s.

The business/professional group was primarily white, protestant, and male. There were a few blacks, mostly in the public sector. Although there were some women in administrative positions and in sales, such as real estate, almost every influential business position was held by a man. The large proportion of women in the work force was accounted for in production employment and in the lower-level trade and service positions. There was no significant minority representation in the business group.

The actual businesses were concentrated in and around the three towns—Seneca, Walhalla, and Westminster. Walhalla, as the county seat, was the location of most public administration offices. Seneca served as the main commercial center for the county and the newer retail and service businesses were located along the by-pass (SC-123) north of the old downtown area which was sited near the railroad station. In terms of the residential location of the business group members, there was a steady movement toward the more desirable lakeside residential developments on Lake Keowee near Seneca. This pattern emerged following the creation of the lake and the developments began in the early 1970s. However, many business/professional group members still live in houses in and around the three main towns, especially those who had established their homes prior to the waterfront development.

Almost all the business/professional group members owned their own homes and a number of them also had interests in commercial properties. Smaller retail stores and service centers were often owned, although a large and growing proportion were franchise or chain store operations that had outside ownership. The significant manufacturing firms were almost entirely owned by people or companies outside the county.

The business/professional group strongly supported economic growth in the county and they were active in industrial and commercial development. Economic growth was seen as a necessary and desirable goal for both public and private organizations. Environmental protection was generally associated with the extensive recreational opportunities of the county. The Sumter National Forest, Lakes Keowee and Jocassee, and Keowee-Toxaway State Park, as well as management of large areas of privately owned land (Duke Power Company) for wildlife preservation, were seen as important county resources. The large role of Duke Power Company, a private firm, in recreational development was viewed as an admirable contribution to environmental enhancement. In the cases of commercial or industrial development, environmental costs and risks were thought of as items to be considered and mitigated where possible. The business/professional group considered economic, social, and community benefits as very important categories to be weighted against environmental costs. The group was active in community affairs and supported planning efforts that were designed to assist economic growth and public service improvements.

The interaction between group members was defined by geographic location, type of business affiliation, and personal religious, social, and organizational affiliations. The textile plant managers, as mentioned earlier, were in close contact with each other. The extensive residential development at Lake Keowee attracted a large number of the business/professional group to common residential areas and, subsequently, increased social and civic interaction. Although churches were well attended and supported, they did not seem to have the same impact among the business group as they did among some other groups. Civic, social, and fraternal organizations were very important to the business/professional group.

#### **8.2.3.2 The Black Population.**

During the study period, the black population of Oconee County numbered about 4000. Thus, the black population made up roughly 10 percent of the Oconee County population, a percentage considerably smaller than the state's average of 33 percent.

Prior to 1963, no blacks worked in the textile plants in any skilled position. There were some menial jobs, but blacks were not employed as machine operators. Most other work opportunities were equally restricted and, as a result, younger blacks left the area almost as soon as they finished their schooling. For women, domestic work was the most common work available.

There were a few black professionals in the community, and the strongest sources of support for blacks came from the black school system and the black churches. In the case of the schools, however, the financial and personnel control was ultimately exercised by the white-controlled school system. After 1964, when the schools were desegregated, there was a decline in the number of black teachers. This was somewhat offset by an increase in black employees in other areas of public service. In the private sector, more blacks were employed in a variety of jobs, including work in the textile and apparel plants.

For many years, the black population tended to be somewhat skewed with regard to its age structure. This was due to a steady, large out-migration of young adults. Apparently, this pattern moderated somewhat during the study period, but local key informants still felt that most young blacks had to move or commute out of the county in order to get good jobs.

The great majority of blacks lived in or near Seneca although some resided in Westminster and a few in Walhalla, the county seat. For the most part, blacks did not live in the rural areas or in the small towns such as Salem. A number of the blacks owned their own homes, mostly modest or poor dwellings, but very few owned any additional properties.

The primary concerns of the black group involved racial relations and socioeconomic opportunities. Blacks supported economic growth as a way of improving their job opportunities and reducing the out-migration of young adults. Their community participation focused mostly on the black community, although there was a gradual increase in their role in civic and public affairs. Blacks tended to favor planning that led to improvements in housing, public services, and public facilities. There does not appear to have been much overt concern with environmental issues; the black key informants tended to stress that the need for economic growth and job opportunities should be considered in making environmental assessments.

The black group tended to be a fairly cohesive group where race provided a clear and constant identification of group membership. Church and family played major roles in the group interaction patterns, with some activities also associated with the schools. The role of school-based intragroup activity was significantly reduced with school integration.

#### **8.2.3.3 The Retirees.**

In addition to the native elderly population, there was a substantial in-migration of retired people which resulted in a separate, viable group in Oconee County. Prior to the Keowee-Toxaway project, the county had limited attraction as a recreational area. The mountains, especially the Sumter National Forest, and the river basins were utilized for recreational purposes. It was the creation of the lakes, particularly Lake Keowee, which changed the county from a seasonal recreational area to a retirement area. A number of retired military people (many of whom were middle-aged rather than elderly) settled in the county. The relatively mild winter and summer weather, along with the extensive recreational developments, proved to be a drawing point for the retiree group. The increase in the proportion of those 60 years of age and older increased from about 12.9 percent in 1970 to 16.4 percent in 1980 (South Carolina Appalachian Council of Governments, 1980:21 and 30). Both these rates were the highest in the six-county Appalachian region and, as a consequence, Oconee County had the highest median age in

the region (31.1 years). There were an estimated 5,000 elderly (60 years or older) in 1970 and this number increased to an estimated 7,500 in 1980. In addition, not all retirees were 60 years of age or older. Some of the military retirees were considerably younger than 60 years old.

The retirees were oriented toward recreational and social activities. They were not particularly active in local affairs although the native elderly often maintained extensive social and civic contacts. Retirees valued the environmental amenities of the county and were strong supporters of the Duke Power Company's role in the community. The retirees favored low property taxes and recognized the role of the Oconee Nuclear Station in county revenues. The military background of many retirees seemed to have influenced the level of support shown for the plant and Duke Power Company in the area.

The retirees had distinct interaction patterns depending upon their backgrounds. The former military people maintained active social interaction patterns; often retired military personnel were responsible for introducing their friends to the area. They were considered by the native residents to be a somewhat closed social group although retirees from the county (natives or long-term residents) maintained extensive contacts with other groups in the county.

#### **8.2.3.4 The General Workers.**

Members of the general workers group tended to be native born residents although there was an increase in newcomers to the group during the study period. Historically, there was a surplus of available labor with the result that the county tended to record an out-migration of young adults and an out-commuting employment pattern. Employment (other than textiles) was concentrated at the commercial centers, Seneca and Westminster. The public sector jobs were administered from Walhalla, the county seat. The residences of the general workers were often in the towns near their jobs, but many of them also lived in the rural areas. These residential sites were often long-time family holdings, and the workers had a historical background of subsistence income in agriculture, casual labor, or the timber industry. Overall, the general workers group seemed to have included a large proportion of property owners.

The general worker subgroup was extremely defensive of its property ownership rights and tended to be very suspicious of efforts to zone or to plan land uses. This group supported growth that involved substantial jobs, or that which was advocated by local

leaders. Environmental concerns seemed to have a much lower priority. Their participation in civic, community, or political activities was very limited. The group members viewed themselves as basically conservative and supported the local leadership.

The intragroup interaction patterns were concentrated on family/kin relationships and long-term friendships. Often, these relationships were concentrated in small geographical areas where the family land holdings or the traditional home sites were located. Church groups provided important social activities with various fundamentalist and evangelical sects having strong support from the general workers group. Many of the group intra-action patterns were viewed as common for many of the group members and not as activities that produced overall group cohesion. The large size of the group, together with its growing diversity, meant that its cohesion was much lower than that of other groups who had more clearly defined common goals and day-to-day contacts.

