INITIAL REPORT OF THE UTILITY REVIEW COMMITTEE TO THE 1977 SESSION OF THE GENERAL ASSEMBLY

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Introductory Remarks

Attached you will find the initial report of the Utility Review Committee to the 1977 General Assembly.

As required by the joint resolution establishing the Review Committee, this report has been submitted to the public utility companies operating in the State and to the Utilities Commission for comment.

Comments have been received from two members of the Utilities Commission: Commissioners Harvey and Teal. Their comments are attached to the report as exhibits.

Comments have been received from Carolina Power and Light Company; Duke Power Company; Nantahala Power and Light Company; and Heater Utilities. With one exception, their comments are attached as Exhibits. Carolina Power and Light Company attached to its comments a lengthy paper from Edison Electric Institute dealing with the subject of allowing construction work in progress in the rate base. The paper was somewhat duplicative of the comments on this subject submitted by Duke Power Company; therefore, for brevity's sake, the comments submitted on the subject by Carolina Power and Light have been omitted from the report. They are in the committee's files and are available on request.

Virginia Electric and Power Company, Carolina Telephone and Telegraph Company, and Southern Bell Telephone Company have indicated that they may submit comments. When submitted, these comments will be incorporated into a later report.

SUMMARY OF ACTIVITIES

The committee's activities from its inception through March, 1976, are summarized and reported in its Report to the 1975 General Assembly, Second Session (1976).

Since preparing and submitting its report to the 1976 Session, the committee has held regular monthly meetings, to consider and deal with a wide variety of problems and subjects.

Prior to September 1, 1976, the Review Committee was working without professional staff assistance. On September 1, Hon. Hugh A. Wells, former member of the North Carolina Utilities Commission became counsel to the committee, and is continuing to serve in that capacity. The committee instructed Mr. Wells to begin and carry out an intensive review of the activities of the Utilities Commission and the rates and services of regulated utility companies, as contemplated by the Resolution establishing the committee.

In addition to consideration of the regulatory structure and the manner in which it is functioning in an overall sense, the committee has given its attention to a number of more precise and more urgent matters of concern, making appropriate communication with the Utilities Commission in an effort to assist in improving its effectiveness.

The committee has given particular attention to the problems of natural gas supply and rates; nuclear power development in North Carolina; electric power company fuel clauses; the problems associated with forecast of energy demand and future planning of new electric generating facilities; and the Utilities Commission budget and level of staffing.

The initial report to the 1977 General Assembly covers the structure and function of the commission and its staff and the budget; a detailed report on electric power companies, and electric rates; and a report on nuclear power development. The reports contain some specific recommendations for matters to be considered and acted upon by the General Assembly.

Subsequent reports will deal with other utility services, such as telephone, natural gas, and water, and will deal further with the structure and function of the commission and its staff.

SPECIFIC RECOMMENDATIONS

The Review Committee specifically recommends the following matters for early consideration and action by the General Assembly.

1. Change "Fair Value" to "Original Cost" in Rate Base Determination.

As explained on page IV-3 of the report, North Carolina is a "fair value" state, using the fair value of the property owned and used by a utility in furnishing service to the public as the rate base upon which a rate of return may be earned - and therefore, upon which rates are set.

The Review Committee finds that the use of the fair value concept as the means of establishing the value of its property upon which a utility may earn a return (rate base) significantly complicates rate case hearings and the entire rate-making process; that the concept is cumbersome to apply; and that it is a concept which is difficult to understand.

The Review Committee finds that the use of actual net investment - reasonable original cost, less reasonable depreciation - is a fair method of evaluating the property of public utilities for rate-making purposes; that the use of such a method would considerably shorten rate cases, make them less expensive for all concerned, and would make rate orders much simpler and easier to understand.

The committee, therefore, recommends that appropriate legislation be enacted to amend G.S. 62-133 to provide that the reasonable original cost or net investment method be adopted for use in North Carolina.

2. Fuel Clause Hearings.

The Review Committee finds that the Utilities Commission is not using its resources in ways necessary to satisfactorily investigate, hear, and determine the issues involving fuel expenses of electric utilities in North Carolina, and therefore is not properly administering the law as it relates to the use of fuel clauses.

The Review Committee, therefore, recommends to the Utilities Commission that all applications for fuel clause adjustments be given the most complete investigation and analysis; that the commission use its staff resources and such other resources as may be necessary to regularly examine the fuel procurement practices of electric utilities; and that full and complete hearings be held on all fuel clause applications.

3. Energy Forecast Investigation and Hearings.

In Chapter 780 of the 1975 Session Laws (now codified as G.S. 62-110.1 (c) through (f)) the General Assembly enacted one of the most significant, far-reaching pieces of legislation in

recent history. For the first time, the legislature has made the State a full partner in the business of forecasting the need for, planning the construction of, and supervising the construction of electric generating facilities. This part of the law has instructed the Utilities Commission very clearly that there is a tremendous planning responsibility now housed in the commission, including facilities in North Carolina, facilities in neighboring states, facilities proposed to be built in North Carolina and/or neighboring states, and the resources under consideration and review by the agencies of such states and of the federal government. This legislation (for the first time) clearly instructs the Utilities Commission to monitor the construction of such facilities, including their cost.

The Review Committee is concerned that the Utilities Commission is not giving this area of responsibility the attention and support it deserves. The Review Committee does not find the degree of interaction with agencies of the federal government and of other states that the legislation contemplated. The committee finds that the commission is narrowly interpreting the provisions of G.S. 62-110.1 (e) and (f) so that attention is not being given to construction progress or construction cost of massive generating facilities now under construction by utilities doing business in North Carolina, with the attendant risk that the construction of such facilities may be carried out either in a time reference or at cost levels which may have serious implications for the people of North Carolina.

The Review Committee, therefore, recommends that the Utilities Commission give these matters its very highest priority; that its investigation and analysis be broadened in every practicable manner, especially to incorporate activities and findings of agencies of the federal government and neighboring states; that the hearing process be broadened so as to give people in all areas of North Carolina the convenient opportunity to participate; and that the commission undertake prompt investigation and analysis of current construction schedules and cost of all generating facilities under construction by electric utilities licensed to do business in North Carolina. The Review Committee most strongly recommends that the Utilities Commission immediately improve and broaden its methods of publicizing these matters and proceedings to the people of North Carolina, the General Assembly, the Governor, and the agencies and institutions of the State.

4. Management Audit of Utilities Commission.

As discussed at length in the body of the report, the General Assembly has given the Utilities Commission very significant increases in its resources, both manpower and money; yet there remain serious questions as to how effectively these resources are being utilizied and employed in the public interest. The General Assembly enacted significant procedural law changes, to give the commission more flexibility in the hearing of cases; yet it does not seem that this additional flexibility has been so employed as to use the hearing process to greatly improve public participation in or understanding of commission proceedings, nor to reach results which clearly

reflect that the public interest is being significantly better protected.

Under these circumstances, the Review Committee finds that the operation of the Utilities Commission needs close and detailed analysis by an outside, objective source, and therefore recommends that the Utilities Commission immediately undertake to solicit and review proposals for a management audit of the commission; and based upon such proposals, seek funding for such an audit from the Contingency and Emergency Fund.

5. Reports from the Utilities Commission to the General Assembly.

The Utilities Commission is an administrative agency of the General Assembly (see G.S. 62-29); yet there is no provision in the law requiring the commission to report on its programs and activities to the General Assembly.

The Review Committee therefore recommends that appropriate legislation be enacted to amend G.S. 62-17 to require that the Utilities Commission make annual reports to the General Assembly of its activities, orders, and programs, specifically responding to current or recent legislation. Such reports should be concise, clear, and to the point, and should be made not later than March 31 of each year, covering the period of the previous calendar year.

6. Nuclear Power

The Review Committee recommends that the General Assembly establish a study commission for the purpose of investigating the long-range implications of the rapid growth of nuclear facilities in North Carolina and the increasing dependence of power companies serving North Carolina on nuclear power, such study commission to make appropriate reports to the General Assembly of its findings and conclusions.

7. Transportation of Nuclear Fuel

The Review Committee recommends that G.S. 62-261.10 be amended to require that all shipments of nuclear fuel on the highways of the State be safeguarded by requiring the common carriers transporting nuclear fuel, residue, or waste to give prior notice of such shipments to the Utilities Commission, the Highway Patrol, and the Radiation Control Branch, Department of Natural and Economic Resources, and that such shipments move over designated routes in vehicles clearly marked as to content.

INITIAL REPORT

I. Structure of Utilities Commission.

The Public Utilities Act of 1963 (codified as Chapter 62 of the General Statutes) established the basic framework for recent regulation of public utility companies in North Carolina. The 1963 act established a five-member regulatory commission, providing for its members to be appointed by the Governor to staggered eight-year terms, with one of the members to be appointed (by the Governor) as chairman, for a four-year term.

In 1975 the Utilities Commission was expanded from five to seven members and was given authority to sit in panels or divisions of three for the consideration of general rate cases and other important proceedings.

The terms of the new commissioners were established in such a way that the seven-member commission would eventually have an eight-year tenure, as the five-member commission has had since 1963. The 1975 legislation provided for the members of the commission to be appointed by the Governor, subject to the approval of the General Assembly. Previous to 1975, the appointments had been made by the Governor, but did not require consideration of or approval by the General Assembly.

As a result of the manner in which the terms were established in 1975, four of the terms will expire June 30, 1977. The successor terms will be as follows: three for eight years and one for six years. There is presently one vacancy on the commission. This vacancy is in one of the "old" (pre-1975) terms, for a term expiring June 30, 1981.

There are no required qualifications for the office of Utilities Commissioner. By statutory provision, commissioners receive the same salary as judges of the Superior Court.

The Utilities Commission offices are in Raleigh, and the commission has no branch offices in any other place. The commission employs 11 transportation inspectors who live in various places throughout North Carolina, but work out of their residences.

The great majority of commission hearings take place in Raleigh, but the commission does from time to time conduct hearings in other places in the State. Hearings are generally conducted between the hours of 9:00 A.M. and 5:00 P.M. Tuesday through Friday. The commission generally reserves Mondays for the transaction of internal business.

II. Commission Jurisdiction and Authority.

The commission has been given jurisdiction and authority by the General Assembly to regulate rates and service of public utility enterprises in North Carolina. This includes all

investor-owned electric, natural gas, telephone, and water and sewer companies providing service to the public. It also includes nonexempt surface transportation of passengers and freight for movements over routes and franchises granted by the North Carolina Commission. As an adjunct to its regulation of rates and services of surface transportation, the commission has the responsibility of administering insurance and safety requirements for motor carriers of passengers and freight, and a limited safety function with regard to rail carriers operating in the State. Under contract with the federal government, the commission has the responsibility for administering the laws and regulations relating to the safety of all natural gas systems in the State, including those owned and operated by municipalities.

The commission does not regulate rates charged for sale of electricity for resale; these rates are regulated by the Federal Power Commission. It does not regulate rates for the sale of natural gas sold for use beyond the boundaries of the state in which it is produced; these rates are regulated by the Federal Power Commission. The commission does not set rates for long-distance telephone calls between points in different states; these rates are set by the Federal Communications Commission. The commission does not set rates for motor carrier or rail transportation on movements from one state to another; these rates are set by the Interstate Commerce Commission (federal). All public air transportation in North Carolina is regulated by agencies of the federal government.

The North Carolina Commission has the authority and responsibility to grant certificates of public convenience and necessity for new electric generating facilities to be built within the State. It has no statutory authority to regulate the building of electric transmission lines.

The commission has the authority, within certain limits, to establish service areas, or boundaries, for electric, natural gas, telephone, and water and sewer services outside municipalities. Generally, municipalities have the right to grant franchises for such services within their respective boundaries. The Utilities Commission grants franchises (or "rights") for motor carrier operations within the State.

III. Structure of Utilities Commission Staff.

The Utilities Commission is authorized to employ a staff of accountants, engineers, lawyers, economists, and clerical and administrative persons to assist it in discharging its duties and responsibility. Generally speaking, the staff is divided into functional divisions or departments; i.e., legal division, accounting division, engineering division, transportation division, etc.

The chairman of the commission is charged with the duty of staff management, with the advice and consent of the commission. Generally, each staff division or department has one person who is designated as the division director; this person

exercises direct day-to-day supervision of those persons in his or her respective division or department.

The staff provides assistance to the commission in a number of ways. It advises with the commission informally from time to time, furnishing members of the commission with information or suggestions. Commission lawyers represent the commission as an agency of the State of North Carolina before the courts of North Carolina and before federal courts and administrative agencies. Commission staff members - accountants, economists, engineers, etc., perform investigations of rates and services of utility companies and give reports to the commission and testimony in formal proceedings, such as rate cases.

With the sole exception of their personal secretaries, individual commissioners do not have staff employees. All other staff work for the commission as a body and are therefore theoretically at least, responsible to each commissioner and the entire commission.

With the exception of the transportation inspectors, all commission employees live in or near Raleigh, all except the transportation inspectors working in the commission's offices in Raleigh.

Commission staff are subject to the various applicable provisions of the State Personnel Act, and their job classifications and pay levels are determined accordingly.

Under State government reorganization, many agency personnel functions were placed under the control of the secretary of the department. While the Utilities Commission is under the Department of Commerce for budget purposes, it is exempt from department responsibility or control with regard to its staff, and retains the authority to employ and supervise its own staff.

IV. Function of Commission and Staff.

A. Rates.

The Utilities Commission regulates the rates which power companies, telephone, natural gas, water and sewer, and motor carriers may charge for their services. Utilities Commission regulation is confined to those rates charged for "intrastate" operations. For instance, the commission regulates rates for local telephone service and for long-distance calls within the State but not rates for long-distance calls to points in other states. The commission regulates motor freight rates for shipments originating and terminating within North Carolina, but not rates for shipments from points in North Carolina to points in other states.

Once rates have been approved by the commission for any type of public utility service under its jurisdiction, such rates may not be changed without approval of the commission. In some

cases, such as telephone rates for a particular piece of equipment, the commission may consider proposed changes in a single rate or a small number of rates. But generally, for all except transportation companies, rates are considered and dealt with in what is known as "general" rate cases, where all rates are under consideration and where the commission considers and decides what rate of return the particular utility company is entitled to earn on its business in North Carolina.

Rate cases may be heard by the full commission, a panel or division of three commissioners, or in some limited instances, a single commissioner or a hearing examiner (a staff member, usually a staff lawyer). When applications for rate increases are filed with the commission, a number of different things may happen.

First, the law allows the commission some flexibility as to whether it may allow proposed rate increases to go into effect on short notice; whether it may or may not "suspend" the proposed increase and delay its implementation pending investigation and/or hearing; whether or not to have a hearing on the proposed increase (and if so, when); or, whether it might allow a part of the proposed increase to go into effect and suspend the remainder, etc.

In the event the commission sees fit, it may allow a portion or all of the proposed increase to go into effect pending the hearing. Such increases are known as "interim" rates. In the event the commission suspends the proposed increase pending hearing, the statute limits the length of the suspension. After six months, the utility company may put an increase into effect of not more than twenty percent (20%) pending hearing; after nine months, if the commission has not otherwise ordered, they may put the whole proposed increase into effect until the commission acts.

When a "general" rate case is filed by a regulated utility - that is, when an application is filed wherein it is being requested that the utility be allowed to increase its rates generally, the application sets out two basic goals which the utility hopes to accomplish: one, it wants to increase its revenues by so many dollars per year; and two, it wants to increase its rates sufficiently to bring in these additional revenue dollars. When a general rate case is filed, the commission must declare it to be such and set the application for hearing.

The commission's rules now require that applications for general rate increases must be accompanied by the written testimony and exhibits through which the applicant expects to prove its case. When the application is received at the commission, it is turned over to the commission staff for review to determine if it has been filed according to the rules. Then the commission usually issues an order in which it orders the applicant not to put the "applied for" rates into effect until

the commission has a hearing and issues its order. This is what is known as "suspending" the requested rate increase.

Under present law, the Attorney General is charged with the duty of representing the using and consuming public in general rate cases before the commission; therefore, his office receives a copy of all applications for increases. It is then within his discretion as to how he proceeds from there toward participating in the case and hearing.

After suspension and setting of a hearing date, the commission staff will begin its investigation into the application and begin to prepare staff testimony to go into the hearing and prepare cross-examination of the applicant's witnesses. On occasion, the commission staff will request permission from the commission to employ outside expert witnesses to present testimony in the case. It is up to commission staff accountants to audit the books of the applicant to see if they are being kept according to law; it is up to staff engineers to investigate rate schedules to determine if they are nondiscriminatory and if they will produce the revenues estimated by the applicant, etc. It should be kept in mind that although the commission staff has some independence in these matters, all are employees of the commission and the commission can and does directly affect the level of staff performance in rate cases, as well as in other duties.

At the hearing, commission staff lawyers present the staff witnesses, and also cross-examine the applicants' witnesses. Attorney General staff lawyers may present witnesses from their own choosing, and they also cross-examine applicants' witnesses. Members of the general public who want to appear and testify may be assisted by either commission lawyers or Attorney General lawyers; or, of course, if their interest in the matter is of sufficient import to justify the expense, they may employ their own counsel and be represented by them. This is not unusual for large industrial customers, or organized consumer groups.

Under present North Carolina law, rates for regulated public utilities are set at a level sufficient to enable the utility to earn a certain rate of return on its investment in property dedicated to serving the public. North Carolina is what is known as a "fair value" State or jurisdiction, in that our present law requires that utilities be allowed to earn a sufficient rate of return on the "fair value" of their investment. Fair value has been the subject of much debate, testimony, court decisions, etc.; generally, the use of fair value allows a commission great latitude in reaching a dollar level of investment (value) on which the utility will be allowed to earn a return. Fair value is not replacement value alone, nor is it market value, nor is it the cost of exact reproduction, but a value something other than original cost; a value which the commission must determine based on the evidence in the record of the hearing and upon its own expertise and judgment. Many states, and federal regulatory agencies, use "original cost" as

the rate base upon which utilities are allowed to earn a reasonable return; that is, all that must be looked at with regard to investment is what the property did actually cost to construct, less reasonable depreciation.

Whatever the merits (or lack of such) there may be with the use of fair value, it complicates rate cases; is the source of much expense to the utilities in presenting evidence in rate cases; further expense to commission and Attorney General staff to analyze and deal with; is the source of much confusion and debate in reaching final decisions in rate cases; and is often the source of complicated appeals to the courts following final commission order. Original cost rate base is, on the other hand, much simpler to administer, understand, and apply.

In reaching the appropriate level of revenue dollars which may be necessary to enable a regulated utility to earn a reasonable return on its investment, the commission must look carefully at the operating expenses of the utility, to determine the reasonable level of such expenses as may be allowed as an offset against revenues. Modern utility service has become very complicated, and requires detailed, careful accounting procedures to keep track of revenues and expenses. Due to the fact that the level of service from customer to customer may vary greatly - that is, one customer may use much more of a particular service during a given month than another - it becomes important to be able to analyze and properly identify the cost of serving customers or groups of customers, so that rates for particular classes of customers can be accurately and fairly established. Such procedures are known as "cost of service" studies and are becoming standard in rate case determinations. By such devices, a regulatory commission can assure itself that one class of customers is not subsidizing another and that rates being charged are fair and nondiscriminatory. Some commissions require such cost of service studies to be carried out periodically by utility companies under their jurisdiction. The North Carolina Commission requires such studies in some cases, but not all, and not periodically.

Transportation rates are set in a somewhat different way. In an effort to achieve a reasonable level of rate uniformity covering the movement of freight by motor carriers, the industry has historically used the "bureau" method of establishing rates; that is, the various classes of motor carriers belong to one or more industry organizations whose job it is to set up and administer rate classifications for different types of goods and movements. An additional factor to be considered in the setting of motor carrier freight rates is that many movements will involve at least two separate carriers, and often more.

Under these circumstances, the "rate base" method of establishing rates would not make much sense nor work very well for motor carriers, and therefore an alternative method has been worked out for these regulated utilities, known as the "operating ratio" method. Rates are determined on the basis of the motor

carrier's ratio of operating revenues to operating expenses. Behind this simple-sounding technique, there lies an extremely complex set of factors and circumstances which must be considered and dealt with in order to reach a result which might under the most generous interpretation be called just and reasonable.

