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IN THE

Supreme Court of Virginia

AT RICHMOND

Record No. 740387

APARTMENT HOUSE COUNCIL OF
METROPOLITAN WASHINGTON, INC., *Appellant*

v.

POTOMAC ELECTRIC POWER COMPANY, *Appellee*

JOINT APPENDIX

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and
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POTOMAC ELECTRIC POWER COMPANY
1900 Pennsylvania Avenue, N.W.
Washington, D. C. 20006

April 30, 1973

State Corporation Commission
of Virginia
P.O. Box 1197
Richmond, Virginia 23209

Dear Sir:

The Potomac Electric Power Company ("PEPCO") herewith transmits for filing with the Commission its application, prepared testimony, and exhibits in support of requested increase in annual rates for its Virginia service of $1,139,000.

PEPCO urges the Commission to establish an expedited schedule in order that the Company may begin to receive the required revenue relief at the earliest possible date. It is requested that the detailed cross examination of the Company's case-in-chief begin at the earliest possible date. In this connection, Company counsel, personnel, and outside experts have been directed to give highest priority in providing all information and assistance requested by the Commission Staff and all other parties in the proceeding.

Very truly yours,

/s/ JACK E. MCGREGOR
Jack E. McGregor

Before the

STATE CORPORATION COMMISSION OF VIRGINIA

IN THE MATTER OF THE FILING BY POTOMAC ELECTRIC POWER COMPANY OF REVISED RATE SCHEDULES FOR RETAIL SERVICE

FILING OF REVISED RATE SCHEDULES FOR RETAIL SERVICE

Potomac Electric Power Company (Pepco), a Virginia and District of Columbia public service corporation, herewith files with the State Corporation Commission of Virginia the following attached revised rate schedules, all as of April 30, 1973, for retail service to be effective with respect to service rendered on and after May 31, 1973:

Residential Service Schedule "R"

General Service Schedule "GS"

Temporary or Supplementary Service Schedule "T"

High Tension Service Schedule "HT"

Outdoor Lighting Service Schedule "OL"

Street Lighting Service Schedule "SL"

Charges for Servicing Virginia Street Lights Served from Overhead Lines, Schedule "Va.-SSL-OH"

Charges for Servicing Virginia Street Lights Served from Underground Lines, Schedule "Va.-SSL-UG"

In support whereof, Pepco shows as follows:

1. Pepco provides retail electric service to the public in a part of Arlington County, serving approximately 2,850 customers. Pepco also provides retail electric service in the District of Columbia and Maryland and serves one REA Cooperative at wholesale in Maryland.

2. Pepco's existing Virginia rates for retail service became effective January 1, 1973 pursuant to the Commission's Order of December 4, 1972 in Case No. 19175. Those rates, as applied to the 1971 test year used in Case No. 19175, theoretically would have produced an overall return of 7.42% approved by the Commission in that case. That return was inadequate when the new rates went into effect and even that inadequate return has never been earned. The Company's overall return on its Virginia service for the 12-month period ending June 30, 1973 is estimated to be only 6.87%. The inexorable increases in the cost of

service and the erosion of earnings that the Company continues to experience will cause further deterioration in the rate of return and will further increase the gap between actual and authorized returns. Of the increase now requested about 55% is necessary merely to bring the Company's return to the level approved last year by this Commission.

3. Pepco's equity must be increased to achieve a more balanced capital structure and, accordingly, the sale of 4,000,000 new shares of common stock is planned for June, 1973. The Company's actual 1972 return on equity was a meager 9.44%, and the current market price of the Company's common stock continues to hover at or slightly below book value. The possibility of a sale of equity at less than book value and the resulting dilution of outstanding equity illustrates dramatically the necessity for rate relief designed to improve the return on equity.

4. Since 1969 Pepco's bond rating has been downgraded from AA to A and the ratings of its debentures and preferred stock have been downgraded from A to BBB, with a resulting increase in the cost of capital that ultimately must be borne by Pepco's customers. Company projections demonstrate that, in the absence of rate relief, the earnings coverage of fixed charges will decline to approximately 2 times by year end 1974. Substantial volumes of debt securities must be sold to finance the 1974 construction program, and such a decline in earnings coverage will jeopardize seriously even the current ratings of Pepco's securities. In addition, projections show that in the absence of rate relief, the earnings coverage of interest and preferred dividends for 1974 will be so low as to impair the Company's ability to sell preferred stock because of minimum coverage requirements in Pepco's corporate charter. In order to attain reasonable coverage levels, the Company must have substantial rate relief promptly since increased rates must be in effect for 12 months in order to be reflected fully in coverage calculations.

5. The Company's construction program for the five-year period 1973-1977 is estimated to be $1.7 billion. This construction program, which reflects the continuing increase in the demand for electric service pervading the entire electric utility industry, will require the Company to more than double its net plant by the end of 1977.

6. The new rate schedules attached to this application are designed to increase annual revenue by $1,139,000 and to produce an overall rate of return of 8.75% on a test year ending June 30, 1973. The proposed increase is consistent with the "Rules and Procedures of the Virginia

State Corporation Commission in Compliance with Federal Price Commission Regulations Regarding Public Utility Rate Increases". The increase is cost justified and is the minimum required to assure continued, adequate and safe service and to achieve the minimum rate of return needed to attract capital at reasonable costs. Further, the proposed increase takes into account expected productivity gains and does not reflect labor costs in excess of the guidelines of the Cost of Living Council. The exhibits filed herewith include information required by the "Rules and Procedures" with respect to annual review of utility rates.

WHEREFORE, Pepco prays that the attached revised rate schedules for retail service be determined by the Commission to be just and reasonable and be permitted to become effective for service on and after May 31, 1973.

POTOMAC ELECTRIC POWER COMPANY

/s/ W. REID THOMPSON
W. Reid Thompson
Chairman of the Board
and President

/s/ JACK E. MCGREGOR
Jack E. McGregor

/s/ EDWARD A. CAINE
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Of Counsel

April 30, 1973

COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

At Richmond, January 4, 1974

MEMORANDUM OPINION AND ORDER

On April 30, 1973, Potomac Electric Power Company (Pepco or Company) filed its application for an increase in rates. Although Pepco is a large electric utility with operational plant valued at approximately one and one-fourth billion dollars, less than two and one-half percent of its total revenues is derived from sales to retail customers in the State of Virginia. The vast majority of its customers are within the jurisdictions of Maryland and Washington, D. C. Its present annual revenues from Virginia customers are in excess of $7,000,000; it is now requesting approval of rates which will produce over $1,000,000 in additional annual gross revenues.

In support of its application, the Company presented figures for the twelve month period ending June 30, 1973, and projected figures for the twelve month period ending June 30, 1974. A public hearing was held upon the application on July 31 and September 18, 1973. The following appearances were entered in the hearing for the party indicated: Woodrow D. Woolesen, counsel for General Services Administration; Guy T. Tripp, III, Edward A. Caine, Carl D. Hobelman, counsel for Pepco; Henry M. Massie, Jr., Assistant Attorney General for the Attorney General of Virginia; Jerry K. Emrich and Charles G. Flinn, counsel for the County Board of Arlington County; Charles Jay Pilzer and Neil Jay Newman, counsel for the Apartment House Council of Metropolitan Washington, Inc.; Mose Lewis, III, and Clifford G. Trott, counsel for the Washington Metropolitan Area Transit Authority; and, Richard D. Rogers, Jr., counsel for the commission staff.

The parties prefiled the prepared testimony and exhibits of twelve witnesses. The witnesses verified their testimony and exhibits during the course of the hearing and were subjected to cross-examination. Also, introduced as exhibits were certain direct testimony and cross-examination from records developed in rate proceedings underway in Maryland and in Washington, D.C. The parties stipulated that the questions and answers shown in such exhibits were the questions which would be asked and the answers which would be given upon the issues now proposed for the consideration of the Commission. Briefs were filed by the parties.

Now, On This Day, the Commission upon consideration of the evidence and arguments of counsel is of the opinion and finds:

(1) Several contentions were made by the parties which warrant individual response by the Commission. General Services Administration refers to the fact that in the last case before this Commission Pepco was awarded a 7.42 percent rate of return upon its property used and useful in providing retail service to Virginia customers. This rate increase became effective January 1, 1973. GSA reasons that nothing has happened in the interim which would support Pepco's request for an increase in revenues to give it an 8.75 percent rate of return, which the Company contends is now justified. It appears that GSA has assumed that the 7.42 percent rate of return was the maximum that the Commission would have approved.

As discussed earlier, Pepco only derives a small percent of its total revenues from its retail business in Virigina with the major portion of its annual revenues coming from business operations in Maryland and Washington, D.C. Traditionally the Company has applied to this Commission for approval of rates which have been approved and placed into effect in one of the other two jurisdictions in which it provides service. The result has been a significantly lower rate of return upon the Company's property in Virginia than that earned in Maryland or Washington, D.C.

In the past, the rate of return sought by Pepco has not been excessive nor, in fact, has its request been controversial. If a utility's request for a rate increase is reasonable, then its request will be granted. If the utility's request is at the lower end of the range of reasonableness, or even below, the Commission will not seek to determine that the utility should have requested a higher rate of return unless it has cause to believe that the requested earnings are so inadequate as to threaten the Company's ability to provide service to its customers.

This Commission is agreeable to all utilities operating within the State seeking reasonable rates of return. The rate of return which Pepco now seeks is controversial. It is abandoning its traditional approach of seeking rates in Virginia which have been approved and place into effect in one of the other two jurisdictions in which it provides service. Pepco proposes to implement independent schedules of rates and charges which will give it an opportunity to earn a reasonable rate of return upon its Virginia properties without regard to any schedules of rates and charges approved elsewhere.

(2) Pepco is shown to be a net seller to the "PJM" power pool by a substantial amount (power pooling arrangement participated in by Pepco and other electric utilities operating in the states of Pennsylvania, New Jersey, and Maryland.) GSA contends that the revenue for such sales is not sufficient to recover Pepco's costs for this interchange power. GSA contends that the Commission should adjust upward the Company's test period revenues in an amount to compensate for such sales.

No matter how compelling GSA's argument, the Commission cannot make the adjustment requested. Pepco's contractural agreement, to sell and buy interchange power, with other members of the PJM power pool is not a matter within the jurisdiction of this Commission. Because the Federal Power Commission has exclusive jurisdiction to review contracts for interchange power, any effort by this Commission to change the contract rates or to adjust Pepco's annual revenues for rate making purposes because of any difference in opinion this Commission has with the Federal Power Commission in regard to revenues from the sale of interchange power would constitute an improper regard for federal and state jurisdiction.

(3) GSA has expressed general dissatisfaction with the Commission's utilization of an end-of-period rate base, and in particular, objects because the Commission uses actual revenues and expenses (adjusted to a going level basis and adjusted for known, definite changes occurring within a limited period of time) but not adjusted to reflect increased customer usage, growth in customers, or changes in tax expense resulting from additional interest and depreciation because of year-end plant and capital. GSA contends that revenues and expenses should be fully synchronized by pro forma adjustments to year-end values to match year-end plant and capital.

The Commission understands GSA's argument, however, the primary concern of this proceeding is to make rates for the future, not to make rates for a historic test period. It is much more important for the Commission to determine the need for earnings upon an end-of-period investment in plant than to determine what the Company might have earned if end-of-period conditions had prevailed throughout the period. The Commission considers the end-of-period rate base as the best measure of the need for earnings for the future so long as utilities continue to experience increased unit costs for plant and increased costs for operation and maintenance. As an aid in determining appropriate rates for the future, the Commission requires a fully projected year,

one year beyond the test period, projected to show expenses and revenues, plant investment, total capital, and cost of capital as the end of the projected period.

(4) The parties oppose Pepco's proposed accounting for Construction Work in Progress (CWIP). Pepco does not charge interest to CWIP and does not adjust test period income because of interest upon construction funds.

The usual procedure of the Commission is to allow CWIP as an addition to rate base with any interest capitalized shown as test year income. In any case, the Commission attributes to test year income such additions as will recognize the income producing potential of the CWIP so as not to burden existing customers with the capital expense of new construction without giving any credit for its income potential. This is part of the current plan of utility regulation of this Commission. Any utility which operates within this State must accept the overall plan of regulation. When circumstances require a permanent change, or when the circumstances surrounding a utility are so compelling as to require a deviation, then a permanent change, or a deviation, will be undertaken. The Commission does not consider the present circustances such as to require a change or deviation. Accordingly, the full amount of the CWIP will be included in the rate base and an addition to test period income will be hereafter entered to approximate the revenue which such property is expected to produce.

(5) The value of Pepco's property used and useful in providing service to retail customers in Virginia is $28,685,021 (rate base). The rate base is determined from totaling the original cost of plant ($34,314,471), including the full amount of Construction Work in Progress, and from this total, subtracting accumulated depreciation, acquisition adjustments, and contributions in aid of construction ($7,003,986), and adding an Allowance for Working Capital ($1,374,536).

If accepted, two proposals of Pepco would have considerably increased the rate base. The Company requested that a much larger amount be added to the rate base as an allowance for cash working capital than recommended by the commission staff; the staff followed the method which has been employed by the Commission in past rate cases in arriving at its recommendation. The Commission has generally found one-ninth (or 40 days) of annual operating and maintenance expenses a satisfactory and reasonable measure of the cash working capital which should be allowed as an addition to the rate base.

The Company performed a lead-lag study for the purpose of determining the cash working capital component of the rate base. In arriving at a figure considerably in excess of the amount shown needed by the Commission's traditional measure the Company sought to determine revenue lag for the test year by studying the month of September, 1972. The Commission rejects the amount of cash working capital requested by Pepco because of the lack of depth of the Company's study and because it has generally found its traditional measure satisfactory.

Pepco further contends that it should be allowed an $135,000 addition to cash working capital because of bank balances which it must maintain with certain banks pursuant to loan agreements negotiated with these banks. This Commission is not aware of any reason why it should require Virginia's rate payers to pay for money which the Company must keep on deposit in various banks as a result of such loan agreements. Accordingly, no addition to the rate base has been allowed because of such bank balances.

(6) Gross operating revenues from Virginia operations for the twelve months ended June 30, 1973 amounted to $6,737,701. The last increase granted the Company became effective January 1, 1973. To proform the test period for the effect of this rate increase an adjustment of $555,814 is needed which brings gross annual operating revenues to $7,293,515.

(7) The Company performed an allocation study for the purpose of deriving allocation factors to apply to the total Company rate base and total Company operating and maintenance expenses that would give the portion attributable to Virginia retail operations. The commission staff stated that it reviewed the allocation study of the Company and found the results reasonable.

The principal question concerning expenses was in regard to adjustments for wage increases, research and development, and taxes, and was whether or not the full annual effect of adjustments should be allowed or whether the effect only to twelve months past the test period should be allowed. The Commission has decided to approve the latter. The ultimate logic of the Company's position would be to allow adjustments for expenses occurring approximately two years beyond the test period. If a proposed wage increase were shown as becoming effective at the very end of the twelve month projected period and the Commission were to approve its full annual effect as an adjustment to test period expenses, the Commission would be adjusting for

increased expenses a full two years beyond the test period. Test year expenses are found to be $5,277,009.

(8) The Rate of Return of Pepco for the twelve month period is shown to be:

Total Operating Revenues	$ 7,293,515
Operating Revenue Deductions	(—) 5,277,009
Net Operating Income	$ 2,016,506
Charitable Contributions	1,882
Adjusted Net Operating Income	$ 2,014,624

Upon dividing the Adjusted Net Operating Income by the value of the rate base ($28,685,021) the rate of return is found to be 7.02 percent.

(9) To determine an appropriate rate of return upon the rate base the Commission turns to the parties' testimony and briefs for positions as to an appropriate return upon equity capital which is a judgment component of cost of capital. The commission staff witness recommended a return on equity of 12.0 to 12.5 percent, the Company witness 13.5 to 14.0 percent, G.S.A. witness 12.1 percent, Arlington County Board witness 12.17 percent, and the Attorney General's office, although presenting no witness, argued for a 12.5 to a 13.0 percent rate of return.

Pepco is one of the utilities which is required in an application for a rate increase to present a fully projected year, one year beyond the test period. In determining an appropriate rate of return the Commission considers the projected capitalization, cost of capital, rate base, revenues, and expenses. In this case Pepco's projections are questionable. The Company projects a growth in the rate base in excess of $7,000,000, growth in expenses in excess of $300,000, a substantial increase in cost of capital, but a growth in revenue (exclusive of any increase in rates) of approximately $90,000. While the Commission cannot find that such estimates are wrong, it does appear that the $90,000 increase in revenues is low.

Upon consideration of all evidence, it is the Commission's opinion that Pepco should be allowed an 8.5 percent rate of return upon its end-of-period rate base which will give the Company an opportunity to earn in the range of 12.5 to 13.0 percent upon equity capital;

(10) What additional earnings does the Company need to earn an 8.50 percent rate of return? Earlier the Commission indicated

that it would allow the full amount of Construction Work in Progress as an addition to the rate base but that it would adjust test period revenues to approximate the revenue which such property is expected to produce. The commission staff deducted the average of CWIP from the end-of-period rate base. The Commission has restored and allowed this amount ($1,979,486) as a part of the rate base upon which the Company should be allowed a rate of return, however, the Commission finds that $158,359 of revenue shall be attributed to an Allowance for Funds Used During Construction computed as follows:

1,979,486 x 8% = $158,359

The additional earnings needed by the Company would be computed as follows:

Rate Base		$28,685,021
Rate of Return	(×)	8.5%
Total Net Earnings Needed		2,438,227
Adjusted Net Earnings Available		2,014,624
Additional Net Earnings Needed		423,603
Additional Gross Earnings Needed		845,009
Less: Revenues from Allowance for Funds During Construction		158,359
Rate Increase		686,650

The Company proposed rates designed to produce $1,055,000 in additional annual gross revenues; it must now redesign and submit rates to produce $686,650 in additional gross revenues;

(11) As testified to by the commission staff, the Commission has reviewed the schedules of rates and charges, rules and regulations of Pepco on two previous occasions in the last three years. The principal changes now proposed are to increase the minimum bill for residential service from $2.00 to $2.25, and an overall increase in rates of 14.5 percent broken down to: 10 percent increase for residential service, 13.5 percent increase for general service, and a 16.2 percent increase for high tension service.

Opposition was offered to the proposed rate design, and, in particular by those parties which would be affected by the proposed percentage increases in general service and high tension service. Washington Metropolitan Area Transit Authority's primary problem is deferred because Pepco proposes to file for the approval of this

Commission in the future a rate schedule for railway propulsion (RP). This is agreeable to the Commission and the schedule will be reviewed at the time of filing.

It is obvious that an increase of $2.00 to $2.25 in the minimum bill for residential service is not sufficient to cover the Company's minimum costs for a residential customer. Accordingly, Pepco should be allowed to place into effect its proposed increase in the residential minimum bill.

Should the Commission approve a greater increase to general service and high tension customers? Pepco has one of the most unfavorable load factors in the electric utility industry. The evidence indicates that growth in loads, and pattern of loads, to high tension and general service customers has had a more adverse effect on overall system load than residential growth, and that these same services have caused a greater need for investment in plant.

The Commission finds the relationship among the customers and classes of customers reasonable as regards the proposed distribution of revenue requirements. Accordingly, the Company should, to the extent practicable, make uniform percentage reductions from the originally proposed rates in order to redesign rates to produce additional annual revenues of $686,650.

It Is Therefore Ordered:

(1) That Pepco shall design and submit for the review of the Commission, on or before January 10, 1974, schedules of rates and charges, in conformance with the above findings of the Commission, to produce additional annual gross revenues of approximately $686,650;

(2) That unless the Commission shall, after review of the redesigned schedules of rates and charges, notify the Company of any objection to the proposed schedules, the same shall become effective for electric service rendered on and after January 15, 1974.

And, it appearing that nothing further remains to be done in this case, the same shall be, and hereby is dismissed from the Commission's docket of active cases and the record developed herein shall be placed in the Commission's file for ended causes.

BEFORE THE STATE CORPORATION COMMISSION

NOTICE OF APPEAL AND ASSIGNMENT OF ERROR

COMES Now the Apartment House Council of Metropolitan Washington, Inc., a District of Columbia corporation, by its attorneys, Charles Jay Pilzer and Ronald D. Jacobs, and states as follows:

The Apartment House Council of Metropolitan Washington, Inc. is an Intervenor in Case No. 19277 in the Application of the Potomac Electric Power Company for an increase in rates in the State of Viriginia.

On January 4, 1974, the State Corporation Commission entered a Memorandum Opinion and Order in Case No. 19277 which, subject to slight modification, granted the rate increase sought by the Potomac Electric Power Company. The Apartment House Council of Metropolitan Washington, Inc. is aggrieved by the entry of said Order and does hereby notify this Honorable Commission and other persons of interest that it intends to appeal the aforesaid Order to the Supreme Court of Appeals in Virginia.

The Apartment House Council of Metropolitan Washington, Inc. assigns as error by this Honorable Commission the ruling set forth in Paragraph 11 of the Memorandum Opinion and Order of January 4, 1974, which approves a rate design structure which will result in a substantially higher rate of return for general service and high tension service than for residential service. It is the position of the Apartment House Council of Metropolitan Washington, Inc. that such a difference in the rates of return of the three principal classes of service is discriminatory and unsupported by any evidence presented to this Honorable Commission.

APPELLANTS REQUEST
COPIES OF ALL FILINGS

Respectfully submitted,

JACOBS, PILZER & SPEILLER

/s/ CHARLES JAY PILZER
Charles Jay Pilzer

/s/ RONALD D. JACOBS
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Attorneys for the Apartment House Council of Metropolitan Washington, Inc.

EXCERPTS FROM TRANSCRIPT OF TESTIMONY

Testimony of Edward F. Mitchell

117 Q. Please State Your Name And Present Occupation. A. My name is Edward F. Mitchell, and I am the Vice President, Electrical Engineering of Potomac Electric Power Company.

* * * * * * * * * * * *

118 Q. Please Briefly Describe Pepco's Operations and the Area In Which It Operates. A. Pepco provides electric service within its 643 square-mile service area comprised of 12% of Arlington County, Virginia; all of the District of Columbia; and 61% and 51%, respectively, of the geographic areas of Montgomery and Prince George's Counties in Maryland. Pepco serves some 2,850
119 customers in Virginia. Federal installations, including the Pentagon and Fort Myer, constitute a major part of the Company's Virginia business. A map of Pepco's service area is shown on page 1 of my Exhibit.

* * * * * * * * * * * *

122 Q. Please Generally Describe the Diversity of Load Characteristics Experienced By Pepco Within Its Service Area. A. The standard electric utility operation experiences some combination of residential and industrial-commercial purchases which results in a load factor of perhaps 55-60%. Unlike the standard
123 experience, however, practically no industrial purchases are experienced on our system. Instead, unlike all other electric utilities, a comparatively very large percentage of sales is made to government—especially to the Federal Government. For this reason, Pepco was the first utility to experience a summer peak, and that due to early government air-conditioning loads about 1940.

The Virginia area served by Pepco, although geographically small, contains the highly developed Rosslyn area and a number of large governmental installations, such as the Pentagon and Fort Myer, but only some 2,500 residential customers. Sales of electric energy in the District of Columbia are practically all residential, commercial and governmental. Residential service is relatively more important in the case of Maryland purchases.

Q. Please Explain In More Detail the Significance of Air-Conditioning Load. A. From the early 1940's, Pepco has experienced a much higher peak in the summer, due to air conditioning, than in the winter. At one time Pepco's load factor was approximately 60%, and the Company's summer and winter peaks were nearly identical. Now, however, the winter peak only amounts to about 60% of the summer

peak and overall load factor has declined to less than 47%.
124 You may be assured that most new buildings built in our service area, are air conditioned electrically. Thus, our summer peak constantly rises.

* * * * * * * * * * * *

78 **Testimony of Frank S. Walters**

Q. Please state your name and your present position with Potomac Electric Power Company. A. My name is Frank Seymour Walters and I am Vice President in charge of Rate and Regulatory Practices. In this capacity, among other things, I am responsible for the development of the Company's rate structure, the design of rate schedules and the conduct of attendant engineering and economic studies. This work is carried out by our Rate and Economic Analysis Division under my direction.

* * * * * * * * * * * *

96 A. Yes. Under my direction new rate schedules have been designed to produce an aggregate increase in revenue of $1,139,000 within the Virginia jurisdictional segment of the Company's business.

New rates are being filed for Residential Service, General Service, Temporary Service, High Tension Service, Street Lighting Service, Outdoor Lighting Service and for the Servicing of Street Lighting Equipment.

Q. Have new rates been prepared to produce the revenue increase to which you just referred? A. Yes. Under my direction new rate schedules have been designed to produce an increase in revenue of $1,139,000 or 15.8%, from sales of electricity to customers of all classes of business within the Virginia segment of the Company's service area.

Q. How does the proposed increase affect the several major classes of business? A. Compared with the total increase in sales of 15.8%, residential sales would be increased by $25,000, or 10.9%; sales
97 to General Service customers would rise by $588,000, or 14.7%, and sales to High Tension customers would rise by $519,800 or 17.7%. Increases in revenue from Temporary Service Schedule "T" are included in the figure given for the General Service classification. Revenue increases for Outdoor Lighting Service would rise by $3,000, or 15.0%, and those for Street Lighting servicing operations would increase by $58,000, or 16.1%. The increase in charges for electricity for street light operation is also included in the aggregate amount shown for the General Service classification. A summary of

proposed increase is given in Exhibit No. 5, Volume IIIc, Page W-101.

