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Public Utility Commission

GSA STATEMENT No. 1A

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PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PHILADELPHIA ELECTRIC COMPANY

DOCKET NO. R-850152

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MAR 10 1986

Updated and Surrebuttal Testimony of

PHILIP R. WINTER, CFA

Cost of Capital

on Behalf of the Federal Executive Agencies
General Services Administration

General Services Administration (PPR)
Room 6317
18th & F Streets, N.W.
Washington, DC 20405
(202) 566-1034

February 12, 1986

Q: ARE YOU THE SAME PHILIP R. WINTER WHO FILED DIRECT TESTIMONY IN THIS PROCEEDING CONCERNING THE PHILADELPHIA ELECTRIC COMPANY'S (PECO OR COMPANY) COST OF CAPITAL?

A: Yes.

Q: WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A: PECO witness Brennan's updated and rebuttal testimony concerning PECO's cost of capital contains significant inaccuracies and misstatements of fact. The purpose of my surrebuttal testimony is to identify these inaccuracies and misstatements and provide clarifying information for the record.

In addition, I have updated my direct testimony concerning PECO's cost of common equity, cost of debt, capital structure, and overall cost of capital (See Schedule 1, Updated). This updating of the debt and overall capital costs, as was promised in my direct testimony (p. 2), is now possible since required data on actual refinancing and redemptions were made available in Mr. Brennan's update (received February 4, 1986). An update to my cost of equity findings is also appropriate since significant changes have occurred subsequent to the period on which I relied in my direct testimony.

Q: GIVEN THE RECENT DEBT ISSUANCES AND REDEMPTIONS BY PECO, WHAT COST OF DEBT HAVE YOU FOUND REASONABLE?

A: My finding as to PECO's cost of debt, as of the June 30, 1986 end of test year, is 10.36%. Derivation of the 10.36% figure is shown in the attached Schedule 14 (Note: Schedule 14 is the next schedule in sequence following Schedule 13 of my direct testimony).

Q: WHY DOES YOUR COST OF DEBT FINDING DIFFER FROM THE 10.86% FIGURE RECOMMENDED BY COMPANY WITNESS MR. BRENNAN?

A: As stated in my direct testimony (at pp. 3-4), Mr. Brennan unjustifiably relies on Treasury Bill Future Contract yields to estimate end-of-test-year yields on PECO's floating rate pollution control notes. T-Bill Future Contract yields are not an indication of investor, or consensus market, expectations of future yields. This fact has not been refuted by Mr. Brennan, yet he continues to rely on Futures yields to estimate prospective costs of the floating rate notes. As shown in Schedule 15, the Future Contract yields on which Mr. Brennan relies have consistently been above recent consensus forecasts and therefore lead to higher cost estimates than would otherwise be indicated.

I continue to recommend that the floating rate note yields be estimated through use of a consensus forecast for T-Bill yields. The consensus forecast on which I rely is that contained in the <u>Blue Chip Financial Forecasts</u> for January 1 and February 1, 1986. It should be noted that Mr. Brennan also relies on <u>Blue Chip</u> forecasts (see Brennan's Updated and Rebuttal Testimony pp. 3, 5), but not for forecasting the floating rate note yields. He has provided no justification for switching from one source of forecasts, to another in his testimony.

Mr. Brennan correctly recognizes, in his updated testimony recent declines in yields applicable to these notes. His revised findings remain excessive, however, due to his reliance on spot Future Contract yields. His forecasted T-Bill yield of 7.29% (reduced from an 8.13% forecast in his direct testimony), compares to January 1 and February 1 <u>Blue Chip</u> consensus forecasts of 7.1% and 7.2%, respectively.

I continue to recommend that a forecasted T-Bill yield of 7.15% be used to estimate effective costs of the floating rate notes. My Schedule 14 reflects results from use of the 7.15% figure.

Q: ARE THERE OTHER DIFFERENCES BETWEEN YOUR COST OF DEBT FINDINGS AND THOSE CONTAINED IN MR. BRENNAN'S UPDATED TESTIMONY?

A: Yes. I recommend disallowance of the projected effects of an exchange of $550 million of revolving credit for a like amount of debentures (see Brennan's updated testimony beginning on p. 3). While I would not object to inclusion of actual data on the effects of a prudent exchange (if it occurs before a decision is reached in this case), I find no basis for reflecting the full impact of the proposed exchange now. Mr. Brennan, however, argues that the exchange should be reflected now because (1) interest rates are bottoming out and future interest and inflation rates will likely be higher, (2) a bird in the hand is worth two in the bush and (3) long-term debt is the preferable method of financing long-lived assets (Brennan update pp. 5, 6).

I agree that long-term debt is, as a rule, the preferable method of financing long-lived assets. However, there are numerous factors, not mentioned by Mr. Brennan, that may lead to continuation of, or even a decline in, current interest rates and the cost of replacement debt to PECO. For example, oil prices, which have been the single most significant reason for high inflation since the early 1970's, continue to experience steep declines. Recent spot prices near $16 per barrel are less than half earlier rates and further declines are projected. Capacity utilization levels, as recorded by the Federal Reserve, remain near a non-inflationary level of 80% and competition from foreign producers continues to keep a lid on domestic prices. There is also no sign of renewed inflation due to inadequate supplies of labor or raw materials. An unemployment rate near 7% and strong competition have contributed to a decline in the rate of wage increases and in some instances led to wage concessions. The Federal Reserve continues to provide an accommodative rate of monetary growth which is quite different from the relatively restrictive monetary growth in the early 1980's that contributed to extraordinarily high interest rates. Finally, although PECO's current debt rating is at the low end of the investment grade range, an improvement in debt rating may be forthcoming before the required repayment of the credit line beginning in 1988. Moody's Corporate Credit Report, dated October 25, 1985 does, in fact, mention the potential for improvement in PECO's credit quality over the near-term. Improvement in PECO's credit rating would, of course, reduce the cost of new debt below that which would otherwise be incurred.

Also contributing to my decision is the fact that the "bird in the hand" is the line of credit with an effective cost of only 9.75% compared to Mr. Brennan's estimate of a 11.88% cost for the replacement debentures. The approximate 210 basis point difference in cost between these two alternatives represents a before tax increase in annual revenue requirements on the ratepayer of $11.55 million (.021 x $550 million).

If Mr. Brennan's recommendation is accepted, ratepayers would be faced with the increased costs associated with this proposed exchange whether or not the exchange actually occurred and independent of future interest rate trends. A review of Mr. Brennan's and the Company's past record of projecting the timing of new issues and the cost of new capital reveals that the projections associated with this exchange may be in favor of the Company and to the detriment of the ratepayer. Mr. Brennan has, for example, admitted in this case that his prefiled cost of capital estimates were excessive. His updated testimony does, in fact, reduce his prefiled estimates for the costs of proposed long-term debt, proposed preferred stock, floating rate pollution control notes, and common equity. The magnitude of these reductions range, in round numbers, from 50 to 100 basis points. As for Company estimates for the timing and amounts of new issues, page 2 of Brennan's updated testimony reveals the significant changes that may occur in financing plans over a relatively brief period of time.

While the preceding paragraph is not intended to be critical of Mr. Brennan's or the Company's forecasting abilities, it does highlight the uncertainties associated with prospective new financing. Because of these uncertainties and other factors mentioned above, I believe recognition in rates of this proposed exchange is premature at this time.

Q: WHAT OTHER DIFFERENCES EXIST BETWEEN YOUR COST OF DEBT FINDINGS AND THOSE OF MR. BRENNAN?

A: Entries in my Schedule 14 under the column labeled "% of Total" differ from Mr. Brennan's. This difference is due to my recommendation that net effects of the proposed exchange of debentures for the revolving credit line not be reflected in rates unless actual data on this exchange is available before a decision is reached. Differences in my "% of Total" column lead, in turn, to related differences in entries under my "Weighted Cost" column.

Also, I have not reflected amortization of the premium associated with the redemption of 17.625%, 18.75% and 18% First Mortgage Bonds (in December 1985) nor the associated adjustment to the principal amount of debt outstanding. Mr. Brennan has included $2.441 million to amortize, over a 21 year period, a $51.225 million premium he claims was paid (or will be paid) to effect the redemption. He has also reduced the principal amount of actual debt outstanding by the $51.225 million figure apparently to assure a balance between rate base and capitalization. Mr. Brennan shows these adjustments in his updated Schedule 4, p. 5a.

While I agree that the costs of effecting this redemption should be recovered by PECO, the approach and dollar amounts proposed by Mr. Brennan lead to excessive results. For example, during the first year his proposed approach is in effect, ratepayers would apparently pay $2.441 million for premium amortization all full-year service costs (coupons plus amortization of discount and issuance expenses associated with both the new and redeemed debt issues) on the beginning-of-year principal amount of the refunding issues. Mr. Brennan has apparently made no adjustment that reflects the interest that would be earned by PECO on this $2.441 million as it accrues, nor has he made provisions to reduce, at the beginning of the second year, the debt service costs so that they are consistent with the unamortized premium balance.

Furthermore, the $51.225 million premium amount appears excessive relative to the principal amount of bonds redeemed. A premium of $44.801 million (Brennan's Updated Schedule 4, p. 8) was paid to redeem $216.848 million principal amount of high coupon bonds ($216.848=$78.096+$76.131+$62.621, Brennan update p. 2). In this instance, the premium is 20.66% ($44.801/$216.848) of the principal amount redeemed. In comparison, the $6,454 million premium related to the $46.904 million redemption planned for July 1986 is 13.76% of the high coupon debt face amount ($6.454/$46.904). Mr. Brennan has not provided reasons for the significant difference in relative premium amounts nor provided workpapers in support of the premium amounts or the supposed imbalance between PECO's rate base and capitalization. Time constraints have precluded interrogatories on these issues since Mr. Brennan's testimony on the effects of refunding was not received until the afternoon of February 4, 1986 (four days after the filing deadline) and the deadline for preparation of this testimony is February 12, 1986.

Because of the apparent excesses noted above and the lack of supporting workpapers, I recommend that the Commission reject Mr. Brennan's proposed treatment of the redemption premium. Alternately, I propose that after receipt of material indicative of the premium amount and any unjustified imbalances between rate base and capitalization, a method be devised that would recover actual costs over the life of the securities issued to effect the redemption. Among those methods considered, should be a "future value of an annuity" approach that leads to determination of the monthly or annual amounts required to repay the principal and interest on the unpaid balance of the premium. If this approach were used, the principal amount included in each annual payment should be used to reduce the amount of the premium outstanding and, in turn, reduce the required service costs.

Q: WHAT COST IS APPLICABLE TO THE PREFERRED STOCK OF THE COMPANY'S CAPITAL STRUCTURE?

A: I continue to recommend a finding of 10.41% as the effective cost of PECO's preferred stock. This finding differs from Mr. Brennan's updated finding of 10.50% (reduced from his earlier estimate of 10.54%). The difference is due to Mr. Brennan's estimate of 11.87%, as the effective cost of a proposed new preferred stock issue (see Mr. Brennan's updated Schedule 5, p. 2), while my finding is that a 10.10% estimate for the proposed issue is more reasonable.

As stated in my direct testimony (p. 5), actual preferred stock issuances by triple-B rated utility companies in December 1985 were sold at costs of approximately 9.5%. Mr. Brennan apparently ignored data available from these actual issuances and also ignored the fact that yields on a company's preferred stock are typically lower than yields on a company's bonds. My Schedule 16 shows typical differences between public utility preferred stock and bond yields as computed by Moody's Investor Service, Inc. This schedule shows a typical difference in yields of 100 basis points with the preferred stock having the lower yield.

As shown on page 4 of Mr. Brennan's updated testimony, he has concluded that the prospective cost of PECO's long-term debt is 11.75% and then states, without justification, that the cost of PECO's preferred issuance in May 1986 will also be 11.75%. The above data from Moody's and recent actual issuance costs on triple-B rated preferred stock show his updated estimate is excessive.

Q: YOUR EARLIER CONCLUSION AS TO PECO'S COST OF COMMON EQUITY, WITHOUT ADJUSTMENT FOR RISKS ASSOCIATED WITH THE LIMERICK PLANTS, WAS A RANGE OF 15.1% TO 16.1% WITH A POINT ESTIMATE OF 15.6% (SEE P. 6 OF THE DIRECT TESTIMONY). YOUR DIRECT TESTIMONY NOTES THAT THESE FINDINGS SHOULD BE REDUCED A MINIMUM OF 500 TO 100 BASIS POINTS IF THE EFFECTS OF ADDED RISK ASSOCIATED WITH THE LIMERICK INVESTMENT ARE REMOVED. HAVE RECENT MARKET TRENDS AND EXPECTATIONS MADE THESE FINDINGS OUTDATED?

A: Yes. Both interest rates, in general, and PECO's cost of equity have declined subsequent to the period on which I relied in my direct testimony. Schedule 17 shows the declining trend in various interest rates recorded during and after 8/30/85 to 12/13/85, the period on which my direct testimony findings were based. Long-term debt costs are shown to decline by approximately 100 basis points from the beginning to end of this period.

PECO's cost of common equity has dropped by even a greater amount as evident from approximately a 150 basis point drop in dividend yield without a corresponding increase in investor expectations for future growth. I attribute this yield decline to both general interest rate trends and lower investment risk associated with PECO's equity. The lower investment risk is primarily due to a Commission decison to allow completion of Limerick II which reduced prospects for a dividend reduction.

Q: WHAT ARE YOUR UPDATED FINDINGS AS TO PECO'S COST OF COMMON EQUITY?

A: PECO's current cost of common equity ranges from 13.72% to 15.41%. I consider the midpoint of this range, 14.56% a reasonable point estimate of current costs, but as stated in my direct testimony, the Commission should revise this estimate in accordance with any significant trends recorded before the decision is due.

Q: WHAT ARE THE BASES FOR THIS FINDING?

A: As in my direct testimony, I primarily rely on discounted cash flow (DCF) techniques, with checks for reasonableness made by comparing DCF results with (1) actual current market required returns on securities of comparable risk to PECO, and (2) historically recorded risk premiums between stocks and bonds.

Q: WHAT WERE THE YIELD AND GROWTH RATE INPUTS TO YOUR UPDATED DCF ANALYSES?

A: The dividend yield input was 13.10%, which is the simple average of end-of-week yields during the period 10/25/85 to 2/07/86. As in my direct testimony, I have chosen the most recent 16-week period available. PECO's current annual dividend of $2.20 per share was divided by the end-of-week closing stock price recorded for each of the sixteen weeks to compute the 13.10% average. PECO's stock price ranged from $15.25 to $19.125 during this period. My updated yield is 140 basis points below the 14.5%, 16-week average yield utilized in my direct testimony. This yield decline, without a corresponding increase in near-term growth expectations, is the primary indicator of recent declines that have occurred in PECO's cost of equity.

To determine the appropriate growth rates for input to my DCF model, I relied on updated growth rate forecasts from the investment community along with data presented in my direct testimony on historical, concomitant, growth rates in dividends and stock price for both PECO and utility companies in general. Investment firm growth forecasts on which I relied are shown in Schedule 18 along with the date associated with the forecast. Each of the forecasts was made subsequent to the Commission's decision concerning completion of Limerick II, yet none of these forecasts indicate an increase in investor growth expectations for PECO. The only change in these growth rate forecasts, from those contained in my direct testimony, is a decrease in Salomon Brothers' growth expectations for PECO earnings. Their old forecast for 5-year earnings growth of 2.0% has been reduced to 1.0% in their January 1986 forecast. Based on a review of these more recent short-term growth rate forecasts and the sharp drop that has occurred in PECO's yield, I believe the only change in investor growth rate expectations has been the assignment of a lower probability to a prospective dividend cut. I noted in my direct testimony (pp. 25, 30, 31), factors that led some investors to expect a reduction in PECO dividends and contributed to an atypically high dividend yield.

The above evidence and historical, short-term concomitant growth in PECO's stock price and dividends continue to support the 0.0% to 1.0% near-term (5-year) growth rate range I found reasonable in my direct testimony. Contributing to this updated decision, is the fact that only twice during the past 25 years (1961-1985) have PECO's stock price and dividends recorded concomitant 5-year average growth rates in excess of 0.0% (see Schedule 9 of my direct testimony).

Although I have not changed near-term growth rate estimates, I have revised my initial growth rate findings for the second stage of the two-stage DCF model. I consider a range of 1.0% to 2.9% now indicative of most investor expectations. The 1.0% figure is unchanged from my direct testimony and is supported therein (see pp. 31-33). It is reflective of residual prospects for a dividend reduction due to the high costs and uncertainties related to Limerick construction. As shown on page 33 (direct testimony), even the 1.0% figure may be excessive if a dividend reduction occurs. The 2.9% figure represents an upward revision from 2.0% in my direct testimony and is justified by Merrill Lynch's long-term growth rate forecast of 2.9% for PECO and PECO's long-term dividend growth rate history of 2%-3% (see direct testimony, p. 32). The 2.9% figure may be excessive, however, in light of PECO's long-term stock price growth rate history of -3.5% (direct testimony, p. 32). The predominant reason for upward revision of the initial 2.0% long-term growth rate estimate is the previously mentioned reduction in the probability of a cut in PECO's dividend.

Q: WHEN THE 13.10% CURRENT DIVIDEND YIELD AND SHORT-TERM AND LONG-TERM GROWTH RATE RANGES OF 0.0% TO 1.0% AND 1.0% TO 2.9%, RESPECTIVELY, ARE SUBSTITUTED IN YOUR TWO-STAGE DCF MODEL, WHAT COSTS OF COMMON EQUITY ARE INDICATED?