#### 8.2.3.5 The Textile Workers.

Although members of the textile workers group (and allied apparel industry workers) shared many characteristics with the general workers group, there were also several important differences. This section concentrates on the differences. Unless otherwise noted, those descriptions that applied to the general workers also applied to the textile workers.

Total employment in textiles and apparel during the study period was about 6,000 workers, or almost two-thirds of the manufacturing employment in the county. This group included a large percentage of the women employed in the county. In the apparel plants, women comprised almost the entire production work force.

The textile workers historically rented housing from the mill owners, but these "mill villages" were later sold to private owners, often to the textile workers themselves. The geographical location of the textile workers tended to be close to the plants. The women in the apparel plants, however, often came from general worker families. Overall, the textile workers appeared to be less likely to be property owners and more likely to be renters than the general workers. Their attitude toward land use zoning and planning was less independent, and they tended to be somewhat more supportive of public leaders. The interaction patterns within the group seemed to have been more urbanized than they were for the general workers, with more emphasis on neighborhood, work-related, and friendship contacts. The family/kin ties were still

important, since many workers had long family histories of association with the textile mills.

#### **8.2.4 Interaction among the Groups**

The interaction patterns among members of the various groups during the study period are discussed for three spheres of activities: economic, social, and political. The underlying patterns of paternalistic influence by business people, especially those in manufacturing, is not repeated here but should be understood to be a major element in determining the nature of intergroup relationships.

##### **8.2.4.1 Economic Interaction**

Employment and income were the two major elements of economic interaction among the groups. The dominant group was the business/professional group, especially the management in the manufacturing sector. Almost all the jobs were nonunion and this provided the companies and their managers great control over employment. The professionals in the group typically had relatively few employees. Moreover, many Oconee County residents commuted out of the county for professional services, going to Greenville, Clemson, and Anderson.

The blacks had more and better jobs than was the case in earlier times, but they lacked the means to significantly influence economic affairs in the county. There were very few professional-level blacks; most group members remained at the bottom levels of the work force. The general workers had somewhat more choices for work than was the case prior to the start of the project. However, their position in regard to business management remained basically the same as it had been historically. The lack of unions meant that employment and income matters were basically determined by the employers. For the textile and apparel workers, which included the majority of employed women, working conditions were even more tightly controlled and monitored than for the other types of work.

Although the retirees were viewed as good customers by the business/professional group, there was very little interaction between the retirees and the black group or the workers group. For the most part, retirees appeared to have been somewhat separated from the mainstream of county life.

#### **8.2.4.2 Political Interaction**

Political control and interaction at the county-government level underwent a significant change with the adoption of home-rule in the mid-1970s. Before that time, the actual legislation to operate the county was controlled by the state legislators. From 1975 on, the county government was administered locally. In terms of the intergroup relations, however, this did not result in any significant change. The business/professional group was dominant in the local political relationships, with native and long-term businessmen holding most of the influence. Their pro-growth, pro-industry, pro-business attitudes were generally supported by the other groups, and strongly backed by newcomers and non-native management people with the large companies.

The retirees were not a significant political group in local affairs and they seemed to have been satisfied with the way that local leaders handled public affairs. The blacks were a small group, politically, and were not effective in local public policy decisions. These two groups were generally supportive of the county leaders, and were generally neither especially interested in nor well organized for political action.

#### **8.2.4.3 Social Interaction**

The major social interactions took place within the groups. These were largely determined by family, friendship, religion, geographical location, and race. In some cases, family and friendship contacts extended across groups, often with economic interactions as a basis for the continuing relationships. The blacks remained quite distinct and there was little social interaction with other groups. The retirees who were in-migrants had some contacts with the business/professional group. The greatest social interaction took place between the two worker groups. This was especially true for the large number of women workers in the textile and apparel plants who were related to people in the general worker group. The county did not appear to have had a very extensive basis for intergroup interaction in its civic and community affairs. In general, these types of relationships maintained their peer-group standards and did not seem to significantly promote intergroup contact.

#### **8.2.4.4. Social Cohesion**

The residents had a clear identification with the county and, in many cases, to specific communities. Salem, Walhalla, and Westminster all seemed to be communities

with which people strongly identified. Seneca was seen more as a commercial service center rather than as a community with which to identify.

The large population and the lack of a distinctive and unified historical or cultural identity in the region meant that the residents' identification with the county, while clearly important, was not extraordinary enough to serve as a primary factor in social cohesion. The basis for most of the social cohesion existed within the groups, especially in family/kin ties. Overall, there was only a moderate degree of social cohesion in Oconee County during the study period.

### **8.3 New Groups in the Study Area during the Study Period**

Two types of newcomers were considered as qualifying as new groups during the study period: the retirees and project-related work force in-migrants (and their families). The retirees were considered to have been established prior to the Oconee Nuclear Station, although they expanded noticeably during the construction and operation of the plant. The in-migration of work force newcomers was small enough to be considered similar to the patterns that occurred with earlier industrial developments. The project-related newcomers were assigned to existing groups instead of being conceptualized as a new group. The fact that the project hired large numbers of local workers and minimized the in-migration of plant employees was also important. These newcomers were assigned to either the business/professional group or the general workers group.

### **8.4 Distribution of Project Effects to the Groups**

The effects of the Oconee Nuclear Station upon the economy, labor force, population, housing and settlement patterns, and government and public services for the Study Area were identified and described in Chapters 4 through 7. These effects are distributed among the groups with emphasis on two key years: 1971 (the peak construction year) and 1978 (a designated operations year). The distribution described in this section was derived from key informant information, on-site field work, and analysis of available secondary data.

#### **8.4.1 Economics Effects**

The estimated employment and income effects for 1971 were presented in Chapter 4: about 295 direct basic and 121 nonbasic jobs were assigned to nonmovers.

These jobs were filled mainly by people in the general workers group with some people transferring from the textile industry to new job opportunities. In addition, about 100 workers with families moved into the county, as well as about 200 movers unaccompanied by families (or singles). Table 8-1 shows the 1971 distribution of employment and income by groups. The movers unaccompanied by families (or singles) were mostly weekly commuters who had little effect on county groups except as customers for local businesses. This was due to their long work hours on site and their frequent trips out of the area when the work schedule permitted.

The county's nonbasic income in 1971 was estimated at about \$732 thousand, which went to the business/professional group. A portion of this income went to pay nonbasic workers who were in the general workers group.

As shown in Table 8-2, the economic effects in 1978 were less pronounced for the business/professional group and the blacks when compared to 1971. The general workers group had as many jobs during operations as it had at peak construction, although the income for the group was slightly lower. The textile worker group was not assigned any employment effects from the plant operation because its jobs opportunities were stabilized and did not appear to have been affected by the plant effects.

#### **8.4.2 Demographic Effects**

Table 8-3 shows the population increase in the Study Area for 1971 and 1978. The demographic effects of the project were estimated in Chapter 5 with the annual population increase for the period 1967 to 1979 (see Table 5-5). These total effects were the result of two components of population increase: in-migration and diminished out-migration. All of the population increase was attributed to basic and nonbasic employment which was calculated for workers and their households.

The group most affected by the employment and subsequent population increase was the workers. It was estimated (see Table 5-3) that the diminished out-migration due to employment of nonmovers at both basic and nonbasic jobs was about 161 persons. In addition, about 540 persons were in-migrants, which included the household members of movers.

**TABLE 8-1**  
**OCONEE NUCLEAR STATION**  
**EMPLOYMENT AND INCOME EFFECTS BY GROUP**  
**OCONEE COUNTY**  
**1971**

Group	Employment	Income <sup>f</sup>
Business/Professional <sup>a</sup>	55	\$732 <sup>b</sup>
Blacks <sup>c</sup>	60	420
Retirees	0	0
General Workers <sup>d</sup>	536	5,628
Textile Workers <sup>e</sup>	<u>65</u>	<u>683</u>
<b>TOTAL</b>	<b>716</b>	<b>\$7,463</b>

<sup>a</sup>Estimated as professional or administrative people due to basic and nonbasic positions.

