ADDENDUM

THE PUBLIC SERVICE COMMISSION 1983 TEN-YEAR PLAN

(1983-1992)

OF

ELECTRIC UTILITIES OPERATING IN MARYLAND

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INTRODUCTION

This Report constitutes the Public Service Commission 1983 Ten-Year Plan (1983-1992) of electric utilities operating in Maryland. It is submitted to the Secretary of the Department of Natural Resources in compliance with Section 54B(b) of Article 78 of the Annotated Code of Maryland. This statutory Section appears as Attachment No. 1.

This Report consists of two parts. Part I, Proposed and Planned New Power Units, presents the long range plans of electric utilities operating in Maryland for the construction of new power units within the State. Part II, Energy Conservation and Alternative Energy Sources, presents information on current and planned efforts by Maryland electric utilities and the Public Service Commission on energy conservation programs and use of alternative energy sources. Part II is a new section mandated by amendments to Section 54B(b) enacted by the 1982 General Assembly. It will appear in subsequent annual reports of Ten-Year Plans prepared by the Commission.

PART I: PROPOSED AND PLANNED NEW POWER UNITS

1. INTRODUCTION

This Part I of the Public Service Commission's 1983 Ten-Year Plan, Proposed and Planned New Power Units, presents information on new electric power plants, including associated transmission routes, to be built within Maryland. These plans are based on long-range plans submitted annually by the individual electric utilities with supporting analyses and information by the Engineering Division of the Commission. However, the Commission has made no review of the methodologies used by the utilities nor of the underlying assumptions made by them.

Although the primary thrust of Part I is on new electric generating plants planned within the state, it is recognized that three of the four major electric utilities operating in Maryland are multi-jurisdictional. Planning by each of these utilities is on a company-wide basis in order to provide adequate generation capacity to meet the needs of all their customers, irrespective of their jurisdiction. For this reason Part I provides data on projected system demands and on new generation planned outside Maryland. Also, each of the four major utilities currently have partial entitlements to both capacity and energy generation at some generation stations. These entitlements are reflected in the data included herein.

The effect of unit retirements on planned available capacity is shown in the tables although specific units which are to be retired are not named. This information is available in the individual utility plans.

2. UTILITIES IDENTIFIED

The 14 retail electric companies presently operating in Maryland under jurisdiction of the Commission are listed in Attachment No. 2, according to type of ownership: investor-owned, municipally-owned, and customer-owned (i.e., cooperatives).

In addition, 2 non-retail electric companies own generation property in Maryland. They are:

1. Pennsylvania Electric Company owns a hydro-electric plant on the Youghiogheny River, Garrett County (Deep Creek Lake Reservoir) and an associated high-voltage transmission line into Pennsylvania.
2. Susquehanna Power Company, a wholly-owned subsidiary of Philadelphia Electric Company, owns the Conowingo hydro-electric plant on the Susquehanna River, Harford and Cecil Counties, and an associated transmission line. Operation of this plant is by the Susquehanna Electric Company under a long-term lease with the Susquehanna Power Company. Susquehanna Electric Company is also a wholly-owned subsidiary of Philadelphia Electric Company.

Of these 14 companies, only the 7 utilities listed below have future power plant siting interests in Maryland:

Baltimore Gas and Electric Company
Conowingo Power Company
Delmarva Power and Light Company
Easton Utilities Commission
The Potomac Edison Company
Potomac Electric Power Company
Southern Maryland Electric Cooperative, Inc.

Of these 7 companies, 2 companies, Conowingo Power Company and Southern Maryland Electric Cooperative, own no generation plant at the present time. Some of the other utilities have partial interests in generating plants outside the State.

3. 1983 TEN-YEAR PLANS BY COMPANY

General

The eight Plans reported herein reflect continued uncertainties on the part of the Maryland electric utilities in the demand for electricity and in the amount and type of additional generation capacity required to reliably meet that demand. The deep economic recession, sharply rising costs of new generation plant and increased awareness of the need for energy conservation have forced the utilities to reconsider their plans for additional capacity, and to defer the operational date of units already approved.

Continuing to cloud the nuclear option has been the 1979 accident at Three Mile Island. During the past five years at least seventy planned nuclear units nationwide have been canceled or indefinitely deferred. Several others are in danger of cancellation because of escalating costs and a vanishing need for the extra power.

Utilities everywhere as well as in Maryland are assessing their existing generation mix; there is a shift in generation from oil-fired to coal-fired plants. This trend should reduce the need for the more expensive imported oil.

The estimates of peak demands in this report have been provided by the individual utilities and by the Power Plant Siting Program office. There has been no consideration of the assumptions made or the methodologies adopted by the utilities. It is anticipated that in the coming year the Public Service Commission will develop its own capability to make independent peak demand estimates.

A discussion of the individual company plans is provided below:

a. Baltimore Gas and Electric Company

In 1973, the Company was granted approval by the Commission to begin construction of two 620-MW coal-fueled steam units at Brandon Shores, near Hawkins Point, Anne Arundel County. Unit One is scheduled to be operational in May, 1984. The second unit will become operational in the fall, 1988. The operational date for Unit One is unchanged from last years' Plans. Unit Two was expected to become operational in January, 1988 in the Plans submitted last year.

Additional generation capacity is being planned as an extension to the Safe Harbor Water Power Corporation hydro-electric plant in Pennsylvania. This plant has a present capacity of 228-MW. It is located on the Susquehanna River, Lancaster County, Pennsylvania, approximately 20 miles upstream from the Pennsylvania-Maryland border.

The Safe Harbor Water Power Corporation is jointly owned by the Baltimore Gas and Electric Company and the Pennsylvania Power and Light Company. The entitlement to the present plant's capacity and energy is:

Baltimore Gas and Electric Company	152-MW	(66.67%)
Pennsylvania Power and Light Company	76-MW	(33.33%)
	228-MW	(100.00%)

The expansion approved by the Federal Energy Regulatory Commission will consist of 5 additional turbine units, each of 37.5-MW, for a total added plant capacity of 188-MW. Of this, Baltimore Gas and Electric Company would receive 125-MW.

Construction of two such additional units has already begun. Two units are expected to be in service by 1985 giving the Company a 50-MW increase, with an additional 25-MW capacity Company entitlement a

year later with the construction of a third unit.