Q. Mr. Walters, will you briefly review the general principles of rate design which were incorporated in these revised schedules? A. In the development of revised rate schedules the general rate forms included in the present rate structure are maintained throughout. Last year some major changes were made in the rate form employed for General Service which embodied certain "hours use" features in the energy charge which had previously been introduced in the High Tension Schedule a few years before. This step completed a sequence of planned changes which culminated in the elimination of Schedule "LP" from the tariff. Under the proposed revision, the present basic rate schedules are maintained without any major structural change in form.

98 Q. There has been a considerable amount of public discussion of the economic concept of "price elasticity" applied to the furnishing of electric service. Have you considered this principle in designing the proposed rate schedules? A. Yes. The question of price elasticity, or in other words, the degree to which sales volume may be expected to respond to a change in the price at which the product is offered in the market, has been thoroughly studied in developing the proposed rates.

Q. Will you comment in some detail on this economic principle as it relates to electric service? A. The economic concept of price elasticity has been discussed in relationship to the pricing of electric service for many years and the qualitative effects of price changes when elasticity exists have been explored by economists in considerable detail. The major problem is that of quantitative measurement to determine the degree of elasticity that is present and to identify those sectors of the sales market in which it does exist. There appears to be relatively little specific data on which to base a pricing judgment and from the limited measurements which have been made the major portion of the electricity sales market does not exhibit an appreciable response to price change. This inelasticity is at least present on a short term basis, although there is currently some speculation that a price-demand
99 response still might be exhibited on such a long run basis of possibly ten years or more. However, no numerical assessment of this long range characteristic has been made to my knowledge.

In the present market for electricity sectors which do exhibit price-demand elasticity are those such as water-heating and space heating where other forms of energy might be used. This "product substitution" type of competition relates directly to the "value of service"

which the customer places on electricity relative to other fuels in performing a comparable task. In this area it is quite possible to price the product out of the market place.

Q. Will you now discuss these points as they relate to the design of the proposed rate schedules? A. The most direct application of these principles is in the area of summer-winter differentials in rates for electricity. Beginning in 1969, PEPCO introduced seasonal differences in block rates for Residential Service and for General Service. In successive rate changes these differences have been introduced in earlier blocks of the schedules and the divergence between summer and winter price levels has been increased. This trend continues in the proposed rates.

Maintaining a reasonable "value of service" rate level for such applications as space heating is in the interest of all rate payers through selective load building which is directed at improvement
100 of seasonal unbalance in system load and the resulting more efficient year round use of generating facilities.

In the proposed General Service Schedule "GS" both the demand and energy charges for electricity furnished during summer months were increased considerably more than those applicable in winter. In both instances this assignment of revenue increase reflects the need to recover increasing marginal capacity costs associated with peak period loads. Since the "GS" schedule employs an "hours use" form of rate, a portion of the demand related cost of service inherently is embedded in the energy charge.

Q. Is selective load building the principle objective of summer-winter rate differentials? A. No. Although such rate patterns are highly compatible with the selective winter load building concept, the prime objective of increasing summer rates substantially over winter rates, is to place the revenue level in better perspective relative to the seasonal pattern of cost responsibility.

Since PEPCO's system peak occurs during summer months and since the magnitude of that peak is about 60% greater than the highest values established during the preceding winter months, a much higher relative rate increase in summer than in winter serves to more nearly collect compensation for peak use responsibility during the same months of the year during which the expenses of serving peak
101 load are incurred, instead of distributing the recovery of such costs over a full twelve months' cycle of operation.

Q. Will you describe the changes in the residential rate as proposed? A. First, the minimum-bill charge has been raised from $2.00

per month to $2.25 per month and includes up to 20 kilowatt-hours of energy consumption as in the present rates. In the Company's 1971-1972 rate proceeding, the minimum bill charge was $2.00 and although this was in no way considered adequate to cover minimum costs, it was considered to be administratively desirable not to interrupt the rate pattern too abruptly. Consequently, this adjustment is being made in successive steps and the 25-cent additional charge for minimum bill customers, included in this filing, is an increase of only 12 & ½%.

Two changes in block length were made in the schedule. With the minimum charge content remaining at 20 kilowatt-hours per month, the length of the second block was increased from 30 kilowatt-hours to 80 kilowatt-hours, and the length of the third block was decreased from 150 kilowatt-hours to 100 kilowatt-hours. These changes together produce a smoother blocking of the rate and also serve to make increases in bills for customers up to 200 kilowatt-hours per month somewhat less than they would be under the original block distribution.

102 In the establishment of price levels for each block we have continued the seasonal load balancing policy of introducing a higher price assessment for summer service over that for winter usage. In the prior rate proceeding the beginning point for the summer-winter differential was 400 kilowatt-hours per month and this has not been changed in the present rate design.

However, the divergence between summer and winter pricing is greater than it was in prior schedules. Therefore, the price offered for summer usage in excess of 400 kilowatt-hours per month has been increased at a much greater percentage rate than that for comparable winter usage. Furthermore, from an overall point of view, the percentage increase in block rate is greatest in the middle and large use portions of the rate schedule.

Q. What modifications are proposed for general service? A. Proposed General Service Schedule "GS" continues the present separation between non-demand billing where only kilowatt-hours are measured and demand billing where a measurement is made of both kilowatt-hours of energy and kilowatt-hours of demand. The basic form of the schedule has been continued without modification since the major change of introducing the "hours use" provision in the energy charge was made during the prior case before this Commission. As is the
103 case with the Residential Rate Schedule, differentials in price level between rates for summer and winter usage have been increased.

Modification in block rates have been made in each block of both the demand and energy charge provisions.

Q. Have there been any modifications in the schedule for Temporary of Supplementary Service Schedule "T"? A. There are no changes introduced under proposed Schedule "T" except the change in block rate in the context of overall revenue requirements.

Q. Will you comment on proposed High Tension Schedule "HT"? A. There are no changes in the basic rate form of High Tension Service Schedule "HT". It is an "annual load" factor responsive rate that provides seasonal price differences through the application of a control demand which is established during summer billing months. The percentage increase applied to this Schedule is higher than that applied to General Service Schedule "GS" in recognition of the high degree of air conditioning saturation present in the High Tension customer category and the Company's objective of increasing the pricing of summer peak contributing leads.

In the availability provisions of the proposed schedule the class of service to be supplied by the Company is given in more detail than in the present schedule.

104 An Emergency or Auxiliary Service Rider "HT-3" has been added to the schedule comparable in its application to that already contained in the present General Service Schedule "GS".

Q. What change was made in Street Lighting Schedule "SL" A. The proposed schedule under which energy for street lighting operation would be furnished is based on application of the appropriate demand and energy block rates for proposed General Service "GS" combined to reflect the scheduled burning hours for street light operation. The resulting increase in level or charge is in direct proportion to the overall additional revenue requirement.

Q. What modifications were made in the schedules for servicing of street lighting equipment? A. Each of the rates for the servicing of street lighting equipment has been increased in direct proportion to the overall additional revenue requirement.

Q. What change is proposed for Outdoor Lighting Service Schedule "OL"? A. The rates for Outdoor Lighting service have been increased at the average rate applied to all service in Virginia and a provision for adjustment of the charge when the Company experiences a change in the cost of fuel has been incorporated in the schedule. The fuel cost provision is the same as that included in other schedules

105 for low voltage service.

Q. Do all of PEPCO's present rate schedules contain a provision for adjustment in price when the Company experiences a change in the cost of fuel burned? A. Yes. With the addition of such a provi-

sion to Schedule "OL" all of PEPCO's schedules contain a fuel cost adjustment provision. Such a provision is not applicable to the schedules for servicing street lighting equipment since no electricity is supplied under such rates.

Q. Have you made change in the fuel cost adjustment provision under the proposed rates? A. No. The fuel cost provisions contained in the present rates have been continued without modification under the proposed schedules since the present provision has only been in effect since January 1, 1973. Since the present fuel cost adjustment provision would continue uninterrupted with the adoption of the proposed schedules, no "roll-in" revenue adjustment has been included in the computations.

Commissioner Shannon: Go ahead and proceed, Mr. Hobelman.

By Mr. Hobelman:

Q. Mr. Walters, three exhibits accompany your testimony. The first is entitled "Volume IIIa, PEPCO Exhibit Number 3, Frank S. Walters, Witness."

106 I believe it comprises one of your jurisdictional cost analyses.

Mr. Hobelman: I ask that this be marked for identification as FSW Exhibit 3.

Commissioner Shannon: All right. Mr. Walters' Exhibit Volume IIIa, PEPCO Exhibit Number 3, will be identified as FSW Number 3.

(Document marked and received as FSW Exhibit Number 3.)

By Mr. Hobelman:

Q. Was that exhibit prepared under your supervision and direction? A. Yes, it was.

Q. A second volume entitled "Volume IIIb, PEPCO Exhibit 4, Frank S. Walters, Witness," was also filed on April 30th, comprising another jurisdictional cost of service analysis for a different period.

Mr. Hobelman: I ask that this document be marked Exhibit FSW 4 for identification.

Commissioner Shannon: That will be received as FSW 4.

(Document marked and received as FSW Exhibit Number 4.)

107 By Mr. Hobelman:

Q. Finally, Volume IIIc, PEPCO Exhibit Number 5, Frank S. Walters, Witness, was filed with your testimony.

This comprises a rate design and an analysis of various increases and classes in a typical bill and so forth.

Was that document prepared under your supervision and direction? A. Yes, sir, it was.

Mr. Hobelman: Your Honor, I ask that this be marked for identification as Exhibit FSW 5.

Commissioner Shannon: That will be received as FSW 5.

(Document marked and received as FSW Exhibit Number 5.)

Mr. Hobelman: The latter two were received, Your Honor.

Would the former, FSW 2, be received?

The Bailiff: It has been received.

Mr. Hobelman: I also note we neglected to move in evidence HLD 4.

We ask that this be received into evidence.

That's the exhibit to which Mr. Davis has just testified with respect to.

Commissioner Shannon: Yes. That has been received.

108 Mr. Hobelman: There is one left over from last month's proceeding, which is Mr. Reese's exhibit LSR 6.

I ask that that be received into evidence also.

Commissioner Shannor: Do we have that, Mr. Harrison?

The Bailiff: That was received, sir, at that time.

Mr. Hobelman: It has been received. Thank you.

Commissioner Shannon: All right.

Mr. Hobelman: Mr. Walters is ready for cross-examination.

CROSS-EXAMINATION

By Mr. Rogers:

Q. Mr. Walters, are you familiar with a December 4, 1972 order of this Commission in which A, B, C, D, E, F, G, H are listed under Paragraph 5, and which give general instructions as to the rate designs or the rate design of PEPCO? A. Was that order issued to PEPCO?

Q. Yes, sir. A. I don't recall it in detail at the moment, but I am familiar with it.

109 Q. You are familiar with it? A. Yes.

Q. To your knowledge the rate design which you've offered in this proceeding conforms with those general instructions? A. Yes, sir.

I recall this now that I see it, and this rate design does conform to those general instructions.

Mr. Rogers: That's all the questions I have.
Commissioner Shannon: Mr. Massie?
Mr. Massie: I have no questions of this witness.
Commissioner Shannon: Mr. Walleson?
Mr. Walleson: I have no questions, Your Honor.
Commissioner Shannon: Mr. Flynn?
Mr. Flynn: I have no questions.
Commissioner Shannon: Mr. Newman?
Mr. Newman: Yes, Mr. Chairman.

First of all, I note that the cross-examination of Mr. Walters will be moved in at a later time by stipulation with the Utility, so I would just mention that at this point.

Commissioner Shannon: All right, sir.

Mr. Newman: Secondly, I would like just to have Mr. Walters identify for us, so we can move them into evidence, two documents which were prepared by him.

110 CROSS-EXAMINATION

By Mr. Newman:

Q. Mr. Walters, I first call your attention to a document entitled "Apartment House Council Exhibit Number 2 for Identification."
I believe your counsel has given you one. A. Yes.
Commissioner Shannon: This will be identified as FSW 6.

(Document marked and received as FSW Exhibit Number 6.)

Mr. Newman: I have extra copies here.

By Mr. Newman:

Q. Mr. Walters, I ask you, do you recognize this document consisting of five pages? A. Yes, sir, I do.
Q. And was this document prepared by you, sir? A. It was prepared under my direction.
Q. Under your direction. Fine.
Could you identify for us Page 1, just what it is? Do you recognize it and what it is? A. Page 1 is the summary which shows the allocated amounts within the State of Virginia that is within our service
111 area in the State of Virginia, all of the amounts allocated to the classes of business, namely, residential, general service, large power and street lighting, going down to the last line, showing the rate of return applicable to each class of business.

Q. All right, sir. And Page 2. Could you just briefly identify Page 2 for us? A. Yes, sir. Page 2 is simply a copy of a summary sheet from our computer run on which this study was made.

Q. Thank you. Page 3. Do you recognize it again and briefly identify it? A. Again, this one of the summary sheets. In this case it is for the operating income total.

Q. Fine. And Page 3, could you briefly identify that? Do you recognize it, and could you briefly identify it? A. Did you mean Page 3 or Page 4?

Well, to be sure the record is correct, Pages 2 and 3 are two summary sheets taken from our computer printout.

Q. Fine. That brings us into Page 4. A. Page 4 is a tabulation showing the load characteristics and the computation of the allocation factors used in the development of the study.

Q. And do you recognize, and just identify what is contained on Page 5? A. Page 5 makes the necessary adjustments to reflect
112 the relative rates of return of the several classes of business if the entire business in Virginia were making a return of 8.75 percent.

Mr. Newman: Thank you.

Your Honor, I would ask that this document be marked as Apartment House Council Exhibit Number 2, and I say Number 2 because Number 1 will be reserved to be used in connection with Mr. Bernstein's testimony.

Commissioner Shannon: All right. We temporarily identified that as FSW 6, but you would rather have it marked as your exhibit?

Mr. Newman: Yes.

Commissioner Shannon: We will make this Apartment House Council Exhibit 2.

Mr. Newman: And I would ask that it be received into evidence.

Commissioner Shannon: All right. It will be so received.

(Document marked and received as Apartment House Council Exhibit Number 2.)

Commissioner Shannon: And that is IL instead of EL.

It's the Council's exhibit, your client's exhibit.

Mr. Newman: Yes. Oh, yes.

113 Mr. Chairman, or Your Honor, I would now ask Mr. Walters if he could identify a document marked as Intervenor Apartment House Council Exhibit Number 3 for Identification, PEPCO's F & O Reports, January, 1972, May, 1973, consisting of 17 pages.

The Witness: Yes, sir, I can.

The Bailiff: Do you have copies of it, sir?

Commissioner Shannon: No.

By Mr. Newman:

Q. All right. Mr. Walters, do you recognize this document that you now have before you? A. Yes, I do.

Q. Was it prepared under your direction and supervision? A. It is taken from a Company record, and it was furnished to Apartment House Council upon your request.

Q. Right. A. By me.

Q. By you; is that correct? A. Yes.

Q. Now, briefly, and I don't know if I want to go through each and every one of the 17 pages, but could you identify for us, or do you recognize each one of these pages? A. Yes, sir, I do.

114 Q. And could you identify for us what each one briefly contains? A. Basically these are summary sheets from a regularly published report of our company which shows the sales statistics for the several classes of business in the service area in the State of Virginia.

This summary shows revenues, kilowatt-hours and the number of customers served, and shows it by months for the period in question.

Q. And I believe that runs from January, 1972, on Page 2 of this exhibit, through the last page, which is May, 1973; is that correct? A. That is correct.

Commissioner Shannon: This is confined solely to Virginia statistics, is that correct, Mr. Walters?

The Witness: Yes, sir, it is. We have similar sheets in the major report, but these are the reproduced sheets for Virginia.

Commissioner Shannon: All right.

Mr. Newman: Your Honor, I would ask that this be marked as Exhibit Number 3 for identification and received into evidence.

Commissioner Shannon: You say Number 3?

Mr. Newman: Yes. Apartment House Council Exhibit Number 3.

115 Commissioner Shannon: All right. So marked, and it will be received.

(Document marked and received as Apartment House Council Exhibit Number 3.)

Mr. Newman: Your Honor, that is all the questions I have at this time for Mr. Walters.

I will note again, however, that in our stipulation that these exhibits and other matters are questioned by Mr. Pilzer.

Thank you.

Commissioner Shannon: Any redirect examination?

Mr. Hobelman: Yes, Your Honor.

Commissioner Shannon: Excuse me. Mr. Trott. I'm sorry.

Mr. Trott: I have no questions.

Commissioner Shannon: I didn't mean to pass you by.

Go ahead with your redirect.

REDIRECT EXAMINATION

By Mr. Hobelman:

Q. I have a question with respect to Apartment House Council Exhibit Number 2.

Mr. Walters, with reference to the residential return shown on Page 1 and the proposed rates on Page 5 of Apartment House
116 Council Exhibit Number 2, do those figures of 3.01 percent and 3.39 percent represent realistic class returns considering the composition of the company's service area in Virginia? A. I think the figures that are shown on these exhibits for the residential class are lower than is realistic.

This, however, arises from the very, very small segment of our total business to which we are allocating when we make an allocation to the residential class in the State of Virginia.

To explain that, let me just mention that the residential kilowatt-hour sales in Virginia are approximately two percent of the Company's total sales in Virginia, or a little less than two percent, and amount to about one tenth of one percent of the Company's total sales in its service area.

The difficulty comes from the mathematics and the mechanics of allocating certain costs to such a small portion of the total.

The principal difficulty arises from the identification of certain service connection facilities and the fact that in some instances more than one customer is served from such a facility.

It would not make any difference were the statements larger, because a difference of a few units would not be significant.

117 The problem is really one that is mechanical and it is simply as a result of the very small nature of the segment to which these factors are allocated.

Mr. Hobelman: That completes the redirect.

Commissioner Shannon: How many residential customers do you have in Virginia, Mr. Walters?

The Witness: I'm reading for the year 1972, at the end of the year, for the average number served: 2,337 residential customers.

That was the average for that year.

Commissioner Shannon: And on here you show general service.

What is that generic heading?

The Witness: General service is really the broad commercial rate schedule for service to business generally and also to some government activity.

Commissioner Shannon: Now, your Apartment House Council, Mr. Newman, would they come under general service?

Mr. Newman: Yes, that is correct.

The Witness: That is correct.

Commissioner Shannon: And would the sale of electrical energy to the United States Government come under general service, Mr. Walters?

The Witness: A part of it does. It is available to them if
118 they care to use it. They also buy a great amount of service under our large power schedule at high voltage.

Commissioner Shannon: How would you break down the percentage to the federal government?

The Witness: I don't have a direct split on that, sir.

In the case of the large power service, however, out of a total of 395,000,000 kilowatt-hours, the large power service represented 54 percent of that, and I think it is almost all federal sales. That is, in Virginia.

Commissioner Shannon: All right.

Anything further of this witness?

Mr. Flynn: Yes.

RECROSS EXAMINATION

By Mr. Flynn:

Q. Mr. Walters, on the first printed page of Exhibit 3—A. Of PEPCO Exhibit 3?

Commissioner Shannon: Are you referring to Apartment House Council Exhibit 3?

119 By Mr. Flynn:

Q. Apartment House Council Exhibit 3. A. Excuse me. Yes. sir.

Q. Under revenue per kilowatt-hour sold, I take it that whatever the rate of return is that the residential customer is actually paying more for his electricity? A. The residential customer pays a higher unit price for his electricity, but it costs more to serve that customer.

Mr. Flynn: That is my only question.

Commissioner Shannon: Now, so that the record will be clear and have continuity to it, in that vein, as I read your testimony that you submitted back in March, the increase amounts to, what, about 10.9 percent on residential and about 14.7 on general service customers, and 17.7 on high tension?

The Witness: Yes, sir.

Commissioner Shannon: Does that sound right?

The Witness: I think that is correct.

Commissioner Shannon: Assuming my mathematics is correct.

The Witness: Yes, sir.

Commissioner Shannon: Now, Mr. Walleson, did you have a question of this witness?

Mr. Walleson: No, sir. I though I might aid the commission

120 I was just reminded that the figure, as we compute them, for the United States Government computes to 10.71 percent on a revenue basis, on general service, versus 89.5 on the HT, if that would be helpful to the Commission.

Commissioner Shannon: Thank you, Mr. Walleson.

Any other questions?

Mr. Newman: Your Honor, if I may.

By Mr. Newman:

Q. Mr. Walters, calling your attention to Page 5 of Apartment House Council Exhibit Number 2, and to the figure now that you state that you wish to change, the 3.39 percent, I would ask you, Mr. Walters, is this figure 3.9 percent the figure that was supplied to the Apartment House Council in July of 1973? A. Yes, sir, it was, and I didn't mean to indicate that I wanted to change it.

I was simply explaining the nature of this kind of an allocation process.

It is difficult to attach a significant value when you're making such a small assignment.

Q. But some calculations were made to determine this 3.39 percent is that correct? A. Oh, yes, sir.

121 Q. Right. And it is the only figure you have to supply to us right now as the figure, the 3.39 percent? A. That is correct.

I would point out, however, that because of the small size of the residential segment, that any adjustment that might be made that would, say, perhaps raise this by two percent or something, would have a very, very nominal, if any, effect at all, not noticeable, on the other two classes of service, that is, general service and large power, again simply because they are so much larger.

Q. But again referring to the figure itself, it is the only figure that the Company can supply at this time based upon the calculations that it can make? A. Yes. That is the only figure that we have supplied.

Mr. Newman: That's the only question I have.

If I might just briefly turn again to Apartment House Council Exhibit Number 3, just for the record, to make sure we are clear on this: On each one of the pages, the analysis, am I correct, is the same except that the month changes going from January through to May, 1973; is that correct?

The Witness: That is correct. They are comparable figures on each sheet.

122 Mr. Newman: Okay. That's all I have.

Thank you.

Commissioner Shannon: All right. If there is nothing further of Mr. Walters, you may stand down sir.

(Witness excused.)

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126 **Testimony of Edgar H. Bernstein**

Q. Please state your name and occupation. A. My name is Edgar H. Bernstein. I am President of the firm of Associated Regulatory Consultants, Inc., Public Utility and Environmental Consultants, with offices at 4301 Connecticut Avenue, N.W., Washington, D.C. 20008.

* * * * * * * * * * * *

128 Q. What is your assignment in this proceeding? A. I was requested by the counsel for the Apartment House Council to present evidence and data concerning three areas; (1) the rate of return earned and to be earned from the various classes of customers due to the proposed rate increase; (2) whether the increase is spread among the classes of customers on a proper basis; and (3) whether value of service and who ultimately pays for the increased cost of electric energy should enter into the design of the rates.

Q. Will you turn to your first area, the rate of return earned by classes of customers, and tell us what your investigation of this matter showed? A. Yes. From data provided to us by the Company

in a letter dated July 23, 1973, I have established the returns
129 earned or to be earned by classes of customers for the test year 1972 as follows:

	Rate of Return			
Time Period	Residential	Low Voltage Commercial	High Voltage Commercial	Street Lt.
1972 Actual	2.20%	6.96%	5.87%	3.56%
1972 Adjusted	3.01%	8.84%	7.09%	3.94%
1972 Proposed	3.39%	9.87%	8.27%	4.43%

As can be seen, the actual return and the proposed return for Low Voltage Commercial customers are much higher than for any other class of customer. In terms of absolute differences, the Low Voltage commercial customers provided a return 4.76 percentage points more than Residential customers in the 1972 actual period, and 1.09 percentage points more than High Voltage Commercial users in the same period. The relative differences were equal to 116.4 per cent more than Residential and 18.5 per cent more than High Voltage, during this period.

During 1972 adjusted, the absolute differences were 5.83 and 1.75 percentage points for the same customer classes. Relatively, the differences were 93.7 per cent and 24.7 per cent respectively.

Under the proposed rates, the absolute differences are 6.48 and 1.60 percentage points respectively. In relative terms this equates to a return of 191.2 per cent higher for Low Voltage Commercial cus-
130 tomers than Residential, and 19.3 per cent higher than High Voltage Commercial customers. These differences are neither justified nor supportable, in my opinion.

Q. Why, in your opinion, are these differences not justified? A. The establishment of fair rates is to accomplish one purpose, that is to recover the costs of operations of the utility, including the cost of capital. For electric operating companies the usual practice is to base rates upon a cost of service study which would allocate those costs to various categories such as demand, energy or common. The costs can then be further allocated to classes of customers based upon loan studies of usage of both demand and energy. One fundamental principle of rate making is that all classes of customers will contribute, through rates, the cost of providing the service to that class—including the cost of capital or fair rate of return—on an equitable basis. That is, that no one class shall be made to subsidize the usage of other classes of customers through discriminatory rates. The ultimate measure of

whether discrimination exists is the rate of return earned from the collection of rates from each class of customer.

