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April 14, 1986

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SECRETARY'S OFFICE
Public Utility Commission

Jerry Rich, Secretary
Pennsylvania Public Utility
Commission
P.O. Box 3265
Harrisburg, PA 17120

Re: Pennsylvania Public Utility
Commission v. Philadelphia
Electric Company,
Docket No. R-850152

Dear Secretary Rich:

Enclosed for filing please find an original and nine (9) copies of the Office of Consumer Advocate's Reply Brief in the above-captioned proceeding. As per attached Certificate of Service, copies have been served upon all parties of record.

Sincerely,

Scott J. Rubin
Assistant Consumer Advocate

FOLDER

Enclosure
2075X

cc: All parties of record

CERTIFICATE OF SERVICE

Re: Pennsylvania Public Utility Commission
v.
Philadelphia Electric Company
Docket No. R-850152

I hereby certify that I am this 14th day of April, 1986, serving either in person or by first class mail the foregoing document, Reply Brief, in the above-captioned proceeding.

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BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
	:	
	:	
v.	:	Docket No. R-850152
	:	
PHILADELPHIA ELECTRIC COMPANY	:	

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OFFICE OF CONSUMER ADVOCATE'S REPLY BRIEF

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Brockway Glass v. Pa. PUC, 63 Pa. Commw. 238, 437 A.2d 1067 (1981)

Lower Frederick Tp. v. Pa. PUC, 48 Pa. Commw. 222, 409 A.2d 505 (1980)

Pennsylvania Electric Company v. Pa. PUC, ____ Pa. ____, 502 A.2d 130 (1985)

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Limerick Unit 2 Nuclear Generating Station Investigation, I-840381, Order To Show Cause, entered August 7, 1984

Pa. PUC v. Bell of Pennsylvania, R-842779 (October 24, 1985)

Pa. PUC v. Duquesne Light Co., 54 Pa. PUC 695, 43 PUR 4th 27 (1981)

Pa. PUC v.Pennsylvania Power & Light Co., 57 Pa. PUC 559, 55 PUR 4th 185 (1983)

Pa. PUC v. Philadelphia Electric Co., 58 Pa. PUC 7 (1983)

Pa. PUC v. West Penn Power Co., R-842632 (August 28, 1985)

Petition of Philadelphia Electric Co. etc., P-850055 (January 21, 1986)

STATUTES AND REGULATIONS:

66 Pa.C.S. §§315, 1308(f)

I. INTRODUCTION

On April 7, 1986, the Office of Consumer Advocate (OCA) filed its Main Brief in opposition to the $671 million net base rate increase requested by the Philadelphia Electric Company (PECO or Company).

In its Main Brief, the OCA attempted to set forth all of its major arguments in support of the numerous adjustments which it has recommended to the Company's proposed revenue requirement and rate structure in this proceeding. As set forth in that Brief, the OCA contends that PECO is entitled to no more than $136 million in additional base revenues in this case.

In this Reply Brief, the OCA will respond to those arguments presented by the Company in its Initial Brief (cited as PECO I.B.) which were not fully addressed by the OCA in its Main Brief (cited as OCA M.B.).

Before addressing the specific issues, however, the OCA wishes to respond to the Company's overall financial arguments raised in Section II of its Initial Brief, and particularly to the analysis at pages 2-6 to 2-9 regarding the coverage ratios and other financial indicators that allegedly would result from the granting of various ratemaking disallowances and phase-ins proposed by the OCA, Trial Staff, and other parties to this proceeding.

First, as already noted by Trial Staff at pages 229-232 of its Main Brief, the Company's financial arguments against various rate reduction proposals throughout this case have been premised on the apparent assumption that PECO is powerless to respond to Commission rate disallowances in any meaningful way. Obviously, this is not the case.

Utilities are not only often able to reduce expenses from budgeted levels, but can also sell unneeded plants or portions of plants, as PECO itself previously did with its 471 megawatt share of Salem 2 and as Pennsylvania Power & Light Company was able to do with the 945 megawatts of excess capacity that were disallowed from its rate base in 1983. See OCA St. 7 at 20-21, 26; Pa. PUC v.Pennsylvania Power & Light Co., 57 Pa. PUC 559, 55 PUR 4th 185 (1983). In contrast, the coverage ratios and other financial indicators shown by PECO at page 2-7 of its Main Brief all assume that PECO does nothing between 1986 and 1989 to ameliorate the effects of any Commission-ordered disallowance or phase-in.

Moreover, and more importantly, to the OCA's knowledge, it remains this Commission's policy that rates for a public utility are not set on the basis of the coverage ratios and cash flow they produce. Rather, the primary determining factor is the allowance of a fair return on the Company's prudently incurred investment in property which is used and useful in the public service. If the utility financial indicators that result from the proper application of those ratemaking principles are not satisfactory, that is a result which the utility must accept.

Thus, for example, as stated by the Pennsylvania Supreme Court in affirming the exclusion from rate base of Three Mile Island Unit 1:

> If the impact of diminished financial integrity were shifted from utility companies to the consumers, as would be the case if the utilities were regarded as having a constitutionally guaranteed right to rates which would preserve their financial integrity, elevating their rates above those levels that would otherwise be regarded as providing a "just and reasonable" return on assets utilized in the public service, the result would effectively circumvent the

> longstanding principle, discussed supra, that property included in a rate base must be "used and useful" in the public service. Specifically, rate bases which had been determined through the exclusion of non-useful property would be rendered superfluous because the resulting rates would have to be adjusted upwards, whenever the financial integrity of the enterprise was in peril, and the effect upon rates would be the same as if portions of the non-useful property, such as the Three Mile Island nuclear reactors, had not been excluded from the rate base in the first instance.

Pennsylvania Electric Company v. Pa. PUC, ____ Pa. ____, 502 A.2d 130, 135 (1985).

Certainly, as the Company indicates, the Commission must balance the interests of ratepayers and investors in making its final decision in this case. But the fulcrum on which that balance occurs cannot be the coverage ratios and cash flow created by the Commission's decisions. Those factors, though obviously important to the Company, are the result of the application of appropriate ratemaking principles; they are not the goal or test of just and reasonable rates.

II. LIMERICK COMMON PLANT

At pages 7-4 to 7-10 of its Initial Brief, the Company argues that it should be permitted to include 100 percent of Limerick's common plant in rates with Limerick 1. As the OCA has shown in Section II of its Main Brief, this Commission has consistently held that common facilities must be apportioned between the units which will share those facilities. Thus, for every other nuclear plant in this Commonwealth, the Commission has denied utility attempts to include more than 50 percent of common facilities in rates with the first unit.

PECO argues, however, that Limerick is somehow different from these other plants. Thus, the Company states that 92 percent of Limerick's common plant will be used with Limerick 1. Further, the Company asserts that this is a new argument, which the Commission has never before considered. PECO I.B. at 7-7 to 7-10.

In fact, however, the Company simply ignores this Commission's most recent decision on common plant in Pa. PUC v. Duquesne Light Co., 54 Pa. PUC 695, 43 PUR 4th 27 (1981). As the Commission's Order in that case demonstrates, Duquesne Light Company made precisely the same argument which PECO makes here (except that Duquesne alleged that more than 99 percent of common facilities were used with the first unit). As the Commission has done consistently, it rejected this argument. Thus, the Commission held as follows:

> Duquesne has claimed in these proceedings 100 percent of its share of the investment in the common and shared facilities that were in service at the end of the test year. Duquesne states that the inclusion of such common and shared facilities in rate base is consistent with the Uniform System of Accounts, and, therefore, Duquesne has terminated accruing AFUDC on these facilities. Duquesne also claims that 99.4 percent of the total investment in common facilities of Beaver Valley would have been required regardless

of the status of Beaver Valley No. 2. In regard to Mansfield power station, it is claimed that 99.5 percent of the total investment would have been required without Mansfield Unit No. 3.

* * *

The commission policy, expressed in many prior cases, as well as in the commission order in the prior Duquesne proceeding at R.I.D. 373, is to spread these costs proportionally among generations of ratepayers. This policy indicates in this proceeding that one-half of the Beaver Valley common facilties and two-thirds of the Mansfield shared faciltiies, only, would be permitted in rate base.

* * *

The respondent's exception regarding the policy of allowing in rate base only a pro rata share of common and shared facilities merely reiterates the discussion in its brief and reply brief. These arguments are ones which have been heard before and they do not convince us that our policy in this regard is inappropriate. We will therefore recognize only a pro rata share of common and shared facilities in rate base.

Id., 54 Pa. PUC at 715 (emphasis added).

The OCA submits, therefore, that the Company's request for inclusion in rates of the second half of common facilities should be denied. The Company has failed to raise any new reasons for reversing this Commission's long-standing policy.

III. PRUDENT COST OF LIMERICK UNIT 1

A. Limerick 1 Could Reasonably Have Been Constructed By July, 1982, And In Commercial Operation By November, 1983.

1. Introduction

The Company's position in this proceeding is that two consecutive delays in construction, in 1976 and again in 1978, which served to extend the announced construction completion schedule for Limerick 1 by a total of four years, actually had no effect on the cost or schedule of the unit. The OCA submits that PECO's position is simply not believable.

The OCA submits that it was very much possible to build a 1055 megawatt GE BWR Mark II plant on the schedule proposed by the OCA. Indeed, PECO's neighboring utility, PP&L, did just that at Susquehanna 1. In fact, as the OCA demonstrated in its Main Brief, Limerick 1 construction was actually ahead of Susquehanna 1 during the early years of its schedule. OCA M.B. at III-52. It was only after PECO began stretching out the Limerick schedule that Susquehanna construction caught up with Limerick and finished earlier and at a substantially lower cost. As the evidence in this case shows, Susquehanna is very similar to Limerick. Both plants are GE BWR Mark II designs, of approximately 1055 MW, with cooling towers, built by Bechtel, located in Pennsylvania subject to the same PUC regulation, in the same NRC Region, in the same craft labor and wage market, and subject to the same NRC regulations. Tr. 1146-1150. Susquehanna entered commercial operation on June 8, 1983, more than 5 months before the OCA's suggested commercial operation date for Limerick 1, of November 20, 1983. Moreover, Susquehanna 1 cost

considerably less than Limerick 1. Even excluding the effects of additional AFUDC, which are substantial, PECO witness Clarey showed that the direct costs of Susquehanna 1 were $746 million less than the direct costs of Limerick 1. PECO St. 4, Sch. 2; OCA Exh. 61. Thus, completion of a GE BWR Mark II plant in Pennsylvania on the schedule, and for the price developed by the OCA's experts was not impossible. It was only due to PECO's deliberate extension of the construction schedule that Limerick 1 took as long as it did. As stated by OCA witness O'Brien:

> In spite of all of PECO's "even if" speculations, the simple fact is that Limerick was not completed sooner because PECO did not try to complete it sooner.

OCA St. 1B at 3.

2. PECO Has The Burden Of Proof In This Proceeding

The Company's apparent position, that opposing parties in this case have the burden of proof on the issue of the prudence of the cost of Limerick 1, is in error. PECO I.B. at 3-1, 3-4. Both section 315 and section 1308(f) of the Public Utility Code place the burden of proof in this proceeding squarely upon PECO to show that the total costs of Limerick 1 and Common Facilities were reasonably and prudently incurred. 66 Pa.C.S. §§315, 1308(f). As the Pennsylvania Supreme Court stated in Berner v. Pennsylvania Public Utility Commission, 382 Pa. 622, 116 A.2d 738 (1955):

> [T]he appellants did not have the burden of proving that the plant additions were improper, unnecessary or too costly; on the contrary, that burden is, by statute, on the utility to demonstrate the reasonable necessity and cost of the installations and that is the burden which the utility patently failed to carry.

Id., at 382, Pa. at 631 (emphasis added).

Similarly, the Commonwealth Court stated as follows that the burden of proof in a rate case is on the utility:

> Section 315(a) of the Public Utility Code, 66 Pa.C.S. §315(a) places the burden of proving the justness and reasonableness of a proposed rate hike squarely on the utility. It is well-established that the evidence adduced by a utility to meet this burden must be substantial. See Johnstown v. Pennsylvania Public Utility Commission, 184 PA. Super. 56, 133 A.2d 246 (1957).

Lower Frederick Tp., etc. v. Pennsylvania Public Utility Commission, 48 Pa. Commw. 222, 226-7, 409 A.2d 505, 507 (1980). See also, Brockway Glass v. Pa. PUC, 63 Pa. Commw. 238, 437 A.2d 1067 (1981).

Placing the burden of proof upon PECO is consistent with prior Commission holdings as well. Thus, for example, the Commission placed the burden of proof upon the utility in its Order in the Beaver Valley Unit 1 outage investigation as follows:

> We need not conclude that the costs for "replacement power" during the period March 13, 1979 - August 8, 1979 were incurred as a result of imprudent conduct on the part of Duquesne and its agent Stone & Webster, we need conclude only that Duquesne has not satisfied its burden of proof (66 Pa.C.S. §315) that the costs of "replacement power" were prudently incurred, and we so conclude.

Pa. PUC v. Duquesne Light Co., 54 Pa. PUC 695, 755 (1981) (emphasis added).

The OCA submits that the burden of proof in this case is clearly upon PECO to prove the reasonableness and prudence of all costs of Limerick 1.

3. The 1976 And 1978 Delays Had A Substantial Effect On The Final Cost Of Limerick 1.

The Company has repeatedly asserted that 68% of the increase in the direct cost of Limerick was the result of regulatory requirements and externally imposed conditions. PECO I.B. at 3-20, 27, 44. The OCA submits that these assertions are both misleading and contradictory to a previous PECO cost analysis. The Company's position is misleading in that the 68% is presented as a measure of only the direct cost increase of Limerick, not the total cost increase. It therefore represents an incomplete presentation of both the magnitude of, and the reasons for, the cost increases at Limerick. The total cost increase for Limerick 1 includes overheads, taxes, and AFUDC, all of which are specifically related to the longer schedule for construction. OCA St. 1 at 6-7.

The Company's 68% calculation is also in direct contradiction to the cost analysis the Company itself prepared for its Board of Directors in January, 1981, three years after the second of the two construction delays. That analysis, included in a document entitled the Limerick Briefing Book, was presented at a meeting of the PECO Board of Directors with top officers of Bechtel Power Corporation and General Electric Company. OCA Exh. 85. Portions of this exhibit are attached to this Reply Brief as Appendix A. In the Company's analysis developed for its Board of Directors, PECO calculated that only 11% of the cost increase in Limerick from October, 1975, was due to plant design or scope changes. Id. By comparison, overheads associated with the longer schedule, escalation due to the longer schedule, and AFUDC due to

schedule/cost/interest rate changes, totalled 82% of the overall cost increase. Id. The cost breakdown PECO developed was as follows:

Plant design or scope changes	11%	$ 233 Million
Installation rate variance	3%	64 Million
Overheads associated with longer schedule	13%	275 Million
New Taxes	4%	85 Million
Escalation due to longer schedule	19%	402 Million
AFUDC due to schedule/cost/interest rate changes	50%	1059 Million
	100%	$2118 Million

Id. at 13 (footnote omitted). Clearly, on a total cost basis, it was the extension of the schedule which even PECO itself found to be the primary cost increasing force.*

The OCA submits that PECO's cost increase presentation in its Initial Brief should not divert the Commission from focusing on a primary reason the cost of Limerick 1 went up--the delayed construction schedule.

4. NRC Regulatory Requirements Would Not Have Prevented Completion Of Limerick 1 Construction By July, 1982.

An analysis of when Limerick 1 could have been completed but for the 1976 and 1978 construction delays must be careful not to confuse cause and effect. The fact that PECO ultimately set an October, 1984, construction completion and fuel load date had a number of corollary effects. The effects of those decisions should not now be used to try to prove that even if the delays had not occurred, the schedule would still have stretched to October, 1984.

The Company's analysis in this case, in fact, does confuse cause and effect. An example can be seen in the Company's discussion of the effects of NRC requirements at Limerick. PECO has stated that a number

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* It should also be noted that the Limerick Briefing Book ascribed the 1976 and 1978 delays principally to reduced load growth, and not financial causes. OCA Exh. 85 at 14-16.

of new or revised NRC requirements were imposed during the period 1979-1984 and that these requirements would have prevented earlier construction completion. See, e.g., PECO I.B. at 3-20, 4-24. The effects of the requirements, however, must be considered in light of the extended schedule at Limerick which the Company had set for itself.

It must be recognized that the requirements imposed by the NRC were not imposed upon Limerick alone. OCA St. 2, Sch. SHH-6. These same NRC requirements were imposed upon all comparably designed nuclear plants, including LaSalle and Susquehanna. Id. It was the fact of Limerick's extended schedule, however, which allowed additional regulatory revisions to be implemented based upon the later projected completion date.

For example, at page 4-36 of its Initial Brief, PECO cites an NRC requirement that a mechanical equipment program had to be implemented at Limerick. PECO I.B. at 4-36. The requirement involved, however, was not identified by the NRC as a licensing condition until June 17, 1982, or just one month before Limerick could have been completed under the OCA's analysis. Id. Clearly the NRC would have approached this requirement differently for a plant less than one month away from construction completion than it did for a plant which had at least two plus more years of construction remaining. OCA St. 2A at 19. Yet the Company improperly relies upon this requirement as one of the regulatory impediments to completion of construction in 1982.

Other examples of requirements which were not finally defined by the NRC until after the July, 1982, completion date can also be found at page 4-36 of PECO's Initial Brief. In discussing NRC requirements for

the radiological and meteorological monitoring system (RMMS), the safety parameter display system (SPDS), the control room and design review, and various TMI related requirements, the Company states that the NRC did not fully define these items until January, 1983, or 6 months after Limerick 1 construction could have been completed under the OCA's analysis. Each of these items was, in fact, applied to Limerick. The OCA submits, however, that the fact that construction completion was still two years away strongly influenced the manner and timing with which they were applied to, and implemented at Limerick.

Dr. Hanauer addressed this issue is his testimony as follows:

> Q. What would have happened to a mid 1982 Limerick with respect to the requirements imposed by the NRC staff during or after 1982, for example, ATWS, environmental qualification of mechanical systems, and the severe accident risk assessment.
>
> A. I believe that these requirements would have been imposed on Limerick, but I believe that their implementation would have been scheduled in such a way as not to impose major delays on the licensing of a plant which had already been completed. Specifically, if Limerick Unit 1 had been completed, ready for fuel loading, by mid 1982, and licensed at that time for low power operation, as I have stated could have been the case, these 1982, 1983 and 1984 requirements could have been implemented after fuel loading.

OCA St. 2A at 19.

The OCA would note that throughout the time period that PECO was scheduling its efforts to implement NRC requirements, the October, 1984, fuel load date had already been established. This can be seen from the following cross-examination of PECO witness Edward Sproat:

> Q. At the time that PECO began the conceptual design [for an NRC engineering change] and awarded the purchase order in 1981 and in 1982 could you please tell me what the scheduled fuel load date was for Limerick Unit 1?

A. In 1981 and 1982 the scheduled fuel load date was October 1984.

Q. So you would agree with me that at that time those designs and those activities were initiated subsequent to the earlier decisions which resulted in the delay of fuel load to 1984?

A. That's correct.

Tr. 4759 (emphasis added). Simliarly, Mr. Sproat stated:

Q. If you could look at page 6, please, at line 48, you state that the Limerick Fire Protection Evaluation Report which documented Limerick's compliance with the 1976 and 1978 regulations was submitted to the NRC in March 1981; is that correct?

A. That's correct.

Q. You would agree with me again that in March 1981 the company had already rescheduled the fuel load for Limerick Unit 1 to 1984?

A. I believe that is correct.

Tr. 4760-61 (emphasis added). As can be seen, Limerick's compliance filing for fire protection regulations issued in 1976 and 1978 was not even made until 1981. The OCA submits that if the Company had been on a July, 1982, construction completion schedule, the filing and implementation of necessary NRC requirements certainly could have occurred more promptly.

A good example of the effect of earlier scheduled completion of construction on this process can be seen from Susquehanna. Throughout the time period PECO was reviewing and designing Limerick to comply with new or revised NRC requirements, Susquehanna was completing construction on a schedule similar to that which OCA witness O'Brien determined was reasonable for Limerick 1. PECO witness Mr. Sproat agreed with this on cross-examination as follows:

Q. If you could refer to page 10 of your testimony, starting at the top of the page you discuss the fact that in 1981 and 1982 PECO had meetings with the NRC staff on issues relating to fire protection; is that correct?

A. That's correct.

Q. An in fact on page 7 on the same topic you state that there were meetings in 1981 and 1982 and 1983 to clarify how the requirements were to be applied and met at Limerick; is that correct?

A. That's correct.

Q. Will you agree with me that throughout the time period that Limerick was meeting with the NRC on how to comply with fire regulations Susquehanna was completing construction and in fact was loading the fuel?

A. For at least part of that period, yes.

Q. Starting at a period in the middle of 1982?

A. Yes.

Q. And Limerick had discussions starting in 1981 and going through at least 1983, if not longer?

A. That is correct.

Q. If you could refer to page 12 of your testimony, starting at line 8 you are discussing environmental qualifications, and you state that the ASLB -- is that the Atomic Safety Licensing Board?

A. That's correct.

Q. -- reviewed the Limerick EQ program methodology and assessed its compliance with 10 C.F.R. 50.49, which codified the EQ requirements in January 1983; is that correct?

A. That's correct.

Q. So you are stating that the environmental qualification requirements were codified by the NRC in January of 1983?

A. Yes.

Q. Would you agree with me that this codification of the environmental qualification requirements occurred some six or seven months after Susquehanna reached fuel load?

A. Yes, it did.

Tr. 4763-4764 (emphasis added).

The OCA submits that the implementation of the same NRC requirements on very different schedules at Susquehanna and Limerick serves to highlight the fact that the NRC responded to both Susquehanna's shorter schedule and Limerick's longer schedule as the circumstances required or allowed.

Finally, Mr. Sproat agreed that, when certain NRC requirements actually turned out to be difficult to implement, the NRC extended the compliance date. Thus, with respect to environmental qualification requirements, Mr. Sproat stated on cross-examination as follows:

Q. [I]n the rule, itself, there was an implementation date by which all licensees had to have their environmental qualification programs complete, and any equipment that required replacing had to be replaced by that date.

What was that date; do you recall?

A. That date -- just a second.

(Witness perusing documents.)

It was originally in either late 1983 or early 1984, but the Commission then amended the code to allow some extra time. The final date was November 30, 1985.

Q. Do you have an opinion as to why the date was extended by the NRC?

A. It was extended because many of the plants had trouble, once they had identified certain pieces of equipment that needed to be replaced -- they had difficulty in finding replacement pieces of equipment

that were qualified to act in the environments in which they were being placed. And because this was an industry-wide concern, it really wasn't the fault of the licensees, but a problem with the supply industry, the NRC allowed that implementation date to slip.

Q. So the NRC was sensitive to the effect of its regulations on the industry, you would say?

A. In this particular case, yes.

Tr. 4765-4766 (emphasis added).

The OCA submits that PECO's entire NRC regulatory requirements arguments is based upon an unrealistic assessment of both its own and the NRC's reactions to a shorter construction schedule. The extended schedule resulted in a different approach to Limerick than would have occurred had PECO decided to complete the plant by July, 1982. The above discussion comports with Mr. O'Brien's Direct Testimony wherein he stated:

> delayed completion would increase exposure to regulatory (and Owner) changes and/or fine tuning....

OCA St. 1 at 7.

5. The Company's Assumption That The PRA Would Have Prevented Earlier Construction Completion Must Be Rejected.

As discussed above, PECO has pointed to a number of post July, 1982, NRC requirements to show that Limerick could not have been completed by that date. Apart from the alleged effects of NRC imposed construction requirements, PECO has presented the incredible scenario that a competently completed and quality assurance documented Limerick 1 would have been forced to sit idle for two years while the NRC got around to reviewing the Limerick Probabilistic Risk Analysis (PRA). PECO I.B. at 4-49, 50.

The NRC requested the Limerick PRA in May, 1980, and PECO completed and submitted it to the NRC just 10 months later, in March,

1981. PECO Exh. RJM-1 at 21. The Company asserts that even if Limerick 1 had been nearing completion of construction in 1982, the NRC would not have reviewed and approved the PRA until May, 1984, and that for this whole period of time the plant would have remained shut down. Such an outcome is particularly incredible when one considers that the ultimate licensing result of the PRA was that,

> The NRC Staff found very low societal risk at Limerick, low enough that risk comparisons ceased to have regulatory impact.

PECO Exh. RJM-1 at 23-24.

To buttress its position that the NRC would have required a completed Limerick 1 to sit idle while the PRA was reviewed, the Company cited a number of plants which the NRC actually delayed. PECO I.B. at 4-100, 101. The OCA agrees, of course, that the NRC will prevent a plant from operating if there is a significant risk to public safety. As can be seen from the Company's Brief, however, the plants PECO lists all had technical or construction problems, or emergency planning issues which had to be resolved. These cases are quite different from the situation of a competently completed Limerick in July, 1982. At a technical, safety level, assuming PECO had done a competent job, there is no reason to believe it would have been considered any less safe than Susquehanna, a plant which was not delayed by the NRC. As Dr. Hanauer stated, the NRC does not require a plant to be more or less safe simply based upon population density. Tr. 2818-2819.

Finally, the only NRC licensing issues which actually affected Limerick 1 commercial operation, the emergency planning contentions, were specifically allowed for in Mr. O'Brien's schedule. Mr. O'Brien allowed

PECO the full actual time from fuel load to commercial operation, which was when the emergency planning delays occurred.

6. Susquehanna And LaSalle Represent Appropriate Comparison Units For Limerick 1.

PECO has presented an extensive discussion in its Brief attempting to differentiate Limerick from Susquehanna and LaSalle. PECO I.B. 4-144 to 4-157. The OCA submits that what is most remarkable about this discussion by PECO is what is not included in it. While most of the Company's testimony comparing these units was qualitative in nature, or simply compared amounts of commodities, the Company did present one actual schedule comparison between Limerick and Susquehanna. That analysis was in the form of a commodity and unit installation rate based schedule comparison between Limerick and Susquehanna by PECO witness Coughlin. PECO Exh. JRC-2. Mr. Coughlin's analysis attempted to show that if Susquehanna had had to install Limerick's level of commodities, its schedule would have been substantially extended. The Company, however, has left this discussion out of its Initial Brief entirely. The OCA submits that PECO left this comparison out because, as discussed in the OCA's Main Brief, Mr. Coughlin's schedule and commodity comparison only served to show that Limerick's increased commodities could, in fact, have been installed in a substantially shorter schedule. OCA M.B. at III-49.

Mr. Coughlin's schedule and results presented a number of important insights. First, his schedule revealed that Limerick's construction had a substantial head start on Susquehanna's construction even though Limerick received its construction permit 7 months later. In a number of major commodity categories, including structural concrete and

large pipe, Limerick was far ahead of Susquehanna. It was only as PECO delayed Limerick construction that it slipped behind Susquehanna. OCA St. 1B at 25-27. Second, Limerick construction was ahead of Susquehanna despite the fact that Limerick's installation rates were lower for a number of major commodities. Id. Thus, if Limerick's installation rates had been as good as Susquehanna's, it would have been even further along than it was. Id. Mr. O'Brien commented on the Susquehanna/Limerick schedule comparison as follows:

> JRC-2 also shows that Limerick was in a far better position than Susquehanna to "hit the ground running" when its Construction Permit was issued, and this momentum is clearly evident in the early construction activities and through the time period until Limerick's funding was cut back. For example, even a quick review of JRC-2 indicates over one full year for mobilization at Susquehanna 1, while Limerick had mobilized in 1970 and again in 1973, and as noted above, had achieved 10% concrete poured within 5 months of receipt of its Construction Permit. If this unneccessary year of mobilization is removed from Mr. Coughlin's JRC-2 schedule, his fuel load date would be reduced from April, 1984, to March, 1983.

OCA St. 1B at 25-26 (emphasis added). Further he stated,

> As noted previously, and as seen above, Susquehanna had monthly commodity installation rates which were substantially better than Limerick. Thus, even though Limerick had increased quantities for some commodities, I believe that if Limerick's construction performance had matched Susquehanna's, Limerick's fuel load would have been achieved substantially earlier than PECO suggests was possible.

OCA St. 1B at 27 (emphasis in original; footnotes omitted).

Thus, what Mr. Coughlin's schedule analysis ultimately showed was that all of Limerick's commodities could have been installed in a substantially shorter schedule than actually occurred. This serves to show the reasonableness of Mr. O'Brien's schedule.

The Company has also stated that Limerick had fewer licensing conditions than Susquehanna and LaSalle. PECO I.B. at 4-150, 151. The Company thereby improperly draws the conclusion that since more work had to be completed prior to a 1984 fuel load at Limerick, that work would also have been required on an earlier schedule. Id. An alternative conclusion, and perhaps a more realistic one, is that since both LaSalle and Susquehanna were nearing construction completion in 1982, the NRC did not want to hold up licensing and instead allowed the plants to go into operation subject to conditions of future compliance. Limerick, however, had an additional two years of construction time so the NRC had no need to allow the plant to have additional post fuel load compliance time. This is another example of PECO asserting cause and effect where no such relationship necessarily exists.

As a final argument against a comparison of Limerick to LaSalle and Susquehanna, PECO noted that LaSalle took until January, 1984, to enter commercial operation even though it began fuel loading in April, 1982. PECO I.B. at 4-155. What the Company fails to mention, however, is that Susquehanna, which provides the primary plant comparison data in this case, entered commercial operation in June, 1983, just 12 months after it loaded fuel in July, 1982. By comparison, the OCA has assumed a November, 1983, commercial operation date for Limerick 1.

7. Manpower Density Levels Would Not Have Prevented A July, 1982, Construction Completion.

As demonstrated in the OCA's Main Brief, Mr. O'Brien's construction schedule analysis of Limerick 1 included sufficient time to install all actual quantities of commodities within manpower density

levels the Company claimed were feasible. OCA M.B. at III-46. As noted therein, Mr. O'Brien's schedule provided for 224 to 250 weeks to complete work in the drywell, the critical path to completion, at manpower levels of 260 to 290 people.

The Company's Brief attempts to show that Mr. O'Brien's schedule would have required manpower levels of up to 379 people. PECO I.B. at 4-130. The Company's derivation of the 379 person level, however, was based upon improper PECO adjustments entailing the addition of extensive as-built durations to Mr. O'Brien's schedule. OCA M.B. at III-46. As the OCA stated in its Main Brief, the manpower density limits were not a problem under the July, 1982, construction completion schedule. Mr. O'Brien also explained, however, that even under a 171 week schedule, the manpower density limits could be met through the use of increased shifts. Tr. 5125-5127. Mr. O'Brien did not recommend such increased shifting, nor was it necessary under his schedule. Tr. 5142. It was possible, however, to do increased shifting and meet the Company's shorter schedule. Id.

The Company has responded to Mr. O'Brien's increased shifting analysis by citing to purported negative effects of such shifting at three other plants which used similar approaches. PECO I.B. at 4-134. The Company's argument centers, in part, on alleged cost effects of increased shifting. The cost comparison the Company presents, however, is at odds with the direct cost comparisons developed by PECO witness Dr. Perl. PECO St. 11, Correction to Addendum. PECO's cost analysis in its Initial Brief shows Limerick 1 as being less expensive than River Bend, Vogtle, and South Texas, the three plants which used increased shifting.

PECO I.B. at 4. Dr. Perl's cost comparison, however, shows actual direct costs as follows:

(1984 $/Kw)

River Bend	$3,424
Vogtle	2,915
South Texas	2,449
Limerick	2,868

Thus, as presented by PECO witness Perl, South Texas was cheaper than Limerick, Vogtle about the same, and only River Bend was substantially more expensive. One cannot say from Dr. Perl's analysis that increased shifting alone had a major direct cost impact at any of these plants.

As noted previously, while Mr. O'Brien did not recommend increased shifting since it was unnecessary under his analysis, if it had been necessary it was an option which was available.

8. The Company's Plant Cost Comparisons Do Not Prove The Reasonableness Of Limerick's Schedule Delays.

The OCA submits that PECO's plant cost comparisons in its Initial Brief do not, in fact, show Limerick 1 to be a reasonably priced plant. PECO I.B. at 4-2 to 4-15. PECO has presented cost comparisons by both Mr. Clarey and Dr. Perl. PECO I.B. at 4-4. Mr. Clarey presented a cost comparison of all BWR plants and of those BWR's built in the Northeast. PECO St. 4 at 40. The Company cited this latter group as most comparable to Limerick due to higher labor rates and costs, winter construction problems, population levels and regulatory scrutiny. PECO I.B. at 4-6. Included in Mr. Clarey's group of 5 Northeast BWR's are Susquehanna, Hope Creek, Shoreham, Nine Mile Point 2 and Limerick. Tr. 1148. Of these five plants, Shoreham has been found to have been imprudently constructed and the New York Public Service Commission has

disallowed $1.395 billion of costs, OCA M.B. at III-65. Both Nine Mile Point 2 and Hope Creek are being constructed under Commission-imposed construction cost caps to protect ratepayers, (Tr. 1150) and Hope Creek is a plant which was formerly a two unit BWR but which cancelled the second unit. Tr. 1149. Susquehanna is the only twin unit plant of this Northeast group for which no construction cost cap or disallowance has been imposed. In a cost comparison to Susquehanna, a plant which PECO has included as a comparable Northeast BWR, Limerick is clearly more expensive.

The plant cost comparison presented by PECO witness Dr. Perl is similarly unimpressive. After correcting his cost comparison twice, Dr. Perl presented an analysis which found Limerick close to average for "standardized" nuclear plants costs. PECO I.B. at 4-8. What the Company fails to mention in its cost discussion is that Limerick 1's actual direct costs are $2,868/kw (in 1984 $) compared to an actual average direct cost for Dr. Perl's comparison group of $2,035/kw. On an actual cost basis Limerick is clearly much more expensive than the average for all other plants. After "standardizing" other plants to Limerick, Dr. Perl develops an average cost for his comparison group of $2,791/kw. PECO I.B. at 4-8. This standarized average cost is still less than Limerick's cost. What is most impressive from Dr. Perl's cost comparison presentation is the large number of plants which cost less than Limerick on an actual basis, including LaSalle at $1,328/kw and Susquehanna at $1,774/kw, compared to Limerick 1's cost of $2,868/kw. Of Dr. Perl's sample group, 23 plants are less expensive than Limerick while only 13 are more expensive. PECO St. 11 Correction to Addendum of Lewis J.

Perl. Finally, those plants which are more expensive than Limerick include Shoreham, Nine Mile Point Two, and Midland (which has been canceled as a nuclear plant by its owners). Id.

In its conclusion to its cost comparison, PECO included testimony by Dr. Perl which falls under the scope of ALJ Matuschak's ruling on Staff's Motion in Limine. PECO I.B. at 4-13. In his Direct Testimony, Dr. Perl presented an analysis of what he would have found if he had analyzed the prudence of the delays in 1976 and 1978. PECO St. 11 at 3, 23; Tr. 836-838. This testimony was presented as part of PECO's prudency case on the issue of the 1976 and 1978 delays. When cross-examined on his analysis, Dr. Perl stated as follows:

> Q. Would I be correct, then, Dr. Perl, that when on page 23 at line 43 you state that, "My analysis suggests that it was clearly economic to delay the project because it would result in lower cost to consumers," that you were indicating that if you had done such an analysis in 1976 or 1978, that would have been your result?
>
> A. That is correct.
>
> Q. And in pages 23 to 27, you do not present any analysis of whether or not delay actually had a cost impact on Limerick Unit 1?
>
> A. Yes. As to the prudency of those decisions, I don't think that would be relevant, so I didn't do that.
>
> Q. And your analysis or what we have just discussed would also be true if we refer to page 24, line 3, where you state, "The delay had no significant impact on consumer costs."
>
> You are still referring to, if you had done the analysis in 1976 and 1978, you would have reached that conclusion?
>
> A. That's correct.

Tr. 837-838 (emphasis added).

As part of its Main Brief, PECO now incorrectly cites Dr. Perl's Direct Testimony on prudence to show that the delays had no cost impact on the project. PECO I.B. at 4-15. This use of Dr. Perl's testimony was specifically not its intended purpose. For the Company to now rely on Dr. Perl's testimony on this issue is clearly improper.

9. The Company's Financial Constraint Arguments Should Be Rejected.

As the OCA discussed in its Main Brief, financial constraints to completion of construction are not properly a part of the analysis of the cost of the 1976 and 1978 delays. OCA M.B. at III-6. The Commission's decision in the Limerick Investigation already considered financial constraints and rejected them as a basis for decision making. Further, financial constraints are not externally imposed conditions, but rather reflect all of the Company management decisions and priorities of the time period.

The Company's financial constraint analysis improperly assumes business as usual for all Company activities. Had PECO sought to complete Limerick 1 on a shorter schedule, it could have restructured its spending priorities as necessary. One cannot assume that all additional Limerick 1 financing would have all been incremental to actual financing. Once again PECO imposes what actually happened as a barrier to analyzing what could have happened. The OCA submits that PECO's financial constraint arguments must be rejected as a basis for analyzing when Limerick 1 could have been completed but for the 1976 and 1978 delays.

10. The Company's Craft Labor Shortage Arguments Must Also Be Rejected.

The Company has erroneously claimed that competition for the available craft labor pool would also have presented earlier completion of Limerick 1. PECO I.B. at 3-44. It must first be noted that craft labor shortages did not prevent PECO from completing Limerick 1 by the scheduled date of October, 1984.

The Company cites the competition for craft labor as "PSE&G's Salem and Hope Creek Stations, modification work at Peach Bottom and Eddystone, PP&L's Susquehanna Station, Atlantic Electric's Beasley Point Station, and Limerick." PECO I.B. at 3-44.

The Company's recitation of its competitors for craft labor highlights two points. First, PECO was in competition with itself for labor. What the Company calls "PSE&G's Salem" plant is actually owned in part by PECO itself. Further, both Peach Bottom and Eddystone are PECO stations. Finally, throughout the period of Limerick's construction until 1982, Limerick Unit 2 required craft labor.

Secondly, the Company's discussion leaves one wondering how Susquehanna found enough craft labor to complete construction by July, 1982. PECO has consistently discussed the higher population density around Limerick as compared to Susquehanna, yet Susquehanna managed to attract sufficient craft labor to complete work by 1982, despite being in a lower population area.

The OCA submits that PECO's craft labor argument should be rejected as a basis for determining an earlier schedule for Limerick 1.

B. Mark II

In the OCA's Main Brief, it was shown that PECO originally described the Mark II forces as new, or previously unidentified, but revised its position such that in rebuttal testimony it stated that only the recognition of the significance of the forces was new in 1975. OCA M.B. at III-94. In its Initial Brief, the Company has proferred a further semantic characterization and states that prior to 1975 the Mark II forces were "previously unappreciated." PECO I.B. at 3-48. The Company's new and previously unused description only serves to show the error of the Company's case. As the record in this case clearly demonstrates, the Mark II forces were not newly discovered in 1975, rather they were imprudently ignored by GE prior to that time.

The OCA has presented extensive evidence showing that GE knew of the Mark II forces in the 1950's and 1960's but failed to adequately analyze the effect of the forces on the Mark II containment design. OCA M.B. at III 85-105. Further, much of this evidence, including all of the GE proprietary documentation, was unavailable to the Commission in the PP&L Susquehanna 1 case. Thus, PECO's statement that the OCA is presenting "virtually identical" evidence in the present case as in the PP&L case is incorrect. PECO I.B. at 3-51.

The Company has attempted to defend GE by citing to certain tests GE performed in initially developing the pressure suppression concept. PECO I.B. at 3-51 to 3-58. As shown in the OCA's Main Brief, these tests were inadequate in that they overlooked the hydrodynamic forces which were being manifested in those tests, and never tested for the effects of safety relief valve discharges. OCA M.B. at III-95 to III-103.

In addition, the Company has tried to downplay the failure of GE to properly recognize the Mark II forces by characterizing the forces observed in the tests as "minimal or irrelevant." PECO I.B. at 3-60. The Company's description of the forces which were manifested in the 1950's tests, however, is sharply at odds with the GE reports of what actually occurred. Thus, for example, the 1959 GE proprietary document describing certain tests cites phenomena such as:

> the tank began to shudder and then bang severely. This banging literally sounded like rapid fire from a rifle. After five minutes of this the vibration was severe enough to shake open the safety relief valve, and the run was secured.
>
> * * *
>
> the facility became so rough that the tank appeared to be bouncing on its foundation. Personnel in the control room of the power station recorded a mild earthquake which timewise coincided with this run.

Tr. 4976-4978 (emphasis added).

The Company's assertions that GE was reasonable in totally failing to test for safety relief valve discharge loads must also be rejected. PECO I.B. at 3-61. The Company's discussion completely ignores the 1970 GE proprietary report which specifically identified safety relief valve discharges as a serious concern. That report stated, in part, as follows:

> A possible area of concern could be the automatic or manual depressurization of the pressure vessel through the relief valves which are piped directly to the suppression pool.
>
> * * *
>
> Both the tank vibration and the chugging apparently occur at mass velocities which could be involved in reactor containment design ... and both could have serious design implications.

Tr. 4987-88 (emphasis added).

This GE proprietary report indicated design concerns four years before PECO received its Construction Permit and five years before PECO learned of the problems involving Mark II forces. The Company's arguments, however, completely overlook this evidence. The 1970 GE proprietary report was never, in fact, provided to PECO prior to this rate case.

PECO has also argued that the actual cost impact of Mark II was only $55 million. PECO I.B. at 3-71. In the OCA's Main Brief, the effects of the Mark II rework on Limerick construction were specifically noted as a major cost effect not accounted for by the Company's Mark II quantification analysis. OCA M.B. at III-108 to III-109. The Company, has in fact, recognized just this effect of Mark II rework in a different part of its Initial Brief, when it stated as follows:

> Although Limerick experienced a decrease in unit rates over those originally forecasted, as did the rest of the nuclear industry, "this degradation was the result of effects of increased seismic requirements, evolving regulation, Mark II, TMI and other factors, not controllable by PECO."

PECO M.B. at 3-45 (emphasis added; citations omitted).

Nowhere in its cost quantification, however, does PECO include the derivative effects of Mark II redesign and rework. Yet, it is just this rework that PECO cites as a principal reason for the decreased productivity, and therefore increased cost, at Limerick.

IV. EXCESS CAPACITY

A. PECO Fails To Demonstrate That Limerick 1 Is Needed For Purposes Of System Reliability.

1. Introduction.

While the Company addresses the excess capacity issue at some length in Section V of its Brief, it has failed to even mention two critically important issues which help form the foundation of the OCA's excess capacity adjustment: (1) The Company's recent attempt to sell 471 megawatts of Salem 2 capacity and (2) PECO's inability to explain why ratepayers should pay $1.5 billion more in overall rates for Limerick capacity than they would pay if an equivalent amount of combustion turbine capacity remained in rates.

First, the Company does not mention the fact that, less than two years ago, it attempted to sell 471 megawatts of baseload nuclear capacity at Salem 2 from 1984 until 1996. See OCA M.B. at IV-18 to IV-21. The OCA submits that the Company's failure to explain its desire to sell more baseload nuclear capacity than the OCA presently finds to be excess is, indeed, telling. Thus, the Company's argument that it now needs the full 1055 megawatts of additional Limerick 1 baseload nuclear capacity (PECO I.B. at 5-34 to 5-37) is clearly without merit. If such capacity were truly needed, the Company would not have attempted to sell equivalent (though much less expensive) Salem 2 capacity.

PECO's witness on this issue, Mr. Rush, was similarly unable to explain the inconsistency in the Company's position. The following colloquy ensued on cross-examination between Mr. Rush and counsel for the OCA:

Q. Mr. Rush, if you will permit me to briefly summarize another aspect of your testimony, is it correct that your position is that the company needs more base load capacity than it presently has without Limerick 1?

A. That's correct.

Q. On page 21 of your testimony [PECO St. 14] you state that even with the full 1,055 megawatts of Limerick 1, the company has less than the optimal level of base load capacity, is that your understanding?

A. Based on an approximate 60 percent mix, yes.

Q. Mr. Rush, if that is true, can you tell me why in 1984 the company attempted to sell its 471 megawatt share of Salem Unit 2 through May of 1996?

A. I was not part of those negotiations, but I would assume they were financially related, if you will. I suspect in that case probably Mr. Paquette is the better one to answer that question.

Q. Are you stating that you are not aware of why the company was willing to sell 471 megawatts of base load capacity a year before -- well, roughly a year ago, a year-and-a-half ago?

A. My judgment, my understanding is that it was a decision based on financial needs, which I would still uncouple from the system needs, which is where I try and focus: do we need more base load capacity? It does not particularly change my position, no.

* * *

Q. Am I correct that this [OCA Exhibit 39; IR-OCA-5-6] states that the company was willing, in the spring of 1984, to lease its share of Salem 2 through May 31 of 1996?

A. That's right.

Q. Again, these are the negotiations we were just speaking about, and you said you were not a party to those; is that right?

A. I was not personally involved in those, no.

Q. If we look at the second document which is part of OCA Exhibit 39 that is labeled IR-OCA-1-49, again, am I correct that this shows that in the spring of 1984 the company had tried to negotiate a long-term lease of Salem 2, but was not successful in those efforts; is that correct?

A. That's the thrust of this; yes.

Q. Mr. Rush, would I be correct that the cost of Salem 2 and half of the Salem common facilities is roughly $1,000 per kilowatt?

A. That sounds essentially correct, yes.

Q. And the cost of Limerick 1 and half of its common facilities is approximately $3,000 per kilowatt; is that about right?

A. It sounds about right.

Tr. 800-02. What the Company still has not explained, of course, is why its customers now need every megawatt of Limerick's baseload capacity when they apparently could have done without 471 megawatts of equally valuable (but two-thirds less costly) capacity at Salem 2.

Second, the Company asserts that its reserve margin is set based upon "PECO's responsibility to its customers to provide reliable service at a reasonable cost" (PECO I.B. at 5-14) and that "a utility needs to maintain a proper mix of types of generating units in order to provide economic service" (PECO I.B. at 5-33). PECO, however, has presented no evidence to show that the addition of 450 megawatts of excess Limerick 1 capacity provides economic service at a reasonable cost. In fact, PECO does not even mention, let alone rebut, the OCA's conclusion (based upon PECO's analysis and assumptions) that the replacement of 458 megawatts of combustion turbine capacity with an equivalent amount of Limerick 1 does not improve system reliability but does add more than $1.5 billion of

additional overall system costs over the next decade. See OCA M.B. at IV-21 to IV-23.

The Company argues that economic considerations are not even relevant to an excess capacity determination. PECO I.B. at 5-65. While the OCA's case is not dependent on a life-cycle analysis of Limerick's costs and benefits, it is critical to realize that the Company's attempt to replace existing low capital cost capacity with high capital cost Limerick 1 capacity can only be justified if it helps the utility to provide more economical service. Thus, as OCA witness Lanzalotta stated:

> The optimal generation mix is that mix which will allow PECO to provide reliable service at the lowest cost. It is this combination of reliable service at minimum cost which makes a particular mix of generation optimal. If Limerick 1 is not needed for reliability reasons or if it causes an increase in costs over some equally reliable alternative, then including Limerick 1 in PECO's generation mix cannot result in the optimal mix.

OCA St. 5 at 15 (emphasis added).

In summary, PECO's own actions in attempting to sell Salem 2 demonstrate that it does not need at least 450 megawatts of the much more expensive Limerick 1 baseload capacity. Further, the Company's own analysis shows that these 450 megawatts of Limerick capacity do not provide economic service at a reasonable cost.

Faced with its inability to prove the need for, or the economic benefit of, additional baseload capacity, PECO attempted to artificially create the need for almost half of Limerick 1 by prematurely retiring inexpensive, still-usable CT capacity. Thus, contrary to PECO's assertion that it has done a good job of matching capacity to load (PECO

I.B. at 5-24), PECO has in fact created the alleged need for Limerick 1 by its own actions.

Simply, the Company's replacement of CT capacity with Limerick capacity does not provide improved levels of reliability and does not lower system costs. The OCA submits, therefore, that the Commission must reject any attempt to justify Limerick 1 through the premature retirement of useful and inexpensive generating capacity.

The OCA submits, therefore, that the Company has not proven why PECO should be permitted to include all of Limerick 1 in rates at this time. The evidence in this proceeding demonstrates that at least 450 megawatts of Limerick 1's capacity is excess to the Company's needs now and for at least the next five years and, therefore, is not used and useful to current ratepayers. Under these circumstances, the OCA submits that the Commission must devise an appropriate method by which to apportion the costs of this excess capacity between PECO's investors and ratepayers. The OCA submits that its recommended denial of an equity return on 450 megawatts of Limerick 1 capacity is a reasonable and conservative excess capacity adjustment in this proceeding.

The next section provides summary responses to certain arguments which appear in Section V of PECO's Initial Brief.

2. Reply To Specific Assertions By PECO Concerning Reliability.

Pages 5-6 to 5-11

PECO criticizes OCA witness Lanzalotta for questioning the Company's method of projecting weather-normalized future peak loads. The OCA must note that this issue is irrelevant to this proceeding. Mr. Lanzalotta did not base his adjustment on a different peak load

forecast. Rather, Mr. Lanzalotta's excess capacity findings are predicated on PECO's own peak load projections. Thus, Mr. Lanzalotta stated:

> If PECO's load forecast was to be adjusted to reflect PECO's actual 1985 peak demand experience, PECO's need for capacity would be reduced by about 125 MW. This reduction includes 105 MW of weather adjustment plus the associated reserve margin.
>
> However, this adjustment is not reflected in my determination of the excess capacity resulting from Limerick 1 as shown on Schedule 1. My determinations are based upon PECO's own forecast probable peak demands without adjustment.

OCA St. 5 at 12 (emphasis added).

Pages 5-14 to 5-15

PECO states that it is reasonable to use its own 25% planning reserve margin rather than the annual PJM contract reserve margin. Again, the OCA would emphasize that its excess capacity adjustment of 450 megawatts is not affected by this issue. As OCA witness Lanzalotta showed at page 10 of his Direct Testimony, under either the PECO or the PJM annual reserve margins, PECO has more than 500 megawatts of excess capacity in each year through at least 1990. OCA St. 5 at 10.

The OCA, however, would suggest that the appropriate planning reserve is the PJM reserve requirement. All of the factors which the Company suggests are relevant are already encompassed in PJM's reserve requirement. Thus, Mr. Lanzalotta stated: "[T]he amount of capacity needed by PECO is determined by PJM in its calculations of how much capacity is needed to meet PJM's one day in ten years loss-of-load probability reliability target." OCA St. 5A at 2.

Page 5-17

The Company states that the OCA's reliance on the PJM contract reserve would require the Company to "hit ... a yearly moving target." In fact, however, the OCA's recommendation recognizes that reserves might not exactly match requirements. Thus, even though PECO has more than 500 megawatts (550 megawatts if the PJM reserve requirement is used) of excess capacity in each year through 1990 (and from 950 to 1100 megawatts of excess in 1986 and 1987), the OCA is only recommending the denial of an equity return on 450 megawatts of that capacity. Thus, the OCA recognizes that PECO cannot be expected to precisely match its reserves to its needs. That, however, is a far cry from permitting the Company to earn a full return on capacity which will not be needed for at least 5 years (or perhaps much longer if the lives of various other plants are economically extended).

Page 5-18

The Company asserts that, in order to determine the existence of excess capacity, the Commission is required to review the Company's projected capacity plan, as proposed by the Company for rate treatment in this case. The Company seems to believe, however, that this Commission may not review the reasonableness of that plan. Thus, under PECO's view, if a utility were to propose to retire all of its inexpensive (and still useful) capacity and replace it with new, expensive capacity, this Commission would be powerless to make any rate adjustment to reflect this uneconomical action. In fact, however, this Commission has a duty to review how the Company plans to, in PECO's words, meet its "responsibility to its customers to provide reliable service at a

reasonable cost." PECO I.B. at 5-14. The OCA submits that, under the facts of record in this proceeding, PECO's plan to replace in rates 450 megawatts of inexpensive, still-useful CT capacity with an equivalent amount of Limerick 1 capacity -- at an overall system cost of more than $300 million this year and more than $1.5 billion over the next decade -- must be rejected by this Commission. The Company must not be permitted to make ratepayers pay the full costs of inordinately expensive capacity which is not needed to provide reliable service.