At the threshold is the problem that rates for intrastate movements are set by the North Carolina Commission, while rates for interstate movements are set by the Interstate Commerce Commission, a federal agency. Of course, almost every movement by a motor freight truck will involve both classifications of freight. Next, it must be recognized that freight moves from many different points of origin to just as many different points of destination, and of course the cost involved in moving freight from one point to another must vary in ratio to the distance covered by the movement.

The problem, therefore, of correctly allocating revenues and expenses of each item involved in each movement, and each movement involving one or more vehicles and warehouse facilities, taxes the ingenuity and talent of even the most dedicated regulators, and for that matter, owners and operators of motor freight lines. Through continuing cost studies, computers, and other more modern and sophisticated techniques, progress has been and is continuing to be made, but it remains a somewhat difficult area of regulation.

While motor passenger rates are determined upon the same basic principle of operating ratio, they present a different set of problems, further complicated by the fact that almost every passenger bus movement now involves a significant amount of small package freight.

The North Carolina Commission has a whole separate staff department which monitors, keeps files on, and evaluates motor freight and passenger rates and tariffs, and participates in these rate proceedings when they are before the commission.

The setting of rates for privately owned, nonexempt water and sewer companies presents a different set of problems. Under present law, the Utilities Commission has the responsibility of regulating the rates of all nonexempt water and sewer systems serving 10 or more customers. The number of such systems has grown by leaps and bounds in recent years, due to the lending policies of the Federal Housing Administration, the Veterans' Administration, and others which have encouraged the development of public water and sewer systems in rural or outlying areas of the State. Those member-owned systems financed by the FHA or HUD are, for the most part, exempt from regulation under present law.

By far the great majority of these systems are small (less than 50 customers), most of them are built by developers who have no long-range interest in them, many are without consistent or full-time management, and a great many of them, due to design deficiences, are beset with service problems.

The setting of just and reasonable rates for these systems is fraught with difficulty. Often, the person operating the system acquired it for little or no investment, simply as a beneficiary of the developer's desire to be rid of it, and the traditional rate base approach therefore doesn't fit or work. Many of the systems are so small as to make the maintenance of detailed records impractical, and to maintain regular, consistent service very difficult. Under these circumstances, the statute was amended in 1973 to allow the setting of rates on small water and sewer systems on the principle of operating ratios, similar to the way motor carrier rates are set. The system owner has a choice - he can use either the traditional rate base method, or operating ratio.

Another rate-making problem associated with the growth of such systems in second-home or recreation developments is that often the system will be installed while the development has very few permanent residents (or very few users of the service) and it is therefore a problem to maintain the entire system for such limited use. Under these circumstances, the legislature made provisions in 1973 for such developments to levy an "availability" charge for those lot owners who have water or sewer service available to their property, but have not yet connected to the system. Such "availability" charges are a matter of contract between the system owner and the property owner and are not regulated by the Utilities Commission.

B. Service.

In addition to regulating the rates which utility companies may charge, the commission also regulates the service they provide. It is the job of the commission and its staff to see to it that the people of North Carolina are being provided with available, reliable, and efficient service from companies who are franchised to furnish public utility services within the State.

In the case of regulated electric companies, the Utilities Commission determines the areas of service of the various companies; establishes rules and regulations as to extending service or making service available; regulates voltage levels; regulates meter accuracy and reliability; supervises the reliability of service (outages, etc.); and generally supervises the quality of service being provided. It is also the responsibility of the commission to see to it that the regulated electric companies have enough service; that is, that they have a sufficient supply of electricity to meet the needs of the public. In this area of responsibility, the commission can influence the choice of regulated companies as to the type of facility they build and operate to generate electricity; i.e., whether it be coal-fired, water power, nuclear, or other. The commission has principal authority over the location or siting of generating plants in the State.

In the case of telephone service by regulated companies, the commission and its staff make regular investigations of the

quality of telephone service being provided; whether a phone company has sufficient facilities to handle its "traffic" efficiently and quickly; whether applications for new or changed service are processed promptly and efficiently; whether transmission quality is at an acceptable level, etc. Telephone service is sensitive to a great many variants and therefore requires frequent analysis and correction. The commission has authority to regulate the type of facilities offered by regulated telephone companies, and to order them to make extensions or to provide additional or different facilities where justified by the public interest or by the needs of an individual customer or group of customers.

The commission establishes the boundaries within which telephone companies may do business, but the courts have placed some limitations on the power of the commission to change such boundaries once they have become fixed. It is within the authority of the commission to require telephone companies to provide or substitute "local" service for long-distance service between communities or exchanges within a company's service area; to require a regulated company to offer one-party service in place of "party-line" service; etc.

The commission regulates natural gas service in much the same way as it does electric service, but with one major difference: it is beyond the power of the commission to require regulated natural gas companies to extend their services substantially beyond the areas in which they now serve, simply because the supply of natural gas available to North Carolina companies is not sufficient to allow for such expansion. Due to the very uncertain natural gas supply situation in the eastern seaboard states - and particularly in North Carolina - it would not seem that any communities which do not now have natural gas service may ever expect to have it, regardless of what powers the North Carolina Utilities Commission may have now or in the future. The commission can of course exercise its jurisdiction and power to see to it that we make wise and efficient use of such supply of natural gas as we may have, but essentially the supply situation is one of great uncertainty. It should be emphasized, however, that although federal laws and regulations ultimately determine the supply of natural gas available to North Carolina, there are ways in which the commission and the regulated companies can impact these determinations, and it is a very important part of commission and commission staff function to pursue these options vigorously and effectively.

The Utilities Commission also has the responsibility of supervising the safety aspect of the operation of natural gas facilities in North Carolina. Under contract with the United States Department of Transportation, this area of responsibility extends not only to the facilities of regulated companies, but also covers those systems owned and operated by municipalities.

The commission regulates the services of intrastate motor carriers of passengers and freight. It is within the authority of the commission to grant transportation franchises -

operating rights - to those carriers who wish to move freight or passengers from point to point entirely within North Carolina. Consistent with that authority and responsibility, the commission has the responsibility of monitoring and supervising the service of motor carriers, as that service relates to intrastate movements. Included in that responsibility is the area of insurance coverage for motor carriers, and in this area, the commission is the sole agency responsible for administration and enforcement of insurance coverage regulations for motor carriers using the highways of North Carolina. The commission also has the primary responsibility for the review and enforcement of safety rules and regulations applicable to motor carriers, covering both equipment and operators.

The commission has a staff of 11 transportation inspectors who serve to enforce safety and insurance regulations applicable to motor carriers, and who also in some degree assist in expediting movement of freight. The commission also has a small force whose primary function is in the area of rail safety, principally concerned with track conditions and highway - railroad crossings.

C. Planning.

The Public Utilities Act of 1963 constituted a major rewrite of the laws affecting public utility regulation in North Carolina. In that legislation, the General Assembly adopted the major public policy thrust which has provided the statutory framework ever since.

The 1963 Act handed the Utilities Commission both tremendous authority and pervasive responsibility with regard to the furnishing and regulating of public utility services. There is no better way to effectively draw the picture than to quote Section 2 of Chapter 62 of the General Statutes, in which we find the declaration of public policy which underlies the whole statutory regulatory scheme:

"§ 62-2. Declaration of policy.--Upon investigation, it has been determined that the rates, services and operation of public utilities, as defined herein, are affected with the public interest and it is hereby declared to be the policy of the State of North Carolina to provide fair regulation of public utilities in the interest of the public, to promote the inherent advantage of regulated public utilities, to promote adequate, economical and efficient utility services to all of the citizens and residents of the State, to provide just and reasonable rates and charges for public utility services without unjust discrimination, undue preferences or advantages, or unfair or destructive competitive practices, to encourage and promote harmony between public utilities and their users, to foster a statewide planning and coordinating program to promote continued growth of economical public utility services, to cooperate with other states and with the federal government in promoting and coordinating interstate and intrastate public utility services, and to these ends, to vest authority in the Utilities Commission

to regulate public utilities generally and their rates, services and operations, in the manner and in accordance with the policies set forth in this Chapter."

Thus, it is clear that the framers of the 1963 Act envisioned a strong regulatory commission which would exercise considerable planning initiative and responsibility for the benefit and advantage of "all the citizens and residents of the State". The more detailed and precise statutory provisions to be found in Chapter 62 are entirely consistent with the broad, bold, and dynamic thrust of the declaration of policy.

The history of regulation in North Carolina since 1963 reflects a very conservative, if not cautious, response to this bold public policy, one in which the commission has been principally characterized by reaction to what the regulated utilities planned and proposed, rather than an organized, well-defined planning philosophy and effort flowing from the commission itself. From time to time since 1963, there have been members of the commission who attempted to assert a regulatory philosophy more consistent with the declared public policy of the State as found in Section 2 and throughout the 1963 Act; but they have been in the minority, and overall, the North Carolina Commission could not have been described as being assertive in the planning department.

The 1975 General Assembly took cognizance of these circumstances in addressing the problem of growth in the electric utility industry, together with the overall needs of the State with regard to energy planning. In 1975, very significant legislation was enacted directing and empowering the Utilities Commission to move strongly into the planning function, particularly with regard to energy forecast and planning for electric generating facilities, a subject which will be dealt with at length in another section of this report.

It would seem clear that the drafters of the 1963 Act clearly intended for the commission to exert itself in the direction of cooperative efforts with agencies of other states and of the federal government, and yet up until just very recently, there is little evidence that such efforts ever assumed meaningful or significant proportions. This is an area in which much effort needs to be exerted, for it is becoming increasingly clear that the quality of public utilities services and the level of rates for such services for the people of North Carolina will continue to be significantly influenced by actions and events taking place in neighboring states and at the federal level, making it clear that for the North Carolina Commission to do its job well, it must assert itself strongly with regard to area and national interest, trends, and policies.

V. Areas of Particular Concern with Regard to Structure and Function of Commission and Staff.

A. Commission.

During the decade of the sixties, utilities in North Carolina enjoyed a significant degree of prosperity. Earnings were quite respectable, utility stocks in general commanded a good market, and rates were generally stable.

During the sixties, the Utilities Commission reacted to the generally stable conditions which obtained in those years by following a conservative approach to regulation. Rate cases were not frequent, and other activity was at a relatively low level. The commission, while having business enough to stay busy was not under any significant degree of pressure.

All of these conditions began to change with the advent of the seventies. Rate increases for public utility services have become a way of life since 1970. The Utilities Commission has been quite busy and under a great deal of pressure.

As a result of many of the pressures growing out of the frequent rate proceedings before the commission from 1970 forward, the commission time schedule began to break down. Rate cases were taking many months to hear and conclude, and the commission granted many "interim" or "emergency" increases which remained in effect for significant periods while the rate cases were being decided. Because of time constraints, as well as other reasons, the commission allowed a significant degree of automatic increasing of electric rates through the operation of fuel clause adjustments on a monthly basis.

Under the law as it existed from 1963 to 1975, the commission was required to hear all general rate cases in a body - that is, all commissioners were required to participate in all such cases. As rate cases became more frequent, they also tended to become more complex. Vigorous participation by the Attorney General, frequent participation by large customers or industry groups, consumer groups, and municipal governments, had the effect of adding quite significantly to the length of rate cases. The very magnitude of the increases being requested required a much heavier input of testimony and evidence from all sides. During the sixties, the average electric, natural gas, or telephone rate case would take from two to four days to hear. By 1974, such cases were taking from two to four weeks to hear, and consequently producing records of greater volume and complexity, hence stretching out the decision-making process.

In addition, a number of other circumstances occurred to complicate the commission's task. Natural gas shortages began to show up beginning in about 1971, and as these shortages grew quickly and steadily worse, the commission was required to spend a great deal of its time considering the alternatives of supply and allocation and how the State of North Carolina might appropriately alleviate the supply problem. These matters involved not only internal, "at home" proceedings, but frequent contact with and proceedings before agencies and offices of the federal government.

It was in the seventies that telephone interconnection questions began to command a great deal of time and attention of the commission; and again, not only involved "at home" activities but also much federal-state activity.

And so, by the time the 1975 General Assembly was under way, there was wide-spread dissatisfaction with the way regulation was working in North Carolina; much public unrest and outcry came to the attention of legislators. As a result of the interest of many members of the General Assembly, the Lieutenant Governor, citizens, consumers, and members of the commission itself, consideration was given to expanding the commission and making its procedures more flexible in order to get rid of some of the more onerous irritants, such as automatic fuel clauses and interim rate increases.

Among other corrective measures, the General Assembly enacted legislation in 1975 to enlarge the commission from five to seven members, and to require that all new and subsequent appointments to the commission by the Governor be subject to approval by the General Assembly. They also gave the commission more flexibility in hearing rate cases by allowing them to hear such cases in panels (or divisions) of three. Previous to 1975, there was no provision in the statute for qualification for members of the commission, and the 1975 General Assembly made no change in this respect.

As a result of terms expiring and members resigning, Governor Holshouser has appointed five of the now sitting members of the commission. The commission has one vacancy as of this time (December, 1976). Five of the present members are laymen; one is a lawyer. Of the five lay members, four have business backgrounds; one is an educator.

As a result of the way in which the terms are structured, Governor Hunt will have the opportunity to appoint six members of the commission during his term of office. Including the existing vacancy, he will have the opportunity to appoint five members during the 1977 Session; one for the vacancy now existing, and four for terms expiring June 30, 1977. He will have an additional appointment for a term expiring June 30, 1979.

Recent experience has demonstrated that there are problems associated with a commission made up of predominantly lay members. It is quite difficult for a non-lawyer member of the commission - particularly during a commissioner's early, formative years on the commission - to preside effectively at complicated commission proceedings, especially rate cases and applications for new franchises or authority to conduct a public utility enterprise. Lack of familiarity with rules of procedure and evidence, legal principles involved in dealing with complicated issues before the commission, constrains the lay member called upon to preside in ways which are burdensome to counsel, parties, and commission alike, and greatly enhances the risk of procedural or substantive errors which might result in reversal on appeal.

Lawyers who become members of the commission are prohibited by statute from engaging in the practice of law while serving on the commission. There is no restriction under present law to prevent members of the commission - lawyers or lay members - from engaging in other employment while members of the commission, except of course, employment by a regulated public utility. Commissioners may not own any interest in any regulated public utility enterprise while serving on the commission.

The chairman of the commission is appointed from the membership of the commission by the Governor for a four-year term as chairman. Chairman terms are timed to expire on June 30th of the Governor's first year in office, so that each Governor has the opportunity to select one member of the commission to serve as chairman during the Governor's term of office. The chairman under present law is the chief executive officer of the commission, but his prerogatives and authority are rather significantly limited by statutory provisions requiring the chairman to operate within rules and policies approved by the commission. Under present law, the chairman receives a modestly higher salary than other members of the commission. The chairman is required to authorize and validate all travel expenses incurred by commission and staff. In many other jurisdictions, the office of chairman is much stronger than in North Carolina.

B. Commission Staff.

During the comparatively stable decade of the sixties, the commission staff remained at a relatively modest level. Whether the commission could have effectively used a higher and more sophisticated level of staffing prior to 1970 is, of course, a moot question. It would be unproductive to spend much time reexamining that era in the context of staffing. As the seventies began to emerge, however, with all of the complications discussed in the preceding section on the commission, staffing became critical. By the time the 1971 General Assembly convened, it was already clear that the commission was understaffed and needed a quick infusion of qualified professional and technical people at the staff level.

These circumstances continued to prevail during the 1970-75 period. The commission continued to seek and the General Assembly continued to grant significant increases in staff level and competence. At the beginning of 1970, the commission employed a staff of between 45 and 50 people, not including its transportation inspector force, which then was composed of nine men. At the present - again excluding the transportation inspectors - the commission employs a staff of 168. The commission's operating budget has grown proportionately, as will be reflected in the following table:

1969-70	$ 497,813	1973-74	$1,534,828
1970-71	669,660	1974-75	1,433,737
1971-72	843,008	1975-76	2,274,500
1972-73	888,136	1976-77	2,514,351

The biggest "jump" in staff level took place in the 1974-75 period, when approximately 60 new positions were authorized. About half of these positions had been set up and funded from contingency and emergency funds, these positions being made permanent in the 1975 Session, with one half being initially authorized in the 1975 Session.

Thus, it is clear that the General Assembly has been responsive to the commission's needs for staff; responsive in such dimensions as to allow the commission to develop and function as a very effective regulatory body. Whether such has been the case is a matter of considerable discussion and debate.

The commission staff is departmentally structured, and there is no one person in charge. The staff is employed by the commission and is hence responsible both to the commission as a body and to all commissioners individually. Under these circumstances it is clear that a number of variables may affect the commission's effectiveness or thrust as a regulatory body.

One, present staff structure introduces an element of competition between departments for people, equipment, programs, and funds. Two, there is no established structural arrangement for accomplishing common staff goals, leaving open the possibility of divided staff effort, or effort which is either unbalanced or uncoordinated. Three, there is no clearly defined staff obligation; i.e., no objective statement of staff function, leaving open the possibility of subjectively derived goals and activities. Four, the present arrangement gives the commission and its individual members unlimited access to staff, which leaves open the possibility of influence, or pressure (or both) on staff from the commission level. Five, since staff has no clearly defined client, there may be possible misunderstanding as to how responsive or unresponsive staff should be to representatives of the regulated industries with whom they are in frequent contact, and a similar possible misunderstanding of the length or depth to which staff should go in representing or dealing with the public's interest in regulation and regulated services.

In retrospect, viewing the aspects of both legislative enactments dealing with utility regulation and services, and with funding for commission and staff, the conclusion may be reached that the General Assembly in recent years has manifested a clear intent that the commission staff's primary reason for existence is to protect the interest of the using and consuming public in matters within the jurisdiction of the commission. Records and minutes of legislative committee meetings, floor debate, public statements and speeches of individual members, the quality of urgency in much of what has been said; all of this would support such a conclusion. Yet, to date, there has been no statutory enactment which clearly points the way for the commission staff in the sense of saying just who it is they are supposed to be representing. It has remained for the commission itself to use and direct the staff at its discretion; or, as has sometimes seemed to be the case recently, at its whim.

Not including transportation inspectors, the commission is requesting 39 new staff positions over the next two budget years. The Review Committee has very carefully analyzed the commission's present and prospective work load and the demands upon the staff associated with it. It appears that given good leadership and direction; given a vigorous commission seeking a very effective level of regulation, the commission is not now overstaffed, and could justify some modest staff expansion. There are certainly some areas of responsibility which could use more staff effort, such as the energy forecast area and the area of management and compliance audits, for instance; but it is at least possible that with more and better direction and management of the staff, a more productive level of output could be achieved with present staff. The Review Committee analysis would indicate that before substantial staff is added, careful attention needs to be given to staff role and staff direction.

In the foregoing paragraph, we have excepted transportation inspectors. These positions need separate attention and treatment.

Since 1969, the Utilities Commission has had primary responsibility for administration of laws and regulations dealing with the safety and insurance aspects of vehicles operated by motor common carriers, both in intrastate and interstate operations. In 1969, when the commission assumed this role, nine inspectors were given the job of enforcement statewide. In that year, there were a total of 145,061 covered vehicles registered in North Carolina. By 1973, the number of registered vehicles had grown to 234,975. Two more inspectors were added that year, bringing the inspector force to a total of 11 men. In 1975, the number of registered vehicles had grown to 236,476; and it may be assumed that for 1976 and 1977, the number will be significantly higher. The inspector force is still at the level of 11 men.

These men carry on most of their work on the highways, but do some checking of vehicles at terminals, mostly common carrier passenger buses. Due to the very small size of the force, it is clear that they can carry out nothing more than a minimal program. Under such circumstances, they do not have the force to carry out 24-hour, seven days a week inspections, even on a limited basis. Under such circumstances, unlicensed or illegal operators can predict that they will be neither observed nor intercepted if they operate by night or on the weekends. Also, because of the inspector force being spread so thinly, such operators can usually find out where the inspectors are going to be set up, and can, and frequently do, choose alternate routes to avoid inspection.

The commission is seeking to triple its inspector force, by adding 22 additional positions. These jobs are funded out of the highway fund and do not involve General Fund appropriations. The commission is also seeking to provide the inspector force with uniforms and marked cars. They presently operate in unmarked cars and in civilian clothes. These men have the power of arrest, and often have occasion to require a vehicle to be put

out of service immediately due to critical safety violations, and often have occasion to put drivers out of service due to infractions observed during their inspections. Under such circumstances, it would appear that for the safety of the inspector force, motor common carrier drivers, and the general highway-using public, these men should be uniformed and should use marked cars.