A: Substitution of these data in the two-stage DCF model shown on page 26 of my direct testimony, indicates PECO's current cost of common equity falls between 13.72% and 15.41%. The 13.72% figure is derived from use of the 0.0% short-term growth rate and 1.0% long-term growth rate. Growth rates of 1.0% (for first five years) and 2.9% (for each year after the fifth) lead to the 15.41% figure. In terms of the constant growth DCF model (yield + growth) on which many analysts rely, the 13.72% to 15.41% range has an implicit constant growth rate range of approximately 0.5% to 2.1%, i.e., 13.10* (1.005) + .005=13.72% and 13.10* (1.021)+.021 = 15.41%.

Q: CONCERNING YOUR GROWTH RATE FINDINGS, WHY HAVE YOU NOT RELIED ON GROWTH FORECASTS FROM ADDITIONAL INVESTMENT FIRMS?

A: As indicated during my cross-examination (TR.2071-2073), the investment firms on which I, as a rule, rely are Value Line, Merrill Lynch, Duff and Phelps, Salomon Brothers, Dean Witter, and Prudential-Bache. I have also relied in recent testimony on growth forecasts from Argus and E.F. Hutton. I would prefer to include consideration of growth rate forecasts from all firms that regularly prepare such forecasts, but these forecasts are not readily available to the public without considerable expense. Through library and other sources, I am, however, occasionally able to increase the list of investment firms on which I rely. Forecasts from E.F Hutton have for example, recently become available to me, hopefully on a regular basis.

Q: WHY HAVE CHANGES OCCURRED, OVER TIME, IN THE LIST OF FIRMS FROM WHICH YOU OBTAIN GROWTH RATE FORECASTS?

A: As indicated above, a change in the list may occur if previously unavailable forecasts become available to me on a regular basis, e.g. E.F. Hutton's forecasts. A change in the list may occur if an investment firm on which I rely does not cover the partcular utility company I am examining. For example, the E.F Hutton reports on which I rely, did not contain five-year dividend and earnings growth rate forecasts for El Paso Electric.

A change may also occur if my library, or other source, maintains a file on only one segment of the utility industry or discontinues publication of its forecasts. For example, the Duff and Phelps growth forecasts are only available to me on electric utilities and Prudential-Bache has, in the past temporarily stopped publication of its Quantum report.

Q: WHY DID YOU NOT INCLUDE CONSIDERATION OF ARGUS' GROWTH FORECAST FOR PECO THAT THE COMPANY REFERENCED DURING YOUR CROSS-EXAMINATION (TR.2069)?

A: The Company referenced a 3.0% growth forecast contained in December 1985 and January 1986 reports from Argus. Both of these reports were published subsequent to the October and November 1985 Utilityscope and Monthly Handbook Argus reports that I reviewed at the time I prepared my direct testimony in late November and early December 1985. Neither the October or November reports contained the 3.0% growth forecast. Argus was, in fact, projecting a 3.8% decline in PECO earnings between 1985 and 1986 in their November 1985 Monthly Handbook. This November report did not contain a 5-year growth forecast. As for the -3.8% growth forecast, it wasn't included in my direct testimony because it didn't span a two- to five-year period.

As a final matter, it should be noted that inclusion of the 3.0% growth forecast would not change my conclusion concerning the growth rates appropriate for use in my DCF model. Inclusion of the 3.0% dividend growth forecast would increase the average forecast for dividends from 1.0% (see Schedule 12 direct testimony) to 1.25% ((7*1.0+3.0=10)/8=1.25). The average of this dividend growth figure with the .8% earnings growth figure from my Schedule 17 indicates a 1.025% growth forecast ((1.25+.8)/2=1.025). The 1.025% figure is not significantly different from the 1.0% near-term growth rate figure I have used to obtain my DCF results. Furthermore, the 1.0% figure may prove excessive in light of PECO's historical, concomitant, dividend and stock price growth rates. As shown in Schedule 9 of my direct testimony, only twice during the period 1961 to 1985 did both PECO's stock price and dividend grow at a rate in excess of 0.0%.

Q: IS YOUR UPDATED DCF RANGE SUPPORTED BY HISTORICAL RISK PREMIUMS BETWEEN UTILITY STOCKS AND LONG-TERM GOVERNMENT BONDS?

A: Yes. My updated DCF range indicates risk premiums of 380 to 550 basis points over the average yield on long-term government bonds during the 16-week period October 25, 1985 to February 7, 1986. The average yield on long-term government bonds was 9.9% during this period. Historically, the premium between utility stocks and government bonds has ranged from 182 to 359 basis points (see my direct testimony, p. 42).

The 380-550 basis point premiums related to my DCF findings exceed the historical premiums, as one would expect, because of the current above average risk associated with PECO. The current risk premium range has decreased slightly from the premiums calculated in a similar manner in my direct testimony. This decline is also consistent with my expectations since company-specific risks have recently declined due to less uncertainty concerning PECO's dividend. In summary, the risk premiums offered by my DCF findings are reasonable in comparison with those that have historically been available to investors.

Q: WHAT OTHER CHECK FOR REASONABLENESS HAVE YOU PERFORMED?

A: As was done in my direct testimony, I have calculated the current <u>actual</u> average yields required by investors on securities of similar risk to PECO's common stock. These required returns are shown in Schedule 19 and are derived from data contained in Standard and Poor's January 1986 <u>Bond Guide</u>. The rationale for this risk/required return approach is documented on pages 43-48 of my direct testimony.

Q: DOES YOUR UPDATED RISK/REQUIRED RETURN ANALYSIS SUPPORT YOUR UPDATED DCF FINDINGS?

A: Yes. My updated DCF range of 13.72% to 15.41% corresponds to required returns shown in Schedule 19 for bonds rated B by Standard and Poor's. Standard and Poor's describes B-rated bonds as "... predominantly speculative with respect to capacity to pay interest and repay principal in accordance with the terms of the obligation. ...While such debt will likely have some quality and protective characteristics, these are outweighed by large uncertainties or major risk exposures to adverse conditions."

In my opinion, risks faced by investors in PECO's common stock are similar to those associated with B-rated bonds. This opinion is based on consideration of several risk factors, including regulatory risk, liquidity risk, and price volatility risks as described in my direct testimony (see pp. 45-47). I no longer consider PECO's common equity to be of comparable risk to triple-C rated bonds due to the recent reduction in uncertainty as to PECO's dividend. In summary, my risk required return analysis shows actual required returns on investments, with risks similar to those of PECO, that fall within my updated DCF range.

Q: IN LIGHT OF THE RECENT SIGNIFICANT DECLINE RECORDED IN PECO'S DIVIDEND YIELD, WHY HAVEN'T YOU CHOSEN THE LOWER END, INSTEAD OF THE MID-POINT, OF YOUR DCF RANGE AS A POINT ESTIMATE OF PECO'S COST OF COMMON EQUITY?

A: PECO's yield has drop steadily, from 14.4% to 11.5%, during the 16-week period on which I base my updated findings. Even with this decline, however, PECO's yield remains significantly above the average yield of 8.0-8.5% in the industry. This relatively high yield, along with previously mentioned uncertainties associated with the Limerick investment and future PECO dividends, continues to place PECO in a relatively high risk class. In my opinion, the mid-point of my DCF range, 14.56%, is currently more consistent with this risk level than the 13.70% low-end-of-range figure. If however, PECO's yield continues near the 11.5% current value, without evidence of higher growth expectations in the investment community, a strong case could be made for a cost of equity finding of 13.7%, or below.

Q: IN YOUR DIRECT TESTIMONY, YOU RECOMMENDED THAT YOUR DCF FINDINGS BE REDUCED A MINIMUM OF 50 TO 100 BASIS POINTS IF THE EFFECT OF RISKS ASSOCIATED WITH THE LIMERICK PLANTS WERE TO BE REMOVED. DO YOU CONTINUE TO RECOMMEND SUCH AN ADJUSTMENT?

A: A significant portion of the risk increment in PECO's cost of equity due to Limerick is no longer present. I base this conclusion on the fact that PECO's dividend yield has dropped from an average level of 14.5% to 11.5% between the time my direct testimony was prepared in November and December 1985, and today. This decline has occurred without a corresponding increase in near-term growth rate expectations for PECO. In comparison, interest rates, in general, have declined only 50 to 100 basis points as shown in Schedule 17. Subtracting the 50 to 100 basis point decline from the 300 basis point decline in PECO's yield, indicates a 200 to 250 basis point decline not attributable to general trends.

A considerable portion of this 200 to 250 basis point decline is attributable to reduced uncertainties related to the Limerick investment. Reduced uncertainties are due to both the Commission's decision to allow completion of Limerick II and the positions presented by expert witnesses in this case. Since these reduced uncertainties are reflected in my updated DCF findings, I no longer consider the initially proposed 50 to 100 basis point reduction necessary.

Q: SHOULD AN ADJUSTMENT FOR FLOTATION COSTS OR MARKET PRESSURE BE ADDED TO YOUR COST OF EQUITY FINDINGS?

A: No. My position concerning such an adjustment is unchanged from that contained in my direct testimony (see pp. 49, 50).

Q: WHAT CAPITAL STRUCTURE AND OVERALL COST OF CAPITAL HAVE YOU FOUND APPROPRIATE IN THIS CASE?

A: I have accepted the capital structure presented in Mr. Brennan's updated testimony. PECO's overall cost of capital, based on this capital structure and my cost of debt, preferred stock, and common equity findings described herein, is 11.97%. Calculation of this overall cost is shown in Schedule 1 (Updated).

Q: AT THE BEGINNING OF THIS TESTIMONY YOU STATED THAT MR. BRENNAN'S UPDATED AND REBUTTAL TESTIMONY CONTAINED INACCURACIES AND MISSTATEMENTS OF FACT. WHAT ARE THESE INACCURACIES AND MISSTATEMENTS OF FACT?

A: (1) Mr. Brennan states (p. 48) that the upper end of my direct testimony DCF range should be 16.23% not 16.09%. I have recalculated the discount rate associated with a 14.5% dividend yield, 1.0% short-term growth rate, and 2.0% long-term growth rate and found no error in the 16.09% figure. Mr. Brennan has apparently used a 14.645% yield, instead of the 14.5% figure to obtain the 16.23% figure.

(2) Mr. Brennan has stated (p. 49) that I have relied "entirely on projections of security analysts" in choosing my growth rates and ignored the history of growth in dividends. A review of pages 27 through 30 of my direct testimony clearly shows that I have relied on historical growth in both PECO's dividends and stock price and on investment firm growth forecasts, a recent Commission decision concerning the Susquehanna Plant #2, and evidence indicative of the potential for a cut in PECO's dividend. It should be noted that Mr. Brennan wasn't aware of this latter evidence, even though PECO's Board of Director's had stated in meetings with shareholders a dividend cut could occur (Tr. 43, 44).

(3) Mr. Brennan states (p. 49) that I have rejected "... the only long-run analysts (sic) forecast of growth available ...". The Commission should note that I have utilized a 3.0% figure (the rounded value of Merrill Lynch's 2.9% long-term forecast) to estimate my long-term growth rate range (see pp. 32, 33). I incorporated in this estimate, however, the effects of a potential dividend cut of which Mr. Brennan was apparently not aware (Tr. 43, 44).

(4) Mr. Brennan cites his risk premium findings as evidence that my historical risk premium findings are flawed (p. 50). It should be noted that my risk premium findings depict actual premiums that have been available to investors in utility stocks and are not dependent on DCF calculations. Mr. Brennan's risk premium findings are, on the otherhand, based on DCF calculations for which he has chosen each of the data inputs. His risk premium findings have been shown excessive in past rate cases and furthermore are inappropriate for use in checking DCF results, which was the purpose of my risk premium analyses.

(5) Mr. Brennan states that I have asserted, "without evidence," that PECO's "...common stock is comparable in risk to bonds rated between B and CCC..." (p. 51). An apparent conclusion from this statement is that Mr. Brennan has not read my testimony nor the responses I provided to PECO interrogatories. Pages 45 through 47 of my direct testimony relate the evidence I considered in concluding

that PECO's common stock was comparable in risk to bonds rated B to CCC. Among the risk factors specifically discussed on these pages are regulatory risks, liquidity risks, price volatility risks, and definitions utilized by Moody's and Standard and Poor's in assigning the B and triple-C ratings. The response to a PECO interrogatory to which I refer is Set 2 No. 27. This interrogatory compares the recent price volatility of PECO's common stock with various B and CCC-rated bonds. My response to this interrogatory is contained in Schedule 20.

Q: DOES THAT CONCLUDE YOUR UPDATED AND SURREBUTTAL TESTIMONY?

A: Yes.

GSA STATEMENT No. 1A

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PHILADELPHIA ELECTRIC COMPANY

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Updated and Surrebuttal Exhibits of

PHILIP R. WINTER, CFA

Cost of Capital

on Behalf of the Federal Executive Agencies
General Services Administration

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February 12, 1986

Schedule 1
(Updated)

Computation of PECO's Overall Cost of Capital

	% of Total Capital	Effective Cost (%)	Weighted Cost (%)
L.T Debt	50.9	10.36	5.27
Preferred Stock	10.7	10.41	1.11
Common Equity	38.4	14.56	5.59
Total	100.0%		11.97%

PECO's Composite Cost of Long-Term Debt as of June 30, 1986 (Actual and Estimated)

First Mortgage Bonds:	Amount Outstg. ($000)	% of Total	Effective Cost	Weighted Cost
4.375% Series, due 1986	$50,000	1.62	4.43	0.05
4.625% Series, due 1987	$40,000	1.29	4.69	0.06
3.750% Series, due 19888	$40,000	1.29	3.82	0.05
5.000% Series, due 1989	$50,000	1.62	5.00	0.08
6.500% Series, due 1993	$60,000	1.94	6.57	0.13
4.500% Series, due 1994	$50,000	1.62	4.50	0.07
9.000% Series, due 1995	$59,452	1.92	8.49	0.16
8.250% Series, due 1996	$80,000	2.58	8.31	0.21
6.125% Series, due 1997	$75,000	2.42	6.16	0.15
7.500% Series, due 1998	$100,000	3.23	7.51	0.24
7.500% Series, due 1999	$100,000	3.23	7.54	0.24
7.750% Series, due 2000	$60,800	1.96	7.43	0.15
7.375% Series, due 2001	$80,000	2.58	7.38	0.19
8.500% Series, due 2004	$125,000	4.04	8.51	0.34
11.625% Series, due 2000	$65,000	2.10	11.73	0.25
11.000% Series, due 2000	$55,938	1.81	10.72	0.19
9.125% Series, due 2006	$100,000	3.23	9.23	0.30
9.625% Series, due 2002	$100,000	3.23	9.74	0.31
6.000% Series, due 2007	$23,500	0.76	6.21	0.05
8.625% Series, due 2007	$75,000	2.42	8.72	0.21
8.625% Series, due 2003	$75,000	2.42	8.70	0.21
9.125% Series, due 2008	$100,000	3.23	9.13	0.29
12.500% Series, due 2005	$100,000	3.23	12.64	0.41
13.750% Series, due 1992	$125,000	4.04	13.90	0.56
15.250% Series, due 1996	$52,500	1.70	15.40	0.26
15.000% Series, due 1996	$21,000	0.68	15.17	0.10
18.750% Series, due 2009	$48,869	1.58	18.96	0.30
18.000% Series, due 2012	$37,379	1.21	18.39	0.22
15.375% Series, due 2010	$100,000	3.23	15.53	0.50
13.375% Series, due 2013	$125,000	4.04	13.67	0.55
13.050% Series, due 1994	$20,000	0.64	13.19	0.08
14.000% Series, due 1994	$80,000	2.58	14.10	0.36
11.750% Series, due 2014	$250,000	8.08	12.05	0.97
10.875% Series, due 1995	$150,000	4.85	11.27	0.55
11.750% Proposed Series	$100,000	3.23	11.87	0.38

Debentures:				
14.125% Series, due 1990	$50,000	1.62	14.28	0.23
14.750% Series, due 2005	$100,000	3.23	14.89	0.48
Sinking Fund Debentures:				
4.850% Series, due 1986	$20,800	0.67	3.38	0.02
14.500% Series, due 2009	$150,000	4.85	14.73	0.71
Total Bonds:	$3,095,238	100.00		10.63
Pollution Control Notes:				
5.500%, due 1997	$24,485	4.38	5.02	0.22
13.000%, due 2010	$71,500	12.79	13.38	1.71
11.500%, due 2011	$18,500	3.31	13.16	0.44
Floating Rate, 1982 Series A	$60,000	10.73	5.65	0.61
Floating Rate, 1982 Series B	$40,000	7.15	5.26	0.38
Floating Rate, 1983 Series A	$50,000	8.94	5.27	0.47
Floating Rate, 1984 Series A (York)	$4,500	0.81	5.07	0.04
Floating Rate, 1984 Series A (Salem)	$4,200	0.75	5.07	0.04
10.500% Series, due 2015	$245,000	43.81	10.79	4.73
10.500% Series, due 2014	$41,000	7.33	10.79	0.79
Total Pollution Control Notes:	$559,185	100.00%		9.43%

Term Bank Loans:				
Citibank N.A.	$75,000	9.68	9.5	0.92
Chase Manhattan N.A.	$75,000	9.68	10.00	0.97
Morgan Guaranty Trust Co.	$25,000	3.22	9.98	0.32
Chemical Bank	$50,000	6.45	9.98	0.64
Limerick Revolving Credit Line	$550,000	70.97	9.75	6.92
Total Term Bank Loans:	$775,000	100.00%		9.77%
Total Long-Term Debt:				
Bonds	$3,095,238	69.56	10.63	7.39
Pollution Control Notes	$559,185	12.57	9.43	1.19
Term Bank Loans	$775,000	17.42	9.77	1.70
Serial Notes	$20,000	0.45	17.06	0.08
Other Long-Term Debt	$326	0.00	8.97	0.00
Total Long-Term Debt:	$4,449,749	100.00%		10.36%