The returns shown above, as calculated by the Company, show that the Company is obtaining a larger portion of its income from the Low Voltage Commercial class of customers than can be justified for reasons of large variations in patterns of usage by the various
131 classes. The differences in return shown are *not* based upon cost differences for the various classes. The cost of capital to each class of customer is equal no matter what the other costs are in serving the class of customer, thus the return to be earned from each class of customer should be equal, with the exception that some discrimination in rates may be allowable if it can be shown that there is justification for that discrimination to exist. I can find no such justification in the testimony of the Company. Since the rates for each class of customer are not based upon cost, the only reason for the large variations in return for each class of customer, as shown by the Company, is that the rate design is improperly weighted to the Low Voltage Commercial customers in the belief that they are better able to pay higher rates than are the other classes, or a value of service concept.

Q. You have already briefly referred to the spread of the increase to the various classes of customers. Will you now turn to your second point and give us the specifics of that spread and why it may be improper, in your opinion? A. To start with, I can find no justification for the Low Voltage Commercial customers receiving almost 52 per cent of the total rate increase applied for. According to the Company, Low Voltage Commercial customers are allocated approximately 47 per cent of the total cost of service. Why there is this difference of about 5 percentage points in the amount of the
132 increase allocated to Low Voltage Commercial customers is never explained by the Company, and, to reiterate, is not cost justified.

Q. Could this allocation be justified by differences in the usage of electric energy during the year 1972 and thru May, 1973, by the various classes of customers? A. Not in my opinion. From an analysis of PEPCO's F & O reports for the year 1972 and thru May, 1973, I can find no variation in the pattern of usage which would justify the disproportionate amount of the increase being allocated to the Low Voltage Commercial customers. In fact, based upon my analysis of usage, it would appear that the High Voltage Commercial customers, and the Residential customers, should receive the larger parts of any rate increase.

Q. Did you cause to be prepared or prepare yourself, an exhibit showing the usage of energy by classes of customers from the Company's F & O reports? A. Yes, I did.

Q. Will you explain what Apartment House Council Exhibit No. AHC-1 shows? A. This exhibit plots the kilowatt hour usage by class of customer for the years 1972 and 1973 by months. This graph shows that two of the three classes of customers peaked in August, 1972, with the largest users, High Voltage Commercial, peaking in July, 1972, and that the load pattern shows some variations for each
133 class. That is they all generally rose together and fell together, though not always with exact coincidence.

The graph and the underlying data, show that the differences from the low point of usage—February, April or May—to the peak usage in July or August vary greatly, with the Residential class showing the greatest increase, about three times that of the other two classes. The increases were as follows:

Class of Customer	Lowest Usage	Highest Usage	Per Cent Increase
Residential	415 MWH	1,051 MWH	153%
Low Voltage Commercial	11,899 MWH	18,400 MWH	55%
High Voltage Commercial	14,875 MWH	23,268 MWH	56%

The customer class which showed the largest increase in usage was not the Low Voltage Commercial customers, but rather the Residential users.

This, in my opinion, emphasizes the point that the spread of the increase is not based upon increased usage by the various classes in contributing to the peak usage of the Company, especially the Low Voltage Commercial customers.

Q. Could one reason for the disproportionate increase to the Low Voltage Commercial customers be the result of the rate design encompassing a summer-winter differential that is improperly designed? A. The rate design is undoubtly the reason that the Low Voltage
134 Commercial customers are to get a disproportionate share of the rate increase. The resulting returns, as previously set forth, show that the Low Voltage Commercial customers are contributing a larger share of the net operating income than any other class, both in total and in relation to the investment of the Company used to render service to all classes of customers. Whether the summer-winter differential is the main cause of this disparity would require a much more

detailed inquiry than I have conducted. But, it could be one of the main reasons.

Q. Turning now to your third point, will you comment on whether value of service should enter into the design of rates and whether the ultimate responsibility for payment should make any difference in rates? A. In my opinion, value of service should not enter into the design of rates for an electric utility. Value of service is akin to the concept of charging what you think the customer can pay, rather than the cost of rendering the service to him. This concept, prevalent in telephone rate design, does not depend upon the cost of service nor competitive costs of alternate services, though competition will limit the rate to a degree. Rather, this concept is based upon the idea that some users can afford to pay more for service because it is a legitimate operating expense and is, thus, a tax deductible item. Under this guise, it would be proper to charge all business a rate at least double that of residential users since their ultimate case would be equal
135 after taxes.

Unfortunately, this concept, if carried out, would ignore the other concept of rates being based upon cost and the benfits large users bestow in the other users by lowering average costs of serving electric energy. In addition, any additonal costs which are incurred by business or commercial establishments are ultimately passed on to the users of their services or buyers of their products. Usually, this would include a margin of profit on those costs. Thus, the consumer the residential users, would be paying even more for the total energy output of the Company.

What this has to do with rate design and the cost to be charged to customers is, in my opinion, an inappropriate factor. Rates should be based upon the cost of rendering the service to a class of customers, as nearly as possible. Extraneous factors or guidelines should be avoided since they can neither be quantified nor justified. The end result of the Company's rate design, I believe, lends credence to this theory.

Q. Mr. Bernstein, would you summarize your testimony briefly, at this point? A. Yes. The main point which I believe I have demonstrated is that the rate design and the end results of that design are improper as it places an undue burden upon the Low Voltage Commercial customers. This is illustrated by the fact that the
136 return on investment from this group of customers is disproportionate when compared to the returns from other classes of customers and that a disproportionate amount of the rate increase asked for is placed upon the Low Voltage Commercial customers,

making the return earned from that class of customers even more out of line that it should be.

By Mr. Newman:

Q. Mr. Bernstein, I note that within your testimony you note an exhibit, which is "Usage by Customer Classes," which is attached to your testimony.

Do you recognize that document? A. Yes, sir.

Q. Was this document either prepared by you or under your direction? A. It was.

Q. Is it true and correct to the best of your knowledge? A. Yes, sir.

Mr. Newman: Your Honor, I would ask that this document be identified as Apartment House Council Exhibit Number 1 and accepted into evidence in this proceeding.

Commissioner Shannon: If there is no objection, it will be received as Apartment House Council Exhibit Number 1.

137 (Document market and received as Apartment House Council Exhibit Number 1.)

* * * * * * * * * * * *

290 You may stand aside, Mr. Parcell.

(Witness excused.)

Commissioner Shannon: We are beyond time, but we are going to finish this case, so go ahead.

Mr. Rogers: Mr. Hall.

Mr. Hall, because of his past review in a recent proceeding, will be very brief.

Commissioner Shannon: Mr. Hall's testimony has been served.

Testimony of John D. Hall, Jr.

DIRECT EXAMINATION

By Mr. Rogers:

Q. I believe, Mr. Hall, you earlier distributed testimony consisting of two pages? A. That's correct.

Q. And if questioned as shown, you would answer as shown these two pages? A. That's correct.

291 Q. And the reason you are able to be brief is because I believe your recommendations in December, 1971, were adopted by the Commission? A. Right. In a hearing we held in November,

on the last PEPCO application, I made a number of recommendations on fuel adjustments and the rate structure, and the terms and conditions, and the Commission upheld me in those recommendations and required the Company to make them effective in their rates which became effective January the 1st of this year.

Q. And to your knowledge the Company's submission in this proceeding is consistent to those Commission's findings and orders in December, 1972? A. That's correct.

Commissioner Shannon: Mr. Hall's testimony will be copied into the record as if the questions asked and the answers given.

292 TESTIMONY OF JOHN D. HALL, JR.

Q. Please state your name. A. My name is John D. Hall, Jr.

Q. By whom are you employed? A. I am employed by this Commission as Utility Tariff Analyst, Division of Public Utilities.

Q. What are the duties of the Division of Public Utilities? A. The Division of Public Utilities is primarily concerned with the rates and service of public utilities. The Division is responsible for reviewing the rates, rules and regulations submitted by the utilities and keeping the Commission informed on matters pertaining to rates and service of utility companies. It also investigates complaints received from utility customers.

Q. Have you reviewed the prepared testimony and exhibits submitted by the applicant in this proceeding? A. Yes, I have.

Q. Do you have any comments to make regarding the applicant's prepared testimony? A. Yes. I would like to comment first on the cost allocation.

Q. Has the Commission staff prepared an independent cost allocation study in this case? A. No. I have reviewed the results of
293 the Company's study. The Virginia operating expense and revenue are 2.4% of the Company total operating expense and revenue and the Virgina rate base is 2.3% of the Company total rate base. These results are not substantially different from the results of the cost allocation study presented by the Company in the last PEPCO rate case which was heard on November 20, 1972. In that Case No. 19175, the Virgina revenue and rate base were 2.4% of the Company total revenue and rate base and the Virginia operating expense was 2.5% of the Company total operating expense. It does not appear to be justifiable to prepare a separate study as I do not believe that the substantial research and extensive studies which would be necessary to

make a detailed cost allocation study would change the results obtained by the Company significantly.

Q. Have you reviewed the Company's proposed rate schedules? A. Yes.

Q. Do you have any recommendations? A. No. In the Company's last case in November I recommended a number of major changes in the Company's schedules and in Fuel Adjustment Clause. In addition I made a number of recommendations in regards to the Company's Terms and Conditions. By the Commission's Order of December 4, 1972 all of these recommendations were required to be implemented by the Company on January 1, 1973.

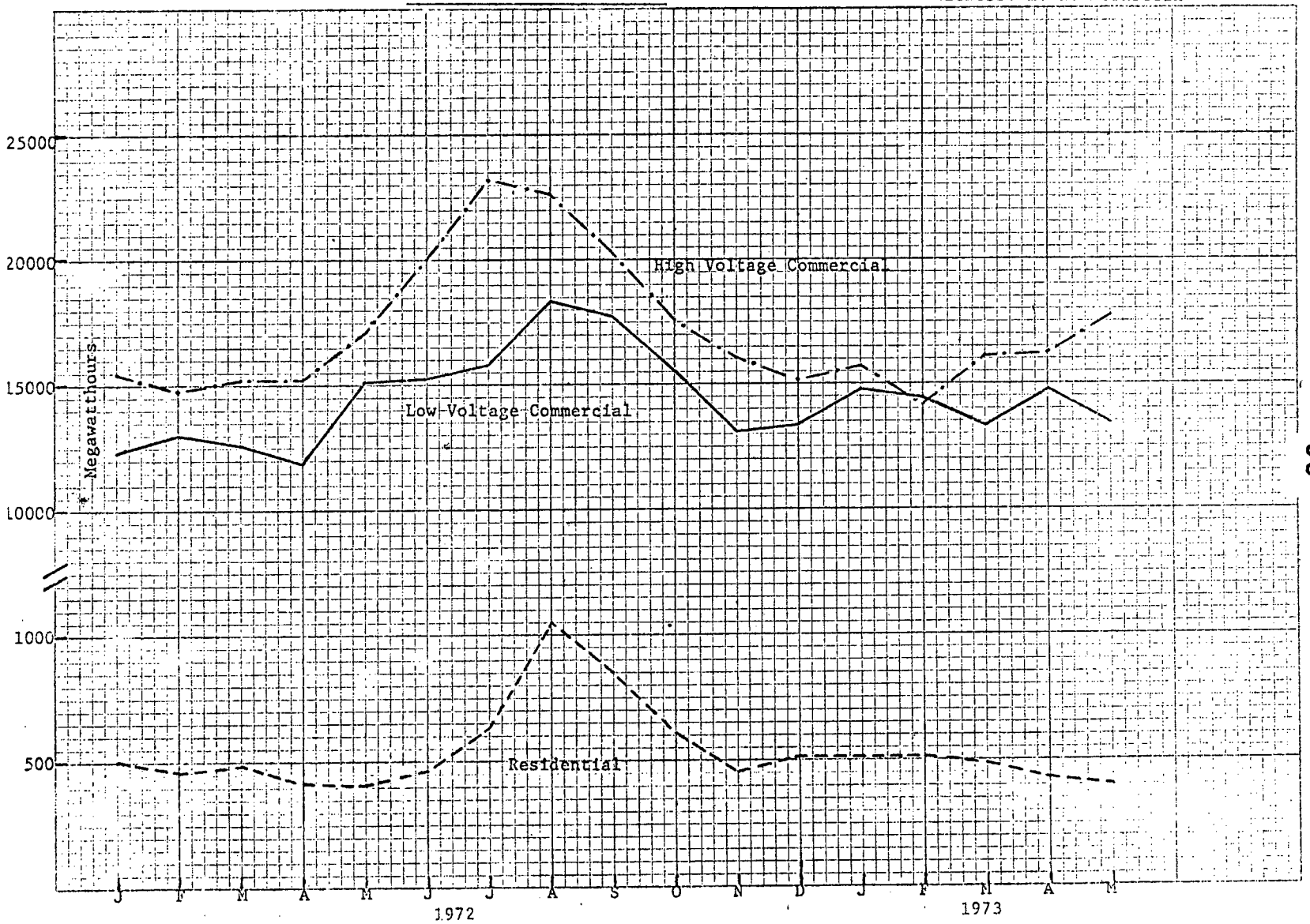
294 As Mr. Walters pointed out in his testimony the proposed revision in rates maintains the present basic rate schedules without any major structural change in form.

Q. Does this conclude your prepared testimony? A. Yes.

* * * * * * * * * * * *

Apartment House Council Exhibit No.____
Witness: E. H. Bernstein

USAGE BY CUSTOMER CLASSES



Potomac Electric Power Company

DEVELOPMENT OF RELATIONSHIPS
FOR "AVERAGE-EXCESS" ALLOCATION OF COSTS
BY CLASS OF BUSINESS - VIRGINIA

	Energy		Non-Coincident Class Peak Demands		Average Demands		Excess Demands		Weighted Components		Average-Excess
	MWH 1/	Ratio	MW	Ratio	MW	Ratio	MW	Ratio	Average	Excess	Co-efficient
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
					(Col.1/8 784 Hrs.)		(Col. 3 - Col. 5)		(In proportion to Col. 5)	(In proportion to Col. 7)	(Col. 9 + Col. 10)
Power Supply Allocation Co-efficients											
Residential	7 590	.0182	3.3	.0350	.9	.0190	2.4	.0513	.0088	.0275	.0363
General Service	187 348	.4497	44.4	.4714	21.3	.4494	23.1	.4936	.2086	.2645	.4731
Large Power	220 796	.5300	46.3	.4915	25.1	.5295	21.2	.4530	.2458	.2427	.4885
Street Lighting	862	.0021	.2	.0021	.1	.0021	.1	.0021	.0010	.0011	.0021
Total	416 596	1.0000	94.2	1.0000	47.4	1.0000	46.8	1.0000	.4642 3/	.5358	1.0000
Subtransmission Allocation Co-efficients											
Residential	7 333	.0182	3.2	.0352	.8	.0175	2.4	.0531	.0081	.0285	.0366
General Service	180 997	.4497	42.9	.4714	20.6	.4498	22.3	.4934	.2088	.2644	.4732
Large Power	213 311	.5300	44.7	.4912	24.3	.5306	20.4	.4513	.2463	.2418	.4881
Street Lighting	833	.0021	.2	.0022	.1	.0021	.1	.0022	.0010	.0011	.0021
Total	402 474	1.0000	91.0	1.0000	45.8	1.0000	45.2	1.0000	.4642	.5358	1.0000

1/	MWH Generation Level		Efficiency Factors (Subtransmission Level to Generation Level)		MWH Subtransmission Level
Residential	7 590	x	.9661	=	7 333
General Service	187 348	x	.9661	=	180 997
Large Power	220 796	x	.9661	=	213 311
Street Lighting	862	x	.9661	=	833
Total	416 596				402 474

3/ Total Weighting equal to System Load Factor: = 46.42%

AHC Exhibit 2

Virginia Electric and Power Co.
Income Taxes and Return at Proposed Rate
Test year December 31, 1972

	Test Year	Probable	Approved Level	Test Year Power	Test Expense
Revenues from Sale of Electricity					
Test Year 1972 1	$ 6,321,324	$ 191,211	$ 3,160,674	$ 2,833,009	$ 22,040
Adjustment 2	790,000	30,000	521,000	321,000	3,000
Total	7,111,324	221,311	3,900,674	3,154,009	36,040
Proposed Rate Increase 2		16.9%	14.7%	17.7%	16.1%
Rate Increase Amount	1,132,184	$ 24,123	$ 543,977	$ 558,260	$ 5,802
Deductions					
Taxes Other Than Income					
Franchise (000) 3	$ 585	$ 12	$ 281	$ 289	$ 3
Sales (000) 3	292		140	144	2
Total (000)	$ 877	$ 6	$ 141	$ 145	$ 1
Accounting Return (000)	$ 2,145	$ 48	$ 1,028	$ 878	$ 8
Accounting Return (000)	292	6	141	145	1
Total	$ 2,437	$ 54	$ 1,169	$ 1,023	$ 9
Net Revenue (000)	$ 27,034	$ 1,594	$ 13,662	$ 12,375	$ 203
Rate of Return at Proposed Rate	8.75%	3.39%	9.07%	8.27%	4.43%

1) From Virginia Class A Business Utility Contribution Statement - Electricity
2) From Virginia Allocation of Rate Making Adjustments
3) From Vol. III C (VA) EXHIBIT 5, PAGE 101 + 102

PREPARED	CHECKED
[illegible]	[illegible]
7/20/73	[illegible]

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POTOMAC ELECTRIC POWER COMPANY

COMPUTATION OF RATE OF RETURN
SCHEDULE:169

	CLASS	OPERATING INCOME (1)	INCOME ADJUSTMENTS (2)	ADJUSTED OPERATING INCOME (3)	RATE BASE (4)	RATE OF RETURN (5)
1	RESIDENTIAL	35015	0	35015	1594332	2.20
2	GENERAL SERVICE	950845	0	950845	13661885	6.96
3	LARGE POWER	726436	0	726436	12375062	5.87
4	STREET LIGHTING	7245	0	7245	203365	3.56
5	TOTAL COMPANY	1719541	0	1719541	27834644	6.18

********** YEAR 1972 - VA - AVERAGE AND EXCESS METHOD - YEAR END **********
********** JUL 15 1973 **********

POTOMAC ELECTRIC POWER COMPANY

CALCULATION OF OPERATING INCOME
SCHEDULE:167

	CLASS	REVENUES	EXPENSES	OPERATING INCOME
		(1)	(2)	(3)
1	RESIDENTIAL	193879	158864	35015
2	GENERAL SERVICE	3171790	2220945	950845
3	LARGE POWER	2833186	2106750	726436
4	STREET LIGHTING	33059	25814	7245
5	TOTAL COMPANY	6231914	4512373	1719541

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Potomac Electric Power Company

VIRGINIA CLASS OF BUSINESS COST OF SERVICE STUDY
YEAR ENDED DECEMBER 31, 1972
ALLOCATION AT RATE MAKING ADJUSTMENTS

	Virginia (000)	Basis of Allocation	Residential Ratio	Residential Amount (000)	General Service Ratio	General Service Amount (000)	Large Power Ratio	Large Power Amount (000)	Street Lighting Ratio	Street Lighting Amount (000)
RATE MAKING ADJUSTMENTS										
REVENUE	$ 885	Direct	.03390	$ 30	.60000	$ 531	.36271	$ 321	.00339	$ 3
EXPENSES										
Wage Increase	$ 51	Administrative & General	.08160	$ 4	.45687	$ 23	.44852	$ 23	.01301	$ 1
EEI Research & Development	14	Administrative & General	.08160	1	.45687	7	.44852	6	.01301	-
Employee Benefits	-23	Administrative & General	.08160	-2	.45687	-11	.44852	-10	.01301	-
Other Taxes:										
Gross Receipts	32	Revenue Above	.03390	1	.60000	19	.36271	12	.00339	-
Payroll Taxes	5	Administrative & General	.08160	1	.45687	2	.44852	2	.01301	-
Federal Income Taxes	386	Taxable Income Below	.03106	12	.60870	235	.35776	138	.00248	1
Income Tax Credit	-2	Investment Tax Credit	.06169	-	.49372	-1	.43623	-1	.00836	-
Total Expenses	$ 463			$ 17		$ 274		$ 170		$ 2
RETURN	$ 422			$ 13		$ 257		$ 151		$ 1
Taxable Income before Adjustment	$ 806			$ 25		$ 491		$ 288		$ 2
Adjustment for Federal Income Tax	-1	Administrative & General	.08160	-	.45687	-1	.44852	-	.01301	-
Taxable Income	$ 805		.03106	$ 25	.60870	$ 490	.35776	$ 288	.00248	$ 2
RATE BASE	$27 834			$1 594		$13 662		$12 375		$ 203
RETURN (6.18%)	$ 1 720			$ 35		$ 951		$ 727		$ 7
Rate Making Adjustment	422			13		257		151		1
Adjusted Return	$ 2 142			$ 48		$ 1 208		$ 878		$ 8
Adjusted Rate of Return	7.70%			3.01%		8.84%		7.09%		3.94%

Potomac Electric Power Company

DISTRIBUTION OF INCREASE ON VIRGINIA REVENUE
BY TYPE OF SERVICE
YEAR ENDING JUNE 1973

	Revenue at Present Rates (000)	Revenue at Proposed Rates (000)	Increase Dollars (000)	Increase Percent	Distribution of Increase
Residential	$ 231.0	$ 256.2	$ 25.2	10.9%	2.2%
Low Voltage Commercial	3 996.0	4 583.9	587.9	14.7	51.6
High Voltage Commercial	2 940.0	3 459.8	519.8	17.7	45.7
Street Lighting	36.0	41.8	5.8	16.1	.5
Outdoor Lighting	2.0	2.3	.3	15.0	
Revenue from Sales of Electricity	$ 7 205.0	$8 344.0	$1 139.0	15.8	
Other Operating Revenues	6.0	6.0			
Total Operating Revenues	$ 7 211.0	$8 350.0	$1 139.0	15.8	100.0%

Potomac Electric Power Company

EXAMPLES COMPARING BILLS FOR RESIDENTIAL SERVICE
UNDER PRESENT AND PROPOSED RATES
VIRGINIA

ENERGY KWH Per Month	Amount of Bill 1/ Present Rate		Amount of Bill 1/ Proposed Rate		Difference Proposed Rate Over Present Rate	
	Winter	Summer	Winter	Summer	Winter	Summer
40	$ 2.66	$ 2.66	$ 2.89	$ 2.89	$ .23	$ .23
50	2.99	2.99	3.21	3.21	.22	.22
100	4.34	4.34	4.81	4.81	.47	.47
200	7.04	7.04	7.76	7.76	.72	.72
300	9.54	9.54	10.56	10.56	1.02	1.02
400	12.04	12.04	13.36	13.36	1.32	1.32
500	14.19	14.39	15.56	16.06	1.37	1.67
600	16.34	16.74	17.76	18.76	1.42	2.02
700	18.49	19.09	19.96	21.46	1.47	2.37
800	20.64	21.44	22.16	24.16	1.52	2.72
900	21.99	23.49	23.66	26.66	1.67	3.17
1 000	23.34	25.54	25.16	29.16	1.82	3.62
1 250	26.71	30.66	28.91	35.41	2.20	4.75
1 500	30.09	35.79	32.66	41.66	2.57	5.87

1/ Excludes Fuel Cost Adjustment

Potomac Electric Power Company

RESIDENTIAL

ANNUAL BILL COMPARISONS AT AVERAGE USAGE LEVELS

VIRGINIA

Month	KWH Usage	Present Bill 1/	New Bill 1/	$	%
BASIC USE CUSTOMER					
January – 1972	206	$ 7.19	$ 7.93	$ 0.74	10.29%
February	190	6.77	7.46	0.69	10.19
March	196	6.93	7.64	0.71	10.25
April	173	6.31	6.96	0.65	10.30
May	169	6.20	6.85	0.65	10.48
June	190	6.77	7.46	0.69	10.19
July	269	8.76	9.69	0.93	10.62
August	439	12.96	14.41	1.45	11.19
September	357	10.96	12.16	1.20	10.95
October	256	8.44	9.33	0.89	10.54
November	190	6.77	7.46	0.69	10.19
December	211	7.32	8.07	0.75	10.25
Total	2 846	$ 95.38	$105.42	$10.04	10.53%
BASIC USE CUSTOMER WITH WATER HEATING					
January – 1972	1 135	$ 25.16	$ 27.18	$ 2.02	8.03%
February	1 079	24.41	26.34	1.93	7.91
March	1 152	25.39	27.44	2.05	8.07
April	954	22.72	24.47	1.75	7.70
May	947	22.62	24.36	1.74	7.69
June	1 053	26.63	30.48	3.85	14.46
July	1 060	26.77	30.66	3.89	14.53
August	1 185	29.33	33.78	4.45	15.17
September	1 090	27.39	31.41	4.02	14.68
October	1 018	25.91	29.61	3.70	14.28
November	963	22.84	24.60	1.76	7.71
December	1 168	25.61	27.68	2.07	8.08
Total	12 804	$304.78	$338.01	$33.23	10.90%

1/ Excludes Fuel Cost Adjustment.