Page 5-20

The Company mischaracterizes Mr. Lanzalotta's use of the term "still-useful." Mr. Lanzalotta is an engineer who defines the term "useful" in its engineering sense of capable of being used. This is very different from the meaning of the term "useful" in its ratemaking and legal sense. As the OCA stated at pages IV-3 to IV-10 of its Main Brief, the legal meaning of the term "useful" is whether the plant provides a reliability or economic benefit (vis-a-vis the system which would exist without the plant). Clearly, Mr. Lanzalotta's statement that the CTs are capable of being used would apply to Limerick and all of the Company's other generating capacity. This statement, however, does not mean that Limerick (or any of the other plant) is necessarily used and useful in the accepted, ratemaking sense of the term.

Page 5-21

The Company implies that the CT capacity "already has been retired." Yet, there is no evidence in this record that this retirement has taken place. In fact, when Mr. Rush was cross-examined in December 1985, the CTs were still in service. Tr. 793. Further, while the

Company's plans show an April 1986 retirement date (PECO St. 14, Sch. 7), the OCA has requested reconsideration of the Commission's order approving that retirement.

Page 5-23

PECO argues that the use of the CTs in making an excess capacity adjustment would be unfair because "such units are no longer in PECO's rate base" and "PECO is incapable of recovering any further return on their investment or any further return of their investment as to these units." PECO I.B. at 5-23 (emphasis in original).

The Company apparently has forgotten that the CTs were never in rate base and that PECO's investors paid none of the costs associated with these units. Rather, these CTs were leased by PECO. PECO's ratepayers have paid all of the costs associated with these units. Further, PECO's ratepayers have already paid an additional $40 million so that PECO could prematurely terminate that lease. See OCA M.B. at IV-15.

Thus, rather than creating an "unfair" situation for investors, PECO is proposing that PECO's ratepayers should be denied the ability to have their $40 million payment used to retain inexpensive capacity, rather than to prematurely retire it. The OCA submits that it is PECO's ratepayers, not its investors, who run the risk of "unfair" treatment.

Page 5-30

The Company states that the CTs no longer serve a useful purpose. This is simply not true. Mr. Rush, PECO's own witness, stated that the CTs are still capable of providing service. Their retirement is for "economic" reasons; not because they cannot physically be used. See

OCA M.B. at IV-14 to IV-15. Further, Mr. Lanzalotta demonstrated that even though each individual CT may not be as reliable as Limerick, when all 18 CTs are combined, they provide more reliability than an equivalent amount of Limerick. OCA St. 5 at 19-21. Thus, as Mr. Lanzalotta stated:

> In the case of the CT capacity, it would take 18 simultaneous forced outages to deprive PECO ratepayers of the 458 MW of generation from these units. In the case of Limerick, it would take one forced outage to deprive the system of more than twice this amount of capacity.
>
> This can be demonstrated simply. Let's suppose that a utility can serve a 100 MW block of load either with one 100 MW unit with a forced outage probability of 20 percent or with five 20 MW units each with a forced outage probability of 40 percent. Even though the smaller 20 MW units have twice the probability of suffering a forced outage on a per-unit basis, the chance that the full 100 MW will be forced out is only about 1 percent with the smaller units while it is 20 percent with the single big unit.
>
> It is a basic rule of system reliability that, all other things being equal, concentrating your generating capacity on a smaller number of shafts requires a higher reserve margin to maintain a given level of reliability than does spreading your generating capacity out over a larger number of generator shafts. PECO apparently does not need additional system reliability, nor does it even need to maintain the present level of reliability inherent in its own system. PECO tells us this by prematurely retiring 18 combustion turbines and replacing this generation and more with one nuclear-fired base load generating unit. If system reliability were at all an issue in the need for Limerick, such actions on the part of PECO would be completely illogical. Such is not the case. If the reliability of PECO's system were hanging in the balance, PECO would not be retiring 458 MW of CT capacity before the end of its service life.

OCA St. 5 at 20-21 (emphasis added).

Page 5-31 to 5-33

The Company relies on prior orders of this Commission for the proposition that the OCA's arguments regarding the CTs and excess capacity have already been decided. The OCA submits, however, that the issue presented in this case was specifically reserved in those prior decisions.

In fact, PECO itself has admitted that the excess capacity question as it relates to the CTs was not, and could not be, decided in prior Commission cases. Thus, in its order at Pa. PUC v. Philadelphia Electric Co., 58 Pa. PUC 7 (1983), the Commission summarized PECO's position as follows:

> According to PECO's witness Wroblewski, it is impossible at this point, to determine whether the company will possess excess capacity in 1985 when Limerick 1 will probably begin operation. ... Respondent's witness thus suggests that the commission resist any temptations to prejudge the prudence of future capacity levels which could materially change as time passes.

Id., 58 Pa. PUC at 48. Thus, while permitting a ratemaking allowance to cover the cost of the CT lease termination upon the completion of Limerick 1, the Commission rejected any notion that it was prejudging the excess capacity issue in the Limerick 1 rate case.

Similarly, in its Order approving the retirement of the CTs (of which the OCA has requested reconsideration), the Commission stated:

> It is not our intention to prejudge any rate case proceeding and we do not believe such is the case here. ... [O]ur ruling does not foreclose the OCA or any other party from presenting their positions and arguments in the PE rate case proceeding.

Petition of Philadelphia Electric Co. etc., P-850055 (January 21, 1986), Order at 2.

Pages 5-36 to 5-37

The Company criticizes Mr. Lanzalotta for analyzing PECO's need for additional baseload capacity during its peak month of August 1985. Mr. Lanzalotta found that, if Limerick 1's capacity had been available during that month, PECO would have needed all of its baseload capacity in only 25 percent of the hours in the peak month. OCA St. 5 at 17. Thus, as Mr. Lanzalotta stated:

> It seems inconsistent for PECO to build so much base load generation that, if it all runs during the month of the annual peak load, it would exceed PECO's system needs during 75 percent of the hours in the month ....

Id. Mr. Lanzalotta continued by noting that such a large amount of baseload capacity could only be justified on the basis of economics. Id. That is, as Mr. Lanzalotta stated, "The only conceivable reasons to build base load capacity would be to provide needed reliability or to lower system cost." Id. Since 450 megawatts of Limerick 1 serve neither purpose, the OCA submits that it is clearly excess capacity.

The Company's response to Mr. Lanzalotta's clear demonstration that Limerick's capacity would not been needed even during the peak month is to argue that this same situation exists in all other months. Thus, Mr. Rush stated (as quoted by PECO at pages 5-36 to 5-37 of its Initial Brief): "Generally speaking, the maintenance is scheduled so as to equalize the risk of outage across all 12 months. As a result, the ratio of capacity available ... to anticipated load is approximately equal in all months of the year." PECO St. 14A at 16. That is, if PECO has no need for Limerick 1 capacity in its peak month, it would have no need for it in any month.

More importantly, however, PECO has missed the main thrust of Mr. Lanzalotta's argument. Mr. Lanzalotta stated that substantial proof that PECO did not need more baseload capacity was its willingness to sell 471 megawatts of baseload capacity at Salem 2 or 500 megawatts of Limerick. Thus, Mr. Lanzalotta stated:

> PECO has attempted to sell substantial amounts of base load capacity from Salem 2 and Limerick. It is difficult to accept that Limerick 1 is desirable because of an imbalance (too little base load capacity) in PECO's resource mix while PECO is selling or trying to sell base load capacity and, thereby, worsen the supposed imbalance. Mr. Rush's theory of optimal resource mix obviously was not important to PECO in determining whether or not it has base load capacity available to sell. In 1984 when PECO attempted to continue to sell 471 MW from Salem 2, there was no mention of the effect of such a sale on PECO's theoretical optimal resource mix.

OCA St. 5 at 16.

The OCA submits, therefore, that there is no factual support for the Company's allegation that it now needs the full 1055 megawatts of baseload capacity from Limerick 1.

Page 5-43

The Company argues that the addition of any large, baseload plant may result in temporary excess capacity. Initially, the OCA would note that the excess capacity which exists here is substantial and of long duration. Indeed, it will continue to exist for at least five years (and perhaps well beyond if fossil-fueled plants have their lives extended).

Further, there is certainly no requirement that PECO own 100 percent of every large, baseload plant in which it participates. In fact, when questioned concerning this matter, PECO witness Rush indicated

as follows that Limerick 1 is more than twice as large as PECO's share of any other baseload unit:

Q. Mr. Rush, going back to page 16 of your testimony, and I am looking here at roughly lines 35 through 37. Am I correct that you state here that generating units must be built in discrete sizes?

A. Yes.

Q. And you state that this may help to explain why the reserve margins sometimes may be above a company's planning objective; is that right?

A. That's correct.

Q. Mr. Rush, would you agree that prior to Limerick 1, all of the company's nuclear capacity has been shared among a number of utilities?

A. That's correct.

Q. Again, just so we're clear, we are referring here to Peach Bottom Units 2 and 3 and Salem Units 1 and 2; is that right?

A. That's right.

Q. And PECO's share of these units ranges from 439 megawatts at Peach Bottom 3 to 471 megawatts at Salem 2; is that right?

A. That's right.

Q. If we look at your [PECO St. 14,] Schedule 2, page 3 -- I believe it is marked 2-3 in the upper right. ... Am I also correct that the company shares its ownership of base load coal plants at Keystone and Conemaugh?

A. That's correct.

Q. So the company owns just 357 megawatts spread over Keystone 1 and 2, and 352 megawatts divided between Conemaugh 1 and 2; is that right?

A. That's correct.

Q. Am I also correct that the company owns all of the Cromby and Eddystone plants?

A. That's correct.

Q. Am I correct that Eddystone 1 and 2 are base load plants?

A. Yes.

Q. And Eddystone 1 is 311 megawatts, and Eddystone 2 is just 324 megawatts; is that right?

A. That's correct.

Q. And Cromby 1 is only 144 megawatts?

A. That's correct.

Q. So the company has never before -- and that is before Limerick 1 -- had more than 471 megawatts of base load capacity in any one unit; is that correct?

A. As a share; that's correct, yes.

Tr. 815-17.

The OCA submits, therefore, that the mere fact that Limerick is a large plant does not excuse the substantial excess capacity which exists. There were, and are, mechanisms available to the Company by which it could have lessened its share of this large, baseload plant (just as it had done with Peach Bottom 2 and 3, Salem 1 and 2, Keystone, and Conemaugh). The Company's failure to sell a portion of this large plant must not be used as an excuse for requiring ratepayers to pay for capacity which clearly is not needed.

Page 5-45

The Company cites to Pa. PUC v. West Penn Power Co., R-842632 (August 28, 1985), where the Commission found that if excess capacity would cease to exist within a year or two, then an adjustment should not be made. In the present case, however, the Company's excess capacity will exist at least through 1990 (and perhaps well beyond if certain

comparatively inexpensive measures are taken by PECO to extend the lives of other, existing units).

The OCA would question the reasoning whereby capacity which is not needed is allowed in rates, particularly where that capacity is extremely expensive. There is ample evidence in this record to show that Limerick 1 is an economic disaster for PECO's current ratepayers. Thus, for example, the addition of this extra 450 megawatts of Limerick 1 will cost ratepayers nearly $300 million more in 1986 than they would have paid if the same amount of CT capacity were retained. Further, even under the Company's own analysis, Limerick 1 will increase the Company's base rate costs by more than $900 million this year, while providing, at best, barely $200 million in energy savings benefits. When new capacity is this uneconomical, the OCA submits that this Commission should make every effort to not include substantial amounts of unneeded capacity. The OCA submits that its proposal is eminently reasonable in that it only excludes that capacity which is clearly excess through the year 1990 (rather than the significantly greater amount of capacity which is excess to PECO's needs in 1986 and 1987).

B. PECO Fails To Demonstrate That Limerick 1 Provides Any Net Economic Benefit.

Initially, the OCA must note that the Company has provided no support for many of the assumptions which formed the basis for its life-cycle analysis of Limerick 1. It must be remembered that it is the Company which bears the burden of proving that Limerick 1 will be a used and useful addition to PECO's system.

For example, while the Company discusses at great length the capital additions projections of OCA witness Komanoff and UUC/UP witness

Chernick, the Company never demonstrates the reasonableness of its own projection. See PECO I.B. at D-10 to D-21. Thus, nowhere does the Company even attempt to demonstrate that it is reasonable to assume that this multi-billion dollar plant will require capital additions of, for example, just $4.2 million (that is, one-tenth of one percent of the cost of the plant) in 1986 and just $12.8 million (or only three-tenths of one percent of the cost of the plant) in 1987. See GEC Exh. 3, IR-OCA-2-25b, item 8.

Similarly, the Company provides little if any support for its assumption that Limerick 1's lifetime capacity factor will be 65 percent. See PECO I.B. at D-21 to D-28. In fact, as the OCA stated at page IV-28 of its Main Brief, PECO's own assumptions for the first three years of Limerick's life show a capacity factor of only 62 percent.

Further, in arguing against a performance standard for Limerick 1, the Company admits that its projection of a 65 percent capacity factor may not be realistic. Thus, PECO stated:

> Witness Wilson's 60%-70% nuclear performance standard proposal should be rejected because it fails to reflect historic or projected operation of PECO generating units or industry performance. As explained in Mr. Carroll's additional rebuttal testimony (PECO St. 22C; pp. 2-3), the weighted average lifetime capacity factor of the Company's nuclear units is 54.6%, and the historic weighted average lifetime capacity factor for all comparable units is 60.2%. Moreover, the average projected capacity factor for all of PECO's nuclear units over the next three years is 61.7%. Considering this data, which Witness Wilson does not challenge, it is clear that Witness Wilson's proposed standard of 65% is totally unrelated to relevant historical and projected measures. If any standard is to be adopted, a range of 55%-70% capacity factor (60%-65%+5%) is a more reasonable measure.

PECO I.B. at 6-20 (emphasis added).

Thus PECO cannot demonstrate--and in fact challenges--the reasonableness of a 65 percent capacity factor. Instead, it merely asserts that "the issue is whether the Limerick 1 capacity factor will exceed the historical average." PECO I.B. at D-21. This question is just a small part of an appropriate analysis. The Company never attempts to show the magnitude by which it expects Limerick 1 to exceed the historical average; rather, it simply asserts -- without proof -- that 65 percent is reasonable.

The OCA also questions the reasonableness of the Company's continuing insistence that its May 1985 projections of fossil fuel prices are reasonable and should be used to evaluate the benefits of Limerick 1. See PECO I.B. at D-28 to D-46. Throughout this discussion, PECO never admits that its projections have vastly overstated the level of fossil fuel prices. Similarly, PECO never admits that its own oil price forecasting service, Data Resources, Inc. (DRI), strongly disagrees with PECO's view of the Philadelphia-area oil markets. In fact, PECO implies that DRI's forecasts of Philadelphia-area oil prices (as shown in OCA Exhibit 15) should be totally disregarded. PECO I.B. at D-45 to D-46. The OCA submits that it is incredible that PECO would summarily reject the only independent, Philadelphia-area oil price projection which appears in this record. It is even more remarkable when it is realized that PECO pays DRI to prepare these forecasts and that DRI is the only firm so retained by PECO. Tr. 4359.

Instead of the PECO-specific forecasts prepared by DRI, PECO asks this Commission to rely upon the international oil price probability analysis prepared by Dr. Hogan. Dr. Hogan's analysis, however, appears

to disagree with what he termed the "strong consensus" that existed in late 1985 among oil price forecasters. Tr. 4391. Further, at that time, when most forecasters were projecting that the price of oil in 1990 would be in the $21 to $27 range (in 1985 dollars per barrel; PECO St. 37A, Exh. WWH-6), Dr. Hogan was projecting a price of more than $40 per barrel (in 1984 dollars). Tr. 4396. Of course, since late 1985, oil prices have fallen dramatically rather than increasing as PECO predicted. Finally, while PECO has not recognized the limitations of Dr. Hogan's model, Dr. Hogan explicitly stated them, as follows:

> [My model's] most likely case results are primarily used as an exercise in understanding the model and the oil market it is meant to characterize. In all cases, oil market models are more appropriate for thought experiments and for exploring the range of oil price uncertainty than for reliably projecting the most likely trend.

Tr. 4393.

At page D-42, PECO also asserts that Mr. Komanoff's analysis of coal prices is "seriously biased" because he did not use data from 1972 and 1973. As the OCA demonstrated at pages IV-31 to IV-33 of its Main Brief, however, the use of data from 1972 and 1973 would be seriously misleading. PECO's own witness, Dr. Hieronymus, stated that there was a radical change in the coal markets, beginning in October 1973. Thus, Dr. Hieronymus stated: "Spot prices rose dramatically and many long term contracts were renegotiated or abrogated." PECO St. 15A at 42; OCA M.B. at IV-32. Thus, the coal markets after 1973 are very different than they were prior to and during 1973.

The OCA submits, therefore, that the Company has not provided evidence to demonstrate the reasonableness of PECO's own assumptions of

the future costs and benefits of Limerick 1. In contrast, the analysis of OCA witness Komanoff is supported by substantial evidence and provides this Commission with a sound basis for finding that Limerick 1 will certainly not provide a net benefit to ratepayers at any time in the reasonably near future and probably will not provide such a benefit over its full operating life.

V. LIMERICK 1 ENERGY SAVINGS

At page 2-59 of its Initial Brief, the Company asserts that it would be illegal for this Commission to guarantee the level of energy savings which PECO projects will be produced by Limerick 1. The OCA submits that, since the Commission has the legal authority to completely abolish PECO's ECR (and thus guarantee all of PECO's energy savings projections), it certainly has the authority to guarantee those projections for just one plant.

Moreover, elsewhere in its Initial Brief, the Company itself recognizes that the Commission has such authority. Thus, at pages 6-16 to 6-18, the Company describes in some detail this Commission's authority to not permit full recovery of costs through the Energy Cost Rate mechanism. As PECO stated:

> [I]f the Commission determines, based on good cause shown, that ECR costs should not be fully reconciled, it has the discretion under Section 1307 to adopt such a result.

PEOC I.B. at 6-18.

PECO also argues that there is no need for an energy savings guarantee for Limerick 1 because "any uncertainty regarding the availability of water for Limerick operations has been substantially reduced." PECO I.B. at 2-63. As the OCA demonstrated in its Main Brief, PECO's assertion may be overly optimistic. OCA M.B. at V-1 to V-3. While PECO has filed applications with the Delaware River Basin Commission and the Department of Environmental Resources, the approval of those applications is not certain. Further, even if the Company's agreement with the Tamaqua Borough Authority is approved, the Authority

would have the right to unilaterally cancel the agreement if drought conditions or dam safety problems ensued. Id. at V-2. The OCA submits, therefore, that PECO does not have a definite supply of cooling water for all of the summer months of 1986 and 1987. It is appropriate, therefore, for the Commission to order a guarantee of PECO's projected energy savings from Limerick 1.

VI. MEASURES OF VALUE

A. PECO's Cash Working Capital Claim Should Be Adjusted To Reflect The Statutory Schedule For Federal Income Tax Payments.

OCA has argued that, under Section 6655 of the Internal Revenue Code, it is absolutely clear that the Company can estimate its tax liability, make payments of 22.5% per quarter based on that estimate, and have complete assurance that it cannot be penalized for failure to make adequate payments. OCA M.B. at VI-10 to VI-12. PECO in its Main Brief admits that payments of 22.5% per quarter are all the law requires. PECO I.B. at 7-44. However, the Company continues to allege that it is concerned with penalties, thus ignoring the actual provisions of Section 6655. The Company also claims that the 22.5% method "is not in fact the method used in making its payments." Id.

It should be noted first that no record evidence is cited for the claim that the Company does not take advantage of Section 6655. Moreover, if the Company in fact fails to take advantage of that Section's method for avoiding penalty, and instead makes larger payments than it needs to, ratepayers ought not to be asked to pay for the resulting additional costs.

As noted in OCA's Main Brief, the Company does not have to "foresee with total accuracy the actual tax liability which PECO will incur for the year," as claimed in PECO's Initial Brief at 7-44. As OCA has stated, PECO only needs to annualize its known income to date to estimate its tax liability. If it makes payments of 22.5% of the resulting estimate, Section 6655 states clearly that no penalty will be assessed. Accordingly, PECO's tax lag must be adjusted to reflect this statutory schedule of payments, as discussed at OCA M.B. VI-9 to VI-10.

OCA would also like to correct its statement of this adjustment in its Main Brief. The statements of this adjustment at OCA M.B. at VI-9 and VI-12 were incorrect, although the adjustments have been correctly shown on OCA's schedules, including those attached to the Main Brief in Appendix A. Correctly stated, there is an average 59-day lag in the payment of PECO's federal income taxes if the Company pays according to the statutory schedule. This contrasts with PECO's claimed 47-day lag. The OCA submits that its 59-day lag should be reflected in the Commission's final cash working capital calculations. The following table, reproduced from the OCA's Main Brief, App. A, Rev. Sch. TEK-11, shows how these 59 lag days for federal income tax (F.I.T.) were included in OCA's calculation of that total tax lag.

	ACTUAL (1)	PRO FORMA ADJ (2)	PRO FORMA TAXES (3)	LAG DAYS (4)	LAG DOLLARS (5)
AD VALORUM	69,124	1,212	70,336	26.2	1,842,803
TAXES OTHER	130,713	8,857	139,570	-30.8	(4,298,756)
STATE INC	26,900	(3,655)	23,245	63.6	1,478,382
F.I.T.	105,773	(20,163)	85,610	59.0	5,050,990
TOTAL	332,510	(13,749)	318,761	12.8	4,073,419

B. PECO's Land Held For Future Use Claim Should Be Denied.

PECO has opposed OCA's proposed adjustment to the Company's land held for future use. PECO I.B. at 7-26 to 7-28. OCA stands by its position that Section 1315 of the Public Utility Code prohibits inclusion of land held for future use in rate base. OCA M.B. at VI-7 to VI-8. OCA would also note that the Company entirely failed to address OCA's alternative arguments for disallowance of the Middletown Substation land and 50% of the Bradshaw Reservoir land. OCA M.B at VI-8; OCA M.B. at II-5.

VII. RATE OF RETURN

A. PECO Has Unjustifiably Increased Its Claimed Rate Of Return From 15.75% to 15.9%.

OCA submits that the Company's new claim of a 15.9% return on common equity (PECO I.B. at 7-47) must be disregarded. This claim represents an increase in PECO's claim over the 15.75% sought in its original filing. In its original Statement of Reasons, PECO claimed that its 15.75% rate of return request was an indication of the moderation of its claim, since it alleged that that rate would not cover its full cost of equity. PECO Exh. 3 at 2-3; see PECO St. 28 at 41-42. Even now, PECO reiterates that it has tried to limit the burden on its ratepayers. Thus, it has stated:

> ...the Company has undertaken a number of steps to minimize the impact of the requested revenue increase on PECO customers and on the economy of the Company's service territory. For example, the rate increase as originally filed was based on a 15.75% rate of return on common equity, which is less than the 16.75% granted in the Company's last rate case.

PECO I.B. at 2-2. The Company thus seeks credit for an act of alleged generosity which it has already retracted.

Further, such an increase in the cost of equity is clearly inappropriate in current circumstances. Since the filing of this case, PECO's position in financial markets has dramatically improved, and even PECO's rate of return witness, Mr. Joseph F. Brennan, has reduced his recommended cost of equity by a full percentage point. PECO cannot reasonably increase its claimed cost of equity in the face of the fact that, in the course of this proceeding, that cost has been declining at a significant rate. See OCA M.B. at VII-2 to VII-3.

OCA submits that the Company's increased rate of return claim must be rejected, and that at the same time, the Company's claim that it has moderated its rate claim must be disregarded since it has since reneged on this alleged concession to ratepayers.

B. PECO Fails To Recognize The True Implications Of The Dramatic Improvement In Its Market Position.

While acknowledging that its market position has improved, PECO in its Initial Brief tries to avoid the implications of that improvement. First, PECO seeks to live in the past by referring to its financial difficulties of several years ago. Thus, the Company refers to the fact that, in 1984 and before, the Company's securities sold below book value. PECO I.B. at 7-59. This is irrelevant. The Company's stock now sells above book value, and the Company faces financial markets more favorable than it has seen in many years. OCA M.B. at VII-2. This fact must be reflected in a lower fair rate of return than the Company has claimed.

Second, the Company attributes the dramatic recent growth in its stock price solely to increased investor growth expectations. PECO I.B. at 7-61. In fact, this alleged increase actually appears to result primarily from a decreased likelihood of negative growth. Moreover, as PECO itself states in its Initial Brief:

> During the course of this proceeding, several events occurred. The Commission entered a final Order allowing PECO to complete Limerick 2 under a cost containment program, the Company accepted this proposal, several investment firms abandoned their projection of a possible PECO dividend cut, and PECO's stock price rose significantly.

PECO I.B. at 7-64 to 7-65 (emphasis added). As OCA stated in its Main

Brief at VII-20, PECO did not account for the possibility of negative growth in its original analysis, and it is inconsistent and unreasonable for it to now claim the benefits of a reduced possibility of the occurence of such negative growth.

Third, PECO witness Brennan's analysis of the Company's fair rate of return is distorted by outdated data which does not recognize that financial markets have become more favorable. The Company's Initial Brief claimed that Mr. Brennan fully updated his analysis (PECO I.B. at 61). In fact, however, Mr. Brennan's analysis included an average dividend yield computed by "relating the indicated annualized dividend rate and closing market price on the last trading day of each month for the twelve months ended December 31, 1985." PECO Exh. JFB-3, Updated Sch. 14 at 2. Thus, Mr. Brennan included data from as far back as January, 1985, in his updated analysis.

OCA would also reiterate that Mr. Brennan's analysis should not be relied on because of its major methodological flaws. In particular, his original DCF analysis used biased, unsustainable historic growth rates. In addition to overemphasizing improved growth expectations as discussed above, Mr. Brennan's updated testimony unjustifiably added additional growth on top of this biased original projection. Mr. Brennan's other method, the risk premium analysis, would only be reliable if the relationship between debt and equity were stable, which has not been the case in recent years. The failings of Mr. Brennan's analyses are discussed in detail in OCA's Main Brief at VII-16 to VII-26.

C. PECO Has Mischaracterized OCA Witness Rothschild's Analysis.

OCA wishes to clarify two points regarding its rate of return recommendation and the testimony of its expert rate of return witness,

James A. Rothschild. First, Mr. Rothschild's final analysis recommended 14.00% as a rate of return which would fully compensate PECO for its cost of equity including all risks of constructing Limerick 2. Contrary to PECO's statements in its Initial Brief (PECO I.B. at 7-75), OCA's final recommended fair rate of return of 14.00% thus does not require PECO to capitalize additional risks added by Limerick 2 construction.

Second, PECO has misstated OCA witness Rothschild's position on a disallowance of a portion of Limerick 1 from rate base. Mr. Rothschild's position on this matter describes investors' views; contrary to PECO's claims, he does not propose any penalty to the Company. As he clearly stated in his testimony, Mr. Rothschild believes that investors anticipate some disallowance of the costs of Limerick 1 in this case. OCA St. 3 at 42. Mr. Rothschild reasonably assumed that investors already realize that such a disallowance is possible, and estimated that, on average, they expect a disallowance of $500 million to $1 billion. Id. Mr. Rothschild's analysis therefore quite properly assumed that the investors' expectation of this disallowance is already reflected in stock prices. Id. OCA submits that this assumption was clearly reasonable and conservative.

Mr. Rothschild's argument that investors already understand that there may be a Limerick 1 disallowance, also shows why PECO is not necessarily correct when it asserts that its stock prices will fall if a disallowance is made. See PECO I.B. at 7-82. As Mr. Rothschild pointed out "investors are well aware that a partial disallowance of the Limerick #1 investment is quite possible." OCA St. 3 at 42. In fact, Mr. Rothschild indicated that, if the disallowance is consistent with

investor expectations, the stock price may even increase as a result of decreased uncertainty. Tr. 2145.

OCA therefore submits that its rate of return recommendation, as presented in full in its Main Brief, Section VII, is fully supported by the evidence in this proceeding and should be adopted.

VIII. REVENUES, EXPENSES AND TAXES

A. PECO's Pro Forma Revenue Should Be Adjusted To Reflect Actual Changes In Its Future Test Year Weather-Adjusted Sales.

PECO's objection to OCA's adjustment to projected revenue (PECO I.B. at 7-88 to 7-92) is ill-founded and should be rejected. It must be remembered that PECO has the burden of demonstrating that its projection of sales and revenue is accurate. The revenue claim PECO would have this Commission accept is based on an outdated projection of future test year weather-adjusted sales. By continuing to rely on its old forecast, PECO refuses to recognize the inescapable fact that in the first five months of the future test year, its actual weather-adjusted sales exceeded its projection. OCA M.B. at VIII-2 to VIII-4.

PECO's only effort to defend its outdated projection rests improperly upon sales which have not been adjusted to account for the effects of abnormal weather. Such non-adjusted sales figures reflect the weather which happened to occur during the future test year. They do not reflect the normal weather conditions which should be considered for ratemaking purposes. Nevertheless, the Company has referred to these non-adjusted sales in an attempt to defend its projection. It is worth noting that even that projection, which the non-adjusted figures are supposed to support, is itself weather-normalized. Thus, the Company's only argument for the projection is based on mismatched data and is, therefore, invalid. The use of non-adjusted sales is inappropriate, and does not justify the continued use of a projection that events have proven to be inaccurate.

In contrast, OCA's adjustment properly reflects PECO's sales adjusted to reflect normal weather, and thus provides a proper basis for

projecting revenue for ratemaking purposes. OCA's adjustment should be adopted. See OCA M.B. at VIII-2 to VIII-4.

B. PECO's Initial Brief Failed To Address OCA's Adjustment To Reflect Reasonable Current Inflation Estimates In PECO's Outage Expense Claim.

OCA's Main Brief presented OCA's argument that PECO's outage expense claim must be adjusted to reflect lower, more accurate estimates of inflation. OCA M.B. at VIII-4 to VIII-9. The Company did not address this proposed OCA adjustment in its Initial Brief.

For clarity, it should be stated that PECO's Initial Brief did address inflation adjustments proposed by Trial Staff and GSA to its operating and maintenance expenses. PECO I.B. at 7-102 to 7-105. These Trial Staff and GSA adjustments, however, have no bearing on the adjustment proposed by OCA to the inflation-based component of PECO's outage expense claim. See OCA M.B. at VIII-8, footnote.

PECO's Initial Brief did not address this OCA adjustment to outage expense. The criticisms PECO levelled against the GSA and Trial Staff adjustments in its Initial Brief are not applicable to the OCA adjustment. As OCA noted in its Main Brief, the Company's rebuttal to OCA's inflation adjustment was made in PECO St. 22B at 19 and at Sch. 3 to that Statement. In that testimony, PECO witness Carroll attempted once again to insert a PECO-specific wage inflator into the calculation of outage expense, and to introduce an even stronger weighting for that factor. As we noted in our Main Brief, the Commission has specifically rejected any reliance on a PECO-specific wage inflator for outage expenses. OCA M.B. at VIII-5. Further, in our Main Brief, we have shown why Mr. Carroll's new analysis should be rejected and why OCA's adjustment should be adopted. OCA M.B. at VIII-8.

OCA would also reiterate that its final calculation of this adjustment, as shown in its final schedules, states an adjustment to PECO's revised claim, and thus acknowledges the Company's partial reduction in that claim during this proceeding. There is thus no double-counting between OCA's adjustment and that made by Mr. Carroll in his rebuttal testimony and reflected at PECO Exh. TPH-2A, D-10, D-10a and D-10b. See OCA M.B. at VIII-9.

C. PECO's Costs From The Salem Management Evaluation Program May Not Be Recovered From Ratepayers.

PECO has opposed OCA's recommendation that it not be permitted to amortize the costs of the Salem Management Evaluation Program. PECO I.B. at 7-98 to 7-100. PECO's argument is without merit.

Though PECO's Brief states that the Program "resulted in significant improvement to operations" (PECO I.B. at 7-99 to 7-100), this claim merely supports the OCA's adjustment. Such alleged improvements were made to management practices which the Commission found to be imprudent and the Nuclear Regulatory Commission found unacceptable. See OCA M.B. at VIII-9 to VIII-11. Thus, that improvements may have occurred is not surprising. That, however, does not justify the need for the audit. If Salem's management practices had not been seriously deficient, the audit would not have been needed.

Moreover, as the Company itself stated, the Evaluation Program was a past, non-recurring expense (PECO Exh. TPH-2A, D-10d), which ought not to be reflected in prospective rates. See OCA M.B. at VIII-11 to VIII-13. Thus, as OCA argued in Main Brief, the non-recurring costs of correcting inadequate, imprudent management cannot justly or reasonably be recovered from ratepayers.

D. The Costs Of The Limerick 2 Investigation Should Not Be Reflected In Current Rates.

The Company in its Initial Brief opposed OCA's proposal that the costs of the Limerick 2 investigation be capitalized with that unit. PECO I.B. at 7-125 to 7-126.

OCA submits that its proposal, presented in its Main Brief at VIII-17 to VIII-19, is entirely reasonable. OCA proposes the same treatment as is already given to Nuclear Regulatory Commission licensing proceedings. Id. at VIII-18. Both those NRC expenses and the Limerick 2 investigation expenses represent costs of going forward with a major capital project which will benefit ratepayers only when and if the project concerned is completed.

This type of capital expense is thus quite different from expenses of determining a current level of just and reasonable rates, such as the ECR investigation costs which were included in rates in the last PECO base rate case. See PECO I.B. at 7-125. It is entirely appropriate that this type of cost of a capital project, such as Limerick 2, should be capitalized and recovered through rates during the life of the unit investigated.

PECO has also asserted that "other issues" were addressed in the Limerick 2 Investigation. PECO I.B. at 7-126. OCA submits that that these issues were considered solely because they related to the subject of that investigation. It is clear from the Commission's Order initiating that Investigation that several issues had to be resolved before it decided whether to permit construction of Limerick 2. In that Order, the Commission stated the purpose of the proceeding as follows:

> [W]e believe that serious questions exist regarding the need for the additional generating capacity representing Unit 2, the cost effectiveness of Unit 2 as compared to other alternatives, and the effect upon PECO's financial health and its ability to provide safe and adequate service at reasonable rates.
>
> * * *
>
> For the aforementioned reasons and to enable us to exercise informed judgment when security certificates to finance Unit 2 are presented to us for registration, we believe certain issues must be examined prior to any commitment by PECO to the resumption of construction of Unit 2.

Limerick Unit 2 Nuclear Generating Station Investigation, I-840381, Order To Show Cause, entered August 7, 1984, at 2.

OCA submits that it is clear that all issues considered in that Investigation were considered in order to determine whether construction of Limerick 2 should be allowed. For that reason, all of PECO's Limerick 2 Investigation expenses are part of the costs of the Limerick 2 capital project and should be treated as capital expenditures.

E. PECO's Claim For Additional Decommissioning Of Peach Bottom 1 Should Be Denied At This Time.

In response to PECO's opposition to OCA's proposed denial of its Peach Bottom 1 decommissioning claim at this time (PECO I.B. at 7-132 to 7-134), OCA would point out that PECO's Brief again indicates that Peach Bottom 1 is currently supporting the operation of Peach Bottom 2 and 3. The Company stated:

> Final decommissioning of this unit cannot be completed while Units 2 and 3 remain in operation since certain Unit 1 facilities are utilized in the operation of the Peach Bottom station as a whole.

Id. at 7-133. As OCA argued in Main Brief, if the owners of Units 2 and 3 receive current benefits from Unit 1, PECO should show why these other

parties should not contribute to its decommissioning costs. OCA M.B. at VIII-23 to VIII-24.

If Units 2 and 3 are being supported by Unit 1 facilities, PECO's claim that its ratepayers received all of the benefits of Peach Bottom 1 is also inaccurate. PECO I.B. at 7-133. OCA would also point out that benefits to parties other than those ratepayers were specifically noted in PECO's contract with the Atomic Energy Commission. OCA M.B. at VIII-21 to VIII-23.

Moreover, as OCA noted in its Main Brief, the NRC does not require the creation of the reserve the Company wants to create for Peach Bottom 1, contrary to PECO's suggestion in its Initial Brief at 7-133 to 7-134. The proposed decommissioning funding regulations have not been adopted, and it is not clear that the NRC would require the reserve PECO proposes even if those proposals became binding regulations. Id. at VIII-24 to VIII-26. Accordingly, there is no requirement that the Company collect these funds at the present time. Since the Company has failed to show why these expenses are needed and why they should be borne solely by PECO ratepayers, OCA recommends that this claim be disallowed at this time. See OCA M.B. at VIII-19 to VIII-27.

F. OCA Stands By Its Keystone Alliance Recommendation And Its EEI Expense Adjustment.

In its Main Brief, OCA submitted a reasonable calculation of the disallowance required by the Commission's Order in the Keystone Alliance case and its subsequent Tentative Amended Order. OCA M.B. at VIII-27 to VIII-28. The Company's discussion of those Orders simply reiterated the arguments PECO made in its Exceptions to the Commission's Tentative Amended Order. The Commission's final decision at the Keystone Alliance

docket will resolve these substantive issues; they need not be resolved in this proceeding. PECO I.B. at 7-113 to 7-120. Rather, the Commission should simply implement the final results of its Keystone Alliance decision in the final order in this case.

PECO has correctly stated that the Edison Electric Institute and "Power of Choice" campaign expense which OCA witness Bleiweis recommended be disallowed are also reflected in Paragraph 13 of the Keystone Alliance Order. PECO I.B. at 7-120; see OCA St. 4 at 49. Accordingly, OCA's final accounting schedules subsumed this proposed adjustment in the Keystone Alliance adjustment, and did not double-count this expense. However, these expenses should be excluded even if the Commission does not include all Paragraph 13 expenses in its Keystone Alliance adjustment. This exclusion totals $272,000 in EEI and Power of Choice expenses. OCA St. 4 at 49.

G. PECO's Tax Claim Must Be Adjusted To Reflect Savings From Its Consolidated Return.

PECO's opposition to OCA's adjustment to reflect tax savings which result from PECO's participation in a consolidated tax return (PECO I.B. at 7-141 to 7-143) fails to recognize that the Commission is legally obligated to make such an adjustment under Barasch v. Pa. PUC, 507 Pa. 561, 493 A.2d 653 (1985). OCA's adjustment reflects a reasonable calculation of the savings from the consolidated PECO tax return and a reasonable allocation of a portion of those expenses to the Electric Division, and it should be adopted. See OCA M.B. at VIII-29 to VIII-34.

OCA would also reiterate that the Company's references to a prior PECO gas division case, in which the Commission allocated the

appropriate level of consolidated tax savings to the gas division based on the tax data in that case (PECO I.B. at 7-143), are not dispositive of the appropriate allocation of tax savings to the electric division based on the tax data in the present case. See OCA M.B. at VIII-33.

H. PECO's Claims To Normalize Taxes On Capitalized Overheads Should Be Denied, And The Company's Accumulated Balances For Such Taxes And Deferred State Income Taxes Should Be Returned To The Ratepayers Who Funded Those Balances.

OCA has proposed a return to ratepayers of the Company's accumulated balance for deferred state income taxes. OCA M.B. at VIII-35 to VIII-37. OCA has also adopted Trial Staff's proposed adjustment to deny normalization of taxes associated with construction overheads and to return the accumulated balance for such taxes to ratepayers. Id. at VIII-37 to VIII-38. PECO's objections to these adjustments, stated in its Initial Brief at 7-135 to 7-140, are without merit.

First, the Company has ignored the "actual taxes paid" doctrine, under which its current tax deductions should be flowed through to ratepayers. Under this doctrine, its claim for taxes on construction overheads should be disallowed because it is currently deducting those overheads and, as a result, has lower current actual tax liability. OCA M.B. at VIII-37 to VIII-38.

Second, the Company's objections to a five-year amortization of the accumulated balances for taxes on those capital overheads and for deferred state income taxes are unsound. These balances must be amortized over a shorter period than the life of the assets involved so

that the ratepayers who paid these balances receive the benefit of this changed policy. OCA's proposed amortization is fully consistent with the Commission's holding in Pa. PUC v. Bell of Pennsylvania, R-842779 (October 24, 1985), Order at 106, that a prompt amortization is needed so that the ratepayers who paid these amounts will be more likely to receive the refund. See OCA M.B. at VIII-35.

I. OCA Recommends Disallowance Of Depreciation Expenses Associated With Limerick 1 Costs Which Were Not Prudently Incurred.

In its Initial Brief, PECO alleged that, "No party has challenged the Company's claimed depreciation accrual, with the exception of proposals to employ sinking fund depreciation for Limerick 1." PECO I.B. at 7-127. This allegation is incorrect. While OCA has not challenged PECO's depreciation study or its calculations of these accruals, OCA's adjustment to the Company's proposal to reflect Limerick 1 in rates calls for exclusion of the return of as well as the return on the costs incurred due to the Mark II design errors and the imprudent delays in construction with regard to Limerick 1 and 50% of Common Facilities. OCA St. 7 at 14, 16. The OCA has thus recommended disallowance of the depreciation expense associated with the imprudent portion of PECO's investment in Limerick. OCA M.B. at III-2, footnote; OCA M.B., Appendix A, Tables I and II; OCA St. 7A, Rev. Sch. 5. OCA has also recommended the disallowance of depreciation on the second half of Limerick Common Plant. OCA M.B. at II-5, footnote; OCA M.B., Appendix A, Tables I and II; OCA St. 7A, Rev. Sch. TEK-5.

IX. RATE STRUCTURE

A. The Company's Four Coincident Peak (4CP) Allocation Of Power Production And Transmission Investment Should Be Rejected.

In its Main Brief, the OCA demonstrated that PECO's 4CP cost of service study fails to properly allocate investment in power production and transmission investment. OCA M.B. at IX-2 to IX-16. The error of PECO's 4CP method is that it assumes all investment is made solely to meet demand in 4 peak hours of the year. The 4CP thus completely overlooks that portion of investment--particularly baseload generating plant investment--made for year-round energy considerations. Id.

The Company's Initial Brief states that its cost of service study properly reflects energy in that it "reflects energy savings produced by base load plant and allocates those savings to customer classes on the basis of class energy usage." PECO I.B. at 7-153 (emphasis added). That, of course, is precisely the point. PECO's cost of service study allocates the costs of the baseload plant on the basis of peak demand, but allocates the savings of baseload plant on the basis of energy usage. This is a clear mismatch of costs and benefits. It is precisely this mismatch that the Peak and Average cost of service study presented by the OCA attempts to correct.

B. The Company's Criticisms Of The OCA's Essential Use Rate Are Unfounded.

The Company has opposed the OCA's recommendation that the Residential Class rate design be modified to reflect essential use rate blocks. PECO I.B. at 7-183. The Company places substantial emphasis on its assertion that 62% of the customers on PECO's Customer Assistance

Program (CAP) use above 400 Kwh/month. PECO I.B. at 7-184. The Company thus states that these customers would be hurt by the OCA's 350 Kwh/month essential use block. The Company is clearly in error. First, the Company's sample for developing this calculation is limited to the 700 customers selectively chosen for the CAP Program. Second and more importantly, customers who use 400 Kwh/month are not harmed, but are helped by the essential use rate blocking. As shown in the OCA's Main Brief, the break-even point at which a customer begins paying higher rates under the essential use rate design than would be paid under the Company's proposed rate design is substantially greater than 400 Kwh/month. For example, assuming the Company receives one-half of its increase, the break-even point is 532 Kwh/month. OCA M.B. at IX-41.

Further, the OCA is proposing that high use/low-income customers be provided direct assistance in reducing consumption through weatherization and appliance efficiency programs. OCA M.B. at IX-41, 42.

X. PECO'S EXCESSIVE OIL PRICE PROJECTION FOR USE IN ITS NEW ENERGY COST RATE MUST BE REJECTED.

In its Main Brief at Section X, OCA demonstrated that the Company had used outdated, excessive oil prices in the Energy Cost Rate filing it has presented in this case. PECO, in its Initial Brief, has misstated OCA's position on this matter, and OCA wishes to clarify that position. OCA recommends that the Company be required to present, as part of its compliance filing, an energy cost rate based upon the $17 per barrel residual oil price presented by PECO's own witnesses as the most recent actual prices in this case. OCA M.B. at X-7. OCA also wishes to point out specific misstatements in PECO's Initial Brief regarding this issue.

First, OCA's challenge to PECO's energy cost rate filing did not begin "at the last day of hearings on this issue." PECO I.B. at 6-23. On the contrary, OCA began questioning the reasonableness of PECO's oil price projections on December 12, 1985, in its first cross-examination of PECO witness Carroll (See, e.g., Tr. 304-316). However, as the price of oil continued to drop precipitously through the first quarter of 1986, the Company incredibly persisted in the use of oil prices for its ECR which were not even in the range of its own witnesses' estimates. As a result, the OCA requested the Company to update the ECR to reflect the Company's own most current price data.

Second, when PECO states that "the OCA and the Company agreed that the Company would revise its first year oil forecast (Tr. 4535)," this summary cannot be taken to mean that OCA agreed that the Company's revision would result in an accurate energy cost rate projection which OCA would accept for ratemaking purposes in this case. The fact is that

the $24 per barrel residual price used in that projection was introduced by PECO witness Carroll. After considerable argument on whether such a production run would be done and what price would be used, Mr. Carroll discussed a price with Mr. English in a telephone call during a hearing recess. The specific origin of this number is as follows:

> [MR. CARROLL]: I asked Mr. English in his testimony of what he gave yesterday and everything else, talking about a period starting July 1986, did he feel that he could support for half a percent on a cost of about $24 a barrel, and he said he felt that based on the fact that we were -- I think his word was mushing around that price of $17 to $20 a barrel now, and the fact that it could get up to the present prices or the old prices that we knew by late 1987 or very early 1988, that that period of time about $24 would seem like a good average price to use.
>
> What it is going to do to average $24 a barrel, I will have to give some consideration to, but he felt that $24 would be a good number.
>
> BY MR. CLARK:
>
> Q. Did you propose the $24 to him?
>
> A. I asked him if he felt that would be a reasonable number or what would he think would be a reasonable number, and he said he felt that would be a reasonable number.

Tr. 4533-34 (emphasis added). Thus, Mr. Carroll, not Mr. English, the Manager of PECO's fuel procurement department, was the source of this proposed price for residual oil of $24 to be used in a new production run.

In response to PECO's statement that it would produce a production cost run using $24 a barrel oil prices, OCA counsel stated the OCA position, as follows:

> Your Honor, I can't say that the OCA agrees with Mr. English's oil price. I guess, to the extent the company would agree to provide Mr. Carroll's Schedule 3 rerun with those oil prices, we would certainly like to have them come into the record.
>
> I am not saying that we will stipulate that that is a reasonable price, but it appears to be the best that we can get from the company as a run, unless Your Honor is willing to order them to use a different price.

Tr. 4534 (emphasis added). Thus, the OCA recognized that a production cost run using the $24 residual price was all PECO would present, but did not agree that such a price was reasonable. On the contrary, as stated in the Main Brief, OCA submits that an energy cost rate based on the $17 price, the most recent actual data in this case, should be the basis for implementing the PECO ECR 8 order in this case.

It is therefore incorrect that the energy cost projection thereafter filed by the Company is "undisputed by any party on the record." PECO I.B. at 6-24. OCA disputed the accuracy of the price assumption used therein during the hearing in which it was proposed, never agreed to accept such assumptions as reasonable, and demonstrated in its Main Brief that the resulting projections are excessive. OCA M.B. at X-1 to X-7. PECO's projection is still based on unjustifiably high oil prices and should be rejected.

XI. CONCLUSION

Philadelphia Electric Company's Supplement No. 15 to its Tariff Electric Pa. P.U.C. No. 26 must be rejected as unjust, unreasonable, and therefore unlawful. The Company should be required to file tariffs or tariff supplements consistent with the revenue requirement and rate structure recommendations of the Office of Consumer Advocate set forth in the OCA's Main Brief and in this Reply Brief.

Respectfully submitted,

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DATED: April 14, 1986

APPENDIX A

EXCERPT FROM OCA EXHIBIT 85

WJC

(7)

System Planning Division
S12-1 - 2301 Market Street

January 29, 1981

LIMERICK BRIEFING BOOK

Here is a copy of the Limerick Briefing Book for your information. The book was prepared for use by the Board of Directors.

Full color photographic artwork was used in the books distributed to the directors. References to the photographic artwork and charts in this copy may be incorrect, as this copy has been machine collated.

FRS:bar

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W. H.
all Dir Heads
Sam Boyle

LIMERICK COST HISTORY

The graph on the opposite page shows the $2,118 million difference between Bechtel's Forecast 1 and Forecast 5. Forecast 1 was issued October 1975. Forecast 5 is the most recent and was issued December 1980. In five years the total Limerick project has increased 105%, a compound rate of 15% per year.

A summary of the causes for the increase are as follows:

Plant design or scope changes	11%	$233 Million
Installation rate variance	3%	64 Million
Overheads associated with longer schedule	13%	275 Million
New Taxes*	4%	85 Million
Escalation due to longer schedule	19%	402 Million
AFUDC due to schedule/cost/interest rate changes	50%	1059 Million
	100%	$2118 Million

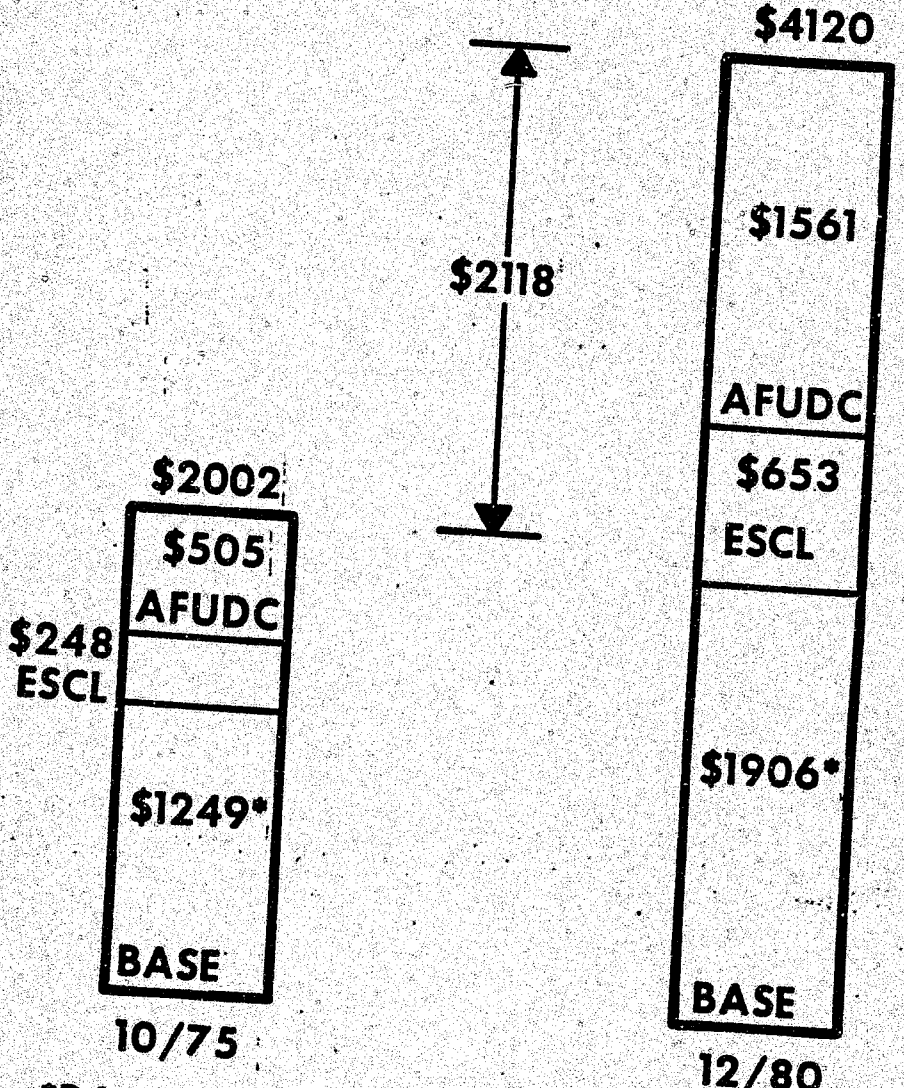
Base costs shown in the cost bars are in constant March 1975 dollars (the effect of inflation is included in the escalation category). The increase of $657 million is attributable to design changes necessitated by NRC requirements or regulations, by General Electric or by PECO. The relative breakdown of this cost is given in the first four categories in the above summary.