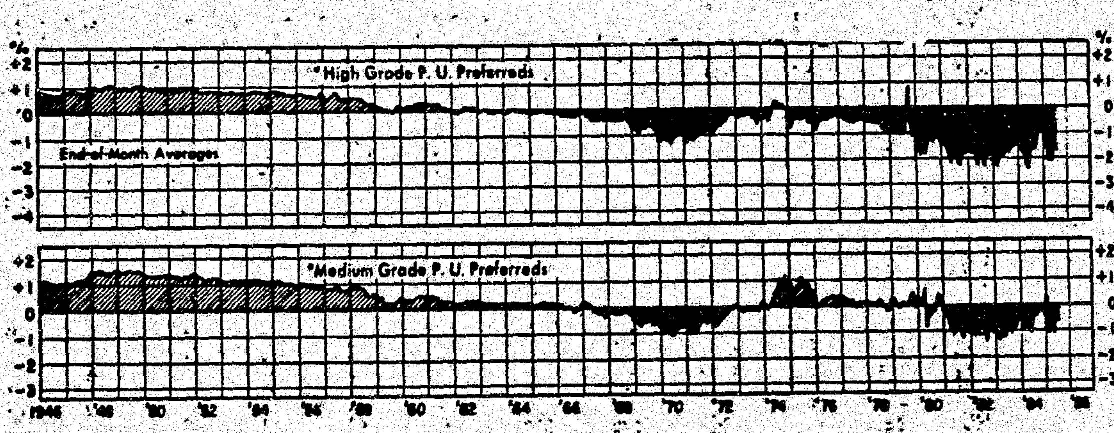
Comparison of T-Bill Future Contract Yields Recommended by Mr. Brennan and Consensus Forecasts of T-Bill Yields

Date	3-Month T-Bill Consensus Forecasts for 1986(%)*	Brennan's Recommendation (%)	Difference (%)**
July 1, 1985	7.6-7.8	8.13%	+0.43
Aug. 1, 1985	7.6-7.8	8.13%	+0.53
Sep. 1, 1985	7.5-7.7	8.13%	+0.58
Oct. 1, 1985	7.4-7.7	8.13%	+0.53
Nov. 1, 1985	7.5-7.7	8.13%	+0.78
Dec. 1, 1985	7.2-7.5	8.13%	+0.98
Jan. 1, 1986	7.0-7.3	8.13%	+0.93
Feb. 1, 1986	7.1-7.3	7.29%	

* Source: Blue Chip Financial Forecasts

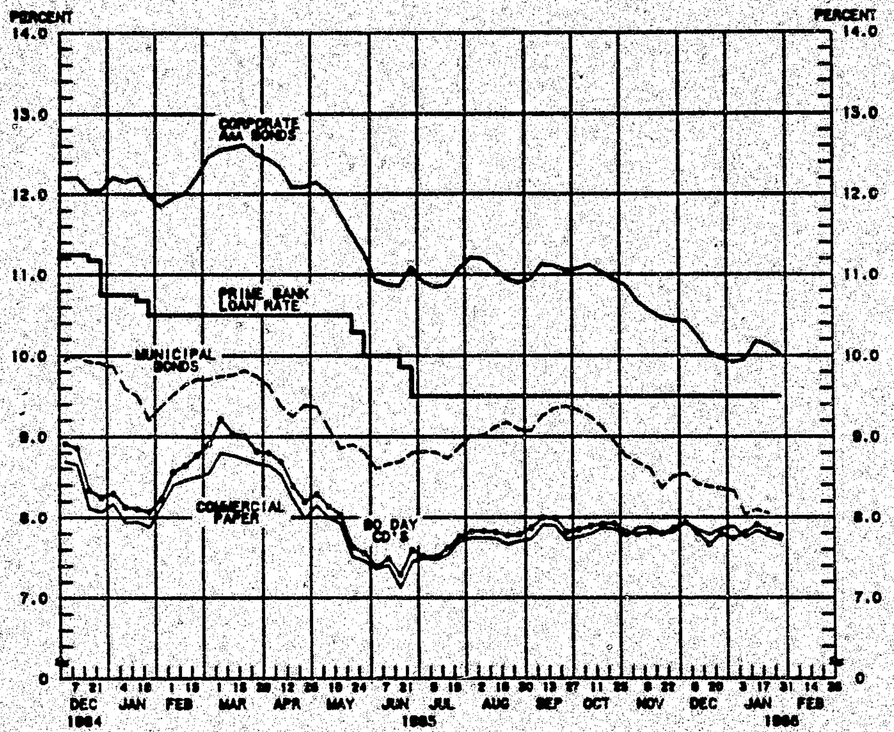
** Difference between Mr. Brennan's recommendation and the mid-point of the consensus forecast range.

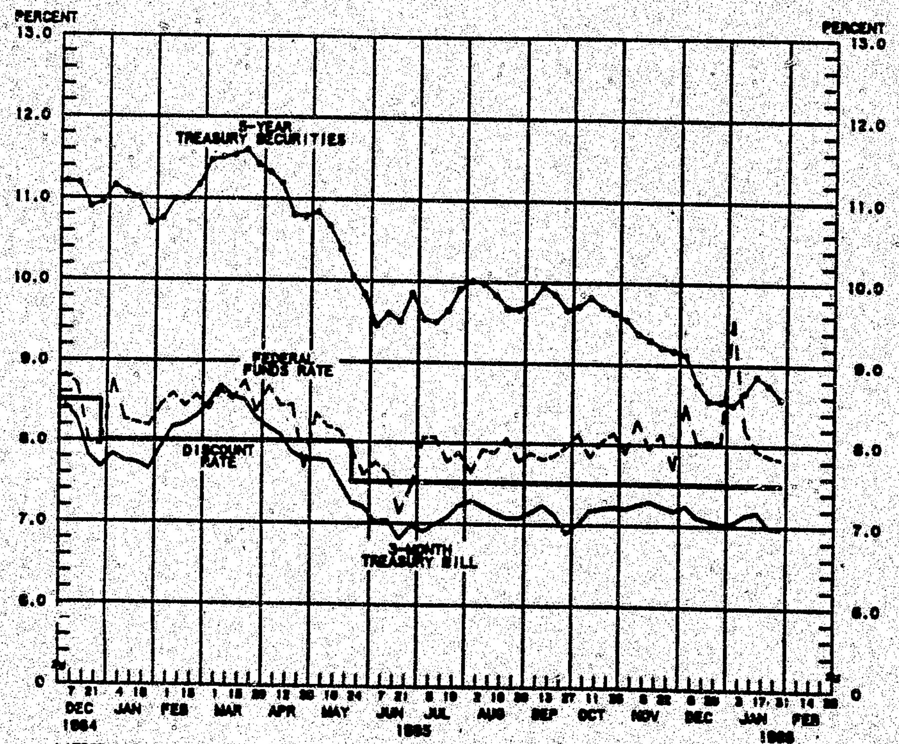
Historical Spreads Between Yields
on Public Utility Bonds and Preferred Stocks



Source: Moody's Public Utility Manual, 1985, p. a8

Recent Interest Rate Trends
(Average of Daily Rates)





LATEST DATA PLOTTED ARE AVERAGES OF RATES AVAILABLE FOR THE WEEK ENDING: JANUARY 31, 1986.

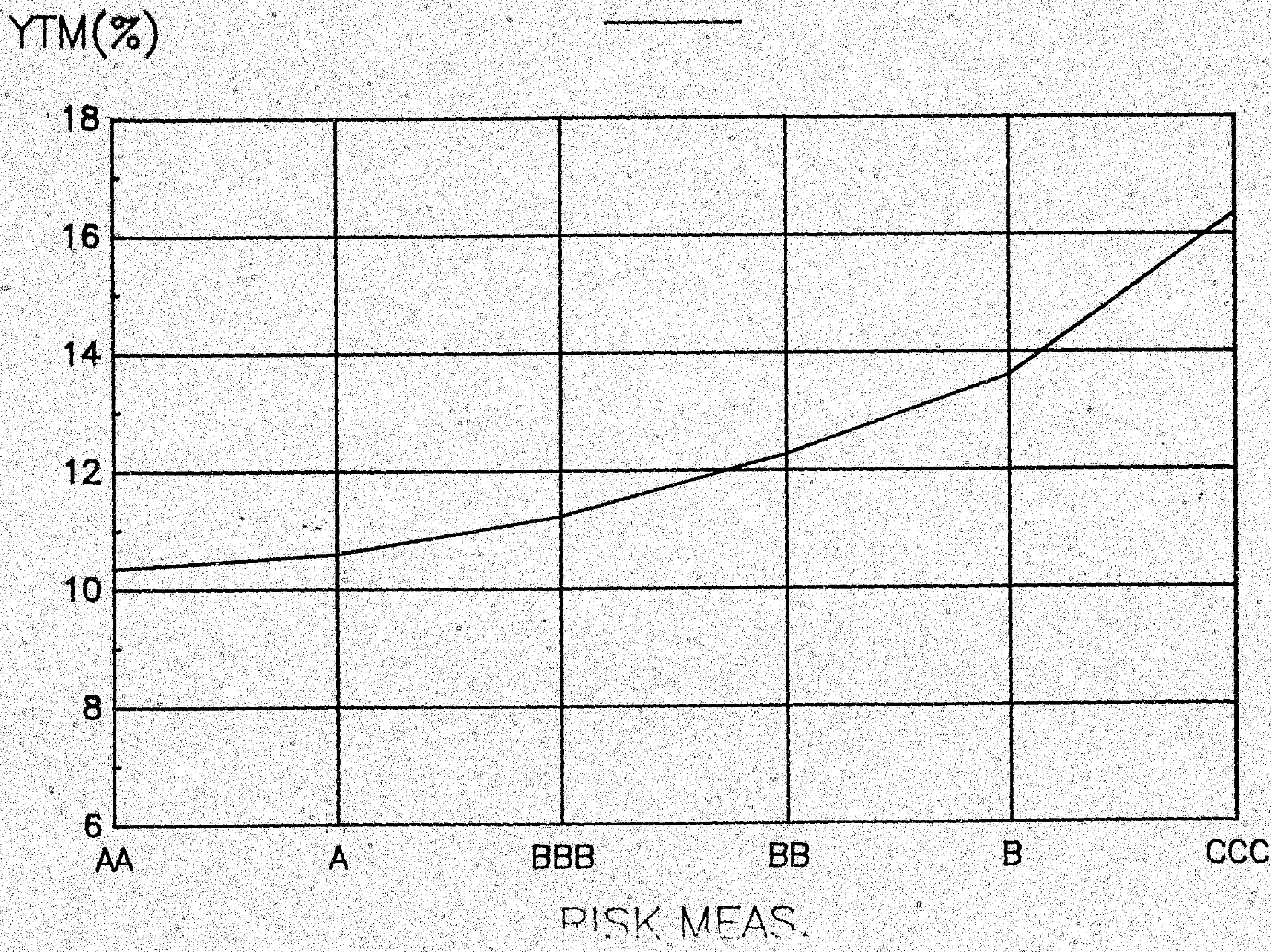
Source: U.S. Financial Data, The Federal Reserve Bank of St. Louis

Major Investment Firms' Recent
Short-Term Growth Expectations for PECO
Dividends and Earnings

Date	Investment Firm/Source	Expected Average Annual Growth Rates (Dividends	Earnings
12/27/85	Value Line	2.2	1.4
2/6/86	Prudential-Bache	0.0	0.0
Nov/Dec/85	Merrill Lynch	1.8	-2.3
1/16/86	Salomon Brothers	1.0	1.0
11/4/85	Duff & Phelps	0.0	-
1/86	E.F. Hutton	0.0	0.0
2/6/86	Dean Witter	2.0	2.5
	Average	1.0%	0.4%

REQ. RETURN VS RISK

(JANUARY 1986)



Schedule 19

Comparison of Recent Price Volatility Risk Between PECO's Common Stock and Low-Rated Bonds (Response to PECO Interrogatory)

Q: 27. Provide any empirical studies that support Mr. Winter's statement (direct testimony, p. 47): "Comparing PECO's stock price volatility with the volatility of high risk bonds, PECO's stock is again shown to be of lower risk."

A: 27. The measures of volatility on which Mr. Winter's referenced testimony is based are shown below for the period December 14, 1984 to December 13, 1985.

ISSUE	COEFFICIENT OF VARIATION
PECO's common equity	.038
Eastern Airlines debt rated CCC maturing 2005 (EAL 05)	.166
Western Union Telegraph debt rated B maturing 1997 (WU 97)	.083 and .100
Public Service Co. of New Hampshire debt rated B and CCC maturing in years 2000 to 2003 (PNH 00, PNH 02, PNH 03)	.059 to .130
International Harvestor debt rated B maturing in 1998 and 2004 (HR 04 and HR 98)	.040 and .060
Forest Oil debt rated B maturing in 1999 and 200 (FOIL 99 and FOIL 00)	.038 to .047
Fuqua Industries debt rated B maturing in 1997 and 1998 (FQU 97 and FQU 98)	.040 to .043
Long Island Lighting debt rated B maturing in 2006 and 2007	.062 to .066
Petro Lewis Corp. debt rated CCC maturing in 2003 and 2005	.052 to .109

Trial Staff Statement ARO-2
Witness: A. R. O'Donnell

R-850152
2-26-84
1+65 jat

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

Philadelphia Electric Company (Docket No. R-850152)

Updated and Surrebuttal Testimony

of

Andrew R. O'Donnell

Concerning

Fair Rate of Return

Q. Are you the same Andrew R. O'Donnell who has previously testified in these proceedings?

A. Yes.

Q. What is the purpose of this surrebuttal testimony?

A. The purpose of this surrebuttal testimony is to provide response to the Company's rate of return witness's rebuttal testimony.

Q. PECO's rate of return witness, Joseph F. Brennan, has filed rebuttal testimony that generally characterized your rate of return recommendation as being too low. In his testimony, Mr. Brennan provides criticisms to support that claim. What is your response to Mr. Brennan's allegations?

A. I do not agree with Mr. Brennan that my estimated rate of return on common equity is too low. In fact, the 14.0 to 15.0 percent common equity return rate range is more than sufficient and is reflective of the declining capital cost rate trend that has been occurring in the capital markets. The most important indicator of the direction of common equity cost rates is that of long-term interest rates. Since 1981 the trend of long-term interest rates has been downward. This downward trend followed a long period of increasing long-term interest rates. During that period of increasing long-term interest rates, recommended and allowed rates of return on common equity rose in tandem. Now that interest rates have been declining, it would be reasonable tc expect electric utility common equity return rates to decline. I contend that while my recommended rate of return on common equity is reflective of that reasonable expectation, Mr. Brennan's is not and is overstated.

Q. What evidence do you possess that demonstrates the above contention that Mr. Brennan's common equity return rate recommendation is overstated and that your recommendation is reasonable and reflective of declining long-term interest rates?

A. Please refer to page 1 of Schedule 1 of Trial Staff Exhibit ARO-2A. Depicted on page 1 of Schedule 1 is a graph of Mr. Brennan's rate of return on common equity recommendations for PECO for the current and the past five rate cases. I have compared each of Mr. Brennan's recommendations to the appropriately rated average bond yield for the six months prior to the Commission decision for decided cases and to the spot February 5, 1986 BBB bond yield for the current case. I used the period of six months prior to the Commission decision because I have observed a tendency of both the Commission and Mr. Brennan to focus upon current bond yields; especially when interest rates were rising. This focus would have occurred in the six-months prior to the date of the Commission order.

You will observe from the graph that as long-term interest rates rose, so did Mr. Brennan's common equity return rate recommendations. You will also observe a compression of the spread between Mr. Brennan's common equity return rate recommendations and the average long-term interest rate. From 1981 to present, you will observe a sharply declining trend of long-term interest rates, but not so Mr. Brennan's common equity return rate recommendations. Mr. Brennan may contend that the spread should widen, however, I believe his common equity return rate recommendations in this case result in spread that is too wide. The spread between Mr. Brennan's original 17.2 percent mid-point common equity return rate recommendation and the current 10.7 BBB bond yield is almost 6.5 percent. The spread between Mr. Brennan's revised 15.9 percent recommended rate of return on common equity and the same 10.7 percent bond yield is 5.2 percent (see Schedule 1, page 3). While Mr. Brennan's reduction is a step in the right direction, the spread is still too wide. The result is an overstatement of the rate of return on common equity for PECO.

Now please observe the graph shown on Schedule 1, page 2. The information depicted on page 2 of Schedule 1 is the Commission allowed rate of return on common equity vs. the same average long-term interest rates shown on page 1 of Schedule 1. Observe that the 14.5 percent mid-point of my rate of return recommendation is reflective of the downward trend of long-term fixed capital cost rates. You will also observe that that 14.5 percent mid-point allows for a widening of the spread. That 3.8 percent spread is 2.16 percent greater than the 1.64 percent average spread between the Commission allowed rate of return on common equity and the long-term bond yield experienced over the past five rate cases. The 3.8 percent spread is approximately 1.5 percent greater than the 2.29 percent average spread between Mr. Brennan's recommendations and the long-term bond yield over the same past five rate cases. If the ALJ and the Commission were to allow a 14.5 percent rate of return on common equity for PECO, fairness will be reasonably assured.

Q. **Would you please address each of Mr. Brennan's criticisms addressed to your determination of the rate of return on common equity?**

A. Yes. The following is a brief explanation of why I believe that each of Mr. Brennan's criticisms are invalid:

1. <u>Next period dividend adjustment</u>: Mr. Brennan testified that the next-period is the next twelve months (Tr. 23, line 23). The expected dividend growth over the next twelve months is zero (Exh. JFB-1, Schedule 1, pages 2 and 3). A zero growth rate is precisely what I used.

The argument that the Commission has often accepted the next period dividend adjustment is misleading. The Commission rarely addresses the issue specifically. I do recall, however, one Commission decision that did refer to the adjustment as "double accounting" (Penn Power Company, R-832409, May 11, 1984, p. 38).