Potomac Electric Power Company

EXAMPLES COMPARING BILLS UNDER PRESENT SCHEDULE "GS" NON-DEMAND
AND PROPOSED SCHEDULE "GS" NON-DEMAND

VIRGINIA

ENERGY KWH Per Month	Present "GS" Non-Demand 1/ Amount of Bill Winter	Summer	Average Rate per KWH Winter	Summer	Proposed Schedule "GS" Non-Demand 1/ Amount of Bill Winter	Summer	Average Rate per KWH Winter	Summer	Difference Proposed "GS" Over Present "GS" Winter	Summer
50	$ 4.20	$ 4.20	8.400¢	8.400¢	$ 4.78	$ 4.78	9.560¢	9.560¢	0.58%	0.58%
100	6.20	6.20	6.200¢	6.200¢	7.08	7.08	7.080¢	7.080¢	0.88%	0.88%
150	8.20	8.20	5.467¢	5.467¢	9.38	9.38	6.253¢	6.253¢	1.18%	1.18%
200	10.20	10.20	5.100¢	5.100¢	11.68	11.68	5.840¢	5.840¢	1.48%	1.48%
250	12.20	12.20	4.880¢	4.880¢	13.98	13.73	5.592¢	5.492¢	1.78%	1.53%
300	14.20	14.20	4.733¢	4.733¢	16.28	15.78	5.427¢	5.260¢	2.08%	1.58%
400	17.45	17.75	4.362¢	4.437¢	19.88	19.88	4.970¢	4.970¢	2.43%	2.13%
500	20.70	21.00	4.140¢	4.200¢	23.48	23.98	4.696¢	4.796¢	2.78%	2.98%
600	23.95	24.85	3.992¢	4.142¢	27.08	28.08	4.513¢	4.680¢	3.13%	3.23%
700	27.20	28.40	3.886¢	4.057¢	30.68	32.18	4.383¢	4.597¢	3.48%	3.78%
800	30.45	31.95	3.806¢	3.994¢	34.28	36.28	4.285¢	4.535¢	3.83%	4.33%
900	33.70	35.50	3.744¢	3.944¢	37.88	40.38	4.209¢	4.487¢	4.18%	4.88%
1 000	36.95	39.05	3.695¢	3.905¢	41.48	44.48	4.148¢	4.448¢	4.53%	5.43%
1 250	45.07	47.93	3.506¢	3.834¢	50.48	54.73	4.038¢	4.378¢	5.41%	6.80%
1 500	53.20	56.80	3.547¢	3.787¢	59.48	64.98	3.965¢	4.332¢	6.28%	8.18%
1 750	61.32	65.68	3.504¢	3.753¢	68.48	75.23	3.913¢	4.299¢	7.16%	9.55%
2 000	69.45	74.55	3.472¢	3.728¢	77.48	85.48	3.874¢	4.274¢	8.03%	10.93%
2 500	85.70	92.30	3.428¢	3.692¢	95.48	105.98	3.819¢	4.239¢	9.78%	13.68%
3 000	101.95	110.05	3.398¢	3.668¢	113.48	126.48	3.783¢	4.216¢	11.53%	16.43%
3 500	113.20	123.05	3.234¢	3.516¢	125.98	141.48	3.599¢	4.042¢	12.78%	18.43%
4 000	124.45	136.05	3.111¢	3.401¢	138.48	156.48	3.462¢	3.912¢	14.03%	20.43%
5 000	146.95	162.05	2.939¢	3.241¢	163.48	186.48	3.270¢	3.730¢	16.53%	24.43%
6 000	169.80	188.40	2.830¢	3.140¢	188.40	217.20	3.140¢	3.620¢	18.60%	28.80%
7 000	198.10	219.80	2.830¢	3.140¢	219.80	253.40	3.140¢	3.620¢	21.70%	33.60%
8 000	226.40	251.20	2.830¢	3.140¢	251.20	289.60	3.140¢	3.620¢	24.80%	38.40%
9 000	254.70	282.60	2.830¢	3.140¢	282.60	325.80	3.140¢	3.620¢	27.90%	43.20%
10 000	283.00	314.00	2.830¢	3.140¢	314.00	362.00	3.140¢	3.620¢	31.00%	48.00%

1/ Excludes Fuel Cost Adjustment.

Potomac Electric Power Company

EXAMPLES COMPARING BILLS UNDER PRESENT GENERAL SERVICE SCHEDULE GS
AND PROPOSED GENERAL SERVICE SCHEDULE GS
VIRGINIA

ENERGY KWH Per Month	HOURS USE KWH Per KW	DEMAND KW	Present Schedule GS 1/ Amount of Bill Winter	Present Schedule GS 1/ Amount of Bill Summer	Present Schedule GS 1/ Average Rate/KWH Winter	Present Schedule GS 1/ Average Rate/KWH Summer	Proposed Schedule GS 1/ Amount of Bill Winter	Proposed Schedule GS 1/ Amount of Bill Summer	Proposed Schedule GS 1/ Average Rate/KWH Winter	Proposed Schedule GS 1/ Average Rate/KWH Summer	Difference Proposed GS Over Present GS Winter	Difference Proposed GS Over Present GS Summer
10 000	100	100.0	$ 400.00	$ 400.0	4.001¢	4.001¢	$ 449.23	$ 460.00	4.493¢	4.601¢	12.3%	15.0%
	200	50.0	305.20	342.30	3.052¢	3.424¢	336.73	392.73	3.368¢	3.928¢	10.3%	14.7%
	300	33.3	266.62	301.05	2.667¢	3.011¢	295.81	346.79	2,959¢	3.468¢	11.0%	15.2%
	400	25.0	245.45	277.80	2.455¢	2.778¢	272.98	321.48	2.730¢	3.215¢	11.2%	15.7%
	500	20.0	243.45	275.05	2.435¢	2.751¢	270.48	318.98	2.705¢	3.190¢	11.1%	16.0%
	600	16.7	240.81	270.60	2.409¢	2.706¢	267.05	314.89	2.671¢	3.149¢	10.9%	16.4%
20 000	100	200.0	797.70	800.00	3.989¢	4.001¢	879.23	920.00	4.397¢	4.601¢	10.2%	15.0%
	200	100.0	601.70	677.80	3.009¢	3.390¢	659.23	780.23	3.297¢	3.902¢	9.6%	15.1%
	300	66.7	515.47	581.92	2.578¢	2.910¢	565.88	676.23	2.830¢	3.382¢	9.8%	16.2%
	400	50.0	466.20	521.80	2.331¢	2.610¢	510.93	612.93	2.555¢	3.065¢	9.6%	17.5%
	500	40.0	432.10	481.80	2.161¢	2.410¢	473.03	570.03	2.366¢	2.851¢	9.5%	18.3%
	600	33.3	407.72	453.67	2.039¢	2.269¢	445.97	539.61	2.230¢	2.699¢	9.4%	18.9%
25 000	100	250.0	990.20	1 000.00	3.961¢	4.001¢	1 094.23	1 150.00	4.377¢	4.601¢	10.5%	15.0%
	200	125.0	739.20	834.05	2.957¢	3.337¢	811.73	965.23	3.247¢	3.861¢	9.8%	15.7%
	300	83.3	636.94	716.68	2.548¢	2.867¢	696.99	835.64	2.788¢	3.343¢	9.4%	16.6%
	400	62.5	575.00	641.31	2.301¢	2.566¢	627.94	756.19	2.512¢	3.025¢	9.2%	17.9%
	500	50.0	529.50	588.80	2.119¢	2.356¢	577.43	699.43	2.310¢	2.798¢	9.1%	18.8%
	600	41.7	499.29	553.95	1.998¢	2.216¢	543.90	661.75	2.176¢	2.648¢	8.9%	19.5%
50 000	100	500.0	1 952.70	2 000.00	3.906¢	4.001¢	2 169.23	2 300.00	4.339¢	4.601¢	11.1%	15.0%
	200	250.0	1 426.70	1 615.30	2.854¢	3.231¢	1 574.23	1 890.23	3.149¢	3.781¢	10.3%	17.0%
	300	166.7	1 222.12	1 368.58	2.445¢	2.738¢	1 337.20	1 617.55	2.675¢	3.236¢	9.4%	18.2%
	400	125.0	1 098.75	1 220.05	2.198¢	2.441¢	1 194.18	1 453.68	2.389¢	2.908¢	8.7%	19.2%
	500	100.0	1 016.50	1 123.80	2.034¢	2.248¢	1 099.43	1 346.43	2.199¢	2.693¢	8.2%	19.8%
	600	83.3	947.61	1 045.44	1.896¢	2.091¢	1 023.51	1 259.81	2.048¢	2.520¢	8.0%	20.5%

1/ Excludes Fuel Cost Adjustment

Potomac Electric Power Company

EXAMPLES COMPARING BILLS UNDER PRESENT GENERAL SERVICE SCHEDULE GS
AND PROPOSED GENERAL SERVICE SCHEDULE GS

VIRGINIA

ENERGY KWH Per Month	HOURS USE KWH Per KW	DEMAND KW	Present Schedule GS 1/ Amount of Bill Winter	Present Schedule GS 1/ Amount of Bill Summer	Present Schedule GS 1/ Average Rate/KWH Winter	Present Schedule GS 1/ Average Rate/KWH Summer	Proposed Schedule GS 1/ Amount of Bill Winter	Proposed Schedule GS 1/ Amount of Bill Summer	Proposed Schedule GS 1/ Average Rate/KWH Winter	Proposed Schedule GS 1/ Average Rate/KWH Summer	Difference Proposed GS Over Present GS Winter	Difference Proposed GS Over Present GS Summer
100 000	100	1 000.0	$ 3 777.70	$ 4 000.00	3.778¢	4.001¢	$ 4 219.23	$ 4 600.00	4.220¢	4.601¢	11.7%	15.0%
	200	500.0	2 801.70	3 177.80	2.802¢	3.178¢	3 099,23	3 740.23	3.100¢	3.741¢	10.6%	17.7%
	300	333.3	2 380.28	2 660.02	2.381¢	2.661¢	2 608.66	3 172.31	2.609¢	3.173¢	9.6%	19.3%
	400	250.0	2 120.00	2 351.30	2.121¢	2.352¢	2 307.93	2 829.93	2.308¢	2.830¢	8.9%	20.4%
	500	200.0	1 955.50	2 158.80	1.956¢	2.159¢	2 118.43	2.615.43	2.119¢	2.616¢	8.3%	21.2%
	500	166.7	1 809.20	1 993.32	1.810¢	1.994¢	1 953.88	2 423.58	1.954¢	2.424¢	8.0%	21.6%
200 000	100	2 000.0	7 051.70	7 902.80	3.526¢	3.952¢	7 849.23	9 200.00	3.925¢	4.601¢	11.3%	16.4%
	200	1 000.0	5 451.70	6 202.80	2.726¢	3.102¢	6 049.23	7 340.23	3.025¢	3.671¢	11.0%	18.3%
	300	666.7	4 663.78	5 210.23	2.332¢	2.606¢	5 118.86	6 249.21	2.560¢	3.125¢	9.8%	19.9%
	400	500.0	4 162.50	4.613.80	2.082¢	2.307¢	4 535.43	5 582.43	2.268¢	2.792¢	9.0%	21.0%
	500	400.0	3 833.50	4 228.80	1.917¢	2.115¢	4 156.43	5 153.43	2.079¢	2.577¢	8.4%	21.9%
	600	333.3	3 519.70	3 876.28	1.760¢	1.939¢	3 805.18	4 741.48	1.903¢	2.371¢	8.1%	22.3%
300 000	100	3 000.0	10 301.70	11 502.80	3.434¢	3.835	11 449.23	13 800.00	3.817¢	4.601¢	11.1%	20.0%
	200	1 500.0	7 813.70	8 776.80	2.605¢	2.926¢	9 630.43	10 527.43	2.877¢	3.510¢	10.5%	20.0%
	300	1 000.0	6 913.70	7 726.80	2.305¢	2.576¢	7 595.43	9 292.43	2.532¢	3.098¢	9.9%	20.3%
	400	750.0	6 155.00	6 826.30	2.052¢	2.276¢	6 712.93	8 284.93	2.238¢	2.762¢	9.1%	21.4%
	500	600.0	5 691.50	6 278.80	1.898¢	2.093¢	6 174.43	7 671.43	2.059¢	2.558¢	8.5%	22.2%
	500	500.0	5 230.70	5 759.80	1.744¢	1.920¢	5 657.03	7 060.03	1.886¢	2.354¢	8.2%	22.6%
500 000	100	5 000.0	16 801.70	18 702.80	3.361¢	3.741¢	18 649.23	22 640.23	3.730¢	4.529¢	11.0%	21.1%
	200	2 500.0	12 513.70	13 876.80	2.503¢	2.776¢	13 760.43	16 857.43	2.753¢	3.372¢	10.0%	21.5%
	300	1 666.7	10 874.24	12 005.55	2.175¢	2.402¢	11 883.85	14 647.53	2.377¢	2.930¢	9.3%	22.0%
	400	1 250.0	9 932.50	10 963.80	1.987¢	2.193¢	10 812.93	13 409.93	2.163¢	2.682¢	8.9%	22.3%
	500	1 000.0	9 367.50	10 338.80	1.874¢	2.068¢	10 170.43	12 667.43	2 035¢	2.534¢	8.6%	22.5%
	600	833.3	8 585.54	9 459.62	1.718¢	1.892¢	9 293.52	11 629.82	1.859¢	2.326¢	8.3%	22.9%

1/ Excludes Fuel Cost Adjustment

Potomac Electric Power Company

EXAMPLES COMPARING BILLS UNDER PRESENT GENERAL SERVICE SCHEDULE GS
AND PROPOSED GENERAL SERVICE SCHEDULE GS

VIRGINIA

ENERGY KWH Per Month	HOURS USE KWH Per KW	DEMAND KW	Present Schedule GS 1/ Amount of Bill Winter	Present Schedule GS 1/ Amount of Bill Summer	Present Schedule GS 1/ Average Rate/KWH Winter	Present Schedule GS 1/ Average Rate/KWH Summer	Proposed Schedule GS 1/ Amount of Bill Winter	Proposed Schedule GS 1/ Amount of Bill Summer	Proposed Schedule GS 1/ Average Rate/KWH Winter	Proposed Schedule GS 1/ Average Rate/KWH Summer	Difference Proposed GS Over Present GS Winter	Difference Proposed GS Over Present GS Summer
600 000	100	6 000.0	$20 051.70	$22 302.80	3.342¢	3.718¢	$22 249.23	$27 040.23	3.709¢	4.507¢	11.0%	21.2%
	200	3 000.0	14 863.70	16 426.80	2.478¢	2.738¢	16 325.43	20 022.43	2.721¢	3.338¢	9.8%	21.9%
	300	2 000.0	12 847.50	14 138.80	2.142¢	2.357¢	14 020.43	17 317.43	2.337¢	2.887¢	9.1%	22.5%
	400	1 500.0	11 717.50	12 888.80	1.953¢	2.149¢	12 735.43	15 832.43	2.123¢	2.639¢	8.7%	22.8%
	500	1 200.0	10 991.20	12 089.80	1.832¢	2.015¢	11 914.03	14 877.03	1.986¢	2.480¢	8.4%	23.1%
	600	1 000.0	10 263.20	11 309.80	1.711¢	1.885¢	11 112.03	13 915.03	1.853¢	2.320¢	8.3%	23.0%
1 000 000	100	10 000.0	33 051.70	36 702.80	3.306¢	3.671¢	36 649.23	44 640.23	3.665¢	4.465¢	10.9%	21.6%
	200	5 000.0	24 263.70	26 626.80	2.427¢	2.663¢	26 585.43	32 682.43	2.659¢	3.269¢	9.6%	22.7%
	300	3 333.3	20 740.76	22 672.05	2.075¢	2.268¢	22 567.01	27 997.33	2.257¢	2.800¢	8.8%	23.5%
	400	2 500.0	18 857.50	20 588.80	1.886¢	2.059¢	20 425.43	25 522.43	2.043¢	2.553¢	8.3%	24.0%
	500	2 000.0	17 403.20	19 009.80	1.741¢	1.901¢	18 802.03	23 605.03	1.881¢	2.361¢	8.0%	24.2%
	600	1 666.7	16 189.99	17 709.93	1.619¢	1.771¢	17 465.50	22 001.86	1.747¢	2.201¢	7.9%	24.2%
1 200 000	100	12 000.0	39 551.70	43 902.80	3.296¢	3.659¢	43 849.23	53 440.25	3.655¢	4.454¢	10.9%	21.7%
	200	6 000.0	28 963.70	31 726.80	2.414¢	2.644¢	31 715.43	39 012.43	2.643¢	3.252¢	9.5%	23.0%
	300	4 000.0	24 687.50	26 938.80	2.058¢	2.245¢	26 840.43	33 337.43	2.237¢	2.779¢	8.7%	23.8%
	400	3 000.0	22 427.50	24 438.80	1.869¢	2.037¢	24 270.43	30 367.43	2.023¢	2.531¢	8.2%	24.3%
	500	2 400.0	20 609.20	22 469.80	1.718¢	1.873¢	22 246.03	27 969.03	1.854¢	2.331¢	7.9%	24.5%
	600	2 000.0	19 153.20	20 909.80	1.597¢	1.743¢	20 642.03	26 045.03	1.721¢	2.171¢	7.8%	24.6%

1/ Excludes Fuel Cost Adjustment.

Potomac Electric Power Company

EXAMPLES COMPARING BILLS UNDER PRESENT HIGH TENSION SCHEDULE HT
AND PROPOSED HIGH TENSION SCHEDULE HT

VIRGINIA

ENERGY KWH Per Month	HOURS USE KWH Per KW	DEMAND KW	Present Schedule HT Amount of Bill 1/ Summer	Proposed Schedule HT Amount of Bill 1/ Summer	Difference Proposed HT Over Present HT Summer
200 000	100	2 000.0	$ 7 130.00	$ 8 400.00	17.8%
	200	1 000.0	4 889.00	5 750.00	17.6%
	300	666.7	4 675.35	5 500.02	17.6%
	400	500.0	4 396.50	5 170.00	17.6%
	500	400.0	4 229.20	4 972.00	17.6%
	600	333.3	4 045.91	4 759.89	17.6%
300 000	100	3 000.0	10 520.00	12 400.00	17.9%
	200	1 500.0	7 158.50	8 425.00	17.7%
	300	1 000.0	6 038.00	7 100.00	17.6%
	400	750.0	5 618.75	6 605.00	17.5%
	500	600.0	5 368.80	6 308.00	17.5%
	600	500.0	5 094.00	5 990.00	17.6%
500 000	100	5 000.0	17 200.00	20 300.00	18.0%
	200	2 500.0	11 697.50	13 775.00	17.8%
	300	1 666.7	9 830.07	11 566.75	17.7%
	400	1 250.0	8 466.25	9 950.00	17.5%
	500	1 000.0	7 648.00	8 980.00	17.4%
	600	833.3	7 189.91	8 449.89	17.5%
800 000	100	6 000.0	20 490.00	24 200.00	18.1%
	200	3 000.0	13 967.00	16 450.00	17.8%
	300	2 000.0	11 726.00	13 800.00	17.7%
	400	1 500.0	10 089.50	11 860.00	17.5%
	500	1 200.0	9 107.60	10 696.00	17.4%
	600	1 000.0	8 238.00	9 680.00	17.5%

1/ Excludes Fuel Cost Adjustment.

Potomac Electric Power Company

EXAMPLES COMPARING BILLS UNDER PRESENT HIGH TENSION SCHEDULE HT
AND PROPOSED HIGH TENSION SCHEDULE HT

VIRGINIA

ENERGY KWH Per Month	HOURS USE KWH Per KW	DEMAND KW	Present Schedule HT Amount of Bill Summer 1/	Proposed Schedule HT Amount of Bill Summer 1/	Difference Proposed HT Over Present HT Summer
1 000 000	100	10 000.0	$ 33 650.00	$ 39 800.00	18.3%
	200	5 000.0	22 945.00	27 050.00	17.9%
	300	3 333.3	19 309.89	22 733.20	17.7%
	400	2 500.0	16 582.50	19 500.00	17.6%
	500	2 000.0	14 946.00	17 560.00	17.5%
	600	1 666.7	13 496.81	15 866.84	17.6%
1 200 000	100	12 000.0	40 030.00	47 400.00	18.4%
	200	6 000.0	27 384.00	32 300.00	18.0%
	300	4 000.0	23 102.00	27 200.00	17.7%
	400	3 000.0	19 829.00	23 320.00	17.6%
	500	2 400.0	17 865.20	20 992.00	17.5%
	600	2 000.0	16 126.00	18 960.00	17.6%
2 000 000	100	20 000.0	65 550.01	77 800.01	18.7%
	200	10 000.0	45 149.00	53 300.00	18.1%
	300	6 666.7	38 003.40	44 800.08	17.9%
	400	5 000.0	32 715.00	38 500.00	17.7%
	500	4 000.0	29 542.00	34 720.00	17.5%
	600	3 333.3	26 643.19	31 333.16	17.6%
10 000 000	100	100 000.0	320 750.00	381 800.00	19.0%
	200	50 000.0	218 700.00	259 300.00	18.6%
	300	33 333.3	184 683.25	218 466.55	18.3%
	400	25 000.0	159 075.00	187 800.00	18.1%
	500	20 000.0	143 710.00	169 400.00	17.9%
	600	16 666.7	129 883.45	153 133.52	17.9%

1/ Excludes Fuel Cost Adjustment.

[607] **PEPCO EXHIBIT #1**

District of Columbia

Cross Examination of Edgar H. Bernstein

CROSS-EXAMINATION

By Mr. Hobelman:

Q. Have you examined the results of Mr. Walter's last cost-of-service study at the proposed rates which indicates rates of return for the residential class of 5.86 percent, General Service 10.31, large power 8.79, street lighting 6.33, for a system return overall of 8.75 percent? A. I don't know that I classify that as cost-of-esrvice. We were provided with data marked "Pepco Exhibit No. 7," showing that breakdown.

Q. Do you believe each class should earn the same rate of return? A. Approximately the same.

Q. What factors enter your use of the word "approximately"? A. It is hard to get things come out just even with classes of customers. Generally the overall rate of return should be earned equally by each class.

Q. Is there any room in your opinion in rate-making for socio-economic considerations? A. So far I have not seen a convincing indication for it. There could be, I suppose.

Q. Do you believe there is any room for value-of-service
608 considerations other than those related to ability to pay? A. No. I think return should be based on the cost of rendering service.

Q. Solely on that cost? A. Mainly. It is difficult to get everything to come out just equal. But in the utilities field the principle in the is that the utility company is entitled to recover costs and earn a fair rate of return, and that should be spread equally among the classes of customers.

Q. You say it is not possible to get things to come out exactly equal. Does that relate to different experts making cost-of-service studies? A. No. I am talking about the ultimate result of the fair rate of return you earn from each class. The operating expenses allocated to each class will vary greatly. But when you add the fair return component, that component should be fairly uniformly spread across the classes of customers.

Q. How do you characterize a study designed to determine the cost of service for each class? A. Perform a cost allocation.

Q. Among classes? A. You can.

Q. Have you ever undertaken such a study? A. Yes.

609 Q. Did you use different methods for different companies at different times? A. Mainly we have used the method used by Pepco, the average and excess method. I have worked on peak responsibility, noncoincidental peak, various other types.

Q. I take it you agree for particular circumstances other methods of allocating costs among classes are used and generally recognized as acceptable? A. I seem to recall about 50 methods to allocate costs for electric utilities. Whether they are all acceptable, I don't know.

Q. Has it been your experience—not in this case but in other proceedings—where those studies have been used that two experts might study a company for the same period of time and use a different method of demand allocation? A. Oh, yes. Some use peak responsibility, some use average peak, or phantom customers, or—

Q. Sometimes all in the same proceeding? A. Yes.

Q. Any study involves a considerable exercise of judgment as far as assignment of costs, for example, is that not right? A. It does involve judgment to begin with, as to the method you will use. And the allocation factors are the judgment of the expert.

610 Q. Is it possible, given two people using the same method for the same company in the same proceeding, we might reach different results? A. You may. It is doubtful that the differences would be significant if they used the same methods.

Q. Judgment, however, does play a significant part in any of these cost allocation studies? A. To a degree.

Q. Do you agree any representation of the cost of serving a particular class of customer is not precisely a measure of the cost, in the sense picking the cost off the books of account may be precise, but it is at least reflection of expert judgment? A. That is correct. But again you have the overall cost which you spread among the classes of customers.

Too, your ultimate result is precise, although there are variations in the allocation factors used, a little bit, perhaps. It is judgment to a degree.

Q. The allocation factors may vary considerably if a different method of demand allocation is used? A. Oh, yes, if you use a different method, yes.

Q. Will you turn to page 8 of your testimony? A. Yes, sir.

Q. At the top of page 8 you say that you can "find no variation in the pattern of usage which would justify the disproportionate
611 amount of the increase being allocated to the General Services customers."

First, you represent the Apartment House Council, whose clients are largely served through the General Services rate, I think? A. That is correct.

Q. Is there any variation which—

Mr. Pilzer: I think—

I do not object to the content of the question. But the question asks if he "represents." He does not "represent." He is a witness telling what he believes to be the truth. He is sponsored by the Council, he does not represent it.

Mr. Hobelman: I did not wish to put any implication in the question. I accept the statement of counsel, Your Honor.

Mr. Neely: Very well.

By Mr. Hobelman:

Q. Is there any variation which in your opinion justifies some greater portion of the increase proposed being allocated to General Services customers? A. Not on the rate of return factor.

Q. You recognize there is some differential in cost of service? A. That is giving account in the above-the-line items. You do have
612 great variations in that. You can allocate 80 percent of the operating expenses to one class of customer. When you get to the return factor, that should be spread evenly because the cost of capital to each class of customers is equal.