The areas of escalation and AFUDC have shown the greatest increases due to the prolonged construction period. These are responsible for almost 70% of the increase.

* The Pennsylvania Public Utility Realty Tax Act (PURTA) was passed in 1971. The effect of this tax was not included in earlier estimates.

LIMERICK COST HISTORY
($ IN MILLIONS)

SERVICE DATES
UNIT 1 1981 — 50 MONTHS → 1985
UNIT 2 1982 — 63 MONTHS → 1987



*BASE COST EXPRESSED IN 3/75 DOLLARS

LIMERICK

SUMMARY OF COST AND SERVICE DATE HISTORY

Date	Estimated Service Dates Limerick #1	Limerick #2	Estimated Cost Incl. Interest & Overhead (Millions)	Comments
Jan/71	Apr/75	Apr/77	716	Capital Authorization approved.
Jan/72				Site work suspended. Construction Permit not issued.
July/72	Aug/78	Jan/80	1209	Bechtel Preliminary Estimate.
June/74	July/79	Dec/80		Construction Permit recd. Construction resumed.
Oct/74	Apr/81	Apr/82	1738	Rescheduled due to financial reasons.
May/75	Apr/81	Apr/83		Rescheduled due to reduced load forecast.
Oct/75	Apr/81	Apr/83	2002	Bechtel Forecast 1.
June/77	Apr/83	Apr/85	2578	Supplemental Capital Authorization approved.
May/78	Apr/85	Apr/87		Rescheduled due to reduced load forecast.
Dec/80	Apr/85	Oct/87	4120	Bechtel Forecast 5.

Further details and explanation are given in the Major Milestones Section which follows.

MAJOR MILESTONES

May 1968 — A capacity addition was planned based on the following % reserves:

Year	Load Mw	Capacity Mw	w/Limerick (% Reserve)	w/o Limerick (% Reserve)
1974	6010	7073	17.7	17.7
1975	6340	7968	25.7	11.5

April 1969 — Based on a nuclear site evaluation study, the Limerick Site (Schuylkill Crossing) was chosen on the basis of economics. Other sites considered were Washington Crossing, Buckingham, Tohickon Creek, and Pine Forge.

January 1971 — The Capital Authorization for Limerick based on scheduled commercial operation dates of 1975 and 1977 had an estimated cost of $716 million.

January 1972 — Construction was suspended at Limerick because the construction permit had not been obtained.

July 1972 — Bechtel presented a new construction schedule and a preliminary estimate of costs to PECO based on receiving construction permits by January 1973. PECO revised its service date estimates to August 1978 and January 1980 and its cost estimate to $1209 million based on Bechtel's report.

June 1974 — Construction permits for the two units were received on June 19, 1974 and construction at Limerick resumed. Service was scheduled for July 1979 and December 1980.

October 1974 — The Company announced that financial constraints were responsible for reducing the 1975 construction budget from $571 million to approximately $420 million which necessitated a 2-year delay in construction schedule.

May 1975 — The Load Capacity Forecasts shows a peak load reduction in 1981 and in 1982. Therefore Limerick No. 2 could be rescheduled for 1983. Reduced peak loads affects timing of new units because of two reasons: First, new capacity can be delayed without affecting service reliability. Second, lower loads reduce revenues thereby making it more difficult to raise the required capital to finance the construction program because of lower interest coverage rates.

October 1975 — The estimated cost had increased by $264 million since October 1974. The major increases were attributable to escalation of direct costs, state of the art changes, and additional AFUDC.

May 1976 — Construction expenditures were further reduced as load growth estimates were reduced.

MAJOR MILESTONES (Cont'd)

June 1977	A supplemental Capital Authorization was approved based on Limerick service dates of 1983 and 1985. The Comparison of Initial and Supplemental Estimates shows that 32% of the increase can be attributed to escalation, 23% to scope additions including NRC licensing requirements, 34% to additional Allowance for Funds Used During Construction (AFUDC), 5% for Pennsylvania Realty Tax and the remaining 6% for miscellaneous items.
May 1978	Construction expenditures were further reduced as load growth estimates were reduced.
December 1980	The increase in the estimate is due mainly to delays in the service dates of the units.

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SECRETARY'S OFFICE
Public Utility Commission

Secretary Jerry Rich
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Commission
North Office Building
New Filing Section, Room B-18
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission
v. Philadelphia Electric Company,
Docket No. R-850152

Dear Secretary Rich:

Please find enclosed for filing with the Commission in accordance with 52 Pa. Code §§1.4 and 5.502 an original and nine (9) copies of the Reply Brief of Philadelphia Electric Company in the above-referenced proceeding. As the attached Certificate of Service indicates, copies of this Brief have been served on all parties of record.

Sincerely,

Walter R. Hall II

Walter R. Hall, II

WRH,II:wdk
Enclosures

cc: The Honorable Joseph P. Matuschak

CERTIFICATE OF SERVICE

I hereby certify I have on this day served a copy of the aforementioned Reply Brief on the following parties to this proceeding.

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Public Utility Commission

April 14, 1986

The Honorable Joseph P. Matuschak
Pennsylvania Public Utility Commission
97 E. Main Street
Uniontown, PA 15401

Re: Pennsylvania Public Utility Commission
v. Philadelphia Electric Company,
Docket No. R-850152

Dear Judge Matuschak:

Please find enclosed two (2) copies of the Reply Brief of Philadelphia Electric Company in the above-referenced proceeding. As the attached Certificate of Service indicates, copies of this Brief have been served on all parties of record.

Sincerely,

Walter R. Hall II

Walter R. Hall, II

WRH,II:wdk
Enclosures

cc: Secretary Jerry Rich

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION, ET AL.	:	
v.	:	Docket No. R-850152 (1986)
PHILADELPHIA ELECTRIC COMPANY	:	

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Public Utility Commission

REPLY BRIEF OF THE
PHILADELPHIA ELECTRIC COMPANY

Before Administrative Law Judge Joseph P. Matuschak

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APR 15 1986

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I. INTRODUCTORY STATEMENT

Philadelphia Electric Company ("PECO" or the "Company") files herewith its Reply Brief in response to the Initial Briefs submitted by the Commission Trial Staff ("Trial Staff"), Complainants Office of Consumer Advocate ("OCA"), City of Philadelphia ("City"), Philadelphia Area Industrial Energy Users Group ("PAIEUG"), Utility Users Committee/University of Pennsylvania ("UUC/UP"), Pennsylvania Food Merchants Association ("PFMA"), United States General Services Administration ("GSA"), United States Steel Corporation ("USS"), Southeastern Pennsylvania Transportation Authority/Amtrak ("SEPTA/Amtrak"), Consumer Education and Protective Association ("CEPA"), Philadelphia Business Utility Users Group ("PBUUG"), and Intervenor Governor's Energy Council ("GEC").

This case has properly been called the most important regulatory decision in PECO's history, and the Commission's Order in this proceeding will undoubtedly affect the Company's ability to provide reliable service to its customers for many years to come. The issues presented in this case fall into six general categories: (1) the impact of the Commission's decision on shareholders and ratepayers; (2) the prudence of Limerick 1 construction management; (3) the reasonableness of the Limerick 1 construction schedule; (4) the used and useful character of Limerick 1; (5) the proposed 80%/20% ECR; and (6) traditional rate base, revenues, expenses, rate of return, and rate design

issues. A summary of the Company's position and of the errors in opposing parties' positions is set forth below.

A. The Financial Impact And Importance Of The Commission's Decision (Section II)

As set forth in Section II, the Company's proposed rate increase achieves an equitable balance of the interests of PECO ratepayers and shareholders. The proposals of Trial Staff and OCA, however, would result in a substantial cut in PECO's dividend and downgrading of the Company's bonds to below investment grade. This would effectively cut off the Company from the capital markets and prevent PECO from providing reliable service to its customers. Trial Staff finds this evidence "unpersuasive" and OCA asserts that it is "irrelevant." Yet, neither party offers any rebuttal to the Company's detailed financial analyses which demonstrate that Staff's and OCA's proposals would destroy PECO's financial integrity.

Similarly, the alternative phase-in proposals are counterproductive and unreasonable. If adopted, these phase-in plans would: (a) destroy PECO's financial condition; (b) require the recovery of carrying charges on the deferred revenue, thus imposing massive additional rate increases on future ratepayers; and (c) preclude completion of the Company's construction program necessary to provide reliable service to PECO customers. Opposing parties present no rebuttal to the Company's evidence on the financial impact of their proposals.

With respect to the impact on ratepayers, the evidence presented by the Company demonstrates that PECO's proposed rate increase will have a minimal impact on the Philadelphia area economy. In contrast to the City's highly inflated estimates of a decline in new job growth, PECO establishes that when the benefits of Limerick 1 to the Philadelphia area economy are considered, the economic impact of PECO's rate increase is negligible. The Company demonstrates that the model (called "STARLOC") on which the City relies for its results is so seriously flawed that its results are useless as a basis for decisionmaking in this proceeding. The City of Philadelphia's response to the Company's evidence only serves to underscore the weaknesses of STARLOC.

Finally, the various proposals that PECO should be required to guarantee Limerick 1 energy cost savings should be rejected. These proposals are inconsistent with established ratemaking principles and all relevant Commission precedent and are not supported by the evidence in this proceeding.

B. Limerick 1 Construction Management Was Prudent (Section III)

The Company has submitted substantial evidence demonstrating that Limerick 1 construction was managed in a reasonable and prudent fashion and that cost and schedule growth were largely attributable to changing NRC regulatory requirements and other factors beyond the Company's control. Opposing parties

have, for the most part, not challenged this evidence, and therefore it should be accepted.

The record evidence provides no support for the OCA's contention that GE was imprudent in the design of the Mark II containment. GE engaged in a thorough testing and analysis process in developing the Mark II design, which was approved by the Atomic Energy Commission. The alleged "new information" which OCA contends has come to light does nothing to undermine the Commission's prior holding that GE was not imprudent in this regard. Finally, the OCA's Mark II adjustment is in serious error, as it admittedly does not represent the incremental cost which the Advocate acknowledges should be the basis of any Mark II disallowance.

C. Limerick 1 Could Not Have Been Completed And Placed In Service Prior To February 1986 (Section IV)

This Section responds to opposing party assertions regarding the cost and schedule impact of the 1976 and 1978 construction deferral announcements. The Company has presented substantial and largely unrefuted evidence that these decisions had no effect upon the project and that Limerick 1 could not have been completed for commercial operation prior to February 1986. The OCA incorrectly asserts that the Commission, in its final Order in the 1980 Limerick Investigation, found that the delays, as opposed to PECO's decisions to defer construction in 1976 and 1978, were unreasonable and that the Company's financially

constrained condition was an imprudent schedule restraint. The OCA further errs in asserting that the Company's analyses of the effects of the deferral announcements reflect only as-built conditions and are "incredible," and that the Company failed to complete the project sooner because it never intended to achieve such an earlier completion date.

Trial Staff's argument in support of its quantification of the 1976 and 1978 deferral decisions is directly contrary to Pennsylvania law. In assuming an unrealistic and unsupported completion date, Staff completely ignores the necessary start-up and testing period which occurred at Limerick 1, the NRC licensing requirements, and other uncontrollable factors which actually delayed the project. Thus, Staff's quantification lacks the necessary analysis as to when the project actually could have been completed absent the deferral decisions.

D. Limerick 1 Is A Used And Useful Addition To PECO's Electric Generation System (Section V)

This Section establishes that Limerick 1 is presently in service and providing useful and reliable generation to PECO's customers. The Commission has established a two step analysis to determine if a new generating unit is used and useful. First, the Commission determines if excess capacity exists on the system. In determining if there is excess capacity, the Commission ascertains if the utility's total system capacity is greater than the Company's peak demand requirement plus a

reasonable reserve margin relative to the Company's own system and to its PJM obligation. Only if excess capacity is found does the Commission proceed to the second step which is to decide if a rate base adjustment should be made. In this proceeding, the Company has demonstrated that Limerick 1 does not represent excess capacity.

The Company has shown that its calculations of its total system capacity is appropriate. However, various opposing parties argue that PECO's total system capacity should be increased by allocating as part of the system Richmond 9, Southwark 1 and 2, and certain combustion turbines ("CTs"), all of which have been properly retired and removed from PJM dispatching. PECO demonstrates that these units should not be included in its total capacity calculation because: (a) the used and useful standard requires that the system PECO will use while the rates are in effect be the one used to calculate capacity; (b) Richmond 9 and Southwark 1 and 2 are old, inefficient units that had reached the ends of their nominal lives; (c) the CTs had reached the ends of their useful lives, were not part of PECO's long-range capacity plans, and their scheduled retirement had been overseen by the Commission for a number of years; and (d) all of these retirements have been approved by the Commission and carried out by the Company. Accordingly, no claim for rate base treatment is being made for these units in this proceeding. Moreover, these retirements allow PECO to increase its mix of

baseload capacity to a more appropriate level and are consistent with system reliability considerations.

Finally, in view of the impossibility of bringing a large baseload unit into service precisely when every megawatt of its capacity is needed, and the uncertainties inherent in all forecasting projections, excess capacity should not be found if: (a) a significant portion of the new capacity is needed; and (b) all of the new capacity will be needed within a reasonable time. The Company demonstrates that Limerick 1 meets these criteria and is a used and useful addition to PECO's system.

Section V.B. discusses why life cycle cost benefit analyses are not relevant either for a used and useful determination or for making any rate base adjustments in this proceeding. The Company shows the speculative nature of all such analyses, which are based on a wide range of differing assumptions and judgements. Nevertheless, the Company's analysis, which has been shown to utilize more appropriate assumptions than those of the opposing parties, shows net lifetime benefits from Limerick 1 that range between $2.0 and $4.0 billion, depending on the assumptions used.

Section V.C. describes why the "avoided cost" approach suggested by UUC/UP witness Chernick should be rejected as applied to Limerick 1. Such an adjustment would: (a) unfairly place all risks of the Limerick 1 investment on PECO's shareholders, and (b) change the regulatory rules without fair

notice because Limerick 1 was built under a different regulatory standard. Neither this nor any other Commission has adopted an "avoided cost" adjustment for rate treatment of a large, baseload unit.

Section V.D. demonstrates that there should not be an adjustment to the rate treatment of Limerick 1 due to PAIEUG witness Falkenberg's "riskiness" analysis of Limerick 1 construction capital costs and load growth projections made by the Company in the mid to late 1970's. The "riskiness" analysis is shown to contain substantial errors and to be unsupported by the facts known at the time. Indeed, the Company demonstrates that the "riskiness" analysis, when properly performed: (a) projects construction costs lower than what PECO had been projecting in the 1970's, and (b) suggests a load forecasting technique that is no longer used by any reputable forecaster and makes projections far less accurate since 1978 than PECO's state-of-the-art technique.

E. Energy Cost Rate Modification (Section VI)

In accordance with the Commission's October 30, 1985 ECR No. 8 Order, the Company has filed in this rate proceeding a revised Energy Cost Rate in which only 80% of experienced over/under collections are subject to reconciliation. As set forth in Section VI, the Company believes that (1) its proposed cap on gains or losses is necessary and appropriate for the protection of ratepayers and shareholders, (2) Trial Staff's

proposal that the 20% of non-reconciliable costs be established and recovered in base rates would be detrimental to ratepayers and shareholders, (3) GEC's proposed nuclear performance standard is simply an unfair penalty provision which would assure non-recovery of prudent and reasonable energy costs, and (4) OCA's proposal to ignore the record evidence in establishing projected energy costs should be rejected.

F. Development Of PECO's Revenue Requirement (Section VII)

The development of the Company's non-Limerick revenue requirement is consistent with that approved by the Commission in many prior PECO rate proceedings, and, in a number of instances, the Company has taken steps to reduce its revenue requirement to the maximum extent possible. Despite this fact, opposing parties have advanced a variety of adjustments to the Company's proposed rate base, rate of return, revenues, expenses and rate design. As set forth in Section VII, these adjustments are in error and/or have been repeatedly rejected by the Commission in past PECO rate cases. The Company's non-Limerick revenue requirement is reasonable, developed consistently with prior Commission Orders, and should be approved.

II. OPPOSING PARTY RATE PROPOSALS FAIL TO EQUITABLY BALANCE RATEPAYER AND SHAREHOLDER INTERESTS AND SHOULD BE REJECTED.

As explained in detail in the Company's Initial Brief (pp. 2-1 to 2-3), one of the principal tasks facing the Commission in this proceeding is to equitably balance the interests of ratepayers and shareholders in its determination of just and reasonable rates. In order to achieve this balance, PECO has made every effort to reduce its rate request to the maximum extent possible in order to minimize the impact on ratepayers and the economy of PECO's service territory, while at the same time, maintaining the financial integrity necessary to enable the Company to meet its responsibility to provide reliable service to current and future ratepayers. PECO's requested increase, if approved, will permit the Company to maintain its current dividend and its minimum investment grade BBB- bond rating (but will not permit an upgrading to a single A rating), which should allow attraction of the capital required to provide reliable service to customers, while at the same time avoiding any serious economic harm to the economy of the Company's service territory. In contrast, the unrebutted evidence in this proceeding demonstrates that the rate base disallowances and alternative phase-in plans proposed by opposing parties will result in disastrous financial consequences to the Company to the detriment of both PECO ratepayers and shareholders.

A. The Revenue Disallowances Proposed By The Trial Staff And The OCA Would Destroy PECO's Financial Integrity And Should Be Rejected.

As fully explained in the Company's Initial Brief (pp. 2-6 to 2-15), the $132-140 million rate increases proposed by the Staff and OCA would cause irreparable harm to the Company, its ratepayers, and the economy of PECO's service territory for many years to come. Under these proposals, PECO's earnings per share in the 1987-89 period would fall to the $1.49 to $1.63 range, which is 30% below the Company's current dividend of $2.20 per share. In addition, the Company's mortgage bond coverage ratio would fall below the minimum 2.0 times required by the Company's mortgage indenture, thereby preventing the issuance of the first mortgage bonds needed to complete the Company's construction program. SEC coverage, excluding AFUDC, would fall below the minimum 1.5 times required by Standard & Poor's for a BBB bond rating. Cash flow as a percent of total capitalization would fall to 1.0%, also below the minimum BBB level established by S&P.

As a result, both Mr. Paquette and Mr. Sanders testified that the rate proposals advanced by Trial Staff and OCA would result in a substantial cut in PECO's dividend and a downgrading of the Company's bonds to below investment grade. These results would effectively cut off the Company from capital markets and prevent the Company from providing reliable service to its

customers.1/ In short, the Staff and OCA proposals would destroy PECO's financial integrity and its ability to provide reliable and economic service to its customers and therefore should be rejected.

This evidence was unrebutted by any party to this proceeding. Trial Staff finds this evidence unpersuasive (TS Brief, p. 230), and the OCA simply states that such information and evidence is irrelevant and should not be considered by the Commission in establishing just and reasonable rates (OCA Brief, p. I-5). The OCA's argument is inconsistent with prior Commission orders in PECO rate proceedings, other Pennsylvania rate orders, commission orders from other jurisdictions, and all relevant appellate court precedent.

The principle that a utility's financial condition is a necessary element in determining just and reasonable rates was enunciated over sixty years ago by the U.S. Supreme Court in Bluefield Waterworks & Improvement Co. v. Public Service Comm'n, 262 U.S. 679, 693 (1923):

> "Rates which are not sufficient to yield a reasonable return on the value of the

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1/ Moreover, if the proposed amendment to FASB No. 71 is adopted, the Company would be required to write-off the prudency disallowances proposed by the Staff and OCA. These write-offs would reduce earnings per share by up to $5.00 in the year of the write-off and would reduce Company earnings to a negative level. Under such results, the Company would be unable to pay any common or preferred dividends and would be precluded from raising additional capital on reasonable terms to provide service to its customers.

property used at the time it is being used to render the service are unjust, unreasonable, and confiscatory, and their enforcement deprives the public utility of its property in violation of the Fourteenth Amendment. 262 U.S. at 690.

The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties."

In Pennsylvania Electric Co. v. Pa. P.U.C., ___ Pa. ___, 502 A.2d 130, 133-34 (1985), the Pennsylvania Supreme Court recently affirmed this principle in interpreting the U.S. Supreme Court decision in Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591 (1944):

"In short, Hope sets forth a balancing test ... for the determination of 'just and reasonable' rates, to be applied with the aim of protecting consumers ... while seeking to preserve the financial integrity of utility companies.

* * *

The decision in Hope enumerated certain legitimate areas of concern for investors, those being that a company have sufficient revenue to cover operating and capital costs, that the return on equity be commensurate with returns on enterprises having similar risks, and that the company be able to maintain credit and attract capital. These investor interests are appropriate factors to be weighed in the balancing analysis under Hope...."

Prior Commission decisions are in accord with this appellate precedent. In Pa. P.U.C. v. PECO, Docket No. R-811626 (1982),

the Commission expressly considered PECO's financial condition as an important factor in its determinations:

> "While we agree with PECO that a showing of 'financial necessity' does not mean a showing of 'extremis,' financial integrity is viewed generally as a factor to be considered ...." [Order, p. 19]
>
> * * *
>
> "As stated elsewhere in this Opinion and Order we are concerned with the financial integrity of PECO arising out of its peculiar circumstances." [Order, p. 54]

In Pa. P.U.C. v. PECO, Docket No. R-842590 (1985), the Commission stated:

> "Among the factors to be considered in determining a fair return are (1) the earnings which are necessary to assure confidence in the financial integrity of the utility and to maintain its credit standing; (2) the payment of dividends and interest, and (3) the amount of the investment, the size and nature of the utility, its business and financial risks, and the circumstances attending its origin, development and operation." [Order, p. 109]

Accord Pa. P.U.C. v. Metropolitan Edison Co., 55 Pa. P.U.C. 19, 27 (1981) ("[I]t is apparent that our consideration of relative risk weighs more heavily in the case of Metropolitan Edison... due to the relatively poorer financial condition of the company."); Pa. P.U.C. v. Metropolitan Edison Co., 55 Pa. P.U.C. 478, 480 (1982); see also Re Commonwealth Edison Co., 71 PUR4th 81, 103-04 (Ill. Comm. Comm'n 1985); Re Public Service Electric & Gas Co., Docket No. 812-76 (N.J. BPU 1982); Re Long Island Lighting Co., Cases 27774 & 27563, No. 81-9 (1981); Ex Parte Gulf States Utilities Co., 40 PUR4th 593 (La. P.S.C. 1980).

As demonstrated by the above precedent, careful consideration of PECO's financial condition is an appropriate and necessary part of the Commission's determination of just and reasonable rates in this proceeding.

B. Opposing Party Alternative Phase-In Proposals Are Counterproductive To Both Ratepayers And Shareholders And Should Be Rejected.

As explained in the Company's Initial Brief (pp. 2-29 to 2-37, PECO has proposed to phase-in the rate increase requested in this proceeding over a three-year period by deferring billing and collection of a portion of the requested increase. As explained therein, the phase-in plan proposed by the Company achieves a reasonable and proper balance between the interests of ratepayers and shareholders and should be approved. The Company is voluntarily deferring the billing and collection of revenue which it is otherwise lawfully entitled to recover.2/ The Company is foregoing the recovery of all carrying charges on the deferred revenue, which amount to approximately $250 million. The Company's plan will complete the phase-in of the Limerick 1 rate increase at or about the time Limerick 2 is completed and must be reflected in rates. The Company's phase-in program will

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2/ As explained in the Company's Initial Brief (pp. 2-30 to 2-31), once the Commission has made a determination of the just and reasonable rates to which the Company is entitled in this case, the Commission cannot deny PECO the immediate recovery of those rates by the imposition of a phase-in plan which is unacceptable to the Company. U.S. Const., Amends. V and XIV; Pa. Const., Art. 1, §§1 and 9; 66 Pa.C.S. §§501(b), 1301, 1308.

significantly reduce cash flow, but should permit PECO to attract the necessary capital to complete Limerick 2. The Company's phase-in also will avoid any significant impact on the economy of PECO's service territory. The Company's plan meets the requirements of the Exposure Draft of FASB 71, which will allow the Company to record on its current income statements revenue deferred for later collection. Finally, the Company's phase-in plan is consistent with and even more beneficial to ratepayers than plans adopted in other jurisdictions.

By contrast, the alternative phase-in proposals advanced by opposing parties would upset the reasonable balance which the Company's plan achieves. As explained in detail in the Company's Initial Brief (pp. 2-12 to 2-15), these plans would have a gravely negative impact on the Company's financial condition, would require the recovery of carrying charges on the deferred revenue which would impose massive additional rate increases on future ratepayers, and would preclude completion of the Company's construction program necessary to provide reliable service to customers. Thus, these alternative plans not only will deprive the Company of cash flow when it is needed most to complete its construction program (which the Commission has found is required to provide reliable service to customers), but will also result in the imposition of additional rate increases on future ratepayers. These proposals therefore are obviously counterproductive and must be rejected.

1. City of Philadelphia

The City of Philadelphia's proposed 17-year phase-in plan would destroy PECO's financial integrity and is completely unnecessary to protect the economy of the service territory. Therefore, it should be rejected.

a. The City's Phase-In Plan Would Destroy PECO's Financial Integrity.

As explained in the Company's Initial Brief (pp. 2-38 to 2-47), if the Exposure Draft of FASB 71 is adopted and the City of Philadelphia's 17-year phase-in plan is approved, the Company's financial integrity would be destroyed. Indeed, the results under the City's proposal for 1987-89 generally would be worse than those resulting from adoption of the OCA and Trial Staff proposals discussed above.

Nevertheless, the City continues to assert that the Company has presented no evidence that the City's plan would cause any serious financial problems for the Company and claims that the Company can implement the City's phase-in plan without financial difficulty (City Brief, pp. 33-34). There is absolutely no record support for this proposition. The City's own witness presented no data or analysis after 1986 in evaluating the financial impact of his phase-in plan. In contrast, Mr. Paquette presented an extensive and unrebutted analysis of the impact of the City's phase-in plan and demonstrated that it would have a devastating impact on the Company's financial position.

The City asserts that accounting rules such as FASB 71 should not govern Commission action. PECO agrees, but as explained in its Initial Brief (pp. 2-40 to 2-41), the Commission must carefully consider the consequences of ignoring these accounting principles. Specifically, if the Company's phase-in plan does not comply with generally accepted accounting principles, the Company will not be permitted to record on its current income statement revenue deferred for future recovery under the phase-in plan. This result would severely reduce the Company's reported earnings and coverage ratios, would require a cut in PECO's dividend, and would prevent the Company from raising capital at a reasonable cost to provide service to ratepayers.

The City also asserts that the Commission should not be concerned with the FASB 71 Exposure Draft because it is not yet final (City Brief, pp. 28-30). It is true that the Exposure Draft is not final, but it is also clear from all the testimony in this proceeding that an amendment in all likelihood will be adopted which will impose a time limit on phase-in programs. It is a fundamental principle of accounting that an income statement should represent expenses as incurred and revenue as received. While limited exceptions may be appropriate to reflect the effects of regulation, there clearly must be some limitation. If Witness Palast's phase-in plan were in compliance with GAAP, PECO's current income statement would record as revenue dollars

which PECO will not recover until after the turn of the century. Such a result simply does not comport with accepted principles of financial accounting and reporting or common sense and demonstrate that FASB 71 will be amended.3/

Finally, even ignoring the proposed amendment to FASB 71, the impact of the City's phase-in plan would still be devastating. It would result in a permanent loss to the Company of $2 billion as a result of the denial of all carrying charges over the life of the plan. Even within the first five years, the City's plan would require additional borrowings of $1.5 billion to replace lost cash flow and the carrying charges thereon. In these circumstances, the Company would be unable to complete its construction program needed to provide reliable service to its customers and at the same time would impose higher rate increases on future customers. This counterproductive and illogical result should not be adopted.

The City's alternative 10-year plan with no intervening rate increases also should be rejected. As explained in PECO's Initial Brief (pp. 2-46 to 2-47), this proposal is illegal and would prevent PECO from completing its construction program required to provide reliable service to customers.

3/ The City's statement that the Exposure Draft represents "the second proposed amendment" to FASB 71 (City Brief, pp. 29-30) is incorrect. The AICPA issues paper was not a proposed amendment to FASB 71. The issues paper was not prepared by the FASB, but by the American Institute of Certified Public Accountants (PECO St. 16, p. 7).

b. The City's Projection Of Adverse Economic Impact And Loss In Job Growth Is Unvalidated And Grossly Overstated.

The City's position concerning the financial impact of PECO's rate proposal relies on the testimony of Dr. Arie Schinnar, which was based entirely on the results of a computer model known as STARLOC. PECO's Brief presented extensive criticism of Dr. Schinnar's testimony and the STARLOC model in two parts of its Brief (PECO Brief, pp. 2-16 to 28; Appendix A). PECO's criticism was based principally on the testimony of two economists and modeling experts, Dr. William Hogan of Harvard University and Dr. George Schink of Wharton Econometric Forecasting Associates, Inc. (WEFA) (PECO Brief, Appendix A, pp. A-1 to 2). Dr. Hogan and Dr. Schink analyzed the available information and reached two basic conclusions: (a) STARLOC is still in the early stages of development and is unverified, speculative, untested and incapable of validation at this time (PECO Brief, pp. 2-19 to 24; Appendix A, A-1 to 23); and (b) STARLOC contains substantial conceptual flaws and modeling errors that cause it to overstate the economic impact of PECO's proposal by at least a factor of five (PECO Brief, pp. 2-24 to 27; Appendix A, pp. A-23 to 41).

The City's Brief takes basically four approaches: (a) it attacks the credentials of PECO witness Dr. Clemente and simplistically attempts to portray him as PECO's only witness who has studied the potential economic impact of PECO's rate request;

(b) it attempts to respond to some (though not all) of the conceptual flaws and modeling errors identified by Dr. Hogan and Dr. Schink; (c) it attempts to bolster Dr. Schinnar's results by reference to Dr. Perl, Dr. Feldman and others; and (d) it ignores STARLOC's lack of documentation and validation. The City's analysis only serves to highlight many of STARLOC's weaknesses.

(i) The City Highlights The Inadequate Economic Credentials Of City Witness Schinnar And UUC/UP Witness Feldman.

The City's attack on the credentials of Dr. Clemente, to the extent relevant, is equally applicable to Dr. Schinnar and UUC/UP witness Feldman. The City states that "Dr. Clemente admitted that he is not an economist, not an expert in computer modeling, and he's not an expert in the areas of econometrics" (City Brief, p. 21). Although they purport to present economic testimony, neither Dr. Schinnar nor Dr. Feldman has a degree in economics.[4/] Dr. Schinnar received his doctorate in urban and public affairs (City St. 1, Appendix I) from a school that did not even have an economics department at the time (Tr. 3285).

4/ Dr. Schinnar nevertheless refers to himself as an "applied economist" (Tr. 3322). Presumably this means that he attempts to apply economic theory. PECO's experts, Dr. Hogan and Dr. Schink, who are both trained economists and modeling experts, have demonstrated that Dr. Schinnar misapplies economic theory in the STARLOC model (PECO Brief, pp. 2-24 to 27; Appendix A, pp. A-23 to 41).

Dr. Feldman's doctorate is in geography (UUC/UP St. 2, p. 1), and he has admitted that he is not sophisticated in the area of computer modeling (Tr. 3876; PECO Brief, Appendix A, p. A-42). In contrast, Dr. Hogan and Dr. Schink have doctorate degrees in economics and have extensive backgrounds in economics and econometric modeling (PECO Brief, Appendix A, pp. A-1 to 2). To the extent that economic testimony should be evaluated on the basis of economic credentials, Dr. Schinnar's testimony and the STARLOC model should be given no weight.

(ii) The City Highlights STARLOC's Double Counting Of Alternative Economic Effects.

The City describes two effects predicted by STARLOC: (a) "an inflation spiral", and (b) "a drop in demand for PECO electricity" (City Brief, p. 11). The "inflation spiral" is said to result from manufacturers, businesses and institutions being forced to raise their prices significantly in the face of an electric rate increase (Id.). The decline in PECO's demand is said to be the result of customers switching to alternative energy sources and conservation (Id.). These are alternative, not additive effects (PECO Brief, Appendix A, pp. A-30 to 32). PECO's customers may be expected either (a) to pay higher electric prices and pass them on, or (b) to switch to alternatives and not only pay higher prices. To the extent that

STARLOC predicts that both effects occur throughout the economy, it double counts the effects of a electric rate increase.

(iii) The City Projects Job Losses From Speculative Future Rate Increases Not Relevant To This Proceeding.

The City's Brief provides the following explanation as to why a decrease in demand for electricity supposedly leads to losses in job growth: "In order to offset the decrease in demand, PECO would seek to raise rates still further in order to increase revenues" (City Brief, p. 11). It is clear, therefore, that many of the losses in job growth projected by STARLOC are not associated with the rate proposal presently before the Commission, but rather are associated with rate increases that are "projected" to occur at some unknown future time. STARLOC is inaccurate to the extent that it predicts further rate increases during PECO's proposed two-year rate request moratorium. To the extent STARLOC assumes rate increases beyond the next two years, its projections are speculative and not relevant to this proceeding.

(iv) The City Fails To Recognize Significant Factors That Mitigate The Job Loss Effect Of A Rate Increase.

The City criticizes Dr. Hogan's suggestion that employers will reduce wages in response to an electric price increase rather than cut back job growth (City Brief, pp. 16-

17). Dr. Hogan posits a reduction in wages as one of several possible mitigating factors that offset the unrealistic spiraling employment impacts projected by STARLOC (PECO Brief, Appendix A, pp. A-35 to 37). Other possible mitigating factors include the availability of unemployment compensation, welfare, and other government transfer programs, and the use of savings or borrowing (PECO Brief, Appendix A, p. A-36), none of which were addressed in the City's Brief.

The City suggests that "it is most unlikely that labor would accept attempts to satisfy PECO's demand for increased revenues by cutting employee wages and salaries" (City Brief, p. 16). This response is simplistic and demonstrates a lack of understanding of economics. It assumes that labor would rather see workers lose their jobs than accept lower pay. It also assumes nominal pay cuts, which are not the same as a reduction in real wages. STARLOC projects impacts only from real increases in electric rates (i.e. increases above the rate of inflation). Employers can offset the real increase in electric rates by reducing real wages, that is, by raising salaries in nominal terms, but at a rate less than the rate of inflation.

As employers reduce real wages in response to an electric rate increase, this reduction also will lower Philadelphia wages relative to wages in the rest of the country. Dr. Schinnar's own growth submodel projects that a reduction in relative wages will have an offsetting (and perhaps

greater) positive impact in increasing employment (PECO Brief, Appendix A, pp. A-38 to 40). However, Dr. Schinnar assumes constant relative wages in STARLOC (Tr. 3332, 3436, 4637), and thus fails to account for the mitigating factor of a reduction in relative wages. STARLOC, therefore, grossly overestimates the job loss effect of PECO's proposed rate increase.

(v) The City Has Failed To Refute Dr. Hogan's And Dr. Schink's Alternative Projections Of The Maximum Plausible Impact From PECO's Rate Proposal.

The City arbitrarily adds together the employment projections of Dr. Hogan and Dr. Schink (City Brief, pp. 16-18).[5/] These projections, however, are alternative projections of the maximum plausible impact from PECO's proposal and thus should not be added together (PECO Brief, Appendix A, p. A-45). The City also suggests the addition of "important contributing factors" to the projections of Dr. Hogan and Dr. Schink (City Brief, p. 17). All of these "contributing factors" are precisely

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5/ The City also attempts to portray Dr. Clemente as PECO's only witness who has studied economic impact. As much as the City apparently would like to ignore the criticisms of Dr. Hogan and Dr. Schink, and their independent and alternative calculations of the maximum plausible impact of PECO's rate proposal, it cannot do so. Dr. Hogan and Dr. Schink have developed their projections based on Dr. Schinnar's own figures and based on alternative, not additive approaches.

the type of improper economic assumptions that contribute to the unrealistically large impacts projected by STARLOC.

For example, the City finds it "particularly curious" that Dr. Hogan did not project employment effects from conservation and interfuel substitution, because Dr. Schink had testified in a different proceeding that "the effects of energy conservation and interfuel substitution greatly moderate the growth in electricity demand" (City Brief, p. 17). Dr. Hogan's omission is not at all "curious," because the quoted passage does not state that the change in demand for electricity will have any significant effect on employment. The City fails to acknowledge or rebut the testimony of Dr. Schink in this proceeding that the employment effect from conservation and interfuel substitution is minimal and that STARLOC's projections of employment effects from this factor are "absurd" (PECO Brief, Appendix A, pp. A-32 to 35).6/

6/ The other "important contributing factors" cited by the City are "PECO's direct impact on cost of doing business," "secondary inflation economy wide" and the employment multiplier (City Brief, p. 17). Dr. Hogan and Dr. Schink, however,already have established that the first two effects are alternative and should not be added together (PECO Brief, Appendix A, pp. A-30 to 32). In addition, Dr. Hogan has demonstrated that the employment multiplier is exaggerated because it fails to account for mitigating effects and that the exaggerated multiplier is compounded by a "job spiral effect" that causes the expenditures of entire households to drop out of the economy whenever a single job is lost (Id., pp. A-35 to 37). This is equivalent to assuming that every worker in Philadelphia lives outside of the Philadelphia MSA!

(vi) The City Improperly Manipulates The Testimony Of Dr. Perl.

The City seeks to bolster Dr. Schinnar's unverifiable and erroneous results by manipulating the testimony presented by PECO witness Dr. Perl in an entirely unrelated proceeding (City Brief, pp 18-19). Dr. Perl himself has testified that his model was designed for the entire Commonwealth of Pennsylvania and cannot simplistically be extrapolated to the Philadelphia metropolitan area with its different economic relationships (PECO Brief, pp. 2-27 to 28; Appendix A, pp. A-45 to 48). Instead of heeding Dr. Perl's caution, the City developed its own calculation by making arbitrary and unjustifiable changes in Dr. Perl's approach in order to manipulate the results to approximate those projected by STARLOC (Id.). The methodology ostensibly developed "in accordance with Dr. Perl's testimony in this case" (City Brief, p. 19) bears little resemblance to Dr. Perl's analysis (PECO Brief, pp 2-27 to 28; Appendix A, pp. A-45 to 48) and, therefore, should be rejected.7/

7/ It is worthy of note that neither the City nor any other party chose to cross-examine Dr. Perl in this proceeding on his Lukens model. Instead of attempting to understand and apply the Lukens model on the basis of the testimony of the model's builder, the City chose to ignore Dr. Perl entirely and make arbitrary and unjustifiable changes to his methodology that assume the results it is attempting to predict.

(vii) The Public Input Hearings Do Not Support STARLOC's Unverifiable And Erroneous Results.

The City seeks to bolster Dr. Schinnar's unverifiable and erroneous conclusions by reference to evidence from the public input hearings (City Brief, pp. 25-26). This evidence is largely anecdotal and thus does not support the magnitude of the implausible results projected by STARLOC. In addition, many concerned citizens testified in favor of PECO's rate proposal, citing the belief that the presence of Limerick 1 would: (a) strengthen the economy by creating jobs (Public Input Hearing, Jan. 23, 1986, Tr. 74; Feb. 3, 1986, Tr. 6, 85-86, 94-95, 136-137, 144; Feb. 4, 1986 (P.M.) Tr. 61); (b) ensure reliable long term service that would attract industry to the area (Public Input Hearing, Feb. 3, 1986, Tr. 85, 91, 136-137, 141); and (c) insulate the economy from the uncertainties of foreign energy sources (Public Input Hearing, Jan. 23, 1986, Tr. 19-20; Feb. 3, 1986, Tr. 42, 62, 79, 99, 136; Feb. 4, 1986, (A.M.) Tr. 39-42 (P.M.) Tr. 82).

Some witnesses also expressly refuted claims offered by the City in its Brief, including witnesses who noted that college tuitions have risen in every year despite the relative absence of electric rate increases (Public Input Hearing, Feb. 4, 1986, Tr. 70). This testimony is consistent with the testimony of PECO witnesses Dr. Hogan, Dr. Schink and Dr. Clemente that the rate increase associated with the commercial operation of Limerick 1

is by no means inconsistent with a strong and growing economy (PECO Brief, Appendix A, pp. A-43 to 50).



(viii) The Economic Projections Of Dr. Anita Summers Do Not Support The Overstated Results Of STARLOC.

The UUC/UP attempts to validate the testimony of Dr. Schinnar and Dr. Feldman by referring to the economic projections of Dr. Anita Summers (UUC/UP Brief, p. 76). Both Dr. Schinnar (City St. 1, p. 6) and Dr. Feldman (UUC/UP St. 2, p. 4) referred to Dr. Summers' work in their testimony, and Dr. Feldman went so far as to state that the "empirical foundations" of his testimony are based upon Dr. Summers' work (UUC/UP St. 2A, p. 4). Dr. Summers, however, has reached an entirely different conclusion from Dr. Schinnar or Dr. Feldman concerning the economic impact of an electric rate increase. During the Limerick Unit No. 2 Investigation, Docket No. I-840381, Dr. Summers testified as follows:

> "During my cross-examination I stated that I did not specifically consider the impact of prospective electricity price increases on employment in preparing my testimony. I stated, however, that 'most of the studies that have been done on the relationship between energy costs and employment suggest that it is a small influence.' As [CEPA Witness] Dr. Rodberg pointed out in his cross-examination:
>
> > 'It is very difficult to extract from the overall employment change in a region the effect of a factor such as change in electric rates, and to my knowledge, no one anywhere succeeded in doing that kind of disaggregation' .... I don't think anybody could claim, that you could look at the actual employment change in a region and see the

effect ... 'the change in energy prices because there are so many other things going on in an economy that affects the level of employment, movement of industry, people, et cetera.'"

(PECO St. 3B, pp. 8-9; PECO Ex. 27; Tr. 3385-86, 3873-74).

(ix) The City Ignores STARLOC's Lack Of Documentation And Validation.

The City takes the interesting tack of defending its failure to document STARLOC in either an adequate or timely manner (PECO Brief, Appendix A, p. A-4 to 23) by ridiculing PECO's attempts to obtain proper documentation from the City (City Brief, pp. 45-46). Thus, the City states that PECO's claim that there is insufficient documentation or information about STARLOC is "untrue" and a "false" claim (Id., p. 45). Suffice it to say that it is incredible that such accusations would be put forth by a party that: (a) supplied as the sole basis for validating STARLOC a draft Technical Report, which is the first in a series of reports on STARLOC, none of which has been finally issued; (b) presented none of the intermediate calculations requested by PECO that are essential for validating the model; and (c) supplied "voluminous" workpapers (which had been in existence for months) just before the close of the record in this proceeding, so that such workpapers could not be evaluated or used to validate STARLOC. Indeed, much of the evidence supporting the inadequate validation of STARLOC comes directly

from Dr. Schinnar's testimony (see, e.g., PECO Brief, Appendix A, pp. A-3 to 23).

When added to the clear errors that exist in STARLOC, which grossly inflate its results, it is clear that neither STARLOC's results, nor the testimonies of Dr. Schinnar, Mr. Palast or Dr. Feldman relying on those results, should be given any weight or credence in this proceeding.

(x) STARLOC's Design Renders It Of Little Practical Relevance In Supporting The City's Phase-in Proposal.

Even if one were to accept STARLOC's results notwithstanding its lack of validation and its clear flaws and errors, STARLOC is only relevant to the extent that the applicable rate increase is significantly greater than the rate of inflation. However, it does not take a significant change in PECO's nominal rate increase to completely nullify STARLOC's results. For example, PECO Exhibit 29 provides the result of two STARLOC runs made by the Company's experts during their brief access to STARLOC in Dr. Schinnar's offices. These runs are from the "static" program, which projected the loss in employment growth over three years of 19,000 jobs (Tr. 3398).

The first run was performed using the following assumptions: a 5% inflation rate, a 3 year phase-in, and a total rate increase of 18.4% (Id.). The 18.4% increase reflects an adjustment for the geographic areas not within PECO's service

territory[8] and an adjustment that assumes that PECO is permitted a return on only 50% of common plant. The result of this run is a loss in job growth of only 4,196 jobs over three years (PECO Ex. 29). Moreover, when the inflation assumption was changed from 5% to 6% in the second run,[9] the projected employment impact is actually reversed, and STARLOC predicts an employment gain of 1,129 jobs (see PECO Ex. 29; Tr. 3399). Even if its errors and its lack of validation are ignored, therefore, STARLOC's results still have little practical relevance in supporting the City's phase-in program.

2. GEC Phase-In Plan

GEC Witness Wilson proposed a 10-year phase-in plan with recovery of carrying charges and use of sinking fund depreciation. However, review of GEC's Brief makes it unclear whether GEC supports Witness Wilson's phase-in. Witness Wilson's phase-in and his analysis of its financial impact were premised on the Company's receiving its full requested increase. However, in its Brief, GEC concurs with a number of revenue disallowances

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8/ Any nominal increase that is used in STARLOC must be reduced by 20% to reflect the fact that STARLOC assumes that the rate increase applies to geographical areas not within PECO's service territory (PECO Brief, Appendix A, pp. A-25 to 26).

9/ The 6% inflation figure has been used in this proceeding as the inflation rate for 1988 (and beyond) by, inter alia PECO (see PECO St. 15A, p. 46), Mr. Chernick (UUC/UP St.1, Table 4.8 and 4.10) and Mr. Komanoff (OCA St. 6, Ex. CK-4 and Ck-5).

proposed by other parties and does not specifically endorse Witness Wilson's phase-in plan. Rather, GEC simply describes the various phase-in plans and urges the Commission to adopt a phase-in plan to avoid economic harm to PECO's service territory. Thus, it is unclear to the Company what GEC is proposing in this case.

To the extent that Witness Wilson's phase-in plan is considered, it should be rejected because of its negative impact on the Company's financial condition and on its ability to complete its construction program, the massive additional rate increases it would impose on future ratepayers, and the financial risks imposed by the use of sinking fund depreciation. Specifically, Witness Wilson's proposal would result in a cumulative reduction in the Company's cash flow of $900 million through 1991, thus depriving the Company of needed cash flow during a critical construction period. At the same time, the recovery of carrying charges, as proposed under Witness Wilson's phase-in, would require the Company to raise future rates by an additional $345 million over and above that required under the Company's plan. Thus, there are no winners, only losers under Witness Wilson's plan.

The lack of merit and problems in Witness Wilson's sinking fund depreciation proposal are fully discussed in the Company's Initial Brief (pp. 2-51 to 2-53). As set forth therein, the sinking fund depreciation method proposed by Witness

Wilson is unprecedented for investor-owned electric utilities, creates a substantial risk of non-recovery of investment, increases the revenue requirement associated with Limerick by over $6 billion over its life, and is not in accordance with generally accepted accounting principles. The straight-line depreciation method proposed by PECO produces the lowest total revenue requirement to ratepayers, is consistent with all relevant precedent, and therefore should be approved.10/

3. PAIEUG Phase-In Plan

PAIEUG's six-year phase-in plan and sinking fund depreciation would have a similar financial impact on PECO as GEC's plan and should be rejected for the reasons set forth above.

PAIEUG's proposed use of a six-year average Limerick 1 revenue requirement also should be rejected because it is fundamentally inconsistent with established ratemaking principles. PAIEUG appears to assume that rates in this proceeding are being established for a six-year period. This is simply not the case. The Company's rates are free to move up and down apart from the phase-in plan over the next six years. It simply makes no sense to use a six-year Limerick 1 revenue

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10/ As explained in PECO's Initial Brief (pp. 2-51 to 2-53), the GEC's sinking fund depreciation proposal is substantially different from the modified sinking fund method adopted by Pennsylvania Power & Light Company for Susquehanna 1 and 2.

requirement when a six-year analysis is not being used for any other component of the Company's revenue requirement.

PAIEUG itself cites several cases in which the Commission has rejected attrition adjustments for items occurring outside the test year which are not known and measurable. As fully explained in the Company's Initial Brief (pp. 2-54 to 2-56) and as PAIEUG Witness Falkenberg admitted on cross-examination (Tr. 3458), the Limerick 1 revenue requirement over the next six years is not known and measurable, and therefore PAIEUG's proposal should be rejected in accordance with the cases cited in its own brief.

Moreover, PAIEUG's assertion that the decline in Limerick 1 revenue requirements is the major factor affecting PECO's future rates is simply wrong. Even ignoring any increases in Limerick 1 capital additions and operating and maintenance expenses beyond that currently projected, the decline in revenue requirement associated with Limerick 1 and 100% of common plant over the six-year period would only be $143 million or $29 million per year. Even with modest increases in inflation and marginal increases in total plant, the Company's revenue requirement on a projected basis will substantially exceed and offset any revenue reductions associated with Limerick 1. There is therefore no factual or conceptual basis for PAIEUG's argument.

4. PECO's Phase-Out Proposal Is Reasonable And Should Be Approved.

Under PECO's phase-in plan, revenue deferred during the first two years will be collected in years four, five, and six by application of an Unrecovered Revenue Rider. The rider will be designed to recover deferred revenue over a three-year period, but recovery will be precisely tracked to avoid any over or under collection to the detriment of ratepayers or shareholders.

Several opposing parties assert that the Company is improperly seeking to guarantee recovery of deferred revenue. This is not the case. The amount of revenue deferred is not guaranteed, rather it will vary with sales levels during the first two years rates are in effect. The amount deferred will be the amount the Company would have actually collected had there been no phase-in. The Company does propose to collect the precise amount deferred to avoid any harm to ratepayers or shareholders. This proposal is consistent with existing ratemaking principles employed in the energy cost rate and gas cost rate. Moreover, as explained in the Company's Initial Brief (pp. 2-45 to 2-46, n. 8), given the anticipated increases in sales during the phase-out period, it is more likely that the deferred revenue will be recovered in less than three years than more than three years. Therefore, the Company's proposal to precisely track recovery of deferred revenues will, in all likelihood, operate to the substantial benefit of ratepayers and should be approved.

C. The Limerick 1 Energy Savings Guarantee Proposals Advanced By Opposing Parties Should Be Rejected.

Several parties have proposed that the Company be required to either guarantee a 65% capacity factor or $207 million in energy savings (first year savings -- $155 million; second year savings -- $262 million (Tr. 390)) for Limerick 1. These proposals should be rejected. In their briefs, opposing parties note the uncertainties associated with the Limerick 1 water supply and state that this condition makes Limerick 1 like Salem 2 where the Commission required PECO to guarantee energy savings for that unit. These arguments are in error for several reasons and should be rejected.

First, the Commission did not require PECO to guarantee Salem 2 energy savings. Rather, the Company volunteered to do so. This Commission has never mandated or required an energy savings guarantee proposal and should not do so in this proceeding. Moreover, the Salem 2 energy savings guarantee was for a 14-month period only, while opposing parties have proposed long-term guarantees for Limerick 1.