The Review Committee feels that very careful consideration should be given to the commission's request. In order to protect the public from unsafe and uninsured vehicles and in order to protect the regulated industry from illegal and noncertified operators, the inspector force should be enlarged significantly.

VI. Areas Of Particular Concern With Regard To Rates And Services Of Public Utilities.

A. Electric Power Companies.

(1) General Comments.

Rapidly rising rates for electric power have become a major irritant to many citizens and a serious problem to some. Not only low income families and individuals are feeling the pinch of high bills; many middle income families who reside in all-electric residences are finding that the "light" bill cuts very substantially into the paycheck.

There are multiple cost factors associated with providing electric power, the two most prominent being fuel and capital investment. The problems of fuel clauses and new plant costs have captured the attention of almost every adult citizen in the State. The General Assembly has reacted to these problems by taking some very positive action.

The 1975 Session of the General Assembly enlarged the size of the commission from five to seven; it gave the commission a large number of new professional staff positions; it amended the law so that the full commission would not have to hear all general rate cases, and allowed such cases (and others) to be heard by panels or divisions of three members; and having thus provided the commission with the manpower and procedural flexibility with which to get the job done, it instructed the commission in some very careful ways as to how to chart the future course of regulation of electric power rates and service.

(2) Fuel Clauses.

For a number of years prior to 1975, the Utilities Commission had allowed power companies to make adjustments to monthly bills based on increased cost of fuel used in generating electricity by the particular company. Whatever higher cost the power companies paid for fuel, the commission allowed them to pass this higher cost on to their customers in "automatic" adjustments; that is, once the particular company obtained

permission to pass on such increased fuel cost, they did so each month by simply informing the customer on his bill what the additional charge was for that month. Such "automatic" adjustments took on very significant proportions and were a cause of great concern. In the light of these circumstances, the 1975 Session instructed the commission to abolish automatic fuel clause adjustments, and to hold hearings on all applications for increases in such clauses. While the 1975 amendment did not actually require hearings when the adjustment sought was downward, the thrust of the legislation was clearly in the direction of instructing the commission to look very carefully at all adjustments, to satisfy the ratepayers that whatever adjustments were made were proper.

Despite the fact that the commission was enlarged and given much great procedural flexibility; that the staff was greatly enlarged; and that the General Assembly quite clearly instructed the commission to hold hearings on fuel clauses, it appears that fuel clause proceedings are very nearly as automatic today as they ever were. Although regular hearings are held to consider proposed increases, the hearings are routine, if not perfunctory. Proposed reductions are treated even more perfunctorily, usually being disposed of without any hearing whatsoever, although it seems perfectly logical that the question of whether a proposed reduction is the <u>right</u> reduction is just as vital as the question of whether a proposed increase is justified. The Review Committee is, of course, not in a position to make any judgment as to whether or not increases or reductions in these fuel clauses are just and reasonable. The committee's concern is that the Utilities Commission does not appear to be using its resources to dig deeply into the forces at work behind fuel clauses: procurement practices, quality control, transportation cost, fuel mix, maintenance schedules and down time; generation mix; etc., with the result that it does not yet seem that the people of North Carolina can be satisfied that the judgment of the commission and its staff is being exercised to act as a supervisory force on the fuel practices of electric power companies serving in North Carolina.

The Review Committee expresses its concern that appropriate steps be taken in order that the commission and its staff give these proceedings the time, attention, review, and analysis anticipated by the General Assembly and expected by the people of North Carolina.

(3) Interim (Emergency) Rate Increases.

One of the greatest irritants leading up to the 1975 reform legislation was the habit of the Utilities Commission of granting interim, so-called emergency rate increases before hearings on rate applications were held. Nevertheless, in August of 1975, the commission granted CP&L such an interim increase, prompting the Review Committee to call upon the Utilities Commission for a full explanation. Following hearings on the subject before the Review Committee, the committee was not satisfied that the spirit of the law was being observed, and

recommended in its initial report to the General Assembly (page 3) that legislation be considered which would strictly limit the commission's authority to grant such interim increases.

The Review Committee is gratified to note that for the first time since 1970, neither CP&L nor VEPCO has sought to implement such an interim increase in a rate case. While this is welcome news, the committee still feels that the matter commands further attention and that the circumstances under which such rate increases might be granted in the future need to be very carefully restricted to real emergencies.

(4) Peak-Load Pricing, Load Management.

The demand for electric power controls the level of plant capacity required to meet that demand. Usage of electric power by the average consumer is such that the level of usage, hence demand on the system, varies quite widely during the twenty-four hour day, reaching certain "peaks" at certain times of the day. These peaks generally follow the weather and temperature; that is, on very hot days, air conditioning use will cause a high late afternoon peak; or, on a very cold day, electric heat use will cause a high early morning peak. In the "valleys" between these "peaks" the average power company will have a significant amount of its generating capacity sitting idle, or at least in such reduced use as to appear to be idle. These usage patterns very directly affect the cost of electric power, especially in these times of greatly increased plant construction cost.

In order to alleviate these cost pressures, the 1975 General Assembly enacted an entirely new section of regulatory law, in which it called upon the Utilities Commission and the power companies to initiate programs and methods of controlling peak demand, so that present plant capacity might be more efficiently and cost-effectively used, and so that the need for new plant capacity might be mitigated or reduced. One of the devices proposed by the legislature was load-management; that is, the commission and the power companies should investigate the practical means of cutting off certain electric use for brief intervals at peak times, so as to reduce the peak, but in ways which would not substantially inconvenience the user. The other method proposed for investigation and study dealt with pricing as a method for reducing peak usage; that is, consideration should be given to the question of whether electricity should cost more when used at peak periods - and naturally, cost less when used off-peak.

In response to this legislation, the Utilities Commission has established a formal docket in which it has invoked its staff resources and called upon the regulated power companies and the public to participate and contribute to the formulation of acceptable methods of peak pricing and load management. Hearings in this docket were held in December 1976, in which testimony was heard from commission staff, rate specialists from CP&L, Duke, VEPCO and others. The power

companies are proposing the implementation of experimental pricing plans, to be participated in on a voluntary basis or on a limited mandatory basis; the number of customers affected in either category to be quite small. The commission staff found Duke's proposal to be substantially acceptable, but suggested that both CP&L and VEPCO's plans should be modified. While there seems to be substantial activity in the area of peak pricing, the proposed implementation plans are modest and whatever results which may ultimately flow from them are, at best, many months, if not years, away.

The area of actual load management; that is, the control of peaks by mechanical or electronic instrumentation, seems to have received very little attention and/or activity from either the commission staff or the regulated companies. The only actual load management plan adopted in North Carolina to date is being implemented by Lumbee River Electric Membership Corporation. This is an area in which the Review Committee feels that there is great potential for immediate and effective action on the part of the regulated companies. It has been demonstrated and documented that residential water heating loads can be very effectively managed by remote control, in ways which do not inconvenience the customer in any significant way, but which can very effectively reduce peaks. Air conditioning loads can also be very effectively controlled by such devices. Large commercial loads, involving lighting, space heating and air conditioning can be controlled by computer programs which can very effectively reduce peak demand, and in many instances, reduce overall consumption of electricity.

In October of 1975, Lieutenant Governor Hunt convened a meeting of industry representatives for the express purpose of describing and demonstrating the various devices, systems and techniques available for implementation of direct load management. The program he sponsored very aptly and clearly showed that the hardware is available to get the job done; that the benefits to be derived are cost justified; and that the hardware and systems are being improved and upgraded with use and experience. Utilities in other states have implemented such systems in a variety of ways.

To date, Duke is the only regulated company which has disclosed any load management program, and it is very modest. The Duke program is principally characterized by customer education programs, designed to encourage conservation, and by improved residential construction design techniques which would accomplish conservation if implemented.

To date, no one has proposed a combination of actual load management with pricing; that is, an offer of rates which would recognize, and therefore favor, those customers who might be willing to have their appliances, such as water heaters and/or air conditioners, cut off for brief periods by the power company at times of system peak, in return for the more favorable rate. This is but one example of additional ways in which the problem might be approached.

To summarize, the Review Committee strongly urges that the commission, its staff, and the power companies, all take the initiative to vigorously pursue the option of load management, and that in doing so, the broadest possible participation by public, customers, manufacturers of control devices, and users of such systems in other states be accomplished. These are matters which should command the very highest priority on the part of the commission and its staff.

(5) New Plant Construction.

The decade of the sixties was a time of rapid growth in the electric power industry, especially in the southeastern United States. This growth pattern persisted in the early seventies, until the oil embargo and subsequent events impacted the economy in ways which had a very direct effect on the growth of demand for electricity. During the sixties, a great many Tarheels accepted the proposition that it was possible to live better electrically, and hence either built or bought all-electric homes, built all-electric apartments, and in many cases, constructed all-electric schools and commercial buildings. The power companies offered rate designs and other incentives as inducements to persuade the public to go "all-electric". Applications for new plant construction were treated routinely and perfunctorily by regulatory commissions, including the North Carolina Commission.

Despite the emphasis on growth, and despite the increasing dependence on electricity in homes, business, and institutions, new plant construction during the sixties was somewhat subdued, with the result that by 1969, reserves were getting low, and by 1971, reserves in some instances approached the critical point. Some of the companies seemed uncertain as to whether to emphasize nuclear or fossil generation; some seemed to think that low-cost, quickly constructed internal combustion turbines could fill the gaps; but whatever the reasons for delay of construction in the sixties, planning options in those years were not complicated by lack of funds, severe environmental restraints, regulatory lag, customer resistance, need for rate relief, or any other of the many complications so commonly mentioned in the past two or three years. What happened was certainly the result of planning choices made by power company management.

The late sixties and early seventies were times of low reserves. By 1973, reserves had returned to a more normal level; but by 1975, reserves were approaching a very high level, with signs that we were approaching a situation where a great deal of expensive electric generating capacity might be sitting idle for such significant periods as to have very drastic effects on cost, hence rates. It appeared that for whatever the reasons might be, planning on the part of the power companies had not accomplished the optimum results for the customers in terms of the relationship of reliability of service to the cost of service.

Responsive to these circumstances, the 1975 General Assembly enacted legislation which was designed to put the Utilities Commission in a very active role in planning for new electric generating facilities. In enacting the amendments to G.S. 62-110.1 represented by new subsections (c) through (f), the Legislature very carefully laid out the ways in which it expected the commission to add its expertise and judgment to determination of how much, what kind, and when new electric generating facilities were to be built by power companies serving North Carolina. Beyond the planning phase, it instructed the commission to "follow" construction of plants, by monitoring their progress and their cost.

The Review Committee, being concerned as to what progress the commission was making in implementing the provisions of this legislation, directed an inquiry to the commission. The Review Committee's letter of inquiry and the commission's response is reproduced and attached to this report as Appendix A. The commission response makes two points very clear: One, the commission staff has responded to the legislative mandate so far as the attempt to develop an independent forecast is involved; two, the commission has narrowly interpreted the mandate to monitor construction progress and cost to apply only to future grants of construction authority, and not to present construction. Both of these points need further comment.

The commission has established a formal docket to consider the various issues involved in forecasting the need for and in the planning of new generating plants. In setting this docket for hearing in January of 1977, the commission instructed its staff to file testimony and exhibits reflecting its efforts, and invited the power companies and public to participate. The order establishing the hearings did not require the power companies to participate, nor require them to file any testimony or exhibits which might show clearly either the present situation or future changes. While such information may be on file at the commission, it seems only proper that the forecast docket should be the appropriate vehicle for bringing such matters into clear focus.

The Review Committee, with the able assistance of the Fiscal Research Office, has carefully reviewed the efforts of the commission staff, and has concluded that the staff should expand the scope of its studies, to take into consideration many of the variables in economic conditions, availability and price of competitive sources of energy, and changes in state of the art which might significantly affect the demand for electricity in North Carolina. The exchanges of correspondence, etc., relating to these matters are attached to this report as Appendix B.

The forecast and planning docket is perhaps the most critical single issue to come before the commission in recent times. For the first time in history, the judgment of the commission is in the process of being clearly invoked upon the power companies' plans for generating additions. If, as a result of the commission's efforts, we continue to have too much

capacity, then clearly the effects on rates will be bad. If the commission estimate is defective on the low side, then we might experience real shortages of capacity, with the result that customers might have to wait long periods to obtain service, or we might experience some form of rationing. Such conditions, while bad enough in themselves, could very well lead to reduced capacity for commercial and industrial growth, or reduced agricultural production, with very severe consequences to our people. It is therefore imperative that the commission's contribution to forecasting and planning be of the highest possible level of competency, arrived at with the greatest of care. It is an area of concern which calls for the very highest level of cooperation between the commission and its staff, power companies and other distributors of electricity, other interested agencies of State government, and the general public. Beyond the borders of North Carolina, the plans and activities of neighboring states, neighboring power entities, and agencies of the federal government are of vital importance to our planning, and every effort should be exerted to incorporate into our planning such information and knowledge as may be gleaned from such sources. From information presently in hand, the Review Committee must conclude that such efforts on the part of the commission and its staff have been modest, if not insignificant, and need prompt and effective expansion.

As to the second point, that of monitoring construction and costs of new facilities, the Review Committee is concerned that the commission is not exercising its authority to apply these principles of regulatory review to present plant construction. A broad interpretation of the commission's duty and authority prior to the 1975 legislation would allow such activity. Most clearly, the principle having been incorporated by statutory mandate in the 1975 bill, the commission can improve its ability to monitor future costs by practicing on present construction activities. Information now in commission hands would indicate the clear need for analysis of cost trends and factors now affecting plant construction. For instance, a comparison of construction costs of recent actual additions and present planned additions between CP&L and Duke will indicate that CP&L'S costs per unit of capacity are running at a level of approximately twice that of Duke for the same type of capacity. The rate implications inherent in such construction cost disparities are serious enough to warrant careful, current investigation and analysis by the commission.

(6) Rates and Rate Increases.

(a) General comments.

Rates for electric service have been on the increase in North Carolina since 1970, with the most severe impact occurring since 1972. The following table shows typical monthly bills for residential customers at various levels of usage for the months of January and July in 1973 and 1976. Increases for commercial and industrial customers are comparable.

CP&L

Residential with water heater:

	1973		1976		1976 Increase over 1973	
	Jan.	July	Jan.	July	Jan.	July
500 KWH	$11.52	$11.52	$17.37	$20.69	51%	79%
1500 KWH	$28.31	$28.31	$48.37	$51.22	71%	80%

Residential all-electric:

1500 KWH	$25.72	$25.72	$43.08	$51.67	65%	100%
3000 KWH	$46.19	$46.19	$79.11	$99.13	72%	115%

Duke

Residential with water heater:

500 KWH	$12.16	$12.16	$17.57	$18.81	44%	58%
1500 KWH	$30.40	$30.40	$48.54	$52.26	60%	73%

Residential all-electric:

1500 KWH	$29.73	$29.73	$47.80	$51.52	60%	71%
3000 KWH	$49.68	$49.68	$81.76	$89.21	67%	78%

VEPCO

Residential (water heater and all-electric same rate):

500 KWH	$12.20	$12.89	$23.39	$22.32	95%	83%
1500 KWH	$25.68	$34.37	$53.35	$63.84	103%	88%
3000 KWH	$42.60	$67.37	$90.18	$127.35	109%	89%

(b) Individual companies.

1. CP&L

At the present, CP&L's rates are roughly equal to Duke's, but lower than VEPCO's. In recent years, CP&L's rates have been going up at a faster rate than Duke's. CP&L's last increase, which went into effect in two stages - an interim and then a final - was in the total amount of twenty-four percent (24%), finally effective in February, 1976. CP&L has just applied for a further increase in the amount of fifteen percent (15%). Hearings on this application will begin in April, 1976.

2. DUKE

At present, Duke's rates are roughly equal to CP&L's, but lower than VEPCO's. Duke's last increase, in the amount of twenty-three percent (23%), was made finally effective in

October, 1975. Duke has not indicated that it expects to apply for any additional increase in the near future.

3. VEPCO

VEPCO has the highest rates of the three major power companies. Its last increase, in the amount of twenty-two percent (22%), became finally effective in October, 1975. VEPCO has just applied for an additional increase of thirteen percent (13%). The application has not yet been set for hearing.

4. NANTAHALA

Nantahala now has the lowest rates in North Carolina for a regulated power company, its rates being, on the average, about thirty percent (30%) lower than CP&L or Duke. Nantahala's last rate increase came about in two stages - one-half of it effective April, 1975, and the other one-half in August of 1975, for a total increase of twenty-three percent (23%). Application has recently been filed by Nantahala for a further increase of twenty percent (20%). Hearings on this application have been set in April of 1977.

The Review Committee notes that although Nantahala serves in the southwestern corner of the State, far distant from Raleigh, hearings on Nantahala's application have been set in Raleigh. The Review Committee feels that the Utilities Commission is displaying a lack of sensitivity to the problems associated with Nantahala's customers being able to attend or participate in hearings held so far distant from their communities.

(6) Rate Design.

Sharply increasing rates for electric service have occasioned considerable thought and comment as to rate design; that is, the problem of how rates should be structured so as to be as fair as possible to all classes of customers. Many suggestions have been made as to providing special rates for low income customers, such rates being sometimes called "lifeline" rates. Some have suggested that as a conservation measure, rates should be "flattened"; that is, that the declining block rate, so long in use by the industry, should be discarded, and that each kilowatt hour should cost the same, no matter how many may be used in a month by the customer. Others recommend seasonal differences, so that electricity would cost more in the summer, for instance, than the winter. And, of course, as we have previously discussed, time-of-day rates are under careful study and consideration.

All of the regulated companies offer three basic rate classifications: residential; commercial; and industrial. Residential customers are billed on a pure energy rate; that is, they are billed so much for each kilowatt hour consumed during the month; no separate "demand" charge being made. The residential rate does usually carry with it a minimum monthly

charge, so that each residential customer will have to pay the minimum charge, even if he uses no electricity at all during the month. Commercial and industrial customers are billed on a combination demand and energy rate; that is, their bill will reflect the impact of a certain level of usage at any one time during the month (the demand), as well as the total number of kilowatt hours used.

In 1973, VEPCO began the use of a residential rate with a summer-winter differential, with only one rate during each season.

In its present pending application for a rate increase, CP&L is proposing to discard its water-heater and all-electric residential rates, so that it would have only one residential rate; but would continue the summer-winter differential it instituted in 1976.

Duke has three residential rates, including a water-heater and all-electric. Duke does not have a summer-winter differential, but charges the same rate for similar levels of usage the year 'round.

Nantahala has a single residential rate, with no seasonal difference.

The Review Committee has carefully considered the question of rate design. The committee's review discloses that the Utilities Commission has required the major power companies to conduct cost of service studies, which are designed to reflect the cost of serving each class of customers in ways which would fairly distribute the cost of service among the various classes, and hence provide the basis for setting rates which would accomplish a just result as between the classes of customers. The Review Committee feels that such a method is both sound and fair, when reasonably applied. It is the opinion of the committee that the Utilities Commission should require such cost of service studies for all Class A and B electric utilities (as well as natural gas and telephone companies) and that the studies should be updated periodically.

The question of life-line rates is the most vexing. It is very difficult to establish just and reasonable predicates for such rates. If level of use - so many KWH per month - be the measure, then well-to-do owners of second (vacation) homes might benefit just as much (or more) than low income customers. The matter is one which lends itself to further study. Such rates have been attempted in other states, with mixed reaction. The Review Committee feels that the General Assembly should give this question its careful consideration.

B. Nuclear Power.

Closely associated with the questions of availability, reliability, and cost of electric power in North Carolina is the

question of how far we should go in our reliance on nuclear power, as the answer to our electricity needs.