Q. If the company were authorized a rate of return of 8.75 percent, it is your statement that percent should be applied to the cost of serving General Services customers, that 8.75 percent? A. That is correct.

Q. Will you turn to page 10?

One final question, Mr. Bernstein: In the last portion of the second full paragraph there you say, "Usually this would include a margin of profit on those costs."

I take it, to tenants in apartment houses, is that correct? A. Not just tenants in apartment houses, but other commercial establishments.

Q. Do you know whether or not during Phase 4 of the Economic Stabilizaton Program, any margin of profit may be passed along on electric costs? A. Under the guideline in Phase 4 no margin of profit is to be added to incremental increases in costs. Whether that is adhered to or not is another question.

Mr. Hobelman: We have no further question, Your
613 Honor.

Mr. Neely: Metro?

Mr. Lewis: We have no questions.

Mr. Trott: I have just one, if I may.
Mr. Neely: Go ahead, Mr. Trott.

By Mr. Trott:

Q. On page 4 of your testimony, on the bottom table you have shown "Rate of Return" for the various customer-types, and my question is: Does this computation include the Montgomery Utility Tax and the fuel adjustments? A. This is just for the District of Columbia.

Q. Does it include the fuel adjustment clause provisions? A. I assume that that is taken in account.

Q. This would be the total cost? A. The return, not the cost. The return element.

Q. Based on total costs? A. Right.

Mr. Trott: Thank you.

Mr. Neely: Is there cross-examination by Safeway?

Mr. Stickle: No questions.

Mr. Neely: Washington Gas?

Friendship House?

Center City?

Consumer Union?

614 (No response)

Mr. Neely: GSA?

Mr. Wolleson: No questions.

Mr. Neely: Staff: Mr. O'Reilly?

By Mr. O'Reilly:

Q. Do you know of any utility that earns the same rate of return from each class of its customers? A. I don't think I am capable to answer that question. I have not made that kind of study. But I know that certain states, like Michigan, where we have done work, they require the return from each class of customer be fairly uniform and equal.

Q. That is the only state you know of personally? A. Yes.

Q. How much variation do they allow in Michigan? A. Technically, none. But there could be some minor variations.

Mr. O'Reilly: Thank you.

Mr. Neely: Is there redirect?

Mr. Hobelman: May I ask one more question?

Does the Michigan Commission prescribe a particular method for determining cost of service among classes for allocating the demand aspect of cost?

The Witness: I do not recall what method they used in the last Detroit Edison case.

615 By Mr. Hobelman:

Q. But demand-related expenses vary with the method used? A. Oh, yes. Expenses are variable, I said. The fixed charges and variable costs are variable, and when you total them you have great differences.

I am saying the Commission does not allow a variation in the return earned from each class of customer.

Q. As far as rate base is concerned the demand portion will vary considerably depending on the method used? A. That is correct.

Q. And you don't know which method was used in the last case of Detroit Edison.

Has the Commission a policy that each applicant will use a particular demand allocation method? A. I can not answer that. I could look it up. I am not sure.

Q. I see.

Thank you.

Mr. Hobelman: Thank you, Your Honor. No further questions.

Mr. Neely: Is there any redirect?

Mr. Pilzer: Yes, please.

Redirect Examination

By Mr. Pilzer:

Q. Where did you get the allocation of cost by class,

* * * * * * * * * * * *

482 **PEPCO EXHIBIT # 4**

District of Columbia Cross-Examination of Frank S. Walters

The Witness: If you are considering what degree of reserve is available under some condition other than at peak time, and you mentioned with Morgantown down, certainly if, as has happened to the company in the last two years, we have had these unfortunate failures of major pieces of equipment, if we are in a time when we are way below what you would call normal operating conditions, it is conceivable under certain conditions that might be a more critical time than the system peak. But it would depend on many, many hypotheticals.

I think the important thing would be that you would not expect them to repeat in kind.

Other than something like that I cannot really see the association, Mr. Fowler. I don't think I have given you a good answer, but I cannot see the association.

Q. The answer is very good from my standpoint.

I believe we have no other cross-examination, Mr. Commissioner.

Commissioner Neely: Very well.

Mr. Pilzer.

Mr. Pilzer: Thank you, sir.

Commissioner Neely: You represent the Apartment House Council, is that correct?

Mr. Pilzer: Yes, sir.

Commissioner Neely: You may cross-examine.

483 By Mr. Pilzer:

Q. The category "Large Power Use" to which you referred in connection with allocation of costs refers to what class of user insofar as schedules are concerned? A. We used to call our high voltage rate schedule "Large Power," and I am used to thinking of it in that terminology.

Large power as I view it as a general term includes what we now call the high tension customer schedule.

484 Q. Am I correct when I refer to Pepco's Exhibit 7 for identification, where you refer to "large power" that would be the same thing as the services being served on your high-tension schedule? A. That is correct. The only possible exception would be that primary service customers are included in the General Service rate, and since they take service at higher voltage, could be described as large power customers, in a broad sense of the term. But you are correct, high tension and large power in this study are essentially the same.

Q. That is the point. In another case, or another place, it might mean anything else. But here, "large power" is synonymous with a user who is billed on a high-tension schedule, and general service is a user who is billed on a general service schedule? A. That is correct.

Q. In developing the figures in No. 7, he used a computer printout, two copies of which were here yesterday.

Is there one here?

As I examine the computer printout, apparently what has been done is that the company's accounts are divided into a number of numbered schedules, both revenue and expenses. Is that correct? A. That is correct.

Q. Each of these schedules was allocated based on a
485 factor which was given an enumeration of something like P-1 through a certain number, E-1, through a certain number, and—
A. That is right.

The P stands for a Produced Factor which was in a ratio—

Q. You have some 35 or 40—51, actually, P Factors, I believe. You have what was the basis for so many different factors, why was it necessary? A. Let me backtrack briefly, and address the structure of the study, if that would help.

In making an allocation we made two kinds—jurisdictional split, and this page is the end result of the one made within the District of Columbia by classes of business, within the limits of what had been already allocated by jurisdiction.

In developing any cost-of-service study our problem is in a sense to start where the accounting and financial people stop. They look at the system in general, and produce all of the significant parameters of the company, then our job is to make a distribution of those costs in a meaningful way between those several pieces.

In the jurisdictional allocation we are confronted with probably three major factors. One is the power supply; in other words the generating plants and all the interconnecting major feeders; the
486 general transmission system; and the distribution system.

The first two, the power supply and the transmission and subtransmission facilities, generally are jointly used facilities that serve all customers. In other words, this is a pool kind of concept.

So the physical location of a powerplant has no direct bearing on the allocation.

When you get down to the distribution level, at this point we are talking about substations and accompanying network of feeders that would be expected to serve customers physically nearby, we proceed on the assumption that distribution plant facilities serve customers in the geographic area where they are located.

So from the jurisdictional cost viewpoint it is not necessary to make a further analysis within that group to make further subdivisions.

But in a class of business study such as this, we are confronted with the problem that, for example a transformer may serve a residential customer and serve a small store down the street. I give that just as an example, because it means we would have to go into the nuts and bolts detail of going down the line with all the major functional items of electric equipment.

The reason there are so many factors and pieces, the person
487 who starts to make a cost of study can ask himself at the beginning if a jurisdictional split is all he will need. If that is the case, then he can save himself a lot of work by not having to go into this further subdivision.

The computer is a wonderful thing, because it does not complain about how many pieces we put in, and will add them all back up.

To make this flexible and adaptable for other forms of economic study, the approach that this particular program has, computer program, is to bring it down into what we consider to be probably the finest detail that we would want to use, regardless of the purpose, then build it back up to the larger pieces. But that is really the reason that the study has so many, many subdivisions, many factors. The program is set for a more general study than the allocation just by jurisdictions. So I think if you go through you will find some sheets have all the progams, and no numbers, and that particular factor was not used in the study.

Q. The problem that I am having is in your example of, say a transformer out on a pole somewhere, that serves a store, and a couple houses. That could be the cost of that particular transformer could be allocated and the basis of number of kilowatt hours used by each of them, could be allocated and the dollars of income they paid in past rates, or maybe some other concept. Who makes the determination as to what it is that is fed into the computer to create these
488 factors? A. Our staff does that, of course.

To address the point you raise, of the transformer, the problem of allocating transformer costs is not dissimilar in principle from lines, poles, other hardware of that kind. We use what is called a "skeleton system approach." In other words, the company has a prime responsibility to be ready to serve, if you have signed up for service. This tells no one how much service you want, but just contractual obligations that you are a customer.

The transformer approach is on the basis of considering from property records what is the minimum sized transformer that is normally installed, assume we have enough of these in stock and enough records of costs so we think we know the price fairly well.

Each customer is charged—in turn, we call this the customer component of that cost. We consider that each customer must have at least the investment necessary for the minimum facility to serve him. If you take the cost of transformers as a whole you would take the cost of this minimum-sized transformer, multiply that by the total

number of customers, and this establishes the dollars you would assign on a customer basis.

Many transformers in that transformer account are larger than that, so there are a lot of dollars left at the top after you take off
489 this minimum cost.

That difference in dollars is that portion of the load—I mean that portion of the cost that is load and side-related, so those dollars are allocated based on the kilowatts of demand of the individual customer.

Q. It is really almost parallel to the average-excess allocations that you made, in a sense; you have allocated the minimum cost to everybody, and then added on to it a factor for the excess demand for equipment that he would have, is that not correct? A. I would agree with the premise to that extent. I disagree that it is similar. It divides it into two pieces, but it is simply separating a minimum facility, whereas in the average-excess you are really talking about the optimum situation if you bought as many kilowatt hours as you did, but on a uniform around-the-clock basis.

Q. If an allocation on your area cost of service study was based on the kind of allocation that you have just described, then when you answered Mr. Fowler's questions concerning the fact that there should be a higher rate of increase applied to general-service and high-tension users, because they use less of this—less of the facilities cost, is that not in a sense erroneous, because you have built into the allocation exactly those parts of your facility which are necessary for that service?
490 A. I think you said the high voltage customer used less of the facilities' cost, I believe was your statement.

Q. Unless I misunderstood your answer to Mr. Fowler. A. Let me clarify that, as I see it. The point I was making was that the power supply cost, which is generation and the bulk transmission facilities to connect the generating stations, the cost to produce a kilowatt hour is not the same for each class of business, but it is very nearly the same, at that point, that is the generating station output, in the sense that we are talking about something on the order of a cent and a quarter per kilowatt hour.

Comparing that with the price you pay at the retail level, which in the case of the high voltage customer may be in that order of magnitude, with the residential customer maybe three times as much, the point there is that essentially that same cost of power supply facility—he does not really use less, perhaps a minute amount less—the cost of that power supply facility is responsible for, say, only 90 percent of the charge we make, whereas with the residential customer, or the general service customer who takes secondary service, we have to furnish in

addition to that all these line transformers, which is what I was talking about in this example.

The high-voltage customer does not have line transformers. And I am speaking in this question, because you asked me about how
491 many pieces there were in that, of the transformers, poles, primary and secondary lines; they are all subject to what we think is appropriate, in which a certain amount is allocated to the customer, on the assumption that the company has to be ready to serve everyone, but then the customer takes over and establishes the level of service he wants, and these things are then scaled up appropriately and in proportion to the load itself.

Q. Does not your cost-of-service allocation take into account, say so far as the large-power or high-tension customer, every single element that is necessary to serve him so far as you are able to determine it? Is that not put in the rate base that is applied to him in the study? A. We think, if our study is meaningful, it would reflect the investment cost to serve that customer.

Q. General service customers, again the rate base allocable to them includes the cost of every item necessary to give them their service? A. That is correct, under the conditions of this particular period of time. That is all we can judge by. These are the costs from the test year.

Q. Then why should we take into account the fact that there may be different needs in setting the costs, if you have already done that in the allocation? A. I think this goes to the several factors that we
492 mentioned, or that several people mentioned: the regulatory lag, as it is called, at least the time between the time a rate of return may be established by the Order of the Commission, and the actual experience of the company beyond that point.

Today what we are trying to do, as I think most utilities are, is to look at rate structures, where we go from here, how do we improve this situation, how can we perhaps in some ways compensate.

In this case we are looking at production plant, which is the prime item of our investment, and we think this is an area in which we should try to protect the entire company investment for the future. We know this is going up.

Q. Are you telling me what you are trying to do now is to get rates for high-tension service and general service, such that you will have a high enough rate of return on that to help pay costs that you are going to incur in the future because of the increase in that class of user? A. No. What I am saying is that if we raise the price of power supply equipment, or somebody else raises it, since we are not manufacturing

it, an increase in the price of 1 kilowatt, say, applied to high voltage, or one kilowatt applied to general service, or one kilowatt applied to residential, within a small tolerance of variation, in about the same thing.

493 If we assess the residential customer for this increase, looking at his average rate, in other words the end result of this thing, since he pays us for a great many other things, increasing 20 percent or 30 percent or 40 percent of our total responsibility for him has an entirely different effect in terms of the percent increase on the end result than it has if you increase it and have only 20 percent more leeway as you do in the high-voltage rate structure.

It is a difference of relating the production-supply cost, which is fairly uniform, to three greatly different prices, which are different because of things Mr. Fowler pointed out on the chart this morning, that we have to supply all these other facilities.

So we do not think it imposes on one class of customer at the expense of the other. It is just the way this thing falls in the sense of arithmetic and its relationship to other costs.

We think it is probably to the benefit of all customers, in the long haul, to solidify the rate structure, if we can, and minimize the number of calls back to this Commission.

Q. Until you spend the money to put in these new generating facilities you do not have an increase in cost of production, do you? A. Would you ask that again?

494 Q. Until you spend the money to increase the facilities you do not recognize this increase in costs, production costs, do you? A. Until we spend the money for the facilities, obviously we have not increased our obligation. We are trying to anticipate the need to do that, because we know from past experience—

As it stands today, we do not make the rate of return this Commission said a year ago was reasonable, which is the real reason we are here. So that the whole approach must be viewed from the fact that we are not making the rate of return, and will not make the rate of return, the Commission has established, assuming the same economic conditions we have now, at any time, when the new rates go into effect.

That has been well documented in the past, it is a matter of concern to regulators as well as to companies.

We are simply looking for various possible ways to—I think Mr. O'Reilly was touching on how to improve the rate structure to minimize the number of return calls to regulatory bodies. This is one area where we think there is a major problem.

Q. Another justification you gave for the difference in these rate schedules was that the individual must pay his own bill, while a commercial entity can pass it on. A. I was simply repeating what have been the general statements in the industry of that type.

495 Q. Do you consider that a good criterion? A. I think there is a lot of sense to it.

Q. Is it one of the criteria you use? A. I would not say we use it specifically.

In the case of the commercial aspect there is the other aspect that even if you do not change the price of your product the cost of electricity in a going enterprise is tax deductible in computation of income tax.

Q. We will deal with each of those separately.

Do you know what percentage of your general service users are apartment houses or multi-family dwellings in the District? A. I don't have a figure with me.

Q. Could you supply that? A. Yes. It will have to be our estimate of that. We don't have a direct record.

Q. That will be satisfactory.

As to those people, to whom would it be passed on, apartment houses and multi-family dwellings? A. Of course the apartment house, and I think you are referring to master-metered apartments in which the tenant is not directly responsible for the cost of electricity—

Q. I am referring to anyone on general service. A. That would be the one. You have a multiplicity of dwelling units, the nature

496 of the service is less.

On the other hand, there is the consideration if that building had been wired so that individual bills were paid. I think in all probability they would be paying more than they are paying now under the general service rate.

Q. That is not responsive to the question. The question is: Is it not a fact that the same tenant is going to pay that in his rent whether you pass it through the landlord or not, if the landlord passes it on? A. I am sure that is correct.

I agree an apartment operation is not quite the same as a day-to-day going business such as merchandising.

Q. As far as being tax-deductible, if I have an increase in my electricity rate, in any kind of business, perhaps I can write that off as an expense, but I have to pass on every single dollar of that to get gross income to cover it. So the net effect is meaningless. The Government does not contribute any of that money to anyone. A. I say that on the basis if you operate a business and electricity is part of your expense, the expense would go up if the price of electricity goes up. What happens to you individually depends on your own business circumstance.

Q. I do not see how that is a factor for rate-making considerations, since somebody down the line, the consumer, will have to pay the same number of dollars it went up, for everything to come out even, is
497 it not true? A. It is another one of these generalizations, such as that the residential customer has no one to pass this on to.

Q. Were you able to quantify in any way these two general considerations? A. No, sir.

Q. To what extent did that affect your judgment in allocating the percentage of increase to each of these classes? A. Probably not at all directly, except that I think this is the general relationship that exists throughout the industry. I think this has been recognized by regulatory process in a broad general sense. Certainly the relationships of rates of return by general classes of business are in a broad sense, as I have said, low for residential, high for commercial.

Q. How did you determine, now referring to the exhibit marked W-101—I believe that shows that 13 percent of the increase—

Commissioner Neely: What exhibit number is that, counsel?

Mr. Pilzer: I believe it is Exhibit 5, page W-101.

By Mr. Pilzer:

Q. How did you determine that residential increase is at 12 percent, while general service—am I correctly assuming that low voltage
498 commercial is the same as general service and high voltage commercial is the same as large power? A. That is correct. The only real difference is that in the low voltage commercial we have included such small schedules as temporary service.

Q. That is so small as to be relatively meaningless? A. That is right.

Q. How did you determine that the percentage increase should be exactly 12 percent increase on residential, and 18.2 percent on general service? A. We did not approach it from the final result going back.

The problem basically of rate design in this case embraced several major considerations, one of which was this continuation of our policy to increase summer differentials over the winter rates.

So the percentages are the end results of a multiplicity of decisions about the schedules themselves, the rate differences, and how they apply in the two seasons of the year, then how they applied to the actual billing statistics for that year.

We did not start with the 18 or 19 percent as the arbitrary figure. We worked back to that.

Q. Then what did you use to quantify the amount of in-
499 crease between the summer and the winter differential? How did you get the numbers? A. I will put it this way: We are moving in the direction of a greater difference in the charge we make for service in the summer and service in the winter.

There are several reasons for that.

Obviously, if you have a customer and serve him on a 12-month basis, and he is not going to move, except for the distribution of revenue between the 12 months and the effect on his pocketbook it wouldn't make really much difference how you billed him as long as you collected the total dollars for the 12-month period.

I think rate-making in all of its complexities has been a continuing compromise of this kind, because if you take a pure cost approach to one of these allocations there are judgmental elements along the way, depending on what should be considered to be a capacity cost, what should be considered an energy cost; and if you take the approach, as many people do, that assigns practically everything in capacity in the way of plant you end up with the kind of rate you would not want to use. By that I mean it would have a very large demand charge and very low energy charge.

This kind of rate is used in industrial processes because it is directly applicable to the economy of industrial operation, that kind of thing.

500 In the case of most relationships between the company and its commercial customers and its government customers there has been for many years a feeling that people did not like excessive demand charges, so that some of the demand charge is normally included in the actual energy charge as the schedule states it is.

So you have a designer's option, you might say, of whether you are going to raise this demand charge to a very high level and charge practically for nothing but the energy and a little operational labor energy cost. But generally speaking, that is not a very attractive rate form for the average customer. We are in the middle of continuing compromise. We are now recognizing the fact we do have a summer load, have many questions raised about rate structure, rate form, talking about elasticity, using rates for.

We are looking for ways to improve our stability of position so we do not have to come back here. One of those ways has been to steadily increase the summer-winter differentials.

I mentioned the basic rate form because if you talk pure cost we can go considerably more than we have here. So our numbers are really determined by discreet steps. We have moved these up on

several increments in successive cases and made them applicable in the residential schedule, down a little lower in the schedule, on the second time around.

501 We have other considerations involved, for example in the residential rate, which gets the 12 percent increase we have this question that we have discussed of the relationship of the power supply cost to total cost. We have also other considerations there that this Commission has directed our attention to. In the past two rate cases we talked about the increases to small users, and more or less set a figure of 300 kilowatt hours per month as kind of a good post.

So there is a question of how severely you apply a burden of cost in that region.

All these things have to be considered in their aggregate. The end results are simply the composite of all the thinking that has gone into each schedule, each bill comparison, and each seasonal differential.

Q. How do we get the general consideration down to exactly so many cents, in dollars and cents? A. I would say rates are not made on a specific cost relation basis. It is not really possible or practical to do so.

Q. Anyhow, your rates were not? A. They were not. However, they were not made without consideration of cost. But they are not penny-by-penny and block-by-block a cost development. I don't think it could be done.

502 Q. Would you say 50 percent of your consideration was cost and 50 percent other reasons, or what? A. I can't put a value on it. We are very much concerned with costs.

Q. Was one of your considerations, when we talked about the small, 300 kilowatt user, the fact he could not afford to pay any more? A. That is certainly an area in which this would be a possibility.

Q. Was that a very important consideration to you? A. I would not class it as an "important consideration," No, sir.

Q. You talked about in certain areas in general in rate-making for industrial users, that it is a good idea to relate costs very closely to peak demand, if I understood you. A. I simply said in some forms of industrial rates it is the practice to include all the demand cost in a specific demand charge, and include in the energy charge all the things that are unmistakably energy-related, and of course fuel is one of them.

The reasons there are basically because of, for example, shift operation, such things. A man can plan specifically what the effect would be. We don't have that situation in our own territory, because

503 we don't have that kind of market.

Q. So that is a reason that wouldn't be a good way to relate costs to, say, an apartment house, it does not have the ability to move its peak? A. I would agree with that.

Q. When we talk about something you call "value of service" as a consideration in rate-making, that consideration is really another way to say that you charge what you can get for electricity in relation to the cost of some other substitute source of energy, is that not right? A. That is correct. I smiled because I thought you were going to say "what the traffic will bear," which is sometimes stated, which is not true.

Q. No. The difference is, in this case, that is an inducement rate to get people to use electricity, is it not? Because if we use value of service, if you charge too much the person will use the other source of energy? A. That is the concept, yes.

Q. Did that concept enter into your judgment in setting any of these rates? A. Value of service is very definitely a consideration. We have gone through a cycle over the last five or six years, at least a transition, I will say, in the changing atmosphere of promotional activities in the utility field, as I am sure you are well aware.

504 Our activities today, and I think Mr. Thompson touched on this the first day, are basically related to load improvement, selective load building.

I did mention that. And that is an area in which there is some consideration of value of service.

When you speak of quantifying, this of course becomes less as other fuels are in limited supply. So it is a little bit insoluble at that point.

Q. When you discussed with Mr. Fowler the difference between the average and excess demand method of allocation of these costs and the noncoincident peak method, as a matter of fact in the particular instance right in this case, looking again at Pepco Exhibit No. 7 for identification, page No. 3, they are extremely close, in that there would only be a 3 percent difference between the high-tension user and the residential user, by the two methods, and the general service and street lighting would remain exactly the same, is that not true? A. You lost me there. Which figures are you looking at?

Q. Let me rephrase the question.

If we used for allocation purposes only the ratios in Column 4, that would give us an allocation based strictly on noncoincident peak demands? A. Yes, sir.

Q. If we used the factors that appear in Column 11 we are
505 then using the average-excess method for allocating? A. That is correct.

Q. And those two columns are identical for street lighting and for general services, are they not? A. Yes, sir.

Q. So it is only a 3 percent difference between the residential and the large-power users—maybe my figures are wrong.

It is 3/10ths of a percent. A. That is correct.

Q. It is a factor of 3, one-thousandths, on a factor of— A. Three ten-thousandths.

Q. It is a very small amount. A. Point 0003.

Q. If we are worried, if we are really worried about the problem of capacity, we would be talking about coincident peak, would we not? A. I don't think that is true. The coincident peak developments we have yield essentially the same results. They are not on the sheet, because that coincident data is not needed to develop these factors.

Q. Would it make a big difference to you if the peak—Getting back to value of service, now, if you could put on line a service which has, say, a high peak in January, at night, its cost to the company as
506 far as the need to add capacity would be very low, would it not? A. That is correct, depending on the season of the year and assuming it did not conflict with maintenance schedules.

Q. That is the very essence of this value of service concept and the company's equalizing load factor concept, is it not?

What I just said is the essence of what you are trying to achieve? A. Yes.

Q. Is that taken into account in any way by either the noncoincident peak method of allocation or the average-excess method of allocation? A. I am sorry, but I am lost.

Could I have that read?

507 Q. Well, to the extent that you are allocating costs on either the noncoincident peak method or the average-excess peak method, it does not make any distinction between a user who is using it at right in the middle of August at the worst possible time, say, and a user who uses his peak on June 15; if they use the same numbers they will come out with the same costs? A. Well, that is true. But you are talking about past history. This is the allocation of costs against loads that have existed.

Now, if we talk about offering a service for an off-peak load that we do not now have, fitting that into the jigsaw puzzle of everything else, then you establish a new time of peak and a whole new set of conditions, so that customer would not be necessarily served in the same sense by this allocation method.

But if we had a class of business with that very unusual characteristic we would take a second look at it, of course.

Q. The point I am trying to understand is that on the allocations you have made that is not a factor in those allocations, the factor of when the peak occurs? A. That is essentially true, yes.

Q. You testified that PEPCO's Exhibit 7 is an area-wide, in other words, that is all the jurisdictions you serve, is that a correct
508 understanding, rather than solely D. C.? A. No, this is within the D. C. sector.