2. <u>That I failed to consider negative EPS growth rate projections and historical growth rates; that I failed to</u>

employ the same technique that I used in the R-850021 Duquesne Light Company case: I considered the same inputs in this case as I did in the Duquesne case in arriving at my judgmental growth rate range. No averaging process or other specific formulation was involved. Please observe that Mr. Brennan has changed his growth rate estimation process in this case vs. the R-850021 Duquesne Light case.

3. That I employed a proxy group calculated rate of return to determine PECO's rate of return; that a proxy group calculation should only be used when the company's data is aberrational: I did not specifically use a proxy group to calculate the rate of return for PECO. My judgmental 14.0 - 15.0 percent common equity return rate recommendation was based upon calculations specific to PECO and my judgment relative to the reasonableness of the inputs of those calculations. I observed, for example, the aberrationally high 6-month historical dividend yield that was causing PECO's DCF result to be overstated. The calculation of the rate of return on common equity for the barometer group was helpful in pinpointing that aberration.

4. That the Commission determined in the Met-Ed case that PECO was more risky than my barometer group companies: At that point in time (Oct. 24, 1985), it may have appeared that PECO was more risky, however, my selection criteria indicated a similar but not identical risk profile. Given the obvious decrease in perceived risk associated with the Limerick No. 2 continuance order, it is becoming more apparent that PECO is in fact similar in risk to my selected barometer group.

Q. HAVE YOU UPDATED ANY SCHEDULES CONTAINED IN YOUR EXHIBIT ARO-1?

A. Yes. In Trial Staff Exhibit ARO-2B, I have updated Schedules 1, 2, 5 and 6 of Trial Staff Exhibit ARO-1 to reflect the most recently available inputs. These updates support a common equity return rate range of 12.3 to 14.7 percent, summarized as follows:

<u>DCF</u>		
	PECO	13.7-14.7
	Four Electrics	12.4-13.9
<u>Risk Spread</u>		12.3-13.8

The updated statistics fully support declining common equity cost rates for PECO. Based upon the above statistics, I recommend that the ALJ and Commission consider the lower half of my original 14.0-15.0 percent range to be fair and reasonable.

Q. Does this conclude your surrebuttal testimony?

A. Yes.

Trial Staff Exhibit ARO-2A
Witness: A. R. O'Donnell

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

Philadelphia Electric Company (Docket No. R-850152)

Exhibit to Accompany

The

Updated and Surrebuttal Testimony

of

Andrew R. O'Donnell

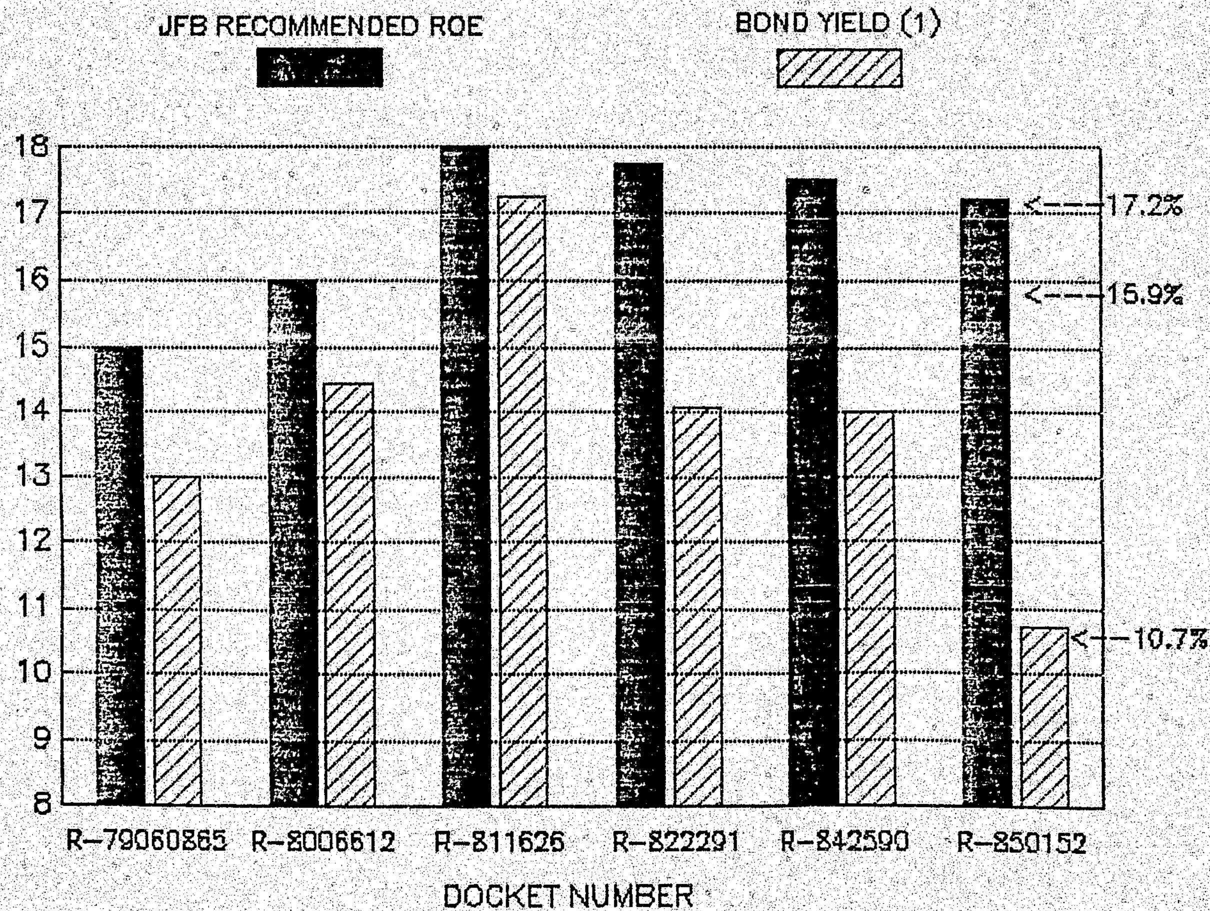
Concerning

Fair Rate of Return

PHILADELPHIA ELECTRIC COMPANY

J. F. BRENNAN RECOMMENDED RATE OF RETURN ON COMMON EQUITY VS. BOND YIELD

(A RATED FOR THE PERIOD 1979–1980 -- BAA FOR 1981–1986)

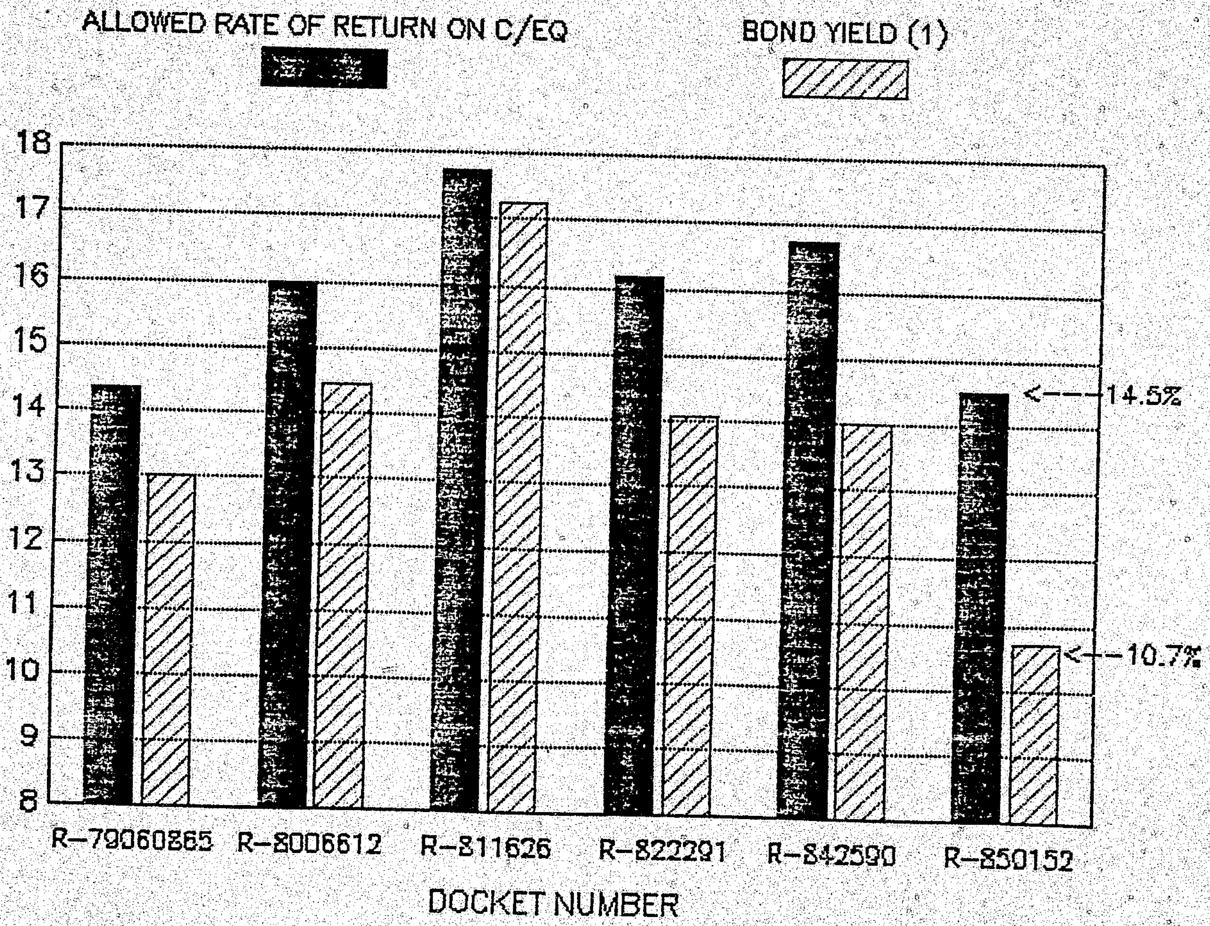


Note: (1) Six months prior to Commission Order for decided cases, spot at February 5, 1986 for current case.

Source: Schedule 1, Page 3 of this exhibit.

PHILADELPHIA ELECTRIC COMPANY

ALLOWED RATE OF RETURN ON COMMON EQUITY VS. BOND YIELD
(A RATED FOR THE PERIOD 1979–1980 -- BAA FOR 1981–1986)



Note: (1) Six months prior to Commission Order for decided cases, spot at February 5, 1986 for current case.

Source: Schedule 1, Page 3 of this exhibit.

PHILADELPHIA ELECTRIC COMPANY
COMPARISON OF J. F. BRENNAN'S RECOMMENDED AND
COMMISSION ALLOWED RATES OF RETURN ON COMMON EQUITY
TO LONG-TERM BOND YIELDS(1)
(A RATED FOR 1979-1980, BAA RATED FOR 1981-1986)

DOCKET NUMBER	ALLOWED PER ORDER (%)	BRENNAN RECOMM. (%)	MOODY'S BOND YIELD(1) (%)	SPREAD ALLOWED LESS BOND YIELD (%)	SPREAD BRENNAN LESS BOND YIELD (%)
R-79060865	14.35	15.00	13.00	1.35	2.00
R-8006612	16.00	16.00	14.44	1.56	1.56
R-811626	17.75	18.00	17.25	0.50	0.75
R-822291	16.15	17.75	14.09	2.06	3.66
R-842590	16.75	17.50	14.00	2.75	3.50
R-850152(2)(3)	14.50	17.20	10.70	3.80	6.50
R-850152(2)(4)	14.50	15.90	10.70	3.80	5.20
AVERAGE (DECIDED CASES ONLY)	16.20	16.85	14.56	1.64	2.29

NOTES:
(1) SIX MONTHS PRIOR TO COMMISSION DECISION FOR DECIDED CASES, FEBRUARY 5, 1985 FOR CURRENT CASE.
(2) ASSUMING THE COMMISSION WERE TO ALLOW THE MID-POINT OF O'DONNELL'S 14.0-15.0 RECOMMENDED RANGE.
(3) 17.2% IS THE MID-POINT OF J. F. BRENNAN'S 16.9-17.4 PERCENT ORIGINAL RECOMMENDATION.
(4) J. F. BRENNAN CHANGED HIS RECOMMENDATION TO 15.9%.

SOURCE: COMMISSION ORDERS
MOODY'S BOND RECORD
STANDARD & POOR'S OUTLOOK, FEBRUARY 12, 1986.

Trial Staff Exhibit ARO-2B
Witness: A. R. O'Donnell

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

Philadelphia Electric Company (Docket No. R-850152)

Exhibit of Updated Schedules

To Accompany

The

Updated and Surrebuttal Testimony

of

Andrew R. O'Donnell

Concerning

Fair Rate of Return

PHILADELPHIA ELECTRIC COMPANY
SUMMARY OF FAIR RATE OF RETURN RECOMMENDATION
JUNE 30, 1986 AND PROSPECTIVE

	CAPITAL STRUCTURE RATIO (%)	REQUIRED COST/ RETURN RATE (%)	WEIGHTED AVERAGE REQUIRED COST/ RETURN RATE (%)
LONG-TERM DEBT	50.90	10.86	5.53
PREFERRED STOCK	10.70	10.50	1.12
COMMON EQUITY	38.40	14.0-15.0	5.38-5.76
TOTAL	100.00		12.03-12.41

SCHEDULE 2
(UPDATED)
WITNESS: A. B. O'DONNELL

PHILADELPHIA ELECTRIC COMPANY
THE BAROMETER GROUP OF FOUR ELECTRICS
COMPARATIVE STATISTICS

	SAFETY RANK	PRICE STABILITY INDEX	PRICE GROWTH PERSIS-TENCE INDEX	BETA	CAPITAL STRUCTURE(1) LTD (%)	PS (%)	CEQ (%)	PRE-TAX INTEREST COVERAGE INCLUDING AFUDC(1) (TIMES)	PRE-TAX INTEREST COVERAGE EXCLUDING AFUDC(1) (TIMES)	AFUDC AS A PERCENT OF NET EARN-INGS(1) (%)
PHILA. ELECTRIC	4	95	10	0.65	51.0	11.0	38.0	3.0	2.1	92.0
DAYTON P&L	4	80	10	0.65	47.0	11.0	42.0	2.9	2.3	66.0
DUQUESNE LIGHT	4	100	5	0.65	51.0	10.0	39.0	2.6	2.0	91.0
OHIO EDISON	4	85	5	0.70	49.0	12.0	39.0	2.1	1.4	65.0
TOLEDO EDISON	4	100	5	0.60	50.0	14.0	36.0	2.3	1.4	109.0
AVERAGE	4	91	6	0.65	49.3	11.8	39.0	2.5	1.8	82.8

NOTES: 1. AS OF JUNE 30, 1985

SOURCE: THE VALUE LINE INVESTMENT SURVEY
ELECTRIC UTILITY QUALITY MEASUREMENTS, SALOMON BROS., INC., OCTOBER 14, 1985

PHILADELPHIA ELECTRIC COMPANY
AND THE BAROMETER GROUP OF FOUR ELECTRICS
SUMMARY OF DIVIDEND YIELD ANALYSIS

	SPOT AT FEB. 7, 1986 (%)	6-MONTHS ENDED JAN. 31, 1986 (%)	12-MONTHS ENDED JAN. 31, 1986 (%)	AVERAGE OF 2/07/86 SPOT PLUS 6-MONTH ENDED JAN. 31, 1986 (%)	AVER OF 2/07/ SPOT PLUS 12-MON ENDE JAN. 1986 (%)
PHILADELPHIA ELECTRIC	11.5	13.8	14.1	12.7	12.8
FOUR ELECTRICS	10.7	11.7	12.2	11.2	11.5

SOURCE: STANDARD & POOR'S STOCK GUIDE (MAR. 1985 - FEB. 1986)
WALL STREET JOURNAL, FEBRUARY 10, 1986

PHILADELPHIA ELECTRIC COMPANY
BAROMETER GROUP OF FOUR ELECTRICS
GROWTH RATE ANALYSIS

	VALUE LINE'S '82 -'84 '88 -'90		SALOMON BROS. PROJECTED 5-YEAR	MERRILL LYNCH 5-YEAR	
	EPS (%)	DPS (%)	DPS (%)	EPS (%)	DPS (%)
PHILA. ELECTRIC	2.0	2.0	1.0	-2.3	1.8
DAYTON P&L	4.0	3.5	3.0	4.2	0.0
DUQUESNE LIGHT	3.5	2.5	1.5	N/A	N/A
OHIO EDISON	2.0	2.0	3.0	-2.0	1.8
TOLEDO EDISON	2.0	2.0	2.0	0.4	0.9
AVERAGE	2.9	2.5	2.4	0.9	0.9

SOURCE: VALUE LINE INVESTMENT SURVEY, DECEMBER 27, 1985 (EAST) AND JANUARY 24, 1986 (CENTRAL).
ELECTRIC UTILITY MONTHLY, SALOMON BROS., INC., JAN. 6, 1986.
QUANTITATIVE ANALYSIS, MERRILL LYNCH, NOV.-DEC. 1985.