North Carolina and the entire southeastern United States is becoming "nuclear intensive"; that is, we are rapidly moving toward the time when we will derive more of our electric energy from nuclear facilities than from all other sources combined. Current information indicates the following trends for the three major power companies serving in North Carolina:

RATIO OF NUCLEAR GENERATION TO TOTAL 1976 - 1990

	1976	1980	1985	1990
CP&L	22%	28%	31%	53%
Duke	21%	34%	49%	60%
VEPCO	18%	33%	37%	44%

These trends highlight a number of areas of concern for the people of North Carolina. The electric utility industry is highly capital intensive: that is, it takes a very large ratio of dollar investment in plant to produce a dollar of revenue. Nuclear facilities are by far the highest cost type of generating facilities to build, and therefore, the primary reason for building nuclear (to the extent we are seeing it in North Carolina) is to take advantage of lower nuclear fuel cost. If in fact, nuclear fuel costs over the long run do not turn out to be significantly lower than fossil, the higher nuclear plant cost would more than offset fuel cost savings, with the obvious result that nuclear generated power could, under those circumstances, cost more, not less, than coal-generated power. Thus, the people of this State will have a great stake in the policy determinations in the field of uranium discovery, mining, processing, and reprocessing. All of these matters are primarily within the control of the federal government and its various agencies; but such circumstances do not indicate that the people of North Carolina, or the State itself, should shrug off the problem and leave it to others to worry about.

During the next two or three years, some very basic decisions will have to be made as to the future of nuclear power in the United States. One very urgent decision is the question of expansion of uranium enrichment facilities necessary to accommodate the rapid growth of the nuclear power industry. Up until now the federal government has built and owns all of the facilities engaged in enrichment. Presidents Ford and Nixon proposed legislation which would have the effect of transferring this activity to private business enterprises, with built-in guarantees which would make these giant operations almost risk-free to those private concerns who might obtain the contracts. Since nuclear technology has been largely built up over the years at taxpayer expense, it seems questionable to now turn over the enrichment business to private, profit-making enterprises, especially if, as a part of that package, the taxpayers are going to carry all the real risks associated with the investment. It would seem appropriate that the State of North Carolina and the major power companies operating in this State support together an

early commitment on the part of the United States to move rapidly forward with plans to expand its own enrichment facilities sufficiently to meet our now projected needs through this century.

Since the oil embargo, raw uranium prices have been escalating world-wide, and this trend shows no signs of abating. The uranium market is becoming less and less stable. Under these circumstances, the United States needs urgently to come to grips with the policy decisions relating to the stockpiling of raw uranium by the federal government, which involves both domestic development and foreign purchases. We need urgently to meet head-on and decide the question of whether to go forward with the reprocessing of spent nuclear fuel, which will greatly expand our uranium resource base, but involves substantial problems of storage and handling of the residue.

Pursuant to the job given it by the 1975 General Assembly, the Review Committee has concerned itself with the overall question of nuclear development as it affects our State. The committee has received requests that it conduct a hearing, or a series of hearings, on the subject of nuclear development as it affects North Carolina. The committee has discussed these matters with members of the North Carolina Utilities Commission, the Energy Policy Council, representatives of the electric power industry in North Carolina, and individual legislators and citizens.

The committee has reviewed a limited amount of technical literature on related subjects; has visited nuclear plants under construction by CP&L and Duke; has reviewed the reports of the Energy Policy Council; and has received the comments and suggestions of its counsel on the subject. The committee requested from the Energy Policy Council a recommendation as to whether legislative hearings on the subject would be appropriate. The correspondence between the committee and the council is attached to this report as Appendix C.

The Review Committee is not now in a position to make a positive recommendation to the General Assembly as to legislative hearings dealing with nuclear power development in North Carolina. The committee is persuaded that the State could benefit by further consideration and study of the subject, both by the Review Committee and the General Assembly.

The Review Committee is concerned with the hazards associated with the transporation of nuclear fuel, spent fuel, and other nuclear residue, waste material, or other intensely radioactive material on the public highways of the State. As the nuclear power industry in the eastern United States grows, such shipments through North Carolina are likely to become quite frequent. The Review Committee therefore recommends that the 1977 General Assembly consider appropriate legislation designed to require that such shipments moving on the highways of North Carolina be accomplished under stringent safeguards, in vehicles safely designed for such purposes, driven by persons trained in

the safe movement of such materials, such vehicles to be clearly marked and identified; and that all such movements be subject to prior notification by the shipper and/or carrier to the Utilities Commission, the Highway Patrol, and such other agencies of State government as may be appropriate, of the origin and destination of such cargoes and the routes over which such vehicles will travel while in North Carolina.

State of North Carolina
Utilities Commission
Raleigh 27602

October 8, 1976

Mr. Hugh A. Wells, Counsel
Utility Review Committee
State Legislative Building
Raleigh, North Carolina 27611

Dear Mr. Wells:

This is in reference to your letter of September 23, 1976 requesting a comprehensive and detailed report on the manner in which the Utilities Commission is implementing the provisions of Section 1., Chapter 780 of the 1975 Session Laws (now codified as G.S. 62-110.1 (c), (d), (e), (f)). You also requested a report on any new or amended Commission rules adopted pursuant to the foregoing statutory provisions. For convenience in responding, we have reiterated sections (c), (d), (e), and (f) below together with actions taken in response thereto.

(c) *The Commission shall develop, publicize, and keep current an analysis of the long range needs for expansion of facilities for the generation of electricity in North Carolina, including its estimate of the probable future growth of the use of electricity, the probable needed generating reserves, the extent, size, mix and general location of generating plants and arrangements for pooling power to the extent not regulated by the Federal Power Commission and other arrangements with other utilities and energy suppliers to achieve maximum efficiencies for the benefit of the people of North Carolina, and shall consider such analysis in acting upon any petition by any utility for construction. In developing such analysis, the Commission shall confer and consult with the public utilities in North Carolina, the utilities commissions or comparable agencies of neighboring states, the Federal Power Commission, the Southern Growth Policies Board, and other agencies having relevant information and may participate as it deems useful in any joint boards investigating generating plant sites or the probable need for future generating facilities. In addition to such reports as public utilities may be required by statute or rule of*

people of the State or the area served by such utility, and insofar as practicable, each such utility and the Attorney General may attend or be represented at any formal conference conducted by the Commission in developing a plan for the future requirements of electricity for North Carolina or this region. In the course of making the analysis and developing the plan, the Commission shall conduct one or more public hearings. Each year, the Commission shall submit to the Governor and to the appropriate committees of the General Assembly a report of its analysis and plan, the progress to date in carrying out such plan, and the program of the Commission for the ensuing year in connection with such plan.

Actions taken in response to (c).

The Commission Staff has divided its efforts with respect to (c) into two major undertakings:

(1) Development of a long-range forecast of the growth in kilowatt peak demand (rate of energy use at the time of system peak) and kilowatthours (energy use in total on a per year basis).

(2) Determination of the required level of capacity, reserves, and optimum mix of the generation capacity.

Both these undertakings represent extremely complex, detailed and lengthy engineering and economic analysis efforts.

At this point, the staff is nearing completion of its initial forecast of electric utility peak load and energy use and the corresponding required numbers, sizes and mix (nuclear, fossil, etc) of generating facilities. A copy of an internal schedule of tasks to be completed and a tentative hearing date (Janaury 1977) is attached as Attachment A. We should also mention, that the Federal Energy Administration has provided a grant of $16,000 for our use in expediting our completion of the project. With these funds, we have engaged two highly qualified consultants to critique and offer technical assistance on each of the major undertakings named above.

The forecast modeling is taking two forms. One is an econometric model, which takes into account demographic data and requires an economic modeling of the economies of the states of North and South Carolina and the relation of those economies to electric power usage and peak load. A non-econometric model is also being developed, which uses such things as saturation of appliances and other similar data to forecast in simple terms the growth in load. In addition, factors have been developed to tie usage with peak load so that in effect there are three checks on the forecasts which are being completed. We should point out that it is necessary to include South Carolina data because both Duke and CP&L serve areas in South Carolina and each of their

systems are integrated. Results for North Carolina alone can be determined from total system aggregated data. Following the determination of this data, appropriate allocation factors can be applied to the aggregated data to arrive at the North Carolina energy and peak forecasts.

In attempting to build reliable econometric models for forecasting which would take into account such things as the effect of income and price elasticities, predicted population changes, predicted size of families, future industrial activity, effect of price changes of alternate fuels, etc. on the demand for electricity ten to fifteen years in the future, we have proceeded further than most utilities or regulatory agencies. One consequence is that we have found data collection to be a monumental task. Part of our problem in this area has arisen because of the lack of certain data from the State of South Carolina. In refining and updating our forecast each year, the Commission will develop requests to other State Agencies to make the necessary revisions in their record-keeping formats in order to make data available to us on a more timely and/or relevant basis.

In reference to the second major undertaking under section (c), we are attaching as Attachment B a very preliminary description of our activities on modeling of generation capacity. In the absence of the Staff's completed load forecast, these preliminary analyses of the type and mix of capacity are based on company load forecasts. A three-page summary at the beginning of Attachment B should be read with the understanding that this report is provided solely for information on the conduct of the Staff study and not to be used for any final conclusions.

(d) *In acting upon any petition for the construction of any facility for the generation of electricity, the Commission shall take into account the applicant's arrangements with other electric utilities for interchange of power, pooling of plant, purchase of power and other methods for providing reliable, efficient and economical electric service.*

Action taken in response to (d).

In regard to the consideration of the interchange of power and pooling arrangements as required by G.S. 62-110.1(c) and (d), the Commission, through its staff, has participated in the Southeastern Electric Reliability Council planning efforts on transmission capabilities for several years. Additionally, the staff periodically meets with the Virginia-Carolinas Subregion planning group to provide input on intra- and inter-system reliability. The subregion now has emergency and economy interchange agreements within the member utilities. In view of the almost 100% coincidence of system peaks in this subregion, most major intertie help will probably be from outside our VACAR subregion. We plan to continue our efforts at the regional level. A possible recommendation in our overall plan may be that CP&L construct a 500 kv line from its Wake 500 kv station to the Rockingham 500 kv station to provide greater inter-system integrity. An alternate recommendation may be to tie the Wake 500 kv station with Duke Power's 500 kv facilities at the Research Triangle.

(e) *As a condition for receiving such certificate the applicant shall file an estimate of construction costs in such detail as the Commission may require. The Commission shall hold a public hearing on each such application and no certificate shall be granted unless the Commission has approved the estimated construction costs and made a finding that such construction will be consistent with the Commission's plan for expansion of electric generating capacity.*

Action taken in response to Section (e)

The Commission has suspended public hearings on Duke Power Company's proposed Davie Nuclear Plant pending completion of the development of the Commission's plan for expansion of electric generating capacity.

(f) *The Commission shall maintain an ongoing review of such construction as it proceeds and the applicant shall submit each year during construction a progress report and any revisions in the cost estimates for the construction. (1965, c. 287, s. 2; 1975, c. 780, c. 1.)*

Action taken in response to Section (f)

The Commission has not acted pursuant to this section to date because no Certificate of Public Convenience and Necessity for a major electric power generating facility has been issued since the enactment of the 1975 amendment to G.S. 62-110.1. The Commission intends to include as a condition in any future Orders granting a Certificate of Public Convenience and Necessity for a new electric generating facility reporting requirements pursuant to G.S. 62-110.1(f). Additionally, the Commission's engineering staff is considering a program of annual inspections to evaluate construction progress and monitor quality assurance programs of plants under construction.

It should be noted that annual progress reports were required as conditions of the Orders granting Certificate of Public Convenience and Necessity for Duke's McGuire Nuclear Station issued in 1971 and CP&L's Harris Nuclear Power Plant issued in 1972. These reports are on file with the Commission.

In reference to the planned hearing in January, we anticipate the participation of the respective utilities, the Staff, and various interested parties and members of the public. Based on the testimony, evidence, and data produced at that hearing, the Commission will determine the appropriate analysis and plan to be adopted for expansion of facilities for the generation of electricity in North Carolina.

The Commission also acknowledges the difficulty in making predictions regarding growth in population, industrial mix, and other such variables over a period of time of ten to fifteen years, and, consequently, recognizes the necessity of continuing to review any particular analysis or plan adopted as major changes in input to the various models used, occur.

Please advise me if you have further questions. The Commission's Engineering Division is responsible for the staff's efforts and I would be happy to permit any of the involved engineers or economists to meet with you or the committee members regarding the Staff's study.

Very truly yours,

Tenney I. Deane, Chairman

TIDjr/RKK:es

Attachment

North Carolina General Assembly
Utility Review Committee
State Legislative Building
Raleigh 27611

PHONE (919) 829-3180
1414

September 23, 1976

The Honorable Tenney I. Deane, Jr., Chairman
North Carolina Utilities Commission
Ruffin Building
Raleigh, North Carolina

Dear Tenney:

As promptly as possible could you please furnish to the Utility Review Committee a comprehensive and detailed report on the manner in which the Utilities Commission is implementing the provisions of Section 1., Chapter 780 of the 1975 Session Laws [now codified as G.S. 62-110.1 (c)(d)(e)(f)7.

Please include in your report any new or amended Commission rules adopted pursuant to the foregoing statutory provisions; or any such rules to be adopted.

Thanking you for your cooperation and with kindest regards, I am

Sincerely yours,

Hugh A. Wells, Counsel
UTILITY REVIEW COMMITTEE

HAW:sj

cc: Utility Review Committee Members

Appendix "B-1"

North Carolina General Assembly
Utility Review Committee
State Legislative Building
Raleigh 27611

TELEPHONE (919) 829-3180
ROOM 1414

December 8, 1976

Memo to: Hugh A. Wells, Committee Counsel

From: David Crotts, Fiscal Research Division

Re: Utilities Commission Staff Efforts in Developing Electric Load Forecast Models

As you will recall Attachment "A" of Chairman Deane's reply to the Committee's request for information on the Commission's compliance with Chapter 780 showed a "schedule of tasks" for the completion of the electric load forecast component of the staff's work. I have determined from talking with the staff economists working on the project that the staff's work is presently on schedule and is due to be completed in mid-December in time to be filed as testimony for the January hearings. The Operating Analysis section has completed the "strictly econometric study" and the electrical engineering section has completed the "non-econometric forecasts and checks". The staff has made a comparison of the forecasts under the two methods and found that they do not differ substantially. At this point the staff is in the "final loss of load probability analysis" and "finish analysis" phase.

From talking to the staff it appears that the main objective of this first attempt to forecast electric loads has been to develop models that are at least as sophisticated as those developed by economists with other regulatory bodies and on par with those discussed in the economic literature on the subject. In this way the staff will be able, justifiably, to claim that their models are at least as good as others in existence and provide a reliable alternative to company forecasts. When their forecasts are combined with the "capacity" forecasts developed by the electrical engineering staff, the staff will have satisfied the requirements of Section C of Chapter 780.

The staff realizes that there are a number of technical grounds upon which their methodology, assumptions, and data can be criticized and it is my feeling that the staff would be willing to try to improve upon their models in the future, given sufficient prodding from the Commission, the General Assembly, or a Staff Director. The problems with the staff study are discussed later in this report.

The staff also feels that the enactment of Chapter 780, along with the staff's attempt to comply with Section C of that Chapter, have provided incentives for Duke and CP&L to "get their houses in order" by forcing them to develop a more sophisticated and fundamental approach to electric load forecasts. This decision has resulted in the hiring by Duke of a

PhD economist who has experience in developing econometric models for the state of Mississippi. CP&L has attempted to upgrade their forecasts by allowing their economists to develop more sophisticated methods. The Commission economists did point out that both companies had already been considering shifting forecasting methods from the trend-line approach used in the past to a more fundamental economic approach in light of their poor experiences in forecasting consumption and peak demand since the time of the oil embargo in the winter of 1973-74.

Problems with the Commission Staff Econometric Models

(A) The staff used monthly data in its analysis. In many cases, quarterly economic data is substantially more reliable than monthly data. However, the monthly approach can be justified on the basis that one of the major uses of the model is to forecast peak demand, which occurs during a one-hour period during a particular month. The peak demand period of June-August and December-February do not correspond to a calendar quarter for which economic data is collected. Also, a quarterly weather variable such as heating or cooling degree days loses its significance because cooling days at one end of a calendar quarter may cancel out heating days at the other end, while this cancelling out is not likely to occur in a period as short as a month.

(B) The staff is forecasting demand and energy usage for the whole Duke system and the whole CP&L system instead of Duke and CP&L's North Carolina operations. They have had some problems in getting South Carolina economic data that is as

reliable as that in North Carolina and is comparable to the North Carolina data. However, they do feel that since the peak demand forecast is crucial the intergrated system approach should be used.

(C) There is no good monthly, quarterly, or even annual data available on consumer prices in North Carolina. Good price data is crucial in an economic demand study of any product, whether electricity or potatoes, as consumers base their purchases of any product on the price of that product, relative to the price of all other products they could buy. The staff has used the nationwide consumer price index but no one can say for sure whether this index or the index for Atlanta or the SMSA's in North Carolina is representative of the real rate of inflation in North Carolina.

(D) The staff used the "average revenue" (total bill divided by KWH consumed) instead of the "marginal" (price per KWH for the next block of usage for the average user). Economists generally criticize the average revenue approach because they feel a rational consumer makes his decision on whether to turn the air conditioner on or to use more hot water on the basis of the rate he will have to pay for that additional block of electricity used. However, the average revenue or "size of bill" approach may be more realistic in that

users generally do not know what the rate schedule looks like and probably base their decisions on the size of their bill, relative to last year's bills and relative to other goods and services they can buy with their income.

(E) Although the staff did try to account for "habits" in electricity consumption by relating current consumption levels to consumption levels in the past few months, this approach probably does not sufficiently account for the role that appliance costs play in electric power demand. In the short-run the consumer is "locked-in", to some extent, to one level of power usage because he is not able to immediately change the stock of appliances he has. But over time he will replace an old inefficient appliance with a new more efficient appliance or may substitute fans for air conditioning, for example.

(F) The staff did not take into consideration any possible peak-pricing or load management scheme in their forecasts. Also, they did not try any widely differing sets of assumptions regarding the future availability and price of substitutes for electricity, such as natural gas and oil. However, the staff does feel that it could use its model to run "simulations" of future demand, based on different assumptions regarding future rate schedules and energy prices.

(G) The staff did not consider any technological advances, either in the efficiency of appliances or in the substitutes for electric power (such as solar power) in forecasting demand. Simulating technological change is difficult to do quantitatively but could be a fruitful area of investigation.

(H) The staff is using monthly data from 1965 through March of 1976. It would seem useful to test their models by finding out what the models would have forecast for summer peak demand for 1976 and for 1976 consumption. The staff has not attempted to make such a test.

Comparison of Staff and Company Forecasts

The attached tables show that the annual growth rates of peak demand and energy usage do not differ dramatically. While these differences are relatively small for economic forecasts of this nature, the compounding of the growth rates over a 10-year period leads to substantial differences at the end of this period. For example, the staff forecast of Duke's 1990 peak demand is 865 MW lower than Duke's and this is the size of one nuclear plant. For CP&L, the difference is smaller.

Recommendations

I would suggest that the Committee let the Commission and the staff know that it is thoroughly reviewing all phases of the staff's compliance with Section C of Chapter 780 and that while the present forecasts serve a useful function in allowing the Commission and the General Assembly to make more

informed decisions concerning the future supply of electricity in North Carolina, the Committee is interested in seeing that the staff make a diligent effort to improve the methodology of the forecasts. Also, given the tremendous uncertainties regarding future energy availability and prices and technological advances, the Committee should let the Commission know that it would like the staff to use the models to run simulations of what would happen to peak demand and energy consumption under widely differing assumptions of energy prices, conservation schemes (peak pricing, load management), and technological improvements. These simulations would allow interested parties to get a feel for what would happen to usage and demand under extremely "optimistic" or extremely "pessimistic" conditions so that they could remain aware of the full range of possibilities they may be faced with in the future.