Q. Then I misunderstood. A. This takes, in a sense the end results of allocation by jurisdiction, taking out the strict segment and allocating that to the several classes of business within the district. In other words, to cover the whole gamut there could be a similar treatment or Maryland, Virginia, etc.

Q. So the only place you were referring to overall was when you talked about the column headed "Non-Coincident Area Peak Demands," and you—does that also only apply to D. C.? A. I think that is really a misnomer. I think the term "area peak" should be corrected. It is Class Peak. I am sure the terminology was copied from the work sheet for the other study. I am sorry. That is incorrect and misleading.

Q. Should we then consider this an amendment of your exhibit, and write in here the word "class", rather than "area"? A. Yes, sir. That would be correct.

Q. Did you make any study to determine among these classes when the peak demand occurs in relation to the calendar year and in relation to the maximum people of the company? A. The development of the peak demand by classes is part of the backup material in this kind of study, part of the backup material in our entire
509 study, in other words, the current year.

The peak demands result from the statistical method of taking measurements made in the field and combining them for the residential and small commercial customer, where we use metered demand data where we have a graphic representation. Some of that, developed by statistical methods, is obviously not as precise as the metered part of it. But there is no other way to appraise that. And the result of that does give us the class demand we have used, and they will indicate the peak, give an indication of the peak, by classes.

Q. When we talked about these class peak demands on Exhibit 7, those are a figure generated by arithmetic, as you demonstrate in your example, and not necessarily by the actual peak in relation to the actual average use, the average level of use? A. On the average-excess sheet in the case of the residential class this has to be entirely generated, because we do not have demand measurements in the indi-

vidual homes. So this is developed working back by a rather complex process. We think it is actually pretty precise.

What is done is this: We put special magnetic tape recording instruments in the field, for a month at a time, giving us a 24-hour-a-day record of the variation in use for that period.

510 When we get those results they are punched into a computer, and say 30 customers in one test cell—we usually use 30 to 50 as a group—will be run together and from these simple additions—we use the computer because you would go crazy doing it by hand—you have a 30-day record. You have your measurement for every hour of the 30 days, for 30 customers.

You add these, and screen it, and find out when the maximum demand occurred of all customers at the same time. In other words, Customer A might peak on Monday, Customer B on Tuesday, so forth. There is a certain degree of coincidence, certain degree of non-coincidence. But this measures for us the coincident demand of that customer group.

We also get from that the corresponding individual demand for a home of a certain number of kilowatt hours use.

Of course, this is a wide statistical spread, because everybody does not behave in just the same way. But this gives us the lead to developing these for another year, because we know the kilowatt hour measurements and can subdivide them into the various groups to apply the test data to the new kilowatt hours; so this takes into consideration the growth from one year to the other.

Q. As to residential usage, are you as a result of this study able to tell to what extent this residential use, the peak on residential use, coincides with the peak that occurs on all the other classes of service?

511 Secondly, can you tell to what extent the peak use by residential users is related to their more level use throughout the rest of the year? A. The development gives us both the magnitude of the demand and the shape of the load curve.

Q. And, of course, you kept it by time? A. Yes. You can tell the time of occurrence.

Q. The point I would like to determine is: In the last Baltimore Gas and Electric case they made an analysis of this which they put in evidence, and it shows that on residential uses the peak occurred at the worst possible time and the use by residential users has a much greater divergence between the peak and their normal level throughout the year.

What I want to know is whether or not this is also true in the D. C. area, if you have figures to show whether it is true or untrue. A. It does not occur at the worst possible time. One of the things we observe is that residential air-conditioning, for example, while obviously it peaks in the summer months, as any air-conditioning, it tends to peak a little later in the afternoon than the commercial. There is not a great separation, there is a difference. The residential air-conditioning curve starts to build up in the middle of the day and tends to increase. The other extreme is the office building that goes up in the morning, stays quite flat all day, and comes down at the end of the business day.

512 You do not recall the time Baltimore considered the worst, do you?

Q. Yes. It was late in the afternoon, about 4 o'clock in the afternoon, when the two peaks coincide. A. That is earlier than the time we usually look at as our peak time.

Q. It was around three or four, I don't recall exactly. A. I would say our residential air-conditioning load—I cannot separate it, because it is not all separately metered but I judge it peaks around 4:30 or 5:00.

Q. Based on that, then, there is not a substantial division between residential demands on the system and the general service demands, as far as the magnitude of peak in regard to other usage, or with regard to the time at which it occurs? A. You have to relate magnitude as to how many residential customers compared to how many commercial customers.

Q. No, I am referring to load factor considerations, whether a house uses its peak at 3 or 4 times the level of use at other than peak times, or only twice, or once and a half, say. A. I think two or three times is too high.

Q. Do you have summarize of studies you have made which would show this as to general service and as to residential users?

513 A. We have, of course, the kilowatt hour sales by months, which would show you the summer increase, and you can presume that that represents the load.

Q. Do you have those readily available by months, distinguished by class of service, that you could let us have without much trouble? A. Yes.

Mr. Pilzer: I would appreciate your doing that.

Commissioner Neely: Do you have many more questions?

Mr. Pilzer: I don't think I have too many more. It is a little hard to tell, because of the answers.

Commissioner Neely: We will adjourn now and start at 9:30 tomorrow morning. We will go all the way through tomorrow, and we should finish up cross-examination.

(Whereupon, at 2:35 p.m., the hearing was recessed to reconvene at 9:30 a.m., Friday, June 22, 1973.)

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515 PROCEEDINGS

Commissioner Neely: The hearing will come to order, please.

Mr. Pilzer, you may continue cross-examination.

Whereupon,

Frank S. Walters

the witness on the stand at time of recess, resumed the stand and testified further as follows:

Mr. Pilzer: I have just been handed by the company some information relating to my question of yesterday. The form is not as complete as either I or, in some cases, the company, would have liked, such as the spreading of the 117.1, that we talked of yesterday. So they agreed to submit it to me later, and we can put it in the record then, rather than at this time.

Commissioner Neely: Very well.

Cross-Examination (continued)

By Mr. Pilzer:

Q. Has there been a study made, Mr. Walters, as to the cost of providing service related to the level of use by the user? A. No, sir. Only the indirect information you would get from a class load study such as the one we have put out.

That would not really answer the question. The answer is "No."

516 Q. Yesterday you referred to the fact that in readjusting these rate schedules, you said, you have intended to increase the blocks of larger useage more than the blocks of less useage. A. That is correct.

Q. What was the basis of the magnitude of that differential? How did you decide? A. Again, the amount of adjustment is not a mathematically determined differential. It is basically an approach to applying a larger increase in the region where we thought it should apply, and our desire particularly to increase in assessment on the summer load, for one thing.

Q. At any rate, to start a "fair" rate, we have to relate the increases to some criteria, do we not? A. Not necessarily a mathematical criterion. We have developed, I think in the testimony yesterday, quite a few of these various underlying factors.

The final development, of course, lies within the framework of the total corporate revenue requirements. So we are working back from that in kind of a jigsaw puzzle, putting together the pieces to satisfy all the objective, not the least of which would be the relationship of comparative bills under new and old rates, so forth. These are mechanical considerations, but very real. All these things together, for the difference.

517 Q. Is it fair to say you can not quantify the considerations you used in putting a larger increase on the larger user as opposed to the lesser user? A. Yes, sir, I would say we did not quantify them.

Q. With respect to Exhibit 7, can you explain to me the difference between the rate of return shown in Column 5, page 1, and the rates of return shown— A. I have to ask for another copy of Exhibit 7. I did my arithmetic on that last night, and I don't know what happened to it.

Q. I show you mine.

Will you explain the difference in the rates of return shown in Column 5, page 2, Exhibit 7, and the rates of return shown on the footings of the four columns on page 1 of Exhibit 7? A. The rates of return on numbered page 001, from the computer printout, are the basic rates of return computed before the allocation of the rate-making adjustments. Those at the bottom of the first page are the final results on the basis of having distributed several rate-making adjustments shown on the top sheet, the various adjustments Mr. Davis, I think, explained in his testimony.

Q. Thank you, sir. A. You are welcome.

Q. This is not an exhibit, this is GSA's copy, but I want
518 you to refer— A. Excuse me. I believe I have a copy of that document.

Q. Okay.

May I ask you to refer to Schedule No. 168, which is identified as page 002 of the computer printout, and continuing on through page 003?

Commissioner Schneider: Mr. Pilzer, does that paper have a title, or something to identify it for the record?

Mr. Pilzer: Perhaps I should have it marked for identification. They have been described as the worksheets that were the backup for Exhibit 7 for identification.

Commissioner Schneider: Thank you.

Mr. Pilzer: Which was introduced by the applicant.

Actually, I have answered the first question I was going to ask, which is "What is this?"

By Mr. Pilzer:

Q. Is it correct, sir, that the two pages I referred to are worksheets that were part of the backup for Exhibit No. 7, introduced by the applicant? A. Yes, sir.

Q. They contain six factors used in the allocation of the expenses and income in connection with the allocation of the cost of service study, do they not? A. Yes, they do.

519 Q. As to the general service class, all of the factors used under the headings "Demand," "Energy", Transmission Demand," "Subtransmission Demand," and "Distribution Demand," are between 55 and 57 percent, are they not? A. Yes.

Q. Does that indicate to you anything as to the load factor of that class of service, what that load factor is? A. No, not by itself. It really indicates the relative magnitude of the general service class of business in relationship to Pepco's total business. "D" factors are basically demand-related. "E" is the measure of the energy in kilowatt hours. The "P" factors are produced factors developed within the study.

The only relationship to load factor would be the relationship of the factor for the energy component and the demand component, but these would also reflect the effects of all the other customers in that tabulation.

Mr. Pilzer: Could I obtain from the company copies of these two pages, so we could mark them for identification?

Mr. MacRae: The company does not have copies. There are only four in existence.

Mr. Pilzer: I meant only Xeroxed copies. I noted you were able to reproduce page 001, and introduce it as Exhibit 1. I wondered if you could do the same thing for pages 002 and 003.

520 Commissioner Schneider: I believe we can have copies made here, if you want to put them in the record.

Mr. Pilzer: Thank you. I believe I could do that during a recess.

Commissioner Schneider: All right.

By Mr. Pilzer:

Q. Does the fact most of these factors are in the range of 55 to 57 percent indicate that as far as cost of service is concerned about half of all the different facilities of the company are allocated towards general service, in your study? A. Yes; about half, on the basis of 55 percent being about half.

Q. Yesterday we discussed the establishment of the rates. I believe you testified that the following elements were considered in establishing the general service rates, in fact all of the rates, I believe: return-on-rate base, cost of providing service other than return-on-rate base, and the value of service.

Were those three elements considered in connection with each of the schedules? A. I don't recall discussing the second item, as such. Maybe I do not follow your description.

Rate of return—

Q. Those were not exactly your words. I was characteriz-
521 ing it. One is return on the actual rate base dedicated to the service. A. Right.

Q. The second was elements of expense in providing that service, other than return-on-rate base? A. All the elements that go into the expenses.

Q. And the third was the value of service? A. Yes.

Q. Is your answer that all three of those were considered in establishing rates for each schedule? A. For each of the three major schedules; limited to that.

Q. What are they? A. Residential, general service, and high tension, excluding such things as street lighting, special service.

Q. Can you relate any additional items which were considered in establishing the rate schedules? A. I think probably the most important factor really in many ways is the body of statistics, the billing statistics of all of the customers in all of the classes, because those are the items with which we must work in developing a rate that would produce the desired revenue.

So we spend a great deal of time, in developing rate schedules, in developing various statistical backgrounds on which these are predicted. That is a very major element.

522 Q. Was there any other element than the three I mentioned plus billing statistics? A. I do not recall any at this time.

Q. Can you tell me in what way you used return-on-rate base in connection with the general services schedule? A. I would say we are concerned about return-on-rate base simply because this is the measure

of the total revenue that is required from the class. In other words, the increase in return by applying tax factors leads to the necessary increase in revenue, contained I believe in Exhibit—let me give you the number.

Mr.Hobelman: 5, I believe, Mr. Walters.

The Witness: Yes, contained in 5, page W-102, which gives the development for the District of Columbia volume of business.

That leads to the total revenue figure for all classes of business, and we discussed yesterday how the many factors involved—the factors, and the way it was assigned to the classes.

Basically the rate of return was used to assign the District of Columbia target revenue increase figure.

By Mr. Pilzer:

Q. Then, is it correct that you do not use rate of return on the rate base for each schedule in establishing that schedule? A. That is correct. We did not.

523 Q. How did you use cost of providing service other than return-on-rate base in connection with the establishment of the general services schedule? A. I think only in the sense that the cost of providing service is in turn reflected in the additional revenue required for the District of Columbia business. So each element contributes to it.

We did not make a cost of service by class-of-business study to develop rates on a cost basis from that study, which I think is the thrust of your question, if I understand it. We did not do that.

Q. In other words, you used it only in the totality for the entire expenses of your operation for all classes of service to find out how much net revenue you would have after paying expenses, is that correct? A. That is correct. I think that is the general practice with most utilities. There are very few instances where a class of business study is absolutely required, because of their controversial nature and the limits of their accuracy.

Q. How did you apply the criteria value of service to the establishment of the general services schedule? A. In a broad sense of the word, we were discussing that in connection with the additional rate differential for summer loads.

524 There has been a great deal of discussion in the industry, as you know, with regard to price elasticity and the various ways people feel possibly a rate could be used to control demands, conserve energy. In my judgment, these are questionable.

But the application of anything of that kind does evolve back to the value of service, because there is a question of the price elasticity that may or may not be present.

Q. I think you testified yesterday that in your opinion there was no price elasticity to amount to anything in connection with air conditioning loads. Is that correct? A. That is correct. The feeling I have personally about that is that in a city such as Washington, where we do have a great deal of uncomfortable weather, we are up against the problem of people using the service on the hottest summer days. I think other witnesses have testified to that point.

The only possibilities we see at all, when elasticity might have any effect, would be the possibility of encouraging people to perhaps reduce their consumption on a few of the less uncomfortable days in the summer.

Personally, I think that would be more or less temporary, and they would come back normally to full use of it.

525 Q. I want to get to which element you really used in developing the rate schedule.

If I understand what you are saying to me now, you gave very little consideration to value of service, so far as the GS schedule was concerned. A. I would say that is true, with one exception, that in any instance where we talk of direct competition with other fuels, that is an area where elasticity is definitely present, in the competitive substitute product concept.

Q. Except for the heating— A. Except for the heating, there is very little consideration.

Q. As to the billing statistics in what way did you use that criterion in establishing the general services schedule? A. I am referring to all the records of kilowatt hours by blocks, the basic statistics to which we apply the rates to develop total revenue. Those statistics are there, they can be altered if we feel, say, that there is need to change a block interval. That is the sort of thing we have to develop if we feel it is necessary. We did not feel that was necessary in most cases here.

Q. You did not? A. No, there was one change in the residential schedule. I believe that was the only block change.

526 Q. So you gave very little consideration, if I understand you, to billing statistics in establishing the general services schedule? A. No, just on the question of possibly altering. I did not say we did not give it full consideration. The fact we did not make a change doesn't mean we did not examine it thoroughly. We examined it and decided the present structure is satisfactory.

Q. As to any of the criteria we have discussed, did you develop a matrix, or formula, by which you applied these to the raw data to obtain a rate? A. No, I don't think so. All rate calculations lend themselves to algebraic treatment, just to simplify the process. We do a lot of algebraic work in working with any rate structure.

I wouldn't say we set up a special matrix, no.

Q. Did you use any graph curves in establishing the general services rate schedule based on these criteria? A. I think rate designers are practically constantly drawing curves of one kind or another. I am sure we drew many in the course of development.

Q. How did you use them? Can you tell me? A. For example, the simplest curve I think that you can draw is one showing the decreasing price per kilowatt hour as consumption goes up, just by applying the schedule. That is a fairly common application of rate information.

527 Q. Did you draw such a curve or have one prepared for the general services schedule? A. I am sure we have prepared something for the general service schedule. This would not be a formal curve. That would be somebody's scratch work on a sheet of paper.

Q. You did not then refer to that in establishing these rate schedules, did you? A. Yes. We use graphical representations as we go. We establish a tentative rate structure, apply certain prices to the blocks, and then we want to see what that does to the rate, what it does to comparative statistics, new rates, old rates, where the differences lie to avoid abrupt and undesirable changes in price level, such things.

Frequently it is a process of successive measurement of that kind.

Q. In other words, that is applied after you develop a schedule that you want to test out, you then make a curve and see how it looks? A. That is correct.

Mr. Pilzer: I believe those are all my questions, subject to obtaining the additional information. But at this time I will conclude.

Commissioner Neely: Very well.

Let the record note that Metro has indicated to the Commission it does not wish to cross-examine.

528 Mr. Pilzer: I would like to handle the matter of copying the sheet I wanted to put in, and mark that as an Apartment House Council Exhibit.

Commissioner Neely: Let it be marked as Apartment House Council Exhibit 1 for identification.

(Apartment House Council Exhibit No. 1 marked for identification.)

The Witness: May I ask, those are pages 001 and 002?

Mr. Pilzer: No. Pages 002 and 003, I believe.

The Witness: That is right.

Commissioner Neely: Mr. Frank Stickle, of Safeway Stores.

Mr. Stickle: May the report reflect I here represent Safeway Stores, Incorporated, Intervenor.

Commissioner Neely: The record may so reflect.

By Mr. Stickle:

Q. I am sure one way or another these questions have been answered, but if you could give me some fairly brief answers to these questions I would appreciate it. A. I will try to.

Q. Referring to Pepco Exhibit 5, Sheet W-101, I think you discussed this yesterday, it is indicated that the residential rate is proposed to be increased 12 percent and GS-18.2, high-tension 19.0, about an average of 18.45 percent for the two commercial rates.

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PEPCO EXHIBIT # 5

Maryland Cross-Examination of Frank S .Walters

864 Mr. Pilzer: If it please the Commission, I also cross-examined Mr. Walters in the District. However, there are two things. One is I would ask—I want to meet with counsel for the Company, we have agreed, because there are figures referred to and exhibit numbers that won't make sense in connection with our record. As to those, we will attempt to reach a stipulation and file something in writing to correct that part of my cross-examination and refer to it so it will make sense in this hearing if that will be satisfactory to the Commission.

Mr. Hobelman: We have agreed, your Honor.

Mr. Pilzer: I do have a few questions and several exhibits I want to introduce in addition to what went in in the District.

Commissioner Shoemaker: All right, sir.

Q. (By Mr. Pilzer) I show you what has been marked as Intervenors Apartment House Council Exhibit No. 1. I ask you if you can recognize that. It consists of four pages, does it not?

865 A. Yes, it does.

Q. Can you tell me what that exhibit—do you recognize what that exhibit is? A. Yes, I recognize it.

Q. Can you tell me what it is? A. Yes. This is an exhibit which we supplied or, rather, a study which we supplied at your request, which shows the Maryland class of business cost of service breakdown.

Q. On the first page of that exhibit, sir, does it show the adjusted rate of return by class of business? A. Yes, it does.

Q. What are they? A. Beginning with the adjusted rate of return for the business in Maryland of 7.52 percent, the rate of return on residential business is 5.52 percent, on general service 10.23 percent, on large power service 7.52 percent, and on street lighting 4.06 percent.

Q. On page two of that exhibit, in the column called Rate of Return, No. 5, it also shows rates of return that are apparently
866 represented by each of the classes you just enumerated, does it not, sir? A. Yes, sir.

Q. There is a difference between the rates of return shown on page two and the ones on page one. Can you explain this, sir? A. The rates of return on page two are rates of return that came out of the computer studies but do not include the allocated rate making adjustments that Mr. Davis discussed.

The top sheet of Exhibit 1 includes in the computations those adjustments.

Q. Page three of Exhibit No. 1, Intervenors Exhibit No. 1 for identification, that shows the raw dollars in the same categories, does it not? A. Yes, sir, it does.

Q. Page four of Exhibit 1 shows the development of the factors, does it? A. Development of the allocation coefficients, yes, sir.

Q. Those were developed by the Company and submitted to
867 me, were they not? A. Those were developed by the Company and submitted to you at your request. These were not filed as a part of the case.

Q. I show you what has been marked Intervenors Apartment House Council Exhibit No. 2 for identification, sir, and ask you if you recognize what that is. A. Yes, sir, I do.

Q. Can you tell me what it is? A. This again was prepared at your request. It shows in the same general relationship the rate of return that would be earned if the Company received the request before this Commission it has made. In other words, the rate of return under the proposed rates based upon 8.75 percent system return for Maryland.

Q. Exhibit No. 2, the rates, as you said, are the proposed rates; but the background to which those rates were applied was the actual

business during the year 1972, was it not, sir? A. Yes, sir, this was the actual billing, based on the actual billing data.

868 Q. That was on a calendar year? A. Yes, sir.

Q. Likewise Intervenor's Apartment House Council Exhibit No. 1 for identification also was developed on the calendar year for 1972? A. Yes, sir.

Q. If we applied these same figures—we have made a similar study, let me say, on the test year as we are using. The absolute value of these rates of return would change a little bit, would they not, sir? A. In all probability they would.

Q. However, would it be fair to say the relationship of the rates of return one to the other would remain relatively constant? A. I would agree that that is a reasonable assumption.

Mr. Pilzer: I would ask that these two exhibits be accepted in evidence as Intervenor's Apartment House Council Exhibits 1 and 2.

Commissioner Shoemaker: They will be so marked and admitted.

869 (Document entitled "Maryland Class of Business Cost of Service Breakdown" was marked Intervenor's Apartment House Council Exhibit No. 1 and received in evidence.)

(Document entitled "Rate of Return at 8.75" was marked Intervenor's Apartment House Council Exhibits No. 2 and received in evidence.)

Q. Mr. Walters, would you look at Intervenor's Apartment House Council Exhibit No. 1? A. Yes, sir.

Q. Under the column that says large power and under the column that says amount— A. Yes, sir.

Q. The figure that represents the last rating making adjustment just before it says adjusted return in dollars, the figure is 188. A. Yes, sir.

Q. I believe that figure was to be added to the figure 4,815 above, should have given 5,003 rather than 4,003, should it not, sir? A. You have lost me on your 4,815. I have got the 188.

870 Q. Right above it is 4,815. A. I see. I'm looking at the first time 188 appears, but it is down again at the bottom. Now I am with you. 4,815.

Q. Yes. Your last figure above the double line should be 5,003, should it not, sir? A. Yes, sir, it should.

Q. That's just a misprinted word to not change the percentages? A. Yes, sir, I'm sure it is a typographical error. We can verify that but I'm sure that's correct.

Q. I now show you what has been marked Intervenor's Apartment House Council Exhibit No. 3 for identification and ask you, sir, if you recognize what that is. A. Yes.

Q. Do you recognize what they are? A. Yes, sir, I do.

Q. Can you tell me what they are? A. They are sheets reproduced from our statistical reports which show the, which are headed revenue, energy sales and customer statistics Maryland, and they are, there are monthly sheets here for each month from January
871 1972 through May, 1973. These were also furnished to you at your request.

Q. They would show the amount of both kilowatt sales that are made and the dollars income between the various classes of users, would they not? A. They show the kilowatt hours sales and the dollars of revenue. They do not show kilowatts.

Q. Excuse me, I meant kilowatt hours. A. Also number of customers served.

Mr. Pilzer: I would ask that that be introduced in evidence as Intervenor's Exhibit No. 3.

Commissioner Shoemaker: So marked and admitted.

(Sheets referred to were then marked Intervenor's Apartment House Council Exhibit No. 3 and received in evidence.)

Q. In some of these exhibits and in your testimony you refer in some cases to large power, in other cases to HT, and in some cases to high voltage, is that not true, sir, that in connection with all of these exhibits and all of your testimony the terms large power
872 user, high tension user, high voltage commercial are all referring to the same class, used more or less synonymously by you and refer to those people who use service under the schedule marked HT? A. Yes, sir, they do. There is confusion in that terminology, as I realize, because of changes in the names of rate schedules that we have added or modified over the last several years. We had a schedule called Large Power and in order to distinguish that from the new schedule we called it high tension.

Q. But for our purposes we could deal with all those as referring to the same thing? A. That's correct.

Q. Likewise— A. Let me just add one thought there. There is only one other question there. If you go back in point of time, they

are not the same, because with the rate change that was made last year, the great number of high tension customers of the smaller size were by virtue of the definition of the high tension schedule transferred to the general service rate with a primary rider.

873 So that if you compare statistics for say the 12 months ended June 1973, they are perfectly clean and not mixed; if you go back in point of time, you do run into that difficulty.

Q. I was really concerned with your testimony in the cross-examination in the District, which will be incorporated in part here—A. When I refer to large power, I'm talking as a class, high tension.

Q. Likewise in these exhibits we can use them as synonymous and not have any substantial error. A. That's correct.

Q. Likewise low commercial and a general service schedule user is a synonymous term for our purposes? A. It's a synonymous term. The only reason we do not simply call it general service at all times is that we do have some other rate schedules that represent a very small portion of our total business, such as Schedule HS for heating service and outdoor lighting service.

Rather than have an enumeration of eight or ten different subclasses, those are normally grouped together for statistical
874 reporting. They are very small in comparison to the total.