PHILADELPHIA ELECTRIC COMPANY
BAROMETER GROUP OF FOUR ELECTRICS
SUMMARY OF DISCOUNTED CASH FLOW ANALYSIS

	DIVIDEND YIELD (%)	GROWTH RATE (%)	DCF (%)
PHILA. ELECTRIC	12.7	1.0-2.0	13.7-14.7
FOUR ELECTRICS	11.5	.9-2.4	12.4-13.9

SOURCE: SCHEDULE 5, PAGE 1 (YIELD)
SCHEDULE 5, PAGE 2 (GROWTH)

PHILADELPHIA ELECTRIC COMPANY
SUMMARY OF RISK SPREAD ANALYSIS

DCF INDICATED RATE OF RETURN ON COMMON EQUITY (FOUR ELECTRICS) (&)	AVERAGE RISK SPREAD (%)	INDICATED RATE OF RETURN ON COMMON EQUITY (PECO) (&)
12.4-13.9	-.1	12.3-13.8

SOURCE: SCHEDULE 5, PAGE 3
SCHEDULE 6, PAGE 2

PHILADELPHIA ELECTRIC COMPANY
SUMMARY OF RISK SPREAD ANALYSIS
DECEMBER 31, 1985 AND FOR THE SIX MONTHS-ENDED DECEMBER 31, 1985

	STANDARD & POOR'S		MOODY'S		
	DEC. 31, 1985 (%)	SIX MONTH AVERAGE ENDED DEC. 31, 1985 (%)	DEC. 31, 1985 (%)	SIX MONTH AVERAGE ENDED DEC. 31, 1985 (%)	AVERAGE SPREAD (%)
DAYTON P&L	0.09	0.23	0.09	-0.09	0.08
OHIO EDISON	-0.05	0.14	0.51	0.05	0.16
DUQUESNE LIGHT	-0.39	-0.07	0.17	-0.07	-0.09
TOLEDO EDISON	-0.82	-0.50	-0.26	-0.17	-0.44
AVERAGE	-0.29	-0.05	0.13	-0.07	-0.07

SOURCE: SCHEDULE 6, PAGES 3 AND 4

PHILADELPHIA ELECTRIC COMPANY
RISK SPREAD ANALYSIS - STANDARD & POOR'S

COMPANY NAME	NOMINAL INTEREST RATE (%)	MATURITY DATE (%)	YIELD TO MATURITY DECEMBER 1985 (%)	NOVEMBER 1985 (%)	OCTOBER 1985 (%)	SEPTEMBER 1985 (%)	AUGUST 1985 (%)	JULY 1985 (%)	6-MONTH AVERAGE (%)
PHILA. ELECTRIC	8.63	2007	10.76	11.37	11.99	12.33	11.92	12.38	11.79
DAYTON P&L	8.50	2007	10.67	11.52	11.60	11.90	11.65	12.06	11.57
DUQUESNE LIGHT	8.38	2007	10.81	11.27	11.56	12.19	11.82	12.27	11.65
OHIO EDISON	8.38	2007	11.15	11.54	12.01	12.16	11.92	12.37	11.86
TOLEDO EDISON	9.65	2006	11.58	12.25	11.99	12.12	12.71	13.10	12.29

SPREAD (PECO - FOUR ELECTRICS)

	DECEMBER 1985	NOVEMBER 1985	OCTOBER 1985	SEPTEMBER 1985	AUGUST 1985	JULY 1985	6-MONTH AVERAGE
DAYTON P&L	0.09	-0.15	0.39	0.43	0.27	0.32	0.23
OHIO EDISON	-0.05	0.10	0.43	0.14	0.10	0.11	0.14
DUQUESNE LIGHT	-0.39	-0.17	-0.02	0.17	0.00	0.01	-0.07
TOLEDO EDISON	-0.82	-0.88	0.00	0.21	-0.79	-0.72	-0.50
AVERAGE	-0.29	-0.28	0.20	0.24	-0.11	-0.07	-0.05

SOURCE: S&P BOND GUIDE (AUG. 1985 - JAN. 1986)

(UPDATED)
WITNESS: A. R.

PHILADELPHIA ELECTRIC COMPANY
RISK SPREAD ANALYSIS - MOODY'S

COMPANY NAME	NOMINAL INTEREST RATE (%)	MATURITY DATE (%)	YIELD TO MATURITY DECEMBER 1985 (%)	NOVEMBER 1985 (%)	OCTOBER 1985 (%)	SEPTEMBER 1985 (%)	AUGUST 1985 (%)	JULY 1985 (%)	6-MONTH AVERAGE (%)
PHILA. ELECTRIC	8.63	2007	11.32	11.62	11.99	12.33	12.04	12.39	11.95
DAYTON P&L	8.50	2007	11.23	11.52	12.16	12.81	12.13	12.37	12.04
DUQUESNE LIGHT	8.39	2007	10.81	11.61	12.29	12.19	12.39	12.10	11.90
OHIO EDISON	8.38	2007	11.15	11.54	12.19	12.34	12.35	12.53	12.02
TOLEDO EDISON	9.65	2006	11.58	11.87	11.99	12.12	12.61	12.54	12.12

SPREAD (PECO - FOUR ELECTRICS)

	DECEMBER 1985	NOVEMBER 1985	OCTOBER 1985	SEPTEMBER 1985	AUGUST 1985	JULY 1985	6-MONTH AVERAGE
DAYTON P&L	0.09	0.10	-0.17	-0.48	-0.09	0.02	-0.09
DUQUESNE LIGHT	0.51	0.01	-0.30	0.14	-0.35	0.29	0.05
OHIO EDISON	0.17	0.08	-0.20	-0.01	-0.31	-0.14	-0.07
TOLEDO EDISON	-0.26	-0.25	0.00	0.21	-0.57	-0.15	-0.17
AVERAGE	0.13	-0.02	-0.17	-0.04	-0.33	0.01	-0.07

SOURCE: MOODY'S BOND RECORD (AUG. 1985 - JAN. 1986)

Staff Statement ECR-1
Witnesses: R. Rosenthal
D. Hosler
Date: 2-26-86 R-850152
HGS JAT

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

DOCKET NO. R-850152

RECEIVED
FEB 27 1986
SECRETARY'S OFFICE
Public Utility Commission

Joint Direct Testimony

of

Robert A. Rosenthal

and Dennis P. Hosler

DOCKETED
MAR 3 - 1986

DOCUMENT FOLDER

Concerning:

Energy Cost Rate

Prepared February, 1986

Q. Mr. Rosenthal, please state your name and business address?

A. My name is Robert A. Rosenthal, my business address is P.O. Box 3265, Harrisburg,Pa. 17120.

Q. By whom are you employed and in what capacity?

A. I am employed by the Pennsylvania Public Utility Commission as Supervisor of Valuation and Rate Structure in the Electric Division of the Bureau of Rates.

Q. Have you prepared a statement of qualifications and experience?

A. Yes, please see Appendix A to Statement RAR-1 previously submitted.

Q. Mr. Hosler, please state your name and business address?

A. My name is Dennis P. Hosler, my business address is P.O. Box 3265 Harrisburg, Pa. 17120.

Q. By whom are you employed and in what capacity?

A. I am employed by the Pennsylvania Public Utility Commission as a Fixed Utility Financial Analyst in the Electric Division of the Bureau of Rates.

Q. Have you prepared a statement of qualifications?

A. Yes, please see Appendix A of Statement DPH-1 previously submitted.

Q. What is the purpose of this statement of testimony?

A. This statement of testimony discusses the expected operation of the 80/20 ECR ordered by the Commission at Docket Number M840375 (ECR8).

Q. Have you reviewed PECO's proposed ECRF filed in response to the Commission's order at ECR8 entered October 30, 1985?

A. Yes

Q. In your opinion is PECO's ECRF as filed in full compliance with the Commission's ECR8 order?

A. No. It is not.

Q. How is PECO's ECRF as filed not in compliance with the ECR8 order regarding the 80/20 ECR?

A. First, it is apparently PECO's position that the 20% of unreconciled energy costs will change with the annual ECRF filing which will also set the revenue level for the reconcilable 80% of energy costs. It is Staff's opinion that the Commission in its ECR8 order intended that 20% of energy costs no longer be reconciled but become a component of base rates and no longer be included in the energy adjustment clause. As a result this 20% of energy costs now included in base rates will change only as a result of general rate case proceeding. In other words, the annual projection of the 80% of energy cost which will remain subject to the adjustment clause will continue to be projected on a 12 month specific or computation period, but the 20% included in base rates will be determined on a normalized level of energy cost like any other general rate case expense allowance.

Q. Are there any other reasons why PECO's submittal is not in compliance with the ECR8 order?

A. Yes, the 80/20 ECR as ordered does not and should not include a cap on the gain or loss which may occur. This is discussed further below.

Q. Are there any other issues which will be discussed in this testimony?

A. Staff will propose language and descriptive changes to the ECRF tariff to comply with the ECR8 order, provide an estimate for the normalized level of energy expenses, provide the amount of base rate revenue requirement energy component, provide section 1308 energy cost component, provide a description and proforma estimates of the new 80/20 ECR to be effective at the conclusion of the rate proceeding, and discuss the interaction of the 80/20 ECR with proposals to guarantee energy savings from the Limerick unit.

Q. Please explain the basis for Staff's position that the 80/20 ECR is to include 20% of normalized energy costs in base rates as an unreconciliable energy expense.

A. The Commission's ECR8 order modifying PECO's ECR resulted from a review of the ALJ's recommendation that PECO no longer be permitted to utilize an ECR, but rather recover its energy costs only through base rate proceedings. That proposal is essentially a 0/100 ECR. The 80/20 ECR was presented by Commissioner Shane in a motion (attached to this testimony as Schedule 1) as an alternative to either the current ECR or the ALJ recommended total elimination of the ECR mechanism for PECO. The Commission agreed with the ALJ that PECO was not effectively administering its ECR, but the Commission also believed that to deprive PECO of the use of an ECR was too extreme a measure to take at that time. Thus the Commission adopted Commissioner Shane's 80/20 ECR proposal and included it in its order (Order @ pp 157-164).

Q. Does the ECR8 order expressly require the use of normalized energy cost data?

A. There is no clear expression, however the definition of projected energy costs at page 162, footnote 18 states the following: "The prospective data shall be based upon one year projections for a period of three prospective years". This, of course, is a very sound basis for normalization given the fact that PECO's nuclear plants are operating on 18 month refueling cycles. Further, in discussing the operation of the new ECR, starting at the bottom of page 163 and continued on page 164 the order states the following: "...the Company will commence recovery of the energy costs included in said approved ECR on a levelized monthly basis, beginning with the calendar month following issuance of a final Order of the Commission in the Company's current rate filing and any subsequent general rate filing ". Footnote 19 referring to this sentence notes the following: "The projected energy costs levels will remain in effect until revised levels are determined in subsequent Commission proceedings". As current ECR procedures do not usually include hearings on prospective year estimates and no new hearing procedures were described in the order, Staff believes that the referenced proceedings are general rate case hearings. However, it is not our opinion that the Commission intended to rule out modifications to the 80% reconcilable energy costs in the interim between rate cases. Therefore, it is clear from this section of the order that the 20% normalized level would only change at a subsequent general rate filing.

Q. Are there any other reasons why the 20% of energy costs should be included in base rates on a normalized basis?

A. Yes, it is Staff's opinion that pursuant to 66 Pa. C.S. section 1307 any item subject to the sliding scale of rates section of the Public Utility Code is fully reconciliable. Thus the 20% of energy cost no longer reconciled must be subject to section 1308 of the code (voluntary change in rates) which is the general rate case section. In short, it is Staff's opinion that to be in conformance with the Public Utility Code, the 80% remains recoverable through section 1307, but the 20% must be recovered pursuant to section 1308 in order to be unreconciliable.

Q. Please explain why it is Staff's opinion that the 80/20 ECR is not to include a cap.

A. The ECR8 order, at no point, discusses a cap. A $35 million cap as proposed by PECO results in more than 80% of energy costs being reconciled above a $175 million ($35/.20) variance of actual energy cost from total projected energy costs used in setting the 20% rate level. For example, if the variance in cost was $200 million from the level of energy cost projections used to set the unreconciliable portion, then the unreconciliable portion would be 20% or $40 million of the variance. Applying the $35 million cap to this variance would mean only 17.5% of the $200 million variance would remain unreconciled. Thus the cap changes the clause from a 80%/20% split to an 82.5%/17.5% split. In other words, clearly, the Commission's order did not provide for this variance from the 80/20 split.

In addition, because as previously stated the 20% of energy cost which will no longer be reconciled must be subject to section 1308 of the Public Utility Code, this section does not allow reconciliation of any expense.

Further, the amount of loss or gain by PECO on the normalized unreconciled 20% of energy cost must be looked at over a period of time. A cap based on one year gain or loss would be inappropriate since some years, due to refueling cycles of nuclear plants, will result automatically in some gain or loss and the net effect will only be properly reflected over a longer time period.

Q. Will Staff's ECRF be easily administered?

A. Yes, Staff's ECRF will be easier to administer than PECO's proposal as Staff's ECRF will be procedurally similar to current ECR operation for review and audit. At a minimum PECO's method may entail hearings to set the 20% unreconciliable level of energy costs each year, which is an additional burden to both the Commission and the Company.

Q. What changes to PECO's proposed ECRF tariff pages are recommended by Staff?

A. Staff recommends revision of the ECRF formula to reflect the changes to PECO's adjustment clause as shown in Staff Exhibit ECR-1 Schedule 2. Staff recommends restoration of the interim rate change provisions which were removed by PECO. The language defining "E" must be modified to exclude PECO's proposed cap and correctly define the reconciliation of 80% of energy costs. Staff also proposes to modify the definition of the "B" factor including both the amount to be included as base rate recovered fuel cost and the way it is reflected in the formula.

Q. Please explain what base energy cost is in the current ECR.

A. Base energy cost is the level of proforma energy expenses used in the development of the base rate revenue requirement expressed in mills per KWH. This level is included as a component of the current ECR tariff formula and subtracted from the projected ECR cost per KWH in development of the rate of collection and in the reconciliation of energy costs.

Q. Please explain the modifications to the base rate revenue requirement energy component included in the Staff recommended ECRF tariff.

A. The modified ECRF formula includes a "B" factor as the base rate revenue requirement energy component which will equal the normalized total energy cost used to calculate the unreconciliable 20%. A new "R" factor for the unreconciliable 20% of normalized energy cost is identified and used to calculate the new "B" factor. The "R" factor will be subject to section 1308 proceedings. The ECRF formula as recommended by Staff will reflect the difference between collection of the normalized 80% reconcilable energy costs and 80% of the 12 month specific (computation year) energy cost projection, identified as the "F" factor. Essentially the 20% of normalized energy costs will be recovered through 20% of the base rate revenue requirement ("B" factor) used in the development of the total base rate revenue requirement.

Q. How has Staff developed the normalized energy costs for PECO?

A. Staff has reviewed the submittals of Mr. Carroll and his assumptions in making his calculations.

Q. Have you examined the five years of historic data submitted by Mr. Carroll on the PECO generating units?

A. Yes, the operation over the past five years has been marred by catastrophic failures, to use Mr. Carroll's term, and extended outages which have seriously affected the availability and production from many of these units. When examining availabilities and capacity factors, PECO units operated by itself or PSE&G are below national experience with the exception of Peach Bottom 3.

Q. Has this below normal operation been anticipated in the forecasted period of the next three years?

A. No, the production cost output submitted predicts that all base load units except Eddystone 1, Eddystone 2 and Peach Bottom 3 will approach national experience. Peach Bottom 3 will have an extraordinary outage for piping replacement during one of the three years, which results in predicted experience below national experience. Eddystone 1 and 2 while predicted to operate at availability significantly above historic experience are still expected to perform below national experience.

Q. You mention "national experience", what do you mean by that term?

A. We have compared the availability or capacity factor of PECO's major baseload units to National Electric Reliability Council Generating Availability Data (NERC-GADS) for similar size vintage units. Schedule 3 and Schedule 4 provide a portion of the data examined for comparative purposes.

Q. How does the forecasted operation affect the valuation of a normalized fuel cost?

A. If significant departures from the national experience were forecasted, adjustments to operating levels would be in order.

Q. Have you adjusted the operating levels of the coal and nuclear units in developing your normalized fuel costs?

A. No, for the three years used in developing the normalized fuel cost, operating levels of PECO's coal and nuclear units were not adjusted.

Q. Have you examined the five years of historic data presented on interchange and purchased power?

A. Yes. Interchange and purchased power provided over one third of PECO's energy needs for the past five years.

Q. Have you examined the three years of projected data developed by Mr. Carroll for purchased power and interchange power?

A. Yes, as a contributing resource to fill the needs of PECO, total purchased power and interchange will decline significantly from historic levels. As shown in Schedule 5, Mr. Carroll forecasts 2-party purchase levels significantly below historic amounts and declining amounts in the face of the expected major outage at Peach Bottom 3. Staff does not believe his estimate to be reasonable, with the new agreements in place between West Penn Power System and American Electric Power, the on line operation of the Bath County Pumped Storage Project which makes more on-peak power available from the APS system, the on-line operation of CAPCO's Perry 1 unit due by the end of 1986, and the on-line operation of Beaver Valley 2 due by the end of 1987. These events and agreements, which will ensure both availability and economy from Western sources, leads Staff to conclude that if PECO were to purchase only the amounts forecasted by Mr. Carroll, that it would be imprudent in not seeking the lowest cost sources.

Q. What normalized level of 2-party purchases have you developed?

A. For the purposes of developing a normalized fuel expense Staff has included 2-party purchases at a level of 3,000,000 MWH. This compares to a 5 year average of 3,112,426 MWH and a 3 year average of 3,055,547 MWH; which are shown on schedule 5. The incremental MWH which results from the difference between the 3,000,000 MWHH normalized level and Mr. Carroll's forecasted amounts are used to offset alternative PJM purchases and oil steam generation. Both historically and in Mr. Carroll's forecasts, the price of 2-party purchases is below PJM purchases and oil generation.

Q. Did Mr. Carroll include all the potential energy sources and prices for this time period?

A. While PECO predicts interchange receipts from PJM by unit source, it did not incorporate a price departure from the PJM formula. Our understanding of its Prodcost Model is that additional modifications to the input data is required to alter the pricing of PJM member transactions. Given Pennsylvania Power and Light Company's (PP&L) strong capacity position, and its marketing objectives, there is potential for a 2-party arrangement between PP&L and PECO which would depart from the PJM contract. Nothing in the PJM contract prohibits such arrangements. Further, it should be recognized that what PP&L receives for the power it sells to PJM and what PECO pays for the power it receives from PJM differs. If a contract for replacement power for the Peach Bottom 3 extended outage could be negotiated at one mill below PJM rates, $3.8 million could be saved(PB-3 capacity @ 440,000 KW * 8760 outage hours = $3,852,398). Staff has not included such a transaction in the development of the normalized fuel cost, even though it represents an action that PECO could initiate under the incentives available from the 80/20 procedure which would provide gains for both the stockholders and customers.