Second, any uncertainties associated with the Limerick 1 water supply have been significantly reduced. Since the record closed in this case, the DRBC has granted PECO permission to employ a dissolved-oxygen standard rather than a temperature standard with respect to water drawn from the Schuylkill River

during the summer months. (The Philadelphia Inquirer, p. B-11, April 3, 1986).

Third, the water supply uncertainties at Limerick are not like the problems at Salem 2. As a result of a generator failure, Salem 2 did not operate at all during the last three months of the test year and was not expected to operate for the first three months after the end of the test year. In addition, the Commission was concerned with the prior poor operating performance of Salem 2, specifically, its 7% capacity factor in 1983 and continued performance problems in 1984. As the Commission stated (Docket No. R-842590, Order, p. 49):

> "As a result of generator problems, Salem 2 has been out of service since October 4, 1984. Based on a similar problem, Salem 1 was out of service from February 1984 through October 15, 1984. Salem 2 was also shut down from July 5, 1984 to August 7, 1984. Salem 2 operated at a 73.2% capacity factor in 1981, 81.2% in 1982, 7.7% in 1983, and will have a capacity factor of approximately 33.1% for 1984. Although the company expects Salem 2 to be generating electric service by April 1, 1984, the history of outages at either Salem 1 or 2 indicates restart projections are difficult to meet."

By contrast, no such concern exists for Limerick which has operated at a 98% capacity factor during its first two months of commercial operation. And, even under worst conditions, Limerick 1 would only be out of service for a short period of time during the summer months. In summary, there is simply no comparison between Salem 2 and Limerick 1 and thus no basis for an energy savings guarantee in this case.

Finally, if an energy savings guarantee were to be adopted in this proceeding, it should not be based on a dollar level of energy savings but should relate to the operation of Limerick 1. Energy costs are dependent on a wide variety of factors which are unrelated to the operation of a particular unit and which are beyond the Company's control (PECO Brief, p. 2-64, n. 13). Moreover, the Company's original $207 million energy savings projection was based on conditions at the time this case was filed and is no longer current. The Company has presented revised energy calculations in PECO Exhibits JJC-1, 2, and 3. If a dollar guarantee were adopted, it should reflect the most recent figures.

In addition, as explained in PECO's Initial Brief (p. 2-61), it is inappropriate to establish a capacity factor for a single generating unit because of the impact of refueling outages and other factors on a single unit's performance in any one year. If a performance standard is to be adopted, it should include a number of units over a several year period to account for normal variation in individual unit operation from year to year.

III. LIMERICK 1 CONSTRUCTION MANAGEMENT WAS PRUDENT

Extensive evidence has been submitted which demonstrates that the Company's management of all phases of the Limerick project was reasonable and prudent. This evidence was presented by senior Company officials who were directly involved in managing and constructing the project, and was independently verified by experts in the areas of project management and nuclear regulation. In addition, the Company has submitted detailed evidence describing the cost and schedule effect of new and revised NRC regulatory requirements and other uncontrollable factors. This evidence demonstrates that despite the significant difficulties encountered in constructing Limerick, the Company responded in an effective manner and constructed a plant which is reasonable in both total cost and schedule duration. The Company's evidence regarding construction management is set forth in detail in its Initial Brief (pp. 3-1 to 3-46 and Appendices B & C), has not been challenged by any party to this proceeding with the exception of the Mark II issue discussed below, and, therefore, should be accepted.

A. The Advocate Misstates The Facts In Its Mark II Argument.

OCA proposes to reduce the Company's rate base claim by $194.1 million to reflect the alleged imprudence of General Electric ("GE") in the design of the Limerick Mark II containment. As explained in detail in the Company's Initial

Brief (pp. 3-46 to 3-75), this adjustment is without merit.

GE engaged in a thorough testing and analysis program to verify the adequacy of the pressure suppression containment design. No hydrodynamic phenomena were discovered during that program which either the AEC, GE or the technical community believed would have design significance. Also, what little evidence of hydrodynamic phenomena was observed was the result of causes which were not the same or similar to the hydrodynamic phenomena investigated in the mid-1970s (PECO Brief, pp. 3-51 to 3-63). Moreover, such limited phenomena were only observed during early tests which, because of their small size, atypical configuration of the test facility, use of steady state steam flow and other features, were not accurate simulations of expected plant operating and accident conditions. During later tests, performed at the request of the AEC and employing certain test parameters which it had specified, and which were accurate and comprehensive simulations of expected plant operating and accident conditions, no such effects were observed. Moreover, all significant test data was reported to the AEC and the technical community who concurred in GE's conclusion that no hydrodynamic forces of significance had been identified. Clearly, there can be no conclusion of GE error upon the basis of this evidentiary record.

This lack of "GE error" is also conclusively demonstrated by the extreme difficulty encountered by GE, the NRC

and all of the BWR owners in characterizing these hydrodynamic forces between 1975 and 1982. The sheer complexity of the long, iterative process necessary to fully understand the nature of these hydrodynamic forces has been expressly acknowledged by OCA Witness Hanauer (PECO Brief, pp. 3-64 to 3-66). Also, OCA's allegation that GE was imprudent because the "existence" if not the "significance" of these loads was apparent at an earlier time is directly contrary to the Commission's holding in Pa. P.U.C. v. Pennsylvania Power & Light Co., Docket No. R-822169 (Aug. 22, 1983). There the PUC held that the Mark II loads were not "discoverable at an earlier point in time," because "the problem was not in identifying the loads, but determining the impact of the loads on the plant and how to design for the impact." (Order, p. 23) (emphasis supplied).

OCA erroneously contends that PECO's description of the Mark II problem somehow "changed during the course of the rate case" (OCA Brief, pp. III-94 to III-95). In doing so, OCA performs a semantical exercise and misrepresents Dr. Levy's testimony by attempting to distinguish between the "existence" of the hydrodynamic loads and their "significance" (OCA Brief, p. III-95). In fact, the record reveals that the Company consistently maintained the same position stated in its Initial Brief (pp. 3-60 to 3-61) i.e., that the hydrodynamic phenomena observed by GE and federal regulators during the early pressure suppression containment tests were not the same or similar to the

hydrodynamic effects investigated in the mid-1970s. This position was stated in the PECO direct testimony cited by the Advocate (PECO St. 8, p. 143; PECO Ex. 2, p. 8), and was reiterated in the rebuttal and surrebuttal testimony of Drs. Levy and Mattson (PECO St. 34A, pp. 2-4; PECO St. 9A, p. 14).

The Advocate attempts to distinguish the clear precedent of the PP&L case by alleging that "extensive new information has become available regarding what GE actually knew in the 1950s and 1960s" (OCA Brief, p. III-105). This alleged "new information" is a report on the Condensing Tank Facility ("CTF") tests in 1958-1959 and a report on the small scale Mark III test in 1969-1970 (OCA Brief, pp. III-96 to III-102). However, these test results do nothing to call into question the Commission's determination that GE was not imprudent in the Mark II design. As pointed out in the Company's Brief (pp. 3-52 to 3-63; See also Tr. 4988-4997, 5002-5014), the hydrodynamic effects which occurred at the CTF were considered insignificant due to the small size and atypical configuration of the test facility and the extreme operating conditions under which the tests were conducted. The later Humboldt Bay and Bodega Bay tests - which the AEC relied upon in its approval of the pressure suppression containment design and the later Mark I and Mark II designs - were conducted at facilities and under conditions which accurately simulated actual containment design, and exhibited no similar hydrodynamic effects.

OCA's reliance on the Mark III test results is equally unfounded. As described in PECO's Brief (p. 3-60), these tests were conducted in small-scale facilities and employed horizontal discharge vents unlike the vertical vents in the Mark II design. For this reason, the test results were reasonably considered inapplicable to the Mark II design (See also PECO St. 34a, pp. 7-8; PECO Exhibit SL-1, IR-OCA-28-38 through 42; Tr. 4988-4997).

OCA asserts that the CTF test results and the Mark III test results warranted further analysis by GE (OCA Brief pp. III-97 to III-101). However, the potential for hydrodynamic loads was reanalyzed after both of these tests. As described in PECO's Brief (p. 3-54 to 3-58), after the CTF test, the ACRS required further analysis of the pressure suppression containment. These tests were performed at Pacific Gas & Electric's Moss Landing Power Plant, in test facilities and under conditions which more nearly matched actual plant design and operation than the CTF tests. Further, in the case of the small scale Mark III test, Drs. Levy and Mattson have explained that increased scale tests were carried out after observation of the hydrodynamic effects (PECO St. 34A, pp. 7-8; PECO St. 9A, p. 12).1/

1/ The Advocate quotes Dr. Levy completely out of context to the effect that few pressure suppression tests were performed between the Humboldt Bay/Bodega Bay tests and the 1969 Mark III tests (OCA Brief, p. III-101). Examination of the true context of Dr. Levy's comment reveals that further testing in this intervening period was reasonably deemed (continued)

OCA further alleges that GE imprudently failed to investigate the potential for SRV loads in the 1950s and 1960s (OCA Brief, pp. III-97 to III-102). The Advocate seriously misconstrues Dr. Levy's testimony in charging that GE "hypothesized the loads away" during this period (OCA Brief, pp. III-97 to III-98). As explained in the Company's Brief (pp. 3-61 to 3-64), any potential SRV loads were originally considered by GE, federal regulators and the technical community to be fully addressed by the existing design. In fact, Dr. Levy clearly states in the passage quoted by OCA (p. III-98 to III-99) that the containment was designed for the break of the largest primary system pipe, which would produce considerably larger and higher flow rates than any SRV opening. Also, operating procedures at U.S. plants precluded temperatures in the suppression pool from rising to anywhere near the level which had been shown to be needed to cause SRV hydrodynamic loads. Finally, "rams-head" devices employed in U.S. nuclear plants greatly diminished the possibility of SRV load problems. For all of these reasons, SRV discharges were not considered a matter deserving significant concern by GE or federal regulators until the mid-1970s. At this time, the NRC concluded after surveying operating procedures at BWR plants that existing precautions were insufficient to provide adequate assurance of safety. The NRC's increased attention to SRV as well as LOCA loads arose after a lengthy period of growing

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unnecessary (Tr. 5011-5012).

stringency in NRC regulatory requirements and of increases in the standard of what was perceived as adequate assurance of containment design safety (PECO Brief, pp. 3-63 to 3-65).

OCA also asserts that federal regulators played no role in the development of the pressure suppression containment and the Mark II design. As discussed in the Company's Brief (pp. 3-53 to 3-63), this is simply untrue. The AEC and the ACRS were fully apprised of the results of the GE early tests. In fact, representatives of the AEC and ACRS were present at some of these tests and sometimes specified additional parameters which were to be tested. Moreover, Dr. Mattson has identified ACRS meetings during this period at which these early tests and the minor hydrodynamic effects being observed was specifically discussed and dismissed as being of no concern. In fact, on the basis of these early tests, 16 utilities received AEC approval for the licensing of Mark I containments and 8 utilities received AEC approval for Mark II containments (PECO Brief, pp. 3-56 to 3-57).

OCA quotes Dr. Hanauer that, due to AEC staffing problems, the AEC probably did not review the "thousands of drawings and calculations which underlie these drawings" when approving the Mark I design (OCA Brief, pp. III-104 to III-105). The Advocate appears to suggest that the AEC failed to perform its statutory responsibility of assuring adequate safety of nuclear facilities simply because of "staffing problems." This is a misstatement of Dr. Hanauer's testimony. In fact, Dr.

Hanauer in testimony immediately following that quoted by OCA acknowledges that "there was a technical review of the basis, both theoretical and test basis, for these [containment designs] and they were accepted" and "[the AEC] reviews were conducted that were believed to be adequate and approvals were given." (Tr. 2769-2770).

Finally, OCA's $194.1 million Mark II adjustment is seriously overstated, as explained in PECO's Brief (pp. 3-69 to 3-75). OCA Witness Hanauer admits that only the incremental costs, i.e. those costs which would not have been incurred if the original Mark II design had incorporated the hydrodynamic loads, can be disallowed. OCA does not contest the fact that its direct cost disallowance figure is the Company's quantification of all Mark II direct costs, including those non-incremental costs which would have been necessary even if the loads had been fully incorporated into the original Mark II design. The Company, on the other hand, performed a careful analysis of whether each item in the Mark II portion of the Cost Reconciliation constituted an incremental or non-incremental cost, and calculated that of the $194.1 million total Mark II cost $55 million was the incremental cost of the Mark II problem.

OCA's only support for its admittedly inaccurate disallowance figure is the lame contention by OCA Witness O'Brien that the hypothetical Mark II costs at the now-cancelled Zimmer Plant would have been much higher (OCA Brief, p. III-106), and

therefore its figure is "conservative". This is clear error. As discussed in the Company's Brief (pp. 3-73 to 3-74), Mr. O'Brien has admitted that much of his calculated Mark II cost at Zimmer is comprised of a schedule delay adjustment. OCA does not dispute that Limerick had no schedule delay associated with the Mark II problem. In addition, Zimmer is a "lead plant", which Dr. Hanauer admits would have faced expensive, additional rework.

OCA also presents several minor criticisms of Mr. Volmer's Mark II incremental cost quantification, all of which are without merit (PECO Brief, pp. 3-71 to 3-73). These criticisms are fully refuted in PECO's Initial Brief. As part of this discussion, OCA criticizes the incremental cost quantification's allocation of expenditures between Unit 1 and Unit 2. However, PECO Witness Vollmer has fully explained that the incremental cost properly accounts for the fact that Unit 2 will not require as much rework as Unit 1. A 50-50 split of costs between the two units was made only in those cases where careful analysis revealed that the associated rework applied equally to both units (PECO St. 31A, pp. 7-9).

IV. LIMERICK 1 COULD NOT HAVE BEEN COMPLETED AND PLACED IN SERVICE PRIOR TO FEBRUARY 1986

A. The Proper Meaning Of The 1980 Limerick Investigation Order.

The OCA has taken the position that the "issue to be resolved in this case is the effect of the 1976 and 1978 delays on the cost of Limerick 1 and Common Facilities" (OCA Brief, p. III-6). It asserts that the Commission has found "delays" and not "decisions" to be imprudent. The OCA further asserts that the impact of financial constraints upon the schedule was rejected as a reasonable basis for delay in the 1980 Investigation and therefore cannot be considered in quantifying the costs associated with delay (OCA Brief, pp. III-2 to III-6). These OCA positions reflect an erroneous interpretation of the Commission's Order in the 1980 Investigation and a misunderstanding of the scope of this proceeding.

In contrast, the Trial Staff correctly asserts that only the decisions to defer construction were examined by the Commission and found to be imprudent (TS Brief, p. 115). Moreover, the Trial Staff correctly states that the quantification of delays, if any, resulting from these decisions was specifically reserved until this proceeding (TS Brief, pp. 116-118).

It is well-established that a determination of prudence is based upon an examination of circumstances and information available at the time certain decisions or judgments were made.

See, e.g., Pittsburgh v. Pa. P.U.C., 370 Pa. 305, 319, 88 A.2d 59 (1952); National Fuel Gas Distribution Corp. v. Pa. P.U.C., 76 Pa. Cmwlth. 102, 464 A.2d 546, 559 (1983); Pa. P.U.C. v. PECO, Energy Cost Rate No. 8, Docket No. M-840375 et al., Order, pp. 9-10 (October 30, 1985). It is the decision or judgment that is found to be imprudent, not the results of that decision or judgment (Id.). Once a particular decision or judgment is found to be imprudent, then the costs or injury (i.e. the results) associated with that imprudence can be quantified. A fundamental element of the quantification process, which is completely separate and distinct from the imprudency finding, is the determination of whether the imprudent conduct was the real and proximate cause of injury or additional costs. See e.g., Metropolitan Edison Co. v. Pa. P.U.C., 62 Pa. Cmwlth. 460, 437 A.2d 76, 80 (1981); Pa. P.U.C. v. PECO, Energy Cost Rate No. 8, supra, Order at pp. 9-10.

Based on its review of both the Commission's Order and the ALJ's Recommended Decision in the 1980 Limerick Investigation and of the Commission's January 17, 1986 Order in this proceeding and that of the ALJ issued March 10, 1986, as well as consideration of the principles of prudence as described above, PECO believes that the position of the OCA is in error. Although their use of language is not entirely consistent, in each of the Orders described above, the Commission and the ALJ's have referenced "decisions" or "actions" as being unreasonable or

imprudent, as is required under the legal standards of prudency. (See Re Limerick Generating Station Investigation, 56 Pa. P.U.C. 47, 56-58, 60-61 48 PUR 4th 190 (1982); 1980 Investigation Recommended Decision, pp. 46, 53-55; Commission's January 17, 1986 Order, pp. 4, 10 and 11; ALJ's Interim Ruling, Tr. 1374-1375; ALJ's March 10, 1986 Order, pp. 6-7). A schedule delay is, if one exists, a result of a decision and is not itself properly considered to be prudent or imprudent.

PECO agrees with Prosecutory Staff that the Commission issued no decision respecting quantification, including whether the decisions which it characterized as unreasonable had caused any delay or cost increase. As the Commission stated:

> "We note at the outset of our discussion, that to adopt any proposed adjustment or calculations presented to us, at this time, would be inappropriate. The record presented is inadequate to accurately guage the costs of delay. Nor is the issue ripe for decision. Only when the plants are complete and the attendant cost claimed will the costs of delay be susceptible to accurate assessment. Accordingly, we shall not attempt to quantify the costs of the various delays at this time.
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> Considering the foregoing, we are of the opinion that PECO management did not exercise judgment sufficient to meet our reasonable man standard in delaying construction at Limerick in 1976 and 1978. Having so found, we are requested by Staff and the OCA to quantify the cost of delay to ratepayers. We are of the opinion that to do so at this time is inappropriate. We have not been presented, in this proceeding, with a claim for recovery of any of the osts associated with the cosntruction of the plants. Consequently, we

> can make no adjustment to any claim. Further, should PECO sell all or part of the Limerick plant or its capacity to other utilities, the deduction of all or part of the costs of delay from PECO's claim, if any, would be materially affected. We therefore find it unnecessary to quantify, at this time and in this proceeding, the costs associated with the 1976 and 1978 delays." 56 Pa. P.U.C. at 58, 61.

Further, and in reliance upon the Commission's express reservation of the quantification issue, it is clear that the OCA errs in its asserton that matters "reviewed by the Commission in reaching its decision in the Limerick Investigation are not properly subject to reargument here" (OCA Brief, p. III-2). Obviously, having expressly reserved a major portion of the case presented to it for future investigation and decision, i.e. the quantification issue, the Commission cannot be concluded to have decided all matters as to which evidence or argument was presented to it.

Finally, the OCA errs in its assertion that the Commission rejected in its 1980 Limerick Investigation Order that financial constraints could be a non-imprudent, externally imposed cause of delay (OCA Brief, pp. III-5 to III-6). In PECO's opinion, the basis of the Commission's unreasonableness determination, with which PECO strenuously disagrees, is contained in the following statement:

> "The ALJ has found that the 1976 postponement was 'made without careful analysis of the impact of such delay on ratepayers' and that '[c]ustomers should not be expected to pay for delay which results [from] a conscious management decision to protect its own interests without adequate weight

being given to its ratepayers' interest.' To the ALJ's finding of imprudence PECO has excepted, arguing that the Initial Decision fails to provide an assessment of the relative economic benefits and detriments to ratepayers and shareholders of earlier versus later plant completion, in addition to disregarding the evidence of PECO's precarious financial condition during the 1974-80 period and evidence that the reduced load growth permitted delaying completion of Limerick without threatening service reliability." 56 Pa. P.U.C. at 60.

Additional discussion of these concerns are extensively presented in the ALJ's Recommended Decision (at pp. 50-55).1/ Also, in subsequent paragraphs, the Commission rejects PECO's financial condition, reduced load growth and ratepayer cost/benefit conditions as a basis for finding PECO's decisions to announce completion deferrals reasonable. However, in none of its language does it suggest that it considers financial constraint not to be an externally imposed cause of project extensions to be evaluated as part of the quantification process. Indeed, both the Commission and the ALJ in the 1980 Limerick Investigation clearly concluded that financial constraint was a cause of Project schedule extensions independent of the 1976 and 1978

1/ Indeed, the ALJ notes that:

> "PECO's decision in the Spring of 1976 to delay Limerick for another two years might well have been reasonable, had it been based on a thorough evaluation of economic consequences, not only to it but to its ratepayers."

deferral announcements. See 56 Pa. P.U.C. at 60-61; 1980 Investigation ALJ Recommended Decision, pp. 51 & 55.[2/]

B. PECO Sought To Construct Limerick As Expeditiously As Possible Within The Constraints Imposed By Changing NRC Licensing And Design Requirements And Its Precarious Financial Condition.

The OCA and Staff repeatedly assert that the Company did not complete Limerick 1 sooner because it made a conscious decision in announcing the 1976 and 1978 deferrals not to achieve such an accelerated schedule (OCA Brief, pp. II-43, III-54 to III-55). This is incorrect. The Company continuously attempted to complete construction of Limerick 1 as expeditiously as possible, and it was only because of the severe impact of changing NRC regulatory requirements and the Company's precarious financial position during the 1970s that an accelerated completion schedule could not be achieved.

As explained in detail in the Company's Initial Brief (pp. 4-68 to 4-72), PECO's financial condition during the 1970s was extremely poor. A comparison of the Company's financial indicators during this period demonstrates that PECO's financial condition was worse than both the utility industry in general as

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2/ The OCA incorrectly asserts that the Commission held that PECO was able to finance Limerick construction as originally planned (OCA Brief, p. III-5). The ALJ in the 1980 Investigation specifically noted that the Company and Trial Staff disagreed on this matter, but neither he nor the Commission resolved the issue (Recommended Decision, pp. 38-45).

well as other utilities which deferred construction on nuclear projects (PECO Brief, pp. 4-70 to 4-71). Apart from these financial indicators, there was also substantial uncertainty surrounding the Company's financial position (PECO Brief, p. 4-71).

PECO conducted an analysis examining the ramifications of significant increases in its actual capital acquisition levels. From Forecast 2, which estimated Limerick 1's commercial operation date to be April 1982, the Company conservatively calculated (based on PECO Exhibit 2) that regulatory and other externally imposed changes, as well as general design changes, accounted for approximately $1 billion in increased plant costs. Had the Company attempted to raise these funds to support an April 1982 service date, substantial rate relief would have been required to protect its mortgage and SEC coverage ratios from falling below indenture levels (PECO St. 3, p. 47). Given the difficulty PECO actually experienced in obtaining rate relief, Mr. Paquette concluded that (PECO St. 3, p. 47):

> "... it is clear that we could not have obtained the additional revenues. Thus, I believe we would have been forced to curtail our construction program by the financial markets if we had not done so ourselves." (Also see PECO St. 3, pp. 25-28).

Despite the Company's precarious financial condition, a number of steps were taken in an attempt to obtain additional funding to permit advanced completion of Limerick 1, including the use of available, non-traditional financing vehicles and

requests for additional rate relief (PECO St. 3, p. 29-31). Also, as explained by Mr. Boyer, the Company continually sought to complete the project as quickly as possible by developing construction schedules and plans which sought to: "(1) minimize funding requirements in the earlier years of construction as required by financial constraints; and (2) retain the option of accelerated completion of the project as compared to the announced completion dates in the event additional funding became available" (PECO St. 1, p. 15).

Specifically, the Company continually reviewed the actual cash flows required to complete the plant prior to 1982 against the construction budgets to determine whether additional funding was required and, if so, whether it could be obtained (PECO St. 1, pp. 17-19). For example, during the period from 1975 through May 1976 the Company continually reviewed the financial requirements for maintaining an October 1980 fuel load date (PECO St. 1, p. 17). Similarly, from 1976 through 1979, the Company monitored the project's cash flow requirements needed to meet an October 1982 construction completion (PECO St. 1, pp. 18-19). Finally, as a result of new and revised regulatory requirements, reduced labor productivity and manpower unavailability, the Company recognized in June 1980 that a 1982 completion could not be achieved (PECO St. 1, p. 19).

Available funding was applied in order to maximize overall schedule progress and projected completion dates were

deferred only after every effort was made to meet the earlier completion date (PECO St. 1, p. 16). For example, PECO continued engineering and design activities despite the reductions in construction funding in order to maintain engineering sufficiently ahead of construction to ensure that when full construction activities resumed, the impact of the funding reductions would be minimized (PECO St. 8, p. 230). The Company also directed available cash resources to critical plant activities required to maintain overall schedule progress during the cash constrained period and postponed many of the non-critical expenditures (i.e. such as cooling tower construction) until later in the project (PECO St. 8, p. 231).

As Mr. Boyer further explained, actual funding was applied to the project during the period 1978 through 1980 at a level which was believed to be sufficient to permit construction completion in October 1982 (PECO St. 3, p. 36; PECO St. 1, pp. 17-21). Indeed, in March 1979, special funding was requested and obtained from the Board of Directors to maintain construction on the 1982 completion schedule (PECO Brief, pp. 4-75 to 4-76).

The OCA also asserts that the Company reduced actual construction expenditures below those levels initially budgeted during the late 1970s (OCA Brief, pp. III-40 to III-41). This is incorrect. As explained by Mr. Paquette, actual capital expenditure reductions during that time period were made only in non-Limerick projects (PECO St. 3, p. 47). Indeed, during the

1975-1981 period, actual Limerick expenditures totalled $1.2 billion, which exceeded the $1.0 billion originally budgeted in Forecast 1 (PECO St. 3, p. 47 & Table 17). Although the Company actually expended more than it had initially budgeted during this period, this additional funding was not sufficient to overcome such unanticipated difficulties as changing NRC requirements, manpower unavailability and reduced productivity (PECO St. 3, pp. 47-48). Thus, accelerated completion could not be achieved.

The Company also employed construction target schedules that were always earlier, during the mid to late 1970s, than the publicly announced schedules, so as to place pressure on project personnel to maximize construction progress, and to maintain an active effort at overall schedule acceleration (PECO Brief, pp. 4-74 to 4-75). The OCA is incorrect in asserting that because the later publicly announced schedules were known to project workers, the earlier internal construction schedules were "just facades" (OCA Brief, pp. III-54 to III-55). As explained by Mr. Boyer, the project was at all times managed by the construction target schedules (PECO St. 1C, pp. 5-6):

> "Construction target schedules which were earlier than announced completion dates were employed precisely so that work would not expand to fill the available time. The Company never '...announced that it did not intend for the targets to be met...' as Mr. O'Brien contends. In fact, contrary to Mr. O'Brien's assertion, everyone involved in the Limerick project -- engineering, craft labor, subcontractors, supervision, and management -- worked diligently towards these target schedules until extraneous factors compelled

their abandonment. As it became apparent that a target schedule could not be met, the to-go scope of the project was reevaluated and a somewhat later target schedule was developed. In this manner, target schedules actually forced all activities to proceed on a best possible efforts basis. As a result of working to these construction target schedules, the project was in fact kept on schedule for a 10/82 fuel load as late as June 1979. It was not until late-1979 and early-1980 that post TMI requirements and other late regulatory changes drastically impacted project schedule and forced delay. Thus, the project continued to support an earlier target schedule from 1976 through most of 1979, even though delays were publicly-announced." (See also Tr. 5042-5043).

That the Company continuously attempted to complete Limerick 1 construction prior to 1983 was further confirmed by TB&A in its independent assessment of the reasonableness of project management, as follows (PECO St. 8, pp. 230, 231-232):

> "TB&A found that PECO and Bechtel took a number of important steps to ameliorate the effects of ... budget constraints on schedule progress .... TB&A concluded that PECO and Bechtel handled construction-related cash constraints in an appropriate and reasonable manner. When faced with cash constraints, PECO appropriately curtailed construction outlays while maintaining the engineering budget, thereby permitting engineering progress to continue ahead of construction. Moreover, PECO selectively maintained funding at appropriate levels for those activities deemed necessary to maintain overall schedule progress. By doing so, PECO Management correctly reasoned that, should financial conditions improve and funding for construction increase, the internal working schedules could be maintained and the more aggressive fuel load dates met. TB&A found that PECO Construction Management took reasonable management actions as a result of the financial constraints placed upon them,

> including the maintenance of critical path items and renegotiation of subcontracts that were non-essential to the project's critical path." (emphasis added)

The Company's use of internal construction schedules which were earlier than publicly announced completion dates as a means to expedite project construction was recognized during the 1980 Limerick Investigation. See Re Limerick Generating Station Investigation, supra, 56 Pa. P.U.C. at 57-58. Indeed, both the ALJ and the Commission noted that the Company sought to construct the plant to the earlier internal schedules, including the provision of necessary funding. As expressed by the ALJ (Recommended Decision, pp. 44-45):

> "In May 1978 PECO announced a decision to schedule Units I and II from 1983-85 to 1985-87. PECO Witness Mr. Paquette testified that PECO did not in fact change the critical path of the construction schedule from 1978 through 1980, and that in those years PECO authorized and spent the additional dollars to maintain the 1983-85 service dates in the event that it became desirable to complete the units earlier than 1985-1987 (PECO Statement No. 9, p. 12; Tr. 495). The record shows, however, that PECO reduced its direct expenditures from 1978-1980 from the budgeted amount of $529 million to $479 million (OCA Exh. 23, Tr. 7). PECO explains, however, that it funded all major construction activities required to maintain the earlier completion dates, but not activities of lesser importance (PECO R.B., p. 96, fn. 7). (emphasis added)

As stated by the Commission (56 Pa. P.U.C. at 57-58):

> "PECO, however, maintained its options with regard to its construction timetable due to the fact that escalating oil costs made it appear that completion of Limerick at an early date might be advantageous to customers, even

if the capacity was not required, since the fuel cost savings resulting from Limerick's operations would more than offset the carrying costs of the plant (PECO Stmt. No. 9, p. 14)."

Despite the Company's continuous efforts to complete the project in 1982 or earlier, many uncontrollable factors combined to preclude such completion. As Mr. Boyar explained in his initial direct testimony filed in this proceeding (PECO St. 1, pp. 21-23):

"Q. Mr. Boyer, at several places in your testimony, you have stated that funding levels were requested to permit earlier than publicly announced Limerick completion (i.e. 1976-1980). In retrospect, with the knowledge that you have gained by completing the construction of the plant, were these funding levels sufficient to permit plant completion upon the proposed dates?

A. No, they were not. Our judgments respecting the cash required for plant completion were based upon our understanding of the Project scope in those years. As I have explained above, and as is explained in greater detail by Mr. Kemper and Mr. Clarey, the Project's scope as we understood it in 1976 to 1980 turned out to be greatly underestimated. Because of new and changed NRC design requirements, the Mark II containment new loads problem, reduced labor effectiveness as compared to our estimates due principally to increased congestion and enhanced QA/QC requirements attributable to new or revised NRC requirements, labor unavailability and other factors, the funding levels provided would not have permitted Project completion by the earlier target dates. Indeed, even as late as 1980, we did not fully appreciate the scope of work required on the Project. Substantially greater work has

been performed in the last four years of Project construction than we anticipated would be the case in 1980 when the October 1984 fuel load schedule was adopted.

....

Q. Mr. Boyer, could the Company have completed Limerick 1 and Common Plant any earlier than it did?

A. Obviously, that is a very hypothetical question. My answer is that no, given the circumstances that we faced and the resources that we had available, we could not have completed the plant earlier than we in fact did. As explained by Mr. Paquette, during the early years of the Project the amount of money which we could spend had to be restricted. Moreover, the amount of money which we needed grew substantially because of the NRC-imposed changes in the plant, further exacerbating our cash constraint problems. As described in PECO Exhibit 2, a number of those changes were imposed very late in the Project, in 1980 to as loate as 1983. For instance, new NRC requirements resulting from the TMI accident in March of 1979 were issued through May of 1983. Compliance with these requirements delayed engineering completion until mid-1983. Consequently related construction activities could not be completed until mid-1984. Another example of these late-imposed regulatory changes is the NRC's fire protection requirements. Although some of these requirements were imposed in 1975-1976 following the Brown's Ferry fire, the major fire protection regulations such as Appendix R were not issued until 1981. Engineering for these regulatory changes was not completed until mid-1984, while construction of additions and modifications could not be completed until September 1984.

> Because of these and other late additions to work scope as a result of NRC requirements, substantial rescheduling had to be done and inefficiencies were generated in startup and system completion activities. In light of all of these factors, many of whcih are more thoroughly described in other testimony, and including the licensing delay I describe below, I do not believe that we could have significantly shortened the Project's duration."3/

The Company responded to these difficulties in a reasonable manner through the development of and active participation in comprehensive cost, schedule and labor management control systems. The reasonableness of these control systems was confirmed by TB&A and has not been challenged in this proceeding (PECO Brief, pp. 3-12 to 3-21). The OCA has offered no specific analyses in support of its position other than the

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3/ As the ALJ stated in the 1980 Limerick Investigation (Recommended Decision, p. 46):

> "In 1980 PECO abandoned its option of maintaining the earlier 1983/1985 completion dates. This was made necessary when it became obvious that manpower availability and labor productivity in the installation of bulk commodities such as conduit and pipe were not meeting the target values. The manhours necessary to install the seismic design of pipe hangers and restraints turned out to be greater than estimated, and interferences introduced by these hangers to duct work and cable trays also required additional manhours to resolve. In addition, the NRC action items resulting from Three Mile Island were issued, adding additional manhours of job effort (PECO Statement 1B, p. 7)."

unsupported assertion that Limerick 1 was delayed because of a conscious management decision by the Company. This argument is clearly in error and must, therefore, be rejected.

Finally, OCA contends, quoting its witness O'Brien, that supervisors and craft workers performed at a slower work pace as the result of their knowledge of the announced completion deferral dates (OCA Brief, pp. III-54 to III-55). If this were true, then unit rates at the plant, the most widely accepted measure of worker productivity on nuclear construction projects, should be less than at other plants (PECO St. 8, pp. 235-237). However, as shown by Mr. Clarey, this is not the case. Mr. Clarey presented an analysis which demonstrates that Limerick unit rates were better than or equal to the average for 9 out of the 11 major commodities for which data was obtained (PECO St. 4, pp. 40-43 & Schedules 3 and 4). In addition, a similar comparison presented by TB&A revealed that Limerick achieved better unit rates than Susquehanna for 8 out of the 12 commodities contained in the comparison (PECO St. 8, pp. 240-240a). These comparisons demonstrate that labor productivity at Limerick was generally equal to or better than average and therefore construction activities clearly were not permitted to proceed more slowly because of the publicly announced schedules.

C. Mr. Hill's Delay Cost Quantification Analysis Is Not Flawed; OCA and Trial Staff Criticisms Should Be Rejected.

Trial Staff and OCA challenge the correctness of the methodology and results of the delay cost quantification analysis performed by Mr. Hill and Dr. Perl (See PECO Brief, pp. 4-165 to 4-170). These parties also assert that PECO's analyses are inconsistent with its testimony presented in prior proceedings and that certain specific assumptions appearing in these analyses are in error.

The OCA asserts that its delay cost quantification adjustment is based on a regulatory policy need not to allow PECO to "escape the brunt of an excess capacity adjustment which could have applied" in 1984 and 1985 had Limerick 1 been placed in service in November 1983 (OCA St. 7, p. 20; OCA Brief, p. III-10). However, OCA's proposed disallowance of Limerick 1 costs in this proceeding was not quantified through an excess capacity analysis, but rather on grounds of imprudence, and would grossly overstate any defensible excess capacity adjustment.

Moreover, as this Commission has repeatedly held, the burden of prudent excess capacity, if any can be found, should be shared between ratepayers and the utility. See, e.g., Pa. P.U.C. v. Pennsylvania Power Co., 52 Pa. P.U.C. 459, 27 PUR4th 426 (1978); Pa. P.U.C. v. PECO, 54 Pa. P.U.C. 220, 37 PUR4th 381 (1980), aff'd, 61 Pa. Cmwlth. 325, 433 A.2d 620 (1981). The OCA's computations assume no such sharing as this Commission has

held is appropriate, but rather proposes that PECO shareholders must bear the entire burden of what OCA now seeks to characterize as an alternative excess capacity adjustment. Clearly, the OCA's Limerick disallowance adjustment must stand or fall on the basis of whether it properly quantifies PECO decisions or actions which have been properly found to be imprudent. As discussed in PECO's Initial Brief, it fails this test (PECO Brief, Section IV).

OCA and Trial Staff also criticize certain specific aspects of the Company's delay cost quantification analyses. These criticisms fall into three main categories: (1) allegations that the Commission has previously rejected the results of Mr. Hill's delay cost quantification, (2) the assertion that PECO's delay cost quantification analysis is flawed because it is inconsistent with earlier Company delay cost studies, and (3) contentions that the Company's analyses incorporate unreasonable assumptions.

In its Brief, the Trial Staff asserts that "in view of the Commission's prior rejection of a similar [economic benefit] argument in the Limerick 1 Investigation, the Presiding Officer could reject this claim out of hand" (TS Brief, p. 203). The OCA also asserts that the Commission has already rejected the findings of PECO's delay cost quantification analysis (OCA Brief, p. III-69). However, in the Limerick 1 Investigation, the Commission arguably decided only the reasonableness of the Company's delay announcements and was not concerned at that time

with quantification. In that context, the Commission was not required to decide the appropriateness of alternative cost quantification analyses. Moreover, the Company's ratepayer cost benefit arguments in that case were presented for the first time in its Exceptions to the Recommended Decision, were therefore not considered by the ALJ, and were without benefit of evidentiary support. As concepts supporting the reasonableness of the Company's 1976 and 1978 deferral announcements, they were found unpersuasive by the Commission. That finding, however, does not support their rejection when presented on quantification issues and as fully demonstrated with record evidence.

Both the OCA and Trial Staff assert that Mr. Hill's and Dr. Perl's analyses presented in this proceeding are inconsistent with prior similar analyses presented by the Company (TS Brief, p. 184; OCA Brief, pp. III-69 to III-73). These attacks on the "credibility" of the Company's delay cost quantification analyses are without merit. The alleged inconsistencies are simply the result of comparing "apples and oranges" and are driven by the application of a pre-determined conclusion: the assumption that delay in completion of a generating unit must always result in increased net costs to ratepayers.

The intervenors assert that alleged delay in nuclear generating unit completion will always result in net cost increases to ratepayers because of increased AFUDC accruals on the delayed investment and because of delayed receipt of the

benefits of low nuclear operating costs. This presumption, however, assumes that these are the only factors resulting from a nuclear unit delay that could affect ratepayers. This presumption is wrong, as Trial Staff has agreed (Tr. 4707); other factors resulting from delay also affect ratepayers. Several of these factors, at times, can mitigate and even overcome the increased capital costs and lost fuel savings which result from nuclear unit delay.

As established by the Company's evidence in this proceeding, there are at least four economic factors concerning delay, in addition to the two delay costs discussed above, which affect the net economic impact of delay felt by ratepayers:

1. The time value of money to PECO and its customers;
2. Differences in capital costs resulting from the timing of the replacement of Limerick 1;
3. Differences in fuel savings and non-fuel other costs incurred resulting from the timing of the replacement of Limerick 1;
4. Differential costs of capital between alternative construction and in-service schedules.

(PECO Brief, p. 4-160 to 4-161). Several of these factors can result in benefits to ratepayers that offset other costs of delay. The overall interaction of these impacts and their net result can vary with the particular set of circumstances in which the delay occurred (PECO Brief, p. 4-163). As explicitly recognized by Dr. Perl, the results of any individual delay analysis are "very specific" to the factual situation prevailing

at the time at which the delay cost analysis is made (PECO St. 11, p. 26).[4/] Therefore, analyses of delays which vary in the facts of their situations will vary in their net impacts on ratepayers, both in direction (i.e. net cost or net benefit) and in degree (i.e. the level of net cost or net benefit).

Consequently, analyses of delays performed assuming different time periods of delay decisions and different projected cost levels will legitimately and necessarily vary in their estimate of net economic impacts of delay. OCA and Trial Staff fail to note such differences which exist between the Company's present and prior analyses. For example, in the Limerick 1 Investigation, Dr. Perl assessed the incremental impact on the "savings from construction" of delaying the two Limerick units from completion dates of 1985 and 1987 to dates of 1987 and 1989 (OCA Ex. 44) (emphasis added). In the present proceeding, Dr. Perl has assessed the total net impact on ratepayers, as expected at the times that the Company's 1976 and 1978 deferral announcements were made, of two separate, one-year delays in the operation date of Limerick 1 (PECO St. 11, p. 24). Therefore, significant differences exist between the two studies in both the questions they were designed to address and in the economic and

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4/ Dr. Perl discusses specifically such time-specific factors as interest rates, discount rates, capacity deficiency charges, and current and expected future fuel price projections and generating mix/fuel consumptions as affecting the net outcome of delay analyses.

other assumptions and projections appropriate during the time period studied.

Similarly, OCA implies that the Company is inconsistent because Mr. Boyer has presented testimony concerning Limerick delay costs which presents an allegedly different result from the Company's testimony presented in this proceeding (OCA Brief, p. III-69). Mr. Boyer's prior analyses, however, were confined to near-term capital cost impacts of plant delays or both near-term capital and operating costs impacts of plant delays. These studies neglect to consider the time value of money to the Company and to its ratepayers, a factor which both Mr. Hill and Staff Witness Rosenthal testified should be considered (PECO St. 18D, p. 29; TS St. RAR-2, p. 7). The additional cited study of Mr. Boyer's failed to properly consider the end-of-period impacts on ratepayers due to the differences in the timing of Limerick 1's replacement unit, which both Mr. Hill and Staff Witness Rosenthal explained was a methodological error (PECO St. 18D, p. 25; Tr. 4707). Only Mr. Hill's and Dr. Perl's delay cost quantification analyses proffered in this proceeding properly consider these impacts (PECO Brief, pp. 4-166 to 4-167).

Moreover, if PECO is guilty of inconsistency in the performance of its analyses, then so are Trial Staff and OCA. Neither of the delay cost quantification analyses presented by Trial Staff or OCA incorporates the time value of money to PECO or its ratepayers through the use of present worth techniques

(PECO Brief, pp. 4-161 to 4-162). As shown by Mr. Hill, this failure alone causes significant overstatement of the estimated cost of delay (PECO Brief, p. 4-162). However, in prior proceedings involving PECO, both the OCA and Trial Staff have recognized that PECO's ratepayers do attach a time value to money. This is clearly demonstrated in their submissions in the Company's 1981 rate proceeding at Docket No. R-811626 concerning Limerick CIWP. Curiously, OCA and Staff excerpted Dr. Perl's testimony in this proceeding as demonstration of his inconsistency, but failed entirely to note their own positions (See OCA Ex. 45). In their Briefs in that proceeding, both OCA and Trial Staff agreed that decisions that affect the timing over which ratepayers bear real capital costs must be assessed in terms of present values:

> "No rational economic evaluation of the costs and benefits of CWIP can be conducted without the use of present value analysis."
>
> * * *
>
> "Ratepayers do attach a time value to their money and that preference must be respected."

(OCA Brief, Docket No. R-811626, March 2, 1982, pp. 26-27).

> "CWIP costs ratepayers more than AFUDC on a present value basis."

(Staff Brief, Docket No. R-811626, March 3, 1982, p. 11).

Therefore, both OCA and Trial Staff, who have refused to use present value analysis in their delay cost quantification studies proffered in this proceeding, have clearly deemed this to

be an important consideration in ratepayer impacts in previous proceedings. This demonstrates OCA and Trial Staff's concurrence in the need to consider the time value of money to determine the real net economic impact on ratepayers of differently-timed generating alternatives. Therefore, the OCA and Staff analyses, which inconsistently fail to consider the time value of money and end-of-period effects, should be rejected as incomplete bases for a determination of the costs associated with any imprudent delay of Limerick 1.

Both OCA and Trial Staff also assert that the Company's delay cost quantification analyses in this proceeding, which found that PECO's ratepayers have incurred no net cost due to the alleged delay of Limerick 1, reach these results because they rely on unreasonable assumptions (OCA Brief, p. III-73 and III-74; Staff Brief, pp. 195-196, 200).

Both OCA and Staff criticize the Company's delay cost quantification analyses for including the operating and capital cost benefits of delaying the in-service date of the coal unit which will replace Limerick 1 (OCA Brief, pp. III-75 to III-76; TS Brief, p. 196). Both parties assert that these benefits are speculative or difficult to quantify accurately. However, both OCA and Staff are inconsistent in this respect. As previously noted, Staff witness Rosenthal testified upon cross-examination that such end-of-period effects should be considered in a delay cost quantification analysis (Tr. 4707). And, as Staff has also

noted, present worth analysis properly discounts the value of these benefits, reducing their real impact on ratepayers to reflect their time value of money (TS Brief, p. 198). OCA fails to note that its own witness, Mr. Komanoff, includes consideration of events happening over a 39-year horizon in his analysis of the net economic impact of Limerick 1 completion (OCA St. 6, Ex. CK-3, p. 1 of 6). Furthermore, Mr. Komanoff, in conflict with the Chernick criticism relied upon by OCA, used a 9.7% discount rate to determine the net present value of his estimated life cycle costs and benefits, as the Company has used in both its life cycle cost/benefit and delay cost/benefit quantifications (OCA St. 6, Ex. CK-3, p. 1 of 6; PECO Brief, Appendix D, p. D-56; PECO Brief, p. 4-166).

OCA and Staff also both criticized the consideration of financing cost impacts which appeared in PECO's delay cost quantification analysis. Both take issue with Mr. Hill's conclusion that accelerated construction of Limerick 1 to meet the OCA's postulated November 1983 commercial operation date would have resulted in increased financing requirements, and that delay benefited PECO's ratepayers because it allowed them to avoid these financing impacts (PECO Brief, pp. 4-167 to 4-168). OCA asserts that "PECO would have been able to reorder its financing priorities" and fund Limerick 1 construction without incurring additional capital requirements or costs (OCA Brief, p. III-7). In contrast, Staff asserts that PECO could have funded

the accelerated Limerick 1 construction either without incurring any additional capital costs or incurring lower additional capital costs than estimated by Mr. Hill (OCA Brief, pp. 206, 214).

OCA asserts that Mr. Paquette's analysis of PECO's construction financing requirements, upon which Mr. Hill relied, was "unrealistic" because it assumed that accelerated construction of Limerick 1 would have been financed in addition to "other concurrent actual financing." OCA asserts that PECO could have reordered its financing priorities "had it really desired to complete Limerick on a timely schedule" (OCA Brief, p. III-76). These OCA assertions are themselves unrealistic and not supported by evidence or analysis.

OCA asserted that Mr. Paquette's analysis maintained four actual aspects of PECO's operating or construction budgets or priorities, which OCA implies could have been changed by PECO to allow funding of accelerated Limerick 1 construction without additional financing costs:

1) Limerick 2 would be constructed and completed 2 years after Limerick 1;

2) PECO would retain 100% ownership of both Limerick units;

3) PECO would retain ownership of Salem 2;

4) Wage increases, numbers of employees, and other non-Limerick construction expenditures would be maintained.

(OCA Brief, p. III-76).

OCA criticized Mr. Paquette as "unrealistic" for not changing these actual 1975-1985 period conditions in his financing cost analysis; OCA also calls these actual conditions "hypothetical assumptions" (OCA Brief, p. III-77). OCA's first assertion, that the Limerick 2 schedule was geared to completion two years after completion of the accelerated Limerick 1, is factually incorrect. As Mr. Paquette testified, his analysis did not accelerate the construction of Limerick 2; rather, its schedule was maintained at its current target and not accelerated (Tr. 4863).

Moreover, OCA has not established that its proposed changes to PECO's budgets or capacity plans are feasible. In contrast, Mr. Paquette has testified that the Company maintained these capacity plans because:

> "Throughout the whole period, our studies continued to show that not only was Limerick 1 needed [to meet customer load and to provide economic baseload generation], but that Limerick 2 was needed fully, and that Salem 2 was also needed to come back to our system at the end of the contract with Jersey Central."

(Tr. 4864). In addition, OCA has neither considered any costs that might attach to its proposed alternative actions (such as additional purchases of economy energy or PJM capacity deficiency charges) nor demonstrated to what extent, if at all, its proposed actions would have achieved benefits. Therefore, OCA's criticisms of Mr. Paquette's financing requirement analysis are without merit and constitute pure speculation.

Mr. Hill calculated that, to attract sufficient capital to fund accelerated Limerick 1 construction without suffering higher per unit costs of capital or the inability to raise required capital, the Company would have required significant additional revenues from its customers during 1975 to 1983 (PECO Brief, pp. 4-167 to 4-168). Mr. Hill measured these additional revenues by assuming sufficient additional revenue receipt in each year during the period to maintain the Company's mortgage indenture coverage (Id., p. 4-168). Mr. Hill found that delay, which avoided receipt of these additional revenues from ratepayers, provided a $339 million benefit of delay to the Company's ratepayers.

Staff argues that PECO would not have been allowed these additional revenues from ratepayers over the 1975 to 1983 period, since Mr. Paquette's hypothetical financing plan would not have increased PECO's rate base, O & M expenses, cost of capital or "any other ratemaking element" which might have been the basis for larger revenue requirements allowances in rate cases during that period (TS Brief, p. 206). Staff's position is clearly untenable. Increased financing costs would have had an impact on PECO's already strained financial condition during that period: costs of capital would have increased, financial ratios would have worsened, or revenues would have had to have been increased. If the Commission had preferred the accelerated construction of Limerick 1, it would have had the discretionary

ability to maintain the financial position of PECO and its stockholders by approving increased revenues for the Company.

Staff next asserts that alternative bank financing would have been available to PECO and would have provided required financing at lower cost than calculated by PECO (Id.). Staff bases this conclusion on unsupported analysis appearing for the first time in its Brief and on the misinterpretation of Mr. Paquette's testimony.

Staff interprets Mr. Paquette's testimony as stating that (1) PECO could have used revolving credit financing and (2) that such financing could have been obtained at no additional cost. Both of these interpretations are in error.

Mr. Paquette clearly explained the purpose of PECO's lines of credit, which was to be used "only under extreme emergency conditions such as ... unavailability of the capital market or inability of the Company to issue normal securities." (Tr. 4859-60). This restricted purpose was recognized by the Commission in its Orders approving these lines of credit. The Commission Securities Certificate stated: "This issuance will not be in lieu of conventional securities offerings, but will be used only when access to conventional capital markets is not available on acceptable terms." (Tr. 4860). This was also common practice in the utility industry. As Mr. Paquette explained (Tr. 4860-61): "My recollection of what other utilities were doing at that time, throughout the whole 70s and

until the early 80s, was that almost all utilities had some form of backup lines of credit for financial flexibility and to provide emergency capital."

Mr. Paquette also explained that, if the Company had had a revolving line of credit available throughout the 1970s, the interest rate would have been higher than that on unsecured debt or mortgage bonds and thus would have required substantial rate increases to maintain the Company's financial integrity (Tr. 4862). Staff's Table 1 (TS Brief, p. 213) is invalid since it replaces bonds with bank debt, rather than recognizing that the additional cost of the bank debt was totally additional to PECO's non-accelerated financing program. The additional costs to be considered are total costs of the bank debt, not merely its additional cost over the cost of bonds.

D. The OCA's Argument Asserting That Limerick 1 Could Have Been Completed by July 1982 Is Wholly Flawed And Should Be Rejected.

The OCA asserts that the critical path schedule analysis presented by Mr. O'Brien demonstrates that Limerick 1 construction could have been completed by July 1982 if the Company had not decided to defer construction in 1976 and 1978 (OCA Brief, pp. III-21 to III-29). However, as explained in detail in the Company's Initial Brief (pp. 4-110 to 4-136), Mr. O'Brien's schedule analysis is seriously flawed and must be rejected.