<sup>b</sup>Total nonbasic income; includes nonbasic wages for 20 workers in black group and 46 workers in general worker group.

<sup>c</sup>Oconee County black group estimated at 40 basic and 20 nonbasic workers. Income reported only for basic wages, nonbasic income included in total for business/professional group.

<sup>d</sup>510 basic workers, 46 nonbasic workers; nonbasic income included in the total for business/professional group. This group includes 300 newcomers.

<sup>e</sup>Estimates textile workers who transferred employment to basic jobs. These were primarily men with some mechanical/maintenance skills or unskilled laborers. About 65 job openings in textile/apparel plants were opened due to employment at the Oconee Power Station.

<sup>f</sup>Thousands of dollars.

Source: Social Impact Research, Inc., 1981.

TABLE 8-2

OCONEE NUCLEAR STATION  
EMPLOYMENT AND INCOME EFFECTS BY GROUP  
OCONEE COUNTY  
1978

Group	Employment	Income <sup>d</sup>
Business/Professional <sup>a</sup>	47	\$661 <sup>b</sup>
Blacks	52	224
Retirees	0	0
General Workers <sup>c</sup>	588	902
Textile Workers	<u>0</u>	<u>0</u>
TOTAL	687	\$5,787

<sup>a</sup>Estimated as professional or administrative people due to direct basic, "other" basic, and nonbasic positions.

<sup>b</sup>Total nonbasic income; includes wages for 119 nonbasic workers (including 30 blacks, 70 general workers).

<sup>c</sup>Includes 50 movers; an estimated 12 movers were assigned to the business/professional group.

<sup>d</sup>Thousands of dollars.

Source: Social Impact Research, Inc., 1981.

TABLE 8-3

OCONEE NUCLEAR STATION  
POPULATION EFFECTS BY GROUP  
OCONEE COUNTY  
1971 and 1978

Group	Population Increase	
	1971	1978
Business/Professional	54	26
Blacks	59	30
Retirees	0	0
General Workers	525	327
Textile Workers	<u>63</u>	<u>0</u>
TOTAL	701	383

Source: Social Impact Research, Inc., 1981.

These demographic effects did not produce any substantial change in the county social structure. The maximum effects took place in 1971 when the additional population was estimated at about 1.7 percent of the county's total population. These effects appeared to have been well within the capacity of the groups' social structures to absorb. For 1978, the effects were about 0.9 percent of the total population. Also, while there had been some change in the individuals who were affected by the operation period of the station as compared to the construction period, the overall population effects were less. There was no evidence that the smaller population effects in 1978 resulted in any structural changes to the groups or the social structure. Generally, key informants viewed the demographic effects as having stabilized and strengthened the groups, but not as having produced significant social change.

#### **8.4.2.1 Settlement Patterns and Housing**

Major changes in the housing and settlement patterns of Oconee County were made by the Keowee-Toxaway project, particularly the creation of Lake Keowee and Lake Jocassee. The changes which resulted in these Study Area effects were also necessary in order to build the Oconee Nuclear Station. However, the station itself produced a much more modest level of housing and settlement pattern effects. In addition, these effects were largely determined by the strong force of the preceding elements of the Keowee-Toxaway project. The major changes in housing and settlement patterns that took place in the county were not attributed primarily to the Oconee Nuclear Station. Rather, the construction and operation of the station was judged to have functioned much as any other major project in the county would have done. The major effects of the Oconee Nuclear Station were the result of increased population and households as defined in Chapters 5 and 6.

The estimated housing changes due to the Oconee Nuclear Station for the period 1967 to 1979 were discussed in Chapter 6. The project-related demand on the housing stock was only about 1.2 percent at peak construction (1971) and only 0.7 percent for the operation year of 1978 (see Table 6-5). The nonmovers as well as the movers were included by estimating the diminished out-migration in addition to the in-migration of newcomers.

There was a significant increase in apartments, mobile homes, and new houses during this period. For the decade 1970-1980, the total number of housing units rose from 14,032 to 20,226, an increase of 44.1 percent. The greatest percentage increase

was in the multiunit apartment complexes (4 or more units) which increased from 10 privately owned (nonsubsidized) units in 1969 to 346 units in 1979. The greatest numerical increase was in mobile homes, which rose from 1,433 in 1970 to 5,621 in 1980. Most of this housing was utilized by nonmovers; Duke Power Company provided on-site living facilities for 150 movers and the remainder were fairly easily accommodated in the county. One reason for the minimal impact of movers was the fact that much of the construction work force was locally hired including all parts of Oconee County. Therefore, the established housing patterns were supported rather than disrupted by major changes due to a large in-migrating construction work force.

Newcomers who joined the business/professional group almost always bought or built conventional housing units. Blacks also bought, improved, or rented conventional units, although the choices for blacks were modest and geographically focused on their traditional residential neighborhoods, especially in Seneca. The two groups of workers affected by the project (general workers and textile workers) tended to purchase mobile home units or to upgrade their existing dwellings. The retirees also utilized mobile home units, but the most visible of the retired people either purchased new waterfront housing or, later, condominiums at Keowee Keys.

Housing availability was identified as a problem in the early 1970s. This was due to the removal of housing stock by the Keowee-Toxaway project, waterfront development, and the increasing county population. Only part of the population increase was due to the Oconee Nuclear Station, as discussed in Chapter 5. This housing supply problem did not appear to be a major restriction on project-related in-migration and was overcome by expansion of local housing construction capacity within a short period, at least by 1973. One result of the demand was to equip the county with an increased number of multiunit structures. The need for these units was demonstrated by the extremely low vacancy rate which continued even during the operations period.

#### **8.4.3 Government and Public Services**

Chapter 7 presented an analysis of the changes in county government structure, revenues, expenditures, and services that took place during the study period. In terms of the effects upon the county social system, these were among the most important changes that took place during the study period. The period of greatest change was after FY 1974-1975 when the structure of county government was changed and the high taxes

paid by Duke on behalf of the Oconee Nuclear Station were added to the county revenues.

#### **8.4.3.1 Property Tax Effects**

The annual tax payments made by Duke Power Company on behalf of the Oconee Nuclear Station were shown in Chapter 7. The property tax rate per \$100 of assessed value was \$1.39 for the period 1971 to 1975, then lowered to \$1.35 where it remained throughout FY 1980. The slight decline in the tax rate took place at a time when the expenditures (in constant 1972 dollars) were increasing. This was possible because of the increased tax base, especially the addition of the Oconee Nuclear Station. The capital expenditures for four years, 1975 through 1978, were especially noticeable.

#### **8.4.3.2 Service Effects**

Every category of county services increased during the study period with education receiving the greatest dollar amount. The share of the county expenditures going to education declined, however, from 81.5 percent in 1967 to 61.3 percent in 1980. Most service categories increased, both in dollar amounts and in their share of the county budget. Public safety increased from about \$109 thousand in 1967 (2.6 percent of expenditures) to \$954 thousand (4.6 percent of county expenditures) in 1980. Parks and recreation increased about nine-fold (\$38.9 thousand in 1967 to \$337.6 thousand in 1980); the budget share increased from less than 1.0 percent to 1.7 percent. Many services in county administration were initiated during the study period, especially after the 1974-1975 fiscal year.

### **8.5 Changes in the Social Structure and the Role of the Effects of the Project**

This section describes the major changes in the group composition and the relationships between groups during the study period. The discussion concentrates on the role of project-related effects.