Q. Have you examined the escalation rates used by Mr. Carroll for fossil fuel?

A. Yes, Schedule 6 provides Mr. Carroll's escalation rates used for coal and 1% sulfur-oil. Also shown are DRI's November, 1985 escalation rate estimates which were provided to PECO for the three years examined. It should be noted that the escalation of fossil prices affects not only the generating units but the value of interchange transactions.

In developing the valuation of the normalized cost the following assumptions were used; a) oil costs per MWH were held at July, 1986 prices and total oil generation was adjusted to that price in each year examined, b) coal costs were not adjusted, c) Interchange receipts were adjusted to the average of yearly coal costs and non-escalated oil costs. Historically PJM interchange rates have been derived by the "split savings" between these two sources, as oil is in many hours the marginal generating source for buying companies and coal is the economic alternative source.

Q. Were 2-party purchase rates also adjusted?

A. Yes, due to the new flexible pricing agreement between AEP and APS and on-line operation of the three units mentioned previously I do not believe that 2-party rates will escalate over the period examined.

Q. How has the normalized fuel cost been calculated?

A. After adjusting the three years examined for the two areas where Staff believes Mr. Carroll has erred (available 2-party purchases and oil price escalation), Staff calculated the three year average for the normalized fuel cost. The result is a normalized expense of 16.869 mills per KWH sold to be used as the basis for the 80/20 split of reconcilable versus non-reconcilable elements.

Q. Why is it Staff's recommendation that 16.870 mills per KWH be adopted as the appropriate base rate revenue requirement energy component rather than PECO's proposed equivalent 20.823 mills per KWH?

A. First, it is Staff's opinion that the energy costs included in the base rate revenue requirement should reflect the reasonable, projected energy cost to be incurred by the Company. PECO's proposed base energy cost is 3.954 mills per KWH higher than the projected normalized energy cost of 16.869 mills per KWH recommended by Staff. The fact is that the Company proposed base rate revenue requirement will reflect approximately $109 million more energy cost than the normal level of energy cost and result in an overstatement of energy costs in base rates which has adverse interclass results.

Second, in order for the 80/20 ECR to properly account for the unreconciled 20% of energy cost placed in base rates and treated as any other base rate expense, the 80/20 formula must reflect through the "B" factor the reciprocal of the 20% of energy costs which will not be reconciled.

Q. Please give a brief overview of how Staff's recommended 80/20 ECR will operate.

A. The 20% of energy costs in base rates will be set on a normalized energy cost level in each general base rate proceeding. This "R" factor of the ECR tariff will not change except as a result of a general rate proceeding and will be the unreconciled component of the 80/20 ECR. The amount of base rate requirement energy component will be the direct result of the normalized energy cost level.

The 80% of reconcilable energy costs will be set at the level of projected energy costs for the specific 12 month ECR computation year July through June. This "F" factor of the ECR tariff will change annually as in the current ECR. PECO will file tentative ECRF data with its third quarter report by April 30 and final ECRF data by May 31. As in the current procedure, Commission Staff will review PECO's ECRF proposed statement and recommend to the Commission either approval or adjustment to the requested rate change to become effective July 1. The annual ECRF filing submitted will include the reconciliation of the 80% of energy cost data to make the annual revision to the "E" factor to recoup undercollection or refund overcollections and interest. PECO's section 1307(e) reconciliation statement of over/under collection for the annual period May 1'st to April 30th will also be filed by May 31st of each year.

If the then effective "F" factor will result in substantial over or under collection for the remainder of the ECRF computation year such "F" factor and ECRF may be revised on an updated prospective 12-month projected basis. This ECRF revision as per the current ECR procedure, would be filed at least 30 days prior to the effective date of the revised ECRF. Such interim adjustment would not change the annual ECRF filing requirements. The operation of the reconciliable 80% of the ECRF would closely track the current ECR procedures and therefore will be easy to administer.

Q. How will the reconciliation occur for the first period?

A. The first section 1307(e) reconciliation statement, to accommodate the transition to the 80/20 ECR, will be for the fifteen month period February 1, 1986 through April 30, 1987.

Q. Has Staff performed the necessary calculations to compute the ECRF to become effective with the new rates resulting from this proceeding?

A. Yes. Based on Staff's proposed normalized energy cost of 16.869 mills per KWH, Schedule 7, shows the resulting ECRF of 1.118 mills per KWH to become effective with the new rates resulting from this proceeding. This rate is subject to final reconciliation of the "E" factor of the current ECR, and is calculated to reflect, on a proforma basis, the status of reconciliation as it was in PECO's proposed ECRF.

Q. Does Staff have any recommendation as to how the projected data and/or reconciliation information should be finalized in this proceeding?

A. Yes. Staff believes PECO's final energy cost projections to be included in the record of this proceeding should be submitted by March 3, 1986 the due date of the Company's rebuttal testimony regarding the 80/20 ECR. Receipt of updated or revised projections after this date would not provide Staff sufficient time to review and respond to this data. This includes any normalized energy cost data and any ECRF computation year energy cost projections. It should be noted that this March 3, 1986 date is less than 2 weeks prior to the close of the record.

The final reconciliation of current ECR over/under collections to be used to calculate the final "E" factor and ultimately the final ECRF may be included in PECO's final wrap-up exhibit. The data included in this reconciliation computation is subject to Commission audit and any necessary revisions may be corrected as an audit adjustment to the future "E" factor as per current procedures.

Q. Much testimony has been submitted discussing various proposed guarantees of fuel savings of Limerick. Does the 80/20 ECR include such a guarantee?

A. The 80/20 ECR functions as a partial guarantee of the fuel savings because customers will be responsible for only 80% of replacement costs if savings are unrealized and will receive 80 ~~20%~~ of the benefits resulting from any extraordinary savings. Therefore the 80/20 does offer some incentive to PECO to achieve optimal operation, which isn't present in the current ECR. It should be remembered that the $207 million average savings claimed by PECO is based upon reduced 2-party purchase levels and unrealistic oil escalation, both of which Staff adjusted in developing the normalized fuel cost. In addition PECO made no adjustment to reflect Limerick and Cromby deratings due to

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water unavailability, though PECO used an immature unit forced outage rate for Limerick, and PECO forecasted forced outage rates which depart from recent experience at its units. Also the yearly savings estimates were radically different for each of the years examined, $155 million first year savings and $262 million second year savings. Hence Staff believes that actual savings may depart significantly from the $207 million claimed by PECO.

Q. If the Commission were to order a Limerick savings guarantee how would such a guarantee operate in conjunction with the 80/20 ECR?

A. First, the level of guaranteed savings must be year specific. Second, the guarantee assumption should be made to be effective only if Limerick production is below the level projected by PECO. Thus, production above estimated levels would follow the 80/20 ECR format unencumbered. Given these two provisions, the yearly savings should be divided by the expected Limerick generation to produce a savings rate. Should Limerick generation be below forecasted levels, the unrealized production would be multiplied by the savings rate to quantify the savings loss. The savings would then be used to reduce the "F" factor-Total Fuel Cost in the 80/20 ECRF formula. Given the estimate provided by PECO for the savings for the year ended 6/87 of $154,692,800 and associated Limerick I generation of 4,890,000 MWH a savings rate of 31.635 mills per KWH would be applied against all lost production.

Q. Does this conclude your statement of testimony?

A. Yes, it does.

Staff Exhibit ECR-1
Witnesses: R. Rosenthal
D. Hosler
Date:

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PHILADELPHIA ELECTRIC COMPANY

DOCKET NO. R-850152

Exhibit to Accompany

the

Joint Direct Testimony

of

Robert A. Rosenthal

and

Dennis P. Hosler

Concerning:

Energy Cost Rate

Prepared February, 1986

Public Meeting May 17, 1985

STATEMENT OF POSITION OF COMMISSIONER BILL SHANE

RE: PETITION OF THE OFFICE OF CONSUMER ADVOCATE FOR AN INVESTIGATION AND ORDER TO SHOW CAUSE WITH REGARD TO THE OUTAGE AT THE SALEM NUCLEAR GENERATING STATION
P-830453, M-840375, M-FACE8408, et al.
MAY-85-ALJ-61

This statement of position applies Administrative Law Judge George Kashi's recommendation that the Commission not permit Philadelphia Electric Company to use an energy cost rate.

Beginning on page 153 of his Recommended Decision, Administrative Law Judge (ALJ) Kashi explains why Philadelphia Electric Company (PECO) is unable to effectively administer an energy cost rate (ECR). The ALJ states:

> An energy cost rate is composed of two elements: projected energy costs for a 12-month period and a correction factor of "E" factor. If projected costs were perfect for the prior 12-month period, the "E" factor would become a minor adjustment. Therefore, in administering an Energy Cost Rate (ECR), the Commission places primary emphasis on a company's ability to accurately project reasonable energy costs. The accuracy of projections is crucial because they are used to determine the level at which the ECR will be set. In the instant proceedings the Commission Order, entered March 20, 1984, questioned PECO's ability to administer an ECR tariff. Slip op. at p. 2. The testimony offered by PECO Witness Thomas P. Hill and Staff Witness Dennis P. Hosler demonstrate that PECO has been unable to effectively administer an ECR tariff. PECO's inability has forced the company's ratepayers to endure unusually large fluctuations in the ECR tariff.

We accept without further attribution the position as advanced in Staff Main Brief, Phase Two - pg. 111-119. We do this in recognition that the ECR mechanism may be an effective tool to modify a company's behavior. We need not allow PECO to have an ECR. The attendant costs, while delayed, can be properly recovered in a base rate case.

The ECR mechanism of Section 1307(c) of the Code is available to allow utilities expedited recovery of certain costs. As such it may be considered an appropriate mechanism by which this Commission can provide an incentive to these jurisdictional utilities. Nothing in the Code mandates the grant of an ECR. Allegheny Ludlem Steel Corp. v. Pennsylvania Public Utility Commission, 501 Pa. 71, 459 A.2d 1218 (1983).

ALJ Kashi then sets forth his reasoning leading to his conclusion that PECO, in the past, has been unable to accurately and reasonably project its energy costs. Also, Judge Kashi addresses the Company's current ECR performance and concludes that it shows no signs of improvement.

Taking all of the foregoing into consideration, ALJ Kashi recommends:

That PECO discontinue the use of an Energy Cost Rate and present all matters presently encompassed therein in each base rate case.

While I agree with the ALJ's opinion that PECO is not effectively administering its ECR, I believe that to deprive PECO of the use of an ECR is too extreme of a measure to take at this time. Abolition of PECO's ECR is not in the best interest of the Company or its ratepayers; however, I do believe that to proceed with "business as usual" with regard to PECO's ECR would result in a grave injustice to the Company's ratepayers.

I propose that the Commission alter PECO's ECR so that 20% of its total expected energy costs be included in base rates and not be subject to reconciliation for over or under recoveries. The total expected energy costs shall be determined in PECO's next general rate increase proceeding.

Because the amount of projected energy costs placed in base rates would not be subject to reconciliation, the Company will have an incentive to both operate its generating plants in an efficient manner and minimize fuel costs. If the Company does not do so, its stockholders will bear a portion of the burden resulting from the Company operating its facilities in less than an optimum manner. Conversely, if the Company's performance exceeds that which is expected its stockholders will receive a portion of the benefits associated with such operation.

Two other things ring particularly true to me in ALJ Kashi's decision. First, ALJ Kashi observes that the ECR mechanism is one tool which the Commission may use to modify a utility's behavior. If the Commission decides to alter PECO's ECR in the manner I suggest, the Company will have an incentive to alter its behavior and make accurate estimates of its projected energy costs as well as operate its generating plants in an efficient manner.

Second, ALJ Kashi talks about the Commission's responsibility regarding oversight of PECO's ECR. The ALJ states:

> We believe it has been established that PECO's projections continue to be inaccurate. However, we are not sure where Commission responsibility lies in the matter. We will note that it is one thing to find out that a company's projections are continuously inaccurate but quite another to know this to be the case while its happening and do nothing. We believe the Commission must

> assert some control over the regulated utility before it flounders and based on the monthly and quarterly reports we believe the Commission has the means to do it.

The device by which the Commission permits an electric utility to pass increases in energy costs to its ratepayers or reflect decreases in energy costs on its ratepayers' bills is the result of an evolutionary process. The genesis of the ECR presently in effect can be traced back to the net energy clause initiated in the late nineteen seventies.

Presently the Commission is involved in a proposed rulemaking at Docket Nos. M-820504 et al. In this generic investigation the Commission intends to revise the existing ECR mechanism in order to provide electric utilities with incentives to encourage efficient electric generation. While I am mindful of this ongoing generic investigation of the ECR mechanism, I cannot ignore the immediate need to change the ECR mechanism presently in effect for PECO.

It is this spirit that I have proposed the change I have outlined above regarding PECO's ECR. Implementation of the proposal I have outlined should not be construed to supersede the ongoing generic investigation at Docket No. M-820324 et al. Rather, this proposal is an attempt to extricate the Company, its ratepayers, and the Commission from an intolerable predicament that we are all involved in at the present time. Any modifications or refinements eventually resulting from the generic investigation could be applied to PECO's ECR at that time.

If PECO's ECR is altered in the manner I suggest, the Commission will begin to take an active rather than a reactive stance regarding the establishment and recognition of reasonable energy costs through a modified ECR mechanism.

BASED UPON THE FOREGOING, I AM OF THE POSITION:

1. That PECO, in conjunction with its next general rate filing, be ordered to file a new ECR rider. The new rider should include the following provisions:

   - the proper level of recoverable energy costs be determined in the context of a general rate increase proceeding

   - pursuant to the base rate proceeding, 20% of total expected energy costs shall be rolled into base rates

   - energy costs recovered through the base rates will not be subject to reconciliation for over or under recoveries.

2. That PECO be ordered to include in its next general rate filing and all such base rate filings thereafter, full support of their expected energy costs. Such support should include, but not be necessarily limited to, historical and prospective data applicable to the performance of the company's generating units and sources and costs of purchased power.

3. That rolling 20% of the total expected energy costs into base rates should be sufficient to provide PECO with an incentive to achieve efficient generation and economical purchased power costs while at the same time result in no undue risk of substantial financial harm to the company when based on historical or reasonably expected energy cost changes.

4. That in order to lessen ratepayer confusion with regard to interpretation of their electric bills, all energy cost recovery be included in the base rate portion of PECO's customer billings. To provide useful information to PECO's ratepayers and to be consistent with the Commission's findings at page 9 of its Gas Cost Rate No. 5 Order, PECO should be directed to print on all bills rendered to residential customers:

"This bill includes __________ per KWH which is our average cost of energy generated or acquired for your use".

5. That if this statement of position is adopted by the Commission, the Bureau of Audits, in conjunction with the Law Bureau, is directed to draft the appropriate order reflecting this motion.

Bill Shane

BILL SHANE
COMMISSIONER

DATE: 5/14/85

ENERGY COST RATE FACTOR

All kilowatt-hours supplied under this tariff shall include an energy cost rate factor as determined by the formula below. This energy cost rate factor will be determined to the nearest one-thousandth of one mill per kilowatt-hour in accordance with the formula set forth below and shall be applied to all kilowatt-hours billed during the billing month.

$$ECRF = \left[\frac{.8F}{S_t} - .8B - \frac{E}{S_a}\right] \times \frac{1}{1 - T}$$

The energy cost rate factor so computed shall be applied to customers' bills for a one-year period during the billing periods of July through June except that the first application period will be for the billing periods of June 27, 1986 through June 30, 1987. The Company's proposed annual energy cost rate factor shall be submitted to the Commission by June 1 of each year and this proposed factor shall become effective for service rendered on or after the following July 1 unless otherwise ordered by the Commission. However, if such rate will result in substantial over or under collection during the remainder of the ECRF computation year the "F" factor of the rate may be revised on a prospective twelve month basis. Such revision shall become effective 30 days from the date of the revised filing unless otherwise ordered by the Commission.

Where ECRF = Energy cost rate factor in mills per kilowatt-hour to be applied to each kilowatt-hour supplied under this tariff.

F = The estimated energy-related cost of net energy generated in the Company's fossil and nuclear generating stations, excluding the cost of energy generated and sold to other utilities on a firm basis, plus the Company's energy-related cost of energy purchased and net energy interchanged plus the assigned test power costs for the computation year, defined as follows:

Fossil Generation - the costs charged to fuel Accounts 501 and 547 which are computed on basis of the cost of fuel delivered to the generating site at which it is consumed, plus the cost of disposing of solid waste from sulfur oxide removal devices.

Nuclear Generation - the costs charged to fuel Accounts 518 and 521 which are computed on the basis of the costs of such fuel delivered at the generating site at which it is consumed after deducting therefrom the present salvage or reuse value of such fuel.

Net Energy Purchases - the amounts charged or credited to Account 555, excluding demand charges other than those associated with agreements for the purchase of energy at a cost (including associated demand charges) that is less than the cost of obtaining energy from alternative sources.

Net Energy Interchanged - the amounts charged or credited to Account 555, excluding charges or credits for demand related costs.

Test Power - the amounts charged to Account 557 for the value assigned to the energy produced from facilities undergoing operational tests prior to being placed into commercial operation.

The first computation year shall be June 27, 1986 through June 30, 1987, and thereafter shall be July 1 through June 30, for which the ECRF as computed will apply. In projecting the Company's energy costs for the computation year, the estimated cost of energy generated and sold to other utilities on a firm basis and the estimated net effect on the Company's energy costs of generation, forecast for the computation year from any unit whose costs are not currently reflected in base rates shall be excluded. When the in-service date of such a unit can be estimated with reasonable certainty, the Company shall file with the Commission no later than 30 days prior to the unit's expected in-service date for an interim revision of the ECRF then in effect to reflect the estimated effect of the unit's operation on the Company's energy costs. Such interim revision of the ECRF shall not become effective unless and until rates reflecting the unit's base rate revenue requirements become effective by order of the Commission.