(BASE 1986) Appendix "B-8"

MMISSION FORECAST	GROWTH	1986 GWH
ESIDENTIAL	5.74	19,966.29
COMMERCIAL	7.00	15,927.41
INDUSTRIAL	7.13	35,698.33
WHOLESALE *	8.48	16,378.41
OTHER *	3.93	516.66
TOTAL SALES	6.98	88,490.13
SEPA *	—o—	277.00
COMPANY USED *	—o—	242.50
LOSSES @ 6.434% *	—o—	5,726.00
TOTAL ENERGY (75-86)	6.90	94,735.63
PEAK (MW) (76-86)	16.90	16,756
LOAD FACTOR		.645

OMPANY FORECAST	GROWTH	1986
ESIDENTIAL	5.95	20,407
OMMERCIAL	9.39	20,308
NDUSTRIAL	7.86	38,467
HOLESALE	8.48	16,378
THER	3.93	517
TOTAL SALES	7.78	96,077
SEPA	—o—	277.
COMPANY USED	—o—	242.
LOSSES @ 6.434%	—o—	6,215
TOTAL ENERGY (75-86)	7.74	102,812
PEAK (MW) (76-86)	7.44	17,621
LOAD FACTOR		.67

* Company forecast was used

(BASE – 1986) Appendix "B-9"

COMMISSION FORECAST	GROWTH	1986 GWh
1) RESIDENTIAL	5.86	11,5[illegible]
2) COMMERCIAL	6.26	7,404
3) INDUSTRIAL	18,39	19,00[illegible]
4) WHOLESALE*	17.08	11,3[illegible]
5) OTHER*	3.86	1,3[illegible]
6) TOTAL SALES	6.84	50,[illegible]
7) SEPA*	– o –	12
8) COMPANY USED*	– o –	6[illegible]
9) LOSSES @ 7.00%	– o –	3[illegible]
10) TOTAL ENERGY (75-86)	6.73	54,4[illegible]
11) PEAK-MW (76-86)	6.86	9 94[illegible]
12) LOAD FACTOR		.6[illegible]

COMPANY FORECAST	GROWTH	1986 GWh
1) RESIDENTIAL	5,40	10,9[illegible]
2) COMMERCIAL	6.08	7,2[illegible]
3) INDUSTRIAL	8.29	18,8[illegible]
4) WHOLESALE	7.08	11,3[illegible]
5) OTHER	3.86	1,371
6) TOTAL SALES	6.84	49,814
7) SEPA	– o –	121
8) COMPANY USED	– o –	6[illegible]
9) LOSSES @ 7.00%	– o –	3[illegible]
10) TOTAL ENERGY (75-86)	6.73	53,501
11) PEAK-MW (76-86)	7.12	10,190
12) LOAD FACTOR		.579

(BASE = 1990)

Appendix "B-10"

ake	1986	Growth	1990
Residential	19,966.29	6.16	25,355
Commercial	15,927.41	6.67	20,621
Industrial	35,698.33	6.14	45,307
Wholesale	16,378.44	8.48	22,681
Other	519.66	3.932	606
Regular Retail Sales	88,490.13	6.67	114,570
SEPA	277.00	-0-	277
Company used	242.50	5.70	302
Losses @ 6.434%	5726.00	—	7408
Total Energy	94,735.63	6.65	122,558
Peak	16,756.	6.59	21,629
Load Factor	.645		.647
tL	1986	Growth	1990
esidential	11,512	6.04	14,556
ommercial	7404	6.39	9,485
ndustrial	19,002	6.65	24,583
holesale	11,399	6.59	14,713
ther	1372	4.08	1,610
egular Retail Sales	50,687	6.39	64,947
EPA	121	-0-	121
ompany Used	65	5.97	82
osses @ 7.00%	3561	—	4,561
Total Energy	54,433	6.38	69711
Peak	9,943	6.85	12,960
Load Factor	.625		.614

NORTH CAROLINA GENERAL ASSEMBLY
LEGISLATIVE SERVICES OFFICE
2129 STATE LEGISLATIVE BUILDING
RALEIGH 27611

CLYDE L. BALL
LEGISLATIVE SERVICES OFFICER
MERCER M. DOTY
DIRECTOR OF FISCAL RESEARCH
WILLIAM H. POTTER, JR.
DIRECTOR OF RESEARCH

December 10, 1976

LEGISLATIVE SERVICES OFFICE
TELEPHONE 829-7044
FISCAL RESEARCH DIVISION
TELEPHONE 829-4910

MEMORANDUM TO: Members of the Utility Review Committee

FROM: David Crotts, Fiscal Research Division DC

RE: Compliance of Utilities Commission with Section 1 of Chapter 780

Section 1 of Chapter 780 of the 1975 Session Laws directed the Utilities Commission to develop an analysis of the long-range need for electric generating facilities. One of the analyses to be performed was an "estimate of the probable future growth of the use of electricity".

The Committee, on September 23, requested that the Commission furnish a written description of the Commission's activities in attempting to comply with Chapter 780. In its response of October 8 Chairman Deane pointed out that the Commission Staff was in the process of developing both econometric and non-econometric forecasts of future electricty use ~~of~~ and peak demand. At the request of Committee Counsel Hugh Wells, I made an investigation into the Staff's development of an econometric model to forecast electric power usage and demand. The report of my investigation is attached to this memo.

I found in my study that the Staff has developed an econometric model that is generally at least as satisfactory as the models that have been developed by states, by federal agencies, and by consulting firms. However, the Staff model also has many of the same deficiencies as those contained in the other models. Some of these problems can be easily resolved; some

may be insurmountable. There are, however, a couple of areas in which the Staff can make improvements which would make the model substantially more useful than it is now. One area in which the Staff was deficient was in the area of model testing. The Staff used monthly data for the period January, 1965-March, 1976 to develop the model. In most cases when economists develop models they use the models to make "test" forecasts for the next few months or the next year. In this case the Staff could have used the model developed from monthly data gathered through March of 1976 to forecast peak demand for the summer of 1976 and the 1976-77 winter season, along with energy usage for calendar 1976. The Staff did not make such a test forecast.

Due to the tremendous future uncertainties in future supplies and prices of oil, natural gas, and electricity, along with the uncertainty surrounding peak pricing, load management, and the effect of technological changes on energy usage, the specific exact forecasts made by the Staff may not be as useful as simulation forecasts. The idea behind a simulation forecast is to "plug in" both optimistic and pessimistic forecasts of future conditions into the econometric model to get a "feel" for the full range of possibilities for the future. If future uncertainties are so great that an exact forecast cannot be counted upon, then it may be more useful for the General Assembly and the Utilities Commission to have a number of different forecasts, with each forecast being based upon a different set of future circumstances. The Staff has spent all of their time so far in developing the current econometric model and has spent no time on the simulation process. However, the Staff does feel that such simulations would be useful and that they would be willing to make these simulations if the General Assembly expressed interest in such forecasts.

After having studied the Commission Staff's efforts in developing long-range forecasts of electric power demand in North Carolina, it is my recommendation that the Utility Review Committee express to the Utilities Commission, on behalf of the full General Assembly, its interest in having the Commission Staff make as its first priority the improvement of its existing econometric model and the development of alternative models for forecasting future energy needs. Also, the Committee should let the Commission know that it would like the Commission Staff to simulate differing circumstances for all the factors that might have a significant effect on future energy demand and to see what effect these conditions might have on future demand.

North Carolina General Assembly
Utility Review Committee
State Legislative Building
Raleigh 27611

TELEPHONE (919) 829-3180
ROOM 1414

December 22, 1976

Mr. Robert K. Koger
Director, Engineering Division
N.C. Utilities Commission
Ruffin Building
Raleigh, North Carolina

Dear Bob:

If you recall our telephone conversations back in early November, I mentioned that I was reviewing the package of information sent to me by Chairman Deane in his response of October 8 to my letter of September 23 requesting that the Commission submit a comprehensive and detailed report on the manner in which the Commission was implementing the provisions of Section 1, Chapter 780 of the 1975 Session Laws. In that conversation I also mentioned that I had asked David Crotts of the Fiscal Research Division to assist me in evaluating the staff's efforts in developing econometric models to forecast future growth in the use of electricity.

David has reviewed the material furnished with the October 8 reply of Chairman Deane and has talked with Ed Rosenberg and Mike Kiltie of your staff regarding their work on the model. He has also taken a preliminary look at the December 13 and 15 filing of the staff in preparation for the January hearings. On the basis of this review, he has written a report to me outlining the staff's econometric model and some ways in which the model might be improved and made more useful for the General Assembly's purposes and, hopefully, the Commission's purposes. This report, along with David's recommendations, was passed on to the full Committee at its meeting on Monday and the Committee has decided to accept David's recommendations as their recommendations.

The crux of David's comments had to do with the need for the Commission staff to put its full efforts in the next few months on correcting any technical deficiencies that can, within reason, be made,and to make any refinements in the model to make it more useful. Specifically, David recommended that staff use the model to run some projections of 1976 summer peak demand for CP&L and Duke and 1976-77 winter peak demand, along with the calendar year 1976 energy consumption. He also recommended that the staff orient its future efforts toward using the model to simulate future peak demand and energy consumption under differing sets of assumptions regarding such factors as

1. Supplies and prices of substitutes for electricity such as natural gas and oil;

2. Different peak-load pricing schemes;

3. Various growth rates in consumer prices in general, personal income, and prices of electricity;

4. Various load management practices;

5. Technological changes including both methods to conserve on the usage and time of usage of electricity and in the development of substitutes (such as solar power) for electric power;

6. Any other factors that could conceivably have a significant effect on future consumption patterns.

I realize that this is not an easy task and is a task that requires the quantification of a number of qualitative changes that are difficult to forecast. However, I do feel that many of the above-listed factors will come into play within the foreseeable future, will have an effect on the price of electricity and its substitutes, and could have a dramatic effect on future consumption patterns. Thus, while we feel that the staff's current models are generally as sophisticated, and in some cases more sophisticated, than other models that have been developed in other states, by federal agencies, and private consultants, the tremendous uncertainties in the future energy economics and technologies warrant continued study by all interested parties for ways to make standard econometric forecasting methods more useful for planning purposes.

I would also encourage the staff to try other alternative assumptions and methods in those areas of the model building process where they are not completely satisfied with the data or assumptions. For example, if they are not satisfied with the quality of monthly data they might try quarterly or annual data to see what would result.

The Review Committee feels that the forecasting docket is of the most vital importance to the people of North Carolina and is therfore concerned that it receive maximum attention and effort.

Very truly yours,

Hugh A. Wells
Committee Counsel

Appendix "C-1"

State of North Carolina
Department of
Natural and Economic Resources
Raleigh 27611

JAMES E. HOLSHOUSER, JR.
GOVERNOR

GEORGE W. LITTLE
SECRETARY
TELEPHONE
AREA CODE 919-829-4984

November 24, 1976

The Honorable Wesley D. Webster, Co-Chairman
Joint Utility Review Committee
North Carolina General Assembly
Room 1414, Legislative Building
Raleigh, North Carolina 27611

Dear Senator Webster:

Thank you for your letter of October 25, 1976, addressed to Dr. Edward P. Erickson, Chairman of the North Carolina Energy Policy Council Management Subcommittee, and for your request for the Council's advisory recommendation relative to the Review Committee conducting generic hearings on nuclear power.

Upon receipt of your request, the Management Subcommittee met and reviewed the Council's investigation of the nuclear power generating capacity as an alternative for meeting prospective North Carolina electrical needs and summarized their findings. A report was then submitted to the Council at the November 16, 1976 meeting for concurrence on its transmittal to the Review Committee, as was the enclosed Resolution. This constitutes the Council's formal reply to the Review Committee request for an advisory recommendation.

As Chairman, and on behalf of the North Carolina Energy Policy Council, we appreciate the opportunity to submit our views on this important undertaking and wish the Review Committee every success in its significant task.

Sincerely,

George W. Little

GWL/WVR/ch

CC: Dr. Edward P. Erickson
Mr. Warren Rock

NORTH CAROLINA ENERGY POLICY COUNCIL

RESOLUTION

November 16, 1976

The North Carolina Energy Policy Council has reviewed the question of reliance on nuclear power to meet the prospective electricity demands of North Carolina. The Council has devoted a considerable portion of its time, energies and agenda to this issue, but the Council review has of necessity been limited. On the basis of this review, and considering currently available technologies, the Council finds that coal and uranium are the most cost effective fuels eligible for selection to meet the major needs for additional electricity in North Carolina over the intermediate term. The Council has heard proponents and opponents to nuclear power, and is not unmindful of the controversy associated with nuclear as well as certain steps in the mining and use of coal. The Council has reviewed the regulatory review process applicable to proposed nuclear plants. Regulation includes involvement of sixteen Federal agencies, seven state agencies in North Carolina, as well as local agencies. These many proceedings offer an opportunity for public participation, including adjudicatory hearings. In addition, appropriate agencies hold public rulemaking hearings to resolve generic issues or set standards and criteria. Cumbersome though it is, the Council believes that the process engaged in by these regulatory agencies and reviewed by the courts can adequately protect the public interest with respect to safety, environment, economics and the need for additional energy. Having considered nuclear power for three days of its meetings as well as during discussions during its other meetings, the Council came to realize that an in-depth review of nuclear power policy by the Council or by a Legislative Committee would require substantial staff, funding and extensive hearings lasting perhaps 60 or more hearing days. The Council is aware of the many months of hearings held by a committee of the California Legislature. Recognizing the present mechanisms of multiple reviews and public hearings held in this State by existing State and Federal agencies, and believing that the public has an adequate and continuing opportunity to be heard in these proceedings, the Council sees no compelling public benefits to be gained by duplicative generic hearings by the Council or by a Legislative Committee compared to the public costs of such repetitive procedures.

CERTIFIED CORRECT

Warren V. Rock

Warren V. Rock
Staff Coordinator

Appendix "C-3"

North Carolina General Assembly
Utility Review Committee
State Legislative Building
Raleigh 27611

TELEPHONE (919) 829-3180
ROOM 1414

October 25, 1976

Dr. Edward P. Erickson, Chairman
Management Subcommittee
North Carolina Energy Policy Council
Room 203, Patterson Hall
North Carolina State University
Raleigh, North Carolina 27601

Dear Dr. Erickson:

We are writing to you, with copies to the other members of your Subcommittee, with regard to the matter of nuclear power development in North Carolina.

The Review Committee has been requested to carry out an in-depth investigation into the question of the development of nuclear powered electric generating facilities in North Carolina; and as an adjunct to such investigation, to hold a series of public hearings throughout the State in order to allow interested members of the public to express themselves on the question and to afford the Committee the opportunity of hearing expert commentary and opinions on the subject of nuclear power.

It is the Review Committee's present feeling that such a series of hearings and the development of a meaningful record therefrom would be an undertaking of considerable magnitude and that we should embark upon such an effort only after the most careful consideration of the need for or merits of such hearings.

Appendix "A"

OCT 2 9 1976

The Review Committee would appreciate the thoughts and suggestions of the Energy Policy Council with regard to the question of whether it would be in the public interest for this Committee or any other appropriate Committee or Committees of the General Assembly to endeavor to conduct a jurisdictional generic investigation into the question of the development and use of nuclear powered electric generating facilities within its borders.

With kindest personal regards, we are

Sincerely yours,

Wesley D. Webster, Co-Chairman

J. P. Huskins, Co-Chairman

WW/JH:sj

cc: The Honorable Tenney I. Deane
The Honorable Charles Holt

COMMENTS ON BEHALF OF DUKE POWER COMPANY ON THE INITIAL REPORT OF THE UTILITY REVIEW COMMITTEE

(References to the page numbers of the Report are in parentheses)

FAIR VALUE (IV-3)

The "fair value" concept was born in an era when "fair value" was lower than "book value", i.e., "original cost," and the argument was used to lower rates. In a period of inflation which we are now in and which can be reasonably anticipated into the foreseeable future, the "original cost" of the utility's property will be far less than the value of such property when it goes into service.

Fair value is criticized as complicating rate cases, the source of much expense to the Commission and the Attorney General, and confusing to the Commission in reaching final decisions in rate cases. We note, however, that in Duke's last general rate case (Docket No. E-7, Sub 173, testimony relating to fair value covered only 72 pages out of a total of 2433 pages or 3 percent of the testimony elicited on both direct and cross-examination. In the Commission's Order in that docket, less than 5 pages out of a total of 44 were devoted to the concept of fair value. It should be further noted that the Commission has never given great weight to fair value. As evidenced in Docket No. E-7, Sub 173, the fair value determination resulted from weighting 70 percent

toward original cost and 30 percent toward replacement cost. This is at least some buffer against the ravages of an inflationary period as we are now experiencing. For example, Duke estimates that the Catawba Nuclear Station, the last unit of which will come into service in 1983, will cost approximately $570 per kw, excluding fuel cores. For the Perkins Nuclear Station, the first unit of which is expected to come on line in 1985 and the last unit in 1990, Duke presently estimates a cost of $860 per kw, excluding fuel cores. Based on present estimates, this is an increase of about $300 per kw between a plant whose last unit went into service in 1983 and another nuclear station whose last unit goes into service only seven years later.

We submit that the cornerstone of the North Carolina Public Utilities Law -- "just and reasonable rates" -- should not be sacrificed in the name of "original cost" solely because that method of establishing the value of a public utility's property for ratemaking purposes would shorten rate cases and may be simpler and easier to understand.

Finally, we note that as late as 1975 the last General Assembly reaffirmed the principle of "fair value" when it amended G.S. 62-133(c).

FUEL CHARGES (VI-1)

It is noted initially that fuel "clauses," automatic or otherwise, are no longer in existence in North Carolina. Electric utilities may

seek increases in their rates and charges based solely on the increased cost of fuel used in the generation of electric power under G.S. 62-134(e). The administration of this statute by the North Carolina Utilities Commission has substantially benefited the electric ratepayers in this state during 1976. In the case of Duke, the application of G.S. 62-134(e) has resulted in the undercollection of more than $14 million in fuel costs during the calendar year 1976. Without the Commission's implementation of that statute, such would not have occurred. (See Duke's Exhibit 4 attached to its Application filed in January, 1977.) Further, the Commission has conducted in-depth examinations and investigations of the operations of fuel clauses and fuel procurement practices in North Carolina as evidenced by orders entered in Docket No. E-7, Sub 161, and other companion dockets. It should be further noted that the Attorney General has fully participated in all of the hearings on behalf of the using and consuming public conducted pursuant to G.S. 62-134(e) and has not objected to the failure of the Commission to hold hearings when such resulted in decreases. In addition, while notice of said hearings has been widely published by order of the Commission in newspapers having general coverage of Duke's entire North Carolina service area, virtually no member of the public has appeared in opposition.

LOAD MANAGEMENT (VI-5)

Duke Power Company has a very active and viable Load Management Program which began in August of 1974.

Load management is the reduction in the growth in peak demand so that in the future the need of new construction would be minimized thereby resulting in the lowest possible rates for the consumers and a financially sound electric utility.

This will be accomplished in three ways:

1. By restraining the growth of new load on peak,
2. By shifting existing on-peak load to off-peak, and
3. By arranging for certain loads to be interruptible during certain peak periods.

Duke has approximately 240,000 customers on its all-electric rate schedule, which requires the customer to install heavy insulation in order to meet stringent heat loss limitations. As a result of Duke's success in achieving this number of highly insulated residences, the Company implemented an Energy Efficient Structure Program (EES), an Energy Efficient Appliance Program (EEA) as well as a general customer education program. There will be approximately 1000 EES residences constructed this year. This is an initial acceptance greater than that experienced when the all-electric concept was introduced.

In the commercial and industrial areas, Duke is promoting the re-engineering of lighting levels, the redesign of air conditioning systems to afford optimum energy reclaim and proper energy usage and the adoption of energy efficient design criteria for buildings. All of these will result in a reduced growth rate of the peak and reduced energy consumption on the part of the consumer.

Duke, in order to evaluate a new concept in metering, has purchased a 100 point prototype system known as "Automatic Meter Reading and Control" manufactured by the General Electric Company. Currently, the Company is installing this prototype system. It has the ability not only to read meters automatically which would allow peak-load pricing or time-of-day metering, but it can also read additional meters as well as control up to three loads at the residence. The control of these loads would, of course, fall into our third area of load management. Duke is evaluating this metering concept, its costs, its problems and its potential for future use in electric distribution service. Along with an evaluation of peak-load pricing, the Company will be making determinations in the future as to the appropriateness of this concept on its electric system.

Duke is currently undertaking a study to evaluate the control of water heaters in order to determine the true magnitude at the time

of system peak of the diversified water heater load on its system. With the information that will be gained over the next 14 to 16 months, Duke will be able to make a cost-benefit analysis as to whether it is in the best interest of the consumers in its service area to follow this approach. The concept in this experiment includes the control of residential water heaters through the use of a radio system. Parallel to the evaluation of the radio system used for this communication control, Duke will be evaluating what is commonly referred to as "ripple control system" to determine its applicability to this concept as well as to the concept of time-of-day metering. Duke also has a very detailed study under way with regard to interruptible service to its larger customers. This concept of controlled load would allow the utility to turn large blocks of load off which would have the same benefit as spinning reserves. The control of this type of load requires a capital investment, and a cost benefit analysis must be made and compared to the cost of new generation. Further, Duke currently has a policy of providing its customers with time pulses which allows the consumer to evaluate his electric demand. With the use of load monitoring or load control equipment ranging from very simple printers up to very complicated computers, Duke's larger customers are actually controlling

their electric demand. Duke's industrial rate provides for a 12-month ratchet which causes a higher bill if the electric demand is not controlled and provides a lower bill if it is controlled. At the present time, the Company has 123 industrial customers utilizing this concept. This represents over 1,100,000 kw in contractual load.