The Company is considering the construction of a large coal-fired plant at its Perryman site in Harford County, Maryland, to become operational sometime between 1992 and 1996. The Company has awarded the Bechtel Power Corporation a contract to study the feasibility of several different technological options for such a plant. These options include a traditional coal-fired plant and two new technologies, an atmospheric fluidized bed combustion plant handling a coal and limestone mix, and a coal gasification plant.

Also being considered for the post-2000 era is a pumped storage plant. Company studies have shown this technology to be an attractive way to generate power during times of peak demand. A likely site would be in Pennsylvania near the present Safe Harbor hydro-electric plant, with joint participation with another utility.

Baltimore Gas and Electric Company has been granted Commission approval for the conversion of each of the two 192-MW units at its Charles P. Crane station in Baltimore County from oil-fired capability to coal-fired capability. This station was originally designed for and did burn coal but was converted to oil in the early 1970's. The startup of commercial operation with coal is expected during mid-1983.

The Company expects to receive an additional 47-MW capacity in the fall of 1985 from a proposed waste incinerator plant. This incinerator is to be built by the Northeast Maryland Waste Disposal Authority on the present site of Baltimore City's pyrolysis facility on Russell Street. A contract between the Company and the Northeast Maryland Waste Disposal Authority has been signed. At the time of the writing of this report, December 1982, the pyrolysis plant is being demolished.

Attachment No. 3 lists the Company estimates of its peak load, generating capacity (including unit retirements at its Westport Station), and reserve estimates over the 1983-1992 decade.

b. Conowingo Power Company

The Conowingo Power Company is a wholly-owned subsidiary of The Philadelphia Electric Company. Conowingo Power Company is operated as an integral part of the Philadelphia Electric system, and so enjoys the benefits of being part of the larger system and of the PJM Interconnection, of which Philadelphia Electric is a member.

Almost all of the Philadelphia Electric system generation plant is located in Pennsylvania. Its sole generation plant in Maryland is the Conowingo hydro-electric plant on the Susquehanna River in Maryland. It's capacity of 474-MW represents about 7% of the Philadelphia Electric's total installed capacity.

Philadelphia Electric Company owns two sites in Maryland which could be used for future power plant development. The Canal site, located on the Chesapeake and Delaware Canal approximately one mile west of Chesapeake City, Cecil County, Maryland, has 680 acres.

The other site, known as Seneca Point, contains approximately 560 acres. The Seneca Point site is located on the west bank of the Northeast River, approximately one mile southwest of Charlestown, Cecil County, Maryland.

There are no plans for Philadelphia Electric Company to start construction on either of the above sites within the next ten years.

The peak load as projected by Conowingo Power Company over the period 1983 to 1992 is listed on Attachment No. 4.

c. Delmarva Power and Light Company

In 1981 the Public Service Commission granted the Company a Certificate of Public Convenience and Necessity for the construction of a 550-MW coal-fired steam generating unit as an extension to its existing generation plant Unit No. 8, at Vienna, Dorchester County, Maryland. This new unit, known as Vienna No. 9, will be situated on 855 acres. The Company anticipates shared ownership with other utilities.

In the Company's Plan of last year Vienna No. 9 was to become operational in 1990 with actual construction to begin in 1986. Construction is now expected to begin in 1991 with commercial operation by 1995.

The principal reason cited by the Company for this 5-year deferral in Vienna 9 and the stoppage of all current capital investment on the project is that "growth of electricity for the late 1980's anticipated in the late 1970's and early 1980's no longer appears reasonable."

Both the Company Edge Moor Units 1 and 2 are planned to be permanently retired from service in July 1983. Present plans for these units, each 70-MW, call for their possible reactivation if new technologies emerge that will allow use of an economical fuel while still meeting environmental restrictions.

Attachment No. 5 lists the peak loads, system-wide and Maryland, total installed capacity and reserve margins as projected by Delmarva Power and Light Company out to 1992.

d. Easton Utilities Commission

In previous years' Plans the Easton Utilities Commission had proposed additional generation of 12.5-MW at its Plant No. 2 with commercial

start-up in 1990. In this years Plan such expansion has been deleted for the period 1983-1992.

The Easton Utilities Commission owns approximately 200 acres along the Choptank River at the site of its wastewater lagoon. This location could serve as a possible generating site in the future.

Growth in Easton's peak demand is estimated as shown on Attachment No. 4.

e. The Potomac Edison Company

The Potomac Edison Company is one of three operating subsidiaries of the Allegheny Power System. Potomac Edison together with its sister utilities, Monogahela Power Company and West Penn Power Company, are operated as one integrated power system with centralized dispatch and control out of Charlerot, Pennsylvania. Most of the generation facilities of the Allegheny Power System are located in Pennsylvania and West Virginia. Potomac Edison has just one power plant in Maryland, the R. Paul Smith Station, Williamsport. Potomac Edison serves customers in Maryland, Virginia and West Virginia.

The Potomac Edison Company owns one site in Maryland for possible future power generation. This site, containing 829 acres, is approximately 2 miles downstream from the town of Point of Rocks, Frederick County, Maryland on the north side of the Potomac River. This site is one of several sites which are being evaluated for a coal-fired station. There is no commitment for an in-service date.

West Penn Company has acquired approximately 1500 acres of a 3000 acre site in Armstrong County, Pennsylvania for use as the location

of a future coal-fired power station. It is located about 7 miles northwest of the borough of Kittanning. There is no commitment for an in-service date. Potomac Edison may be part owner of such a station if and when it is built.

Member utilities of the Allegheny Power System have approval to participate with the Virginia Electric and Power Company in its 2100-MW pumped-storage plant being built at Bath County, Virginia. Level of participation by APS would be 20% ownership plus 20% use, with the option to increase participation to 50% upon approval. Present schedule calls for 420-MW for APS in 1985 and an additional 420-MW in 1986. Potomac Edison's ownership interest in the 840-MW is 28%, equivalent to 235-MW.

Several other potential power generating sites in western Maryland have been identified. The Maryland Power Plant Siting Program is currently performing a Western Maryland Power Plant Siting Study to identify and purchase a power site for possible future use by Potomac Edison Company. The site selected would burn coal. However, there is no commitment at this time for an in-service date.

Estimates of Potomac Edisons peak load, both system-wide and Maryland, out to the 1992-1993 winter, are listed in Attachment 6. The Company's installed capacity and installed reserve margin are also shown. Potomac Edison is a winter-peaking utility.

f. Potomac Electric Power Company

The Company's Chalk Point Unit No. 4, representing 612-MW of installed capacity, began operation in the early part of 1982.