#### **8.5.1 Changes in the Profiles of the Groups**

##### **8.5.1.1 Business/Professional**

The business and professional group expanded and diversified during the study period. Most of this growth was due to overall population increases, rapid development of the recreational opportunities in the county, and changes in the geographical distribution of commercial facilities. The Keowee-Toxaway project was extremely

significant in affecting the real estate market trends and in the relocation of commercial facilities. The population added through the construction and operation of the Oconee Nuclear Station provided an important contribution to the local markets. Personnel from the Duke Power Company were readily accepted into the business/professional group. Taxes were maintained at a relatively low level while public services were greatly increased. The low-tax policy was strongly supported by the business/professional group, and the ability of county government to increase services at the same time strengthened the role of the business/professional group. The group benefited from its traditional involvement in local public affairs.

#### **8.5.1.2 The Black Population**

The direct and indirect improvements in employment opportunities were the greatest effects of the project for this group. Duke Power Company had an affirmative action program to employ minorities, especially blacks. Although they never reached their goal of minority participation, as many as 125 blacks were employed on site at peak construction. The Study Area share of this on-site employment was about 30-40 jobs. Even more important for the black group were the increased opportunities in the local economy—from work in the industrial and manufacturing sector to jobs in retail trade. Some of these jobs were nonbasic employment effects of the project while other openings were created by the transfer of other job holders to new positions.

The position of blacks in the social structure did not change much during the study period. The population seemed to stabilize somewhat, but the major changes were within the group rather than in the group's place in the social structure. The increased employment opportunities resulted in more interaction between blacks and other workers, and between blacks and the business/professional group. While this moderated some of the traditional interaction patterns, it did not appear to have had any significant effect upon the social system.

Increased expenditures for public services, especially education, were seen by the black group as significant effects of increased county revenues. At the same time, the desegregation of schools in the 1960s led to a gradual reduction in the number of blacks in school teaching and school administration. In many cases, positions held by blacks in the segregated system were abolished, and blacks were not assigned equivalent jobs in the integrated system. Black teachers who retired or moved often were not replaced with other blacks. As a consequence, the number of blacks in professional positions with

the school district was less than 33 percent of what it was prior to desegregation. (Former black school administrator, personal communication, 1981.)

Generally, blacks approved of the low tax rates, but felt that the beneficiaries were the major property holders, including local business and professional people. Overall, key informants stated that conditions were better for the group both socially and economically. Also, some credit was given to the Oconee Nuclear Station project for its employment, income, and tax revenue effects in the county.

#### **8.5.1.3 Retirees**

The retiree group grew rapidly during the study period. The major attraction for newcomers to the retiree group was the development of waterfront and recreation property. This was primarily an effect of that portion of the Keowee-Toxaway project which created Lake Keowee and Lake Jocassee. As part of the lakes development, Duke Power Company was involved in residential development, park and recreation facilities, road construction, land and timber management, and wildlife protection.

Another major effect for the retiree group was the county tax structure. The low tax rate allowed people on retirement incomes to purchase and build more desirable housing than would have been the case in many other areas. The shopping and service centers in Greenville, Anderson, and Clemson (which were within commuting distance) supplemented the business centers in Oconee County. Therefore, the improved county road system was important.

Many of the retiree group were principally involved in intragroup activities. However, there was some contact with local people, primarily the business/professional group.

#### **8.5.1.4 General Workers**

The project-related effects which most significantly affected the general workers group were the basic and nonbasic employment, the population increases due to newcomers, and the public services (including the increased tax revenues). The fact that the Oconee Nuclear Station was a nonunion job and hired a large proportion of the work force from the region, including many from Oconee County, meant that local workers got jobs and training that would not otherwise have been available to them. Due to the mobility of workers, and the increase and decline in the on-site work force demand,

perhaps 1,000 or more members of the general workers group were employed at one time or another on the project. In addition, the group size increased due to the in-migration of newcomers.

In the areas of public service, the general workers group was a major beneficiary of increased revenues and levels of services since they made up such a large proportion of the county population. Increased spending on education, public safety, and transportation were especially useful to the group. There were also substantial increases in property values for those who were property owners. This was especially true of those holdings formerly considered nonproductive that became classified as recreational (near the lakes or in the mountainous areas).

#### **8.5.1.5 Textile Workers**

By definition, the textile (and apparel) workers group did not experience significant direct effects from the project-related employment and income. However, the general demand for workers due to expansion in the construction and manufacturing sectors did somewhat affect employment in the textile sector. This general demand was one factor in the increased employment and the diversity of employment for blacks, and it had a similar effect on textile workers.

The major effect on the textile workers group was the increased public services. The property holdings of the group were quite modest, so the revenue and tax rate changes had quite modest effects, while the increased expenditures on public education, parks and recreation, public safety, health, and facilities were highly visible and cited as significant benefits for the group and the community.

#### **8.5.2 Changes in the Relationships among the Groups**

The employment and income effects of the project were important to four of the five groups, excluding only the retirees. The demographic, housing, and settlement pattern changes were small enough to occur without producing significant changes in the social structure. The increased revenues and expenditures for public services were seen as important benefits by all the groups, but these effects did not appear to have significantly changed group interaction patterns.

There was increased interaction between the three groups who make up the major portion of the wage employment in the county: the blacks, general workers and textile

(and apparel) workers. The black group became a much more noticeable part of both worker groups, especially in textiles, retail trade, and local government. The general trend was toward this end, but the Oconee Nuclear Station was part of the movement and certainly helped produce the interaction. The relative isolation of the textile workers was lessened as some of them moved into the general workers group, including employment at the Oconee Nuclear Station during both construction and operation. Others went to the nonbasic jobs that were created by local income from the project. At the same time, new workers were hired in the textile and apparel industries from general worker households.

The trend toward more open and competitive work force conditions also affected the role of the business/professional group, especially those who were large employers. The business/professional group also benefited directly from the project-related income, and this contributed to the growth in retail trade, real estate, and the services sector of the economy. If anything, the business/professional group strengthened its position in the county along three important dimensions: political, social, and economic.

The retiree group grew rapidly, and from its increased numbers established more effective ties with the business/professional group. It had little contact with the other groups, however, and its development was more closely related to the Keowee-Toxaway project than to the Oconee Nuclear Station.

## CHAPTER 9: PUBLIC RESPONSE

### 9.1 Introduction

The purpose of Chapter 9 is to present the major issues that arose in connection with the Oconee Nuclear Station. These descriptions provide important background information for understanding the evaluation and response of Study Area groups to the project. Sometimes the issues appeared to bypass the Study Area altogether since the people and organizations involved had no local base. These regional or national responses are provided here to describe more fully the situation that existed for local respondents as they considered the effects of the project. The issues are presented in chronological order.

### 9.2 Public Response during the Pre-Construction Period

The Keowee-Toxaway project was announced on 2 January 1965 at a meeting of Oconee County business, political, and civic leaders. Areas of major concern were changes in the road system necessitated by the project and the need to develop health and safety standards in the project area. On 5 July 1966, the Duke Power Company (Duke) announced that steam generation at the Keowee-Toxaway complex would be provided by a multiunit nuclear power plant (Keowee Courier, 13 July 1966). This announcement was followed by a series of articles in South Carolina newspapers describing cost, employment, income expectations, effects on tourism, and project-construction features. Site preparation and excavation were underway by mid-1967. The construction permits for the nuclear generating units were issued on 6 November 1967.

#### 9.2.1 Announcement

The reaction of Oconee County officials and residents was one of enthusiastic support. Because the area was anxious to: (1) diversify its textile-dominated manufacturing base; (2) stem the out-migration of younger workers; and (3) minimize the effects of economic fluctuations, the project was viewed as a significant effort toward development and thus had broad support. The construction project was promoted locally by Duke and after July 1969 the utility operated a visitors' center. The center attracted over 1.5 million visitors subsequent to its opening, a large portion of whom were school children. Duke conducted an effective long-range public relations effort aimed at promoting additional support for the project. The project announcement, ground breaking ceremony, and dedication were all highly publicized and well received in the local area.