The Company anticipates results which will achieve savings of 1374 MW by the summer of 1990 and 2175 MW by the winter of 1990-91. The Company estimates that during 1976 its Load Management Program has already reduced peak load demand by about 200 MW. Duke has, if not the most active Load Management Program in the country, certainly one of the most active and ambitious undertakings; and it is for the express purpose of optimizing the utility system to provide adequate service to its consumers to insure a continued healthy economic growth in the Carolinas -- all of this to be achieved through sound utility management with the results being the lowest possible rates to the consumer.

NEW PLANT CONSTRUCTION (VI-9)

The Committee, the General Assembly and the Commission should not only be concerned with the costs associated with new plant construction but also whether or not utilities can finance new plant

additions under current regulatory practices in effect in North Carolina. At present, the electric utility capitalizes the composite carrying costs of the capital (AFC) used to finance construction. Thus, the electric utility carries substantial investments in construction work in progress (CWIP) on which no cash return is earned. At the same time, huge outside financing requirements plus substantial additional internal cash generation are necessary to meet the utility's construction program. While many states allow all or some portion of CWIP to be included in the rate base, North Carolina does not. A sound method to assure that plants needed to meet the future growth in electric demand can be financed is to include construction work in progress in the rate base. This would result in lower construction costs and would produce a source of funds to the Company during construction. When CWIP is not included in the rate base and newer, more expensive plant comes into service and rate base, a substantial increase in rates is inevitable because income attributable to AFC stops and depreciation and other expenses commence. Electric utilities in the state have had to seek rate increases of up to 20 percent or even higher primarily as a result of new high cost plant becoming operational.

On the other hand, if CWIP were included in rate base, modest rate relief to keep apace of inflation would be possible and far more desirable. Instead of being confronted by a series of large rate increases, consumers would be paying rates consistent with inflation levels of other goods and services. It is important to note that including CWIP in the rate base does not mean present ratepayers would be paying the entire cost of new generating facilities. Investors would continue to furnish funds for construction of new generating facilities and the present ratepayer would pay only the "carrying costs" on those funds. This would result in a lower cost of new plant which translates into a lower rate base, less depreciation expense and consequently lower electric rates over the operating life of a new plant. In the case of Duke, in 1966 only approximately $42 million was in CWIP whereas in 1978 it is estimated that investment in CWIP will approach $2 billion. (For further discussion of CWIP in rate base, see Attachment)

(VI-6)

While it is true that "new plant construction during the 1960's was somewhat subdued, with the result that by 1969 reserves were getting low . . .", all of the blame cannot be laid at the feet of the power companies.

On February 28, 1962, President John F. Kennedy, in a message to Congress, indicated that the Federal Power Commission "will project our national power needs for the 1970's and 1980's and suggest the broad outline of a fully interconnected system of power supply for the entire country." The National Power Survey was promulgated in 1964 under the auspices of FPC Chairman Joseph C. Swidler. A summary of the conclusions of that Survey found on page 288 of Part I indicated that the price of electricity was expected to decline from 1.68¢/kwh in 1962 to 1.23¢/kwh in 1980. The major reason for such optimism is found on page 286 of Part I of the Survey where an estimated savings of nearly $7 billion out of a total savings of $14.8 billion was for reduced reserves through interconnection and coordination. The ideas expressed in the National Power Survey were adopted throughout the country. As a result, regional pools were formed and reserve margins were consciously and substantially reduced in the reliance on the proposition that adequate and reliable electric service could be provided based on pooling arrangements with fewer reserves. The 1970 National Power Survey came to opposite conclusions. This clearly demonstrates that the best planning for future generating capacity can go awry even when the government plays a substantial role in the planning process.

COMPARISON OF STAFF AND COMPANY FORECASTS (APPENDIX B, PAGE 6)

Duke's earlier forecasts of future load has been revised based upon more recent experience. The Company's current forecast, which was filed with the Commission on December 14, 1976, shows a 1990 peak demand of 1686 MW lower than the Staff's forecast.

DUKE POWER COMPANY
CONSTRUCTION WORK IN PROGRESS
INCLUDED IN RATE BASE

The Management of Duke Power Company is deeply concerned with the impact upon its financial stability of the increasing amount of dollars tied up in work in progress, which under present regulation is not included in rate base and therefore, not providing the cash necessary to carry this investment. The increasing magnitude of the dollars carried under construction is the product of the increasing size of the Company, coupled with the impact of inflation on the dollar cost of all projects. A further factor adding to the problem is the increasing time needed to put electric plant into service created in part by all the regulatory and environmental delays.

A sound method of assistance to the Company, which is most economical to the ratepayers, would be to include construction work in progress in the rate base. If this were done, cash would be provided currently to pay the cost of monies tied up in construction.

This methodology is economical because construction costs would be less, since the Company would discontinue providing for the "Allowance for Funds" as a source of earnings to the Company, thereby in the eyes of the investors, improving the Company's quality of earnings. The lower cost electric plant results in a lower rate base, less depreciation expense, and therefore lower electric rates over the operating life of the electric plant. The electric ratepayer pays less under this suggestion when compared to the present ratemaking procedures.

Since it might not be practical to immediately include the entire balance of CWIP in rate base, because of the one-time impact on the revenue requirement which would result, it might be desirable to phase in the full adoption of this procedure. The phase-in can be accomplished in one of several different ways. At the outset, the amount of CWIP to be included in the rate base could be based on the CWIP which is to be placed in service within one year, or it could be a predetermined portion of the balance of CWIP, or it could be applied to all new projects.

The following pages give further explanation of the need for and efforts of including all or some portion of CWIP in rate base. The amount of internally generated funds must be kept at an adequate level for Duke Power Company to meet its public responsibility of providing adequate service, at present and in the future, at the lowest cost.

Duke Power Company is currently engaged in a long-range construction program which will nearly double the Company's net electric plant in five years. The Company estimates that during the period 1976 thru 1980, it will spent $3.3 billion on construction. Further, during the same period, the Company's outstanding investment in construction work in progress (CWIP) will increase $1.2 billion.

The Company capitalizes the composite carrying costs of the capital funds (AFC) used to finance construction. Thus, under current regulatory procedures, the Company carries substantial investments in CWIP on which no cash return is earned. At the same time, huge outside financing requirements will be necessary to meet the Company's construction program and, consequently, substantial additional internal cash generation will be needed to meet these new capital service requirements. For instance, as indicated on Exhibit I, the estimated 1978 investment in construction amounts to $1,933,000,000, whereas in 1966 CWIP was only $41,968,000.

This AFC amount represents a claim for future cash compensation for today's carrying cost of capital tied up in construction. Such AFC amounts are ultimately included in rate base and charged to rate-payers as depreciation over the service life of the plant. In addition, a return is allowed on the undepreciated portion. Under this procedure, future cash flows include the carrying cost of debt and equity funds invested during the construction period.

From the viewpoint of an accountant, the practice of capitalizing AFC under present regulation is eminently sound. However, investors tend to down-grade the quality of earnings relating to AFC since it does not represent current cash flow.

There is a growing concern about the ratemaking treatment of CWIP and AFC. The percent of construction to total net plant averaged 13% in the 1960's. For the period 1977 - 1980, these same percents are estimated to be in the range of 34% - 41%.

During the past several years, the Company has been making construction expenditures at a rate which was substantially in excess of the rate at which its present plant facilities were added. This expansion has been the result of a combination of factors. One primary factor was the growth in both the absolute number of customers and in the quantity of service they demand. Another factor was that cost rates of capital funds devoted to this expansion increased substantially, along with enormous increases in the unit costs of construction labor and materials. As shown in Exhibit IV, the Company's cost per KW of its generating production plant has risen from $103 in 1960 to $161 in 1975, and is projected to continue rising through 1985. In addition, newer types of plants under construction and increasing requirements for pollution control facilities resulted in much larger amounts of funds tied up in CWIP for significantly longer periods of time. The underlying concern is whether the Company has sufficient current cash earnings and cash flows to service the huge capital investment tied up in CWIP. The Company is confronted with the difficulty of generating enough cash earnings to meet its preferred dividend requirements, plus a reasonable payment of common dividends. During the period 1969 through 1975, the period of the worst inflation in the United States since the end of World War II, the Company's quarterly dividend rate remained unchanged.

For the past several years, the carrying costs of its outstanding stocks and bonds have exceeded earnings before interest charges and before the non-cash construction-related credits associated with AFC (net operating earnings). Further, this gap is projected to continue through 1977, as indicated by the graph on Exhibit II. Also, the inclusion of the AFC credits in earnings tends to obscure the fact that it takes cash earnings, before the construction-related credits, to meet current capital carrying costs. Net operating earnings before construction-related credits and its relationship to current capital service requirements are of substantial importance to the Company's current and long-run ability to raise the capital it needs to carry out its public service responsibility, which requires that the Company make reasonable expansions and improvements of its facilities to meet the growth and demand of its service area.

Because of the dominance of AFC credits in reporting earnings, net operating earnings before such credits have been less than interest and dividends in each year since 1969. The gap has widened since then, amounting to nearly $64 million in 1974, reflecting the increasingly greater investment in CWIP which produces no current cash earnings.

The fact that the Company currently is not taking in enough cash from operations to meet its present capital carrying costs by approximately $60 million is surely not a financially healthy condition for the future if the Company is to perform its public service functions adequately.

To compound the Company's problems, many investors and security analysts have concluded that earnings which include significant amounts of AFC are of lesser quality than cash earnings which result from operations. Many of these people exclude such credits when calculating earnings coverage ratios for security rating purposes.

To fully understand this view, it is necessary to observe the workings of the entire process of making investments in public utility property and servicing those investments by means of the ratemaking process.

In a free market economy, investors will place their money in a particular public utility situation only if it offers returns equal to those available in situations of comparable risk under conditions where the principal amount of the investment is also returned. Investors must, among other things, look to the process of utility rate regulation to determine whether they should commit their funds. Having invested their money, they expect the rate regulatory process to maintain their capital intact through depreciation charges and permit the earning of a fair rate of return. Stated otherwise, if the regulatory process fails to return their funds by way of adequate depreciation allowances plus a fair rate of return, their capital is eroded.

Investors know that the utility investment involves a commitment of their funds for a number of years to the process of construction, and they are skeptical because they believe that the historical method of capitalizing AFC to service capital tied up in construction has proved to be an inadequate regulatory method.

The inadequacy arises from the fact that current cash flow from customers is not adequate to provide an acceptable current servicing of outstanding securities. As investors - particularly those dealing with the funds of others - must be prudent, they will not commit their funds to the utility company for use during this nonproductive construction period unless they are compensated during that time period as well. In the circumstances of a large amount of capital invested in construction which is not included in rate base, investors can see that earnings from operations will not provide the cash earnings needed to service the outstanding securities. If the money for interest and dividends is not earned from operations, it can only be paid by the investors themselves. Simply put, it is unlikely that investors would be attracted to a situation where they must provide funds to pay their own interest and dividends. Therefore, if prudent investors are unwilling to provide these funds, then one must conclude there is a fundamental weakness in the current regulatory procedure of capitalizing AFC.

Since the only source of cash to a public utility (in fact, to any enterprise) is ultimately the consumer, the question to be resolved is how the cash burden for the costs of monies invested in construction should be shared between the ratepayers and the company during the period the plant is under construction and how can this fundamental weakness in the current regulatory procedure be corrected?

One sound solution to increase the cash flow of the Company to enable it to carry the financial burden of its construction program would be to include construction work in progress in rate base.

Including CWIP in rate base with the concurrent cessation of capitalizing AFC is a most economical and equitable solution.

This is true because capital invested in the construction program is less when CWIP is included in rate base. For example, in determining the revenue requirements shown on Exhibit III, the average plant cost to be recovered at the end of the construction period is $599 million with CWIP in rate base and $781 million with CWIP not included in rate base. The difference of $182 million, or 30% of the direct construction costs, results because AFC would not be capitalized on construction costs if CWIP were included in rate base. In addition, future depreciation charges would be lower by the same amount ($182 million) because there is less capital invested and there is less capital to recover in the future. Further, less capital is required to finance construction, thus the investor will not be called upon to finance the carrying costs of construction.

Although revenues would be higher initially, the cumulative revenue requirement over the life of the project with CWIP in rate base of $2,175 million as indicated in Exhibit III, is $362 million less than the $2,538 million revenue requirement if CWIP were excluded from rate base. Stated in terms of cents per KWH, the capital cost to the customer over the life of the plant is 1.25¢ per KWH when CWIP is included in rate base, and increases to 1.46¢ per KWH when CWIP is excluded from rate base.

In summary, the inclusion of CWIP in rate base results in less cost to the customer over time. With CWIP in rate base, each dollar of AFC eliminated would result in subsequent corresponding dollar-for-dollar reductions in rate base. This assures that ratepayers will be charged rates lower than would otherwise be necessary because of the reduced rate base and depreciation charges.

Since it might not be practical to immediately include the entire balance of CWIP in rate base, because of the one-time impact on the revenue requirement which would result, it might be desirable to phase in the full adoption of this procedure. The phase-in can be accomplished in one of several different ways. At the outset, the amount of CWIP to be included in the rate base could be based on the CWIP which is to be placed in service within one year, or it could be a predetermined portion of the balance of CWIP, or it could be applied to all new projects.

There are several formidable arguments against inclusion of CWIP in rate base that must be confronted - CWIP is not "used and useful" property, today's customers are paying costs related to future customers and the revenues required to cover dividend payments must be doubled since taxing authorities will take one-half as their share leaving the utility one-half to pay the dividends.

The argument that CWIP is not "used and useful" property (i.e., investment does not benefit customers at least until the facility is placed "in service") is essentially legalistic.

The Federal Power Commission, in Order No. 555, discusses this argument and concludes "All of the above considerations lead this Commission to conclude that it will not adhere to an absolute rule that plant must be "used and useful" in the traditional sense before it may be included in rate base. Of course, in a very real sense, a plant under construction, which will go on line in the future, is quite useful to consumers. Were the plant not under construction, the consumers might well be facing a certain danger of future power insufficiency, which threat will be alleviated by the new plant."

The argument that today's customers are paying costs applicable to future customers, needs to be examined from the view of the composition of construction expenditures and the historical cost rate-making model. Some of the property included in CWIP is for the benefit of today's customers. For example, replacement property and environmental additions definitely benefit today's customers. Further, CWIP invested to meet the future needs of present customers is a benefit to both current and future customers. Further, customers are continually coming on and off the system, and under the present rate design methodology, they must all pay the current average composite cost.

The fact that it requires two dollars of revenue to meet each one dollar of dividends paid relates to present income tax laws which do not allow dividends as a deductible cost in arriving at taxable income. This is not true of the interest cost of funds borrowed for construction purposes, since interest is allowed as a deductible cost, and thus, only one dollar of revenue is required to pay interest.

In considering these matters, it must be recognized that as long as historical original cost regulation is followed, today's customers are realizing a "windfall profit" because the customers never pay the real economic cost of the service they receive. Because of changes in price level and other factors, the dollar collected today in rates is not equal in value to the dollar of depreciation on plant constructed several years ago. Thus, there is a shortfall in capital recovery since the utility's economic resources are being consumed servicing current customers without equivalent reimbursement, through rates, of the real economic cost. In other words, electric service is underpriced to the point that the Company is having difficulty constructing the facilities to meet the demands for service being made by its customers.

In conclusion, the Company has been financing and will continue to finance significant amounts of CWIP. While the ratemaking procedure of excluding CWIP from the rate base and capitalizing AFC is a valid concept, in the situation of the Company it provides inadequate current internal cash generation, and furthermore, is apparently discounted in the investment community because of the magnitude of the amounts of AFC being added to the plant accounts which postpones substantial cash flow to the uncertainties of the future. Investment analysts are considering all or portions of AFC as inferior earnings. The Securities and Exchange Commission has for some time required disclosure of detailed information with respect to AFC and its relationship to net income and has initiated limitations on the use of such accounting.

Including CWIP in rate base concurrently with the cessation of capitalizing AFC, gives proper recognition to the need for improved current cash flow. By eliminating AFC, cash will be provided currently to pay the cost of monies tied up in construction and, to this extent, will no longer be required to postpone the recovery of that cost to the future. In essence, an accounting entry for that portion of the carrying cost of monies devoted to work in progress would be converted to badly needed current cash flow. This would not only improve the credibility of the Company's earnings to the investment community, but would also improve interest coverages and make it possible to lower the overall cost of capital to the Company and its customers.

Cash requirements of the future would be reduced and at the same time the Company's overall cost of capital would be lower. Additionally, an important result is that present customers, who are causing part of the construction, would receive greater present assurances that their future service requirements in their homes and in their places of employment will be met.

Whether the Company can meet the financing and carrying cost requirements of the new electric plant that must be built in the future is open to question. Clearly, with construction work in progress in the rate base, this financing burden is greatly minimized.

DUKE POWER COMPANY

TOTAL DOLLARS INVESTED IN WORK IN PROGRESS AT END OF YEAR

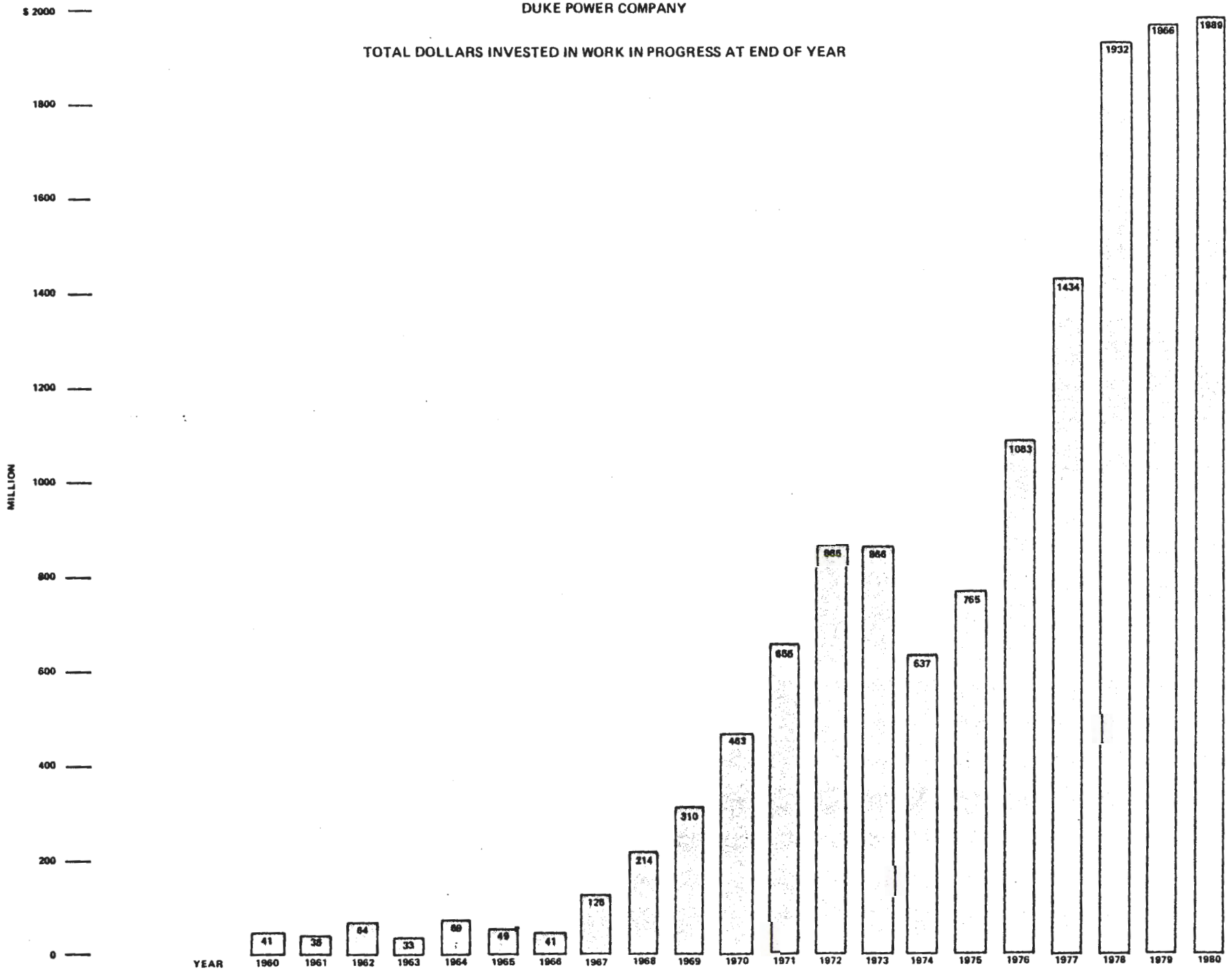


EXHIBIT I

Appendix "D-24"