Plans by the Company continue to show a possible 300-MW coal-fired unit for construction at its Dickerson site. In-service date has been tentatively identified as 1993. Previous plans suggested a start-up

date as early as 1990, if needed. However, the Company now believes that 1993 will be the earliest in-service date.

A possible 2000-MW pumped storage hydro-electric plant is continued to be listed in the Company plans. Its location is undetermined as well as its in-service date. The plant would likely be a joint venture with one or more other utilities.

The projected peak load, installed capacity, and reserve through 1992, as estimated by Potomac Electric Power Company, are shown on Attachment No. 7. The Maryland demand component, which includes the Southern Maryland Electric Cooperative, is also listed on this Attachment. Southern Maryland Electric Cooperative purchases all of its electricity from PEPCO.

g. Southern Maryland Electric Cooperative, Inc.

The Cooperative owns a 300 acre site on the Patuxent River, St. Mary's County. This site, known as the De La Brooke Farm, is considered for possible future generation. However, no plans have been made for such use.

Attachment No. 8 lists peak load estimated through 1992 by the Cooperative.

4. PROJECTED GROWTH IN PEAK DEMAND IN MARYLAND

A summary of the expected average annual growth rates in peak demand by utility is provided by Attachment No. 9. Corresponding data for the two previous Ten-Year Plans are also shown on this Attachment. Attachment No. 10 is a bar chart of these latest growth rate estimates.

Several observations of this data are noteworthy:

1. Baltimore Gas and Electric Company, the largest electric utility in Maryland, has again revised downward its annual growth in peak demand to 2.0%. Last year the Company projected a 2.7% growth per year. At a 2.0% level of growth the demand will double in 25 years.

2. Potomac Electric's growth estimates are again at the low end of the range of utilities' estimates. It's projections of 1.0% (Maryland) and 1.2% for the entire Company system remain unchanged from its estimates made last year.

3. Although Potomac Edisons' estimates for its system is somewhat lower this year, 3.0% as compared to last year's figure of 3.2%, its projections for its Maryland component reflects an increase, 3.0%,over its estimate of 2.6% made in 1981.

4. Delmarva Power and Light Company supplies virtually all the electricity on the eastern shore, through both retail sales and wholesale sales to other utilities. Delmarva is now projecting an annual growth in demand, system-wide, of 1.9%, below the 2.4% figure last year. However, for only Maryland, the annual demand growth is now estimated at 3.1%, up from the 2.2% projection in 1981.

For the state as a whole the projected peak demand is expected to grow at an annual rate of 1.9% over the next decade. This is reduced

from the 2.2% growth rate projected for Maryland by the utilities last year.

In summary the two major metropolitan utilities in the state are estimating a decrease or no change in growth in peak demand from 1981. In contrast the principal utilities serving Maryland's eastern shore and the western part of the state have reason to believe growth rates will be above last year's estimates.

5. ASSOCIATED TRANSMISSION LINES

The transmission lines associated with the construction of new generating stations will generally operate at 115-KV and higher voltages. They will require rights-of-way widths of 150 to 300 feet. An "associated transmission line", with respect to Section 54B of Article 78, refers to the means of transporting electric power from a power plant to one or more points on an existing transmission system. Such lines are often called "generation leads". There are also "transmission lines", with respect to Section 54A of Article 78, which are not "generation leads" but rather they provide substation-to-substation bulk power transmission for increased capacity or reliability purposes. In any of these instances, the long-range need and probable capacity of a future transmission line can be determined from extensive system studies. However, the actual route and often the actual terminal location(s) of a line can be established only after subsequent years of planning and surveys.

Lines planned for possible construction at later dates and in particular the "associated transmission lines" for new power plants cannot be defined as to specific siting. However, general planning information regarding terminal points, voltage levels and dates to the extent possible is contained in the individual plans submitted by the major companies.

6. POWER PLANT SITING PROGRAM PROJECTIONS OF UTILITY PEAK DEMANDS

The Power Plant Siting Program of the State Department of Natural Resources has prepared its own forecasts of the annual peak demand for the four major Maryland utilities out to 1993.

These projections are listed in Attachment No. 11. Also listed on this Attachment are the average annual compound growth rates that are expected in this time frame. It should be noted that PEPCO is expected to have a growth in peak demand of only 0.8% per year. For the other utilities this growth is projected to be between 3.1% and 3.4% per year.

7. MAAC PROJECTED PEAK LOAD AND ENERGY GROWTH RATES

The area served by the Mid-Atlantic Area Council (MAAC) of the North American Reliability Council (NERC) coincides with the Pennsylvania-Jersey-Maryland(PJM) Interconnection service area. With the exception of western Maryland all of the state is in MAAC.

Statistics for MAAC are:

population served, 21.8 million

number of customers, 7.7 million

area served:

all of Delaware and District of Columbia

New Jersey (97%)

Pennsylvania (75%)

Maryland (60%)

Virginia (1%)

In NERC's 12th Annual Review of Overall Reliability and Adequacy of the North American Bulk Power Systems (August, 1982) MAAC's peak demand is expected to grow at an average annual rate of 1.9% for the 1982-1991 time period, below last year's forecast of 2.4%. The region is expected to remain summer peaking throughout this period. Crossover to winter peaking is expected around the year 2000.

These data are included to help place the Maryland data in perspective.

PART II. ENERGY CONSERVATION AND ALTERNATIVE ENERGY SOURCES

1. Introduction

Chapter 462 of the Acts of 1982 amended Section 54B(b) of Article 78 to mandate that the Public Service Commission shall evaluate the cost-effectiveness of conservation activities being conducted by Maryland's electric utilities. Therefore, beginning this year, the Public Service Commission directed Maryland's electric utilities to supplement their generation and transmission planning reports with information on conservation activities being conducted. Specifically, each utility was requested to provide descriptions of activities in six areas:

- Aid to customers in conserving electricity
- Utilization of cogeneration and/or waste-derived generation
- Utilization of renewable energy resources, such as wind and solar
- Public promotion of energy conservation
- Direct control of customer load
- Implementation of rate structures which promote conservation, such as seasonal rates or time of day rates.