Q. Would you characterize them as being so small that for purposes of the percentage on adjusted rate of return and that kind of a thing that they would not really affect the results? A. I would say they would not affect it significantly.

Q. What was the method used in making these allocations on the cost of service studies? A. Our methodology on the general question of jurisdictional allocation has followed the pattern that we have used, as I believe I testified to in the District, in past proceedings and also in the proceedings before this Commission in past years.

The basic methodology employs the average excess method for allocating the jointly used facility such as power supply. In the case of distribution plant allocation by jurisdictions, that is assigned to the jurisdiction within which it lies.

These exhibits which show a rate of return by class of business, of course, carry that process one step beyond. It is necessary then
875 to go into the question of items of distribution plant and make a subordinate assignment of those, which is normally done on the basis of some physical measurement or on the basis of in the case of the customer component of cost of the minimum facilities necessary to provide service.

876 Q. What I was really getting at, is there a way to do this that's called the average and excess method? A. Yes, sir.

Q. And is that what you used? A. That is what we have used for the jointly used facility.

Q. Are there other methods also that could be used that have various names? A. Yes, there are other methods. I think that we did again refer to those in the District. The two most well known are simply the peak responsibility method or the non-coincident class peak method, as well as the average excess. They are all recognized methods.

Q. Is it your feeling that in this particular case, with your particular kind of business, that it would not have made a substantial difference in the results if you had used one of the other methods? A. Well, in the jurisdictional split, we did, as I think I also mentioned, test it by applying other methods. Now, in the case of class of business study, which was not really part of our original
877 filing and was furnished really at your request, we carried through the same methodology. Now, there conceivably could be some changes in methodology on a class of business study in future approaches, but I think that the methodology used is a perfectly reasonable methodology.

Q. For the purposes of comparing the relationship between the rates of return in the different classes of users, would you say that you would arrive at substantially similar results regardless of which method you had used? A. I would say that you would arrive at substantially the same results, yes.

Q. In this study is each customer charged with every element of the Company's equipment and labor that is necessary to serve him and with no other costs? A. Would you repeat the items? I'm sorry, you said—

Q. I said in this study is each customer charged with every element of Company equipment and labor necessary to serve him and with no other costs? A. That is correct, except that the
878 total costs include such items as administrative and general expense and the fixed charges, for example, on general plant, but these are all part of the total cost of service. These allocations begin where Mr. Davis' accounting treatment of the Company's costs leave off. So that everything is included in the allocation study. It's a fully distributed cost study.

Q. That's the thrust of my question, that all costs applicable to a user have been applied as best you could to that user? A. Yes, sir.

Q. What part did this cost of service study play in the establishment of the rate schedules? A. Well, the cost of service study by jurisdictions, of course, played a basic part because it was the basis on which the separation between the three jurisdiction was made. The cost of service studies by classes of business which were made really subsequent to the rate design were not a direct part of that. They are really only informational, again made at your request.

879 Q. Now, for the purposes of making rates it is desirable to have classes of business which have a relatively high load factor as opposed to businesses which have a low load factor, is it not? A. If you are speaking of an annual load factor, the answer is yes, because it makes greater use of the Company's invested capital.

Q. Now, looking at Intervenor's Exhibit No. 1—Intervenor Apartment House Council's Exhibit No. 1, at the fourth page, which is entitled "Development of Relationships," is it possible to estimate from the figures contained therein what the low factor is for the four classes? A. Yes, sir, it is.

Q. Is that by relating the average demands in Column 5 to the peak demands in Column 3? Would that be the way we would do it? A. That's correct.

Q. Can you tell me approximately what those load factors are for each class? A. Let me run those out quickly. For the resi-
880 dential class, dividing the 283.4 by 836.3 gives a 33.9 percent load factor for the residential. For general service, dividing 357.4 by 758.4 yields a 47.1 percent load factor. In the large power schedule, dividing 145.3 by 248.0, that's a 58.5 percent.

Commissioner Baldwin: Pardon me. I didn't get the answer.

The Witness: 58.5.

Mr. Pilzer: I believe that is all I have, but I just want to check my notes.

Commissioner Shoemaker: All right.

Q. How did you reach the exact percentage increase—excuse me. I'll withdraw that.

Mr. Pilzer: That question is developed in the answers in the D.C. case. That is all I have of this witness at this time, with the permission to file the subsequent stipulated testimony, if it please the Commission.

Commissioner Shoemaker: All right.

Mr. Walters, in regard to your testimony regarding the summer-winter rate differential, which were apparently first put in your rate schedules, I be-

PEPCO EXHIBIT 6

REQUEST FOR STIPULATION BY THE APARTMENT HOUSE COUNCIL OF METROPOLITAN WASHINGTON, INC.

I. The Apartment House Council of Metropolitan Washington, Inc., requests that the following portions of the testimony taken in the District of Columbia before the Public Service Commission of the District of Columbia in the matter of the Application of Potomac Electric Power Company for an increase in its retail rates for electric service, Formal Case No. 596, be incorporated by stipulation into the record of the proceedings of this case pending before the State Corporation Commission Case No. 19277.

All of the cross-examination of Frank S. Walters commencing on page 482 of the Transcript of Proceedings for the date, Thursday, June 21, 1973, and continuing through page 528 of the proceedings which occurred on Friday, June 22, 1973, with the following changes:

1. The Exhibit referred to in the District of Columbia testimony as PEPCO No. 7, corresponds to Apartment House Council, Exhibit No. 2, which consists of five (5) pages, the first page of which is entitled "Virginia Class of Business Cost of Service Study, Year Ended December 31, 1972"; the second page is entitled "Potomac Electric Power Company, Computation of Rate of Return"; the third page is entitled "Year 1972—Va—Average and Excess Method—Year End, Calculation of Operating Income"; the fourth page is entitled "Potomac Electric Power Company, Development of Relationships for 'Average-Excess' Allocation of Cost by Class of Business-Vriginia"; and the fifth page of which is entitled "Potomac Electric Power Company, Incremental Revenue and Return at Proposed Rate, Virginia, December 31, 1972." The first reference to PEPCO's No. 7 appears on page 484.

2. Other references contained in the testimony referring to an allocation of business within the District of Columbia by classes of business should be deemed to refer to allocation within the jurisdictional service of the Commonwealth of Virginia.

3. On page 498 at line 9, the question should read as follows: "How did you determine that the percentage increase should be exactly 10.9% on residential and 14.7% on general service?" The sentence which appears at line 23 on the same page in the answer refers to 18 or 19%, that response should referred to the 14.7% as applicable in Virginia.

4. On page 501 at line 2, 12% should read 10.9%.

5. The question on page 504 at line 9, and the answer to that question on page 504 at line 19 should be deleted. The question which appears on line 20 at page 504 should read: "Please refer to Apartment House Council, Exhibit No. 1 on page 4." The question which appears on line 3 at page 505, and the material following that through line 15 on page 505, should be deleted and the following substituted instead:

   Q. And the results which would be obtained by either of these methods as reflected in both column 4 and column 11 would yield very similar results in this study, would they not?

   A. Yes, they would.

6. On page 506 line 7, should read: "concept and the company's equalizing load factor concept, is."

7. On page 508 line 1, should read Virginia rather than D.C., and line 2 the answer should read Virgina rather than D.C. Lines 3 through 19 should be deleted.

8. On page 517 ,the question which commences on line 5 should refer to Apartment House Council, Exhibit No. 1, Column 5, page 4. Line 13 should refer to Column 5, page 4, Exhibit No. 1. Line 15 should refer to page 1 of Exhibit No. 1.

9. On page 517, the material beginning at line 23 through line 13 on page 520, should be deleted.

10. Cross-examination concludes at line 22 on page 527.

II. The Apartment House Council of Metropolitan Washington, Inc., also requests that the portion of the cross-examination of the witness, Frank S. Walters, before the Public Service Commission of Maryland in the matter of the Application of Potomac Electric Power Company for an increase in its retail rates for electric service, Case No. 6658, which appears on page 864 of the Official Transcript and concludes on page 880 at line 9, be incorporated in this record by stipulation with the following changes:

1. References in the Maryland Transcript to Intervenor's Apartment House Council, Exhibit No. 1, should be deemed to refer to Intervenor's Apartment House Council, Exhibit No. 1 in Virginia.

2. The references to Maryland Class of Business Study which appeared at line 8 on page 865, should be deemed to refer to Vir-

ginia Class of Business Study. The answer which commences on line 14 on page 865, should read as follows:

A. Beginning with the adjusted rate of return for the business in Virginia of 7.70%, the rate of return on residential business is 3.01%,on general service 8.84%, on large power service 7.09% and on street lighting 3.94%.

3. On page 867 at line 5, the reference to Intervenor's Apartment House Council, Exhibit No. 2, should be deemed to be to Intervenor's, Apartment House Council, Exhibit No. 1, page 5, and thereafter, all references contained in the Maryland testimony to Exhibit No. 2, should be deemed to apply to the Virginia, Exhibit No. 1, page 5.

4. The reference on page 868 line 3, to Exhibit No. 1, should refer to Intervenor's, Apartment House Council, Exhibit No. 1, pages 1 through 4.

5. Lines 1 through 8 on page 869, should be replaced by document entitled "Virginia Class of Business Cost of Service Study, Year Ended December 31, 1972", consisting of five (5) pages and marked Intervenor's, Apartment House Council, Exhibit No. 2, received in evidence.

6. Material contained on page 869 commencing at line 7 through line 10 on page 870, should be deleted.

7. Line 20 on page 870, should refer to Virginia.

8. The answer which appears on page 879 commencing at line 20, should read as follows:

A. Let me run those out quickly. For the residential class, dividing the 0.9 by 3.3 gives a 27.3 percent load factor for the residential. For general service, dividing 21.3 by 44.4 yields a 48.0 percent load factor. In the large power schedule, dividing 25.1 by 46.3, that's a 54 percent.

9. Lines 5 through 7 on page 880, should be deleted.

10. The Cross-examination concludes at line 9 on page 880.

III. It is stipulated that if the witness, Frank S. Walters, was asked the same questions in this proceeding, he would have given the same answers except as modified by the aforegoing Paragraphs I and II.

PEPCO EXHIBIT 13

437 **Additional District of Columbia Cross-Examination of Frank S. Walters**

Mr. Hobelman: I tender the witness for cross-examination.

Commissioner Neely: Mr. Lewis?

Mr. Lewis: We would ask that GSA proceed before us.

Commissioner Neely: Very well.

Mr. Fowler?

CROSS-EXAMINATION

By Mr. Fowler:

Q. Mr. Walters, did you testify in the last PEPCO rate proceeding, No. 568? A. Yes.

Q. You testified on the subject of rate design? A. Yes.

Q. Is there a characterization we can make for the type of rate design you recommended in that proceeding? A. I think the general tenor of the rate design we recommended at that time was directed to two objectives. One objective was the discontinuance of an outmoded schedule, which was a mechanical adjustment, which schedule was eliminated.

The other was basically the approach to a further assessment of the summer-winter differentials in rates.

Q. You did not recommend anything like what I would call an across-the-board rate increase in that proceeding? A. It worked out, the percentage increases were relatively uniform in that proceeding.

438 Q. Per class? A. Uniform per rate schedule.

Q. I see. A. There were some exceptions.

Q. When you say "rate schedule", can we use the term "class" and the term "schedule" interchangeably? A. When you speak of a class of customer, for example, "residential class", you embrace in our particular case one rate schedule within the District of Columbia in which there is a rider for special usage, and that happens to be water heating.

Many companies would file that as two separate rate schedules, so you would be dealing there with two items instead of one.

In the commercial category, or the general service category, or what we have sometimes termed "Low Voltage Commercial," or similar terms, which term is a broad descriptive term, we have the schedules for our general service rate, we have other schedules of much less magnitude than that, because of the number of customers served, such

as temporary service, for example. We tend to classify all of those as a rate schedule within the general service or the commercial group.

439 Q. The Commission's final action in this decision, did it basically adopt what you recommend? A. So far as rate form was concerned, yes. Of course they did not allow us the amount of increase we asked.

As far as the general form of rate schedule is concerned, yes.

Q. In other words, while there were rate level differences, basically they went along with your uniform spread? A. The basic design of the schedules.

Q. Do you know what the percent increase per class was in that case? A. I do not have that with me. It is a matter of record. We could furnish it.

Q. The case just before the Case 568, you testified in that also? A. Yes.

Q. Of course you testified on rate design? A. Sir?

Q. Did you testify on rate design? A. That was part of the testimony. I do not recall the exact details of that second case back. I am sure that was part of my testimony.

Q. Was your recommendation in that proceeding basically a uniform percentage increase per class? A. I would have to check
440 the record to tell you. I do not recall.

Q. Case 568, the most recent case before this one, that proceeding was faced, was it not, with rate design in a separate section? A. It was a 2-step proceeding; yes.

Q. It is my recollection that those 568 rates became effective around—became applicable to periods commencing with August 1, 1972. A. Right.

Q. In this proceeding you are not recommending a uniform percentage increase per class, are you? A. No.

Q. Within the blocks in the respective rate schedules are the blocks themselves increased on a level percentage increase? Or what did you do? A. The blocks are not increased uniformly within each block, which I assume is the substance of your question. Normally that would not suit the purpose of rate design.

In this particular filing, however, we have tended to increase the large-use blocks at a slightly higher percentage rate if you compare it block by block than those in some of the smaller-use blocks of the schedule. This varies with the rate and the position within the blocking.

Q. In view of the recency of the Case 568, and the com-
441 pany's desire to proceed as promptly as possible with this case, why did you not use a uniform percentage increase in this pro-

ceeding? A. Because we felt it was better rate practice to move in this other direction.

Q. What would the uniform percentage increase be? Do you know? Would it be 17 percent, roughly, or each class, or what? A. It would have to be equal to the overall percentage increase for the aggregate business.

Q. What was that? What was it? A. 17.1 on revenue from sales of electricity.

Q. The increase recommended for the HST customers is—excuse me, the HT customers, is 19 percent, is that correct? A. That is correct.

Q. We have established, have we not, that at least in the last case all classes received basically a level percentage increase? A. Very roughly, speaking of the major classes. To be specific I would have to review that record. I do not have it with me.

I think some of the smaller categories did receive dissimilar percentage increases.

Q. I don't think we need a great deal of precision for our
442 discussion at this moment at least.

Can you state on the record what type of customers are served under the HT schedule? A. The HT schedule under the—under its title "High Voltage" or "High Tensions" as the schedule is now called, is available for any large user of service who wishes to take delivery of the service at higher voltages, that is at 15,000 volts or above. This means that this customer elects to take delivery at that voltage and then supply at his own expense and at his own maintenance expense certain pieces of electrical equipment to reduce that down to the ordinary usable voltages.

As a matter of practical fact, the Federal Government is the largest user of that particular schedule.

Q. I have a document marked GSA-4, a schematic diagram of energy from source to customer. This does not represent Pepco necessarily, but it is just a typical flow diagram, and will probably be of some assistance to us.

Commissioner Neely: Let the reporter mark this as GSA's Exhibit No. 4, for identification.

(GSA Exhibit No. 4 was marked for identification.)

By Mr. Fowler:

Q. On line 4 I made the change to 33 kv line.

Basically, I would like you to identify for us a high tension
443 customer, and explain by use of this exhibit how and where the high tension customer is served, please. A. If I read this

diagram correctly, I believe line 4 terminates at No. 6, marked "High Tension Customer," and that seems to me a reasonable representation of it.

Q. Would you please designate on this diagram who the GSA customers and the RS customers would be, and GS Rider 3? A. Let me work from the other end first.

No. 4 appears to be a residence. It says "Secondary Customers."

13 and 14, in several designations, would apply to the type of customer served under our residential schedule also, under our General Services schedule.

You referred to Rider 3 of General Service, which is primary services. Again, that is for electricity delivered at a higher voltage, so there is necessary another transformation.

Item 11 appears to me to be reasonably to me representative of that kind of delivery.

In connection with the General Service Schedule I might point out that is a schedule which covers a very wide range of customer size and use. As such, the facilities serving the General Service customer might be very much more complex than they appear to be at just first glance.

444 Q. Can you explain to us from the operating economy standpoint what is involved in serving a high-tension customer, as contrasted with a residential customer? A. I would say basically the difference is that the high tension customer does not require any of the transformation equipment. He owns his own. So for the most part the equipment shown from Point 9, possibly, over to the right of the diagram, would not be required by the high tension customer.

Q. Does a high-tension customer generally take during a month what we could call a "substantial" volume? A. They are generally large users. The present schedule has a limitation on the demand charge, so the first block is a charge for 1000 kilowatts or less, which means really no one much smaller than that would want service under that. It is basically a large-use customer schedule.

Q. Can you tell us how these high-tension customers are metered? A. Metered?

Q. Yes. A. In metering a high voltage customer the metering itself is done actually at a low voltage, so an additional transformer, so-called metering transformers, potential and current, need to be installed to reduce the voltage or reduce the current as the case may be to a level of possibly 5 amperes in the metering circuit itself. It simply separates the high voltage circuits from the meters. The meter

445 does not operate itself at high voltage. There has to be an auxiliary device in between.

Q. I think there has been some discussion already on the record about growth, what-not.

In the District of Columbia what can we call your "primary growth class"?

Mr. Hobelman: Mr. Fowler, do you mean which grows faster? Can you clarify what you mean by "primary"?

Mr. Fowler: Yes. We were asking the question in terms of the rate of growth; yes.

The Witness: In the District of Columbia, for Calendar Year 1972, which are the statistics that I have available, if you are referring to the kilowatt hour sales and, if you are referring in terms of the greatest finite increase in sales, the General Service category is growing—it is the largest growth and also has the highest percentage growth rate—or had.

By Mr. Fowler:

Q. Would the residentials be growing faster than the high tension customers? A. On the basis of this particular year the answer is yes, if you except street lighting and outdoor lighting, which are special services.

Mr. O'Reilly: Mr. Fowler, would it cause you any problem
446 if Mr. Walters put in the record the numbers he is using to give you the answers?

Mr. Fowler: Oh, no. We are going to get to that.

Mr. O'Reilly: Fine.

By Mr. Fowler:

Q. Do you want to read them into the record for Calendar Year 1972? A. In the District of Columbia for the Calendar Year 1972—let me just read the whole section so it is in proper perspective:

"Kilowatt hour sales amounted to 5,727,000,000." Perhaps it would be better to leave off the zeros, and we will assume all those numbers will be followed by three zeros. In Terms of Kilowatt Hours, the total sales, then, 5,727,198,000.

Now, that was an increase of 152,031 over the prior year, for a 2.7 percent increase.

For residential service sales during 1972, amounted to 862,199, again with the 3 zeros to be added, an increase of 4814, a percent increase of .6, or 6/10th of one percent.

General Service, sales amounted to 3,117,728, the increase was 161,789, or 5.5 percent.

Large power service, 1,643,259, a decrease of 18,562, or a decrease of 1.1 percent.

I don't believe you are interested in the other two cate-
447 gories, are you?

Mr. O'Reilly: Excuse me. Are these increases or decreases, 1972 over 1971?

The Witness: 1972 over 1971, the 12-months period.

Mr. O'Reilly: Thank you.

Thank you, Mr. Fowler.

By Mr. Fowler:

Q. How about street lighting? A. Sales, 103,672, an increase of 3,853, or 3.9 percent.

Q. Mr. Walters, I requested from your company a request which was Data Request No. 27, for your financial and operating report pertaining to revenue, energy sales, and customer statistics, back through 1968. That is, Fiscal 1968.

My next question: It is my understanding that these reports are based on a fiscal year. Is that correct? A. No. The figures I have been giving you are based on a calendar year. We do not generally assemble statistics on a fiscal-year basis.

Q. But the material I was furnished—are you familiar with what I am referring to? A. I know of the request. I don't think I have seen the submission.

Mr. Fowler: Would the Commissioners like to see this, so they know what I am talking about? It is an F&O Report. I don't
448 think we need go far with it.

By Mr. Fowler:

Q. You could accept those computations subject to check, if you cared to. A. This is the same source from which I am reading, except that that is the 12 months ended December, and this is the 12 months ended June.

Mr. Hobelman: For clarification, I understand the company's fiscal year is the calendar year. The fiscal year Mr. Fowler is referring to must be that of the Government.

The Witness: When I said "fiscal year" I was thinking in terms of a year ending June 30.

Mr. Fowler: Yes.

By Mr. Fowler:

Q. What we have done is to compute the percent of increase in Kwh by the 3 primary classes we have been talking about—the large

power, the general service, and the residential. We have computed these for from 1968 up through 1972. I think we should place on the record the 4-year percentage growth rate. I would like to give you those figures and have them accepted subject to check. If you have a problem at all, we will confer with you.

I will show you this and follow it along with you, if I may.

On the residential class for D.C., the Kwh for the period that
449 we have of 1968 was 658,198,000.

Mr. O'Reilly: Is this for Fiscal 1968, kilowatt hour sales?

Mr. Fowler: For the 12-month period ending June 30, 1968, kilowatt hour sales.

Mr. O'Reilly: Thank you.

Mr. Fowler: I just gave the residential.

Mr. O'Reilly: Thank you.

By Mr. Fowler:

Q. 1972, for the same period, for D.C.; we have 871,667,000 kwh.

Mr. Hobelman: May I suggest perhaps the witness could take them subject to check?

The Witness: I have verified the first figure. I assume we would get a copy of this, so we could verify it?

Mr. Fowler: Certainly.

The Witness: Obviously we can not take the time now to go through them.

By Mr. Fowler:

Q. We have a 4-year growth rate of 7.3 percent? A. For what?

Mr. Hobelman: What class?

Mr. Fowler: Residential.

Mr. Hobelman: Is that an average growth rate, compound growth rate, total growth rate?

450 Mr. Fowler: For the record, the answer is that it is 1972 over 1968, the compound growth rate.

Mr. MacRae: Would you say "annual", please?

Mr. Fowler: It is the annual compound growth rate.

The Witness: It is the percentage which if applied once each year would build up from the first figure to the last.

Mr. Fowler: Yes.

By Mr. Fowler:

Q. Now, moving to the General Service Schedule, the kilowatt hours in the period indicated as 1968 are 2,311,693,000. It is—

Commissioner Neely: Mr. Fowler, why do you not submit this in your direct case instead of cross-examining this witness on it He is saying that he agrees "subject to check." If he disagrees with you in your direct case it can be brought out then. Why do you not submit that in your case, instead of proceeding as you are now?

Mr. Fowler: May I just state the growth rate for the three classes?

Commissioner Neely: Yes.

Commissioner Schneider: Are you going to have a question at the end of that, or are you just building a lot of calculations, and then you are going to walk off without a question? I have seen you do
451 that several times. I think that is inappropriate cross-examination.

If you want to put questions in the record, you can do that. If you want to put in calculations as background, then ask questions on the basis of those calculations, it seems to me that is proper.

But proceeding this way, we do not know what you are talking about, we do not know what the calculations are.

It seems to me at least at this point that we are taking a lot of time for no purpose.

Mr. Fowler: I have several questions based on this.

Commissioner Schneider: Very well.

Mr. Fowler: Growth rate for the 3 periods, Residential 7.3, General Service 7-1, Large power 5.8.

By Mr. Fowler:

Q. Can you tell me how in your proposed rate design you took into consideration the growth in sales? A. I don't think the growth itself is really reflected in the rate design, other than the fact that of course it is fundamental in the development of all of the statistics on which the rate of growth is based.

The general principles on which these rates were designed, and the reasons that they were done in the way they were done, have as a background, certainly, what the growth has been. But that was not the principal objective.

By Mr. Fowler:

452 Q. Tell me this: One of the things that could lead to erosion of earnings would be a rate schedule that would not adequately reflect exactly where your growth was occurring, could it not? A. It depends on the kind of growth involved. The sale of every kilowatt hour for varied application purposes is not the same thing, so it would depend on where the growth took place.

Our concern at this point is, of course, with the summer peak."

Q. Do you have any information as to the class demands at the time of the system peak? A. Yes. We have information with regard to that.

Q. Can you give us the class demands for 1972 at the system peak? A. We would have to furnish that to you. It is in our work sheets.

Q. Could that be furnished going back to, say, 1968, A. No, I don't think we have it more than a year back. We have it for the current case.

Class demands for the high voltage customers and for the large general service customers are available from the results of direct measurement, because these are demand bill schedules, under these schedules it is necessary for us to actually measure the demand.

453 But in the great number of small commercial customers we have and the residential class, these numbers are not obtained by direct measurement. That is why we do not have those measurements for that period back.

We have some. But these are developed from a statistical sample for this purpose. Where the customer does not have a demand meter in for billing application it is necessary to develop the demands on a statistical basis. That is what is done.

Q. How do you determine the demands for the residential class, A. On the basis of load research meters put in on a selected sample basis.

Q. What sampling techniques do you use? A. These are statistically drawn samples.

Q. What percentage of your residential class do you think you sampled? A. Our sampling generally is limited by the number of meters it is feasible to use. We use on the order of 4-to-500 measurements.

Q. That would be a very, very small percentage of your total residential class, would it not? A. It is a very small percentage. However, I think it is commensurate with what other companies do in the same area.

454 Q. How do you break down the group you sample? Do you take every so-many customers, or look at the demand factor, or appliances, for those customers? A. It is a stratified sample. A certain number are selected from each stratum making up the entire universe of the sales.