### 9.2.2 Siting

The land purchased for the site was bought between 1963 and 1972. Although Duke already owned a considerable amount of the land at the time the project was announced, it still had to make large purchases to complete the final tract of 157,000 acres needed for the Keowee-Toxaway project and the two-lake reservoir system. Local planning office employees, local realtors, and other key informants believed that this action boosted real estate prices and that the continued development of the area kept prices high. (Chairman, Oconee County Planning Commission, personal communication, 1980; private realtor, personal communication, 1981.)

Another area of major concern to the county residents was the relocation of county and state roads necessitated by the flooding of 26,000 acres. (Seneca Journal, 13 September 1967.) After numerous public hearings and extensive negotiations between Duke, state highway officials, and county officials, an agreement representing a compromise on the original proposal was reached. (Greenville News, 11 April 1968.) Local people were quite pleased with the company's contribution toward developing the lakefront's recreational potential. There was no recorded local opposition to the sites, although several federal and public utility companies had some initial reservations.

### 9.2.3 Permits and Hearings

One consideration in siting the Oconee Nuclear Station was the local support for such a project. The hearings that were required to obtain the various permits and licenses were supported by Oconee County officials. Local people did have some concern about land acquisition and highway relocation, but these concerns did not materialize as opposition at the hearings. In some cases, Duke personnel were active in resolving concerns before they became issues. This was often accomplished through meetings with local officials and through cooperation with local agencies such as the Pendleton District Historical and Recreation Commission.

There were, however, several agencies and utilities which had objections to the siting and construction of the project. Those interveners included: the Tri-State Power Committee in the FPC hearing in 1965-1966; the United States Department of the Interior in 1965; and the Piedmont Electric Cities in July 1967 and February 1968. The intervention of Tri-State and Piedmont Cities was based upon competition for the wholesale and retail electric markets. The form of the interventions was legal action. The objections of the United States Department of Interior were: (1) that the power

generating facility should be federally sponsored and built elsewhere in the region; and (2) that the proposed plant would cause thermal pollution. These objections were withdrawn after a political campaign in which 20,000 signatures were gathered from area residents on a petition supporting the Duke project. The combination of a willingness on the part of local people to accept the plant, Duke's effective public relations with concerned residents and county officials, and a lack of any effective regional opposition worked to allow the early hearings to be completed without much resistance. (NRC, Oconee Nuclear Plant Units 1, 2, 3 Preliminary Site Visit Report, 1979:67.)

The application for an Atomic Energy Commission (AEC) license was filed in December 1966, and the company was authorized to begin site preparation work on 25 August 1967. AEC Permits Nos. CPPR-33, 34, and 35 were issued in November 1967. Permits to fill and operate the reservoir system were granted by the United States Army Corp of Engineers and the United States Department of Interior in April 1967 for work affecting use of the Little River. The South Carolina Pollution Control Authority issued a permit to construct intake and discharge facilities for the Oconee power station in July 1970. No opposition to these proceedings was recorded.

The AEC conducted public hearings on Oconee Units 1, 2, and 3 in August 1972. By July 1974, all three units had been issued an operating license.

### 9.3 Public Response during the Construction Period

The construction period ran from August 1967, when site preparation began, until 16 December 1974, when Oconee Unit 3 began commercial operation. Project-related news stories began as soon as the project was announced in 1965, and descriptions of construction work were published, including excellent summaries of the construction phase. (Keowee Courier, 27 February 1974; 3 April 1974.)

Only a single, minor issue surfaced during the construction of the plant: the question of wage effects on local employers. Some local employers complained about the effect that Duke's local hiring policies and wage rates had on their wage structures. Several local employers reported either having to raise wage rates or lose long-term employees with substantial training. (Chairman, Oconee County Planning Commission, personal communication, 1980; Duke project engineer, personal communication, 1980.) However, the impact on wages was generally favorable to the local area during construction, and the competition for workers was not severe enough to generate much in

the way of adverse public reaction. The following considerations all served to increase the amount of public support for the project: higher wage levels; improvement in the skill levels of local workers; increases in recreational and wilderness opportunities; awards for outstanding project design, water conservation, and architecture; and identification as an outstanding tourist attraction. (Charlotte News, 4 July 1975; administrator, Oconee Vocational Center, personal communication, 1980.)

Overall, the Oconee project had wide public support in the Study Area. The questions about safe operation were expressed by only a small segment of the Clemson University population and did not engender much public response. The same is true of local wage pressure since its effect on employers was adverse only to a slight extent. The company itself was very responsive to questions from the community and carried on an active public relations program through its press releases and visitors' center.

#### 9.4 Public Response during the Operations Period (1973-1979)

The operating license for Oconee Unit 1 was issued on 6 February 1973. In the following five years, several concerns became public issues. First, beginning in 1976, the ability of the utility to safeguard its plant against break-ins and sabotage was questioned. Second, the design safety of the plant, in particular the steam generators, became an issue. Other concerns which engendered public response included spent fuel transportation, and the development of acceptable community evacuation plans.

The question of proper security was first raised after a plant break-in was reported at the Oconee station in 1973. (Columbia State, 28 April 1976.) In response to NRC regulations issued in February 1977, security forces at the plant were increased and procedures were upgraded. (Seneca Journal, 18 April 1977.) In November 1977, the NRC cited Duke for six security infractions at the Oconee station. (Seneca Journal, 9 November 1977.) About a year later, numerous security violations were alleged by ex-guards, and a massive investigation by the NRC was started. (Seneca Journal, 8 November 1978.) During the summer of 1979, Duke attempted to block the security report resulting from the investigation, a report which contained information on security procedures at the plant and information on the alleged security violations. Two months later, all but one of the guards' allegations were confirmed by the NRC. On the surface, the charges appeared to be largely procedural and included a finding of inadequate training procedures and improper possession of vital area keys. (Charlotte Observer,

20 September 1979.) Although all violations were corrected, there was substantial adverse local and regional press coverage throughout the investigation.

The issue of design safety was a continuing operational problem during 1977 and was reported often in the newspapers. The release of contaminated, radioactive water into the Hartwell Reservoir during January 1977 became the focal point for public reaction. The release was caused by a steam leak in the steam generator facilities which was inadvertently allowed to drain into the water outlet. Traces of the 5,000-gallon discharge eventually reached the area from which part of the Clemson University water supply was drawn. As a result of the spill, concerned citizens of Clemson organized a group called "People for a Clean Environment" (PCE). This group wrote letters to Duke officials and staged protests over the fact that citizens were not notified of the mishap for twelve days, and that the health implications of the spill were not clearly specified. (Greenville News-Piedmont, 10 February 1977.) A public meeting sponsored by PCE was held and more than 200 area residents attended. As a result of the meeting, Duke agreed to inform the public immediately of any future leaks. The probability of health effects were also discussed. Eventually the NRC cited Duke for several violations in connection with the incident, and the utility paid a fine of \$16,000. (Anderson Independent, 15 June 1977.) Relationships between the community and Duke were adversely affected by this incident. Because a number of local citizens became convinced that Duke tried to coverup the spill, they lost faith in it's ability to safeguard the health of the community. (Osceola, 25 February 1977.) In addition, members of PCE began to read and investigate NRC docket materials. Throughout March 1977, numerous problems with steam leaks caused reactor shutdowns and substantial newspaper coverage was devoted to the events at the Oconee station. There were expressions of concern over Duke's ability to protect the health and safety of the public. (Sentinel, 31 March 1977.) In addition, incidents were reported of noncompliance relating to radioactive releases into the Keowee River. (Greenville News, 1 April 1977.)