In addition to describing each activity, the utilities were asked to provide data on the costs of the activity, the expected impact on the utility's load, and the expected dollar benefits resulting from fuel costs savings or the deferral of new construction. Most utilities stated that they presently were not able to determine the impact of conservation programs upon their load. Without this information, estimates of benefits cannot be made. However, some of the utilities do have in progress

studies to calculate load impacts of certain activities. Also, additional general information on Residential Conservation Service (RCS) activities is available in the joint report of the Public Service Commission and the Maryland Energy Administration in response to HJR 94.

The following summaries of conservation activities reflect the information provided by each utility. It is recognized that the newness of the request for information and the timing of the request placed stringent time constraints upon the preparation of responses. The Commission expects that next year's responses will include program-by-program estimates of impacts upon each utility's load, capacity plans, and revenue requirements.

2. Baltimore Gas & Electric Company

BG&E initiated its home energy audit program in January 1981 and completed 3,511 audits that year; the company expects that more than 10,000 audits will have been performed by the end of 1982.

Other activities by BG&E in the area of customer conservation include the support of several weatherization programs, some of which are sponsored by the Baltimore City government and others by charities. BG&E's participation included both financial contributions and the loan of company equipment.

In the area of cogeneration and small power production, BG&E intends to purchase the electrical output of a 47 megawatt generating unit to be operated by the Northeast Maryland Waste Disposal Authority in Baltimore City; the unit's fuel is derived from waste material. BG&E also is involved in negotiations regarding a similar 20 MW facility at the Pulaski Highway Incinerator. In the area of renewable resources, BG&E is involved in negotiations for purchase of power from a new 500 kilowatt small hydro unit.

In addition to promotion of its residential audits, BG&E's efforts in the public promotion of conservation include bill enclosures, media advertising and mobile conservation displays.

The company has a load management study underway and has recently filed its report with the Commission. BG&E has seasonal rates in effect for all of its major rate schedules. The company is currently implementing a time of day rate test program for certain large customers.

3. Conowingo Power Company

Conowingo reports that a hundred and ten residential customers have applied for audits as of the end of September. The company anticipates that all of these audits will be completed by the end of the year. Expenses for the home audit program for 1982 are estimated to be $12,100.

Conowingo employs major account representatives who provide information on efficient energy utilization to large commercial and industrial customers, and business representatives, who perform similar duties for other customers. Conowingo estimates expenses for the Major Account/Business Representative program to be $43,700 for 1982.

Conowingo promotes energy efficiency standards in new construction and conservation measures in existing commercial and industrial structures, through a program called "National Energy Watch." Expenses for this program in 1982 were approximately $1,500.

The company has one new small power producer on line, a ten kilowatt low head hydro-unit. Negotiations are in progress with three other such customers. The company is of the opinion that industrial cogeneration potential in its service area is limited. Expenses for cogeneration and renewable resource activities are estimated at $32,000 for 1982.

Conowingo's activities in the area of public promotion of conservation include the distribution of bill enclosures, the operation of a mobile conservation display, and the development of conservation materials and

programs for schools. The company also maintains an appliance showroom at which information on the energy efficiency of various appliances is made available to the consumer. The center also promotes conservation devices, such as water heater insulation kits.

The company has time of day rates in effect for certain large customers. It also offers a low off-peak rate for water heating service, if the water heater is equipped with a timer or other device which limits its use to the hours prescribed by the company.

Conowingo provided estimates of the impacts of certain of its programs upon load. These are provided in Attachment No. 12.

4. Delmarva Power & Light Company

Delmarva's residential energy audit program began in March 1981 with the mailing of program announcements. The company reports that audits have been offered to 66,120 of the 80,000 Maryland residential customers and that 2.2%, or about 1,450 customers, have responded. Audits began in April of 1981 and will be completed by March of 1983. Then the program will be repeated, beginning with a new series of announcements.

Program costs for the Maryland jurisdiction for the first seven months of 1982 were $219,292. The company anticipates that, upon completion of the program in 1985, summer peak load will have been reduced by four megawatts.

The company is also promoting energy efficiency standards for new residential construction. The program is offered to all new home buyers on the Delmarva Peninsula, including those in areas served by municipals or cooperatives rather than by DP&L. Since the program's inception in 1982, ten Maryland homes have been certified and ten others are under construction. Expenditures for the program in Maryland were $29,666 as of August 1982.

Delmarva has a cogeneration and small power producer tariff. Two four-kilowatt windmills are presently operating in Maryland under this tariff. According to the company, the costs of its cogeneration activities are negligible.

The company recently conducted a study of load control for water heaters and air-conditioners, at a total cost of approximately $1 million. Based upon preliminary results of the experiment, the company estimates that a full scale load program would cost Maryland approximately $9.5 million and would reduce Maryland's portion of the system peak by seventeen megawatts. The company states that this could allow the deferral of some generation capacity, but has not estimated the benefits of such deferral.

Delmarva presently has seasonal rates in effect in Maryland and has proposed time of use rates for its commercial and industrial customers. The company is currently estimating the probable conservation response to this rate.

5. Potomac Edison Company

Potomac Edison has been conducting energy audits for four years. The company has performed audits for a hundred and thirty-eight commercial and industrial customers, of which fifty-seven are in Maryland, since the program's inception. From July 1981 to date audits of 1,070 residential customers, of which 810 are in Maryland, have been conducted.

Potomac Edison is conducting a number of other programs in the area of customer conservation. These include the promotion of energy efficiency standards for new electrically heated construction, promotion of increasing insulation, water heater jackets, high efficiency air-conditioning and appliances, and heat pumps.

The company does not isolate the cost of each program. It estimates the 1982 system-wide costs for the above programs to be $628,630.

Potomac Edison presently has four cogeneration customers and has surveyed industrial customers to determine the extent of further co-generation potential. The company is of the opinion that such potential is not sufficient for cogeneration to have a significant effect upon capacity planning. The company states that the costs of its cogeneration activities "are not readily available."

In the area of renewable energy sources, Potomac Edison is monitoring the performance of four small wind generators installed by customers. The company is also studying possible installations of a new small hydro-electric plant and an experimental solar generator.

The company's activities in public promotion of conservation include the distribution of conservation materials to educational institutions and community groups, as well as ratepayers. The company estimates the 1982 materials costs of these activities to be $22,400.