Q. Demand data would be available for all high tension customers, would it not? A. They are all metered, yes, sir.

Demand data is not obtainable for all demand metered customers in the other categories, even though the demand is measured, because in many instances the demand measured is made of the peak value without any record of the time of occurrence.

Q. If you can only furnish to me this demand data at the time of the system peak for 1972 how can you state which class or classes of customers were primarly responsible for causing an increase in peak. A. We have a multiplicity of data that we can review, such as these measurements we speak of, of every high voltage customer. There is a record made for billing purposes, and that is available.

We scan the demand records, demand charts. These customers have a well established pattern of use.

455 A large Government building, for example, will begin operation, and you can see the graph of the load curve climb at the beginning of the business day. It stays relatively uniform throughout the day, then declines at the end of the business hours. And that process is repeated quite regularly.

So you know from repeated performance the regular pattern of occurrence of these loads.

Q. Do you know the load factor for each class? A. I think the load factors can be computed from the material we furnished yesterday. I don't have it with me here.

Q. Can you tell me if the RS or GS peak is increasing faster than the HT? A. The RS? Do you mean residential?

Q. Yes. A. We do not have a RS schedule.

Q. The RS schedule, General Service schedule, as to the peak, is that increasing faster than the high tension class? A. I would have to check the record to answer that.

Q. Would you please do that?

You said you can compute the load factors from material which has been furnished. Were you not referring to Pepco Exhibit 7?

A. That is correct.

456 Q. And we would do that from the third page of that exhibit, is that correct? A. Yes. The third page gives you, in the first column, the kilowatt hours, and the noncoincident area peak, which in this case is a class peak, appears in column 3. So you would relate kilowatt hours in the first column to the kilowatts in the third column.

The process, which I think was mentioned the other day, is divide the kilowatt hours by the total number of hours of the year, which is 8,760, producing an average load which would be the demand if used uniformly 24 hours a day, and that figure would be less than, for

example, the 301.4 that appears on the sheet, and you would have an average load of 108.1, if my arithmetic is correct.

By dividing the kilowatt hours by the number of hours in the year, then relating that to the peak of 301.4, you would have 35.9 as the load factor.

Mr. Hobelman: For which class?

The Witness: For residential.

Let me point out that those kilowatt hours and that demand are measured at the powerplant output level, so that there are losses involved in both figures; however, the relationship would remain essentially the same. Those are not the sales figures. Those are sales figures plus losses.

By Mr. Fowler:

437 Q. Could I speed this up by giving you the other two load factors, subject to check? A. Yes.

Q. The load factor for General Service was 47, for large power it was 55.8. For street lighting it was 48.

As a point of clarification, these noncoincidental peak demands you have on here, that is the class peak? A. That is the class peak.

Q. There is a fair amount of testimony in this record as to the trouble Pepco is experiencing with its poor system load factor, is there not? A. I think that has been mentioned a number of times.

Q. But we have just seen the highest load factor for the four classes we analyzed in the previous question was the large power user, is that correct? A. For this particular year, yes.

Q. Before I turn to your allocated cost study, or whatever we call it, here, you in your testimony refer now and then to value of service. You point out that the Federal Government is a major, if not the HT customer.

In recent weeks the Federal Government in conjunction with Pepco has agreed to cut back on lighting, air condition and that type of thing. Is that correct? A. I saw an article in the newspaper this morning about it. I don't know the background of it.

458 Q. I noticed the article this morning. But what I am really thinking about is the agreement, or what the Federal Government announced it would do a short period of time ago, at the time of the power shortage. Do you recall that? A. I don't know what policy statement you are referring to, no, sir.

Q. This cost study is based on revenue, expenses and investment for the calendar year 1972? A. That is correct.

Q. But you have no allocated cost study that is based on the test period? A. No. This was advanced in point of time a little because of your request for such data.

Q. You did not make any weather adjustment in this cost study, did you? A. No, we did not, because we feel that this is an area of imprecision. I think several people have addressed this point.

One aspect from the load characteristic, or engineering standpoint, the greatest difficulty in trying to make a weather adjustment is the difficulty of establishing what portion of your total kilowatt hour sales are really the weather-sensitive kilowatt hours, because you have no way of separately identifying them, you have to approach them indirectly.

459 There are two simple approaches. One, of course, is to look at the difference between summer and winter peaks and assume a certain number of hours use. That is a rule-of-thumb approach.

Other methods of doing it are looking at the 12-month distribution of kilowatt hours and relating what increases there are in the summer months, or what uses there are in the summer months, to what you think a normal useage should be, drawing a curve for what would appear to be everything else except air conditioning.

But because of the very nature of those methods, while they give useful information, they are certainly not precise enough to make a measurement on which to base a meaningful dollar adjustment.

We fear there are many, many factors involved in any attempt to make a weather adjustment that just further confuses the situation.

Pricing of the kilowatt hour, even if you can determine what it is, and as I say, determining it is the primary difficulty, the pricing become a little difficult, because you don't know how the customer would have responded, how his demands would have responded, had the weather conditions been different.

I think both Mr. Mitchell and Mr. Davis referred to the fact that we had experience with the cumulative effect when you have
460 an experience of two or three very hot days, and sometimes the demands do not rise until perhaps the third day, because of the sustained heat. So you would have to make a lot of assumptions of that kind.

Then if you made adjustments both to demand and energy you would get into the same situation that has been touched on several times, I think, that the whole program of generation for the company, and generating for the interconnection system, would have to be re-adjusted, recomputed, which is a tremendous undertaking and which

also makes all kinds of suppositions, depending on what others would have done that they did not do, at the same time.

So we feel weather adjustment is a very difficult and dangerous thing.

From the standpoint of the weather statistics, the cooling degree hours, we feel cooling degree hours are a pretty reliable measure when you are relating the usage of a customer in circumstances where you know what his air conditioning is, by special measurement. But when you are attempting to use this and correlate it with the entire system there are so many other variables that may obscure the thing that we do not feel it is wise at all to attempt it.

Q. Exhibit 7, of course, speaks for itself. But the returns shown at the bottom are for the Calendar Year 1972, with your ad-
461 justments which are also shown on there, is that not correct?

A. That is correct. I presume they would not be on a relative basis too dissimilar if we had projected this up to June.

Q. But nowhere have you made any type of adjustment in here to factor in the increased revenues that you request in your rate design, to show what the returns would be under the proposed rates, have you? A. No. This is a study made at present rate levels, pro formed for the year.

Q. Can you break down the 17 million by class? A. The 17 million? I do not recognize the figure.

Q. It is my understanding that is the amount requested— A. Oh, the dollar increase?

Q. Yes. A. From the exhibit that we have filed, which is the increases for the test year, the increase in dollars amounts to $22,186.000. I don't know whether I am referring to the same figures you are.

Mr. Hobelman: That is correct.

Will you give us the reference to the exhibit, Mr. Walters?

The Witness: Page W-101, Volume 3-C, Pepco Exhibit
462 No. 5.

The breakdowns by classes of business appear on that page, Mr. Fowler.

Commissioner Neely: I think this is a good point to break for lunch. We will recess until 1 o'clock, then continue until 2:30, then recess for the day.

(Whereupon, at 12 o'clock Noon, the hearing was recessed, to reconvene at 1:00 p.m., the same day.)

463 AFTERNOON SESSION

2:00 p.m.

Commissioner Neely: The hearing will come to order.

Whereupon

Frank S. Walters

resumed the stand and, having been previously duly sworn, was examined and testified further as follows:

Commissioner Neely: GSA may continue.

Cross-Examination (Cont'd)

By Mr. Fowler:

Q. We spoke before, Mr. Walters, about how you metered your residential customers. Did you meter for a 12-month period? A. No. The load research approach normally is to make measurements for periods of two to four weeks, preferably a month, two times a year—one to represent the very warm summer month, the other to represent a typical winter month. That has been our practice. I think that is the way most utilities do it. There is not a great deal of additional information obtained by tying up the meters for all the other intervening months.

Q. The method that you have used in Exhibit 7 is the average and excess method, is it not? A. That is correct. That applies basically to the power supply and transmission function.

464 Q. What basically goes into a consideration, from the company's viewpoint, as to what allocation method it selects to use? They could use a peak responsibility, or could use a non-coincident method, I suppose. What is there about your load characteristics that made you adopt the average and excess? A. Two reasons: The first, and I think the most important, is that we in this case, also in the last case, applied more than one method to the basic statistics and found we got essentially the same results.

However, for sometime we have favored the average-excess method, examined the coincident peak and noncoincident peak methods, as well.

The differences are simply that in the days of the coincident peak you simply are examining the demands of each of your customer groups, at one time, which is the time of maximum load on the system. This does not therefore take into consideration the hours of use of that customer. That one conceivably, to be ridiculous, would be one

hour of the year, and nothing else, which would ignore time and duration of the time.

Now, the coincident peak essentially stands on its own feet, gives everyone the same chance at creating the peak. One large customer could predominate under the coincident peak method, and the small ones have no material effect on that. But if you examine them
465 all separately they have an independent value. The average excess method based both on demand and energy consumption does consider to a degree the duration of the load. It also has a degree of stability from the arithmetic standpoint, but a large part of the allocation factor is developed from metered values. We have, however, tried several methods in our preliminary computations, and found we get essentially the same results from an area allocation.

Q. It is my understanding the average and excess method—that the demand costs necessary to serve the average load would be divided among the customer classes in proportion to the class average load. Is that basically correct? A. The average-excess method fundamentally says, as I think is illustrated on the third sheet of Exhibit 7 that here we deal with four classes of business—residential, general service, large power, and street lighting—and we know two thing about them. No. 1 is the energy in kilowatt hours they used, No. 2 is the maximum demand of each of these classes of business by itself. I am referring to Columns 1 and 3.

Now, the average-excess method simply says, moving to the next column, the average demand, which is simply the kilowatt hours used in a year divided by the number of hours in that year. In other words, this presumes a condition during which a constant load would be applied 24 hours every day for 365 days a year, if it is Leap Year it is more.

466 But if this condition were to exist, which, of course, is hypothetical, obviously this would be the minimum capacity at which that many kilowatt hours could go delivered, constant use, uniform basis, around the clock. So that is the first factor.

Now, that assumes that a portion of the total capacity cost will be allocated on this ideal situation, which represents the most economical way in which that particular number of kilowatt hours could be delivered.

However, as a practical reality we know the demands of these classes are greater than the average demands, because variation occurs during the day, during the night, during the months of the year. So the actual demands as measured are higher than the average.

Now, it is the actual demand—the difference between the actual demand is the departure of these customers from what you might call a uniform norm. So the average excess method just says that there are two pieces here that you put together arithematically, one based on kilowatt hours and one based on excess demands. I say "kilowatt hours" because average demand is a reflection of kilowatt hours, divided by the number of hours in the year.

These two components are weighted together and the weighting that is given to the average is the weighting experienced on the
467 system. So in that way the customer classes, each of them, gets at least the same degree of benefit from that average component as is presented on the system as a whole. Then they are assessed individually for their own variations, once having been given that credit.

Q. The non-coincident peak method allocates the demands costs in the ratio of demands of the classes at the time of maximum demand to the sum of the total maximum demands, does it not? A. I believe you are speaking of the coincident peak method, share of system peak.

Q. You mean peak responsibility? A. Yes.

Q. No. My understanding of the noncoincidental peak method is that you allocate demand costs by the ratio, taking the maximum demand of each class— A. Separately.

Q. —to the total demands. Right, O.K. A. I can illustrate that I think by referring to the chart.

Nos. 3 and 4 are really the factors for a non-coincidental location. In other words, each stands on its own. You make an arithmetic sum of the four demands. They may not occur, and probably do not occur, at the same time. You then relate them on a percentage basis. On that basis, then, each class of customer establishes his own
468 share, depending on exactly what he does, independently of what the others do.

Q. The result of the average and excess method is that high load factor customers receive more capacity costs than do low load factor customers. Is that not correct? A. I would like to hear the question again. You lost me. High load factor customers—

Q. The high load factor customers receive more capacity costs than low load factor customers, is that not correct? A. A high load factor customer would use more kilowatt hours in proportion to the demand established, than would a low load factor customer. Therefore, his kilowatt hour usage would be greater in respect to his total demand, and he would have a smaller excess component for the same load.

Now, I am still—I have forgotten which way your question went, which is high or low.

Q. Higher load factor customers under that method receive more capacity costs than the low load factor customers do. That is quite evident, is it not? A. No, I would say it is the other way.

Q. I think that is probably not a very good question.

Suppose you contrasted an NCP method with your average and excess method. Under the average and excess method would your high load factor customers receive more of your capacity costs than your low load factor customers? A. Let me see if we cannot work
469 that out on an example basis. Suppose we had two customers, one has 100 kilowatts and uses 1,000 kilowatt hours. Another customer has 100 kilowatts and uses 2,000 kilowatt hours. Maybe my figures are not very good for a year. Let us make it 1,000 in each case, and 100,000 kilowatt hours, 200,000 kilowatt hours.

The average demand would be obtained by dividing that kilowatt hour figure by the number of hours in the year. And if you divide the 100,000 you get 1141. If you divide the 200,000 you get 2283. I did it twice to check my arithmetic. The numbers I have chosen, being arbitrary, are still fooling me.

Adding another zero, it will be 10,000 kilowatts in each case. You would have an average load in one case of 1141, and—well, we will use the number as it stands.

The 1141 and 2283 are obviously a ratio of one and two. The 1141 would be a third of the total. So on the basis of the average factor Customer A, the first customer, gets a third of the charge, and the second gets two-thirds.

On the basis of the non-coincident peak, using just the demands themselves, you would have a 50-50 division.

Now, going to the average-excess approach the first customer, having the 10,000 as the basic load and an average load of 1141, would have a difference of 8859.

The other customer would have a difference of 7717.

470 Q. 7717? A. 7717.

Now, going to the two methods, if you are talking about the average-excess, the excess demand coefficient would apply 54 percent of the charge to customer A and 46 percent to Customer B, the average demand coefficient would apply 33 percent to one, 66 percent to the other.

In our own case the system load factor is nearly 50 percent, so in order to add the two together you would give a 50-percent weighting to each. I guess I better calculate that.

Giving a weighting to these two customers of 43 to 56, 43 percent for Customer A, 56 percent for Customer B, that is the share of the capacity charge they would get under the average-excess method.

Now, in this case if you allocated that on the straight demand it would be 50-50.So in this case Customer B, being the higher load factor customer, would get the larger share. That is correct.

Q. I think, then, you answered "yes". A. That is right, as proved by the example.

Q. Thank you.

We touched on the other methods, the coincident peak and noncoincident peak methods. Did you run those as cross-checks to establish the average and excess accuracy? A. I think I said that we have
471 checked this by more than one method. We have done this before, as I think we have testified.

Mr. Hobelman: He is talking about the area costs.

By Mr. Fowler:

Q. But you have not run them just on the D. C. basis, have you? A. No. It would not produce the same results in a class of business.

Q. This morning we saw that the returns generated by the classes shown on the first page of Exhibit 7 are not equal or are not equivalent. You have various returns, you have differentials. Your proposed rate increase in this proceeding takes no step to equalize the returns produced by the various casses, does it? A. No. If I may just add this, just before lunch we talked about the revenue figure you wanted relative to this.

Q. Yes. A. We did not compute that by classes of business. We can furnish you with an approximation of that.

Q. We would appreciate it.

Mr. Pilzer: If it please the Commission, may I have a copy when it is provided?

Mr. Hobelman: We will provide it, yes, sir.

The Witness: We did not move to equalize those rates of return, no.

472 I think it is important to note the reasons why we made this allocation as we did in which the high tension schedule and the general service schedule received a rather large increase and the residential schedule received a little lower. We talked this morning about growth, and I think you pointed out the rate of growth in the high voltage class of business.

Our rate philosophy at this point really relates to our problems

with system peaks, particularly problems with the cost of generating equipment.

Reference has been made in this case to change in our industry that I think the economists call going from a decreasing unit cost industry characteristic to an increasing unit cost industry characteristic. That is particularly true of production plant, generating facilities, as I think has been brought out clearly, and Mr. Mitchell showed some of the costs per kilowatt that we experience now and expect for the future.

In this connection we try to look to the future. In these particular classes of business the important thing, which was illustrated I believe by the diagram you showed us this morning that showed the differences between the equipment that must be supplied to supply a high voltage customer and that to supply a low voltage customer, the result of that difference is reflected in the average price paid for resi-
473 dential kilowatt hour, two and a half or three cents, in that area, compared to the average price for the high voltage kilowatt hour, in the area of one and a quarter cents, thereabouts.

The point I want to make that we are concerned about is that the production cost, particularly the cost of plant, is a very large proportion of the total cost of serving a high voltage customer, simply because he is basically connected directly to the subtransmission system.

On the other hand, the general service customer, that is, as you go down in size, and the residential customer, require a great deal of additional equipment in the way of lines, transformers, secondary lines, meters. So where production may be, say, 85 or 90 percent of the price actually charged, or production cost may be that portion of the average rate paid by the high voltage user, at the same time, going to the other end of the scale, it may be a relatively small fraction, perhaps 40 percent of the total price paid per kilowatt hour.

So here the point is the great relative difference in the importance of the power supply cost in determining the total cost that these customers pay.

So if you had an increase in the cost of production plant, and it represents 90 percent of your total cost to serve, nearly 90 percent, at least 80 percent, will be reflected in the answer.

474 If you make an increase of the same magnitude in something that is only 40 or 50 percent of your total cost, not to be precise but to point out the general differences, obviously that same large percentage increase in production plant becomes a much smaller increase when it is applied to the small user who only has about 40 percent of his total cost of service embedded in that function.

This is one of the basic reasons that we have taken the course we have.

The other reason is tied to the fact that all of these high voltage customers, practically, are 100 percent air-conditioned. Not that we think there is anything wrong with air-conditioning, but it is a fact of life that it is causative factor of our tremendous summer peak.

So I would say our reason to take this course of action has been because we are concerned with the uniformity that these highly saturated air-conditioning customers present, they all peak at essentially the same time. This is true in the high voltage class, it is also true in the primary service customers who are part of the general service class.

We have a slightly lower percentage increase for general service than for high voltage, but the general service class, as I said earlier, is a very broad class of customer, embodying some small users and some very, very large users.

475 Now, the small users are not quite as saturated with air-conditioning, obviously, as the building that is built and air-conditioned from the beginning.

So it is these two factors—the degree of demand—that contribute to the system peak in the winter-summer situation. This is an element of our cost that is obviously going up at a very high rate, which I think is obvious. In the days gone by we could always buy new generating units with greater efficiencies, and because of the greater efficiencies even though the price went up a little the economies of scale tended to offset that.

Now, we have reached the end of the scale with conventional power plants, and do not get the decrease in price, with the greatly increased price scale. So it is a critical point in our planning. And I think this is probably one of the reasons why, as I think was testified yesterday, we do have one of the largest construction programs in the utility field, proportionately.

We do not think a uniform rate of return by classes of business is called for. It would be the simple solution, I suppose, because it has a nice arithmetic simplicity, to say every class of business must earn the same. But I could not think it is in keeping with what has been accepted practice in most areas. I think in most cases—I believe I was asked this question on this witness stand a year ago. It is my opinion that in most areas where this kind of cost of service
476 is done usually the residential class earns a little less than the system average, the commercial class earns more than the system

average, and in other areas, where there is an industrial component, the industrial component usually earns a lower rate of return.

Those things have been explained, I guess, by the simple things—the concept that the residential customer after all must pay his own bill. He has no place else to turn, he cannot pass it off, in other words, it comes out of his pocket.

The commercial customer, it has been argued, is a businessman, therefore he has control over the price of his product or services, and can pass this off, conceivably, in that way.

You have competition in the industrial area, for fuel, say, for processes, and in that area you get into the so-called value of service. It depends on what service is worth to the customer, as to whether he will buy electric or resort to another process.

I think those are the general reasons.

We do not, of course, have here an industrial component in anything like the way other cities have. But we do have the Federal Government as really what we in our own shop consider our counterpart of the industrial component load in other areas.

477 Those are the reasons that we have departed from a simple uniform percentage.

By Mr. Fowler:

Q. Within the Commission's discretion it can design rate tilts, so forth, I grant you. But you have nothing to present on this record, have you, to show the rate of increase in each class of demand, as to the system peak? A. The rate of increase of each class' demand contribution to the system peak?

Q. That is right. A. We have not put that in an exhibit no.

Q. The street lighting customers are essentially offpeak customers, are they not? A. That is correct. The hours of street lighting are such that they are not on during the normal peak hours.

Q. Can you characterize them as being, what, customers that are relatively stable, at low cost to the company? A. I will answer your first question first. I think they are stable, because they are a community necessity. Certainly the street lighting customers are not going to go away.

As far as their cost is concerned they are on the basis of this study that we have here earning in aggregate 5.09 percent on the rate base, and that is comparable to 7.25 for the system. So they are earn-
478 ing less than the system rate of return.

Q. I do not imagine the street lighting customers contribute much to the systme peak. A. No. Their hours of use are essentially

off-peak. That was taken into consideration in development of the unit cost of electricity.

Q. Street lights, traffic signals, so forth, are not metered? A. No, sir, they are not metered. There are some instances where traffic signals are metered in special situations, but the basic practice is that they are not.

Q. With respect to the street lights, the new street lights that have been put in as part of the crime deterrent program, is not a fact that under that program the highway department furnishes to PEPCO any bulbs that must be replaced? A. I will read you the character of service for the DC1 overhead—that is, street lighting serving from overhead lines.

"Character of service: Service furnished under the schedule consists of:

"(1) Furnishing, installing and maintaining street lighting fixtures and mounting arms or brackets;

"(2) Furnishing, installing, connecting, operating and maintaining the electric service circuits connecting the street lighting equipment to the company's distribution system;

479 "(3) Group relamping;

"(4) Washing of globes;

"(5) Furnishing and installing replacement globes, lamps, ballasts and light-sensitive switches as needed;

"All limited, however, to items of equipment meeting EEI-NEMA standards for street lighting equipment."

Q. The highway department pays, does it not, installation costs not incurred by other customer classes? A. I don't think I understand the question, Mr. Fowler.

Q. Normally, customers make no contribution towards service costs and installations up to 100 feet from the nearest manhole, is that correct? A. That is correct.

Q. The question would be the same, that no contribution is made for installations for services supplied from underground distribution system, or up to 1,000 feet in the case of overhead service, is that correct? A. I was with you until I heard the "underground". Underground service is 100 feet.

Q. Oh, all right. I am sorry.

But it is my understanding that the highway department is assessed for all installation costs, is that correct? Is there a difference between the traffic lighting and street lighting in that respect? A. Yes,

480 there is. There is on file with this Commission, which evolved from the last rate case, a detailed statement of street lighting

policy, which was prepared at the direction of this Commission. That provides, in detail, all of the services furnished by either party. We, of course, are following that practice. So it is a matter of record.

Q. Tell me this, Mr. Walters. Do you know in what month you would have most of your scheduled outage? A. No, I could not answer that.

Q. Do you know, is the system peak the most critical point through the year for the company? Or is it some other point? A. First you asked about scheduled outages. Were you talking about scheduled outages of street lighting equipment?

Q. Oh, no. I have left that line, and was just talking about the system. A. Certainly failure at the time of the system peak is a very important time of failure for the company, particularly if it is generating equipment.

There can be failures on the distribution system, however, at various times and places, any hour of day or night. And for the services supplied from those facilities, whether they are ordinary services or critical services such as hospitals, what not, it is very hard to rate them on a scale of relative importance.

481 Obviously the system peak is a very vital part of the company's operations.

Q. But to PEPCO is the system peak as critical as the monthly load plus scheduled outage and forced outage?

Is the question clear? A. No.

Q. In order to meet your load is the system peak as critical to PEPCO as the monthly load plus scheduled and forced outages?

Mr. Hobelman: I object. The company has to meet its load all year round, at peak and during the rest of the year. I don't think the question can be intelligently answered.

Commissioner Neely: Do you want to reply to that, Mr. Fowler?

Mr. Fowler: The company has to meet its load, of course.

We talked about the system peak. The basis of my questioning is, is that the real critical time for the company meeting all its service obligations, or is it some point like in March when you have maybe Morgantown down, you are between the winter and summer, have to put in all your scheduled maintenance, and meet your load on top of that.

Is that period as difficult for PEPCO, as delicate for PEPCO in meeting its requirements as that summer system peak?

482 Commissioner Neely: The witness may answer, if he can.

The Witness: If you are considering what degree of reserve is available under some condition other than at peak time, and you

mentioned with Morgantown down, certainly if, as has happened to the company in the last two years, we have had these unfortunate failures of major pieces of equipment, if we are in a time when we are way below what you would call normal operating conditions, it is conceivable under certain conditions that might be a more critical time than the system peak. But it would depend on many, many hypotheticals.

I think the important thing would be that you would not expect them to repeat in kind.

Other than something like that I cannot really see the association, Mr. Fowler. I don't think I have given you a good answer, but I cannot see the association.

Q. The answer is very good from my standpoint.

I believe we have no other cross-examination, Mr. Commissioner.

Commissioner Neely: Very well.

Mr. Pilzer.

Mr. Pilzer: Thank you, sir.

Commissioner Neely: You represent the Apartment House Council, is that correct?

Mr. Pilzer: Yes, sir.

Commissioner Neely: You may cross-examine.