In 1977, the Oconee Nuclear Station suffered eight reactor shutdowns due to steam leaks. These shutdowns resulted in \$18 million of additional costs to consumers. (Charlotte Observer, 25 September 1978.) A coalition of consumer groups (The People Are Coming, The Palmetto Alliance, and the Grass Roots Organizing Workshop) brought charges before the Public Service Commission in which they contended that all charges levied during shutdowns plus 12 percent interest should be refunded to Duke customers. They argued that it was unfair to burden the people of South Carolina with higher

electric bills because of mismanagement on Duke's part. (Charlotte Observer, 11 October 1977.) This refund procedure was not adopted by the Public Service Commission.

Another incident that generated significant public response was Duke's proposal to ship nuclear waste from its Oconee plant to its McGuire plant. The first sign of resistance came from the Greenville County Council, which opposed shipment of wastes through its jurisdiction. (Greenville/Piedmont, 22 October 1978.) At the NRC hearing that ruled on amending the operating license of the Oconee station to allow waste shipments, three state environmental groups were given intervener status. (Anderson Independent, 14 November 1978.) Duke officials argued that other alternatives were not cost-effective and that limited on-site storage space could force the Oconee plant to shut down. The environmental groups contended that shipment in flatbed trucks was dangerous to communities along the proposed route and that the McGuire storage area would be filled by 1983 if shipments were started. (Greenville News, 30 November 1978.) The NRC panel ruled against the shipment of radioactive waste from one nuclear reactor to another for temporary storage. (Greenville News, 13 June 1980.) However, Duke appealed this ruling and the matter was still under consideration during the period when this case study report was being written.

One final issue which received public response was the adequacy of the existing evacuation plan in the event of a major nuclear accident. In 1977, several citizens voiced their concern over the effectiveness of the plan, especially the coordination procedures. There were questions raised about the degree of public awareness of the plan's details, and whether there were adequate shelters meeting safety standards to handle potential evacuees. (Greenville-News/Piedmont, 31 July 1977.) Public response over this concern increased dramatically after the accident at Three Mile Island in Pennsylvania.

#### 9.5 Public Response from 1979-1980

In 1979, one event focused concern on several aspects regarding the safe operation of the Oconee power station. This was the well-publicized accident of March 1979 at the Three Mile Island (TMI) power station.

### 9.5.1 The Accident at Three Mile Island (TMI)

The TMI accident in late March and early April 1979 was an important news story throughout the county, but particularly so in those areas surrounding the other nuclear plants in the country. Newspapers in the areas close to the Oconee plant devoted considerable space to plant-related concerns: the design similarities between the TMI and Oconee facilities (Chapel Hill Newspaper, 24 April 1979); protests by the Palmetto Alliance over operation of the Oconee facilities (Greenville News, date unknown); local reaction to the TMI accident (Anderson Independent, 24 April 1979; Charlotte News, 28 April 1979); the shutting down of the Oconee Nuclear Station to make safety improvements (Charlotte Observer, 27 April 1979); and the effectiveness of relocation plans in case of accident (Pickens Sentinel, 25 April 1979). A number of stories were written on the reaction of local residents to the Oconee plant following the TMI accident. In general, people living near the plant were more concerned than they were before the accident. Although they accepted the fact that a TMI-type accident was not likely to occur, they worried about the effects if something did happen. Some people were fatalistic about the whole matter. (High Point Enterprise, 23 March 1980; Greensboro Daily News, 20 May 1979.) Immediately after the TMI accident, public response was most noticeable. Demonstrations were held at Clemson University and at the gates of the nuclear power station by People for a Clean Environment and the local chapter of the Palmetto Alliance. (Anderson Independent, 4 June 1979.) However, local area residents felt that concern centered in Clemson and that most people had confidence in Duke's ability to operate the plant safely. (editor, Seneca Journal, personal communications, 1980; manager, Gallant-Bilk Department Stores, personal communication, 1981; manager, Jansen Company, personal communication, 1981.) One local spokesperson attributed this confidence to the public relations effort Duke launched after the accident at TMI. (manager, Jansen Company, personal communication, 1981.) Press releases were issued concerning the safety modifications which had been made, the newest training procedures to be implemented, and any plant incidents which had occurred. However, the continuing problem with water spills during 1979 resulted in another NRC investigation. (Charlotte Observer, 5 November 1979.) Numerous operating incidents served to keep some local people concerned about operating procedures. These concerns were expressed during the continuing efforts to revise the county evacuation plan. (Seneca Journal, 12 September 1979.)

Proposed changes in the plan were designed to meet the criticisms expressed to the South Carolina Joint Legislative Committee on Energy, and to meet the 1980 NRC

regulations that all residents within a 10-mile radius of a nuclear power plant must be evacuated within 15 minutes. (Spartanburg Herald, 28 September 1979; Seneca Journal, 26 March 1980.) The changes centered on the type of alert system to employ, and involved public hearings in order to elicit public response. A final evacuation plan had not been completed at the time that this case study report was written.

### 9.6 Summary

Several issues associated with the Keowee-Toxaway project and the Oconee Nuclear Station were often discussed by key informants and at public meetings. These issues included the creation of Lake Keowee and Lake Jocassee, the subsequent road relocations, and the effect of Duke's local purchases on real estate prices. More directly related to the Oconee Nuclear Station were concerns about wage effects, plant security, safety of design and operation procedures of the plant, spent fuel transportation, and emergency plans, including evacuation planning.

In spite of numerous concerns and issues, Duke Power Company had wide public support for its operation of the Oconee Nuclear Station. Almost without exception, key informants in the Study Area had a positive evaluation of the utility.

## CHAPTER 10: EVALUATION AND SIGNIFICANCE OF THE SOCIOECONOMIC EFFECTS OF THE OCONEE NUCLEAR STATION

### 10.1 Introduction

The purpose of this chapter is to provide a brief summary of the Oconee Nuclear Station project and the socioeconomic changes that resulted in the Study Area during the period 1967 to 1981. Much of the discussion focuses on the qualitative aspects of change and includes a discussion of the group evaluations of the project. This is followed by a consideration of the essential questions involved in describing the significance of the project to the community. This consideration includes reference to the trends of change in the community and relations between the utility and the county.

### 10.2 Summary of the Socioeconomic Effects

The major socioeconomic effects of the Oconee Nuclear Station project were described in detail and summarized at the conclusion of each chapter. The purpose of this section is to provide a succinct overview of the changes that took place during the entire study period. Reference is made to the most affected groups, but there is no attempt to explain the details of the effects.

#### 10.2.1 Economic Effects

The employment and income benefits of the Oconee Nuclear Station were spread throughout a large region and only about 25 percent of the effects took place in the Study Area. The great majority of workers commuted from outside the Study Area to work at the site during construction. The utility purchased most of the materials for construction outside the region. The Study Area had a relatively large work force in other employment so the on-site employment reached only 1.8 percent of the total county employment at peak construction. The proportion was almost the same during the operations period when "other" basic employment was included. The workers and the business/professional groups benefited most from the employment and income.

A number of significant changes to the Study Area labor force were identified by key informants. Since the construction work used nonunion labor and hired a large proportion of the on-site workers from the surrounding region, many local residents got construction jobs at all levels, including positions as skilled workers. The company also had programs for training employees and this resulted in an upgrading of work skills for many workers. The Study Area residents hired for plant operations tended to fill less

skilled jobs; most were assigned to clerical, security, and maintenance positions. Some estimates indicated that increases in per capita income and labor force participation rates for males were also connected to the employment at the Oconee Nuclear Station.

### 10.2.2 Population Effects

Two components of population increase identified as effects of the basic and nonbasic employment due to the Oconee Nuclear Station were in-migration and diminished out-migration. The in-migration effects were greatest at peak construction when an estimated 540 persons in-migrated (1.3 percent of the Study Area population). This effect declined sharply when construction was completed, but increased slightly during operations as the on-site work force increased. Diminished out-migration was due to direct basic employment, and to the large proportion of local residents who obtained the "other" basic and nonbasic jobs. Due to the "other" basic and nonbasic employment, diminished out-migration recorded a steadily increasing trend throughout the study period. The total population effects were greatest at peak construction, equalling 1.7 percent of the Study Area population. The total population effects for the 1978 operations year were 0.9 percent.