Potomac Edison conducted an experimental project involving control of residential heating load. The company concluded that, owing to PE's high load factor, the shifting of this type of load would not offer significant benefits. However, a recent study performed for the Commission staff indicated that load management does have significant potential net benefits to the PE system, and recommended that a more detailed study be made. PE does have another experimental project underway; the current project involves control of water heaters.

PE states that its costs do not vary significantly by season or by time of day; therefore, the company is not planning any experiments with seasonal or time of day rates.

PE states that the impacts of certain programs, such as the public promotion of conservation, are difficult to calculate. However, the company does have projections of the impact of its customer conservation programs (see Attachment No. 13). The company states that it is working on cost benefit analyses of these activities, and of its activities in the renewable resource area.

6. Potomac Electric Power Company

PEPCO is conducting several types of customer conservation activities. The company initiated residential energy audit programs in January 1978 and has performed 3,000 "in-house" audits for Maryland customers in the following four and a half years. The company also conducts a "Do-It-Yourself" audit program in which the customer completes and returns an audit questionnaire. PEPCO then provides the customer with a report which lists recommended conservation improvements, their estimated costs and the estimated energy savings. Seventy-two hundred Maryland customers have taken part in this program from January 1978 through June 1982.

The company also conducts building audits for commercial customers. Approximately fifty large customers and a hundred small customers are audited each year in PEPCO's Maryland territory. PEPCO reports 1981 costs of $242,000 for its professional audit program, $45,000 for the Do-It-Yourself program, and $63,500 for the commercial customer program. PEPCO states that it currently has no reliable estimate of the effect of these programs upon its peak and energy requirements, but that data collection is underway to develop the capability for making such estimates. The company states that it has no estimates of dollar benefits of these programs.

In the area of public promotion of conservation, PEPCO makes available to its residential customers various brochures regarding weatherization, appliances, etc. For 1981, these brochures

were prepared at a cost of $49,000. For certain commercial customers PEPCO distributes a newsletter containing conservation information. This newsletter costs approximately $5,000 per year. In addition, the company states that almost 55% of its advertising expenditures, or $437,000, are devoted to encouraging conservation.

PEPCO states that it has not studied the impact of these programs upon its peak load and energy demand.

PEPCO's activities in the areas of cogeneration, renewable energy sources and load management are largely in the experimental stage. PEPCO is conducting experiments with solar heat pump systems and wind generators. The company has a cogeneration/small power producer tariff. Only one customer, a 1.8 kW windmill, has been connected; the company states that the cogeneration potential within its service area is minimal owing to the lack of industrial facilities.

In the area of load management, PEPCO is conducting experiments with radio control of residential air-conditioners and water heaters. The current program involves 650 Maryland customers at capital costs of $322,000. The company is also conducting an experiment involving reduction of load by large commercial customers; projected system-wide capital cost for this experiment are $1,000,000.

With regard to pricing strategies, PEPCO reports that it has had cost-based seasonal rate differentials in effect since 1970. At

present most of the company's rate schedules contain such differentials. The company is proposing to implement time of day rates for its largest customers in both the residential and commercial classes.

The company is of the opinion that seasonal rates are cost effective because benefits are attained with little or no additional cost over non-seasonally differentiated rates. Since time of day rates have not yet been implemented, the company is uncertain of the costs or load impact.

7. Cooperatives

Both of Maryland's two major cooperatives are providing residential energy audits. Choptank Electric Cooperative conducted approximately 600 such audits in 1981, at a cost of $46,000. Choptank states that it also promotes conservation through its monthly consumer publication. The cooperative is not presently implementing any programs in the areas of cogeneration or renewable energy sources. The cooperative investigated load control, but found that costs would exceed available funds. Seasonal rates are presently in effect on the Choptank system, and time of day rates are being investigated.

Choptank states that it has no information on the cost effectiveness of its programs.

Southern Maryland Electric Cooperative (SMECO) conducted 298 residential audits at a cost of approximately $50,000. SMECO has

contacted two potential cogenerators, but has not yet reached agreement with them. The cooperative states that it has investigated wind, solar and water power but has not found them to be practical for its service area. Public promotion of conservation takes place through SMECO's advertising, its customer newsletter, and presentations to community groups.

SMECO has initiated a load control demonstration project involving air-conditioners and water heaters. It anticipates savings of one kilowatt per water heater and .8 kW per air-conditioner, but cautions that there is not yet sufficient information to determine the impact of a more extensive program.

SMECO does not believe seasonal rates would be appropriate, given SMECO's purchased power contract and load characteristics. The cooperative is currently conducting a test of time of day rates.

8. Municipal Electric Utilities

Although their programs are not as extensive as those of the large investor owned utilities, most of the state's municipal utilities do have some conservation activities underway.

Berlin has retained consultants to study the potential for utilizing waste material, such as landfill gas for electrical generation. The potential for utilizing geothermal energy for heating is also under investigation. Berlin is engaged in public promotion of conservation through bill enclosures and advertisements.

The Easton Utilities Commission has conducted energy audits for the past three years. Approximately two hundred audits were conducted during the 1979-1980 winter. Since then, Easton reports that requests for audits have numbered approximately fifteen per winter season. Audits are available to both the commercial and residential classes, but participation has been almost entirely residential. Easton estimates the costs of this activity to be approximately $60 per audit.

In the area of renewable resources, Easton is participating in a solar-assisted heat pump demonstration project. Easton has also investigated the potential for wind energy, but concluded that average windspeeds in its service area are insufficient.

In 1979, Easton installed a generating unit which utilizes what had been waste heat from other generating units.

Hagerstown apparently does not have any conservation programs underway. However, the city reports that it is considering a load control project and the distribution of conservation pamphlets.

Thurmont distributes conservation materials to its customers.

Williamsports' sole conservation activity is the performance of residential inspections in cooperation with the State's Ecomonic and Community Development Department. Six residential customers took part in the program.

FURTHER INQUIRY

In the event further information is needed in connection with this report, such as by other state agencies, the request should be directed by writing to Mrs. Gloria Jimenez, Executive Director for the Commission. Specific information requests of an engineering nature and comments on Part I should be directed to Mr. John W. Dorsey, Chief Engineer. Questions or comments concerning Part II should be directed to Mr. Anthony Fest, Rate Design Analyst.

ATTACHMENTS

ATTACHMENT NO. 1

SECTION 54B(b), ARTICLE 78 OF THE
ANNOTATED CODE OF MARYLAND

§ 54B Consolidated public hearing long range plans and establishing an environmental surcharge on generated electric energy notice to landowners over whose property company intends to run line, etc.; purchase of power plant site by State.