The principal error in Mr. O'Brien's schedule analysis is his complete reliance on a 1974 construction schedule which was prepared prior to when significant unanticipated regulatory requirements were imposed upon the project. Mr. O'Brien compounds this error by failing to apply fundamental scheduling techniques, i.e. resource loading, in order to properly adjust that schedule to reflect certain as-built conditions that could not have been avoided even if the deferral announcements had never occurred (PECO Brief, pp. 4-113 to 4-116). As a result, Mr. O'Brien's analysis fails to reflect the following necessary items: (1) the additional commodities which had to be added after 1974 as a result of changing regulatory requirements and other factors; (2) maximum sustainable manpower density limitations and reasonable second shifting assumptions which would limit the amount of manpower that could be used in critical plant areas; (3) as-built conditions up to June 1976 or immediately prior to the 1976 deferral announcement; (4) as-built logic and durations for post-June 1976 construction and start-up activities which could not have been avoided or completed sooner; (5) cash requirements that are consistent with the requirements of a July 1982 schedule; and (6) unrestrained cash requirements foreseen by Company management as required to complete the project by 1982 or sooner.

The OCA asserts that changing NRC regulatory requirements would not have precluded receipt of an operating

license in July 1982 (OCA Brief, pp. III-26 to III-27). However, this OCA position is based solely on the speculation of OCA witness Hanauer that these requirements could have been resolved in some undefined manner in order to permit an earlier licensing, and is not supported by any detailed Limerick-specific analysis whatsoever. As described in its Initial Brief (pp. 4-23 to 4-51), the Company has submitted several detailed analyses of the schedule impact of changing regulatory requirements which affected the Limerick project, principally during its latter stages. These analyses demonstrate that due to the high population density surrounding the Limerick site and the highly contested licensing proceeding, the implementation of several major requirements and review of certain analyses (i.e. the PRA) could not have been accelerated or deferred in order to receive a low power license prior to October 1984 (PECO Brief, pp. 4-38 to 4-51).

It should be emphasized that OCA Witnesses Hanauer and O'Brien each have a substantial lack of expertise in the areas of nuclear power plant engineering, construction and licensing (PECO Brief, pp. 4-109 to 4-110, 4-143). In contrast, and as described in detail in the Company's Initial Brief (pp. 3-11 to 3-18, 3-24 to 3-25, 3-42, 3-51), PECO witnesses presenting testimony in these areas have had extensive experience in directly managing the construction and licensing of Limerick and other nuclear facilities. Also, Company witnesses have presented analyses

which are much more thoroughly documented and supported by Limerick-specific factual detail than those submitted by the OCA (PECO Brief, pp. 4-23 to 4-68).

Also, OCA witnesses have admitted or not contested numerous errors in their analyses. For example, OCA Witness O'Brien has not contested the fact that his schedule analysis fails to properly treat the containment drywell and wetwell as separate activities or reflect reasonable second shifting assumptions (PECO Brief, pp. 4-58 to 4-61). Similarly, OCA Witness Hanauer acknowledged that numerous nuclear units, although virtually completed, were not permitted to begin operation because of significant licensing delays, despite his prior testimony to the contrary (PECO Brief, pp. 4-100 to 4-101).5/ The Company submits that the substantial lack of OCA witness qualifications coupled with the numerous errors and lack of Limerick-specific detail in these witnesses' analyses require that their testimony be given no weight in this proceeding.

In support of its July 1982 completion schedule, the OCA asserts that since Susquehanna 1 and LaSalle 1 were completed by July 1982, Limerick 1 construction, including resolution of all

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5/ The OCA is extremely selective in that it only discusses 2 nuclear units which have experienced licensing delays, i.e. Diablo Canyon and Shoreham (OCA Brief, pp. III-65 to III-66). As discussed in the Company's Initial Brief and expressly recognized by OCA Witness Hanauer (pp. 4-100 to 4-101), numerous other plants have experienced such delays, including the Grand Gulf, Comanche Peak and McGuire facilities.

NRC design requirements, could have been completed at that time (OCA Brief, p. III-26). This is incorrect. As detailed in the Company's Initial Brief (pp. 4-144 to 4-157), the Company was required to install significantly more commodities and had to more fully comply with major regulatory requirements at Limerick than was the case at either Susquehanna or LaSalle. This additional work required substantial additional time to complete and was the major reason for the schedule differences among these plants (PECO Brief, pp. 4-148 to 4-149). Moreover, PECO was in substantially worse financial condition during the 1970's than the owners of these plants, and this was a major reason why PECO did not have as much funding available with which to finance its nuclear construction program on an accelerated basis (PECO Brief, pp. 4-156 to 4-157). These key differences, which account for Limerick's longer schedule duration, were not considered in the OCA's analysis and, therefore, render its comparisons meaningless.

The unreasonableness of the OCA's position is further demonstrated by the fact that if Limerick had been completed in July 1982, its construction duration would be only 97 months (i.e. as measured from construction permit to fuel load), whereas the actual durations for Susquehanna 1 and LaSalle 1 were actually 103 and 104 months, respectively (PECO St. 4A, p. 19). Thus, under the OCA's proposal, Limerick 1 should have been completed approximately 7 months earlier than either Susquehanna

or LaSalle, despite the greater construction, licensing and financing difficulty associated with Limerick 1 as described above and as not contested by the OCA. Such a result is clearly unrealistic and should be rejected.

The OCA asserts that a comparison with the schedule durations achieved at Susquehanna 1 and LaSalle 1 is appropriate since a similar comparison was accepted by the New York Commission in its review of the Shoreham nuclear plant. Re: Long Island Lighting Co., 71 PUR4th 262 (N.Y. P.S.C. 1985) ("LILCO"). The OCA's reliance on the LILCO decision is misplaced. In that case, a comparison between Shoreham, Susquehanna and LaSalle was accepted for purposes of determining an appropriate delay allowance solely because "LILCO made no showing that the factors considered unique [to Shoreham] had any direct and actual impact on the Shoreham construction schedule". Id. at 323 (emphasis added). In contrast, as explained above and in detail in the Company's Initial Brief (pp. 4-147 to 4-157), the Company has clearly demonstrated that substantial differences in commodity levels, engineering and design requirements, licensing environments and financial circumstances all were major factors directly contributing to the longer schedule duration experienced at Limerick. As such, the LILCO decision clearly does not apply.

The OCA attempts to further support its proposed schedule by noting that several other nuclear units, i.e. Salem

2, Farley 2, McGuire 1, Sequoyah 2, Grand Gulf 1, San Onofre 2 and Sumner, obtained operating licenses during the 1980-81 period (OCA Brief, p. III-29). However, and as recognized by OCA Witness O'Brien (Tr. 5134-5135), these plants are even more unlike Limerick than either Susquehanna or LaSalle. All 6 units contain PWR NSSS systems as opposed to the BWR design installed at Limerick. Four out of the 6 are the second unit in a 2-unit station, 5 out of the 6 received their construction permits from 2 to 6 years before Limerick, and each of these units was virtually completed prior to the TMI accident and thus were ready to receive a license immediately thereafter (PECO St. 8C, pp. 5-6; Tr. 5044-5045). These plants are clearly of a substantially different design and vintage than Limerick and thus are completely incomparable.

The OCA also asserts that Mr. O'Brien's quantification analysis presents a reasonable estimate of the escalation, AFUDC and indirect costs which would have been avoided if Limerick was completed by July 1982 (OCA Brief, pp. III-30 to III-37). However, as described in the Company's Initial Brief (pp. 4-136 to 4-142), Mr. O'Brien's analysis contains a number of serious errors which either render it entirely invalid or significantly reduce his proposed disallowance.

First, Mr. O'Brien's quantification is not based on any analysis of the needs of his proposed schedule, i.e. the required manpower and materials needed to complete the project by July

1982 (PECO Brief, pp. 4-136 to 4-137). As such, the OCA's quantification is inconsistent with its proposed schedule and, for this reason alone, should be rejected.

Second, and contrary to the OCA's assertion (OCA Brief, p. III-67), Mr. O'Brien's analysis of avoidable AFUDC and escalation costs fails to accurately reflect all capitalized overheads and PURTA taxes which would have been incurred if the project had been completed by July 1982. (See PECO St. 18K, pp. 2-3).

Third, Mr. O'Brien fails to reflect the additional capital costs which would have been incurred in order to meet the higher financing requirements associated with Mr. O'Brien's shorter schedule, which would in turn have resulted in higher AFUDC rates (PECO Brief, pp. 4-137 to 4-138). Similarly, Mr. O'Brien does not consider the additional revenue requirements which, because of PECO's poor financial condition, would have been required between 1975 and 1983 to meet Mr. O'Brien's July 1982 schedule in order to maintain the Company's actual financial condition during that period (PECO Brief, p. 4-138). Correction for these errors alone would reduce the OCA's proposed delay adjustment by $235.3 million (PECO Brief, pp. 4-138 to 4-140).

Fourth, the OCA asserts that Mr. O'Brien's proposed adjustment for $171.9 million in Bechtel indirect costs understates the total indirect costs associated with schedule delay (OCA Brief, p. III-32). This is incorrect. As explained

in the Company's Initial Brief (pp. 4-142 to 4-143), these costs do in fact reflect the entirety of Bechtel costs which allegedly could have been avoided.

Finally, the OCA has identified $101.5 million in PECO indirect costs which allegedly resulted from the Company's failure to complete construction by July 1982 (OCA Brief, pp. III-32--III-33). The sole support for this adjustment is Mr. O'Brien's conclusion that these indirect costs are time-related and, therefore, would not have been incurred if the plant had been completed sooner. This simply is not true. As explained in the Company's Initial Brief (pp. 4-140 to 4-141), a substantial portion of these costs are not related to the schedule as they are associated principally with startup and operating activities and would have been incurred in their entirety regardless of when the plant was completed. Costs in this category include Public Notification, Training, Power, Plant/Start-Up Staff and Maintenance. Moreover, the remaining costs in Mr. O'Brien's adjustment are only partially time-related. Correction to eliminate all costs which were in fact not tied to the schedule duration would reduce the OCA's adjustment by $68 million (PECO Brief, pp. 4-141 to 4-142).

The OCA asserts that the startup and operating staff probably began activities at Limerick prior to 1979 and therefore indirect PECO costs associated with plant startup and operations increased as a result of the extended schedule (OCA Brief, pp.

III-67 to III-68). This is also incorrect. The OCA has provided no detailed analysis demonstrating that this in fact occurred at Limerick. In contrast, Company Witness Clarey has examined the actual timing of expenditures for the major cost accounts for startup and operating activities, i.e. Plant Notification, Training, Plant/Startup Staff and Maintenance (PECO St. 4C, p. 6). This analysis demonstrates that on average only 10% of these costs were incurred prior to July 1982, and even these costs were expended in support of startup activities which did not begin in earnest until July 1982 (PECO St. 4C, p. 6). Accordingly, contrary to the OCA's assertion, these costs could not have been avoided.

The OCA attempts to support its proposed adjustment for indirect costs by noting that a similar disallowance was adopted in the LILCO decision (OCA Brief, p. III-34). However, a close reading of that decision demonstrates that the New York Commission specifically found that the indirect costs ultimately disallowed were substantially incurred due to the schedule delay found imprudent in Re: Long Island Lighting Co., supra, 71 PUR4th at 324. As demonstrated above, the Company has conclusively shown that that is not the case here.

Finally, the OCA attempts to support the reasonableness of its quantification by comparing its proposed disallowances for AFUDC, escalation and indirect costs with estimates for these types of costs presented to the Company's Board of Directors in a

January 1981 presentation, i.e. OCA Exhibit 85 (OCA Brief, pp. III-33 to III-34, III-36). This document, however, is completely irrelevant to a determination of the costs of delay allegedly caused by the 1976 and 1978 deferral announcements. As explained by Mr. Boyer, the estimates contained in the 1981 presentation were not intended to reflect a breakdown of costs by causation and, in fact, reflected substantial cost increases and schedule delay which the Company believed at the time and now knows substantially resulted from additional NRC regulatory requirements (Tr. 5049-5051):

> "OCA Exhibit 85 was a briefing book which was prepared in January of 1981 to distribute to our Board of Directors prior to taking a trip to the West Coast to visit General Electric and Bechtel. The purpose of the book, as indicated in the preface, was to acquaint the Board with the major aspects of the Limerick project and to identify areas of concern, and to point out places where the Board could be of assistance in encouraging General Electric and Bechtel to do a first class job and pay strict attention and put their top people on the Limerick project ...
>
> There was no effort to really break down the costs into various categories other than the broad categories of overhead, taxes, AFUDC and so forth. . . . I would point out that this whole document was put together by our System Planning Division with input from Construction and other sources, but the wording was written by them.
>
> The System Planning Division deals in load forecasts, load projections and load-related matters, and they just put "rescheduled due to load forecast" as the primary thing in their mind. <u>The document was not intended to be an official document related to the cause of delays, and I would</u>

point out that the official statements of the Company are included in the Board of Directors' minutes and in the press releases which were released at the time of the delays ....

Beginning on page 19 of the document where the areas of concern that we wanted to call to the Board's particular attention to when we were discussing matters with Bechtel and General Electric. These areas included labor shortages, the containment situation, the anticipated transients without scram, licensing and hearings, Public Utility Commission hearings, the action of opposition groups where public information programs are needed to get messages across to the public, and the news media where it is necessary to make attempts to get objective presentations on nuclear energy rather than some of the material which the newspapers feel will encourage purchase of their publications and in which they tend to emphasize the negative aspects." (emphasis added)

A review of the presentation itself further demonstrates that the data relied upon by the OCA were not intended as and do not represent estimated costs associated with the 1976 and 1978 deferral announcements. For example, the presentation specifically states that the cost increases for delay are "attributable to design changes necessitated by NRC requirements or regulation...." (OCA Ex. 85, p. 13). Similarly, the presentation identifies several areas of concern which were anticipated as affecting the remaining project duration, including labor unavailability, completion of Mark II modifications and the need to fully implement ATWS requirements (OCA Ex. 85, pp. 20-22). Finally, the presentation specifically notes that an additional year was added to the schedule submitted

to the Board to reflect anticipated delays in the licensing process caused by "the number and sophistication of parties expected to intervene in the operating license proceeding" (OCA Ex. 85, p. 23). Accordingly, the cost data contained in the January 1981 presentation are clearly not comparable to the OCA's proposed delay disallowances and only further serve to demonstrate that factors other than the deferral announcements precluded project completion prior to October 1984.

E. PECO's Evidence That Limerick 1 Could Not Have Been Completed And In-Service Prior To February 1986 Is Not Incredible, Nor Is It Merely A Demonstration Of What Actually Occurred.

The Company has presented several detailed analyses demonstrating that Limerick 1 could not have been completed for commercial operation prior to February 1986 even if the Company had not decided to defer construction in 1976 and 1978 (PECO Brief, pp. 4-15 to 4-80). The principal criticism of these analyses advanced by the OCA is that they assertedly reflect nothing more than as-built information, including the alleged effects of the 1976 and 1978 deferral announcements, and therefore cannot be relied upon for determining an earliest possible completion date for Limerick 1 (OCA Brief, pp. III-42, III-45, III-57 to III-58). This is incorrect and demonstrates the OCA's complete misunderstanding of the evidence presented by the Company in this proceeding.

As explained in the Company's Initial Brief (pp. 4-23 to 4-51), actual Limerick experience was admittedly used as the foundation for the Company's regulatory and licensing requirements schedule analyses. A detailed examination of what actually occurred on the project and the reasons why certain activities were not completed sooner was essential in determining whether these activities could have been resolved in order to meet an earlier schedule. Once a comprehensive understanding of the project's history was developed, experienced Company personnel and qualified independent experts applied educated judgment, based on their experience in regulatory matters and in managing the Limerick project, to evaluate whether completion of specific regulatory and licensing requirements could actually have been accelerated or deferred beyond fuel load. It was only through such an analysis and full understanding of the project that a realistic and accurate "earliest possible" schedule could be developed.

This limited use of as-built information in the Company's analyses was summarized by Mr. Helwig, as follows (PECO St. 5C, pp. 3-4):

> "[A]ctual Limerick experience was used as a starting point for the development of an earliest possible schedule. If Limerick's actual experience is ignored, it would be impossible to develop a meaningful alternative schedule and one would be forced to rely on the same type of speculation offered by Dr. Hanauer. Without consideration of the actual experience, there could be no reasonable basis for defining shortest possible periods of time

> within which any of the major licensing activities could have been completed such as the time for docketing review, the time for staff reviews, the number of SER's required, the duration of litigation, etc. In contrast to the Company's earliest possible schedule developed from a detailed review of historical data and application of judgment based on actual experience in the licensing process at Limerick, Dr. Hanauer simply concludes that PECO should have been somehow able to complete licensing by mid-1982 without providing any detail as to how the Company would have completed this impossible task. Indeed, as described in other testimony, it was a major accomplishment just to get Limerick Unit 1 licensed by October 1984."

Similarly, as-built information was appropriately employed in the Company's construction schedule analysis. However, instead of starting with as-built data for the project, the Company's analysis employed as its base Mr. O'Brien's schedule which, as explained elsewhere, unjustifiably ignores as-built data and limitations (PECO Brief, p. 4-52). This schedule was then adjusted to include as-built logic and durations up through May 1976 to reflect OCA Witness O'Brien's acceptance of actual conditions prior to the 1976 deferral announcement (PECO Brief, pp. 4-55 to 4-56). This analysis was also adjusted to reflect the actual startup logic and duration since the startup program at Limerick would have been required regardless of when the project was completed and could not have been performed within a shorter duration (PECO Brief, pp. 4-53 to 4-54).

In addition, mechanical and electrical activities were extended to reflect manhours required to install the substantial

additional commodities that were not anticipated in the 1974 MSCS schedule employed by Mr. O'Brien (PECO Brief, pp. 4-54 to 4-55). The remaining adjustments in the Company's case analyses reflect realistic construction conditions, such as maximum sustainable manpower density limitations, reasonable second shifting assumptions and foreseeable cash flow requirements (PECO Brief, pp. 4-56 to 4-62). Thus, as explained by Mr. Clarey (PECO St. 4C, p. 2):

> "... [A]lthough the Company's analyses reflect certain as-built logic and durations, these conditions were either accepted by O'Brien or could not have been avoided. Moreover, the Company's analyses clearly do not simply reflect an as-built schedule, as Mr. O'Brien contends. Rather, they reflect realistic conditions under which the project would have been constructed in attempting to meet Mr. O'Brien's proposed July 1982 schedule."

The OCA asserts that it is "incredible" for the Company to contend that virtually no schedule delay resulted from the 1976 and 1978 deferral announcements (OCA Brief, p. III-15). This statement further demonstrates the OCA's lack of understanding of the evidence presented in this proceeding. The OCA admits that schedule duration is controlled by a project's critical path, i.e. the longest sequence of activities required to meet the scheduled completion date (OCA St. 1, pp. 8-9). Recognizing this principle, the Company applied necessary funding to critical path activities and deferred completion of non-critical work until later in the project in order to maintain overall schedule progress during the cash constrained years, i.e.

1975-1979 (PECO St. 1, pp. 15-19; PECO St. 8, pp. 230-231); see discussion Section IV.A.2). That this in fact occurred has not been challenged in this proceeding and was expressly recognized in the 1980 Limerick Investigation. Re Limerick Nuclear Generating Station Investigation, Docket No. I-80100341, Recommended Decision, pp. 44-45 (March 26, 1982).

As a result, the Company was able to maintain a scheduled fuel load of 1982 or earlier until as late as June 1979 (PECO St. 1C, pp. 5-6; PECO St. 4A, pp. 3-4). Beginning in 1980-1981, however, substantial additional regulatory requirements were imposed upon the project, thus further increasing the amount of work which had to be completed (PECO Brief, pp. 4-23 to 4-38). The combined effect of the deferral of non-critical work activities and the imposition of new NRC requirements is fully demonstrated in Section 2 of PECO Exhibit JJC-1/JRC-1 (pp. 2-3), which shows that a substantial increase in cash flow occurred during the 1980-1984 period in order to complete construction. Thus, although certain construction activities were delayed, the 1976 and 1978 deferral announcements clearly had no effect upon the project's critical path, and it was only because of unanticipated additional work late in the project created in large part by changing NRC regulatory requirements, that even the unlimited funding available beginning in 1980 was not sufficient

to permit an earlier completion.6/ Clearly, there is nothing incredible about the Company's position on this matter, and it in fact rests upon essentially uncontroverted record evidence.

What is incredible, however, is the OCA's insistence that the Company could have loaded fuel by July 1982 without completing the PRA and incorporating its results into the plant design (OCA Brief, pp. III-59 to III-63). As described in the Company's Brief (pp. 4-41 to 4-47), the PRA was the principal

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6/ The OCA asserts that PECO presented very little analysis in its direct testimony regarding the cost and schedule impact of the 1976 and 1978 deferral announcements (OCA Brief, p. III-43). This is incorrect. The Company submitted substantial evidence demonstrating the reasons for cost and schedule growth at Limerick. Mr. Paquette described the Company's extremely poor financial condition during the 1970s and its inability to raise sufficient funds to permit construction acceleration (PECO St. 3, pp. 13-48). Mr. Boyer and TB&A provided further information on the effects of cash constraints and described how the Company carefully managed its limited resources in order to preserve the option of meeting the earliest possible completion date (PECO St. 1, pp. 15-21; PECO St. 8, pp. 230-232). Significant testimony was also provided by Messrs. Boyer, Kemper, Clarey, Helwig, Sproat, Soppet Mattson, Love and Kononetz on the cost and schedule effects of changing NRC regulatory and licensing requirements and labor unavailability (PECO St. 1, pp. 21-26; PECO St. 2, pp. 37-45; PECO St. 4, pp. 28-36; PECO St. 5; PECO St. 6; PECO St. 7, pp. 17-27; PECO St. 8, pp. 124-135, 227-247, 284-298; PECO St. 9, pp. 46-59; PECO Exhibit 2). This evidence alone demonstrates that the deferral announcements did not effect the project's schedule and that accelerated completion of Limerick 1 was not achievable. In addition, several comparisons of Limerick 1 costs and schedule duration were made with nuclear industry data. These comparisons indicate that Limerick's cost and schedule are approximately equal to the industry average, and further demonstrate that the deferral decisions had very little, if any, schedule effect (PECO St. 4, pp. 36-40 and Schedule 2; PECO St. 11, pp. 5-10 and Schedules 1 and 2; PECO St. 15, pp. 58-63).

method for assessing the risk to the public from a severe accident during plant operations. Its results were used by the NRC Staff to require installation of additional systems and to assert that the plant would have been permitted to operate without resolving all PRA requirements is clearly unrealistic, especially in view of the extremely high population density surrounding the Limerick plant.

The OCA contends that certain adjustments made to OCA Witness O'Brien's Mark II adjusted schedule in the Company's Case 1 and 2 analyses are improper, apparently for the simple reason that these adjustments reflect as-built conditions (OCA Brief, pp. III-43 to III-45). This argument should be rejected. As described above, and in detail in the Company's Initial Brief (pp. 4-52 to 4-61), these adjustments were clearly appropriate in order to realistically determine the earliest possible completion date for Limerick and their appropriateness has not been refuted. Mr. O'Brien's unrealistically high manpower density requirements thus result in a significant understatement of the achievable schedule duration (PECO Brief, pp. 4-125 to 4-126). This analysis further demonstrates that the 1974 construction schedule relied upon by Mr. O'Brien substantially understated the total manhours and quantities required to complete the

project.7/ The error in these OCA assertions is thoroughly demonstrated in PECO's Initial Brief.

The OCA next asserts that the Company's Case 3 analysis, which incorporated the effects of foreseeable unrestrained cash requirements, provides no independent support for the Company's position because the schedule derived in that case was controlled by the same drywell critical path activities which determined the Case 2 schedule (OCA Brief, pp. III-55 to III-56). This is incorrect. As explained in the Company's Initial Brief (pp. 4-62 to 4-63), these foreseeable cash requirements reflected the Company's best estimates of the financial resources required in order to meet an earlier completion date and their incorporation had two principle effects, both of which resulted in a more realistic schedule analysis. First, imposition of these requirements had the effect of delaying completion of certain non-critical mechanical/electrical activities until later in the project, which more accurately reflects the actual experience at Limerick and other post-TMI nuclear projects (PECO Brief, p. 4-

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7/ The OCA incorrectly asserts that the Company's Case 1 analysis incorporates a 29-month period for startup as opposed to the actual 27-month duration (OCA Brief, p. III-45). As explained by Mr. Coughlin, the additional 2 months was added to the startup portion of the Case 1 schedule merely for administrative convenience (PECO St. 33A, p. 6). Thus, a 27-month duration was in fact used. Indeed, OCA witness O'Brien placed this same activity in the startup phase of his Mark II adjusted schedule (OCA Ex. JJO'B-13), and thus there is no difference as to this matter between the Company and Mr. O'Brien's schedule.

62). Second, and more importantly, if the foreseeable cash flow assumptions were applied without consideration of maximum sustainable manpower density levels or second shifting assumptions, the end date would still extend substantially beyond July 1982 as proposed by the OCA because of limitations on the total manpower which could be employed on the project (PECO Brief, p. 4-62). Thus, the Case 3 analysis provides a further independent demonstration that the OCA's proposed July 1982 schedule could not have been achieved (PECO St. 1A, pp. 9-10; PECO St. 33, pp. 18-19).

The OCA also criticizes the Company's analysis contained in PECO Exhibit JRC-2. This analysis combines actual Limerick commodities with the as-built construction schedule achieved at Susquehanna 1, as reflected by actual commodity installation rates and phasing relationships between the installation of each commodity, in order to demonstrate the effect that Limerick 1's higher commodity levels would have had upon the schedule at Susquehanna. As explained by Mr. Coughlin (PECO St. 33, pp. 20-21):

> "To demonstrate how quantity differences would have prevented Limerick from achieving the Susquehanna fuel load date, an analysis was performed incorporating the greater Limerick quantities into the Susquehanna construction schedule. Specifically, this was accomplished by plotting the actual bulk installation curves for Susquehanna in determining the point at which each bulk commodity was 10% complete and 90% complete. An installation curve is a graphical depiction of the quantities of installed commodities

over time. In addition, the Susquehanna installation rates for all commodities, i.e. the quantities installed per month, and the timing or phasing relationships between commodities, i.e. when the installation of each commodity began in relation to the percent completion of other preceding or succeeding commodities, were developed. Next, by using the actual rates of installation and the timing relationships between the commodity curves experienced at Susquehanna, and the actual commodities installed at Limerick, a revised construction schedule was developed....The use of installation rates for Susquehanna reflects the speed with which commodities were actually installed under as-built conditions at that plant. Further, the phasing relationships reflect the timing of installation of major commodities in relation to each other at Susquehanna. These data are critical factors which control the duration needed to install plant commodities and thus total project schedule. Holding these Susquehanna base factors constant while adding the higher level of commodities at Limerick provides an approximation of the effect that higher commodity levels would have had upon the schedule at Susquehanna."

This analysis demonstrates that the additional time needed to install the greater level of commodities required at Limerick would have extended the Susquehanna 1 schedule, as measured from construction permit to fuel load, to 118 months (as compared to the actual schedule of 104 months), which is only 6 months less than the actual 124-month schedule achieved at Limerick (PECO St. 33, pp. 21-22).

The OCA asserts that prior to 1976, Limerick had a substantial headstart in construction as evidenced by the achievement of 10% and 90% completion of structural concrete and 10% completion of large pipe installation prior to when these

activities could have theoretically been completed at Limerick on a Susquehanna-based schedule as shown in PECO Exhibit JRC-2 (OCA Brief, pp. III-50 to III-51). The OCA further asserts that Limerick's headstart over Susquehanna is particularly significant in light of the fact that Limerick actually received a construction permit 7 months later than Susquehanna, and that Susquehanna achieved better installation rates for 6 out of 8 major commodities than Limerick. On the basis of these facts, the OCA concludes that Limerick could have achieved construction completion earlier if it would have matched Susquehanna's level of performance by not deferring construction in 1976 and 1978 (OCA Brief, pp. III-51 to III-52). These arguments are incorrect and reflect the OCA's lack of understanding of the meaning of the analysis contained in PECO Exhibit JRC-2.

The purpose of PECO Exhibit JRC-2 was to present an analysis of very general schedule parameters at Susquehanna in which a single variable, i.e. the quantity of commodities, was changed in order to approximate the effect upon the schedule. This analysis is only a very summary comparison between the projects and cannot be used to compare plant-specific details such as completion dates for certain commodities and installation rates without considering significant additional detail as to differences in other plant areas and why these differences exist. As explained by Mr. Coughlin, the OCA has misused the analysis presented in PECO Exhibit JRC-2 by attempting to compare such details (PECO St. 33A, pp. 7-8):

"The Susquehanna/Limerick schedule study was presented as a summary level comparison between projects and is an 'independent' validity check of the premise that the construction of the Limerick Plant would require more time than Susquehanna due to the differences in scope between the plants. This analysis ignores additional key parameters such as regulatory impact items, site specific design differences, plant congestion and manpower density limits that would need to be considered to determine a reasonable Limerick Fuel Load Date.

A comparison between plants is best prepared at a summary level in order to be able to analyze the major relevant parameters and not get drawn into an ever increasing and complex web of detail and specific differences that result in 'missing the forest for the trees'. Going to the greater level of detail, such as trying to compare the schedule of two plants building level by building level or system by system, would involve too many adjustments to properly account for the myriad of specific plant differences that always exist. The comparison would also involve tremendous amounts of detailed research that adds nothing to the accuracy of the results."

For example, the OCA's comparison of 10% and 90% completion dates completely ignores the phasing relationships between commodities, i.e. when one commodity begins in relation to the percent completion of other commodities, which also were critical factors affecting total project duration. Specifically, the OCA notes that structural concrete was 90% complete at Limerick in November 1980, or more than a year earlier than the September 1981 date shown for Limerick at Susquehanna in PECO Exhibit JRC-2 (OCA Brief, p. III-50). However, the OCA ignores the fact that when structural concrete was 30% - 35% complete for

Limerick at Susquehanna, large pipe hanger installation was 10% complete and became the critical path activity through mid-1982 or well after the completion of 90% structural concrete (PECO Ex. JRC-2). Similarly, the OCA notes that 10% completion of large pipe was achieved a year earlier at Limerick than the theoretical Limerick at Susquehanna date. Again, a review of PECO Exhibit JRC-2 reveals that 10% completion of both large pipe and large pipe hangers were achieved at about the same time for Limerick at Susquehanna, however, it was the installation of large pipe hangers which controlled the critical path (PECO Ex. JRC-2). The OCA's comparison of completion dates is thus irrelevant as it does not fully consider those factors (i.e. commodity phasing relationships) which actually controlled the schedule.

The OCA also notes that 10% of structural concrete at Limerick was completed 10 months earlier than the theoretical date for Limerick at Susquehanna, largely because the latter assumed mobilization one year after receipt of a construction permit, while Limerick actually completed such activities during the 1970-1973 period. The OCA further asserts that if the one year required for mobilization is removed from PECO Exhibit JRC-2, the projected fuel load date for Susquehanna would be reduced from April 1984 to March 1983 (OCA Brief, pp. III-50 to III-51). Again, the OCA has selected a single detail which, if varied, supports its desired end result. As explained by Mr. Coughlin (PECO St. 33A, pp. 8-9), mobilization refers to

preliminary work required in order to complete 10% installation of structural concrete, i.e., site clearing, excavation, etc., the most significant of which could not be performed at Limerick until after receipt of a construction permit. Moreover, the OCA is proposing a single detailed adjustment to a very summary schedule without considering other site-specific factors which affect the schedule, i.e., differences in complexity and productivity (PECO St. 33, p. 36). Such an adjustment is clearly inappropriate and should be rejected.

The significance attached by the OCA to differences in installation rates is also misleading (OCA Brief, p. III-50). Higher installation rates are generally achieved simply by devoting more manpower to the installation of a particular commodity (PECO St. 8C, pp. 12-13). As discussed above, PP&L's financial condition was significantly better than the Company's during the 1970s and it is therefore not surprising that, through the application of additional funding which PECO could not obtain, higher monthly installation rates were achieved at Susquehanna (PECO St. 8C, p. 13). As explained by Messrs. Love and Kononetz, productivity is generally measured in terms of unit rates, i.e. manhours per unit of commodity installed (PECO St. 8C, p. 13). The OCA conveniently ignores the fact that for 8 out of 12 major commodities, Limerick had better productivity than Susquehanna, and the lower unit rates experienced in the remaining commodities were generally attributable to the higher

seismic criteria imposed at Limerick and other uncontrollable factors (PECO St 8, pp. 240 & Schedule 34). Thus, it would be unrealistic to assert, as the OCA has, that a higher level of performance could have been achieved at Limerick.8/

The OCA also criticizes the Company's regulatory and licensing requirements schedule analyses. The OCA first asserts that it would be unrealistic to conclude that the NRC would have delayed operation of Limerick 1 for 2 years if construction had been completed by mid-1982 (OCA Brief, p. III-57). However, as explained in the Company's Initial Brief (pp. 4-100 to 4-102), a number of nearly completed nuclear plants have experienced significant licensing delays, i.e. for two or more years, which were not caused by drastic safety concerns. Indeed, more than 25 units since the TMI accident have either been precluded from beginning commercial operation or were removed from operation because of unresolved licensing issues. Included in these plants is Limerick 1, which experienced a 6 month delay in receiving a full power license due to litigation over emergency planning

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8/ In response to the Company's analysis demonstrating that Limerick had a greater level of commodities than Susquehanna, the OCA contends that commodities required as a result of Mark II modifications were greater at Susquehanna and that installation of these commodities were on the critical path (OCA Brief, p. III-48). This is incorrect. In its review of PP&L's management of the Mark II loads problem, the Commission expressly found that Mark II did not delay fuel load and, therefore, was not a controlling critical path activity. Pa. P.U.C. v. Pennsylvania Power and Light Co., Docket No. R-822169, Order, p. 23 (Aug. 22, 1983).

(PECO St. 9B, p. 17). As demonstrated by the Company's analyses, Limerick would also have been precluded from commercial operation if it had been completed in 1982 because of the need to resolve regulatory items such as the PRA, ATWS, fire protection, equipment qualification and various TMI requirements (PECO Brief, pp. 4-23 to 4-51).9/

The OCA asserts that the Company's analysis assumes that all NRC requirements and their implementation prior to fuel load were "immutable" and that the NRC would have been "inflexible" in its review of Limerick (OCA Brief, p. III-58). This is not correct. The Company's analyses present a detailed examination of the circumstances surrounding the implementation of each NRC regulatory and licensing requirement to determine whether any of

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9/ The OCA further mischaracterizes the Company's reference to the Diablo Canyon and Shoreham nuclear units (OCA Brief, pp. III-65 to III-66). The Company was not attempting to make a direct comparison between these plants and Limerick. Rather, these nuclear units were identified as examples of plants which have experienced licensing delays that were not the result of drastic safety concerns as suggested by OCA Witness Hanauer. For example, as explained in the Company's Initial Brief (pp. 4-101 to 4-102), two years of operating license review delay was experienced at Diablo Canyon because of significant intervention in the licensing process and not because of serious safety concerns. Similarly, an operating license for the Shoreham plant was delayed for more than 2 years because of the need to litigate contentions related solely to emergency preparedness, which delay was completely unrelated to the findings of management imprudence by the New York Public Service Commission (PECO Brief, p. 4-100). Accordingly, the experience at these plants clearly demonstrates that it is not unrealistic to conclude that the NRC would have delayed issuance of an operating license for Limerick if construction had been completed by July 1982.

these requirements could have been resolved sooner or deferred until after receipt of a license (PECO Brief, pp. 4-23 to 4-51). Thus, such an assumption was clearly not part of the Company's analysis. The great majority of the OCA's arguments respecting licensing and NRC design requirements are fully refuted in PECO's Initial Brief.

The OCA maintains that the high population density surrounding Limerick, while possibly affecting commercial operation, would not normally affect the construction schedule (OCA Brief, p. III-60 to III-61). This is incorrect. As OCA witness Hanauer admitted (PECO Brief, p. 4-96), because of its concern for the safety of the high population surrounding Limerick, the NRC became very restrictive in its review of the Limerick plant. As a result, Limerick was only one of three plants (the other two being Zion and Indian Point), which was required to perform a PRA as part of the licensing process.

As demonstrated in the Company's Initial Brief (pp. 4-38 to 4-51), the PRA became the controlling factor in the Limerick licensing process and its results were used to require implementation of several major regulatory requirements (i.e. ATWS, fire protection, etc.) which were not required to the same degree or with as early an implementation schedule at other nuclear projects. The implementation of these additional regulatory requirements substantially increased the time required to complete construction and ultimately precluded plant

completion prior to October 1984. Indeed, a comparison of high population densities and plant costs demonstrates that plants located near major population centers cost more than $1,000/kw than plants located in less populous areas, and this correlation between greater plant costs and high population density was specifically recognized by OCA Witness Hanauer in testimony submitted in proceedings involving the Callaway project (PECO Brief, pp. 4-21 to 4-22).

The OCA asserts that litigation of intervenor contentions during the licensing process did not affect the completion of construction or receipt of a low power license (OCA Brief, p. III-63). This simply is not true. As described in the Company's Initial Brief (pp. 4-22 to 4-23) and as acknowledged by OCA Witness Hanauer (OCA Brief, p. III-64), the fact that the Limerick licensing process was highly contested by determined intervenors caused the NRC to be extremely prescriptive in its determination of new design requirements needed to obtain a license. The fact that intervenor contentions were filed on a number of regulatory requirements forced the Company to fully implement these requirements even though similar compliance was not required at other nuclear plants (i.e. Susquehanna and La Salle) which were not involved in highly contested proceedings (PECO Brief, pp. 4-24 to 4-38).10/

10/ The OCA also contends that the full effect of litigation in the licensing proceeding is reflected in Mr. O'Brien's (continued)

Finally, the OCA recognizes that deferral of numerous regulatory requirements would have resulted in additional intervenor contentions, but assumes that these contentions could have been fully litigated and favorably resolved by July 1982 (OCA Brief, pp. III-64 to III-65). This is incorrect and the OCA has provided no specific analysis supporting this assumption. As explained in the Company's Initial Brief (pp. 4-104 to 4-105), an additional analysis was performed using the OCA's incorrect assumption that if Limerick was constructed in 1982, the Company would have been able to obtain a license by obtaining NRC approval of deferred implementation for many of the new and revised regulatory requirements imposed during the 1979 and 1981 period (OCA St. 2A, p. 19; PECO St. 9B, pp. 12-15). Using the information contained in PECO Exhibit RJM-1, an earliest possible schedule for completing litigation of all additional contentions under these unrealistic assumptions was developed. This analysis further demonstrates that Limerick licensing could not have been completed prior to 1984.

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analysis because of his acceptance of the actual 16-month duration between fuel load and commercial operation (OCA Brief, p. III-63). This is incorrect. Mr. O'Brien's analysis only accounts for delays experienced during the power ascension testing period which were caused in large part because of the need to litigate contentions regarding emergency planning (PECO Brief, pp. 4-65 to 4-68). However, Mr. O'Brien's analysis completely ignores the impact of intervenor contentions regarding construction and licensing activities which were litigated prior to the receipt of a license to load fuel.

F. Response To Trial Staff's Brief.

Trial Staff cites several cases which appear to state that the Commission has broad discretion in valuing Limerick for rate base purposes. These cases set forth and define the fair value doctrine as it used to exist in Pennsylvania (TS Brief, pp. 111-112). That doctrine and the discretion which it accorded the Commission in valuing utility assets for rate base purposes has, however, been recently rejected by statute in Pennsylvania. See Act No. 153 of 1984, 66 Pa. C.S. §1311. This statute requires the Commission to base allowable rate base not upon its perception of the fair value of the utility's property, but upon the actual original cost of that property. Under this original cost valuation, a utility must be permitted to recover all prudently incurred costs of plant that is used and useful.

Furthermore, and contrary to Staff's argument, under Pennsylvania law no disallowance of plant costs is permitted unless alleged imprudence was the real and proximate cause of the proposed cost disallowance. Indeed, Park Towne v. Pa. P.U.C., 61 Pa. Cmwlth. 285, 433 A.2d 610 (1981), a case cited by Staff, clearly enunciates this requirement (TS Brief, p. 114). In Park Towne, the PUC had eliminated $10.5 million from a utility's rate base as the result of a construction management audit. The Court, however, reversed the Commission's determination based on its failure to comply with the causation requirement of the prudency standard, as follows:

> "[I]t is unclear whether the estimated soft savings contained in the Barry report were intended by definition or in fact to represent costs that could have been avoided through the use, by PSE&G, of prudent management practices. In addition, several items contained within the soft savings and involving a large percentage of the total are clearly unrelated to any managerial imprudence. Therefore, we are compelled to reverse the Commission's order and to remand the record . . ." 433 A.2d at 616. (emphasis supplied).

The same causation requirement was enunciated in Metropolitan Edison Company v. Pa. P.U.C., 62 Pa. Cmwlth. 460, 437 A.2d 76, 80 (1981), where the Court stated:

> "If there has been an abuse of managerial discretion and the public interest has been adversely affected thereby, then the Commission is empowered to intervene [to disallow recovery of costs]."

See also National Fuel Gas Distribution Corporation v. Pa. P.U.C., 76 Pa. Cmwlth. 102, 464 A.2d 546, 559 (1983). The Pennsylvania prudency standard and its corollary causation requirement are fully explained in the Company's Brief, pages 3-1 to 3-12.

Trial Staff points out that ALJ Matuschak in Pa. P.U.C. v. Philadelphia Electric Company, R.I.D. 438, recommended that an Investigation be initiated into the propriety of the Company's 1978 deferral decision before such a decision was made "in fairness to the Company, to its investors and to its customers". (TS Brief, pp. 114-115). However, the PUC did not adopt this recommendation. Indeed, in PECO's 1979 rate case,

Docket No. R-79060865, the Company specifically requested sufficient funds to accelerate the completion of Limerick. This request was denied by the Commmission (Order entered May 9, 1980, p. 16).

1. Staff's Quantification Theory Is Legally in Error And Thus Its Results Are Irrelevant To This Proceeding.

As discussed above, under Pennsylvania law disallowance of costs based on imprudence requires that the alleged imprudence be the direct and proximate cause of the proposed disallowance. In Pa. P.U.C. v. Philadelphia Electric Company, Energy Cost Rate No. 8, Docket No. M-840375 et al., Order, pp. 9-10 (October 30, 1985) the Commission recently reaffirmed this requirement:

> "Cost disallowance based on imprudence is not permitted unless the alleged imprudence was the real and proximate cause of some injury. Thus, for example, if the alleged imprudent conduct did not cause any extension of outage time, such conduct could not be the basis for denying a utility's recovery of replacement power costs." (emphasis supplied).

Thus, Staff's position is directly contradicted by the Commission's most recent precedent on this issue.

Staff also contends that "a causal connection requirement was explicitly rejected by the Commission" in Re: Beaver Valley 1 Generating Station Investigation, 57 Pa. P.U.C.

371 (1981) (TS Brief, p. 228).[11/] This is simply wrong. The passage from the Beaver Valley decision that Staff quotes clearly sets forth the legal requirement of causation before costs may be disallowed. Also, in a statement immediately preceding that quoted by Staff, the Commission declared (57 Pa. P.U.C. at 381):

> "Since the NRC Show Cause Order closing Beaver Valley was the operative fact which necessitated the procurement of replacement power, the burden of proof placed upon Duquesne required it to establish that its action prior to the NRC Show Cause Order was prudent and that, therefore, the legal conclusion must necessarily follow that imprudent conduct on its part could not have been the cause or contributing cause for the issuance of the NRC Show Cause Order." (emphasis supplied).

In this proceeding, Trial Staff admits that it has made no attempt to demonstrate that the alleged imprudence, i.e. the 1976 and 1978 deferral decisions, resulted in any project delay and increased project costs. Thus, its quantification analysis is not relevant to this proceeding.

Staff alleges that its quantification is based on the "actual, as-built construction schedule and actual costs incurred to determine what the plant should have cost." (TS Brief, p. 118). Staff in turn bases this assertion on the fact that the data it employs "is derived directly from the books and records used by PECO and Bechtel to record the actual costs, labor hours,

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11/ The Beaver Valley decision, it should be noted, was recently reversed by the Commonwealth Court. Duquesne Light Company v. Pa. P.U.C., No. 3102 C.D. 1981 (March 26, 1986).

and material quantities." (TS Brief, p. 123). However, such use of actual data does nothing to save Staff's legally erroneous quantification.

2. Staff's Quantification Analysis Is No Less Hypothetical Than PECO's Or OCA's, But Rather Simply Refuses To Explicitly Evaluate And Resolve The Issues Which Must Be Addressed.

Staff contends that "hypothetical" quantifications of imprudence, i.e. which it asserts the Company and OCA's evidence constitutes, have been rejected by the Commission in the Beaver Valley proceeding and the ECR-8 proceeding. This is clearly a misinterpretation of these two orders. In Beaver Valley, Staff and the utility argued that the quantification of replacement power costs should focus on what would have happened but for the NRC Show Cause Order which occurred as a result of the utility's allegedly imprudent conduct. Staff and the utility asserted that the plant would have been shut down for refueling during this forced outage period. Opposing parties contended, and the Commission agreed in its Opinion and Order Nisi Upon Reopening, entered December 13, 1982, that these hypothetical scenarios effectively gave the Company credit for two refueling outages, the hypothetical and the actual. Because five months of plant generation had actually been lost due to the Company's allegedly imprudent conduct, the Commission was unwilling to "double credit" the utility for two refueling outages (Opinion and Order, pp. 7-9). Thus, this case was not in any way a rejection by the

Commission of all "hypothetical" quantification analyses, but rather a rejection of the accuracy of the specific analysis termed "hypothetical" in that proceeding.

Staff also relies on the ECR-8 Order for the proposition that such "hypothetical" quantification analyses are prohibited. Again, this reliance is clearly misplaced. In that portion of the Recommended Decision cited by Staff at pages 149-150 of its Brief, the ALJ was responding to the utility's position that despite the allegedly imprudent conduct which had caused the outage, there was no injury to customers as a result because (1) the unit's performance during the ECR year was on a par with industry production norms, and (2) upon returning to service the unit permanently recaptured the "lost generation". (Recommended Decision, pp. 74-75). Placing the ALJ's decision in context reveals that he was not rejecting a "hypothetical" quantification approach, but was simply adhering to the prudency standard's causation requirement (Recommended Decision, pp. 75-76):

> "These arguments [as to comparative performance and generation recapture] are irrelevant because they rest on the assumption that loss of output due to demonstrated managerial imprudency can be nullified simply because -- for reasons having nothing to do with the outage -- the plant performed well until its next, unplanned, forced outage. PECo, like every other jurisdictional electric utility, is required to operate all of its facilities (including the plants which are not directly operated by PECo but for which PECo's ratepayers bear the costs of operation) in the safest, most efficient and economical

> manner. This means not only that the company's customers bear the costs when a plant such as Salem is not operating, but that the benefits of above average performance similarly should accrue to PECo's customers."

Thus, it is clear that the rejection of the utility's "but for" argument in the ECR-8 proceeding was also not a rejection of the quantification analytical approach employed by the Company and OCA in this proceeding.

In any event, Staff's own quantification is just as hypothetical as it alleges are PECO's and OCA's. Staff's quantification analysis is based upon an entirely hypothetical in-service date nearly five years ahead of the actual Limerick schedule, which Staff admits is based on no Commission determination or independent analysis. Unlike PECO's thorough scheduling analysis, Staff makes no attempt to establish how or when the Company could have completed the project absent the deferral decisions, and thus completely ignores the central component of the quantification which the Commission directed be performed in this proceeding. As described in the Company's Brief (pp. 4-23 to 4-80), there is simply no way that the project could have been completed by April of 1981, regardless of the deferral decisions, due to factors beyond the Company's control.

A number of further major Staff analytical errors and undemonstrated approximations and assumptions are described in PECO's Initial Brief (pp. 4-80 to 4-93).

3. PECO's Response To Additional Staff Arguments.

In its Brief, Staff asserts that the Company has ascribed the errors in Mr. Dougherty's delay cost quantification analysis to his "inexperience and incompetence." Staff then lists several cites as examples of these alleged "unwarranted attacks" by the Company on Mr. Dougherty's credentials (TS Brief, p. 128). A full review of these listed cites, and indeed of the entire record in this proceeding, would show that the Company has never accused Mr. Dougherty of "incompetence" or disputed his clear qualifications as an auditor. However, the Company has legitimately pointed out, through the testimony of personnel trained and experienced in nuclear power plant construction management, the existence of numerous significant inaccuracies and errors in Mr. Dougherty's delay cost quantification analysis (see PECO St. 4A, p. 25; PECO St. 4B, p. 2; PECO St. 1B, p. 2). Mr. Dougherty has no experience as an engineer, supervisor, or scheduler relating to construction of nuclear or other generating facilities, which experience the Company views as needed to perform such an analysis (Tr. 2664).

Staff attempts to support Mr. Dougherty's delay cost quantification on the basis that it was "presented" by Staff Witness Rosenthal (TS Brief, p. 129). However, despite Mr. Rosenthal's extensive participation in electric utility regulatory matters and clear expertise in rate structure/cost of service matters, Mr. Rosenthal has also not established that he

has the experience or training in nuclear plant engineering, construction, or management to legitimately assess the prudence of PECO's actions during the construction of Limerick 1 or to assess the cost disallowances that should result from any imprudent actions. Therefore, the Company's specific, numerous criticisms of Mr. Dougherty's delay cost quantification are not assuaged simply by Mr. Rosenthal's "presentation" of that flawed methodology.

Staff asserts that "PECO offered few substantial criticisms" of the methodology employed by Staff to prepare its quantification of the imprudently-incurred "excess costs" of Limerick 1 (TS Brief, p. 127). Instead, Staff dismisses PECO's numerous criticisms because they "arise from PECO's failure to accurately state the basis for Staff's adjustment, and therefore are irrelevant" (TS Brief, p. 128). Despite Staff's claims, the Company has demonstrated that the Staff's delay cost quantification analysis contains numerous material errors and approximations (PECO Brief, pp. 4-86 to 4-93). In its Brief and its testimony, Staff has failed to provide probative responses to these criticisms, resting instead on claims of irrelevance, the "de minimus" nature of errors, off-setting errors, the use of "rough calculations", and the "extremely conservative" nature of Staff's recommended disallowance (TS Brief, pp. 134, 137, 138, 141).

Staff further contends that its proposed disallowance is modest in size (TS Brief, p. 141). To the contrary, Staff's proposed adjustment of $1.12 billion represents almost 30% of the Company's entire claim for Limerick 1 and 50% of Common plant (TS Brief, p. 142). It also represents one quarter of the entire shareholder equity in the Company (Ex. TPH-2, p. B-2). Such a proposed disallowance cannot be rationalized as "extremely conservative", "de minimus", "irrelevant", or balanced by "off-setting errors" (TS Brief, pp. 134, 137, 138, 141). Only a convincing demonstration of specific imprudent actions, and precise quantification and causation of cost impacts resulting from those actions, provides a proper basis for a prudence disallowance of Limerick 1 costs, no matter how large or small.

Similarly, Staff's assertion of the "conservative nature" of its proposed disallowance cannot reasonably be supported by comparison to other nuclear plant disallowances or other proposed Limerick 1 disallowances derived through totally different quantification methodologies and prudence assessments (TS Brief, pp. 142-143). Such comparisons of disallowances are totally irrelevant to a determination of the propriety of Staff's proposed disallowance of the costs of Limerick 1.

Staff also asserts, on one point of fact, that either the Company has relied upon meaningless data or it has lied to Staff regarding the availability of the requested data (TS Brief, p. 135). The Company asserts that it has done neither, but has

instead used appropriate data. The data requested by Staff was the percentages of overtime for manual and non-manual labor which occurred in the period before April 1981 and the period after 1981, separately stated for each Limerick Unit. The Company responded that the requested data was not available separately by Unit (Tr. 2703). However, PECO Witness Clarey cited to certain overtime data in his rebuttal testimony (PECO St. 4A, p. 25), which data had been previously provided for the record by TB&A (PECO St. 8, p. 214a, Schedule 32). In response, Staff claims that the Company either lied (because the data was available) or used meaningless data. While the data used by PECO Witness Clarey included both Units 1 and 2, it is nonetheless not inappropriate to apply to an analysis of Limerick Unit 1 overtime labor costs. The overtime experience on Unit 2 after 1981 would have been minimal to none, given the low level (or no level) of work performed on Unit 2 after that time. Therefore, the data after 1981 would have essentially contained only Limerick 1 overtime hours, or be slightly understated if overtime hours did occur during that period at Unit 1. Therefore, the data provides a reliable estimate of the actual overtime experience post-1981 at Limerick 1, and is not meaningless; in addition, the Company did not lie to Staff. The data was not available on a single Unit basis as Staff had requested.