### 10.2.3 Housing and Settlement Pattern Effects

The effects of the construction and operation of the Oconee Nuclear Station on housing and settlement patterns in the Study Area were relatively modest. The project-related population accounted for only 1.2 percent of the housing demand at peak construction, and 0.7 percent for the 1979 operations year. Construction period demand was modified substantially since Duke Power Company provided housing units for 150 movers unaccompanied by families (or singles) on site. These units were removed at the conclusion of the construction period.

Key informants felt that there had been some upgrading of the local housing stock due to wages paid to nonmovers. No estimates of the dollar value for such improvements could be obtained, however. There was an increase in rental rates over the study period, due to increased demand (not all due to the Oconee Nuclear Station project) and costs associated with the construction of new multifamily units. There was a rapid increase in the use of mobile home units during the study period and much of the project-related housing need was filled by these units.

The Oconee Nuclear Station site occupied 510 acres with a surrounding exclusion area of about 1 mile in radius. The total land area dedicated to the station was about 2,000 acres. The station site itself was rezoned from rural/agricultural to industrial.

The housing and settlement pattern effects of the hydroelectric portion of the Keowee-Toxaway project, which also includes the Oconee Nuclear Station, were much more significant than the construction and operation of the station itself. Duke Power Company assembled 157,000 acres of contiguous property, created two lakes with a total surface area of about 26,000 acres (300 miles of shoreline for Keowee Lake and 75 miles of shoreline for Jocassee Lake), removed about 340 residences, and relocated almost 900 local residents. It should be noted that the Oconee Nuclear Station could not have been built without the water resources which resulted from the creation of the lakes. More than 21 miles of county roads were rebuilt and relocated. However, these housing and settlement pattern changes were considered distinct from the actual construction and operation of the Oconee Nuclear Station for purposes of the case study. Much of the effect of the development of the lakes took place during the study period and determined much of the observed change in housing and settlement patterns. This was especially the case with waterfront residential development in and near Seneca. Indirectly, the growth of commercial, retail, and service facilities on or near State Highway 123 was also affected by the Keowee-Toxaway project. These were significant changes in the Study Area; however, it was not possible to determine the role of the actual construction and operation of the nuclear station itself in these changes.

#### **10.2.4 Government and Public Service Effects**

The construction and operation of the Oconee Nuclear Station itself made few demands on Oconee County public services. The public safety services, including emergency preparedness, were involved in planning for possible evacuation from the site and, more recently (following the Three Mile Island accident) involved extensive revisions of plans for evacuation beyond the station site. Duke Power Company provided all day-to-day services including security, fire, utilities, and on-site traffic control. It also offered the Visitors' Center as a public access facility.

The increased demands for public services due to the project resulted primarily from the project-related population increases. These effects were discussed in Chapter 5. The county received revenues to offset these increases from two main sources: from the workers through normal taxing channels, and from the utility due to

the increased tax assessments which were levied against the station. The tax payments made by Duke Power Company on behalf of the Oconee Nuclear Station constituted one of the major effects of the project on Oconee County public services.

The tax payments made on behalf of the station began in 1973 and accounted for 7.5 percent (\$200 thousand) of the total county property taxes collected that year. This increased to 55 percent of county property taxes (\$2.7 million) in 1974 and decreased to 46.4 percent of county property taxes (\$3.7 million) in 1978. Annual tax payments from 1975 to 1980 were in excess of \$3.5 million. These revenues resulted in a slightly lower tax rate, \$1.39 per \$100 assessed value for the period 1971 to 1975, and \$1.35 for the period 1976 to 1980. The revenues were used to support both capital and program improvements, especially in education, public safety, transportation, and county administration. The county also began to provide "pass through" funds for the cities, amounting to \$100 thousand in 1975 and more than \$200 thousand by 1980.

During the study period, the Oconee County government was changed substantially by adopting a new form of self-rule in 1975. The county-council form assumed many of the legislative functions that formerly were performed by the state legislature. The increased services and costs since 1975 were largely financed by revenues from the Oconee Nuclear Station and by increases in the assessed value of local property. There were no increases in the tax rate.

#### **10.2.5 Effects on Groups and Group Interaction**

The increases in public services and the slight decrease in the tax rate affected each group differently. The primary beneficiaries of the service increases were the worker groups and the blacks. For the business/professional and retiree groups, the tax rate effects were also very important. Many retired people cited the low property tax rate as a main reason for selecting the area as a place to live.

The general workers subgroups and the blacks benefited from the employment effects, while the business/professional group was most affected by the spendable income. There did not appear to be any basic change in the relationship between the employer group and the three groups of workers (general workers, textile workers, and blacks) due to the project itself. Instead, increased employment, civil rights, and diversification of employment opportunities helped to change the relationship between the business/professional group and the workers.

The business/professional group increased its influence in county government due, in part, to the change in the county government administration. Blacks lost some important leadership positions because of the reduction in the number of black teachers following desegregation of the public schools. These losses were somewhat offset by increased employment opportunities in other county service areas. The retiree group rapidly increased its membership but this did not appear to greatly affect intergroup relationships. In general, the in-migrating retirees seemed to concentrate their activities within their own subgroups. Overall, the major change in group relationships were due to general population and economic expansion which replaced a stagnant local economy. The Oconee Nuclear Station was only one element in this pattern of change. It was generally credited with an important place in determining the socioeconomic change. However, few key local informants distinguished between the Keowee-Toxaway project and the construction and operation of the nuclear power station.

### 10.3 The Significance of the Project to the Study Area

The analyses provided so far in this case study have been mostly incremental and stated in terms of longitudinal data or areas of effect. The descriptions have addressed the issues of causation and attribution for socioeconomic change. An overview in terms of group and social system change has been presented. There remains, however, another level of description, perhaps more qualitative but no less important. The questions that identify this area of significance can be stated as follows:

1. In addition to the specific short-term and long-term effects previously discussed, are there other permanent considerations to be assessed?
2. Where does the project fit into the total Study Area community?
3. How important is the project to the Study Area?
4. Given the project—is the place still a good place to live? Has the Study Area improved because of the project?

These types of questions encourage a discussion that contrasts the Study Area with and without the project. They also lead to consideration of an overall cost/benefit evaluation. The question of whether the Study Area has improved because of the project also includes some consideration of risk assessment on the part of local residents.

The Oconee Nuclear Station was by far the greatest capital investment ever made in the county. Along with the rest of the Keowee-Toxaway project, it completely changed the public perception of the Study Area. Rather than being viewed as a textile manufacturing area located in the South Carolina Appalachian region, it came to be viewed as an area with a diversified economy and, more importantly, as a very desirable recreation and resort area. This perception was largely based on the development of Lakes Keowee and Jocassee, but the perception was actively promoted, along with the Oconee Nuclear Station, by the utility and by the local business community.

The role of Duke Power Company in the Study Area was established with the Keowee-Toxaway project and the company remained active in many areas during the study period. In addition to its role as an employer and taxpayer, the utility determined much of the residential and recreational use of the lakefront properties; provided large acreages for wildlife management; presented its point of view on nuclear power, both at the Visitors' Center and through active public relations campaigns; and contributed time, money, and effort to numerous public and civic programs. The utility became more than just an important member of the Study Area business community; it played a self-defined role in numerous aspects of county life. For the most part, key local informants viewed the utility as a positive force in the county.

The question of how important the project was to the community can be answered for a number of dimensions. As a source of tax revenues, it was very important; as a business enterprise, it was a large (although not the largest) employer. The wages paid by the utility were at the top end of the rate scale for the area and it was responsible for a widely recognized effort to train skilled workers during construction. The utility was involved in a number of community and civic efforts, some of which were directly related to the Oconee Nuclear Station (such as the Visitors' Center and public relations on the plant itself); and others which were related to the management of other utility holdings, especially recreation lands and the lakes.