(a) .....

(b) (1) In cooperation with the Secretary of Natural Resources as set forth in § 3.301 of the Natural Resources Article of the Code, the Commission shall be responsible for assembling and evaluating annually the long-range plans of Maryland's public electric utilities regarding generating needs and means for meeting those needs. The chairman of the Public Service Commission shall, on an annual basis, forward to the Secretary of Natural Resources a ten-year (10) plan listing possible and proposed sites, including associated transmission routes, for the construction of electric power plants within the State of Maryland. Sites which are identified as unsuitable by the Secretary of Natural Resources in accordance with the requirements of § 3.301 of the Natural Resources Article of the Code shall be deleted from the plan, provided, however, nothing in this subsection shall prevent the inclusion of such site in subsequent ten-year (10) plans. The chairman of the Commission shall include information in the annual 10 year plan on current and projected efforts by public electric utilities and the Commission to moderate overall electric generation demand and peak demand through utility promoted energy conservation by customers and through utility use of alternative energy sources, including cogeneration.

(2) The Commission shall evaluate the cost-effectiveness of the utilities' investment in energy conservation to reduce electrical demand and in renewable energy sources to help meet electrical demand. The evaluation of investments shall include:

(i) The utilities' promotion and conduct of a building audit and weatherization program including low or no interest utility financing for the installation of energy conservation materials and renewable energy devices;

(ii) Utilization of renewable energy sources;

(iii) Promotion of and utilization of electricity from cogeneration and wastes; and

(iv) Widespread public promotion of energy conservation programs.

(3) The first ten-year (10) plan shall be submitted on or about January 1, 1972.

ATTACHMENT NO. 2

RETAIL ELECTRIC COMPANIES OPERATING IN MARYLAND

NAME	ADDRESS	TELEPHONE NO.
Investor-Owned		
Baltimore Gas and Electric Company	Gas and Electric Building Baltimore, MD. 21203	234-5000
Conowingo Power Company	211 North Street Elkton, MD. 21921	398-1400
Delmarva Power and Light Company	P.O. Box 1739 Salisbury, MD. 21801	749-6111
Potomac Edison Company, The	Downsville Pike Hagerstown, MD. 21740	731-3400
Potomac Electric Power Company	1900 Pennsylvania Ave., N.W. Washington, D. C. 20006	(202)872-2449
Municipally-Owned		
Berlin, Mayor and Council of	P. O. Box 235 Berlin, MD. 21811	641-2770
Easton Utilities Commission The	11 S. Harrison Street Easton, MD. 21601	822-6110
Hagerstown Municipal Electric Light Plant	Hagerstown, MD. 21740	731-2600
Thurmont Municipal Light Co.	P. O. Box 385 Thurmont, MD. 21788	271-7313
Williamsport, Mayor and Council of	Williamsport, MD. 21795	223-7711
Customer-Owned		
A and N Electric Cooperative	Parksley, Virginia 23421	(804)665-5116
Choptank Electric Cooperative, Inc.	P.O. Box 430 Denton, MD. 21629	479-0380
Somerset Rural Electric Coop., Inc.	P. O. Box 270 Industrial Park Somerset, Pennsylvania 15501	(814)445-4106
Southern Maryland Electric Coop., Inc.	Hughesville, MD. 20637	274-3111

ATTACHMENT NO. 3

PROJECTED PEAK LOAD, CAPACITY, AND RESERVE ESTIMATES
BALTIMORE GAS AND ELECTRIC COMPANY

YEAR	PROJECTED CONTRACT* LOAD (MW)	TOTAL INSTALLED CAPACITY, (MW)	INSTALLED RESERVE MARGIN (PERCENT)
1983	4200	5025	19.6
1984	4290	5594	30.4
1985	4410	5644	28.0
1986	4500	5766	28.1
1987	4590	5708	24.4
1988	4680	5708	22.0
1989	4780	6328	32.4
1990	4870	6328	29.9
1991	4960	6328	27.6
1992	5040	6260	24.2

Average Annual Compound Growth, Percent, 2.0 in Peak Load

*Contract load represents the total demand on the Company including only that part to Bethlehem Steel which cannot be supplied by the Bethlehem generating capacity itself. The Company also reports a Group Load which represents the total electrical requirements of the Company and of Bethlehem Steel.

ATTACHMENT NO. 4

PROJECTED PEAK LOADS

CONOWINGO POWER COMPANY
EASTON UTILITIES COMMISSION

YEAR	PEAK LOAD(MW) CONOWINGO	EASTON
1983	97	26.0
1984	100	26.6
1985	102	27.2
1986	105	27.8
1987	107	28.4
1988	110	29.1
1989	113	29.7
1990	116	30.4
1991	119	31.1
1992	122	31.8
Average Annual Compound Growth	2.6%	2.3%

ATTACHMENT NO. 5

PROJECTED PEAK LOAD, CAPACITY AND RESERVE ESTIMATES

DELMARVA POWER AND LIGHT COMPANY

	SYSTEM			MARYLAND COMPONENT
YEAR	PROJECTED PEAK LOAD (MW)	TOTAL INSTALLED CAPACITY (MW) [1]	INSTALLED RESERVE MARTIN (PERCENT)[2]	PROJECTED PEAK DEMAND (MW)
1983	1,512	2,212	46.3%	365
1984	1,546	2,212	43.0	372
1985	1,581	2,262	43.1	380
1986	1,634	2,262	38.4	398
1987	1,632	2,156	32.1	413
1988	1,676	2,156	28.6	429
1989	1,712	2,156	25.9	443
1990	1,745	2,156	23.6	458
1991	1,770	2,156	21.8	469
1992	1,795	2,156	20.1	481
Average Annual Compound Growth	1.9%			3.1%

[1] Excludes Getty Refinery load served by Delaware City Units #1 and #2 and the dedicated portion of Unit #3 through 1986 and excludes all refinery load thereafter.

[2] Delaware City Units #1 and #2 and the dedicated portion of Unit #3 excluded through 1986 and Delaware City Units #1, #2 and #3 excluded thereafter.