As noted above, Staff has admitted that "much of the increased cost and longer construction time of Limerick can be

ascribed to changes in NRC licensing requirements" (TS Brief, p. 158). However, Staff's adjustment clearly seeks to disallow these NRC-imposed costs. Its disallowance proposal is thus admittedly deficient. Staff asserts that the Company has not established that NRC requirements were "the proximate cause for all cost increases and delays in the construction of nuclear generation stations in general and Limerick in particular" (TS Brief, pp. 152, 158). However the Company has never claimed that these requirements alone caused project delay. The Company's position has consistently been that the combination of several uncontrollable factors, including NRC requirements, prolonged the project schedule (PECO Brief, pp. 4-23 to 4-80). However, changed NRC requirements and the NRC licensing process did have a major impact on Limerick's cost and schedule, as Staff admits. Staff goes to great lengths to minimize as much as possible the significance of these regulatory requirements. (TS Brief, pp. 158-165). It relies on its Witness Hall's unsupported contentions that new NRC requirements were the result of industry failure to meet existing standards. As explained in the Company's Brief (p. 4-80), Dr. Mattson has conclusively rebutted this position and established that most nuclear project delays, including Limerick's, were caused by regulatory changes and related redesign work (PECO St. 9A, pp. 22-23, 26-27).

Trial Staff points to Dr. Mattson's testimony that an Electric Power Research Institute report ("EPRI report")

estimated that approximately 78% of nuclear construction delays were related to out-of-scope work. Staff points out that of this 78%, 53% of the delays were related to plant "redesign and rework" (TS Brief, pp. 159-161). Staff Witness Hall admitted that this 53% is entirely the result of regulatory effects (Tr. 3036). Staff attempts to further subdivide this figure by pointing out that some of these requirements were the result of "old regulations." However, as the Company has pointed out, much of the increased cost and delay at Limerick and other nuclear projects was due to the NRC's more stringent reinterpretation or reapplication of existing regulations (PECO Brief, p. 3-36).

Furthermore, Staff admits that according to the EPRI report, delays caused by factors other than plant "redesign and rework," i.e. the 25% remaining from the total 78% figure, were caused by "inability to perform" due to extraneous factors such as labor problems and strikes (TS Brief, pp. 160-161). The Company has pointed out that the schedule delays at Limerick were not, contrary to Staff's contention, solely due to NRC regulatory requirements alone, but also caused by other uncontrollable factors such as pointed out in the EPRI report.12/

12/ The staff points to the Cost Reconciliation's computation of $385.1 million for the "Cost Impact of Schedule Extensions Due to Licensing Delays and Other Factors" (T.S. Brief, p. 164). Staff then uses this calculation to question the Company's position that "its own delay decisions had no appreciable effect upon construction cost." This argument is a non sequitur. As is clear from the table cited by Staff and as explained in the Company's Brief, this entire (continued)

Staff next asserts that the testimony of the representatives of Theodore Barry & Associates ("TB&A"), on behalf of the Company, is "flawed, irrelevant, and unworthy of consideration by the Commission" (TS Brief, p. 175). Staff bases this assertion on numerous erroneous contentions. First, Staff faults TB&A for using "retrospective analysis" with a "hypothetical approach" (TS Brief, p. 166). Staff fails to note that TB&A's primary role in this proceeding was to prepare an independent assessment of the reasonableness and prudence of the management of the Limerick 1 construction project (PECO St. 8, p. 2) In this role, TB&A reviewed actual historical data, not "hypothetical" data, from the Limerick project. This review was absolutely relevant to the current determination of prudency; only a review of actual historical data can provide a proper basis for such a determination.

Second, Staff challenges without merit the "independence" of TB&A's analysis, noting that TB&A "appeared solely on PECO's behalf" for a fee (TS Brief, p. 166). Staff fails to note that a complete and detailed assessment of a nuclear unit construction program lasting more than a decade is in itself a very large undertaking requiring significant time. Consequently, conduct of such a necessary review involves considerable expense. Furthermore, Staff also omits to mention

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$385.1 million was due to the combination of several extraneous causes of project length extension beyond the Company's control. (PECO Brief, pp. 3-21 to 3-46).

that representatives of TB&A have performed similar analyses on prior proceedings for both the PUC and the OCA (Tr. 5184, 5187).

In their third contention, Staff asserts that TB&A's analysis should be given little weight because of their "ignorance" and "inability to understand" the prudency standard "developed and applied by this Commission" (TS Brief, pp. 168, 173). Mr. Love of TB&A testified as to his knowledge of the PUC orders, in contradiction to Staff's assertion (Tr. 5180-5187). In addition, review of the Briefs filed in this proceeding by the Staff, the OCA and the Company demonstrates that there is much dispute between counsel as to the full meaning of the Limerick 1 Investigation order. Staff's attack on TB&A's credibility in this area is, therefore, without merit.

Finally, Staff, in a non-record discussion, attacks the technical merit of TB&A's testimony and analysis in this proceeding (TS Brief, p. 169). However, the record in this proceeding shows that TB&A's review of the prudence of the conduct of the Limerick 1 project has not been challenged, with only minimal exceptions. (PECO Brief, Appendix B, p. B-2) The evidence presented by TB&A in this proceeding is, therefore, properly based on a factual foundation and highly relevant to a prudency determination in this proceeding.

4. Staff's Criticisms Of The Limerick/Other Nuclear Plant Cost And Schedule Comparisons Should Be Rejected.

As discussed in its Initial Brief, the Company has presented three analyses which compare the achieved construction cost and schedule of Limerick 1 to the costs and schedules achieved at other contemporaneous nuclear generating units (PECO Brief, Section IV.B). These analyses employ different techniques in order to avoid disputes over whether the results shown are due to alleged analysis methodology errors. In its Brief, Staff asserts that the Commission has "traditionally viewed" two of these analyses, which employ regression techniques, "with skepticism" (TS Brief, p. 176). However, even as stated in Staff's Brief, "such comparable evidence has some probative value" (52 Pa. P.U.C at 787; TS Brief, p. 176). As explained in the Company's Brief:

> "These analyses have been presented as prima facie evidence which dispels any allegation that Limerick 1 has been an unreasonably costly plant or experienced an unduly long time for its construction. Moreover, these analyses provide an important basis for measuring what, if any, effect the 1976 and 1978 deferral announcements had upon Limerick's cost and schedule."

(PECO Brief, pp. 4-2 to 4-3). As also described in the Company's Brief, these analyses were not challenged in the record as inaccurate, either by extensive cross examination or rebuttal evidence, and therefore should be accepted.

Staff, nonetheless, proceeds to criticize the regression-based analyses as "so seriously flawed" as to be of "little practical value" (TS Brief, p. 176). However, neither Staff nor any other intervenors have presented evidence in the record in support of this assertion.13/ In addition, Staff's criticisms are without merit. For instance, Staff has leveled several criticisms at Dr. Hieronymus' comparative analysis of Limerick 1's construction schedule duration (TS Brief, pp. 179-181), which criticisms, however, are based only on quotes taken out of context from Dr. Hieronymus' cross examination. While Dr. Hieronymus admitted the "flaws", with which Staff now challenges his testimony (i.e., conflicting or unpersuasive variables) (Tr. 700-703), he explained that those items were not "terribly important" to the validity of his analysis or its results (Tr. 701). Rather, he saw those events as necessary side effects of his use of the accepted statistical procedure of step-wise regression to select the variables for inclusion in the regression equation, thereby eliminating any basis for the allegation of bias in his analysis (PECO Brief, pp. 4-10 to 4-11).

13/ Mr. Clarey's analyses, which demonstrated that Limerick's completed cost was 12% to 14% below the average completed cost of other contemporaneous BWR units and that Limerick's schedule duration was approximately equal to (ranging from 2% to 4% shorter) the average schedule duration of other contemporaneous BWR units, present uncontested evidence in this proceeding (PECO Brief, pp. 4-5 to 4-7).

Staff's criticisms directed at Dr. Perl's comparative cost analyses (but not his comparative schedule analysis, which is of greater importance to this case) are similarly devoid of technical or record foundation. First, Staff accuses Dr. Perl of using "questionable statistical procedures", including use of a "nonsignificant" independent "cooling tower" variable and failure to develop a correlation table (TS Brief, p. 186). However, the significance, if any, of these contentions was not supported by any testimony nor has Staff demonstrated their merit.

As he explained, Dr. Perl retained the cooling tower variable because NERA and many other statistical analysts had observed this variable to be statistically significant in the past. He explained that, in his opinion, the variable should be retained until shown conclusively to be a factor that does not influence construction costs (TS Ex. 33). It is interesting to note that Staff criticizes Dr. Hieronymus for <u>not</u> using his personal judgment in preparing his analysis, while criticizing Dr. Perl for doing so. Staff's inconsistent criticism should be rejected.

Staff also asserts that Dr. Perl's analysis and testimony "seemed to contain an inordinate amount" of errors and that "the number of adjustments Dr. Perl made and the change of the regression model suggests Dr. Perl was using statistics to reach a predetermined result" (TS Brief, pp. 185, 191). These assertions are wholly unsubstantiated by any evidence in the record in this proceeding.

Staff fails to note that many of Dr. Perl's evidentiary presentations were additional regression analyses and information performed or presented in response to specific requests by the OCA (Tr. 872). In addition, Dr. Perl presented revised testimony which updated his comparative cost analysis to include newly released construction cost data (see Addendum to the Direct Testimony of Lewis J. Perl). Furthermore, even Staff recognizes that "it is not uncommon to make computational errors" (Staff Brief, p. 185). Therefore, Dr. Perl's numerous evidentiary submissions were presented for legitimate reasons, and can be interpreted only as evidence of forthcoming participation in this proceeding.14/

Staff also faults Dr. Perl for including a new time-related variable, "Construction Permit Received in 1972-1973", in his regression equation when he analyzed the updated construction costs data (TS Brief, p. 188). Staff asserts, without the support of any testimony or other evidence submitted in this proceeding, that the revised variable is not supported by the new data. (Id.) Staff's analysis, presented for the first time in its Brief, however, does not include any statistics-based

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14/ Staff's criticism of the timing of Dr. Perl's submissions is without basis, as Staff was at all times afforded a full opportunity to cross examine and submit rebuttal evidence. This timing was moreover controlled by interrogatory deadlines or testimony appearance deadlines, and by Dr. Perl's extremely busy schedule which prevents analysis upon his part until such a deadline is imposed.

evaluation of the explanatory significance of either the new variable or Dr. Perl's revised regression equation (see Staff Brief, Tables 1 and 2). Absent such an evaluation Staff's elaborate data comparisons and manipulations are not meaningful criticisms of Dr. Perl's statistical analysis.

In contrast, Dr. Perl's analysis, submitted as Staff Ex. 38, provided a solid basis for the revised regression equation. Dr. Perl stated "the theoretical rationale for including time-related variables in the analysis has always been clear" and explained that his original analysis in this proceeding controlled for this effect by excluding from consideration all plants initiated prior to 1972 (Staff Ex. 28). The revised data, however, showed "continuing upward trends in costs within the post-1971 data base." (Id.) On this basis, Dr. Perl concluded that the inclusion of the new variable "makes good logical sense as a determinant of cost," "is statistically significant at a very high level," and improves "markedly. . . .the overall fit of the model". (Id.) All of these are valid bases in statistical theory for revising a statistical model, especially when presented subject to cross-examination by an admitted expert in this field, and are conclusive when, as in this case, no contrary expert testimony has been offered.15/

15/ Staff's assertions regarding Dr. Perl's motives are not worthy of response and are rejected out of hand. Allegations of inconsistency in Dr. Perl's positions on other matters are not relevant to his present analysis and are not supported in this record. Finally, it should be noted that the Recommended Decision cited by Staff from the Limerick 2 Investigation was not adopted by the Commission.

V. LIMERICK 1 IS A USED AND USEFUL ADDITION TO PECO's ELECTRIC GENERATION SYSTEM.

PECO, as contrasted to the opposing parties, has submitted for rate review the only electric generation system that will actually operate during the time when the rates set in this proceeding will be in effect. This system properly includes Limerick 1, and properly excludes 458 MW of CTs, Southwark units 1 and 2 and Richmond 9 which already have been retired and removed from PJM dispatching consistent with system planning considerations and various orders of the Commission.

When the Commission's threshold calculation for determining when a plant is "useful" is applied to PECO's system in this proceeding, no excess capacity exists "in the accepted, technical sense", as defined by the Commission in Pa. P.U.C. v. PP&L, Docket No. R-842651, p. 17 (April 25, 1985) (see PECO Brief, p. 5-4). Specifically, PECO's total electrical generating capacity, including Limerick 1, is equal to PECO's conservative projection of its requirement for peak demand plus a reasonable reserve margin. Therefore, Limerick 1 is a used and useful addition to PECO's electrical generation system.

Notwithstanding the foregoing, the OCA, UUC/UP, PAIEUG and GEC propose various excess capacity adjustments (see OCA Brief, Section IV; UUC/UP Brief, pp. 7-36; PAIEUG Brief, pp. 31-32; GEC Brief, pp. 15-18). These proposals ignore the Commission's definition of excess capacity "in the accepted,

technical sense" in at least two respects: (a) by attempting to shift the Commission's focus from PECO's requested rate base to an irrelevant, hypothetical system that includes capacity from both Limerick 1 and the retired units, and (b) by attempting to introduce life cycle analyses as independent, alternative standards for a finding of excess capacity. These considerations are not relevant in determining whether excess capacity exists in the first instance. Only if the Commission were to find excess capacity in the accepted, technical sense would life cycle analyses take on some marginal relevance for purposes of determining the extent, if any, of the ratemaking adjustment to be made.

Life cycle analyses are not a test for determining if excess capacity exists. Because PECO's system does not have excess capacity, life cycle analyses are not relevant in this proceeding and should not be considered.

A. The Opposing Parties' "Used And Useful" Analyses Fail To Focus On The Commission's Definition Of Excess Capacity "In The Accepted, Technical Sense."

In proposing its excess capacity adjustment, the OCA states in its Brief that "there is no question that PECO has at least 450 megawatts of excess capacity now and for at least the next five years" (OCA Brief, p. IV-45) (emphasis supplied in part). The OCA apparently has chosen to ignore the facts presented in this record in an effort to overstate its case; the

OCA has assumed the very thing it is attempting to establish. There certainly is no question whether PECO has excess capacity; it does not. Neither the OCA nor any other party has suggested that excess capacity exists in the absence of the inclusion of some combination of the retired CTs and the retired Southwark and Richmond units in the calculation of PECO's total capacity. The only way that excess capacity can be found to exist under the opposing parties' approach is by including the retired units, which are not now in service, not available for PJM dispatching and not included in PECO's requested rate base in this proceeding. A finding of excess capacity under these circumstances is unprecedented in Pennsylvania. As set forth in PECO's Brief, the opposing parties' approaches are inconsistent with: (a) the Commission's definition of excess capacity "in the accepted, technical sense", and (b) the prospective focus of the used and useful standard (PECO Brief, pp. 5-1 to 46).

Moreover, the opposing parties have conveniently overlooked the Commission's most recent excess capacity decision in Pa. P.U.C. v. West Penn Power Co., Docket No. R-842632 (August 25, 1985). As discussed in PECO's Brief (pp. 5-22 to 23), in West Penn Power the Commission explicitly rejected the inclusion of certain mothballed units in the calculation of the utility's total capacity, and thus in effect have rejected the very analysis put forth by the opposing parties in this proceeding. West Penn Power Co., supra, pp. 45-46.

Therefore, the approach advocated by the OCA, UUC/UP, PAIEUG and GEC for determining the total capacity for PECO's electric generating system fails to address the appropriate legal standard in this proceeding. This failure alone is sufficient to warrant rejection of their approach. However, as set forth below, the opposing parties' approach also fails to advance the regulatory policies underlying the used and useful standard, and fails to account for the unique regulatory history of Limerick 1 and the retired units.

1. The Opposing Parties' Approach Is Based On Hypothetical Systems That Will Not Be In Operation When Rates Will Be In Effect.

The approach suggested by the OCA, UUC/UP, PAIEUG and GEC seeks to shift the focus of the Commission's calculation of excess capacity away from the Company's total system capacity as it will actually exist during the time when rates are in effect. Instead, the opposing parties propose a hypothetical system that selectively includes units that are already retired and not part of the Company's requested rate base (PECO Brief, pp. 5-20 to 21). None of the opposing parties has suggested that the CTs, the Southwark units 1 and 2 or Richmond 9 be unretired, be placed back in service or be put back in PECO's rate base in this proceeding. Rather, their proposed findings of excess capacity are based upon assuming hypothetically that these units are available for dispatch and operating on PECO's system.

The hypothetical nature of the suggested approach is apparent from the testimony of OCA witness Lanzalotta that is quoted in the OCA's Brief (OCA Brief, p. IV-18). Mr. Lanzalotta explains that his Schedule I (a truncated portion of which appears as a table in the OCA Brief, p. IV-11) shows excess capacity:

> "when the 458 MW of CT generating capacity is deemed available through at least 1993 and Southwark's 336 MW of capacity is deemed available through 1987."

(OCA Brief, p. IV-18) (emphasis added).

In its Brief, PECO explains that these hypothetical comparisons of Limerick 1 and the retired units improperly seek to introduce notions of prudence into the excess capacity analysis (PECO Brief, pp. 5-20 to 21).[1/] In addition, the opposing parties' approach would require speculative comparisons and significant amounts of additional evidence before it could even be determined whether an excess exists. The opposing parties' approach would require the Commission to speculate in every rate proceeding in at least four respects.

First, the opposing parties do not specify how far forward or backward the Commission is to look in determining

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1/ As discussed in PECO's Brief, prudence questions are the first part of a two-part test of when a utility may receive a return on a particular investment, i.e.: (1) was the investment prudent when made; and (2) will the property be used and useful during the period when the rates will be in effect (PECO Brief, p. 5-1). Thus, notions of prudence are not part of the used and useful inquiry itself.

whether a retirement occurred because of a particular installation of new capacity. The relationship between a particular retirement and a particular installation is often speculative. Therefore, there is potential for argument from rate case to rate case as to what units should be at issue. A perfect example exists in this proceeding where the opposing parties are undecided about how to treat Richmond 9. PAIEUG and UUC/UP include Richmond 9 in their capacity calculations (PAIEUG Brief, p.31; UUC/UP Brief, p.10), the OCA does not (OCA St.5, Schedule 1). Yet, PECO witness Rush testified that:

> "it was possible to retire the remaining unit at Richmond, Unit 9, with the addition of Salem 2. The addition of Salem 2 and the retirement of Richmond 9 were approved by the Commission in PECO's last rate case."

(PECO St. 14B, p. 4). Thus the retirement of Richmond 9 was unrelated to Limerick 1.

Second, the mere fact of retirement does not explain the reasons for retirement. The proposed standard, by opening the door to a prudence analysis, would require full explanation and litigation of the prudence of all relevant retirement decisions in the context of a rate case.

Third, although the opposing parties have alleged that Limerick 1 is uneconomic compared to the retired units, they have not specified or justified the appropriate focus of the economic analysis they suggest be used to arrive at that conclusion. If they are suggesting that the Commission focus on long-term life-

cycle economics, the Commission already has determined that such future projections are too speculative for decision-making purposes (PECO Brief, pp. 5-50 to 51). Thus, the opposing parties' approach boils down to a speculative economic analysis of a hypothetical system.

If they are suggesting short-term comparisons on the basis of costs per megawatts of capacity, then the resulting regulatory pressure would be to build a system entirely of CTs, as opposed to any kind of baseload capacity (PECO Brief, pp. 5-24 to 26). The cost per megawatt of capacity associated with CTs will always be less than the cost per megawatt of capacity associated with large, baseload units. However, the cost of energy is less from a large baseload unit than a CT; CTs are relatively inexpensive to purchase, but extraordinarily expensive to operate on an extended basis. Thus, a short-term focus on minimizing cost per megawatt leads to uneconomic decisions in terms of the total value of the generation addition to the system.

The foregoing point is amply illustrated by OCA witness Lanzalotta's truncated life cycle analysis which purportedly indicates that ratepayers would benefit by $1.5 Billion if PECO retained the 458 MW of CTs (OCA St. 5, Schedule 2; see also OCA Brief, p. IV-21). Mr. Lanzalotta's Schedule 2 merely illustrates the proposition that, in the short run, net benefits of CTs outweigh those of Limerick 1. However, as seen from Mr.

Lanzalotta's Schedule 2, on an annual basis Limerick 1 becomes decidedly more beneficial to PECO's ratepayers even within the short time frame of his analysis (see OCA St. 5, Schedule 2).

Finally, the opposing parties' approach would require the relitigation of rate base issues every time changes in the economy would affect the relative economics of the new capacity versus the retired capacity. How would the hypothetical system operate? What fuel costs would apply? Would units ever break down? What would be their hypothetical capacity factors?

Accordingly, the electric generating system whose capacity is the starting point for any "excess" capacity discussion must be the system on which PECO is seeking ratemaking treatment. Whether or not the Commission should ever consider previously retired units in an excess capacity context is not a question which must be answered in this proceeding. As demonstrated in PECO's Brief, and as further discussed below, PECO's recently retired units are all properly removed from its generating system.

2. The Opposing Parties Improperly Ignore The Regulatory History Of The Retired Units.

PECO sets forth the regulatory history of the retired units in question at length in its Brief (PECO Brief, pp. 5-26 to 33). With respect to the 458 MW of CTs, this history demonstrates that: (a) the CTs were acquired solely as interim measures until additional baseload capacity could be built; (b), the CTs have served their original purpose and are no longer

useful for any other purpose; and (c) the Commission has been involved in, and overseen, every step of the regulatory process concerning the CTs, from their acquisition through their retirement. This regulatory history, which the opposing parties have chosen to ignore, provides independent justification for the retirements that the opposing parties seek to challenge.

The OCA seeks to blunt the importance of the CT retirements by referencing in a footnote a quote from the Commission's Order of January 21, 1986, Petition of PECO, etc., P-850055 (OCA Brief, p. IV-14). The OCA quotes the following passage:

> "It is not our intention to prejudge any rate case proceeding and we do not believe such is the case here. ...[O]ur ruling does not foreclose the OCA or any other party from presenting their positions and arguments in the PE rate case proceeding."

(Id.). The OCA cites this passage for the proposition that the CT retirement Order "specifically states that it has no effect on this rate case" (OCA Brief, p. IV-14).

The sentence that the OCA selectively omitted from its quotation of the Commission's Order, however, is revealing. In the omitted sentence this Commission stated:

> "We are acting on the merits of the instant petition and our decision is based upon the facts at hand as discussed herein."

(Order of January 21, 1986, P-850055). In its Brief, PECO quoted the relevant portion of the Commission's discussion of the merits of the retirement petition (PECO Brief, p. 5-33). The

Commission's decision was based upon the regulatory history of the CTs (Id.), and was consistent with PECO's position that the CTs have served their purpose and "this capacity is no longer required" (Id.).

In this proceeding, neither the OCA, nor any other intervenor, has presented any facts that would change the "facts at hand" upon which the Commission's decision was based. The Commission was aware of (a) the length of the CTs' lease (PECO Brief, p. 5-31), (b) the retirement fund which had already been collected (Id., pp. 5-31 to 32), and (c) the fact that the CTs were always meant to be an interim solution to capacity shortage problems pending the construction of additional baseload capacity (Id., p. 5-33). The OCA was given an opportunity to present new facts on this record that the Commission had not yet considered. Not surprisingly, no such facts were presented.

Second, the OCA quotes in its Brief a passage from the testimony of Mr. Lanzalotta wherein he suggests that it is circular to justify the retirement of units on the basis of new capacity, and then justify the capacity on the basis of the retirements (OCA Brief, p. IV-16). When examined from the perspective of the regulatory history of the CTs, however, it is apparent that it is Mr. Lanzalotta's reasoning that is circular. PECO established in its Brief that the CTs were acquired solely as an emergency, interim measure until more baseload capacity could be brought into service (PECO Brief, pp.

5-27 to 33). Now that the baseload capacity is available, it is indeed circular reasoning to suggest that the existence of the CTs somehow prevents the baseload capacity from being needed on the system.

Third, both the OCA (OCA Brief, pp. IV-3 to 5) and UUC/UP (UUC/UP Brief, p. 30) cite the 1980 PECO rate case as justification for their proposed excess capacity adjustments. Pa. P.U.C. v. PECO, 54 Pa. PUC 220, 37 PUR 4th 381 (1980) (hereinafter cited as PECO 1980), aff'd in part, vacated in part, 61 Pa. Cmwlth. 325, 433 A.2d 620 (1981). The PECO 1980 case, however, actually supports the justification for PECO's retirements in this proceeding.

Specifically, the OCA quoted the following passage from PECO 1980:

> "While not questioning PECO's management decisions made when these units were constructed, we are of the opinion that they have served the purpose for which they were constructed and cannot be considered used and useful for rate-making purposes."

PECO 1980, 54 Pa. P.U.C. at 227, 37 PUR4th at 389 (emphasis added) (see OCA Brief, p. IV-5). Like the capacity in question in PECO 1980, the CTs here are no longer used and useful because "they have served the purpose for which they were constructed" (Id.). Moreover, the Commission's reasoning in PECO 1980, that the CTs had served their original purpose, further supports PECO's present retirements.

> "Philadelphia Electric Company argues that many of its plants were built in response to commission concerns arising during a period when portions of the Northeast were experiencing brownouts and blackouts. We cannot find that PECO's decision to build intermediate units until such time as base load units could be built was imprudent when made. However, these units have served their purpose and are not currently necessary. As such, they are not used and useful, and properly should be excluded from rate base for ratemaking purposes."

PECO 1980, 54 Pa. P.U.C. at 226, 37 PUR 4th at 388 (emphasis added). The units in PECO 1980 were found not to be used and useful for the precise reason that PECO has retired the CTs here: they were installed to provide interim relief until baseload capacity could be built and they are no longer needed to serve that purpose.

In addition, the PECO 1980 case specifically supports the retirements of Southwark units 1 and 2 and Richmond 9 (Id.). In PECO 1980, the Commission found that excess capacity existed on PECO's system and made an excess capacity adjustment that eliminated from PECO's rate base the generating units determined to be least economical. Among the units that the Commission determined to be least economical were Richmond 9 and Southwark units 1 and 2 (Id.). Moreover, the Commission's adjustment deducted from PECO's rate base the depreciated original cost of these units found to be excess (Id.), but permitted PECO to continue recovering the expenses of operating and maintaining the units, including depreciation (Id., p.

389). In contrast, by voluntarily retiring these units, PECO not only has removed these old, uneconomical units from its system, but it has also foregone further recovery of operating and maintenance expenses.2/

Finally, both the OCA and UUC/UP raise the spectre that if PECO were not required to "unretire" the CTs and the Richmond and Southwark units in this proceeding, a utility could always justify the need for a new, expensive unit by retiring the cheapest capacity on its system (OCA Brief, p. IV-16; UUC/UP Brief, p. 13). Nothing could be further from reality. As amply demonstrated on this record, PECO has retired the units in question for valid reasons approved throughout by the Commission. Moreover, before "new, expensive generating capacity" could be built, or older generating units retired, they would have to pass Commission scrutiny. Indeed, that is precisely the history of both Limerick 1 and the units in question that PECO has retired. Neither PECO nor any other utility operates in a vacuum in making generation or retirement decisions; their decisions are dictated by sound system planning principles and Commission oversight.

2/ It should be noted that none of the opposing parties have presented any evidence on this record that Richmond 9 and Southwark units 1 and 2 are anything but old, inefficient units.

3. Cases From Foreign Jurisdictions Do Not Support An Excess Capacity Adjustment In This Case.

PECO has demonstrated that there is no basis for an excess capacity adjustment in this case under Pennsylvania law. Nevertheless, UUC/UP (UUC/UP, p. 35) and the OCA (OCA Brief, pp. IV 47-48) attempt to justify their proposed excess capacity adjustment by referring to cases from foreign jurisdictions. However, none of the foreign cases cited supports the hypothetical inclusion of retired generating units in determining excess capacity.

The Iowa Commerce Commission, for example, one of the foreign commissions cited by UUC/UP, supports PECO's analysis of what constitutes a reasonable reserve margin. In Iowa Power & Light Co., 59 PUR4th 599 (Iowa, 1982), a case decided after the two Iowa decisions cited by UUC/UP, the Iowa Commission adopted a maximum reserve that was 10 percentage points above the relevant power pool's minimum reserve requirement for the utility. Thus, in adopting a 25% reasonable reserve margin, the Commission stated:

> "In addition, while the study is useful in supporting the Mid-America Power Pool (MAPP) minimum reserve requirement of 15 per cent, it is not applicable to the question of what maximum reserve amount is necessary. It is not reasonable to subject company to the dilemma that an identical maximum/minimum requirement of 15 per cent would create. Faced with the choice of falling below 15 per cent and incurring MAPP penalties, or going above 15 per cent and losing return on common equity, company may very choose [sic] to risk

> the MAPP penalties, which would result in an adverse effect on ratepayers from higher rates.... Finally, such precision would be virtually impossible for the utility to achieve. The dilemma created by an identical minimum/maximum requirement must be avoided."

(Id., p. 620) (emphasis added). Considering that OCA witness Lanzalotta incorrectly believes that anything above PECO's minimum reserve margin should be considered excess (PECO Brief, pp. 5-16 to 17), he is advocating that PECO be put in just such a "dilemma."

Similarly, in the Wolf Creek decision cited by UUC/UP and OCA[3/], the Kansas Commission determined that in order to account for the "lumpiness" inherent in bringing large baseload units on line, it would utilize a "planning horizon perspective" in determining the unit's usefulness:

> "Due to the fact that baseload generating facilities are not likely to be brought into service in discrete segments exactly paralleling changes in demand (citation omitted), the Commission believes that an analysis of peak responsibility for the purpose of identifying facilities 'required to be used' must incorporate a planning horizon perspective. To hold otherwise would create a future disincentive to the construction of facilities which constitute the most economic type of capacity for the particular system on a scale that would provide additional economies to the system."

Wolf Creek, p. 50 (emphasis in original). The "planning horizon" used by the Kansas Commission to account for the inability to

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3/ In Re Kansas Gas & Electric Co., Docket No. 120, 924-U, Docket No. 142, 098-U, 84-KG&E-197-R (Kansas, Sept. 27, 1985) ("Wolf Creek").

match exactly baseload generating facilities with changes in demand was five years. If one were to view Limerick 1 utilizing such a five year planning horizon perspective, then even under the OCA's approach, no excess capacity would exist (i.e., the OCA concedes that Limerick 1 is needed fully by 1991) (see OCA St. 5, Schedule 1).

4. Attempts To Sell Portions Of Salem Or Limerick Do Not Establish The Existence Of Excess Capacity.

Perhaps recognizing that they have failed to establish directly that PECO has excess capacity, the OCA attempts to establish excess capacity indirectly by reference to PECO's attempts to sell portions of its capacity from the Salem and Limerick plants in the 1982 to 1984 time frame (OCA Brief, p. IV-19 to 20).

First, in its Brief the OCA incompletely quotes Mr. Paquette, PECO's Vice President for Finance, (OCA Brief, p. IV-20) in support of the OCA's assertion "that the Company would not have considered selling Salem 2 if it would have jeopardized the reliability of the system" (Id.). The OCA then suggests that because sales of capacity were considered, the capacity must necessarily have been excess (Id.).

The implication is not supported by, and does not follow from, Mr. Paquette's complete statement:

> "[O]ffers to sell or share base load capacity considered both the requirements for Philadelphia Electric Company System as well as the derived financial benefits that would

have accrued to the Company and our customers by maintaining earlier in-service dates for these facilities."

(PECO St. 3C, p. 6) (underlined portion omitted by OCA) (see OCA Brief, p. IV-20). Mr. Paquette went on to explain that:

"[t]hese efforts were directed at capacity sharing arrangements with surrounding utilities also building nuclear power plants (i.e., PSE&G and PP&L) or short-term energy and/or capacity sales. By achieving such arrangements, it was hoped that the total ratepayer costs could be reduced."

(Id., pp. 6-7). Thus, the motivation behind PECO's efforts to sell portions of Salem or Limerick back then was principally based on financial considerations, not capacity considerations.

Second, since the time of the sale attempts referenced by the OCA, PECO's load has grown at a rate of 2% per year (PECO Brief, p. 5-7). In addition, in 1985 PECO achieved one of its highest all-time weather normalized peak demands (Id., p. 5-10). During the time of the sale attempts PECO had been projecting peak load growth of approximately .85% per year, or less than half the actual growth experienced (see PAIEUG St. 1, Schedule 12-K). Therefore, recent load and peak demand growth has changed PECO's capacity needs from the time it commenced its sale efforts.

Third, attempts to sell capacity in the past are simply irrelevant to a finding of excess capacity today. Excess capacity is determined not by such extraneous factors as past sale attempts, but on the basis of PECO's total capacity minus

peak demand requirements plus a reasonable reserve margin (PECO Brief, pp. 5-3 to 6). Therefore, only the capacity that exists on the system at the time the rates will be in effect is relevant.

5. PECO Has A Reasonable Reserve Margin With The Addition Of Limerick 1.

The opposing parties do not explicitly address the issue of a "reasonable reserve margin." In its Brief PECO demonstrates that a reasonable reserve margin: (a) is based on PECO's minimum planning reserve requirement of 25% (PECO Brief, pp. 5-11 to 17), and (b) is flexible enough to recognize uncertainties in load forecasting and the "lumpiness" of capacity additions (Id., pp. 5-41 to 46). Although the OCA presented figures apparently based on the PJM minimum reserve margin, they made no attempt to justify that minimum level as the regulatory maximum (OCA Brief, p. IV-11). PECO has clearly demonstrated why the minimum required reserve should be a starting point, rather than a regulatory maximum (PECO Brief, pp. 5-41 to 46; see Section V. A.3., supra).

When PECO's total capacity is calculated without the improper inclusion of the already retired units, PECO's reserve margin is 28% in 1986 and declines to 26% by 1989 (PECO Brief, pp. 5-46).4/ This is well within the bounds of reasonableness.

4/ These reserve margins are based on the retirements of Delaware Units 7 and 8 (and associated diesels) being delayed from 1988 to 1990 (compare PECO St. 14, Schedule 7 with PECO St. 14, Schedule 7 (revised)). These delayed (continued)

Even assuming, arguendo, that the retired units are properly included in determining PECO's total capacity and, as the OCA suggests, PECO has 450 MW of excess capacity, it is important to note that: (a) this 450 MW figure is determined with a minimum reserve margin and not with a maximum reserve margin, and (b) a significant portion (57.3%)[5/] of Limerick 1 is still "useful" from the start. As set forth in PECO's Brief, a reasonable reserve margin would still exist where a significant portion of the plant's capacity is needed presently, and all of the new capacity will be needed within a reasonable time.[6/] Accordingly, Limerick 1 is not excess capacity and is a used and useful addition to PECO's electric generation system.

B. The Life Cycle Analyses Lack Relevance In This Proceeding But Nonetheless Demonstrate That Limerick 1 Will Produce Positive Economic Benefits Over Its Operating Lifetime.

The opposing parties' briefs reflect considerable confusion and disagreement over the legal significance of life cycle analyses to the "used and useful" standard: (1) PAIEUG asserts that in order to satisfy the used and useful standard, a plant must be needed for system reliability and provide net economic benefits over its lifetime (PAIEUG Brief, p. 30);

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retirements were necessary in order to meet PECO's minimum planning reserve margin of 25% even with Limerick 1 on the system.

5/ 1055MW - 450MW ÷ 1055MW = 57.3%

6/ Even assuming the retired units are considered part of PECO's total capacity, the OCA concedes that all of Limerick 1 is needed by at least 1991 (OCA St. 5, Schedule 1).

(2) UUC/UP suggests that the used and useful standard requires that a plant be needed for system reliability or provide net economic benefits over its lifetime (UUC/UP Brief, pp. 7-8, 15); (3) OCA claims that a plant must be needed for system reliability or provide "immediate" economic benefits (OCA Brief, pp. IV-10, IV-22).

This disagreement is somewhat suprising since Commission decisions have firmly established in Pennsylvania that the issue of whether a plant is "useful" depends solely on whether or not it represents excess capacity (PECO Brief, pp. 5-4 to 5). Life cycle analyses are not utilized in Pennsylvania to reach a determination of whether or not a plant represents excess capacity (PECO Brief, pp. 5-46 to 50). However, life cycle analyses can have some peripheral relevance to a ratemaking proceeding, but only after it is determined that excess capacity exists as a result of the new unit (PECO Brief, pp. 5-5 to 6). Then, and only then, does the Commission consider, along with numerous other matters, the potential lifetime benefits from the plant in determining if an excess capacity adjustment should be made to the rate request (PECO Brief, pp. 5-5 to 6, 5-47 to 49). Since PECO has demonstrated beyond peradventure that in the test year Limerick 1 does not represent excess capacity in the Commission's "accepted, technical sense" (see PECO Brief, pp. 5-3 to 46), life cycle analyses become totally irrelevant on this record in this proceeding.

Based on a review of the opposing parties' Briefs, it appears that both the OCA and UUC/UP agree with PECO that life cycle analyses are not an independent standard which must be met in determining whether a unit represents excess capacity (OCA Brief, p. IV-10; UUC/UP Brief, pp. 7-8). However, PAIEUG's construction of the used and useful standard would impose an independent requirement that a plant be shown to produce lifetime life cycle benefits (PAIEUG Brief, pp. 7-8). This construction not only contradicts the positions of all other parties in this proceeding, but more importantly, it is plainly inconsistent with Pennsylvania precedent (PECO Brief, pp. 5-47 to 52). Further, PECO has demonstrated that it is impracticable to apply such a standard with the requisite precision needed for rate-making purposes and that such a standard would be highly unfair to PECO's shareholders (PECO Brief, pp-5-49 to 53). Even the OCA has conceded that:

> "there is a great deal of uncertainty in these 40-year forecasts of costs and benefits."

(OCA Brief, p. IV-25).

1. Comparing The Rate Treatment Of Susquehanna 2 In an Unrelated Proceeding And Under Completely Different Facts To Limerick 1 Is Improper.

Since Limerick 1 is not excess capacity on PECO's electric generation system, any proposal recommending ratemaking treatment for Limerick 1 that is similar to the ratemaking treatment for Susquehanna 2 in Pa. P.U.C. v. PP&L, Docket No. R-

842651, is entirely inappropriate. Susquehanna 2 presented a completely different fact situation than Limerick 1 (PECO Brief, pp. 5-47 to 48).[7/] Because the opposing parties are trying to find any excuse for a disallowance of PECO's rate request, they are willing to strain for analogies to other proceedings, such as Susquehanna 2, even when the facts simply do not permit meaningful comparisons. Thus, for example, the discussion of Susquehanna 2's rate base treatment by the UUC/UP (UUC/UP Brief, pp. 22-27), PAIEUG (PAIEUG Brief, pp. 28-29) and the OCA (OCA Brief, pp. IV-44 to 45) is inapposite to this proceeding.

Moreover, the impracticability and unfairness of imposing an independent life cycle benefit test for Limerick 1, or any other utility investment, is vividly demonstrated in UUC/UP's discussion of the comparative economics of Limerick 1 versus Susquehanna 2 (UUC/UP Brief, pp. 22-27). UUC/UP argues that comparing the life cycle benefits of Limerick 1 and Susquehanna 2 supports its argument as to the "non-useful nature of Limerick 1" (Id., p. 26) However, as noted above, the UUC/UP has acknowledged that this analysis is not relevant, inter alia, because the used and useful standard is satisfied where, as here, a plant represents needed capacity.

Nothwithstanding this acknowledged irrelevance, UUC/UP nevertheless attempts to compare the results of life cycle

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7/ Unlike PP&L, PECO will still be a net importer of energy even after the addition of Limerick 1 (PECO St. 14A, p.4).

analyses for both Limerick 1 and Susquehanna 2 (UUC/UP Brief, pp. 23-24). However, UUC/UP witness Chernick notes that Susquehanna 2's avoided cost projections were considerably higher than those projected for Limerick 1 largely because Susquehanna 2's life cycle analysis was performed at a time "when fuel price projections were much higher than at present" (UUC/UP St. 1, pp. 45-46). Mr. Chernick's observation clearly reveals the arbitrariness of life cycle analyses, both as a basis for ratemaking treatment and as a basis for comparing the relative value of two plants which happen to seek rate recovery at two different times. Dr. Hieronymus further underscores the vagaries inherent in UUC/UP's attempt to compare the life cycle analyses prepared for Limerick 1 and Susquehanna 2:

> "The apparent differences in the value of the plants arises largely from differing estimates of future fuel savings, estimates which have clearly proven to be badly wrong (in both directions) in the relatively recent past. Substituting the PP&L Susquehanna 2 fuel savings estimate for PECO's adds $3113 million in present value to the PECO estimate, raising the net savings to the 5 to 7 billion dollar range.... Susquehanna first produces significant net savings in 1991, six and a half years after operation; Limerick first produces net savings in 1992, seven years into the life of the plant. Limerick's savings based on Susquehanna 2 fuel savings assumptions exceed Susquehanna's net savings beginning in 1997 and substantially exceed them in every subsequent year.
>
> Finally, whether Limerick produces a net 'profit' in lower present value of costs of 'only' 50 to 125 percent of the investment or, as Susquehanna 2 fuel savings would imply, a substantially greater savings is of no obvious relevance even to the generally irrelevant (for regulatory purposes) question of whether Limerick 1 will prove to have

been a good investment. Any positive net savings means that the investment is beneficial."

(PECO St. 15A, p. 22) (emphasis added).

Therefore, to rely on a comparison of uncertain and speculative life cycle analyses of two different units for determining ratemaking treatment of utility investments would lead to arbitrary and mistaken results. It is for this reason, in addition to the fact that Limerick 1 is not excess capacity, that any recommendation for Limerick 1's ratemaking treatment that relies upon the Commission decision in Susquehanna 2 is clearly inappropriate and misleading.

2. PECO's Life Cycle Analysis Demonstrates That Limerick 1 Will Provide Net Benefits Over Its Lifetime.

Although the results of the various life cycle analyses presented by the opposing parties in this proceeding are in fact quite contradictory (see PECO Brief, pp. 5-55 to 64; Appendix D), both the OCA and UUC/UP have attempted to characterize the results of the OCA, UUC/UP and PAIEUG as consistent (see OCA Brief, pp. IV-24 to 30; UUC/UP Brief, pp. 9, 17-18, 21). Indeed, it is precisely because the underlying assumptions and approaches of the opposing parties are so contradictory that the reasonableness of the assumptions utilized by the Company in its life cycle analysis are demonstrated (see PECO Brief, pp. 5-55 to 64; Appendix D).

While most of the contradictions in the opposing parties' analyses were outlined in PECO's Brief (see Appendix D),

a few obvious examples are illustrative: UUC/UP witness Chernick's O&M projection is five to seven times that of the Company's, while the O&M forecasts of OCA witness Komanoff and PAIEUG witness Falkenberg differ only slightly from the forecast presented by the Company (Appendix D, pp. D-2 to 3). Mr. Chernick's O&M forecast for Limerick 1 in 2024 is approximately $4 billion, while the forecasts of the Company, Mr. Falkenberg and Mr. Komanoff range between $.7 and $1.3 billion in current dollars (see Appendix D, pp. D-2 to 10; Schedule D-1).

Likewise, Mr. Komanoff's capital additions forecast is approximately seven times that of the Company, compared to Mr. Chernick's forecast which is approximately two and one-half times the Company's capital additions cost forecast (PECO St. 15A, pp. 33-34; see Appendix D. pp. D-10 to 21, Schedule D-2). Thus, in the year 2024, Mr. Komanoff forecasts capital additions costs of $1.1 billion while Mr. Chernick forecasts capital additions costs of "only" about $450 million. The Company and Mr. Falkenberg, on the other hand, forecast capital additions costs of approximately $100 million or less (see Appendix D, pp. D-10 to 21; Schedule D-2). PAIEUG witness Falkenberg had no separate figure for capital additions costs, but stated that they were included in his figure for his O&M cost forecast for Limerick 1 (Tr. 3458). Inasmuch as Mr. Falkenberg's O&M estimate alone is only $55 million in present value above the Company's O&M forecast (PECO Brief, p. 5-64, Appendix D, p. D-4), Mr. Falkenberg's combined O&M and

capital additions forecast is actually lower in present value than the Company's combined O&M and capital additions forecasts.

Similarly, Mr. Chernick forecasts that Limerick 1's lifetime capacity factor will be approximately 56 percent, as compared to Mr. Komanoff's forecast of 60 percent. These two forecasts, in turn, are lower than the 65 percent forecast utilized by PECO for its analysis and advocated by GEC witness Wilson as an appropriate capacity factor projection (see PECO Brief, pp. 5-60 to 61; Appendix D, pp. D-21 to 28).

Thus, the opposing parties' attempts to portray their analyses as consistent with one another both amplifies the magnitude of the flaws in their individual analyses, which have been well documented by the Company, and underscores the reasonableness of the aggregate assumptions used in the Company's life cycle analysis. In addition to this general attempt to claim security in numbers, the opposing parties have attempted to shore up specific components of their life cycle analyses with inaccurate inferences and references. The Company briefly describes below its criticism of the presentations made in the opposing parties' Briefs on some of the significant life cycle analyses variables.

a. The Capacity Factor Used By the Company In this Proceeding Is Reasonable.

OCA witness Komanoff attempts to confirm his capacity factor forecast by claiming that it was adopted by Administrative Law Judge Turner in the Limerick Unit No. 2 Nuclear Generating

Station Investigation, I-840381 (OCA Brief, pp. IV-28 to 29). ALJ Turner, however, explicitly relied in her discussion of the OCA's capacity factor forecast on the OCA's analysis that problems will develop as plants age (Id., Recommended Decision at 238). As has been clearly shown in this proceeding, however, the age variable that Mr. Komanoff relied upon both here and in the Limerick 2 Investigation is no longer viable in light of the data produced since the record closed in that proceeding. The data that has become available since ALJ Turner's Recommended Decision strongly suggests that the 65 percent capacity factor utilized by the Company and GEC witness Wilson in this proceeding is more reasonable than the lower figures utilized by Mr. Komanoff and Mr. Chernick (see PECO Brief, pp. 5-57 to 58, 60-61, Appendix D, pp. D-23 to 28).

b. PECO's Fossil Fuel Price Projections Are Appropriate In This Proceeding.

The OCA attempts to validate its fossil fuels forecast by emphasizing that the 1986 starting prices for oil and coal overstate current prices so that "even if the Company's escalation rates prove to be correct", Limerick 1's benefits are likely to be "greatly overstated" (OCA Brief, pp. IV-30 to 31). This is incorrect. The OCA's attempt to seize upon current low oil prices as a basis to support the oil price forecast in its 40-year life cycle analysis contradicts the plain sense of Mr. Komanoff's earlier admission that:

> "although actual prices will be more volatile than the particular neat pattern [of oil prices he presents] the specific timing and magnitude of price swings aren't vital to calculating the benefits of Limerick 1."

(OCA St. 6, p. 37) (see also PECO Brief, Appendix D, pp. 28-46).

The OCA also attempts to validate its oil and coal price forecasts by relying on ALJ Turner's decision in the Limerick 2 Investigation that PECO's coal and oil price forecast appeared to be too high (OCA Brief, p. IV-34). It should be noted not only that ALJ Turner pointed out "flaws" in Mr. Komanoff's approach, and that she specifically did not adopt Mr. Komanoff's forecast, but also that PECO has adjusted its coal and oil price forecasts downward since the Limerick 2 Investigation (see PECO Ex. JJC-3). Thus, to the extent that the OCA takes the facile approach of attempting to rely on outdated data and ambiguous conclusions drawn from the Limerick 2 Investigation, and because the evidence in this proceeding supports the reasonableness of the Company's forecast, the OCA's fuels price forecasts should be rejected (see PECO Brief, Appendix D, pp. 38-46).

The OCA also attempts to validate its oil price forecast by claiming that its forecast of $25 to $26 per barrel for 1990 is consistent with the projections of the forecasters listed in Tables 2 and 4 from Exhibit WWH-6 of Dr. Hogan's sur-surrebuttal testimony (PECO St. 37A). "Most" of these forecasters, the OCA submits, are forecasting oil prices for 1990 in the $21 to $27 range (OCA Brief, p. IV-33). This comparison is misleading

because: (a) the OCA's choice of the year 1990 is just before the forecasters listed in WWH-6 are almost unanimous in forecasting a sharp upturn in oil prices leading to considerably higher oil prices by 1995; and (b) the 1990 average for the 35 forecasters singled out by the OCA, even before oil prices are expected to rise considerably, is $26.65 per barrel -- higher than the $25-26 range forecast by the OCA and at the extreme upward end of the $21 to $27 range that the OCA attributes to "most" of the forecasters listed in Exhibit WWH-6. In fact, the forecasts listed in Tables 2 and 4 of Dr. Hogan's WWH-6 range as high as $46 per barrel for 1990, placing PECO's $29 forecast well within the range of reasonably anticipated oil price forecasts. It should further be noted that Dr.Hogan was one of the "major forecasters in the world" contacted for the Synthetic Fuels Corporation Survey summarized in Exhibit WWH-6, while neither Mr. Komanoff nor Mr. Chernick were contacted for the survey (PECO St. 37A, p.17). Moreover, Dr. Hogan's model demonstrates that in 1990, even before the widely anticipated oil price upturn, the chances that Mr. Komanoff's forecast is too low is 98% while there is only a 10% chance that the Company's oil price forecast is too high (PECO Brief, p. 5-58, Appendix D, p.D-53).

c. Capital Additions For Limerick 1 Are Most Likely Going To Be At The Level Projected By PECO.

Mr. Komanoff concedes PECO's argument that despite the fact that he cannot predict what types of repairs will be experienced at Limerick 1, his forecast anticipates a doubling of capital additions costs by the year 2010 (OCA Brief, pp. 35-36). The Company has criticized Mr. Komanoff's forecast for its assumption that Limerick 1 will experience exaggerated capital additions costs from its first years of operation (PECO Brief, p. 5-57, Appendix D, pp. D-11 to 18). Mr. Komanoff then assumes that these exaggerated costs escalate at a constant rate despite PECO's extensive effort to correct for past design defects such as IGSCC (Id). Ignoring the likelihood and effect of improvements in Limerick 1's design, Mr. Komanoff criticizes the Company's capital additions forecast beginning with Limerick 1's first five years (OCA Brief, pp. IV-34 to 35). However, his forecast of immediate high capital additions costs, despite Limerick 1's design improvements, contradicts his own statement made during cross-examination that:

> "I would suggest that the issue of IGSCC and whether new design problems will come along to replace IGSCC, assuming it's solved, that issue goes more, to my way of thinking, to the starting level of capital additions costs."

(Tr. 2863).

Thus, Mr. Komanoff concedes that the historic problems which have resulted in increases in post-commercial capital

additions costs, such as IGSCC, should go primarily to the issue of the level at which the capital additions costs will start. Nevertheless, Mr. Komanoff assumes that Limerick 1 will greatly exceed the historic average for nuclear capital additions costs in every year of its existence, including the early years (PECO Brief, Appendix D, pp. D-16 to 18). His assumption is contrary to the unrebutted testimony of PECO witness Helwig that describes how Limerick 1 is a state-of-the-art unit which corrects the major problems experienced in the past (PECO Brief, p.5-57, Appendix D, pp. D-11 to 13). Further, Mr. Komanoff's assumption of "more" capital additions for more recent plants and for plants as they age (OCA Brief, pp. IV-37 to 38) is completely at odds with the very data he has presented in this proceeding because no age trend is visible in more recent plants (PECO Brief, pp. 5-57, Appendix D, pp. D-16 to 18).

d. PJM Capacity Deficiency Charges Were Properly Assumed To Increase By PECO.