DUKE POWER COMPANY

RELATIONSHIP OF EARNINGS BEFORE MONEY COSTS AND
CONSTRUCTION RELATED CREDITS TO TOTAL INTEREST AND DIVIDENDS

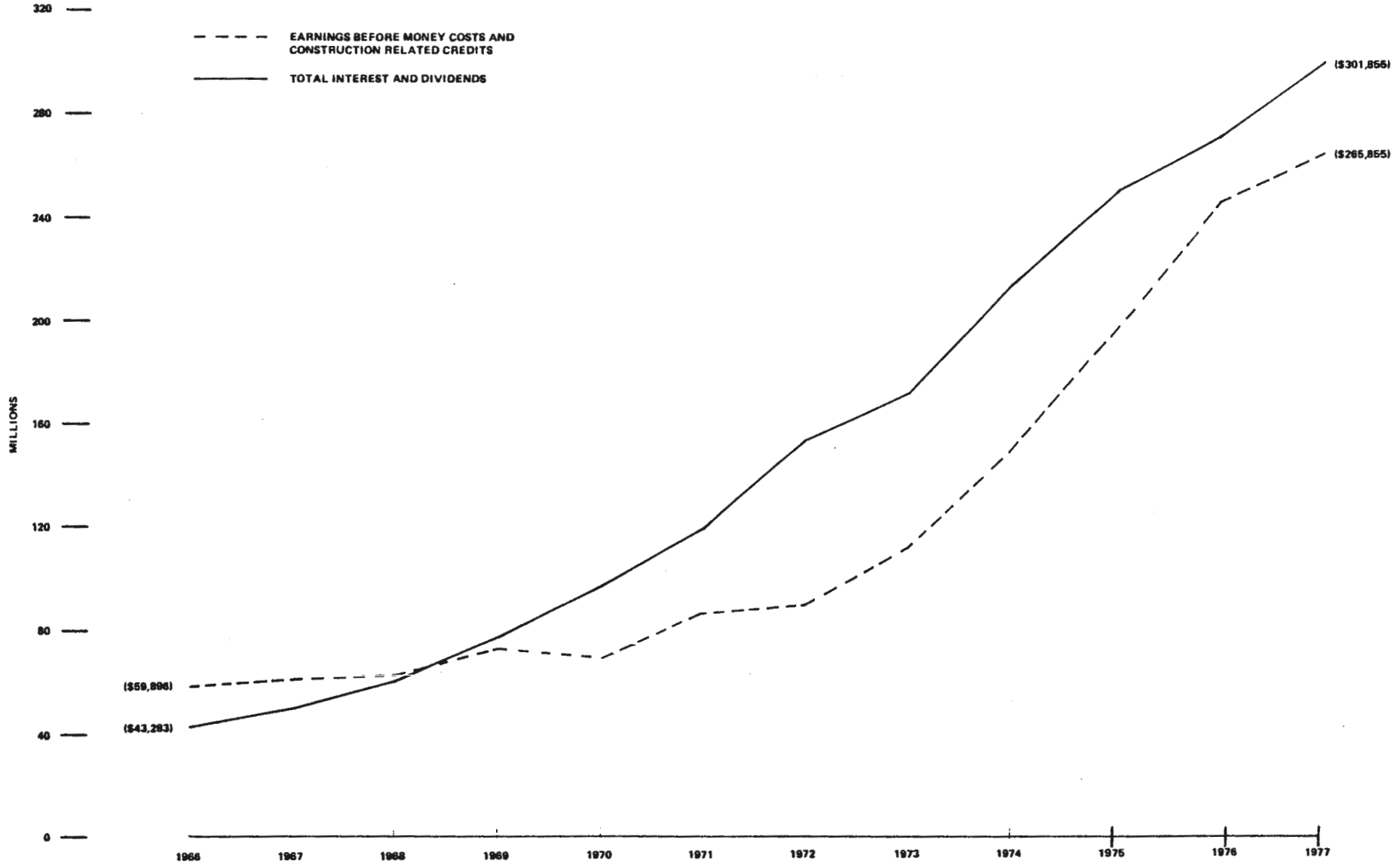


EXHIBIT II

Appendix "D-25"

Appendix "D-26"

DUKE POWER COMPANY

REVENUE REQUIREMENTS FOR DEPRECIATION, RETURN AND INCOME TAXES - PLANT MCGUIRE WITH CONSTRUCTION COSTS OF $610,000,000 OVER EIGHT YEAR CONSTRUCTION PERIOD AND WITH SERVICE LIFE OF 28 YEARS

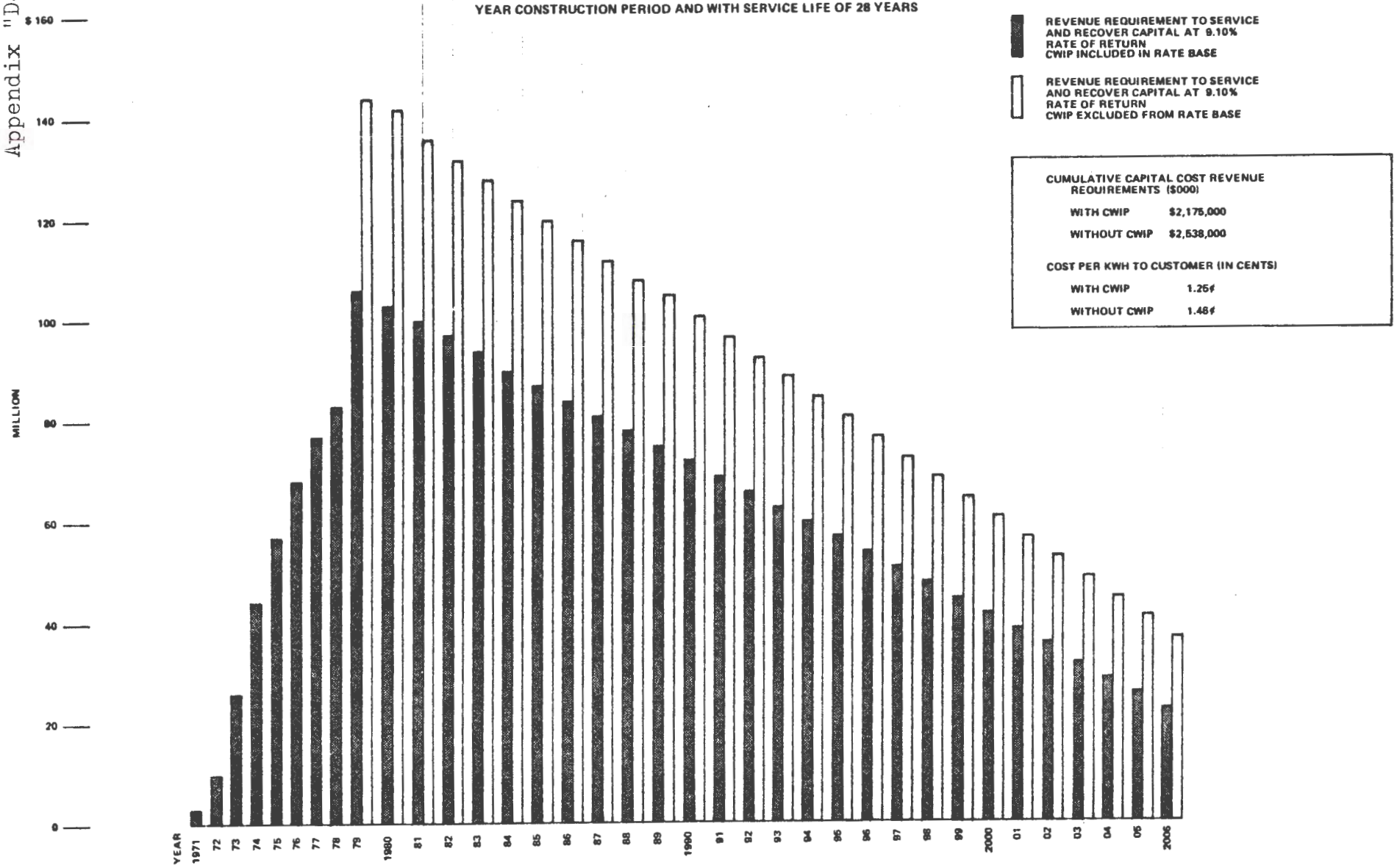


EXHIBIT III

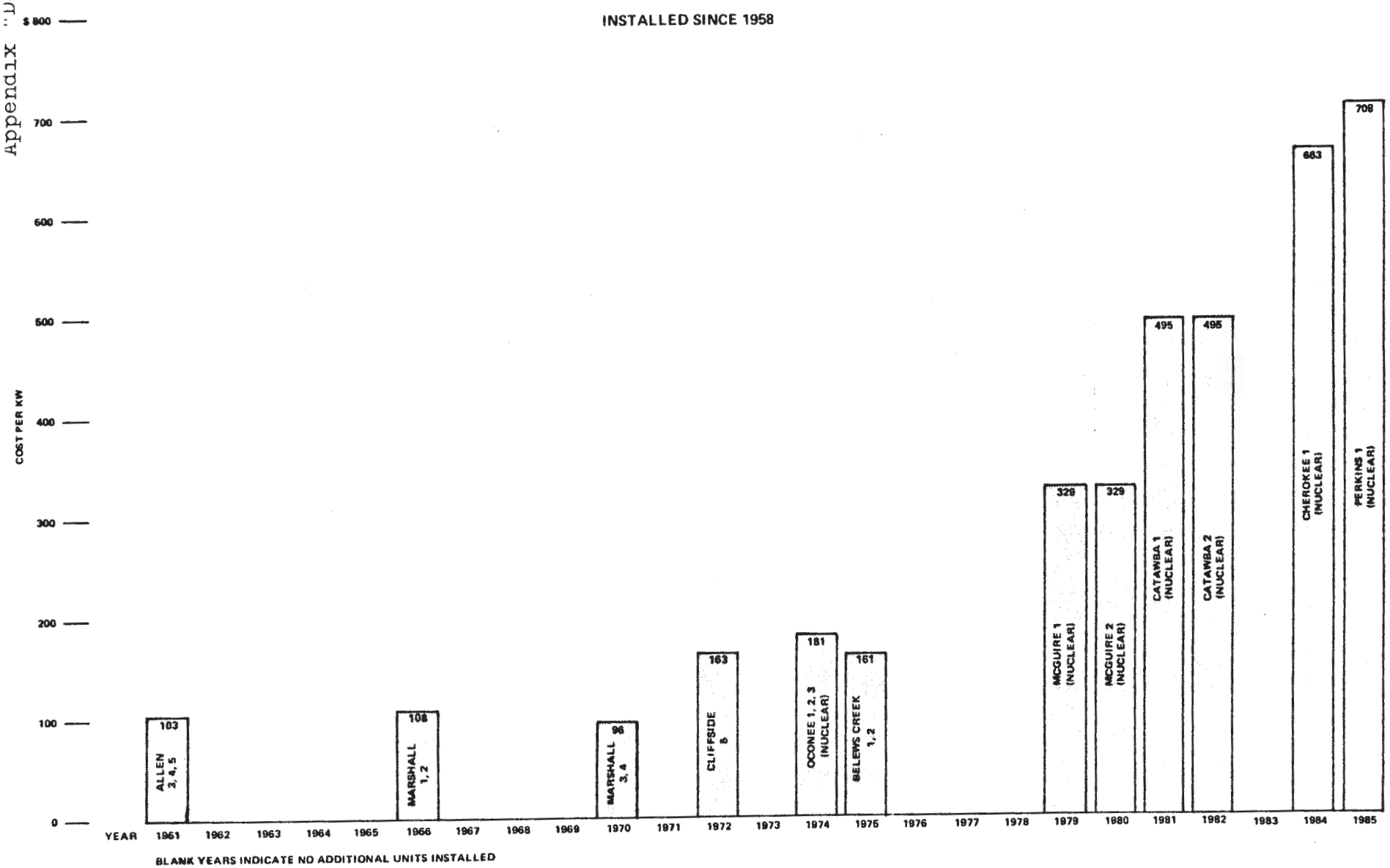
Appendix "U-2"

EXHIBIT IV

DUKE POWER COMPANY

COST PER KW OF STEAM PRODUCTION UNITS

INSTALLED SINCE 1958



BLANK YEARS INDICATE NO ADDITIONAL UNITS INSTALLED

Appendix "E"

Heater Utilities inc.

Reply to:

POST OFFICE BOX 250
CARY, NORTH CAROLINA 27511
PHONE 919-467-7854

1532 EISENHOWER DRIVE
COLUMBIA, SOUTH CAROLINA 29203
PHONE 803-754-7066

January 28, 1977

Mr. Hugh A. Wells, Counsel
Utility Review Committee
North Carolina General Assembly
State Legislative Building
Raleigh, N. C. 27611

Dear Mr. Wells:

I appreciate the opportunity of reviewing the initial report of the Utility Review Committee. Since this does not apply directly to us as a water and sewer utility, but only in the general aspect, our comments are more restricted.

I do feel, however, that on page II-1 in the last paragraph describing the Commission's authority, it would be extremely helpful if the General Assembly were to establish that once the Commission has granted a franchise, the franchise would be protected, regardless.

The specific problem that concerns me, as an example, is if we had a franchise for a subdivision adjacent to the city limits of Raleigh and then Raleigh, through territorial expansion, would extend its limits through and beyond the section on which we had a franchise. At this point we are faced with who has the authority to grant the franchise: Have I lost it due to the fact that the city has taken over the area? Or, am I protected because I had a state franchise before the city moved in?

Also, can the city move in and duplicate my service and undercut and force me out of business?

This is a gray area which should be defined and, of course, I feel that the franchise should remain in good standing unless the municipality purchases the system at a fair and reasonable figure, possibly to be determined by the Utility Commission.

This problem will be come gargantuan in size in the next few years as city limits are expanded. I look forward to receiving the Committee's viewpoint on the water and sewer utility problems.

Very truly yours,

R. B. Heater, President

RBH:mdh

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OF COUNSEL

TELEPHONE
AREA CODE 919
828-9371

OUR FILE NO. 899

February 3, 1977

Hugh A. Wells, Esq.
Counsel
Utility Review Committee
North Carolina General Assembly
Room 1414 Legislative Building
Raleigh, North Carolina 27611

Dear Hugh:

As you probably know, for many years I have represented Nantahala Power and Light Company in its North Carolina regulatory matters and, from time to time, in legislative matters of concern to it.

Mr. W. M. Jontz, President of Nantahala, has referred to me the initial report of the Utility Review Committee which you transmitted to him with your January 19th letter soliciting the company's comments thereon. I have discussed this report with Mr. Jontz and he has requested that I reply on behalf of the company.

Nantahala's principal comment relates to the Review Committee's recommendation that the rate base to be used in public utility rate cases be changed from fair value to original cost. Nantahala strongly opposes this change and suggests that the reasons advanced in support of the change by the Review Committee are relatively unimportant in the overall concept of rate regulation. It is interesting to note that the Committee makes no contention that the fair value rate base is not "fair" or, indeed, fairer than the original cost rate base. Fair value regulation is the only way that I know by which the investor in the common stock of a public utility can even hope to have reasonable protection against the ravages of inflation. We all agree that the value of the dollar is constantly depreciating. We all know that a dollar invested in 1940, for instance, was much harder to come by and bought much more than did a dollar invested in 1976. It is the productive capacity and potential of the plant which serves the consumer that is important, not the original cost of that plant expressed in terms of the dollars invested at any moment in time.

I believe that all will agree that it costs several times as many dollars to build a hydro-electric plant today as it did to build one of precisely the same output capability thirty or forty years ago. Yet, under original cost regulation, even forgetting depreciation, the rate base would be substantially larger in the one instance than in the other, but each would have equal value to the consumer. The salaries and wages of most consumers have been substantially increased over the time for the same output or production simply to compensate for inflation. The consumer is getting far more dollars, but essentially the same purchasing power. Unless the investor through fair value regulation likewise gets far more dollars, he suffers a very real diminution in his purchasing power.

Our present statute, of course, permits the use of trending to establish a replacement cost. This is comparatively cheap and reasonably accurate. In my experience, both the hearing time involved and the dollars of expense necessitated by replacement cost or fair value evidence is a small percentage of both the total cost and the total time. I note the emphasis placed in the Review Committee's report on the value of cost of service studies in establishing appropriate rate structures. Likewise, the Committee seems to comment favorably upon the information reports which must be filed by utilities with the Utilities Commission at the time of a rate case application. Again, in my experience, the time and expense required in performing a cost of service study and the time and expense required in gathering the information required by the Utilities Commission and its information filing are far greater than the time and expense necessitated for replacement cost determination. I do not suggest that cost of service studies should be done away with or that information filing should not be required. I simply suggest that the rate making process is necessarily expensive and time-consuming if reasonably fair and accurate results are to be obtained.

On another matter, we note the Review Committee's concern at interim or emergency rate increases. Although the Utilities Commission has speeded up somewhat the elapsed time between the filing of a rate case and its adjudication by its requirement that the utility file its testimony together with tremendous quantities of informational data at the time the application is filed, there is really no speed-up whatsoever in the total time consumed. The utility, once it determines its need for rate relief, simply has to delay its filing usually for many months while it is assembling the information required by the Commission and having prepared the testimony requisite for filing. This is an especial hardship on smaller utilities lacking both the number of in-house employees and expertise to do the job in a reasonable time-frame. Thus, interim rate relief is, I think,

absolutely necessary in many cases if the utility is to have the opportunity to earn a reasonable rate. At the moment I can recall no cases where either the Utilities Commission or the courts have required a refund of interim or emergency relief. On the contrary, our courts have pointed out that the subsequent trial of the case on its merits fully established the need for the interim relief which was granted. Certainly, the rate payer has reasonable protection by the provisions of refunds with interest. In times of rapid inflation in costs, the utility has no protection in the absence of interim or emergency relief.

Respectfully yours,

JOYNER & HOWISON

R. C. Howison, Jr.

RCH:hz

cc: Mr. W. M. Jontz, President
Nantahala Power and Light Company
P. O. Box 260
Franklin, North Carolina

RESPONSE OF CAROLINA POWER & LIGHT COMPANY

TO

INITIAL REPORT OF UTILITY REVIEW COMMITTEE

TO THE 1977 GENERAL ASSEMBLY

Contained herein are comments of Carolina Power & Light Company (CP&L) on the Initial Report of the Utility Review Committee to the 1977 session of the General Assembly. The issues addressed in the Committee's report are complex and the recommendations are far-reaching. The areas covered by the report are tremendously important and the manner in which they are dealt with by the legislature can significantly affect the ability of utilities serving this State to continue to provide reliable service at rates which are just and reasonable.

There are portions of the report with which the Company disagrees and it urges the Committee to reconsider certain recommendations and statements contained therein. The fact we do not comment on all of the topics covered by the report should not be taken as an indication of our agreement or disagreement with the information and conclusions set forth under those topics.

RESPONSE TO SPECIFIC RECOMMENDATIONS

1. Change "fair value" to "original cost" in rate base determination. The Company strongly urges that this not be done. The concept of fair value in utility ratemaking began very early in the history of public utility regulation. It has been the law in North Carolina since 1899, the legislature having adopted in that year almost word for word the elements of fair value laid down by the Supreme Court in the case of Smyth v. Ames, 169 U.S. 463. The court stated in that case:

> "The rights of the public would be ignored if rates for the transportation of persons or property on a railroad are exacted without reference to the fair value of the property used for the public."