ATTACHMENT NO. 6

PROJECTED PEAK LOAD, CAPACITY AND RESERVE ESTIMATES

THE POTOMAC EDISON COMPANY

YEAR WINTER OF	SYTSTEM PEAK LOAD (MW)	SYTSTEM INSTALLED CAPACITY (MW)	SYTSTEM INSTALLED RESERVE MARGIN (PERCENT)	MARYLAND COMPONENT PEAK LOAD (MW)
1983/84	1545	1835	18.8	1015
1984/85	1592	1835	15.3	1045
1985/86	1644	1952	18.7	1079
1986/87	1699	2070	21.8	1115
1987/88	1752	2070	18.2	1150
1988/89	1805	2070	14.7	1185
1989/90	1856	2070	11.6	1218
1990/91	1907	2196	15.2	1251
1991/92	1959	2196	12.1	1286
1992/93	2010	2322	15.5	1322
Average Annual Compound Growth	3.0%			3.0%

ATTACHMENT NO. 7

PROJECTED PEAK LOAD, CAPACITY, AND RESERVE ESTIMATES

POTOMAC ELECTRIC POWER COMPANY

YEAR	SYSTEM			MARYLAND COMPONENT*
	PROJECTED PEAK LOAD (MW)	TOTAL INSTALLED CAPACITY (MW)	INSTALLED RESERVE MARGIN (PERCENT)	PROJECTED PEAK DEMAND (MW)
1983	4000	5341	33.5	2182
1984	4058	5341	31.6	2214
1985	4105	5341	30.1	2235
1986	4153	5341	28.6	2254
1987	4208	5341	26.9	2280
1988	4259	5341	25.4	2309
1989	4302	5341	24.2	2326
1990	4355	5167	18.6	2344
1991	4397	5167	17.5	2362
1992	4439	5167	16.4	2380
Average Annual Compound Growth	1.2			1.0

*These data include Southern Maryland Electric Cooperative projected peak demand.

ATTACHMENT NO. 8

PROJECTED PEAK LOAD

SOUTHERN MARYLAND ELECTRIC COOPERATIVE, INC.

YEAR	PEAK LOAD (MW)
1983	272
1984	279
1985	288
1986	299
1987	308
1988	317
1989	327
1990	337
1991	347
1992	359

Average Annual Compound Growth, 3.1%

ATTACHMENT NO. 9

COMPARISON OF PROJECTED AVERAGE ANNUAL
COMPOUND GROWTH RATES IN PEAK DEMAND FOR ELECTRICITY
(PERCENT PER YEAR)

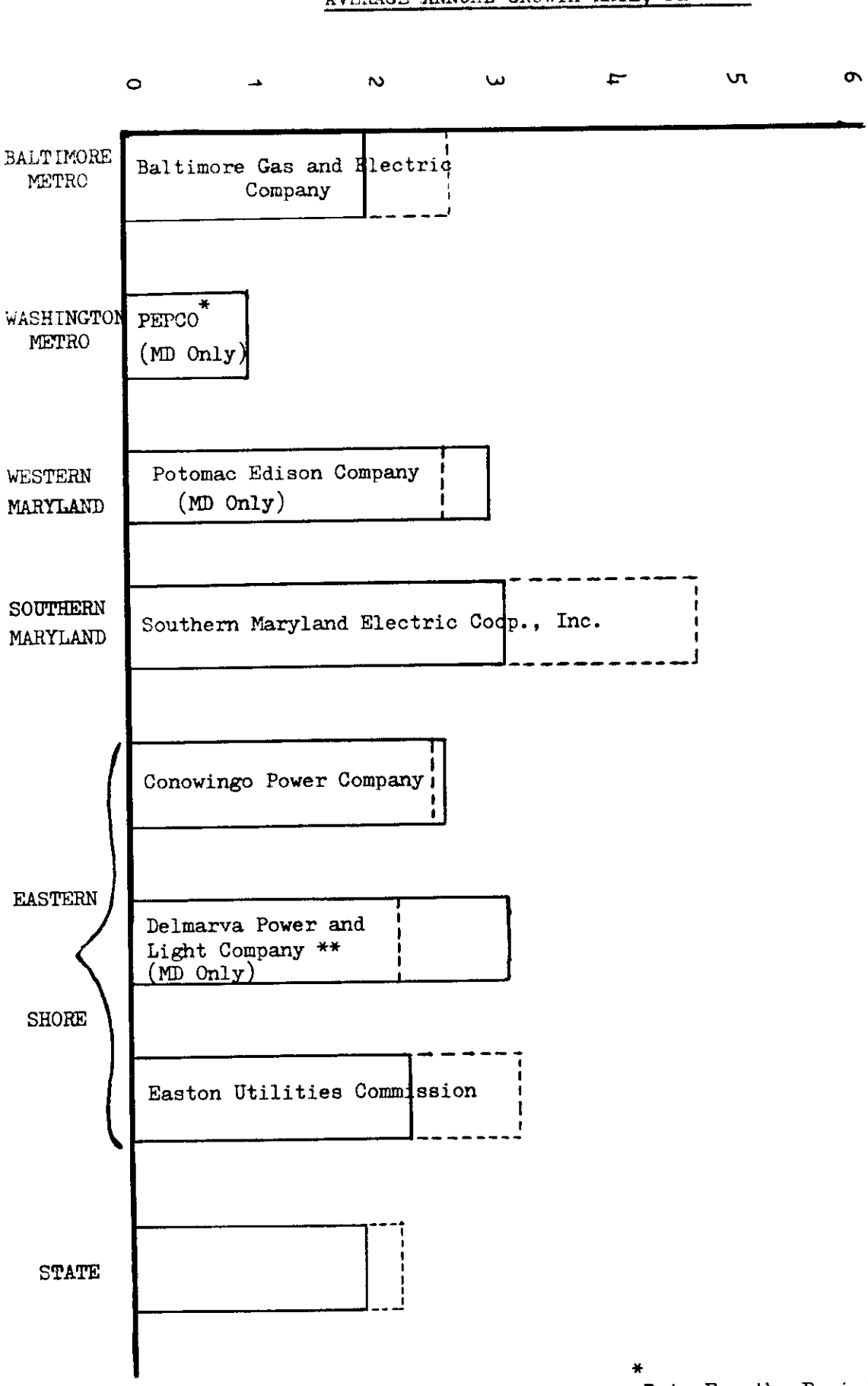
	1981 PLAN (1981-1990)	1982 PLAN (1982-1991)	1983 PLAN (1983-1992)
Baltimore Metro			
Baltimore Gas and Electric Company	3.0	2.7	2.0
Washington Metro			
Potomac Electric Power Company			
(Maryland Only)	1.2	1.0	1.0
(System)	1.2	1.2	1.2
Western Maryland			
Potomac Edison Company			
(Maryland Only)	4.3	2.6**	3.0
(System)	4.8	3.2**	3.0
Southern Maryland			
Southern Maryland Electric Coop., Inc.	4.8	4.7	3.1
Eastern Shore			
Conowingo Power Company	3.0	2.5	2.6
Delmarva Power and Light Company			
(Maryland Only)	3.8	2.2*	3.1
(System)	2.4	2.4*	1.9
Easton Utilities Commission	5.5	3.2	2.3
State		2.2	1.9