The OCA criticizes Dr. Hieronymus' assumption of an increase in the PJM capacity deficiency charge beginning in 1986 (OCA Brief, pp. IV-39 to 40). The OCA criticism assumes that PJM would have done nothing by 1986 either to penalize PJM members who were dependent on the PJM system to supply a substantial and prolonged portion of their energy needs, or to reward PJM members who provide baseload capacity to the system. (see PECO Brief, pp. 5-59 to 61; Appendix D pp. D-51 to 55). Dr. Hieronymus, however, explains why his assumption that an increase in the PJM

capacity deficiency charge would begin in 1986 if Limerick 1 were not built, is reasonable:

> "My reasoning [in assuming increased capacity deficiency charges] goes to the construction of the hypothetical case used for valuing Limerick 1. The comparison is a pure 'with versus without Limerick' analysis. The only circumstance under which such a comparison is valid is one in which PECO is assumed to have no Limerick sunk costs, implying that it never began Limerick construction. The predicate for beginning the higher charges in 1986 is simply that the other PJM members would have, some time ago, given notice that PECO had a limited time to rectify its economic capacity situation. Given that PECO forecasted economic (and total) capacity deficits absent Limerick completion well before 1986, the assumption that the penalty rate would have taken effect by 1986 does not seem to me to be at all unreasonable."

(PECO St. 15B, p. 18) (emphasis added).

C. Mr. Chernick's Avoided Cost Proposal Lacks Relevance And Unfairly Imposes All Risks Associated With Limerick 1 Construction Upon PECO's Shareholders.

UUC/UP witness Chernick's avoided cost proposal is without precedent in Pennsylvania, and, in fact, was rejected in Pa. P.U.C. v. PP&L, Docket No. R-8426511 (see PECO Brief, pp. 5-65 to 69). However, in support of his proposal, UUC/UP suggests that "Mr. Chernick's approach and his formula has been accepted by the Massachusetts Department of Public Utilities" (UUC/UP Brief, p.41). This is not correct. The Massachusetts case is inapposite to the instant proceeding for two reasons. First, the Mass. D.P.U. chose not to apply the regulatory

standards discussed in the paragraph quoted by UUC/UP to Millestone 3, the unit in question in that proceeding, because the unit was being constructed, just like the Limerick Generating Station, under a different regulatory standard than the one proposed. Western Massachusetts Electric Company, D.P.U. 84-25, p.43 (July 31, 1984). Second, contrary to the UUC/UP's assertion, the Mass. D.P.U. has not yet adopted any formula, let alone Mr. Chernick's, for determining appropriate recovery under the used and useful standard (Id.). Indeed, the Mass. D.P.U. has just recently opened an investigation to determine whether the used and useful standard, or some other standard, is the appropriate basis for determining the ratemaking treatment for utility investment. See D.P.U. 86-36 (February 14, 1986).

As the Mass. D.P.U. recognized in Western Massachusetts Electric Company, adopting Mr. Chernick's avoided cost proposal in this proceeding would be to impose risks on PECO's shareholders that they could not have foreseen at the time of their investment (PECO St. 15A, pp. 6-7). This would not only be unprecedented, but in light of the attendant restrictions of Mr. Chernick's proposal, completely unfair to PECO's shareholders (PECO Brief, pp. 5-65 to 69).

D. PAIEUG'S "Riskiness" Analysis Is Historically Inaccurate And Seeks To Establish An Improper Regulatory Standard.

PECO demonstrated in its Brief that PAIEUG'S "Riskiness" analysis, set forth by PAIEUG witness Falkenberg, is not legally

relevant and is methodologically flawed (PECO Brief, pp. 5-69 to 87). In its Brief, PAIEUG states that:

> "the PAIEUG analyses demonstrate that reasonable and knowledgeable utility industry management personnel in the mid-1970's would have differed with PECo regarding the accuracy of both their load forecast and their capital cost estimate for Limerick 1."

(PAIEUG Brief, pp. 34-35). This statement has no historical support and is inaccurate. PECO witness Guth has demonstrated that PECO's load forecasts were consistent with those of virtually every other forecaster in the mid-1970's, including government, industry and private forecasters (PECO Brief, pp. 5-82 to 83). To the extent that virtually every forecaster in the mid-1970's would have failed PAIEUG's "reasonable and knowledgeable utility management personnel" test, then that test must not accurately represent the opinions of a "reasonable and knowledgeable" utility manager. Further, to the extent that PAIEUG is simply recommending that a utility be exposed to potential rate base adjustments on the basis that a different forecaster could have made a different decision, PAIEUG'S recommendation constitutes an improper regulatory standard that is too easily failed (PECO Brief, pp. 5-70 to 71).

PECO's load and capital cost forecasts in the mid-1970's were consistent with utility and other forecasts and were based on state-of-the-art techniques (PECO Brief, pp.5-73 to 87). Therefore, PECO's forecasts were clearly appropriate under the circumstances.

VI. ENERGY COST RATE MODIFICATION

A. PECO's "Cap" Proposal

As set forth in the Company's Initial Brief (pp. 6-5 to 6-10), the Company believes that it is entitled to present and that the Commission should adopt a reasonable limitation or "cap" on the gain or loss resulting from application of the proposed 80%/20% ECR. In summary, a cap would at least partially reflect the magnitude, uncontrollability, and variability of PECO's energy costs, would reflect the existing incentives PECO already has in place to control energy costs, would at least partially recognize PECO's already substandard financial condition and its particular vulnerability to additional financial risk, would reflect the experimental nature of the 80%/20% ECR, and would be consistent with the approach taken by other jurisdictions with comparable ECR provisions. No party has seriously challenged the cap on its merits. Rather, they assert that the issue is not appropriately presented in this proceeding. The Company believes that these positions are in error and that due process of law requires that PECO be given notice and opportunity for hearing on this important issue in this proceeding.

B. The 20% Non-reconcilable Portion Of Energy Costs Should Be Recovered In The ECR.

Trial Staff presents an extensive argument in support of its position that the 20% of non-reconcilable energy costs should be established and recovered in base rates. Specifically, Trial Staff asserts that base rate recovery (1) is required as a matter

of law; (2) is required by the Commission's ECR No. 8 Order and supported by Commissioner Shane's motion proposing an 80%/20% ECR; (3) will provide the Commission with a better opportunity to evaluate the reasonableness of PECO's energy costs; and (4) will provide greater stability. The Company submits that the Staff is incorrect on each of these points, that its proposal would be detrimental to ratepayers and shareholders, and should be rejected.

First, with respect to the legal issue, as explained in the Company's Initial Brief (pp. 6-16 to 6-18), the Commonwealth Court has previously decided this question and has held that non-reconcilable costs may be recovered in the ECR.

Second, with respect to the Commission's Order, the Company has fully explained its position in its Initial Brief (pp. 6-13 to 6-16) that the Order fully and clearly supports ECR recovery of the 20% non-reconcilable costs. While there arguably may be some ambiguity in the Order, the Company believes its position is fully consistent with the ECR No. 8 Order and is far superior on policy and other grounds as explained in its Initial Brief.11/

11/ Staff also cites Commissioner Shane's Motion to establish an 80%/20% ECR to support its position. The Company believes that a Motion by a single Commissioner should not override an Order of the Commission which specifically states that the ECR modification will be incorporated in the existing ECR. Moreover, read as a whole, the intent of Commissioner Shane's Motion is to make 20% of total energy costs not subject to reconciliation. The specific mechanics of how this is to be accomplished are not addressed in the motion.

Third, Trial Staff expresses a concern that traditional ECR filing procedures will not afford the Commission sufficient time to review the 20% cost projection. As Mr. Hill explained (PECO St. 18F, p. 19), the Company is willing to allow the Commission more time, if it so desires, to obtain the many benefits for both ratepayers and shareholders of the Company's proposal.

Fourth, Trial Staff's assertion that its proposal will provide more stability is simply in error. Energy costs are currently extremely volatile. Under Staff's proposal, the 20% energy cost component would be established in base rates which means that it can be changed only when the Company files a base rate case and only after nine months of investigation. This lag in reflecting changes in energy costs is simply intolerable from both a Company and ratepayer point of view. If adopted, it would expose both the Company and ratepayers to serious risks of very substantial over or under collections. Finally, it should be noted that the GEC has specifically supported the Company's proposal, and no other party has objected to it.

Trial Staff also proposes to reduce the Company's base cost of fuel from 20.823 mills/kwh to 16.414 mills/kwh to reflect the revised energy cost projections submitted in this proceeding (TS Brief, pp. 253-257). This proposal should be rejected for two reasons. First, it is completely unnecessary as these energy cost reductions are fully reflected in the Company's proposed

ECRF. There is no reason to change the base cost of fuel. Second, Trial Staff's proposed roll-out of the base cost of fuel would significantly affect the allocation of the increase to the various customer classes. The Company has proposed to allocate an equal percentage increase to all classes including all fuel costs. The roll-out proposed by Staff would remove fuel costs from base rates and thereby change the allocation of the increase. Specifically, a greater percentage increase would be assigned to the residential class than to the industrial class. Staff's proposal therefore should be rejected. Alternatively, if it is adopted, the roll-out should be applied only after the increase is allocated to customer classes.

C. Nuclear Performance Standard

GEC admits that its proposed nuclear performance standard testimony was stricken by the ALJ, but asserts that it should be considered anyway, even if it cannot be implemented (GEC Brief, p. 22). GEC also asserts that there are other ways than ECR modification to implement its performance standard. However, neither GEC Witness Wilson nor GEC in its Brief provides the ALJ, the Commission, or the Company any hint as to what these alternatives might be. As the ALJ stated in his March 4, 1986 Order, any adjustment that cannot be sufficiently quantified so as to be presented in a table attached to the parties' briefs will not be considered. Moreover, it would be very unfair and would violate PECO's due process rights to notice and hearing to

establish a nuclear performance standard employing a methodology never identified or discussed on the record in this proceeding or in brief.

With respect to the merits of GEC's proposal, as fully explained in the Company's Initial Brief (pp. 6-18 to 6-22), GEC's proposal is patently unfair and is simply a penalty mechanism designed to ensure that the Company does not recover its prudent and reasonable energy costs. In addition, GEC asserts that Witness Wilson identified and analyzed the potential financial impact of his proposal on the Company and determined that it would not be significant. This is false. Nowhere did Witness Wilson examine the combined impact of the proposed 80%/20% ECR and his nuclear performance standard to determine their joint impact on the Company. As explained in PECO's rebuttal testimony, the impact could be devastating (PECO St. 22D, pp. 11-13). GEC also notes that several other jurisdictions have established incentive provisions (GEC Brief, pp. 23-24). However, it fails to note that in only one jurisdiction has a Commission established both an ECR incentive provision and a generating unit performance standard, and, in that jurisdiction, a carefully developed limitation on loss was approved. GEC's joint proposal is therefore totally inconsistent with all precedent cited by GEC and should be rejected.

D. PECO's Energy Cost Projection Is Reasonable And Should Be Approved.

The Company's energy cost projection proposal for the first year of the 80%/20% ECR is set forth in PECO Exhibit JJC-3. This forecast is the result of negotiations among the parties and the ALJ on the last day of hearings on this issue and should be accepted for use in this case[12/]. In its Brief (pp. X-1 to X-7), the OCA rejects this proposal with respect to oil prices and asserts that the Commission should adopt some oil price other than those presented on the record in this proceeding. The OCA's position should be rejected.

First, despite adequate opportunity, the OCA did not present any evidence in this case as to the oil prices to be employed in calculating the 80%/20% ECR. The OCA should not be permitted to avoid its decision not to present evidence on this issue by asking the Commission to ignore the record developed in this proceeding.

12/ As explained at the March 12, 1986 hearing, the Company supplied this projection as a one-year estimate to be employed in its proposed ECRF. Trial Staff seeks to employ this one-year estimate as the first year of its three-year projection (TS Brief, pp. 253-257). This is inappropriate and should be rejected. A change in the first year estimate obviously will impact future projections and to simply take a revision to the first-year projection without revising the second and third year projections on the same basis is clearly in error and should be rejected. The three-year projection in PECO Exhibit JJC-2 is the only consistent three-year projection on the record in this case, and it has been accepted by Trial Staff Witnesses Rosenthal and Hosler (TS St. ECR-2, pp. 10-11).

Second, the Company's energy cost rate is made up of a variety of components and projections, e.g., sales, capacity factors, operation of other PJM units, two-party purchases, coal and oil prices, to name but a few. All of these components change over time, not just oil prices. The OCA seeks to change one component after the record has closed and ignore all other factors which affect total energy costs. If the OCA's proposal on oil prices is adopted, then fairness and consistency dictate that there be a complete rerun of energy cost forecast at the time the Commission enters its final Order to reflect the variability in all components of the Company's energy case. However, such a rerun would defeat the purpose of the development of an evidentiary record on this issue in this proceeding, and should be rejected.

Third, OCA's references to an oil price of $17 per barrel is misleading and incorrect. As Mr. English explained, this represents the price PECO paid for one spot purchase of oil and does not reflect the average value of PECO oil inventory either now or over the period rates will be in effect, according to the Company's most recent projections (Tr. 4358-61). Oil prices are currently very volatile. The OCA's attempt to rely on a spot price at a particular point in time to establish an average oil price for the first year rates will be in effect is obviously inappropriate and should be rejected. Mr. Carroll specifically asked Mr. English what average price he expected

PECO to pay for oil for the first year rates set in this proceeding are in effect, and he concluded this price would be $24 per barrel for 1% No. 6 oil. The OCA had adequate opportunity to present any alternative evidence it wished on this matter and chose not to do so.

VII. DEVELOPMENT OF PECO'S REVENUE REQUIREMENT

A. Fair Value

1. Limerick Common Plant

Trial Staff, OCA, GEC, and PAIEUG have proposed to disallow 50% of Limerick Common Plant from rate base (TS Brief, pp. 224-25; OCA Brief, pp. II-1 to II-5; GEC Brief, pp. 6-8; PAIEUG Brief, pp. 12-17). As set forth in the Company's Initial Brief (pp. 7-4 to 7-10), while the Commission has in prior cases allowed only 50% of common plant in rate base with commercial operation of the first unit of a two-unit plant, this is the first proceeding in which a utility has presented a detailed and rigorous analysis that fully supports its claim for 100% of common plant. PECO has presented unrebutted evidence that 92% of the cost of Limerick common plant facilities would have been required solely for the operation of Limerick 1 and is currently providing service to PECO customers, and that concurrent construction of the remaining 8% results in more efficient and lower cost completion of the entire facility for the benefit of ratepayers. Thus, this is a new case with new facts which requires a new analysis and reconsideration of the Commission's policy with respect to common plant. As the Recommended Decision stated in Pa. P.U.C. v. West Penn Power Co., "[I]t would be inappropriate to arbitrarily disregard reality and apply the 50% allocation suitable for other situations and a different evidentiary record." (PECO Brief, p. 7-9).

PAIEUG's contention that the Company somehow "impliedly promised" through its economic analyses presented in the Limerick 2 Investigation that it would include only 50% of common plant in its claim for Limerick 1 and that this "require[s] the Commission to exclude 50% of common plant" is in error. First, the completion or cancellation of Limerick 2 does not address the unrebutted evidence presented by PECO that 92% of Limerick common plant is required to operate Limerick 1. Second, the economic analyses presented by the Company in the Limerick 2 Investigation were total revenue requirements analyses, i.e., they compared PECO's total revenue requirement with and without Limerick 2. Since the 50% of common plant at issue here will accrue AFUDC if not included in rate base, the timing of its inclusion in rate base will have no effect on total present value revenue requirements, assuming that the discount rate and AFUDC rate are equal. Therefore, the Company's inclusion of 50% of common plant in its Limerick 2 revenue requirements analyses in the Limerick 2 Investigation is irrelevant to the proper ratemaking treatment of common plant in this rate proceeding.

2. Normalized Outage Rate Base Adjustment

Staff has proposed an adjustment in this case based on an alleged excessive forced outage rate for PECO's generating units (TS Brief, pp 48-51). However, Staff has presented no evidence to support the contention that PECO's outage rate is excessive (PECO Brief, pp. 7-11 to 7-12). Staff claims that the

Company's outage rate is high when compared to the PJM average, but an "average" outage rate by definition means that some companies will be above or below the average outage rate level and does not prove that PECO's outage rate is excessive. Moreover, Staff ignores several factors unique to PECO which may account for its forced outage rate. For example, during the 1981 to 1983 period examined by Trial Staff, PECO had more low cost generating units on its system than other PJM utilities, and under PJM economic dispatch practice, these low operating cost units are called upon to operate more often than other PJM units. Since increased operation contributes to increased forced outages, Staff effectively seeks to penalize PECO for having more low operating cost units on its system. This is clearly unreasonable and should be rejected.

Staff also asserts that the 3.21% forced outage adjustment required PECO to install generating capacity. As in other areas, Staff provides no record support for this conclusion, and there is none. As Mr. Rush explained, the Company has employed a 25% reserve margin for planning purposes for many years, wholly apart from the 3.21% adjustment to PECO's PJM reserve requirement (PECO St. 14, pp. 4-6; St. 14A, pp. 11-13).

Finally, as explained in PECO's Initial Brief (pp. 7-13 to 7-15), Staff's computation of PECO's forced outage rate is in error because it includes Salem 2 during the time that its output

was sold to another utility and employs an erroneous percentage figure with respect to PECO's reserve requirements.

3. Continuing Property Records Audit

Trial Staff has proposed adjustments to the Company's claim for utility plant in service based on three adjusting entries reported by the Bureau of Audits which reclassify from capital to expense certain costs incurred at Peach Bottom and Salem stations and costs related to the Company's SAMAC computer facility (TS Brief, pp. 42-48). As fully set forth in the Company's Initial Brief, the costs associated with these adjusting entries were prudently incurred, were properly capitalized under the accounting guidelines of the Uniform System of Accounts, and the decision to capitalize these costs resulted in lower current costs to ratepayers (PECO Brief, pp. 7-15 to 7-24).

Staff contends that the capital accounting employed by the Company for the safety-related piping system projects at Salem and Peach Bottom and the IHSI project at Peach Bottom (Adjusting Entry No. 9) is improper because the costs of these projects do not qualify as "substantial" additions to plant under Electric Plant Instruction 10(c). Staff suggests that substantial be defined in relationship to the "overall financial picture of the entity." This approach is clearly in error. Under Instruction 10(c), the retirement unit is the appropriate benchmark. If the addition replaces a retirement unit, it

qualifies as capital; if not, it is expensed unless the addition is substantial (PECO Brief, p. 7-17). Since it is undisputed that these projects resulted in additions to plant and the costs represent 8-10% of the applicable retirement unit balances, they qualify as substantial additions to plant under Instruction 10(c) (PECO Brief, pp. 7-19 to 7-20). In the alternative, Staff suggests that substantial be defined as 25% of the cost of the property (TS Brief, p. 46). However, since Staff cites no authority for this figure and it has no basis in the record in this proceeding, it should be disregarded.

Staff also claims that the additional costs associated with the Company's SAMAC computer facility were incurred as a result of "poor quality equipment and inadequate design" (TS Brief, p. 42). This is not true. The SAMAC facility, when installed in 1973, was a "state of the art" computer which, as is often the case with new technology, required adjustments at additional cost. Moreover, a portion of these costs represents a Company request for additional services from the vendor and thus are completely unrelated to the problems with SAMAC operations. Staff also claims that the Company "did not even consider legal action" to recover these costs (TS Brief, p. 43). This assertion ignores the record evidence that Company management, after duly weighing the costs of legal action and the likelihood of a successful litigation outcome, decided not to pursue legal action against the vendor (PECO St. 18C, p. 25). The Company has been

permitted rate base treatment of SAMAC by the Commission since the early 1970s, and Staff has presented no basis for changing this result.

Staff also contends that, if these adjusting entries are approved, recovery of these costs as an expense would be retroactive ratemaking in violation of standard ratemaking principles (TS Brief, p. 47). On the contrary, it is Staff who violates fundamental ratemaking principles by seeking to deny the Company all recovery of reasonably and prudently incurred costs and to translate a retroactive accounting adjustment into a ratemaking adjustment (PECO Brief, pp. 7-20 to 7-22).

4. Materials and Supplies

Trial Staff has proposed two adjustments to the Company's claim for materials and supplies: (1) a reduction in PECO's Philadelphia-area coal inventory from a 60-day coal inventory level to a 50-day supply (TS Brief, pp. 29-31); and (2) a 28% reduction to the Company's claim for Limerick materials and supplies (TS Brief, pp. 219-221). With regard to the Philadelphia-area coal inventory, Staff asserts that the Company's position is incomplete in that it ignores the effect of Limerick 1 on the number of inventory days (TS Brief, p. 31). This is incorrect. As fully set forth in PECO's Initial Brief (pp. 7-33 to 7-35), the days of inventory required is not affected by the addition of Limerick 1, but is maintained to safeguard against external occurrences (e.g., weather, strikes,

etc.). PECO has the same megawatts of coal capacity before and after the addition of Limerick 1, but this capacity will operate less often, and the Company has already reflected this in its claim in this case. This reduction will affect the burn rate at these units but will not affect the number of days of inventory required to provide reliable service.

With respect to the 28% surcharge, Staff claims that PECO has not met its burden of proof "either through documentation or testimony of a witness directly involved in the transactions" (TS Brief, p. 221). Again, Staff simply chooses to disregard the extensive record evidence presented by the Company. Mr. Wright's testimony fully explained the nature of the 28% Bechtel surcharge, that is, that the surcharge was applicable only to the cost of labor; that procurement is an activity that continues over the life of the plant and not a "one time proposition" as Staff asserts; that the 28% charge was not profit to Bechtel; and that the Company's decision to have Bechtel perform the procurement function resulted in a benefit to ratepayers (PECO Brief, pp. 7-35 to 7-37). Staff made no response to this evidence in its rebuttal testimony, and now ignores the Company's testimony in its Brief.

5. Cash Working Capital

Staff Witness Hosler proposed a reduction to the Company's claimed revenue lag by removing the impact of customers who pay their bills late. As explained in the Company's rebuttal

testimony, Witness Hosler completely misunderstood the accounting treatment of the late payment charge to a degree that completely vitiates his proposal (PECO Brief, pp. 7-40 to 7-41). Witness Hosler admitted these errors on cross-examination and did not address this issue in his surrebuttal testimony. Moreover, Staff does not address this adjustment in its Brief, but has included it in its summary adjustments to PECO's measure of value claim. The Company assumes that this was inadvertent and that Staff has abandoned this adjustment.

Staff has also proposed the elimination of uncollectible accounts from the Company's revenue lag calculations (TS Brief, pp. 31-34). In support of this adjustment, Staff argues that uncollectible accounts expense is "already fully considered in the [Company's] revenue lag study" (TS Brief, p. 33). As explained in PECO's Initial Brief (pp. 7-42 to 7-43), this is not the case. The Company agrees that uncollectible accounts is not a cash expense and has removed uncollectible accounts from its expense base, as the Commission directed at Docket No. R-842590 (PECO Brief, p. 7-39). However, uncollectible accounts expense does create an additional need for funds. The Company's revenue lag study only reflects customer payments up to 123 days, and in the case of uncollectible accounts, the Company must wait 231 days until receiving revenue for the service provided. If uncollectible accounts were not reflected in the revenue lag

study, the Company would not recover the carrying costs associated with uncollectible accounts after 123 days.

Staff and OCA have proposed that the lag days associated with federal income taxes be developed using the statutory payment schedule (TS Brief, pp. 35-36; OCA Brief, pp. VI-9 to VI-12). As the Company stated in its Initial Brief (pp. 7-44 to 7-45), the Company's payment schedule which is designed to avoid tax penalties was fully endorsed by the Commission in prior rate cases. Since Staff and OCA have presented no new arguments, the results should be the same in this proceeding. However, in brief, the OCA claims that the Company qualifies for an exception to the penalty provision of the Internal Revenue Code (OCA Brief, pp. VI-10 to VI-12). There is no record basis for OCA's claim, which should therefore be disregarded. Moreover, as set forth below, PECO could qualify for this exception but doing so would require a substantial increase in its estimated tax payments and further increase its cash working capital requirement.

Section 6655(d)(3)(A) of the Internal Revenue Code provides an exception from penalties for under-estimating, if estimated payments are based on the tax liability for a previous group of months, annualized. Thus, the first payment made on April 15 would be based on 22.5% of the first three months actual liability (January-March), multiplied by four. It would be most disadvantageous for PECO to employ this methodology because the winter months of January, February, and March produce some of the

highest taxable revenues for the year and to annualize based on this time period, as is required by IRC 6655(d)(3)(A), would substantially over-estimate annual tax liability. The second, third, and fourth quarterly payments would be calculated using the same methodology. Use of this method would substantially increase PECO's cash working capital requirement and would clearly constitute an imprudent use of funds.

Staff has also proposed two additional adjustments to the calculation of the Company's overall tax lag by using a compound growth factor in the development of the weighted lag days for payment of the gross receipts tax and the capital stock and public utility realty taxes (TS Brief, pp. 36-40). The reasons why these adjustments should be rejected are set forth on pages 7-45 to 7-47 of the Company's Initial Brief. However, even if these adjustments are adopted, Staff's erroneous calculation of the compound growth factors must be rejected. Correcting for these errors increases Staff's cash working capital allowance by $31.3 million and effectively eliminates most of Staff's proposed adjustment (PECO Brief, p. 7-46).

6. Land Held For Future Use

The OCA points out that Middletown substation is presently in service and should be removed from the Company's land held for future use claim (OCA Brief, pp. VI-8 to VI-9) This is correct; however, the OCA assumption that the substation is already included in the Company's plant in service account

balance is incorrect. Thus, if the Middletown substation is removed from the Company's land held for future use claim, it must be reflected in the Company's plant in service account balance.

7. Non-Revenue Producing Construction Work In Progress

The OCA has withdrawn its proposal to disallow PECO's claim for the spent fuel reracking project at Peach Bottom (OCA Brief, p. VI-1, n.1). However, it appears that OCA has inadvertently included this adjustment in its Table II, Summary of Adjustments. This oversight should be corrected.

B. Fair Rate Of Return

In its Initial Brief (pp. 7-47 to 7-87), the Company addressed in detail the rate of return evidence presented during the course of this proceeding and fully set forth the evidence justifying the Company's requested 15.9% opportunity rate of return on common equity. Errors and misconceptions contained in the recommendations of other parties were discussed and the effects of corrections to their figures were explained. Therefore, only brief further comment is required on these issues.

Opposing parties repeatedly cite the recent decline in interest rates and inflation and increases in PECO's stock price in support of their reduced cost of equity allowances. There is no doubt that equity costs have fallen in recent months, but

opposing parties have grossly exaggerated the impact of these events on PECO's cost of equity capital. First, their adjustments for recent market changes are incomplete because they focus solely on changes in PECO's stock price and ignore the corresponding impact of market improvements and the Commission's Limerick 2 decision (which eliminated the expectation of an immediate dividend cut) on investor growth rate expectations. Second, their adjustments fail to reflect the continued additional risk of PECO in the marketplace as compared to the average electric utility, which serves to keep PECO's cost of equity higher than average. For these reasons, their purported "updates" of PECO's common equity cost rate are incomplete.

The Company presented a full update of its cost of equity claim reflecting all components of the cost of equity analysis and properly reduced its claimed cost equity by a full percentage point from 16.9% to 15.9% (PECO Brief, p. 7-61). This reduction is equal to or greater than the reductions proposed by opposing parties. PECO's claim therefore fully reflects current market conditions, and the opposing parties should not be permitted to hide behind these market conditions to obscure the fundamental errors in their cost of equity recommendations.

1. Trial Staff

In its Brief (pp. 8-28), Trial Staff rehashes in summary form the testimony of its own witness and makes no attempt to evaluate or respond to the substantial evidence presented by the

Company which demonstrated the errors in its witnesses' analyses (PECO Brief, pp. 7-70 to 7-74). This approach effectively precludes the Company and other parties from responding to any criticisms the Trial Staff may have of their respective presentations, adds little to an analysis of the issues raised in this proceeding, and should not be sanctioned by the ALJ.

Perhaps recognizing the inadequacy and errors in its own analysis, the Trial Staff presents an analysis comparing Mr. Brennan's recommended return on equity in prior PECO rate proceedings with utility bond yields at a date 6 months prior to the Commission's Order in those proceedings, which purports to show that Mr. Brennan increases his cost of equity recommendation when interest rates rise, but does not correspondingly decrease his recommendations when interest rates fall (TS Brief, pp. 23-26). This analysis is riddled with obvious conceptual and numerical errors, which when corrected, demonstrate the reasonableness of Mr. Brennan's recommendation and the unreasonableness of Trial Staff's recommendation.

First, as a conceptual matter, Trial Staff's analysis is flawed because it assumes there is a constant relationship between the cost of equity and the cost of debt. It is well established and generally accepted that the differential between the cost of equity and cost of debt, i.e., the equity risk premium, varies with the level of bond interest rates. As bond interest rates increase, the equity risk premium decreases and

vice versa. Thus, all that Trial Staff's table shows is that as interest rates increase, there was a smaller difference between Mr. Brennan's cost of equity recommendation and bond rates than when bond rates decreased. This is in accordance with well-established financial principles and confirms the reasonableness of Mr. Brennan's recommendations.

Second, Staff's analysis is so riddled with numerical and other errors as to render it meaningless. Staff's analysis of the current rate case compares Mr. Brennan's original common equity cost recommendation (17.2%) with a current spot bond yield in February (10.7%). In analyzing all prior rate cases, Staff reviewed six-month average bond yields. Correcting for these two obvious errors and comparing Mr. Brennan's final common equity cost recommendation of 15.9% and a recent six-month average bond yield of 12.35%, yield a premium of 3.54%, which is less than the 3.8% considered reasonable by the Staff (PECO St. 28C, pp. 23-26). Similarly, Staff's analysis of past rate cases improperly compares Mr. Brennan's original cost of equity recommendation when the rate case was filed with a later bond yield. Since interest rates and bond yields were generally rising during that period, this comparison artificially and improperly narrows the spreads between the cost of debt and equity calculated by the Staff. Corrected for this error, the average risk spread recommended by Mr. Brennan in the last five rate cases was approximately 3.8% (PECO St. 28C, p. 3). This is precisely in

line with the 3.54% spread implicit in Mr. Brennan's final cost of equity recommendation in this case.

2. OCA

OCA's 14% cost of equity recommendation is based upon an analysis which purports to remove all Limerick 2 risk from the Company's cost equity recommendation (OCA Brief, pp. VII-8 to VII-12). As explained in the Company's Initial Brief (pp. 7-75 to 7-77), PECO's cost of equity is what the marketplace says it is, and OCA's recommendation is inconsistent with that result and with all Commission precedent, including an express rejection of this approach in the Company's last rate proceeding. In addition, there is absolutely no evidence that the .75% figure developed by the OCA represents the risk associated with Limerick 2, and the OCA's result is completely inconsistent with the Commission's Limerick 2 Order.13/

The OCA's 14.75% PECO-specific DCF cost of equity recommendation also is in error because it is based solely on a

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13/ The OCA asserts that its adjustment is consistent with the Commission's Limerick 2 Order by referencing certain statements in the record or opinion in that case that the completion of Limerick 2 might have an impact on the Company's cost of capital. This does not support the OCA's position. The Commission's Order is very clear as to the components to the cost containment program, i.e., a cost containment cap and operating performance standards. Nowhere in the Commission's Order is any cost of equity adjustment even mentioned, much less adopted. The OCA's proposal would be inconsistent with the Commission's Limerick 2 Order, would simply assure a violation of the cost containment cap, and should be rejected.

b x r approach, contains an inappropriate dilution adjustment to reflect sales of stock at below book value, is internally inconsistent with other aspects of its witnesses' calculations, and double counts the effect of a Limerick 1 rate base disallowance. Correcting for these errors, as explained in the Company's Initial Brief (pp. 7-79 to 7-83), would increase the OCA's recommendation to above 16%.

In its Brief (pp. VII-2 to VII-3), the OCA cites various recent market changes to support its position that the current equity cost rate for PECO is substantially below 14%. This evidence does not support its argument. The Company has fully updated its cost of equity recommendation to reflect the most recent available data, and this data demonstrates that PECO's cost of equity is 15.9%.

For example, the OCA asserts that the recently achieved returns on book equity of 13.79-14.16% by the Moody's 24 electric utilities were sufficient to produce a current market to book value ratio of 1.1, thereby demonstrating the reasonableness of this return as a market return on equity (OCA Brief, p. VII-3). This argument is in error. The market price of a stock (and therefore the market to book value ratio) is driven by investor expectations of future returns and of future earnings growth and not by historic returns on book equity in which a current investor has no direct interest. As a result of improvements in the economy and the electric utility industry, investors expect

greater future growth and therefore are willing to pay more for electric utility stocks. It is this expectation, and not historic returns on book equity, which have recently increased market to book value ratios (PECO Brief, pp. 7-79 to 7-80). OCA's comparison is based upon a fundamental mismatch and inappropriate comparison of market to book data and returns.

The OCA also purports to recalculate PECO's cost of equity at 12% based upon spot data (OCA Brief, pp. VII-4 to VII-5). These calculations contain the same flaws as Witness Rothschild's original recommendation and should be rejected for that reason alone. In addition, the Commission has repeatedly rejected sole reliance on spot data in the development of the cost of equity. See, e.g., Pa. P.U.C. v. West Penn Power Co., 69 PUR4th 470, 512 (1985); Pa. P.U.C. v. Pennsylvania Power & Light Co., 67 PUR4th 30, 83 (1985). Rates set in this proceeding will be effective for one or more years, not for one day. Moreover, it is interesting to note that Witness Rothschild also calculates a 12.0% current cost of equity for Moody's 24 electrics. The OCA may believe that PECO is comparable in risk to the average electric utility, but neither the Commission, the marketplace, or any other witness in this case shares this conclusion.

The OCA's specific criticisms of Mr. Brennan are also without merit (OCA Brief, pp. VII-17 to VII-20). The OCA criticizes Mr. Brennan's partial reliance on historic growth rates in his DCF calculation. However, this approach is

consistent with prior Commission Orders and with the common sense conclusion that investors rely both on historic and forecasted data in making their investment decisions. The OCA also criticizes Mr. Brennan's original 1.7% growth rate for its failure to reflect the possibility of a dividend cut by PECO in the event of a Limerick 2 cancellation decision by the Commission (OCA Brief, pp. VII-5 to VII-6). As Mr. Brennan explained, such an adjustment would have been double counting, as his 1.7% figure already reflected the expectation of the marketplace with respect to Limerick 2 and a potential dividend cut (PECO Brief, pp. 7-80 to 7-81).

The OCA also opposes the use of any risk premium analysis in this case because of the volatility of bond interest rates (OCA Brief, pp. VII-22 to VII-26). This Commission has repeatedly relied on both DCF and risk premium methods in determining the cost of equity. See, e.g., Pa. P.U.C. v. Western Pa. Water Co., Docket No. R-850096 (Jan. 29, 1986); Pa. P.U.C. v. ALTELL Pa., Inc., Docket No. R-842710 (May 24, 1985); Pa. P.U.C. v. Metropolitan Edison Co., Docket No. R-842770 (Oct. 25, 1985); Pa. P.U.C. v. Pennsylvania Electric Co., Docket No. R-842771 (Oct. 25, 1985). Indeed, it is only OCA Witness Rothschild who relied on a single cost of equity methodology in this case. Alternatively, the OCA cites a recent FERC generic rate of return determination to support a 2% equity risk premium, as compared to the 4.5% premium recommended by Mr. Brennan (OCA Brief, p. VII-24

to VII-26). The actual risk premiums applied by FERC were 2.5 and 2.8%, and these premiums were applied to a 13.3% cost of debt, yielding an equity cost rate of 15.8-16.2%. (50 Fed. Reg. 21822). In contrast, Mr. Brennan's 4.5% premium corresponds to an 11.75% cost debt and produces a cost of equity of 16.25%. Thus, both FERC and Mr. Brennan achieve very similar rates of return recommendations through risk premium analysis.

Moreover, as a general matter, the OCA's repeated citation of FERC generic rate of return determinations should be ignored. The issue in this proceeding is to determine a cost of equity for PECO in the marketplace, not to make a generic rate of return determination for the electric utility industry. Moreover, as explained in the Company's Initial Brief (pp. 7-82 to 7-83), and in Mr. Brennan's testimony (PECO St. 28B, pp. 38-40 and 28C, pp. 24-25), the FERC orders support Mr. Brennan's analysis and specifically refute Witness Rothschild's analysis in many regards. Finally, the overall FERC rate of return determinations for the <u>average</u> risk electric utility have been well in excess of OCA's 14% recommendation for PECO. Since everyone agrees that PECO has above average risk, OCA's 14.0% recommendation is obviously inadequate.

3. <u>GSA</u>

In presenting its arguments with respect to the cost of long-term debt, GSA accuses Mr. Brennan of being selective and incomplete in his calculation of long-term debt (GSA Brief, p.

6). This is a total misrepresentation of the record. GSA asserts that Mr. Brennan's original testimony was selective in its inclusion of anticipated financings by the Company. Mr. Brennan's initial testimony was based upon the Company's financing plan in effect at that time, and there was no selection process employed at all. GSA itself admits on page 8 of its Brief that numerous changes have been made to the Company's financing plan during the course of this proceeding. It is these updates, which were not previously available, that were reflected in Mr. Brennan's later testimony. Similarly, at page 9 of its Brief, GSA asserts that Mr. Brennan was inconsistent in using futures contracts to forecast Treasury Bill yields while using forecasts for other long-term debt components. This again indicates GSA's lack of knowledge. As Mr. Brennan explained, he uses futures contracts where they are available and uses forecasts where contracts are not available (PECO St. 28C, p. 11-12).

With respect to the premium paid by the Company in the tender offer and call of high-cost bonds, GSA asserts the Company has made no adjustment for accrued interest (GSA Brief, p. 10). This demonstrates GSA's lack of knowledge of the record, as the Company in fact made a specific adjustment for this item (PECO Brief, pp. 7-53 to 7-56). Similarly, GSA's concern that the Company reflect the future declining balance of the premium is equally true of every rate base claim by the Company in this case

and simply demonstrates GSA's lack of knowledge of public utility ratemaking.

With respect to GSA's common equity cost recommendation, the many errors in the DCF growth rate employed by Witness Winter and its complete lack of support even in Witness Winter's own testimony is fully set forth in the Company's Initial Brief (pp. 7-83 to 7-87). GSA asserts that Mr. Brennan failed to reflect cost decreases in his cost of equity recommendation (GSA Brief, p. 16). This is simply not true. Mr. Brennan reduced his cost of equity recommendation by a full percentage point (PECO Brief, p. VII-65 to VII-67), which is exactly the reduction calculated by Witness Winter.

C. Revenue, Expenses, and Income

1. Pro Forma Revenues

OCA proposes to increase PECO's pro forma sales and revenues, based on a computed difference in weather-corrected actual and budgeted sales for the first five months of the future test year (OCA Brief, pp. VIII-2 to VIII-4). As explained in the Company's Initial Brief (pp. 7-88 to 7-91), this adjustment should be rejected because (1) OCA's assumption that actual sales have exceeded budgeted sales is incorrect -- actual sales were below budgeted sales by 22,844 mwh for the first six months of the future test year; (2) OCA's assumption that an increase in sales over budgeted levels results in increased revenue is also

incorrect -- sales can increase for many reasons which may or may not affect total revenues; and (3) for the first six months of the future test year, PECO's actual revenues were $16.2 million below budget, as shown on the following table.

BASE REVENUES
BUDGET VERSUS ACTUAL
($1,000)

	Budget	Budget over Actual		
		Actual	Dollars	Percent
July 1985	$ 223,784	$ 208,002	$ 15,782	7.6
August	228,817	222,124	6,693	3.0
September	212,735	219,454	(6,719)	(3.1)
October	192,871	190,850	2,021	1.1
November	179,237	176,844	2,393	1.4
December	194,766	198,731	(3,965)	(2.0)
6 Months Total Base Revenues	$1,232,210	$1,216,005	$ 16,205	1.3
6 Months Total Sales MMWh	14,080,217	14,057,373	22,844	0.2

(Source: PECO St. 18C, Schedule 12)

OCA claims that the fact that non-weather adjusted sales have been under-budget is irrelevant (OCA Brief, p. VIII-3). This is incorrect. Since rates are set on a weather-adjusted basis, actual figures are important in determining whether PECO will achieve its allowed return. Actual figures show that for the first six months of the future test year PECO's operating

income was $21.8 million below budget and that PECO's current rates do not produce enough income to make the Company whole (PECO Brief, p. 7-91). OCA's adjustment only serves to exacerbate this existing income deficiency and should be rejected.

2. Outage Expense

Trial Staff has proposed an adjustment to PECO's power plant outage expense claim for its nuclear and fossil units (TS Brief, pp. 86-90). The Company's Initial Brief sets forth in detail the several reasons why this adjustment is without merit and should be rejected (pp. 7-95 to 7-98). Only brief additional comment is required here.

Trial Staff contends that the Company's claim was "not based on actual experience but was determined by looking at the amount of outage expense allowed...in the last rate case and adjusting that allowance to reflect intervening inflation" (TS Brief, p. 86). This is not the case. With respect to the Company's fossil units, PECO re-evaluated its claim and performed a detailed and independent analysis which considered all past experience and projected an outage expense 0.25% higher than the value claimed by the Company at Docket No. R-842590, thereby demonstrating the reasonableness of the Company's claim.

Moreover, with respect to Limerick 1, it is Staff who proposes to ignore actual experience. The Company's claim is based on the historic outage expense data of Limerick 1's sister unit at Peach Bottom. Staff, in contrast, employs preliminary

budget forecasts by Limerick Station personnel. Staff claims that these estimates should be "accurate or more accurate than Mr. Carroll's" (TS Brief, p. 89) which are based on a realistic examination of historic outage experience at Peach Bottom. Staff cannot have it both ways. If historic data is the polestar for determining outage expense, then Staff's Limerick 1 calculations must be rejected.

With respect to Salem and Peach Bottom, Staff claims that its computations are "clearly based upon a realistic assessment of operations" (TS Brief, p. 88). This, however, contradicts the statement of its own witness that the data he examined was from an abnormal period (PECO Brief, p. 7-96). Staff's inconsistent positions should be rejected, and the Company's claim approved.

3. Salem Management Evaluation

OCA and Staff have proposed adjustments to the Company's operation and maintenance expense claim related to the Salem Management Evaluation Program (TS Brief pp. 77-85; OCA Brief, pp. VIII-9 to VIII-13). Staff bases its disallowance on its erroneous allegation that "PECO has failed miserably to meet its burden of proof on this issue" (TS Brief, p. 85). Once again, Staff chooses to ignore the record evidence in this case. As explained in PECO's Initial Brief (pp. 7-98 to 7-99), Mr. Carroll provided a general breakdown and description of the elements of the Company's claim on re-direct examination (Tr. 416-17), and

provided an even more detailed breakdown and description of the scope and components of the audit in his rebuttal testimony (PECO St. 22B, pp. 19-23) to which Staff did not respond. It is important to note that nowhere on the record does Staff challenge the reasonableness of the non-MAC portions of the claim. Moreover, the Company responded on two occasions to Staff's concerns, as described above. The Company has clearly met its burden of proof and its claim should be approved.

The OCA recommends disallowance of this claim since the impetus for the management evaluation was the Salem breaker incidents (OCA Brief, pp. VIII-9 to VIII-13). As the Company fully explained in its Brief (pp. 7-99 to 7-100), the scope of the audit went far beyond a review of the procedures related to this incident and improved the operations at Salem Station to the benefit of ratepayers.

OCA cites a number of cases for the proposition that "a utility is not required to be reimbursed for expenses incurred in the past" and that "recovery of [the Salem Management Audit] expenses would constitute impermissible retroactive ratemaking" (OCA Brief, p. VIII-13). While the OCA has in this instance correctly stated the law, the Commission clearly has the discretion to allow amortization of expenses incurred in the past and has done so in a number of instances (see cases cited at PECO Brief, p. 7-101). In this instance, since the Salem Management

Evaluation will provide significant benefits to ratepayers, the Commission should allow the Company's claim.

4. Inflation Adjustments.

Staff, OCA, and GSA have proposed adjustments to the Company's operating and maintenance expense claim to reflect a rate of inflation (based on the GNP-IPD) lower than PECO's 5.8% corporate inflation factor (TS Brief, pp. 52-54; OCA Brief, pp. VII-4 to VII-9; GSA Brief, pp. 19-21). The Company has explained in detail why these adjustments should be rejected (PECO Brief, pp. 7-101 to 7-105), but brief additional comment is required.

The Company does not challenge the inflation factors based on the GNP-IPD developed by the Staff, OCA, and GSA. The focus of the Company's opposition to these inflation adjustments is their improper and erroneous application to the Company's claim in this proceeding. The adjustments proposed by all three parties share a common error in that they incorrectly assume that PECO's corporate inflation factor was applied to all components of the Company's budget. This is incorrect. As explained repeatedly by Company witnesses, PECO's inflation factor was applied only in the absence of known cost changes. One of the known cost changes was PECO's general wage increase of 5.4% granted on August 1, 1985. No party has challenged this increase as unreasonable. Thus, the labor portion of the accounts analyzed by opposing parties was not increased by the corporate inflation factor; they were increased by the known 5.4% general

wage increase and opposing parties application of their inflation factors to entire account balances rather than the non-labor portion is simply incorrect (PECO Brief, pp. 7-103 to 7-104).[14]

The Company performed an extensive re-analysis of Accounts 500-556, 902, 903, and 920 to determine to what portion of these accounts a general inflation factor was applied. The results of this analysis are described in detail on pages 7-104 to 7-105 of the Company's Initial Brief, and show that a maximum adjustment of $947,000 is correct, using the inflation assumptions of opposing parties. This adjustment has been incorporated into the Company's final accounting exhibit (PECO Ex. TPH-2A, p. D-10).[15]

5. Wage and Benefit Expense

Staff has proposed an adjustment to PECO's claim for wages and benefits based on a differential in the actual and budgeted number of employees for the three-year period ended June 30, 1985 (TS Brief, pp. 55-58). The Company has fully responded

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14/ Staff's and GSA's adjustments also are in error because they are based on the budget figures supplied by the Company in response to Commission filing requirements at 52 Pa. Code §53.53, II-D-1. These figures do not represent the Company's operating and maintenance expense claim in this case, and cannot be used for analyzing the reasonableness of the Company's claim. The Company's ratemaking claim for the accounts listed in II-D-1 (Accounts 500-556, 902, 903, and 920) is set forth in the B and D Sections of Exhibit TPH-2A (PECO Brief, pp. 7-102 to 7-104).

15/ GSA mistakenly applies this adjustment to the figure on page D-10 of Ex. TPH-2A which already reflected the adjustment. Thus, GSA double counts the $947,000.

to this erroneous adjustment in its Initial Brief (pp. 7-106 to 7-108), but must point out two additional errors here.

Staff claims that "[b]udget payroll dollars do not include the wage increase declared by PECO, [and t]hus the comparison between the budgeted dollars and actual payroll dollars is not made on an equal basis" (TS Brief, p. 57). Staff provides no record support for this assertion, and it is simply incorrect. Budget figures do reflect an expected wage increase (PECO Ex. TPH-2, pp. D-5 and D-5a; Ex. TPH-2A, pp. D-5 and D-5a).

Staff's reliance on Pa. P.U.C. v. Pennsylvania Electric Company, Docket No. R-842771 (Oct. 25, 1985), is misplaced. In that case, as the Commission stated, Penelec's "historical experience . . . evinces a pattern of budgeted expectations not being achieved." On this basis, the Commission adopted Staff's adjustment. This not the case here, however. As the Company explained, when the actual to budgeted payroll for the three-year period utilized by Staff is examined, the results show that actual total payroll is almost identical to those budgeted dollars, and, in fact, exceeded budgeted payroll by 0.17% (PECO Brief, p. 7-107). Finally, it is important to note that the Company is not making a claim for a specific number of employees in this case but a claim for wage and benefit expense which, as shown above, the Company has been extremely accurate in budgeting. Thus, Staff's adjustment based on an alleged

overstatement in the number of employees is inapposite to the Company's claim.

6. Customer Accounts Expense

Staff has proposed an adjustment to the Company's claim for customer accounts expense based on a seriously flawed comparative study of PECO with five other metropolitan utilities (TS Brief, pp. 63-69). In its Initial Brief (pp. 7-108 to 7-112), the Company demonstrated that Staff's study failed to take into account significant differences between these utilities and PECO which affect customer accounts expense. Staff asserts that these differences are minor (TS Brief, p. 65), insignificant (TS Brief, p. 68), and minimal (TS Brief, p. 69). However, Staff disregards the record evidence on this issue. The Company has clearly demonstrated that these differences have a significant impact on the level of an individual utility's customer accounts expense and has presented an analysis which, when adjusted for only some of the errors in Staff's analysis, shows that PECO's level of customer accounts expense compares favorably to Staff's comparison group of metropolitan utilities (PECO Brief, pp. 7-111 to 7-112). Thus, in contrast to Staff's speculation as to the impact of these differences, the Company has presented hard, detailed analysis showing that these differences among utilities do affect a utility's level of customer account expense.

Finally, Staff's comparison analysis is completely irrelevant in the ratemaking context. If a comparison of data

from FERC accounts for other utilities is a reasonable way of establishing rates, then there is no need for any PECO data at all in this proceeding. Indeed, PECO's entire revenue requirement could be determined by such comparisons. However, this is not the way rates are set, and Staff's conceptually and practically flawed comparison should be disregarded.

7. Rate Case Expense

Staff makes a number of allegations for the first time in its Brief regarding the Company's rate case expense claim stating that it is "per se unreasonable," "out of control," and "overkill of the greatest magnitude" (TS Brief, p. 91). Nowhere on the record in this proceeding has Staff challenged the Company's claim as unreasonable, and, on the contrary, Staff's own witness admitted that Staff was making no such challenge (Tr. 2384). Yet, based on these unfounded allegations, Staff recommends a special audit of PECO rate case expense or that special attention be given to this area in PECO's next management audit (TS Brief, p. 92). This recommendation should be rejected.

This rate proceeding is one of the most complex and heavily contested rate cases in Pennsylvania history. While PECO's rate case expense may seem excessive from the perspective of one party to this case, e.g., Staff, the Company has had to respond to 17 parties who propounded approximately 1400 interrogatories and data requests, presented 41 witnesses, and submitted 76 written statements and exhibits. In addition,

Public Law No. 123, which required the Company to identify and explain the reasons for cost growth of Limerick 1 from PECO's initial capital authorization, accounts for a large portion of the costs for expert consultants. The Company also was required to respond in this case to Commission directives related to its ECR 8 and Keystone Alliance Orders and to answer two major motions to strike filed by Staff.

It is within the discretion of Company management to decide its approach to litigating a rate case. The Company's decisions in the instant proceeding as to the necessary number of expert consultants, etc. were based on reasonable and considered judgments designed to present all the facts to the Commission to enable it to reach a completely informed decision on the Company's rate request. Staff's request for an audit of rate case expense implies that the Company's decisions have been imprudent. However, as stated above, there is absolutely no evidence in this proceeding which even alludes to this issue. Such an expensive and time consuming procedure as Staff's suggested audit must be premised on more than an unsupported opinion that PECO's rate case expense is excessive. As the Commonwealth Court stated in Butler Township Water Co. v. Pa. P.U.C., 81 Pa. Cmwlth. 40, 44, 473 A.2d 219, 221-22 (1984):

> "[D]eclaration of a policy based on general conclusions may not be substituted for an evaluation of the evidence in each case . . . . As noted, the PUC has made no findings of facts upon which a decision could

be made that rate case expenses were imprudent or excessive."