ENERGY COST RATE FACTOR - Continued

E = Experienced net over or under collection of the cost of energy determined as follows: Effective June 27, 1986 the Company will reconcile for refund with interest or recovery without interest only 80% of post June 26, 1986 experienced cost of energy net over or under collection. The first "E" factor time period will be for the fifteen months ending with the April 1986 billing period with 100% of the experienced net over or under collections reconciled. The second "E" factor time period will be for the twelve months ending with the April 1987 billing period with 100% of the experienced net over or under collections reconciled through June 26, 1986 and 80% reconciled from June 27, 1986 through April 1987. All subsequent "E" factor periods will be based upon an 80% reconciliation of the experienced energy cost net over or under collections for a twelve-month period ending with the preceding April billing period. Interest shall be computed monthly at the appropriate rate as provided in Section 1308(d) of the Public Utility Code from the month the over or under collection occurs to the effective month such over collection is refunded and such under collection is recouped. Interest will only be paid on net over-collections subject to reconciliation. Customer shall not be liable for interest on net undercollections.

S_t = The Company's projected total kilowatt-hour sales to the customers excluding firm sales to other utilities during the compuation year.

S_a = The Company's kilowatt-hour sales to which the energy cost rate factor applies, projected for the computation year.

B = Base rate revenue requirement energy Component of R ÷ .20 (16.870 mills per KWH).

R = Section 1308 portion of base rate energy cost of 3.374 mills per kilowatt-hour sold.

T = The Pennsylvania gross receipts tax rate in effect during the billing month expressed in decimal form.

Minimum bills shall not be reduced by reason of this energy cost rate factor. This factor shall be applied to all kilowatt-hours supplied and such charge shall be in addition to any minimum applicable.

The Company shall file quarterly reports within thirty (30) days following the conclusion of each computation year quarter. These reports will be in such form as the Commission shall have prescribed. The third quarter report shall be accompanied by a tentative estimate of the energy cost rate factor for the next computation year.

ENERGY COST RATE FACTOR - Continued

The application of the energy cost rate factor shall be subject to continuous review and to audit by the Commission at such intervals as the Commission shall determine. The Commission shall continuously review the reasonableness and lawfulness of the amounts of the charges produced by the energy cost rate factors and the charges included herein.

If from such audit it shall be determined, by final order entered after notice and hearing, that this energy cost rate factor has been erroneously or improperly utilized, the Company will rectify such error or impropriety, and in accordance with the terms of the order, apply credits against future energy cost rate factors for such revenues as shall have been erroneously or improperly collected. The Commission's order shall be subject to the right of appeal.

PHILADELPHIA ELECTRIC COMPANY
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Comparison of Nuclear Capacity Factors to National Experience

	Capacity Factor			
Unit	Historical(1) Average %	Future(2) Average %	NERC 74-83 %	NERC 75-84 %
Peach Bottom 2	46.6	67.3	56.2	55.8
Peach Bottom 3	63.1	53.7	56.2	55.8
Salem 1	51.9	62.5	56.5	58.0
Salem 2	41.1	63.5	56.5	58.0
Limerick 1	DNA	61.6	56.2	55.8

(1) Exhibit JJC-1 2i

(2) Exhibit JJC-1 3i

PHILADELPHIA ELECTRIC COMPANY
R-850152

Comparison of Coal Unit Equivalent Availability Factor to National Experience

	Equivalent Availability Factor			
	Historical(1) Average %	Future(2) Average %	NERC 74-83 %	NERC 75-84 %
Eddystone 1	36.1	61.0	70.8	71.5
Eddystone 2	50.6	62.7	70.8	71.5
Cromby 1	71.7	80.5	80.5	80.3
Keystone 1	75.7	76.3	69.5	69.7
Keystone 2	69.7	68.6	69.5	69.7
Conemaugh 1	69.8	66.8	69.5	69.7
Conemaugh 2	69.7	65.2	69.5	69.7

(1) Exhibit JJC-1 2i

(2) Exhibit JJC-1 3i

PHILADELPHIA ELECTRIC COMPANY

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2-Party Purchased Power Actual & Forecasts

Year Ending	MWH
Actual	
6/30/81	2,358,456
6/30/82	4,036,944
6/30/83	3,199,752
6/30/84	3,026,651
6/30/85	2,940,236
Forecast	
6/30/87	2,079,000
6/30/88	1,841,000
6/30/89	1,610,000
3-yr. historic average	3,055,547
5-yr. historic average	3,112,426

Source: Exhibit JJC-1

PHILADELPHIA ELECTRIC COMPANY
R-850152

Fuel Price Escalation Rates JJC-1 and DRI from 12/1985

	JJC-1		DRI		
	Coal %	1% Oil %	Spot 2% S(2) %	3-year 2%S(3) %	1% Oil(1) %
6/86	7.2	21.4	3.9	4.4	(11.08)
9/86	10.3	29.9	4.4	4.6	(8.87)
1987	13.4	38.3	10.5	7.8	(13.05)
1988	23.0	56.1	12.5	14.5	(11.82)
1989	32.6	70.0	19.7	24.4	(8.37)

(1) Table A-3, A-6 November, 1985 Energy Price Forecast, No. 6 1% S Oil, percentage change calculated from 12/85 forecast delivered price $ per mm btu.

(2) Exhibit 4A, Coal Price Forecast Working Paper, November, 1985, percentage change calculated from 12/85 forecasted priced $/mm btu.

(3) Exhibit 8A, Coal Price Forecast Working Paper, November, 1985, percentage change calculated from 12/85 forecasted price $/mm btu.

PHILADELPHIA ELECTRIC COMPANY
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Pro Forma Computation of Energy Cost Rate Factor
for the Period July 1986 through June 1987

$$\text{Energy Cost Rate Factor} = \left[\frac{.8F}{S_t} - .8B - \frac{E}{S_a} \right] \times \frac{1}{1 - T}$$

1.	F = Cost of Energy	\$467,757,599 (a)
2.	E - Experience Net Under-Collection	\$(37,110,868)(b)
3.	S_t = Projected Sales for Computation Period	28,298,319 MWH(b)
4.	S_a = Projected Retail Sales of Computation Period	27,686,260 mwh(b)
5.	B = 16.870 mills per KWH	
6.	$\frac{.8F}{S_t}$	13.224 mills
7.	.8B	- 13.496
8.	$\frac{.8F}{S_t} - .8B$	(.272)
9.	$\frac{E}{S_a}$	-(1.340)
8.	Excess Cost	1.068
9.	Gross Receipt Tax Factor	x 1.04712
10.	ECRF	1.118 mills/KWH

(a) From: Schedule 8, page 1.

(b) See: PECO Statement 18B - Schedule 3 (revised).

Philadelphia Electric Company

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Pro Forma Computation of Base Rate Energy Cost
and Base Rate Revenue Requirement Energy Component
for General Rate Case Effective June 27, 1986

Normalized Energy Cost Calculation

1.	Projected Energy Cost 7/86 - 6/89	\$1,438,099,635(a)
2.	Projected Sales 7/86 - 6/89	85,252,135 MWH(a)
3.	Projected Cost per KWH Sale (line 1 ÷ line 2)	16.869 mills
4.	20% of Energy Cost to be included as base rate energy cost and not reconciled (line 3 x .20)	3.374 mills
5.	Base Rate Revenue Requirement Energy Cost Component per KWH Sales Projected (line 4 ÷ .20)	16.870 mills

(a) From: Schedule 8, page 1.

PHILADELPHIA ELECTRIC COMPANY
R-850152

Development of Normalized Energy Cost

Cost		
Year ending	6/87	467,757,599
	6/88	499,636,621
	6/89	470,705,415
		1,438,099,635
MWH		
Year ending	6/87	28,298,319
	6/88	28,304,557
	6/89	28,649,259
		85,252,135

3-year normalized fuel cost 16.869 mills per KWH

6/87 Fuel Costs Pro Forma - no oil escalation post 6/86

Coal Steam		$124,040,000
Oil Steam		85,045,125
Int. Comb.		8,573,200
Nuclear		115,325,372
Delivered PJM	@ .0434	(57,157,800)
Steam Heat	@ .0351	3,292,380
ME, PP&L"S DPL	@ .0748	14,362
2 Party	@ .0302	62,785,800
Scrubber Gas		3,659,000
Eddystone Scrubber		2,772,000
Cromby Scrubber		1,936,000
Oil for coal units		2,480,000
Receipts PJM	@ .0328	122,212,800
Total		474,978,239

Adjustment for Expanded Two-Party

Oil	85,045,125	
PJM Receipts	122,212,800	
	207,257,925	
MWH ÷	5,475,000	
Average Rate	37.86	
2 Party Rate	30.02	
	7.84	
Incremental MWH	921,000	
Savings $	7,220,640	(7,220,640)
Pro Forma 6/87 Costs		467,757,599
Sales per Hill	28,298,319 MWH	16.530
Total Output	30,286,494	

6/88 Fuel Costs - Pro Forma

Coal Steam			$127,022,000
Oil Steam			116,165,125
Nuclear Steam			95,175,844
Internal Combustion			10,831,600
Receipts PJM	@ .0334		143,352,800
Delivered PJM	@ .0434		(53,946,200)
Steam Heat	@ .0351		4,131,270
ME, PL, DPL	@ .0748		14,362
2 Party	@ .0302		55,598,200
Scrubber Gas			2,527,000
Eddystone SCrubber			3,847,000
Cromby Scrubber			2,388,000
Oil for Coal Units			2,752,000
Total			509,859,001
MWH			
Normal 2 party MWH		3,000,000	
6/88 2 party MWH		1,841,000	
Incremental MWH		1,159,000	
Oil Steam $		116,165,125	
Receipts PJM		143,352,800	
$		259,517,925	
MWH	÷	6,681,000	
Average Rate		38.84	
2 party rate		30.02	
Savings Rate		8.82	
Incremental MWH		1,159,000	
Savings $		10,222,380	(10,222,380)
			499,636,621
Sales per Hill		28,304,557	17.652
Total Output		30,439,070	

6/89 Fuel Costs - Pro Forma

Coal Steam		140,459,000
Oil Steam		110,913,625
Nuclear Steam		111,746,899
Internal Combustion		11,573,200
Receipts PJM @ .0342		122,880,600
Delivered PJM @ .0434		(76,861,400)
Steam Heat @ .0351		1,695,330
ME, PL, DPL @ .0748		14,361
2 Party @ .0302		48,622,000
Scrubber Gas		2,746,000
Eddystone Scrubber		5,443,000
Cromby Scrubber		1,962,000
Oil for Coal Units		3,105,000
Total		484,299,615
Normal 2-Party MWH	3,000,000	
6/89 2-Party MWH	1,610,000	
Incremental MWH	1,390,000	
Oil Steam $	110,913,625	
Receipts	122,880,600	
$	233,794,225	
MWH ÷	5,874,000	
Average Rate	39.80	
2 Party Rate	30.02	
Savings Rate	9.78	
Incremental MWH	1,390,000	
Savings $	13,594,200	(13,594,200)
		470,705,415
Sales per Hill	28,649,259	16.430
Total Output	30,722,285	

OCA Statement No. 3A

R-850152

2-26-86

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SECRETARY'S OFFICE
Public Utility Commission

SURREBUTTAL TESTIMONY OF JAMES A. ROTHSCHILD

RE: PHILADELPHIA ELECTRIC COMPANY

OVERALL COST OF CAPITAL

Docket No. R-850152

DOCKETED

MAR 3 - 1986

DOCUMENT FOLDER

FEBRUARY, 1986

PHILADELPHIA ELECTRIC COMPANY

SURREBUTTAL TESTIMONY OF JAMES A. ROTHSCHILD

Q. Please state your name and business address.

A. My name is James A. Rothschild, and my business address is 115 Scarlet Oak Drive, Wilton, CT 06897.

Q. What is the purpose of this testimony?

A. The purpose of this testimony is to reply to the updated and rebuttal testimony filed by Mr. Brennan in this proceeding.

Q. Please summarize his testimony.

A. Mr. Brennan has lowered his cost of equity recommendation from the range of 16.9% - 17.4% to a single point estimate of 15.9%. His updated recommendation reflects a partial recognition of current market conditions rather than the correction in his equity costing methodologies that I had recommended in my original testimony. As a result, his finding is still based upon principles contrary to sound financial principles.

Q. Is there any simple overview analysis you can identify for this Commission to show that the 15.9% return on equity recommendation posed by Mr. Brennan is unreasonably high?

A. Yes. It is well known that if the DCF method is properly applied, it will produce the return on equity required to produce a market-to-book of 1.0 . Schedule 1 of this testimony shows that as of December 31, 1985 the market-to-book ratio of the non-nuclear electric utilities was 1.31. These companies earned an average of 13.42% on equity in 1985 and are projected by Value Line to earn 14.05% in the future. Therefore, based upon the current financial environment, return on equity expectations in excess of 14.05% would increase the market to book ratio above the already excessive level of 1.31. If the return on equity expectations for this group grew to 15.9%, then the market-to-book ratio would grow to even higher than the 1.31 . Similar conclusions can be drawn by examining the nuclear construction electric utilities. As also shown on Schedule 1, they achieved a market-to-book ratio of 1.06 in response to a Value Line future earned return on equity expectation of 13.96%. It should be noted that this 13.96% may actually overstate future expectations because Value Line does not always factor in probable future rate base disallowances which many investors would anticipate.

Q. Are you recommending that the Commission reach its conclusion on the cost of equity based only upon market data from December 31, 1985?

A. No. If data more current than December 31, 1985 is reviewed, the excessive nature of the 15.9% cost of equity recommendation is confirmed. For example, Schedule 2 included with this testimony shows that an update of the DCF method as applied to Philadelphia Electric based upon the spot price as of February 6, 1986 shows that the cost of equity for Philadelphia Electric is down to about 12%, plus financing costs. This result is confirmed by the update for the Moody's 24 as shown on Schedule 3. On that schedule it shows that the Moody's non-nuclear construction companies had an indicated cost of equity in the low 12 % range before financing costs.

Q. Are you lowering your 14% return on equity recommendation at this time?

A. To be conservative, I will leave my recommendation unchanged. However, the Commission could well be justified in finding a cost of equity below 14%, particularly if the stock price of Philadelphia Electric Common stock is still above $19 per share as of the time of this decison. Given the current market data, there should be no reason to exceed an allowed return on equity of 14% irrespective of how the Commission decides to treat the Limerick 2 risk impact on the cost of equity.

Q. In addition to the problems with the analysis presented by Mr. Brennan in his original testimony, are there any new errors in the application of financial principles that are now present in his revised testimony?

A. Yes, there are. Two important misconceptions are his attitude towards the interrelationship between dividend yield and growth and his newly stated belief that a 4% debt to equity risk-spread is "conservative and uncontroversial".

The major factor behind Mr. Brennan's lowering of his cost of equity recommendation in this case was his observation that dividend yields for both his barometer group and for Philadelphia Electric had decreased materially since he filed his testimony. He recognized that the decrease in the dividend yields for his barometer group could have happened in direct response to the general lowering of money cost rates. But, he felt that since the dividend yield of Philadelphia Electric decreased even more than for most other electric utilities, that decrease in dividend yield must have been accompanied by an increase in the growth rate.

Q. Do you agree that the lower dividend yield for Phialdelphia Electric is necessarily accompanied by a higher growth rate?

A. No. In this instance, the anticipated growth rate factored into the current market price of over $19 per share probably is higher than when the stock price was about $16.00. However, Mr. Brennan arbitrarily adjusted upward his prior already excessive growth rate for Phialdelphia Electric. If Mr. Brennan had reviewed the analysis he used to develop his original growth rate, he would have realized that his prior growth rate was based upon an approach that already had optimistically assumed the conditions that have since come to pass to cause the stock price to rise. In response to OCA interrogatory set V, question 4, Mr. Brennan was asked if he considered the fact that some investors believed that Philadelphia Electric might have to reduce or cancel the common dividend. He responded by saying that it was impossible to take this factor into account and felt it was unnecessary because such market price reflects the composite belief of all investors in Phialdelphia Electric Company common stock. In other words, he neither adjusted the dividend yield or the growth rate down to reflect what appeared at the time to be a serious possibility of a dividend cut. Now that current stock prices appear to reflect that this dividend cut is much less likely, Mr. Brennan wants to adjust his growth rate upward to eliminate the effects of a factor which he had heretofore erroneously overlooked.

Since his original analysis had not made the appropriate subtraction to the indicated growth rate, there is no remaining need for him to now increase the growth rate to reverse the effects of a factor that had been previously ignored.

Q. Are there any other problems with the dividend yield to growth comparison made by Mr. Brennan?

A. Yes. He wishes to add a growth rate supposedly derived from the current environment to a dividend yield that was based to a large extent on the market price from back when investors apparently felt the dividend was in more serious jeopardy. His dividend yield includes using stock prices back from January, 1985. This mismatch is an important part of why Mr. Brennan has arrived at such an unrealistically high cost of equity. At 12/31/85 the market price of Philadelphia Electric common stock was $17.375, and it is selling for $19.625 as of February 6 1986. Based upon the midpoint of these prices, and the current dividend rate of $2.20, the dividend yield is 11.9%. Rounding up to allow for an additional one-half year's growth makes the yield 12.0%, which is 1.2% lower than the 13.2% obsolete dividend yield relied upon by Mr. Brennan. Even if we add the excessive growth rate of 1.7% originally recommended by Mr. Brennan for Phialdelphia

Electric to this 12.0% dividend yield, the indicated cost of equity based upon a full and consistent update of Mr. Brennan's analysis of Philadelphia Electric produces not 15.9%, but 13.7%.