The fair value principle has served to reduce rates in depression time while permitting rates during periods of inflation to be based upon the fair value of a utility's property thereby lessening to some extent the devastation that would otherwise result to stockholders from the ravages of inflation.

The Company feels that it would be unwise indeed to abandon a fair principle that has been in existence throughout this century, especially at a time when utilities are faced with the requirement of attracting tremendous amounts of capital in order to provide a source of energy for the future. Investors recognize North Carolina as a fair value state. They have made investments in utility common stock in the light of this knowledge and undoubtedly with confidence that utilities in this State would be permitted to continue earning a return on the fair value on their property. Not only would an abandonment of the fair value concept be unfair to the present investors, such action would undoubtedly make it exceedingly more difficult for utilities to raise the amounts of capital that will be required to provide future capacity that is so badly needed.

It is respectfully submitted that the reasons given in the Committee report for abandoning fair value seem to be directed principally to the fact that establishing fair value in a rate case is complicated and extends the time of rate cases. We respectfully submit that if fair value is the reasonable and fair method of determining a utility's rate base - as it has been considered for over three quarters of a century in this State - then this fact should be controlling rather than the additional time required to try a rate case.

2. Fuel Clause Hearings. The Company strongly disagrees with the intimation in the report that the Utilities Commission is not properly conducting hearings on applications for fuel clause adjustments. The Attorney General, representing the using and consuming public, has appeared in every hearing that has been held on an application to increase rates because of increased fuel costs. From time to time, interested parties have appeared and have been heard. Notice of the hearings is widely published and anyone wishing to be heard is given ample opportunity. In some instances hearings have been lengthy and involved. For instance the last hearings conducted lasted almost an entire afternoon. Should this Committee desire a transcript of this hearing, we will be happy to furnish it. Insofar as this Company is aware, neither the Attorney General nor any other party or consumer has ever requested a hearing or indicated a desire for a hearing when a Company's application has been for a decrease in rates because of a decrease in fuel costs. It is respectfully submitted that hearings under such circumstances are unnecessary. To require them would increase significantly the administrative costs of the Company and of the Commission and its staff.

Upon motion of the Attorney General, the Commission has required that exhibits be filed with each application showing the status of the Company's fuel expenses and recoveries therefor over a 12-month period. Attached to this report is a copy of the last exhibit filed by CP&L. As the exhibit clearly shows, the Company has substantially undercollected its fuel costs over the past year. The contents of this exhibit are subject to review and audit and no one has ever suggested that it is not an accurate representation of the Company's experience in collecting for its fuel costs. It can readily be seen that the utility's customers have not been required to pay the complete costs incurred by the Company for increased fuel costs. More expensive and involved hearings would not be helpful to anyone.

VI-1. Areas of Particular Concern with Regard to Rates and Services of Public Utilities.

A.(2) Fuel Clauses.

For the reasons set forth above the Company strongly disagrees with the report's conclusion that the Utilities Commission is not appropriately considering applications for increases in rates because of increased cost of fuel.

A.(3). Interim (Emergency) Rate Increase.

The report's reference to the Committee's initial report that recommended legislation which would strictly limit the Commission's authority to grant interim increases is noted. The Company reiterates the strong disagreement which it expressed to that report:

"The Company strongly disagrees with the Review Committee's tentative recommendation that legislation be enacted to restrict interim rate increases by more narrowly defining 'emergency' as that set of circumstances which threatens the existence of continued operation of a utility. This could effectively eliminate the possibility of ever receiving an interim increase, because . . . when a Company reaches a point where its existence or continued operation is threatened, it is most likely beyond the point of no return. Moreover, how could such legislation possibly be considered fair? In answering the Attorney General's complaint that the Commission erred in granting an interim increase in CP&L's 1971 rate case, the Court of Appeals stated as follows:

> Had the Commission failed to withdraw its suspension [grant the interim increase] in the present case, a gross unfairness would have resulted to the utility. After extensive evidentiary hearings based on a test period ending on 30 June 1971, the Commission found and determined that a 14.38% rate increase, far more than the 5.63% increase allowed as result of the interim order, was just, fair and reasonable. No exception has been taken to that determination and it is conclusive on this appeal. Regulatory lag deprived the utility of the benefit of the full increase found fair and reasonable for the entire time during which, but for such lag, it would have been

entitled to receive the same. Its customers have no just cause to complain simply because during a portion of that time they were required to pay only a part of the increase to which the utility was ultimately found justly entitled. Had it finally been determined that the interim increase allowed was too high and the customers were required to pay too much, their rights were protected by the requirement that the excess be refunded with interest. No similar adjustment in favor of the utility was imposed in the event, as occurred, that the interim increase was too low. (Emphasis added.) Utilities Comm. v. Morgan, Attorney General, 16 N.C.App. 445, 452.

Should the Commission err by granting an interim increase that is not warranted, there is a method available to correct its error. Refunds can be ordered to customers with interest. On the other hand, if the Company is required to continue to provide service, at well below the cost of providing it (including the Company's reasonable capital costs) there is no way that the gross unfairness can be corrected. Should the General Assembly eliminate interim increases (and it is contended that the result of the tentatively recommended legislation would do just that) the effect would be to remove any way for the companies to attempt to maintain their ability to provide for service in the future or their ability to earn a fair return on their investment. If a company reaches a point where, through no imprudence on the part of its management, its "existence or continued operation" is threatened, it is likely that it has been providing service to its customers at below cost for some period of time. The effect of removing any possibility of remedying such a situation, is tantamount to allowing the confiscation of a utility's property."

A.(4). Peak-Load Pricing, Load Management.

The Company agrees with the Committee that load management is an area in which there is great potential for effective action. As early as 1973 CP&L investigated the potential on its system for peak load control of water heaters through mechanical devices; it concluded that the cost-benefit ratio was unfavorable at that time. Since then the Company has continued its review of this and other systems.

Since 1971 it has been conducting a vital research and development experiment to enable sending reliable two-way signals to activate peak load management equipment. It has established that the system for two-way direct carrier line signaling is mechanically feasible and is now working to make it feasible from reliability and economic aspects. This project began in conjunction with the Westinghouse Corporation in an effort to develop a system for automatic meter reading. It was soon recognized that such a system could play a far greater role by including activation of usage control devices and distribution system operating functions. This experiment is now being conducted under a contract with Electric Power Research Institute, Inc., and in conjunction with Compu-guard Company of Pittsburgh, Pennsylvania. It is a large undertaking involving 750 control points. The successful development of this two-way signaling system would provide a load control component far superior to the radio and ripple methods.

In addition to the foregoing, at this very time CP&L is starting an experiment to test the peak control value of a new device developed by the Fisher Pierce Division of Sigma Instruments, Inc. This device will enable remote control of two appliances on the customer premises, and it is hoped that its capability can be extended to three or perhaps even four appliances. Installation of this equipment will commence in February, 1977. Twenty-five units will be used in the initial work and, if the device proves reliable and indicates a significant potential for cost-effective load control, it is anticipated that the size of the project will be enlarged to determine, with statistical soundness, that its ultimate benefits to the consumer will exceed its cost.

Furthermore, CP&L is working with the Commission Staff in an effort to incorporate into our FEA Time-of-Use Rate Demonstration Project an experiment to determine the cost-benefit of interlocking control devices. These devices would limit peak demand of the customer by controlling the extent to which he could have a number of appliances all operating at the same time. Customer acceptance, and whether such devices would in fact provide a substantial improvement in diversity, present special questions.

CP&L is one of the more active companies in the country in investigating the potential for peak load control through hardware. There is hardware available for the purpose, but the selection of the type most suitable for the particular utility and its customers is far from obvious. Through its own investigations, attendance at seminars, study of load control and materials being analyzed in the National Electric Utility Rate Design Study, and monitoring carefully the results of activities of other companies, CP&L is familiar with almost all, and perhaps with every, available device for peak load control. Its program, coordinated through its Load Management Steering Committee, is substantial and forward-looking. Its purpose is to select or develop the methods that will provide the best results for the characteristics of its system and its customers' usage.

The indication in the report that CP&L has not yet disclosed any load management program is inaccurate. Testimony and filings have been made before the Commission outlining our program for encouraging conservation and off-peak usage, as well as other load management tools which are to be utilized or investigated.

The Company will deliver to the staff of the Committee a copy of its voluminous load management program.

A.(5). New Plant Construction.

The Company takes exception to a statement in the report to the effect that CP&L's construction costs per unit of capacity are running at a level of approximately twice those of Duke Power Company. This statement is inaccurate and the Company is at a loss as to the basis for its inclusion in the initial report. The Company's first nuclear plant (Robinson No. 2 at Hartsville, South Carolina) was brought on line in 1971 at a cost of $126 per kilowatt capacity, the lowest cost ever experienced by a utility for a comparable plant. Since that time costs of constructing nuclear plants have increased dramatically and any later vintage plant is likely to be higher than any earlier constructed plant. The Company's construction costs continue to be well in line with those experienced by companies throughout the Southeast. While the Company does not object to an analysis by the Commission of the construction costs which it experiences, it does not feel that the Committee should include in its report an inflammatory cost comparison that is obviously not based upon actual facts.

The Company disagrees with the inferences in the report regarding a lack of optimum planning for generating capacity by the power companies. The suggestion that more generation should have been constructed in the 1960's appears inconsistent with the suggestion by some people that there is now more available capacity than is needed. If additional capacity had been constructed in the 1960's, even though it was not needed at that time, consumers would have been paying higher costs over a longer period of time for additional unused capacity. We must point with pride to the record of CP&L in being able to serve its customers without interruptions in service because of a lack of capacity. Should we be unable to provide such reliable service in the future, it will not result from poor planning but from an inability to attract the needed capital for needed plant construction.

No one suffered because of a shortage in capacity in the 1960's or in the 1970's and no one is suffering today because of excess capacity. The charge made by some people that the Company has now "overbuilt" should have been put to rest as a result of our experience during the record cold weather of this winter. We should all be thankful that during this cold winter, the companies serving in North Carolina had the capacity reserves to permit uninterrupted electric service. As the Committee is undoubtedly aware, there were periods during January when almost all of the available electric capacity in this state was being used. Had less capacity been available on CP&L's system, or on the system of some of its neighboring utilities, the very tragic energy shortages being experienced by the citizens of this State would undoubtedly be far worse.

In connection with new plant construction, it is respectfully submitted that the Committee should be concerned with the question of whether capital will be available and can be attracted on reasonable terms by utilities to meet the substantial construction program necessary in the future. Unless companies are permitted to earn on the investments which they must make during the construction of needed facilities, it will be difficult, if not impossible, to attract the capital necessary to construct needed facilities for the future. Allowing construction work in progress to be considered in the rate base is fair to the consumer and is essential for an assured adequate supply of electricity. Attached for the Committee's review is a copy of comments filed by the Edison Electric Institute on this subject. We urge the Committee to consider this subject and CP&L stands ready to furnish additional information to the Committee upon request.

State of North Carolina
Utilities Commission
Raleigh 27602

January 28, 1977

Mr. Hugh A. Wells, Counsel
Utility Review Committee
State Legislative Building
Raleigh, North Carolina

Dear Mr. Wells:

Thank you for the copy of the Initial Report of the Review Committee to the 1977 General Assembly and the invitation for comments from me.

I'm not sure what the Committee wants in the way of comments but I take it that it was a sincere desire on the part of the Committee to receive constructive criticism of the report in the interest of better utility regulation in North Carolina. It is in this context that I offer these comments.

I will follow your order of presentation.

SUMMARY OF ACTIVITIES

Reference is made in the Summary of Activities of "making appropriate communication with the Utilities Commission". During my entire time on the Commission, the communication I have had with the Review Committee or any of its members was on the occasion of my confirmation hearings and the occasion of the Committee inquiry into the C. P. & L. interim request. (I had not participated in that docket.) I have not had occasion to call on you since your appointment as counsel, nor have you had occasion to call on me. I would have hoped that we could both have the common goal of improved regulation in the state which ends could best be served in a spirit of cooperation rather than the somewhat adversary position that I find this report puts us in.

In my personal defense, and particularly since I am receiving the report from you, I can't help but say that the conditions which led the General Assembly to take the actions it did in 1975 were created during your tenure and not mine. I could not possibly have prevented rates from going into effect through Commission inaction which happened during your tenure. Perhaps you couldn't either.

I STRUCTURE OF UTILITIES COMMISSION - No Comment

II COMMISSION JURISDICTION AND AUTHORITY - No Comment

III STRUCTURE OF UTILITIES COMMISSION STAFF - No Comment

IV FUNCTION OF COMMISSION AND STAFF

A. Rates.

There is an inference that the professional staff's independence is somewhat compromised by the "Commission". I would be interested in knowing if you know of a specific instance of this, since I know it to be our present policy to maintain this independence.

Your report does a good job in this section of pointing out some of the complexities faced by utilities regulators.

B. Service.

No comment.

C. Planning.

I agree in general with your comments on planning. I'm not sure that the framers of the 1963 Legislation had the same thing in mind as the framers of the 1975 Legislation, for good reasons. The 1963 language, to wit, "to foster a statewide planning and co-ordinating program to promote continued growth of economical public utility services", (emphasis added) was made during a period of decreasing marginal cost wherein added growth improved the economies of scale and resulted in lower rates. By 1975, this situation had

changed drastically to a period of increasing marginal cost wherein growth resulted in higher rates. I agree with the report wherein it states that "the 1975 General Assembly took cognizance of these circumstances in addressing the problem of growth in the electric utility industry"; and I also agree that this action was timely.

I am not in a position to agree or disagree with your assessment of the actions, or lack of actions, on the part of the Commission from 1963 through June, 1975. Apparently it was inadequate in the eyes of the 1975 Legislature.

I sincerely think it is appropriate that the Review Committee exercise its function of reviewing the present Commission and its actions or lack of actions in light of the current legislation on the books and in the light of the current conditions in the public utility industry.

V. AREAS OF PARTICULAR CONCERN WITH REGARD TO STRUCTURE AND FUNCTIONS OF COMMISSION AND STAFF

A. Commission.

Most of this section deals with the series of events leading up to the passage of the 1975 Legislation resulting in the expansion of the Commission and its staff and institution of the panel system. I would say that the major objective of more timely decisions in rate cases, which precludes the necessity of interim increases in most instances, has been met with great success and the panel system is working well.

I was amused by the inference in the report that the actions of the "lay" members of the Commission in presiding were burdensome to counsel, parties and the Commission alike. I only hope the legal profession is capable of bearing this onerous burden to the extent

that some professions such as accounting, economics and engineering (in which lawyers might be laymen) can bring their judgments to bear in considering the complex issues that come before the Commission. Of course, the test of our ability to handle the legal aspects of court procedure comes in the Court of Appeals where the legal rights of all parties are protected. In other words, there is an efficient protective procedure in place, and working well, wherein procedural legal errors can be and are corrected by learned jurists. There is no such appeals procedure in place to correct errors in judgment based on accounting, economic or engineering principles. To exclude these areas of knowledge at the Commission level would do great damage to the regulatory process.

B. Staff

I agree with your comments with respect to the transportation inspectors.

I would like to withhold comments on the proper function of the Commission staff at this time since the report makes no other specific recommendations on this matter.

I do take issue with the inference that the Commission uses and directs the staff at its whim. It is references such as this that makes me react adversely to this report. I believe the best interests of the people of the State can be served if the Commission and the Review Committee can work together in a spirit of cooperation rather than as adversaries.

VI. AREAS OF PARTICULAR CONCERN WITH REGARD TO RATES AND SERVICES OF PUBLIC UTILITIES

A. Electric Power Companies.

1. General Comments. I agree with report.

2. Fuel Clauses. I do not believe your information is correct in all respects

A. Electric Power Companies. - (Continued)

2. Fuel Clauses. - (Continued)

on this issue. The Committee may be guilty here of its own accusations of reaching conclusions without investigation.

3. Interim (Emergency) Rate Increases.

My concern here is the mere fact that the Committee instituted a "hearing" to review a decision of the Commission even though that decision had not been appealed through the courts, which I feel is the proper tribunal to determine if the law was being observed.

I also feel that any attempt by a legislative body to define "emergency" can only be restrictive in nature and take away any flexibility that a future body of prudent Commissioners might have in handling unforeseen circumstances.

4. Peak-Load Pricing and Load Management.

These are matters currently before the Commission and it would not be proper to comment on these.

5. New Plant Construction.

This is related to (4) above.

6. Rates and Rate Increases.

No comment necessary.

7. Rate Design.

I agree with your comments with respect to cost of service studies and life-line rates.

B. Nuclear Power.

Related to matters under current consideration.

SPECIFIC RECOMMENDATIONS:

1. Change "Fair Value" to "Original Cost" in Rate Base Determination. I agree with the position of the Committee.

2. Fuel Clause Hearings. I do not agree with your findings but agree generally with your conclusions.

3. Energy Forecast Investigation and Hearings. I agree in general with your conclusions. Since we have no "public relations", mechanism, it is difficult to broaden our methods of publicizing these matters. The need to do so is there, however.

4. Management Audit of Utilities Commission. I agree with the conclusion to have the audit made but I feel it would be more objective if the Legislature itself contracted for the audit to remove any question of impropriety.

5. Reports from the Utilities Commission to the General Assembly.
I agree that such a report should be made on request, however, I see no need for a law to require it when the same objective can be reached with a simple request.

6. I would like to propose for your consideration an additional recommendation for legislative action.

   The gross receipts tax in North Carolina at 6% is perhaps the highest in the nation and far exceeding the national average. Well over $100,000,000 is extracted from the citizens of North Carolina under the label of utility costs when in reality it is an added tax similar to a sales tax. The equivalent tax in approximately half of the states is less than 1%. There are also some possible inequities in the distribution of these revenues which tend to subsidize property owners in the cities and towns.

I have not made a complete study of this matter but it is one certainly deserving consideration. If it is the will of the Legislature to do something to lower the high costs of utility services, this is an area in which it can grant quick, concise and welcome relief to users of utility services.

I have some further thoughts and information on this subject if you wish to pursue it.

I do appreciate this opportunity to comment on the report. I hope my comments will be helpful and that they will be received in the spirit of cooperation that they are given.

Sincerely,

Lester

W. Lester Teal, Jr.
Commissioner

WLTjr:bbs

cc: Representative J. P. Huskins
Senator Wesley D. Webster
Representative Thomas J. Baker
Senator Jack Childers
Senator J. J. Harrington
Representative George W. Miller, Jr.

State of North Carolina
Utilities Commission
Raleigh 27602

February 1, 1977

The Honorable Hugh A. Wells
Counsel - Legislative Utility
Review Committee
Legislative Building
Room 1414
Raleigh, North Carolina 27611

Dear Hugh:

I have read the "Initial Report of the Utility Review Committee..." with interest and respectfully submit the following comments on the Committee's specific recommendations:

1. I agree that using "fair value" in rate base determination should be discarded.

2. A very thorough audit is performed by the Commission Staff with respect to each application for a fuel clause adjustment whether the adjustment reflects an increase or decrease. Regular investigations of fuel procurement practices are conducted by the Staff. The recent independent management audits applicable to Duke and CP&L included an investigation of the fuel procurement practices and policies of these firms.

It seems to me that a detailed exchange of information between the Commission and the Utility Review Committee is appropriate to determine specific measures not yet undertaken that may bring real benefits to the consumers.

3. The Commission can and will broaden the scope of the energy forecast investigation beyond that undertaken so far. I would agree that the statute is not confining.

4. I do not quarrel with a management audit of the Commission and its Staff. I believe however that such an audit should be done on the initiative of the General Assembly by a firm or agency selected by the General Assembly or Governor so as to avoid actual or perceived influence by the Commission upon the findings and recommendations.

5. As a part of its biennial (sometimes annual) budget request procedure the Commission along with other state agencies prepares reports of its activities and programs. In addition, these reports make an effort to forecast the level of future activity. It would seem better to refine this reporting to satisfy the needs of the General Assembly than to complete in another time frame a subsequent report containing information which will be to a large extent the same.

Miscellaneous

I think it is useful to have a mix of disciplines on the Commission. My personal experience leads me to value the additional enlightenment that varied backgrounds do bring to the issues. Surely this statement need not be taken as a lack of appreciation for the skills of any one profession.

Thank you for the opportunity to respond to the thoughts of the Utilities Review Committee.

Sincerely,

Scott

W. Scott Harvey

WSH/mc

cc: Members of the Utility
Review Committee