*(Average Over 1982-1989 Time Period)
**(Average Over 1981-1990 Time Period)

ATTACHMENT NO. 10

PROJECTED AVERAGE ANNUAL GROWTH RATES IN PEAK DEMAND BY UTILITIES 1983 - 1992 PERIOD

Dotted Lines Represent Projections Made In Last Year's Report



* Data For the Period 1981-1990 (Last Year)

** Data For the Period 1982-1989 (Last Year

ATTACHMENT NO. 11

POWER PLANT SITING PROGRAM PROJECTIONS
OF UTILITY PEAK DEMAND, 1982-1993 PERIOD
(MW)

Year	Potomac Edison*		Delmarva P & L**		Pepco	BG&E
	Total System	Md. Only	Total System	Md. Only	Total System	
1982***	1,544	988	1,619	454	4,284	3,882
1983	1,600	1,024	1,671	468	4,322	4,001
1984	1,657	1,061	1,728	485	4,358	4,132
1985	1,717	1,099	1,790	503	4,393	4,267
1986	1,775	1,136	1,844	518	4,420	4,406
1987	1,834	1,174	1,902	535	4,453	4,546
1988	1,895	1,213	1,963	553	4,486	4,688
1989	1,958	1,253	2,027	572	4,520	4,834
1990	2,023	1,295	2,094	592	4,554	4,983
1991	2,088	1,337	2,160	612	4,580	5,122
1992	2,154	1,375	2,229	634	4,623	5,262
1993	2,223	1,415	2,301	654	4,666	5,403
Average Annual Compound Growth Rate (Percent)	3.4	3.4	3.2	3.4	0.8	3.1

* Potomac Edison is a winter peaking utility. Figures listed are peaks for the winter ending in designated year. For example, 1982 refers to winter of 1981/1982.

** Data includes portions of the Dover, Delaware and Easton, Maryland loads served by Delmarva at the time of the annual peak.

*** 1982 figures are projected values.

ATTACHMENT NO. 12

ENERGY MANAGEMENT AND CONSERVATION PROGRAMS,
CONOWINGO POWER COMPANY

Most of Conowingo Power Company's energy management and conservation programs are of such broad scope that measurement of specific results achieved from them is difficult. Rather, their main purpose is to overcome consumer inertia and motivate the customer to take the next step--or first step--in energy conservation.

There are, however, certain programs for which estimates of demand reduction and energy savings are quantifiable. The most important of these programs are included in the table below. The annual effects on electric demand and consumption are shown for the year 1981. Also, cumulative results are estimated for 1982 and 1983.

	1981		1982(estimated)		1983(estimated)	
	Demand Reduction	Energy Savings	Demand Reduction	Energy Savings	Demand Reduction	Energy Savings
Major Account/ Business Representatives	160 kW	470,400kWh	320 kW	940,800kWh	450 kW	1,323,000kWh
High-Efficiency Appliance Headquarters	18 kW	44,000kWh	38 kW	92,300kWh	59 kW	144,800kWh
Cogeneration/ Renewable Energy Sources	10 kW	35,780kWh	30 kW	155,540kWh	420 kW	2,455,780kWh
National Energy Watch-Commercial and Industrial	-	-	75 kW	144,540kWh	180 kW	294,080kWh
Home Energy Audit Program	-	-	*	*	11 kW	20,490kWh

* The conservation impact of the Home Energy Audit Program probably will not be felt until 1983.

ATTACHMENT NO. 13

THE POTOMAC EDISON COMPANY
PROJECTED REDUCTIONS-LOAD MANAGEMENT PLAN

Program	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Total
RESIDENTIAL											
a. Energy Efficient Home	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	60.0
b. Weatherization-Existing	2.0	2.0	2.0	2.0	2.0	-	-	-	-	-	10.0
c. Weatherization-Existing Electric	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5.0
d. Increased Water Heater Insulation	-	-	-	-	-	-	-	-	-	-	-
e. Heat Pump Water Heater	-	0.1	0.2	0.3	0.4	0.5	0.7	0.8	0.9	1.1	5.0
f. Space Capacity Limitation	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	15.0
g. High EER Air Conditioning	0.8*	0.8*	0.8*	0.8*	0.8*	0.8*	0.8*	0.8*	0.8*	0.8*	8.0*
h. Add-on Heat Pump	-	0.3	0.6	0.9	1.4	1.5	1.7	2.1	2.2	2.3	13.0
i. Energy Efficient Appliances	-	-	-	-	-	-	-	-	-	-	-
j. Passive Solar and Landscaping	-	-	-	-	-	-	-	-	-	-	-
Total Residential	10.0	10.4	10.8	11.2	11.8	10.0	10.4	10.9	11.1	11.4	108.0
2. COMMERCIAL											
a. Add-on Heat Pump	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	27.5
b. Street Light Conversion	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.0
c. Heat Pump Water Heater	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	7.0
d. Passive Solar	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5.0
e. Demand Reduction -New	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	15.0
f. Demand Reduction-Existing	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	50.0
Total Commercial	8.3	8.8	9.3	9.8	10.3	10.8	11.3	11.8	12.3	12.8	105.5
3. INDUSTRIAL											
a. Standby Generation	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10.0
b. Parallel Generation	10.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	26.0
c. Interruptible Rate	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	25.0
d. HVAC Load Reduction	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10.0
e. Load Control-New	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	30.0
f. Load Control-Existing	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	50.0
g. Economic Development	-	-	-	-	-	-	-	-	-	-	-
Total Industrial	22.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	151.0

POTOMAC EDISON TOTAL (At Customer Meter) 364.5MW

DIVERSIFIED EFFECT AT THE GENERATION LEVEL 191.3MW

* Not included in totals