Q. You criticized Mr. Brennan for categorizing a risk premium of 4.0% as "conservative and uncontroversial". Where does he say this?

A. On page 14 of his Updated and Rebuttal testimony at line 26.

Q. Is a 4.0% risk premium "conservative and uncontroversial".

A. No, it is higher than the range often found reasonable. In Order No. 420, FERC found that a reasonable risk premium for public utility common stock in excess to the cost of public utility bonds is 2%. In Order No. 442, FERC confirmed a slightly lower risk premium than the 2% as reasonable.

Based upon the 2% risk premium found proper by FERC, and observing that Mr. Brennan has noted Philadelphia Electric recently issued debt at 11.75%, the risk premium method indicates a cost of equity of 13.75% for Philadelphia Electric Company.

Q. Does Mr. Brennan assert that FERC supports his excessive equity cost recommendation?

A. Yes. On page 19 of his testimony, he points out that FERC Order No. 442 concluded that the cost of equity for the period from July, 1984 through June, 1985 was 15.4%. This is only partially correct because FERC went on to conclude that the appropriate cost of equity for regulatory purposes was a finding of 14.4% rather than 15.4%. Of even more importance is the fact that it is inaccurate and misleading to attempt to confirm an excessive recommendation made for a rate case to be determined in 1986 based upon a result that was intended to be applicable to a period with a midpoint almost one and one half years prior to the date of the decision in this case. It should be pointed out that in October, 1984, a period within only three months of the midpoint of the time period in which FERC concluded the cost of equity was 15.4%, I filed testimony recommending that an electric utility be allowed to earn 15.75% on equity. Since that time both the FERC determined cost of equity and my determined cost of equity have declined at approximately the same rate, with my recommendation of 14.0% in this case within the range that the level FERC has published in its most recent quarterly update. On January 15, 1986, FERC found that the cost of equity for the **third** and **fourth** quarters of 1985 was 14.24%, and the average rate of return on common equity was

13.39%. Furthermore, in Order No. 442, FERC noted that in the year ending June 30, 1985 the yield on Baa bonds was 13.96%, or 2.21% higher than the 11.75% rate recently paid by Philadelphia Electric. Based upon FERC's 2% risk premium, the cost of equity should be expected to be about 2.2% lower than the 15.4% found by FERC in its Order 442 for the year ended June 30, 1985. This shows that the FERC Order 442 finding updated for today indicates a cost of equity of 15.4% minus 2.2%, or 13.2%.

Q. On page 20 of his Update and Rebuttal testimony, Mr. Brennan states that historic growth rates are unreliable. Do you agree with this?

A. Yes. I did not recommend the use of historic growth rates in this or any other testimony I have ever filed. What Mr. Brennan points out on page 20 at lines 16 through 26 with regard to historic growth rates is a valid observation. Unfortunately, his conclusion that therefore the DCF method is unreliable is the incorrect conclusion. A DCF method based upon a b x r method with reasonable estimates used for the b and the r is a highly reliable method. Based upon my experience, it is the most accurate and most widely used method available.

Q. Mr. Brennan says that the accuracy of the DCF method is suspect when "...there is a significant change up or down in the price of stock in a relatively short period of time." He says it is for this reason that he urges the Commission to rely upon the risk premium methodology. Is this a valid reason to abandon the DCF method?

A. No. Stock prices, and hence dividend yields, are always subject to change. This is largely because investors cost of equity demands are continually subject to change. The problem of volatility of demands is not corrected by using bond prices instead of stock prices. Bond interest rates are also subject to the changing demands of investors. In fact there have been times in recent years when bond prices have been more volatile than stock prices.

Q. Do you agree with Mr. Brennan that this Commission should set rates under the assumption that investors are naive?

A. No. He has advised this Commission on page 23 of his Update and Rebuttal Testimony that he is "... of the opinion the average individual investor has not as yet given sufficient weight to the possibility that some, part, or all of Limerick 2 may not be permitted to earn a fair return...". In other words, he is saying that the price of Philadelphia Electric stock is overpriced given the pending risks with the Limerick 2 nuclear units. If Mr. Brennan were correct, then astute institutional investors would be aggressively shorting the stock (selling borrowed stock and replacing it later on) until its price were driven down to the point where market price reflects the fair valuation. Comments by Mr. Brennan that the market price of Philadelphia Electric has been overvalued by investors violate generally accepted financial principles of stock valuation.

Q. On page 24 Mr. Brennan states that FERC "...does not believe it is possible or feasible to separate the common equity cost rate according to varying risks." He therefore believes you were wrong in determining separate costs of equity for nuclear vs non-nuclear construction utilities. Is this correct?

A. No, this is a misinterpretation of what FERC has said. In addition, it should be noted that Mr. Brennan has attempted to come up with a special risk-based cost of equity determination for Philadelphia Electric because he did not base his conclusion on a broad-based selection of electric utilities.

It was proposed to FERC that it should exclude nuclear construction utilities from its analysis group. FERC ruled not to exclude nuclear construction companies because "...the use of the median for calculating dividend yields results in the significantly more or less risky firms having little effect on the benchmark rate of return." FERC also did not feel particularly comfortable with the specific analysis as presented by the proponent of that technique, and stated that it prefers to deal with evaluating whether or not particular companies have more or less risk than the group on a company by company basis. What I am recommending in this case for Philadelphia Electric with regard to the special risk considerations associated with nuclear construction is not inconsistent with the findings in Order No. 442.

Q. Mr. Brennan states that your recommendation to use a different cost of equity for AFUDC than for plant in service is without precedent in Pennsylvania. Is this correct?

A. Yes, to the best of my knowledge it is without specific precedent. However the decision this commission made with regard to Limerick 2 construction and performance criteria is also without precedent. My recommendation is only a logical extension of that decision. I believe it is consistent with both proper corporate financial principles and the wishes that were already expressed by the Commission in the Limerick 2 decision.

Q. Mr. Brennan criticizes your negative adjustment to the growth rate for Philadelphia Electric as a result of the dillutive effects of common stock sales below book value. Did he criticize your increment to the growth rate to the Moody's 24 caused by sales of common equity above book value?

A. No. In order to be consistent, he would have to eliminate both the cost of equity reduction AND the cost of equity increase caused by the effect of selling common stock at other than book value.

Q. If you were to perform a DCF analysis for Philadelphia Electric based upon current market prices, would you still include the dilution factor?

A. Yes, I would still include the factor. Only now, the current stock price is above book value. Therefore, instead of the adjustment resulting in a lowering of the growth rate, it would result in an increment to the rate. However, using the average stock price for 1985 as Mr. Brennan has done results in a market price of the stock that is below book value. The dilution adjustment therefore should remain negative. If the dividend yield portion of the DCF computation is updated to reflect prices above book value, then the dilution adjustment should be updated accordingly.

Q. On Exhibit JFB-4, Schedule 1, Pages 1 and 2 Mr. Brennan presents what he contends to be a DCF method that is superior to the "b x r" approach both you and FERC have used. Is he correct?

A. No. It is essentially the "b x r" method, with the introduction of two key assumption changes. First, he assumed that investors anticipate Philadelphia Electric will earn between 14.36% and 14.53% on equity from 1986 to 1990. Second, he assumed that the market-to-book ratio would increase to 1.12 by the end of 1990. Then, his inclusion of the dollar value of the increase in the market-to-book ratio results in a double-count. He improperly assumes that investors want to receive the increase in value created by a market price increase once in rates and again in capital gains. The invalidity of Mr. Brennan's computation can be seen by its internal inconsistency. Remember that a properly applied DCF method is supposed to produce the return on equity that will be required to produce a market-to-book of 1.0. Mr. Brennan's computations assume that an earned return on equity approximating 14.4% will produce a market-to-book ratio of 1.12. This means that the current cost of equity for ratemaking must be materially less than 14.4%. If it were 14.4% or higher then the resulting market-to-book ratio would be greatly in excess of 1.0. However, his mathematical result concludes that the cost of equity is not less than 14.4%, but is 15.92%. If a return of 14.4% produces a market price result higher than appropriate, then 15.92% must result in a market price even more inappropriate. Therefore, it must be correct that Mr. Brennan has used an improper approach in applying his DCF method. Furthermore, for reasons already explained in my original testimony, investors in Philadelphia Electric do not at this time expect that the future earnings rate will be as high as 14.4%. The evidence shows that investors expect future earnings to be in the range of 12.25% to 13.25%. B x r growth should be computed based upon this 12.25% to 13.25% assumption.

Q. What is the current environment for the common stock of Philadelphia Electric?

A. As of February 6, 1986 the common stock of Philadelphia Electric closed at $19.625, the book value was about $17.90 and the indicated dividend rate was $2.20. This makes the current dividend yield 11.2% and the market-to-book ratio 1.1 . Given these current facts, and in view of the fact that the overall market for common stocks in general and public utility common stocks in particular continues to be very strong, the Commission could well be justified to recommend a fair rate of return on equity below the 14% I found appropriate in my direct testimony.

Q. Does this conclude your surrebuttal testimony?

A. Yes.

Schedule 1

M24085

FINANCIAL DATA ON
MOODY'S 24 E ELECTRIC UTILITIES
BASED ON 12/31/85 STOCK MARKET DATA

Company	[1] Nuclear Const. ? [A]	[2] Book Per Share 12/31/84 [A]	[3] Book Per Share 12/31/85 [A]	[4] Market Price 12/31/85 [B]	[5] 12/31/85 Market-to-Book Ratio [C]	[6] 12/31/85 Dividend Rate [B]	[7] 12/31/85 Dividend Yield (%) [D]	[8] 12/31/85 E.P.S. [A]	[9] 12/31/85 Equity Return [E]	[10] 12/31/84 E.P.S. [A]	[11] Value Line Future Estimated Eq. Return [A]
Baltimore Gas & Electric	No	$18.24	$19.30 E	$25.00	1.30	$1.70	6.80%	$2.75 E	14.65%	$2.77	14.50%
Boston Edison	No	$32.21	$35.30 E	$45.88	1.30	$3.44	7.50%	$4.90 E	14.52%	$4.85	13.50%
Con Edison of New York	No	$30.89	$33.10 E	$39.50	1.19	$2.40	6.08%	$4.30 E	13.44%	$4.48	13.00%
Delmarva Power & Light	No	$17.70	$18.55 E	$27.88	1.50	$2.02	7.25%	$2.75 E	15.17%	$2.63	15.00%
Florida Progress Corp.	No	$20.03	$21.50 E	$30.75	1.43	$2.28	7.41%	$3.55 E	17.10%	$2.71	15.00%
Idaho Power Corp.	No	$16.74	$17.20 E	$23.00	1.34	$1.72	7.48%	$2.15 E	12.67%	$2.81	14.50%
IPALCO Enterprises	No	$28.46	$29.40 E	$37.63	1.28	$3.04	8.08%	$3.85 E	13.31%	$4.22	14.00%
Pennsylvania Power & Light	No	$25.46	$25.65 E	$28.75	1.12	$2.56	8.90%	$2.75 E	10.76%	$3.12	12.50%
Public Service of Colorado	No	$17.31	$17.35 E	$21.13	1.22	$2.00	9.47%	$2.00 E	11.54%	$2.56	14.00%
TECO	No	$24.26	$25.35 E	$34.63	1.37	$2.36	6.82%	$3.65 E	14.71%	$3.72	15.50%
Utah Power & Light	No	$18.42	$18.50 E	$25.50	1.38	$2.32	9.10%	$2.40 E	13.00%	$2.41	13.00%
Sub-total Non-Nuclear Const.		$22.70	$23.75	$30.88	1.31	$2.35	7.72%	$3.19	13.42%	$3.30	14.05%
Carolina Power & Light	Yes	$26.33	$27.25 E	$30.13	1.11	$2.68	8.90%	$3.90 E	14.56%	$3.58	12.50%
Central Hudson Gas & Elect.	Yes	$27.91	$29.20 E	$30.00	1.03	$2.96	9.87%	$4.45 E	15.58%	$4.43	14.00%
Central Maine Power	Yes	$16.17	$14.90 E	$14.25	0.96	$1.40	9.82%	$2.50 E	16.09%	$2.50	13.50%
Cincinnati Gas & Elect.	Yes	$20.44	$21.00 E	$22.13	1.05	$2.16	9.76%	$2.85 E	13.75%	$2.45	13.50%
Cleveland Electric	Yes	$21.51	$22.40 E	$25.50	1.14	$2.64	10.35%	$3.40 E	15.49%	$3.44	14.50%
Commonwealth Edison	Yes	$28.71	$30.10 E	$29.38	0.98	$3.00	10.21%	$4.35 E	14.79%	$4.43	14.50%
Dayton Power & Light	Yes	$19.06	$19.20 E	$20.50	1.07	$2.00	9.76%	$2.35 E	12.28%	$2.20	13.00%
Detroit Edison	Yes	$17.11	$17.70 E	$15.88	0.90	$1.68	10.58%	$2.25 E	12.93%	$2.20	12.50%
Houston Industries	Yes	$24.94	$26.00 E	$28.00	1.08	$2.64	9.43%	$4.30 E	16.88%	$3.85	14.50%
Northeast Utilities	Yes	$15.07	$16.05 E	$17.75	1.11	$1.58	8.90%	$2.75 E	17.67%	$2.74	15.00%
Pacific Gas & Electric	Yes	$17.18	$17.85 E	$20.00	1.12	$1.84	9.20%	$2.65 E	15.13%	$2.62	14.50%
Philadelphia Electric	Yes	$17.81	$17.90 E	$17.38	0.97	$2.20	12.66%	$2.50 E	14.00%	$2.70	14.00%
Southern California Edison	Yes	$19.96	$21.10 E	$26.63	1.26	$2.16	8.11%	$3.30 E	16.07%	$3.18	15.50%
Sub-total Nuclear Const.		$20.94	$21.59	$22.88	1.058	$2.23	9.81%	$3.20	15.02%	$3.12	13.96%
Average All Companies		$21.75	$22.58	$26.55	1.17	$2.28	8.85%	$3.19	14.42%	$3.20	14.00%

Sources:
[A] Value Line, Oct. 25, 1985, Dec. 6, 1985 and December 27, 1985.
[B] New York Times, 1/1/86.
[C] Column 4/ Column 3
[D] Column 6/ Column 4
[E] Column 8/(avg of Col 2 and Col. 3)

NSDCF

PHILADELPHIA ELECTRIC COMPANY
ESTIMATED COST OF EQUITY
BASED UPON THE DCF METHOD

	Based on Feb. 6, 1986 Market Price High Est.	Low Est.
Market [A] Price	$19.63	$19.63
Market Price Dividend[A]	$2.20	$2.20
Book [G]	$17.90	$17.90
1. Dividend Yield on Market Pr. [A]	11.21%	11.21%
2. Retention Ratio:		
a) Market-to-Book [A]	1.096	1.096
b) Dividend Yield on Book[B]	12.29%	12.29%
c) Return on Equity [F]	13.25%	12.25%
d) Retention Rate(1-L2b/L2c)	7.24%	-0.33%
	------	------
3. Reinvestment Growth(L2c*L2d)	0.96%	-0.04%
4. New Financing Growth [C]	0.24%	0.24%
	------	------
5. Total Estimate of Investor Anticipated Growth(L3 + L4)	1.20%	0.20%
6. Dividend Yield:		
a) Current	11.21%	11.21%
b) Growth to Next Yr [D]	0.07%	0.01%
	------	------
7. Indicated Cost of Equity (L5 + L6a + L6b)	12.48%	11.42%
	======	======

SOURCES:

[A] The Wall Street Journal
[B] Line 1 x Line 2a
[C] Estimated impact of dilution or premium due to sale of equity at other than book value. Computation based upon one-half of mathematically derived result based upon the historical external financing rate. [(M/B x (1+ext. fin rate)/ M/B + Ext. Fin. Rate)]-1 Rate used= 5.75%No
[D] (Line 1 x Line 5)/2
[E] Schedule 5, Page 6
[F] From Origional Testimony
[G] Value Line Estimate

ELECTRIC UTILITY COMPANY
ESTIMATED COST OF EQUITY BASED ON DCF METHOD AND MARKET PRICES AS OF DECEMBER 31, 1985

	With Nuclear Construction		Average of Est.	Without Nucl. Const.		Average of Est.
	Return Expectation Assumption			Return Expectation Assumption		
	Hist. Eq.	Value Line		Hist. Eq.	Value Line	
1. Dividend Yield on Market Pr. [A]	9.81%	9.81%		7.72%	7.72%	
2. Retention Ratio:						
a) Market-to-Book [A]	1.058	1.058		1.311	1.311	
b) Dividend Yield on Book[B]	10.38%	10.38%		10.12%	10.12%	
c) Return on Equity [A]	15.02%	13.96%		13.42%	14.05%	
d) Retention Rate(1-L2b/L2c)	30.86%	25.62%		24.61%	27.98%	
3. Reinvestment Growth(L2c*L2d)	4.63%	3.58%		3.30%	3.93%	
4. New Financing Growth [C]	0.25%	0.25%		0.65%	0.65%	
5. Total Estimate of Investor Anticipated Growth(L3 + L4)	4.89%	3.83%		3.96%	4.58%	
6. Dividend Yield:						
a) Current	9.81%	9.81%		7.72%	7.72%	
b) Growth to Next Yr [D]	0.24%	0.19%		0.15%	0.18%	
7. Indicated Cost of Equity (L5 + L6a + L6b)	14.94%	13.83%	14.38%	11.83%	12.48%	12.15%

SOURCES:

[A] Schedule 5, Page 3

[B] Line 1 x Line 2a

[C] Estimated impact of dilution or premium due to sale of equity at other than book value. Computation based of mathematically derived result based on the historical external financing rate. [(M/B x (Ext. M/B + Ext. Fin. Rate)]-1 Rate used= 5.75%Non-Nucl. [E]
10.00%Nucl.

[D] (Line 1 x Line 5)/2

[E] Schedule 5, Page 6
Schedule 5, Page 7