Duke Power Company and the Oconee Nuclear Station were accepted as permanent additions to the Study Area. The size of the capital investment, the 30-year operating license, and the continuous upgrading and modification efforts were all identified as evidence that the facility was going to be there for a long time. Almost without exception, the key informants considered that the utility had, overall, had a very positive effect on the Study Area.

An important consideration for many communities near nuclear stations has been the risk of accidents and the environmental costs of plant operation. The "spill" of radioactive water into the Hartwell Reservoir in 1977 was the major health and environmental issue during the plant's operation period. Most of the concern was expressed by people in and around Clemson, which was just outside the Oconee County Study Area. For most of the county residents, the "spill" was apparently viewed as a minor incident and, while it did not enhance the utility's image, it did not appear to seriously undermine local confidence in Duke's ability to operate the plant.

On several different occasions public concern was expressed about the health risk due to radioactivity from the plant. There was a long-term problem with steam leaks which appeared to have been controlled during the last few years of the study period. There was concern expressed about Duke's proposal to shift spent-fuel wastes to the McGuire site in North Carolina. Following the Three Mile Island accident, there was concern about the plant design; Oconee Unit 1 was the prototype of that series of Babcock & Wilcox reactors. There was concern about the new evacuation plans that were developed following the TMI accident. Over the life of the project, the enthusiasm in the Study Area was reportedly moderated. Although the utility and the plant maintained widespread public support, the operational aspects of the plant were reported in more detail after the 1977 "spill" and the TMI accident. There was some loss in public confidence, but at the same time there was a continuing belief that the utility, the government, and the operating personnel could safely operate the plant. For the most part, people in the Study Area accepted the plant without frequent consideration of the risk factor.

The lifestyle of the area was greatly enhanced by the Keowee-Toxaway project as was shown by the in-migration of retirees and the expansion of the area as a recreation site. These advantages were seen as part of the "pay-off" for the entire Keowee-Toxaway project, including the Oconee Nuclear Station. The other major "pay-off" was the tax revenues. Through its revenues, which increased public services and improved public facilities, the Oconee Nuclear Station was credited with making the county a better place to live. Most key informants identified the revenue effects as a major contribution to the betterment of all groups. There was a very optimistic attitude in the area about the potential for a better future based on the improvements begun by the Keowee-Toxaway project.

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Westminster News, The

## PERSONAL COMMUNICATIONS

- Baumgarner, Carol B.;  
Secretary, Oconee County Legislative Delegation, Walhalla, South Carolina.
- Blackmon, Don;  
Design Engineering Department, Duke Power Company.
- Bridges, James;  
Fiscal officer, Oconee County School District.
- Cater, Henry;  
Treasurer, Oconee County, Walhalla, South Carolina.
- Cheney, Henry W.;  
Public Relations, Duke Power Company, Greenville, South Carolina.
- Code, Allan;  
Retiree, State Department of Education, Seneca, South Carolina.
- Covington, H. P.;  
Mayor, Seneca, South Carolina.
- Crain, Norman D.;  
Oconee County Supervisor, Westminster, South Carolina.
- Douberley, Lois;  
Member, Oconee Planning Commission, Walhalla, South Carolina.
- Edney, Gene;  
Member, Oconee County School Board, Salem, South Carolina.
- Falk, Edward;  
Chairman, Planning Department, Clemson University.
- Field, Ebb;  
Realtor, Seneca, South Carolina.
- Fort, John;  
Staff member, South Carolina Appalachian Council of Governments, Greenville,  
South Carolina.
- Fowler, John W.;  
Tax collector, Oconee County, Walhalla, South Carolina.
- Frieze, Lane;  
Engineer, Duke Power Company.
- Fulbright, Connie;  
Staff member, South Carolina Appalachian Council of Governments, Greenville,  
South Carolina.

PERSONAL COMMUNICATIONS (Continued)

- Gaillard, Robert;  
Chairman, Oconee County Planning Commission, Walhalla, South Carolina.
- Gallimore, J. A.;  
Editor, The Seneca Journal-Tugaloo Tribune, Seneca, South Carolina.
- Gill, Bob;  
Engineer, Steam Production, Duke Power Company.
- Grant, Giles;  
Member, Seneca City Council, Seneca, South Carolina.
- Green, Myron F.;  
Sheriff, Oconee County, Walhalla, South Carolina.
- Harding, Lorraine;  
Realtor, Seneca, South Carolina.
- Harrison, Lynn;  
Secretary, Discover Up Country Carolina Association, Greenville, South Carolina.
- Harrison, Susan;  
Staff member, South Carolina Appalachian Council of Governments, Greenville,  
South Carolina.
- Hill, Robert;  
Businessman, Seneca, South Carolina.
- Holt, Bernice;  
Resident, Clemson, South Carolina.
- Kelly, Mrs. E. J.;  
Supervisor, Seneca Office, Southeast Bell Telephone Company, Seneca, South  
Carolina.
- Koehler, R. M.;  
Superintendent, Technical Services, Oconee Nuclear Station, Duke Power Company.
- Laitala, Evert (Mr. and Mrs.);  
Retirees, and members of People for Clean Environment, Clemson, South Carolina.
- Lander, Ernest;  
Professor, Department of History, Clemson University.
- Lay, Robert;  
Director, Oconee County Budget and Planning, Walhalla, South Carolina.
- Lowry, Milton K. (Mr. and Mrs.);  
Retired banker and spouse, Seneca, South Carolina.

PERSONAL COMMUNICATIONS (Continued)

- Marcum, Louise;  
Librarian, Oconee County Library, Walhalla, South Carolina.
- McFarlane, Dan;  
Staff member, South Carolina Appalachian Council of Governments, Greenville,  
South Carolina.
- McMamara, James;  
Salesman, Keowee Keys, Oconee County, South Carolina.
- Medford, Thomas;  
Assessor, Oconee County, Walhalla, South Carolina.
- Miller, Jerrie;  
Employee, Civil Environmental Division, Duke Power Company.
- Mimms, Earl;  
Businessman and realtor, Seneca, South Carolina.
- Norton, Bruce;  
Manager, Jansen Company, Seneca Plant, Seneca, South Carolina.
- Orr, Mrs. Merle;  
Personnel officer, Oconee County, Walhalla, South Carolina.
- Phillips, Doug;  
Staff member, South Carolina Appalachian Council of Governments, Greenville,  
South Carolina.
- Phinney, James M.;  
Former Supervisor, Oconee County, Walhalla, South Carolina.
- Plotnik, Donald;  
Retired military, Clemson, South Carolina.
- Polotty, Frank;  
Manager, Seneca Office, Southeast Bell Telephone Company, Seneca, South  
Carolina.
- Rothel, Janie;  
Employee, Department of Social Services, Children and Family Services, Walhalla,  
South Carolina.
- Rutledge, James;  
Adult education, Oconee Vocational Center, Oconee County, South Carolina.
- Sheriff, Clark;  
Supervisor, Catawba Nuclear Power Station, Duke Power Company.
- Smith, Garland;  
Department store manager, Seneca, South Carolina.

PERSONAL COMMUNICATIONS (Continued)

- Strother, Bob;  
Staff member, South Carolina Appalachian Council of Governments, Greenville,  
South Carolina.
- Towe, Clarence;  
Attendance officer, Oconee County School District.
- Turner, Cecil;  
Employee, Duke Power Company, Seneca, South Carolina.
- Williams, Kenneth;  
Auditor, Oconee County, Walhalla, South Carolina.
- Wise, Frank E.;  
City planner, Seneca, South Carolina.
- Wynn, Morris;  
Staff member, South Carolina Appalachian Council of Governments, Greenville,  
South Carolina.
- Yandle, Bruce;  
Professor, Department of Economics, Clemson University.



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