Finally, Staff's presentation of the issue for the first time in Brief is inappropriate and denies PECO a fair opportunity to address the issue on the record and present evidence. For this reason, the Commission has expressed its disfavor with the raising of issues for the first time in brief. Pa. P.U.C. v. Pennsylvania Power & Light Co., Docket No. R-822169, p. 48 (Aug. 22, 1983); Pa. P.U.C. v. PECO, Docket No. R-811626, p. 58 (May 21, 1982).

8. Nuclear Information, Education, and Advertising Expense

OCA has proposed a disallowance of certain nuclear information, education, and advertising expenses based upon the Commission's Order in the Keystone Alliance proceeding (OCA Brief, VIII-27 to VIII-28). The Company's response to this proposal is set forth in detail on pages 7-113 to 7-119 of its Initial Brief. The Company opposes this adjustment, but if it is adopted, the correct calculations set forth on pages 7-116 to 7-119 of PECO's Brief should be employed. In addition, both Staff's and OCA's EEI expenditure adjustments (PECO Brief, pp. 7-119 to 7-120) are reflected in the Keystone Alliance disallowances. Thus, both adjustments should not be adopted.

9. Other Amortization Allowances

The Company's amortization claim for its nuclear fuel investments and its claim for the engineering costs related to the Heaton-Byberry Transmission Line are fully supported in its Initial Brief (pp. 7-120 to 7-123; 7-124 to 7-125). The Company, however, believes it necessary to comment on the OCA's incorrect statement of the law applicable to these claims. The OCA claims that only "used and useful" utility assets may be reflected in rates (OCA Brief, p. VIII-15 to VIII-17). This argument ignores the fact that "used and useful" is a rate base standard, and is inapplicable to the Company's claim to recover its nuclear fuel investments and the Heaton-Byberry engineering costs through an amortization allowance. A correct exposition of the law and applicable precedent are set forth in the Company's Initial Brief (pp. 7-122 to 7-123 and cases cited therein).

10. Decommissioning Expense.

Staff and OCA propose adjustments to the Company's decommissioning claim in this proceeding (TS Brief, pp. 70-76; OCA Brief, pp. VIII-19 to VIII-27). The Company's position with respect to its decommissioning claim is fully set forth in its Initial Brief (pp. 7-127 to 7-134) which explains that the Company's claim is in accord with its decommissioning claims approved in prior rate cases, reflects proposed NRC regulations, is designed to have the decommissioning fund fully paid when decommissioning takes place, and equitably distributes cost

responsibility to customers over the lives of PECO's nuclear facilities. The several reasons why Staff's decommissioning proposals defeat these goals are explained in detail in the Company's Initial Brief and will not be repeated here. However, OCA's proposal to remove the costs of decommissioning Peach Bottom 1 from the Company's claim requires further comment (OCA Brief, pp. VIII-19 to VIII-27).

The Company is not requesting a "second decommissioning" of Peach Bottom 1, as the OCA claims. Dr. McLeod explained that Peach Bottom 2 and 3 cannot be decommissioned without removal of the radioactive portions of Peach Bottom 1 that remain in the entombment structure. The NRC has recently indicated that entombment is no longer acceptable for large power reactors (PECO St. 27, p. 6, 18). Thus, Peach Bottom 1 is not yet decommissioned, and the Company's claim reflects the costs that will be incurred to complete Peach Bottom 1 decommissioning in accordance with NRC regulations.

It is appropriate that ratepayers bear the costs of completing Peach Bottom 1 decommissioning. As the Company explained, PECO ratepayers received all the benefits of Peach Bottom 1, yet paid only a small portion of the capital costs of the facility. Moreover, current ratepayers are receiving the benefits of Peach Bottom 2 and 3 which cannot be decommissioned without completing the decommissioning of Unit 1. Thus, it is

equitable that ratepayers pay the costs to complete Peach Bottom Unit 1 decommissioning.

11. Taxes

Trial Staff's opposition to PECO's claim to normalize the tax benefits associated with construction overheads is without merit and should be rejected. The Company's claim is identical to that approved by the Commission in PECO's last four rate proceedings. These construction costs are not paid by current ratepayers; they will be paid by future ratepayers. Since future ratepayers will pay the expense, they should receive benefit of the tax deduction generated by this expense. The Company's methodology assures this result. Trial Staff's proposal would give current ratepayers the full benefit of tax deductions generated by expenses they do not pay. This is clearly unjust and unreasonable and should be rejected (PECO Brief, pp. 7-135 to 7-137).

Normalization also will improve the Company's cash flow at a critically important time. Staff's assertion that PECO did not demonstrate the need for additional cash flow is based solely on the cross-examination of PECO's tax witness and completely ignores the extensive presentation on this subject by Mr. Paquette, PECO's Chief Financial Officer. Similarly, Staff's argument that the cash flow benefits are de minimis is based on an improper comparison to total operating revenues. The additional cash flow provided by normalization of construction

overheads represents over 18% of PECO's 1986 internal sources of funds, excluding AFUDC. This is clearly significant.

Trial Staff's proposal to retroactively reverse prior Commission rate orders allowing normalization of state income taxes also should be rejected. Normalization versus flow-through of tax benefits is a policy issue, and changes in policy should be applied prospectively only (PECO Brief, p. 7-140).

OCA's consolidated tax savings adjustment also should be rejected. The tax losses at issue relate solely to PECO's gas operations, and no adjustment should be made to electric rates. In addition, the OCA's calculation of its adjustment is patently inconsistent, and if performed on a consistent basis, no adjustment is appropriate (PECO Brief, pp. 7-141 to 7-143).

D. Rate Design

As explained in the Company's Initial Brief (pp. 7-145 to 7-188), the Company's proposed cost of service study, class revenue allocations and rate design are just, reasonable and non-discriminatory, and are in accordance with proposals presented by the Company and approved by the Commission in many prior PECO rate proceedings. Opposing parties attack several aspects of the Company's proposals. In general, these parties oppose those parts of the Company's rate design which increase and support those which reduce the revenue responsibility of their clients. However, no party has presented a full analysis of the impact of

its proposals on other customers. The Company's proposal attempts to reach a reasonable compromise of many competing positions. Significantly, the Commission's Trial Staff, the other party in this proceeding not representing a particular rate classification, has not challenged PECO's proposed rate design.

1. Cost of Service

The Company's cost of service study is the same as that presented in and approved by the Commission in the past several PECO rate proceedings. In general, the arguments presented by opposing parties in opposition to the Company's cost of service study simply rehash arguments repeatedly presented to and rejected by the Commission in prior proceedings.

The Company's cost of service study allocates production and transmission costs based upon class contribution to the four summer coincident peaks. Use of this methodology reflects the fact that the Company is a strong summer peaking company and that its summer system peak is significantly higher than its winter system peak. It also reflects the fact that production and transmission costs are fixed costs which do not vary with the level of class energy usage. The 4CP method also sends appropriate and necessary price signals to customer classes encouraging them to reduce their summer demands. In the absence of these signals, customer usage patterns could change and impose upon the Company and ratepayers both increased energy and capacity related costs (PECO Brief, pp. 7-146 to 7-150).

Of the ten parties taking a position on this issue, six support the Company's 4CP method (City Brief, pp. 42-44; PFMA Brief, pp. 3-4; SEPTA/Amtrak Brief, pp. 19-22; PAIEUG Brief, p. 50) and four propose that a substantial proportion of production and transmission costs be allocated on an energy basis (OCA Brief, pp. IX-2 to IX-17; UUC/UP Brief, pp. 42-52; PBUUG Brief, pp. 12-17; USS Brief, pp. 9-11). Those parties opposing the 4CP method argue that it reflects only one aspect of base load plant, i.e., meeting system peak, and ignores the fact that base load plant is built in part to produce energy cost savings. This argument does not take into account the fact that the 4CP method is only one part of the Company's cost of service study. PECO's cost of service study accounts for base load plant in two ways. First, fixed production and transmission costs which do not vary with energy usage are allocated on a demand basis, and second, the energy savings produced by base load plant, which do vary with energy usage, are allocated on an energy basis (PECO Brief, pp. 7-152 to 7-153). Thus, the Company's cost of service study, as a whole, fully reflects both the peaking and energy savings aspects of base load plant.

In contrast, opposing party proposals are incomplete. If production and transmission costs are to be segregated into demand and energy components, then the energy savings should also be allocated to customer classes based upon the time of their use of energy. The major impact of the energy allocation proposals

advanced by opposing parties would be to assign greater production and transmission costs to customer classes with substantial off-peak usage. However, as a result of their off-peak use, these customers classes also use more base load energy and therefore should receive a proportionately greater share of the cost savings produced by base load plant. Opposing parties fail to reflect this difference by simply employing that Company's energy allocation which allocates energy savings equally to all customers regardless of their time of use of energy.

Moreover, by focusing solely upon system planning analysis, opposing parties' arguments ignore an important aspect of cost allocation. In determining the proper cost allocation method, it is also important to consider whether a cost is fixed or variable. Since production and transmission costs are fixed costs which do not vary with the level of energy usage, it would be inappropriate to allocate these costs on an energy basis.

Finally, the OCA and UUC/UP each cite several cases from this and other jurisdictions where regulatory commissions have adopted energy allocation methods (OCA Brief, pp. IX-8 to IX-17; UUC/UP Brief, pp. 53-59). These cases do not support rejection of PECO's methodology. First, in every case cited by opposing parties, the Commission approved the methodology recommended by the utility. Applying this holding the Commission should continue to approve PECO's 4CP method as it has in the past.

Second, in every instance, the specific methodology adopted by the Commission was different. This indicates that the question of how to allocate production and transmission costs depends heavily on the load characteristics and generating facilities of a particular utility. PECO's 4CP method appropriately reflects its strong summer system peak and the importance of that peak in the Company's overall demand and energy cost levels. Other utilities with more level yearly load patterns may properly employ an energy allocation. Finally, the opposing parties fail to cite the many cases where commissions have upheld coincident peak allocation methodology for production and transmission costs. See e.g., Pa. P.U.C. v. Pennsylvania Power & Light Co., 67 PUR4th 30 (1985); Re Duke Power Co., 69 PUR4th 375 (N.C. 1985); Re Utah Power & Light Co., 66 PUR4th 269 (Ark. 1985); Re Washington Water Power Co., 65 PUR4th 100 (Ida. 1985);

Several parties also oppose PECO's predominant minimum size methodology for the allocation of distribution plant (OCA Brief, pp. IX-7 to IX-20; City Brief, pp. 39-40; CEPA Brief, pp. 1-3). As fully explained in PECO's Initial Brief (pp. 7-158 to 7-162), the Company's method properly reflects the real world conditions as they actually exist on PECO's system. The Company designs its system to meet real world conditions and it is reasonable and appropriate to develop a cost of service study on a consistent basis. The theoretical arguments advanced by opposing parties do not reflect the way in which PECO actually

designs and installs its distribution system and therefore should be rejected. The minimum size method employed by the Company is widely accepted and employed by many utilities, and the result achieved by the Company's study are well within the range of results of other electric utilities. Finally, opposing party arguments that the Company's method is inconsistent with the NARUC Manual are simply wrong. The NARUC Manual clearly states that the customer component should reflect the minimum size system currently being installed by the utility. It therefore fully supports a methodology which reflects real world conditions such as that employed by the Company.

2. Class Revenue Allocations

The Company and all parties to this proceeding, except one, have proposed that the rate increase be allocated to customer classes on an equal percentage basis including fuel costs (PAIEUG Brief, pp. 39-40). The variations proposed by opposing parties reflect their cost of service study proposals to allocate production and transmission costs on an energy basis. These proposals would have a serious adverse impact on off-peak rate classes, while providing only marginal benefit, if any, to the major customer classes. The Company's methodology is fully consistent with its cost of service study, the desire to promote conservation and off-peak usage, and with prior Commission rate orders, and therefore should be approved, (PECO Brief, pp. 7-164 to 7-165).

The PAIEUG proposal to allocate the increase across the board excluding fuel costs should be rejected because of its disparate impact on rate classes. While the Company's use of this methodology was appropriate in prior proceedings where there was significant variation between the class rates of return, in the current case these disparaties have been significantly reduced (in part due to the allocations proposed by the Company in prior rate proceedings). Therefore, the adoption of disparate increases produced by PAIEUG method should be rejected.

3. Industrial and Commercial Rate Design

Several opposing parties propose revisions to the relative levels of the HT and PD demand and energy charges (PBUUG Brief, pp. 20-22; USS Brief, pp. 12-13; PAIEUG Brief, pp. 44-49; SEPTA/Amtrak Brief, pp. 4-12; PFMA Brief, pp. 13-15; OCA Brief, pp. IX-21 to IX-22). As fully explained in the Company's Initial Brief (pp. 7-137 to 7-180), the design of rates HT and PD proposed by the Company is consistent with the directives of the Commission's Order in the Company's 1978 rate proceeding at R.I.D. 438. This methodology has been repeatedly examined and approved by the Commission and affirmed by the Commonwealth Court in many prior PECO rate proceedings. Opposing party proposals would violate these prior Commission decisions and court orders and therefore should be rejected.

UUC/UP and PBUUG presented testimony proposing the elimination of the Company's demand ratchet for rates HT and PD

(UUC/UP Brief, pp. 64-74; PBUUG Brief, pp. 23-26). The purpose of the ratchet is to encourage needed reductions in summer demand and indeed is the principal means by which a price signal is communicated to HT and PD customers to discourage their summer demand. The benefits of these reductions in demand are two-fold: lower energy cost and reduced need to add new capacity (PECO Brief, p. 7-180). The ratchet has been a part of PECO's tariff since 1969 and has been litigated and approved in virtually every subsequent PECO rate proceeding and has been upheld on appeal. The parties have presented no new arguments whatsoever in opposition to the ratchet. Their proposals to eliminate the ratchet therefore should be rejected.

Opposing parties argue that the demand ratchet is no longer needed with the addition of substantial baseload capacity to PECO's system. This is clearly incorrect. The Commission has recently determined that the Company requires substantial additional baseload capacity by 1991. It therefore remains appropriate and important for customers to take all possible actions to reduce summer demand. The demand ratchet provides an important incentive to achieve that results. Moreover, as explained in the Company's Initial Brief (p. 7-181), other rate classes have similar mechanisms designed to encourage summer demand reductions, and the elimination of the ratchet from rates HT and PD therefore would be unfair and discriminatory.

UUC/UP argues that the ratchet proposed by PECO grossly overcollects the cost of adding summer demand. This is simply incorrect. As shown in the Company's Initial Brief (pp. 7-180 to 7-181), the cost imposed by the addition of 1kw demand in the summer is $366.73. Without the ratchet the Company would recover only $124.24 from the customer who added the demand and the remainder would be recovered from other customers. With the ratchet, the Company is assured recovery of at least $323.02 which, although less than the full cost, is at least a substantial portion of the cost. If the demand ratchet were eliminated, the Company would simply have to increase the HT demand charge to recover revenue lost from application of the ratchet, which would result in other customers not responsible for the addition of peak demand paying for the cost imposed by other customers who do add peak demand during the summer months.

4. Residential Rate Design

The OCA proposes that the tail block of rate RH receive 92% of the increase assigned to rate R (OCA Brief, pp. IX-29 to IX-30). This 92% figure is based solely upon a calculation presented by OCA Witness Oliver which purported to determine that 92% of Limerick 1 costs were energy related. Obviously, rate RH is not the only rate class to use energy generated by Limerick 1, and it is not clear what relevance the 92% figure has to rate design issues. Moreover, Witness Oliver himself rejected this figure in developing his cost of service study. There is

therefore no basis for the OCA argument, and it should be rejected. Rate RH is already providing more than its cost of service under the Company's proposal. Proposals to assign additional increases to that rate are inappropriate and should be rejected.

The OCA and CEPA have proposed the establishment of essential use blocks in Rates R and RH (OCA Brief, pp. IX-30 to IX-42; CEPA Brief, pp. 30-33). As detailed in the Company's Initial Brief (pp. 7-183 to 7-188), these parties presented a variety of evidence demonstrating the large number of low-income households in the Philadelphia area and the difficulty these customers would have in paying additional electric rate increases. PECO fully recognizes and understands the significance of this problem and is taking a variety of steps to address it in a rational and effective manner. However, the data and statistics presented by OCA and CEPA appear to exaggerate the scope of the problem. There is no evidence in this proceeding that simply because a household falls within government definitions of low-income that that household is in fact having difficult paying its electric bills. Similarly, the number of service terminations by PECO is not directly relevant since customers are terminated for a variety of reasons unrelated to an ability to pay. Thus, while there is no dispute that a problem exists, the magnitude of the problem has been exaggerated by these opposing parties (PECO Brief, pp. 7-186 to 7-187).

Regardless of the magnitude of the problem, the essential use proposals advanced by OCA and CEPA should be rejected because they are counterproductive and will cause more harm than good to low-income customers. These proposals are premised on the assumption that there is a correlation between income level and electric usage. The available evidence simply does not support this conclusion. As a result, the OCA/CEPA proposal would charge larger than average increases to many low-income customers and would provide less than average increases to many customers who do not require any assistance. Fully 62% of the regular residential ratepayers on the Company's Customer Assistance Program have usage above 400 kilowatt hours per month. Thus, a limitation of the increase to the first 350 kwh of usage will not be effective and would in fact penalize low-income customers with high usage and benefit high-income, low-usage customers (PECO Brief, p. 7-184).

Opposing parties criticize PECO's reliance on the CAP customers as not being statistically significant or based on a random sample. However, the results of the Company's study are consistent with a 1975 study by National Analyst presented in the Company's 1975 rate proceeding, the conclusions of the Commission's generic rate structure investigation at 76 PRMD-7, a recent study by the Commission's Bureau of Consumer Services, and the Commission's 1985 Order in the PP&L Rate Structure Investigation (PECO Brief, pp. 7-184 to 7-185). Each of these

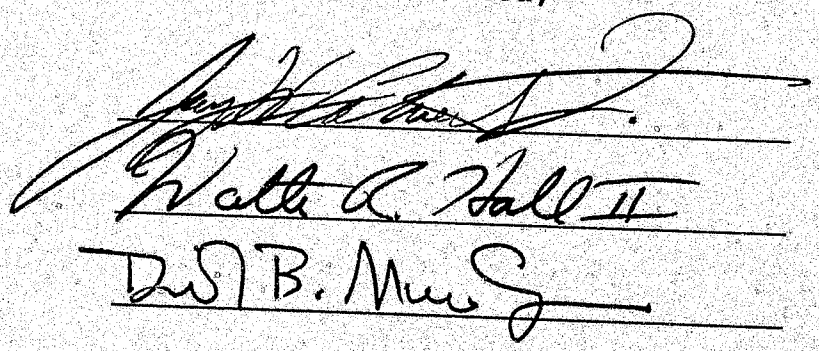
concludes that there is no direct correlation between income level and usage of electricity. Thus, the fundamental premise underlying CEPA and OCA's essential use program is simply wrong and therefore should be rejected.

Moreover, even CEPA's own data support the Company's proposal. CEPA Witness Grier's testimony demonstrates that almost one-half of residential customers use in excess of 300 kwh per month. CEPA and OCA argue that the Company has ignored the fact that even customers with above 350 kwh usage per month will receive at least some benefit from their proposal as long as their usage is at or below 532 kwh per month. This is simply further damaging evidence to their proposal. Since 65% of the Company's residential ratepayers use 500 kwh a month or less, the CEPA/OCA proposal would provide a benefit to over 500,000 residential ratepayers when CEPA/OCA admit that at the very most only 220,000 low-income customers reside in the City of Philadelphia. Thus, it is clear that the CEPA/OCA proposal should be rejected because it will benefit many customers who do not need the benefit and will harm customers in need of assistance (PECO Brief, pp. 7-187).

VIII. CONCLUSION

For the reasons set forth above, the Commission's investigation should be terminated, the Complaints against the Company should be dismissed and the full rate increase proposed by Supplement No. 15 should be approved and permitted to become effective promptly.

Respectfully submitted,



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April 14, 1986

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SECRETARY'S OFFICE
Public Utility Commission

Secretary Jerry Rich
Pennsylvania Public Utility Commission
North Office Building
New Filing Section, Room B-16
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission,
v. Philadelphia Electric Company,
Docket No. R-850152

Dear Secretary Rich:

Enclosed for filing with the Commission is the original and nine copies of the Reply Brief of the Governor's Energy Council in the above-captioned proceeding.

I hereby certify that we are today serving copies of this document on all Active Parties.

Sincerely,

Roger E Clark

Roger E. Clark
Chief Counsel

Enclosures

cc: The Honorable Joseph P. Matuschak
All Active Parties

ORIGINAL

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

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SECRETARY'S OFFICE
Public Utility Commission

Pennsylvania Public Utility Commission	)	
v.	)	R - 850152
Philadelphia Electric Company	)	

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REPLY BRIEF OF THE

GOVERNOR'S ENERGY COUNCIL

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I. INTRODUCTION

Many of the arguments in the Company's initial brief were anticipated and therefore addressed in the initial brief of the Governor's Energy Council (GEC). In this reply brief, the GEC will generally not repeat its discussion of these same points, but instead will address new issues raised by the Company about the positions specifically addressed by the GEC.

The GEC remains convinced that significant adjustments must be made to the Company's revenue request. An operating performance plan for the Company's nuclear units is appropriate and necessary to provide the Company with incentives for good performance and to assure a fair sharing of the risks of poor performance. A well designed phase-in plan is also necessary to reduce the economic shock of the rate increase so that the regional economy can attract and retain jobs and businesses.

II. A NUCLEAR PERFORMANCE STANDARD IS NEEDED TO ASSURE A FAIR SHARING OF THE RISKS

The nuclear operating performance standard proposed by the GEC is addressed by the Company on pages 6-18 through 6-22 of its Initial Brief. All but one of the arguments contained in this section of the Company's brief are identical to the arguments

raised by the Company's witnesses and were addressed in the GEC's initial brief, pages 28 through 33. However, there are several new points in the Company's argument which should be noted.

The Company begins its discussion of the GEC's performance standard by calling it:

> ... a thinly disguised penalty provision which guarantees that PECO will under-recover its prudently incurred energy costs under almost any conceivable set of reasonable assumptions.

Company's Initial Brief, page 6-19. At the end of the Company's discussion, its description of the GEC's performance plan is shortened to "nothing more than a guaranteed penalty for PECO shareholders." Company's Initial Brief, page 6-22. Either the Company is conceding that its nuclear units will not perform as well as they have claimed on the record in this case or it misunderstands the GEC's operating performance proposal.

The GEC's proposed nuclear performance standard would hold the Company liable for the additional costs incurred if the Company's five nuclear units operate at an average capacity factor of less than 60%. If the Company's nuclear units operate at an average capacity factor of more than 70%, the Company would retain half of the energy savings due to the good performance. If the units operate at an average capacity factor in the 60% to 70% range, there is neither a penalty nor a reward for this average performance level. This proposal would be a "guaranteed penalty" only if the Company expected its nuclear units to always operate at an average capacity factor of less than 60%. The

Company, in its short and long range forecasts, states that this is not the case. Unlike the Company, the GEC believes that under most reasonable assumptions about the operation of the nuclear units, the Company will not receive a penalty under the GEC's proposed operating performance standard.

Elsewhere in its Initial Brief, the Company makes statements which support aspects of the GEC's proposed nuclear operating performance standard. In discussing the proposed Limerick Unit 1 fuel savings guarantee, the Company states that:

> [i]f a performance standard is to be adopted, it should include a number of units over time in order to account for the individual variation in unit operation from year to year.

Company's Initial Brief, page 2-61. The GEC recognizes the merit of this recommendation and its proposal is based on the average capacity factor of the Company's five nuclear units, not on a single unit. The GEC's proposal also does not measure performance at only one moment, but looks at performance as averaged over a year. By basing the performance standard on five units over a period of time, the GEC's proposal accounts for the individual variations discussed by the Company.

Continuing with the discussion about a fuel guarantee, the Company commented in a footnote that:

> ...any Limerick 1 operating standard should relate solely to the operation of the unit and not to a dollar level of energy savings.

Company's Initial Brief, page 2-64, n. 13. The GEC's proposed

operating performance standard does this by establishing a standard based on capacity factor, not a dollar level of energy savings.

The one new argument in the Company's discussion of the GEC performance plan is that with the exception of California, no other state has both an 80/20 Energy Cost Rate and a performance standard. As the GEC pointed out in its initial brief (page 22), this Commission has adopted both an 80/20 ECR and a operating performance standard for the Company in the case of Limerick Unit 2. Contrary to the implications in the Company's argument, the applicable precedent in this matter is that both a performance standard and an 80/20 ECR are reasonable and necessary to share the risks and to protect the ratepayers from the costs of poor performance.

III. THE COMPANY'S PHASE-IN PROPOSAL IS INADEQUATE AND AN ALTERNATIVE PHASE-IN PLAN IS NECESSARY

The GEC's initial brief reviewed the Company's phase-in proposal and noted several serious faults with the Company's proposal. The GEC also presented an alternative phase-in plan with a sinking fund and addressed the arguments presented by the Company's witnesses. The GEC's response to these criticisms will not be repeated here.

There is one theme in the Company's initial brief that merits additional response, and it is the claim that the GEC's proposal will significantly increase the ratepayers' costs for Limerick Unit 1 (Company's Initial Brief, pages 2-51 through 2-52). As Dr. Wilson noted in his surrebuttal testimony (GEC Statement 1-C, pages 16-17), the Company's claim that the sinking fund depreciation methodology produces a higher life-time capital requirement than straight-line depreciation looks only at nominal dollars, and ignores the time value of money. By basing its argument on such a limited analysis, the Company ignores its own claim on the need for present value analysis in assessing the Company's case (see Company's Initial Brief, pages 4-161 through 4-162). If, as the Company asserts, the failure to consider the time value of money is the basis for rejecting the analysis of delay costs, the same fault should result in the rejection of the Company's analysis of the costs of sinking fund depreciation.

IV. THE COMPANY'S ECR ASSUMPTIONS MUST BE REJECTED TO PREVENT AN OVERESTIMATION OF FUEL COSTS

Both the GEC and the OCA criticized the Company's oil price assumptions used to project the energy cost factor. The Company defends its use of the $24 figure, claiming that it is "undisputed by any party on the record." Company's Initial Brief, pages 6-23 through 6-24.

The GEC strongly disputes this statement. The $24 a barrel figure used by the Company in Exhibit JJC-3 is far above the current $17 a barrel figure the Company actually paid for oil in March, 1986 (Tr. 4357), and is also above the estimate of $17 to $20 per barrel given by Company witness English for 1986 prices (Tr. 4358). Most energy forecasters, including those used by the Company, are predicting that oil prices in the next several years will decrease in real dollars. Tr. 319. This suggests that the oil price assumption should be no more than $17 per barrel. Because of the continuing decline in the price of oil, the GEC believes the Commission should take notice of the oil situation and make its own determination of the reasonable projection of the price of oil for use in the Company's compliance filing for the ECR. Use of the Company's oil price assumptions would so manipulate the 80/20 ECR that it would fail to establish the effect intended, as the ALJ noted in the ruling on the Trial Staff's motion to strike. Mimeo, page 9.

V. CONCLUSION

In its initial brief, the GEC recommended disallowances for the costs of 50% of the common facilities, for the costs of the 1976 and 1978 construction delays,[1] and for the redesign and rebuilding work of the Mark II containment structure. The GEC also recommended an income adjustment for a 450 megawatt portion of Limerick Unit 1 which should be considered excess capacity. The initial briefs filed by the parties in this case have strengthened the GEC's belief that the positions taken on these issues were reasonable and just. The significant disallowances to the Company's revenue request suggested by the GEC are necessary and proper in order to shield ratepayers from unreasonable and imprudent construction practices and to better match costs with benefits.

The Commission's recent efforts of performance based regulation should be continued and extended by the adoption of an operating performance plan as proposed by the GEC for the Company's nuclear units. Such a plan would provide incentives for good performance and would share the risks of poor performance.

From the beginning of this case, the GEC has been concerned about the economic impacts of the Company's requested increase.

---

[1] As the GEC noted in its initial brief, page 10, the Company's life cycle analysis for the cost of delay is deficient and highly speculative and should be treated the same way the Commission treated this type of analysis with respect to excess capacity.

The Commission is urged to soften the employment and other economic impacts of this case by adopting a phase-in plan with a sinking fund as suggested by the GEC.

The GEC also believes that the 80/20 Energy Cost Rate will be rendered meaningless if the Commission does not change the fuel price assumptions to be used by the Company to compute its energy cost factor.

Respectfully submitted,

Governor's Energy Council
by:

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Dated: April 14, 1986

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APR 14 1986

SECRETARY'S OFFICE
Public Utility Commission

April 14, 1986

Mr. Jerry Rich, Secretary
Pennsylvania Public Utility Commission
North Office Building
P.O. Box 3265

Re: Pennsylvania Public Utility Commission v. Philadelphia Electric Company, R-850152

Dear Secretary Rich:

Enclosed for filing in regard to the above-captioned matter please find an original and nine (9) copies of the Reply Brief of The City of Philadelphia.

The City's Reply Brief has been served upon the Administrative Law Judge and all parties of record as per the attached Certificate of Service.

Please date-stamp the enclosed extra copy for my records.

Sincerely,

Charles E. Rainey, Jr.
Charles E. Rainey, Jr.
Assistant City Solicitor

enclosure
cc: All Parties of Record

CERJ: kyt

DOCUMENT FOLDER

CERTIFICATE OF SERVICE

I hereby certify that I have served two (2) copies of the following document, Reply Brief of the City of Philadelphia, upon the following persons by hand delivery on April 14, 1986 or by Federal Express mail on April 11, 1986, which service satisfies the requirements of 52 Pa. Code §1.54:

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APR 14 1986

SECRETARY'S OFFICE
Public Utility Commission

Secretary Jerry Rich
Pennsylvania Public
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P.O. Box 3265
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission
v.
Philadelphia Electric Company
Docket No. R-850152

Dear Secretary Rich:

Enclosed please find for filing of record an original and nine (9) copies of our Reply Brief in the above case. We also wish to note an omission on Appendix I of our Main Brief, p. 2. The reference to the exhibit should be UUC/UP Statement No. 1.

Very truly yours,

Mark P. Widoff

MPW/jd

Enclosures

cc: All parties of record w/encl.

RECEIVED

APR 14 1986

SECRETARY'S OFFICE
Public Utility Commission

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
v.	:	DOCKET NO. R-850152
PHILADELPHIA ELECTRIC COMPANY	:	

FOLDER

REPLY BRIEF OF THE

UTILITIES USER'S COMMITTEE/ UNIVERSITY OF PENNSYLVANIA

DOCKETED

APR 15 1986

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Dated: April 14, 1986

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I. PECO CANNOT EVADE THE CLEAR AND PRESENT DANGER THAT ITS RATE INCREASE PROPOSAL PRESENTS TO THE ECONOMY OF SOUTHEASTERN PENNSYLVANIA

In its Main Brief, PECO continues its unrelenting attack on the work of a distinguished scholar from a distinguished institution who has merely quantified one aspect of the negative consequences of PECO's unprecedented, huge rate increase request. The attack on Arie P. Schinnar, Ph.D. is reminiscent of the ancient custom of slaying the messenger who brings bad news. Clearly Dr. Schinnar is providing this Commission with clear and convincing evidence, based on a brilliant use of modern computer technology, of what everyone, including PECO, believes to be the case: taking more than 2/3 of a billion dollars out of the pockets of business, industry and individual customers in PECO's service territory will have a severe negative impact on the economy of the area.

In simple legal language, Dr. Schinnar's analysis is credible, based on careful, easily understood premises and procedures and is deliberately understated and conservative. PECO's rebuttal to Dr. Schinnar, as capably demonstrated in the Main Brief of the City of Philadelphia, is lacking in both substance and credibility. It is beyond credibility and credulity that the same company that claimed in sworn testimony before this Commission only a few years ago that a rate increase of 0.376% would result in the loss of 1,127 jobs (UUC/UP) Exhibit

Nos. 1 and 6) would now claim that a rate increase of approximately one hundred times in magnitude would result in little or no impact on jobs.

This Commission should reject PECO's position as inconsistent and not credible. It should approach this case with the care and caution that the large numbers deserve. Public utilities were created to promote economic progress and opportunity, not to impede or prevent them. PECO has been on notice for years that it was proceeding with Limerick based on its assurances that Limerick was needed and good for its customers. It was never anyone's understanding that PECO was building Limerick for its own benefit. If this Commission must make adjustments, based on the law and the evidence, to PECO's claim, then this is a risk PECO has always known it faced. If PECO must find a way to cut back on its expenditures so as to avoid economic distress of major magnitude to its customers, then it must do so. A healthy utility company and a severely sick service territory are not compatible. We urge the Commission to take into account the economic health of the Southeastern Pennsylvania region in setting rates in this case.

II. PECO'S ATTACK IN ITS MAIN BRIEF OF THE TESTIMONY OF MESSRS. CHERNICK, KOMANOFF, FALKENBERG AND LANZALOTTA IS NEITHER JUSTIFIED NOR CONVINCING. THIS COMMISSION CAN AND SHOULD MAKE AN EXCESS CAPACITY ADJUSTMENT IN THIS CASE

In our Brief, UUC/UP contended that there are certain painful truths about this case that are obvious and clear. PECO has attempted to deflect the Commission's attention away from these truths in its initial Brief. While its advocacy in opposition to the testimony of Messrs. Chernick, Komanoff, Falkenberg and Lanzalotta is massive (see pp. 5-1 to 5-87 and D-1 to D-71), it is unconvincing and without merit. This is simply because PECO cannot escape from these painful truths:

(1) Limerick I is not needed for reliability purposes.

(2) The construction costs of Limerick I have so greatly exceeded PECO's estimates, even those of late 1981, (see UUC/UP Exhibits 3 and 4) that when combined with other costs of Limerick, by no one's calculation, not even PECO's, will Limerick I provide economic benefits to ratepayers for many years.

Since PECO cannot dispute these fundamental facts, it spends over 150 pages in an effort to deflect attention from them. It argues that:

(1) It may prematurely retire economic and serviceable capacity in order to escape an excess capacity

adjustment, thus making a mockery of this Commission's rulings which have applied the used and useful test required by the law of this Commonwealth;

(2) It may claim that Limerick is "needed" for capacity, when that capacity can be obtained at a small fraction of Limerick's cost. The customer, according to PECO, must pay for this capacity no matter how much PECO has spent. PECO would thus nullify all the decisions of this Commission requiring that shareholders share some of the responsibility of large cost overruns, miscalculations and misprojections. (These overruns, miscalculations and misprojections are, of course, a matter of record in this case. See, e.g., PAIEUG Statement No. 1, pp. 41-55 and Appendix I to UUC/UP Statement No. 1).

(3) This Commission should disregard the evidence of record showing conclusively that Limerick I will not provide net economic benefits to ratepayers for the forseeable future. The fact that independent, highly qualified witnesses, representing different parties and working independently, have all concluded that Limerick I will not provide

economic benefits to ratepayers for many years is to be disregarded according to PECO. The considered judgment of all these witnesses that Limerick I will never provide economic benefits to ratepayers is also to be disregarded.

UUC/UP respectfully submits that these arguments should be rejected.

A. PECO Would Have This Commission Disregard Its Prior Decisions Regarding Excess Capacity

This Commission has, since at least 1978, carefully developed a line of cases regarding excess capacity and how it is to be treated in ratemaking. These cases are discussed in our Main Brief at pages 30-34 and carefully and accurately discussed in the OCA Main Brief at pages IV-3 to IV-10. PECO would have this Commission, de facto, overrule these cases. This is so because PECO would nullify these cases by the simple device of prematurely retiring serviceable and economic capacity. If this device were available, then it was manifestly unfair for this Commission to make major adjustments to PP&L's rate base in recent years, since PP&L could easily have also mothballed or retired units on its system. Quoted in OCA's brief and at the very heart of the issue is Mr. Lanzalotta's testimony:

> If a utility has excess capacity, it will always have the ability to mothball or prematurely retire certain generating units. The fact that such retirements are possible

does not prove the need for a new generating unit.

OCA Statement No. 5A, p. 4.

We urge the Commission not to nullify its prior holdings by approving PECO's attempted evasion of them. For all its pages and pages of argument, PECO never rebuts the basic fact that the units it has prematurely retired are serviceable for reliability purposes, are perfectly acceptable for reliability purposes by any standard and are much, much cheaper than Limerick.

B. PECO's Argument that Limerick is "Needed" for Reliability Purposes, Regardless of the Cost of Alternatives, should be Rejected.

PECO attempts to argue in its Main Brief, that since, by its calculations, Limerick I has equal or better reliability value than some other alternatives, it is "needed" for reliability, regardless of cost. Mr. Chernick, as we have quoted on page 10 of our Main Brief, exposes the fallacy of this reasoning. It is true that a Cadillac may have equal or better transportation value in getting meter readers from house to house than Fords. Nevertheless, this Commission would not sanction charging ratepayers for the purchase of a fleet of Cadillacs.

Similarly, for reliability purposes, it is not defensible to argue, as does PECO, that because Limerick I has reliability value and because it exists, it is needed for reliability. For reliability purposes, no rational person would build a

Limerick. The fact is that Mr. Chernick (as well as Mr. Falkenberg and Mr. Lanzalotta) has shown, beyond any reasonable doubt, "That most of the cost of Limerick I was not required, and would never have been incurred, for system reliability." UUC/UP Statement No. 1, p. 17. See also, pp. 11-17 and Tables 2.1 and 2.4.

PECO's arguments that Mr. Chernick (or Mr. Lanzalotta or Mr. Falkenberg) have erred in their calculations relating to Limerick I's reliability value as compared to the retired capacity or other alternatives misses the essential point. Even if PECO were right, Limerick I was simply not built for reliability reasons, as PECO itself admits. In fact, Limerick I does not enhance system reliability by any reasonable measure and probably degrades it. See UUC/UP Statement No. 1A, pp. 19-21 and, e.g., OCA Exhibit No. 87, p. 3. Also see Tr. 4346. Mr. Rush can bring himself no further than to argue that system reliability is unchanged when Limerick I is substituted for smaller units. PECO Statement No. 114A, p. 19. We are, therefore, left with the only reasonable conclusion permitted by the evidence of record:

> What I'm saying here is that if you want to install 1,055 megawatts of capacity, or if you want to be able to support the amount of firm load that Limerick will support, which requires a smaller amount of additions if they are smaller units, you could have done either of those things, regardless of your load forecast, for a much smaller investment in terms of

> maintaining system reliability than is embodied in Limerick.
>
> That is a statement which you would expect to be true about most base load plants, and is especially true about very expensive base load plants.

Tr. 2958.

As Mr. Chernick continues:

> I'm sure that at the time that Limerick was being planned, the company knew that it could provide the reliability less expensively, but it hoped that Limerick would be able to produce a lot of energy inexpensively, and that would more than make up for its high fixed costs; and it made the additional investment, decided to go ahead and spend a billion dollars or so on Limerick instead of perhaps a third or a quarter of that on gas turbines, based upon the expectation that the additional investment would be more than paid off in fuel savings.

Tr. 2959.

It is precisely this issue of net economic savings, the only justification PECO seriously advanced to this Commission for constructing Limerick (which it now surprisingly says is irrelevant), to which we must turn.

C. <u>PECO has Made no Showing that Limerick I will Provide Net Economic Benefits to Ratepayers for the Forseeable Future.</u>

PECO has continued to argue that the issue of whether Limerick I will provide more benefits than costs to ratepayers is irrelevant. This argument is made despite the fact that net economic benefit is the only credible justification available

for Limerick I's existence at all. Again, the Company's logic breaks down upon analysis.

In Pa. P.U.C. v. Pennsylvania Power & Light Co., R-84265 (April 25, 1985) (hereinafter "PP&L II"), PP&L attempted to escape an excess capacity adjustment by presenting a cost-benefit or "life cycle" analysis for Susquehanna II. The Commission rejected PP&L's analysis on the grounds that, as in Re Pennsylvania Power and Light Co., 55 PUR 4th 185 (1983) (hereinafter "PP&L I"), the life cycle analysis "supports the ultimate conclusion that from an economic perspective the Company indeed has excess capacity." Quote from PP&L I contained in PP&L II, p. 15. The Commission went on to quote PP&L I further:

> The only certainty is that any benefits will first occur on an annual basis well after the rates set here are just a dim memory.

PP&L II, p. 18.

PECO argues that, based on this holding, life cycle analyses are irrelevant in making an excess capacity adjustment. PECO insists that this Commission has adopted a "narrow" concept of excess capacity which only involves a wooden mathematical calculation of total capacity (as defined by the utility) minus peak demand and reasonable reserve (also as defined by the utility). Net cost considerations, according to PECO, are legally irrelevant under this Commission's

decisions. We respectfully submit that PECO's interpretation is manifestly incorrect. This can be demonstrated by the fact that the Commission specifically instructed PP&L that the excess capacity adjustment in PP&L would be reconsidered if PP&L could make a convincing case of net economic benefits:

> Fourth, we have made continuation of our excess capacity adjustment contingent on either one of two alternatives: if the Company can show that SSES 2's net economic benefits have begun to outweigh its net costs, or that its capacity is no longer excess relative to system reliability, then the Company may take appropriate steps to seek a modification of this adjustment. (emphasis added)

PP&L II, p. 22.

Based on a fair and proper reading, the standard to be applied in excess capacity determinations is not the wooden mathematical calculation proposed by PECO, but rather the test articulated by OCA at page IV-10 of its Main Brief:

> In summary, this Commission has previously held that the standard to be applied to excess capacity determination is as follows:
>
> * Will the plant be used? AND
> * Is the plant needed for system reliability? OR
> * Will the plant provide an immediate economic benefit?
>
> Obviously, the plant must be used in order for it to be considered for inclusion in rates. In addition, however, if the plant is neither needed for reliability purposes nor providing

> an economic benefit, then the plant is not "useful" and is excess capacity. Once a plant is found to be excess capacity, the Commission must then determine the appropriate ratemaking mechanism by which the costs of that plant should be shared between ratepayers and investors.

Turning to the issue, then, of net economic benefits of Limerick, the record is clear that PECO itself has not been able to show net economic benefits for Limerick at any time in the forseeable future. PECO has not and cannot contradict Mr. Chernick's testimony, as contained in Table 3.2, UUC/UP Statement No. 1 and as stated in that Statement on p. 32:

> Even without discounting the cash flow, Limerick I would increase rates for PECO customers as a whole until 2001. By 1994, the first year the plant would cost less than it saved, consumers would have paid out almost $3 billion extra. Discounting the costs and benefits, even at just 10%, makes the situation much worse, pushing discounted breakeven to 2009. Thus, based on PECO's own assumptions, Limerick I does not have positive present value benefits until well into the next century.

Given this fundamental and unalterable fact, and based on this Commission approach to excess capacity, as described above, an excess capacity adjustment is much more compelling than in PP&L I and PP&L II. This adjustment is called for, regardless of how the Commission might care to view the areas of disagreement between PECO and Messrs. Chernick, Komanoff and Falkenberg on the question of whether PECO is again being hopelessly optimistic in projecting any benefits, even in the

21st century, for Limerick. Ironically, PECO's own witness is quoted by PECO in its Main Brief to demonstrate the difficulty of projecting costs and benefits 40 years in advance. PECO Main Brief, p. 5-52. This merely emphasizes the significance of the fact that everyone, even PECO, agrees that Limerick I will provide no net benefits to ratepayers for many years.

It is for this reason that UUC/UP submits that the record is overwhelming and basically uncontradicted that PECO has failed to show net economic benefits to ratepayers for Limerick for many years. Mr. Chernick has, therefore, challenged PECO to stand by its own projections and to match customer rate increases to the benefits of Limerick that PECO projects, when they actually occur. Mr. Chernick has made this challenge because PECO, not seriously suggesting that Limerick I will provide economic savings to ratepayers in the forseeable future, is implicitly asking this Commission to make present ratepayers pay for Limerick based on benefits PECO projects for the 21 century:

> A. PECO asserts that 9.7% is the effective annual cost at which it can finance projects for the benefit of ratepayers. PECO further insists that the benefits it projects in 2024 are just as real as the costs in 1986. The Commission can simply take the Company at its word, and let it recover its investment, including 9.7% financing, from the benefits it expects Limerick I to produce late in this century and into the next. To be generous, the Commission could allow PECO to retain its projected

energy savings per kWh, as forecasted in this case, plus the capacity benefits I have quantified. The real benefits of Limerick I, compared to an efficient expansion plan, would be lower than the combined energy and capacity value calculated in this way. If Dr. Perl, Dr. Hieronymus, and the other PECO witnesses are correct about the operating costs, capacity factor, and discount rate for Limerick I, the Company would be fully compensated.

Q. Would this approach cause major financial problems for PECO?

A. It should not do so, <u>if investors believe PECO's projections</u> of the costs, performance, and risks of Limerick I. An investor who agrees with Dr. Perl would have no reluctance to invest in Limerick I at an expected after-tax return of 9.7% with the time pattern of costs and benefits PECO projects. Whether the FASB considers PECO's deferrals to be earnings should be irrelevant to an investor who believes PECO's projections. The value of securities is determined by the investor's expectations of future cash returns, not by accounting reports.

UUC/UP STATEMENT No. 1A, pp. 30-31 (footnotes omitted)

For the reasons stated, we believe it to be necessary and proper for this Commission to make an excess capacity adjustment up to the amount suggested in Mr. Chernick's testimony at pp. 98-100 of his testimony (UUC/UP Statement No. 1) and as shown in Appendix I to our Main Brief. Whether this adjustment is viewed as a disallowance or as a phase-in, we urge the Commission to require, as it did in PP&L II, that actual economic benefits be shown before recovery is permitted. In Appendix A to this Brief, we respond to PECO's Appendix D,

on the full life cycle analysis of the parties. However, because of PECO's inability to show that net economic benefits will outweigh the costs of Limerick I for the forseeable future, we believe the full life cycle analysis merely serves to reinforce the need for an excess capacity adjustment, because no economic benefits are ever likely to occur for Limerick. The public policy reasons for making an adjustment, therefore, serve to reinforce the precedents established by this Commission in prior cases.

III. AN ENERGY ALLOCATION OF LIMERICK IS APPROPRIATE AT THIS TIME

There are essentially three arguments advanced by various parties for allocating Limerick costs on the basis of coincident summer demand:

1. Capacity costs are always allocated on demand. (Ignoring the precedents cited in our Main Brief to the contrary.)

2. The Company allocates all capacity on a demand basis and Limerick presents no special reasons for altering this treatment.

3. An energy allocation will fail to encourage conservation.

Although all addressed in our initial brief, these arguments are deserving of additional reply.

1. "Capacity costs are demand related, per se." This represents the position of PECO, (Main Brief, p. 7-149), PAIEUG (Main Brief, p. 50) Pennsylvania Food Merchants Assoc. (Main Brief, p. 17) City of Philadelphia (Main Brief, p. 42). Amtrak also supports the 4-CP (Main Brief, p. 20). All of these parties argue that capacity is added to meet peak requirements and to keep the system reliable. However, not one of these parties addresses the key point: the costs of capacity are not necessarily related to system reliability, only the magnitude of capacity is. Given this fact, it is quite interesting that

PECO, at p. 7-149 of its brief, admits that capacity costs are incurred for reasons of both reliability and economic operation. However, the company adds that Limerick was only built to supply peak capacity needs.

To accept the latter statement, the Commission would first have to forget that the witnesses of PECO in both this case and the Limerick I investigation, have repeatedly insisted that Limerick wasn't built for reliability, but for energy savings. Second, the Commission would have to believe that in order to meet peak needs, PECO voluntarily decided to retire perfectly functional peaking equipment and substitute the highest price nuclear capacity in the history of Pennsylvania. Neither of these arguments is even rational, let alone persuasive, and we strongly urge the Commission not to accept them.

The company, although trying to argue its point, has actually provided a further demonstration of why an energy allocation of costs is correct. At p. 7-149 of its brief, the Company states, "By contrast, energy costs (and energy savings produced by the operation of base load plants) vary with the level of energy usage and are allocated to customers on an energy or kwh basis." In other words, according to the Company, it is appropriate to spend billions on Limerick and then to dispense its energy savings (the reason it was built) on the basis of energy usage, but to impose its costs in accordance with demand at the system peak. We suggest that it

is obvious that if the costs were incurred to produce energy savings, those costs should be recovered based on energy use. Only then will rates track costs as they are supposed to in our system of regulation.

The Company and others have also phrased their argument in terms of rates varying as costs vary. (e.g. PECO Main Brief, p. 7-149). The UUC/UP submits that, conceptually, the energy allocation of Limerick is consistent with this principle as well. Indeed, the need to produce cheap energy was the element which caused the costs to vary as PECO defines the rule (Id.). The only difference is that the costs "varied" up-front. Instead of incurring costs equal to the price of peaking capacity, the costs "varied" all the way up to the costs of Limerick. The variation, which is equal to the costs of Limerick minus the cost of a peaking plant, exists solely to reduce energy costs. Although Limerick's costs are known costs and will not vary in the future, it is only a difference in timing: The capacity cost variation happened up-front, the rates will recover it in a later time period. Although this may be a somewhat novel description of the situation, it is a correct one, standing squarely for the propositon that "excess" costs of capacity (the portion not needed for reliability) are related to energy, and must be recovered accordingly.

2. "Limerick and the need for special treatment."

The Company, PAIEUG and others argue that it is improper to single out Limerick for special allocation treatment, as PECO has added other nuclear plants to rates in the past and the 4-CP was fine for them. This may be true, but it is irrelevant. Limerick has earned its special attention by being nearly six times as expensive as previous nuclear plants for PECO (already depreciated) and almost ten times as expensive as all of PECO's remaining plants. (PBUUG Statement 2a, p. 4) The Company itself recognizes the need to treat Limerick specially and has proposed an unprecedented "phase in" to dampen the shock of this plant. The increase, according to City of Philadelphia witness Shinnar, will cause 20,000 future job losses, and will drive many businesses and individuals out of the area and into bankruptcy and poverty. No such predictions were made based on the costs of earlier plants. Finally, PECO, for the first time, has justified a nuclear plant (as explained in our Main Brief and above) not on capacity needs, but solely on energy savings. This is certainly a sufficient basis for determining that "business as usual" when folding the costs of Limerick into rates, is wholly inappropriate.

3. "An energy allocation and the need to encourage conservation."

PECO claims that an energy allocation of Limerick will not send a signal to customers that they should curb their peak

usage and will, therefore, not improve the Company's load factor. The problem with this argument is a fundamental one. PECO is attempting to justify the existence of Limerick by artificially forcing more base load use of the plant through the mechanism of overcharging for peak usage. Of course, if a Company places an outrageous price on peak demand, people will take steps to curb demand. But this is not conservation of society's resources. It is a misallocation of those resources. For, as noted by Dr. Wirtshafter and as covered in our Main Brief at p. 73, this unjustified pricing will cause society to bare the burden of three sets of generators: the Company's prematurely retired peakers, the peakers built by customers to shave peak and Limerick. This is not conservation.

As for rate instability allegedly about to result from increasing the tail block energy price of rate HT, only two observations are required. First, the enormity of PECO's rate proposal, all by itself, will so disrupt the economy of southeast Pennsylvania, that any HT rate instability resulting from this allocation will pale by comparison. Second, although "tail block" instability may have resulted when increases only presented savings opportunities by curbing kwh hours, the painfully high demand charges of PECO's rates, explicit and implicit, have now made it cost effective for users to add their own generating equipment and thus curb demand, both base

and peak, without controlling kwh consumption. (UUC/UP Statement 3, p. 23) In sum, PECO's revenue requirement has become so onerous that revenue instability due to reactions to price is no more likely to occur from energy sales losses than from demand sales losses. (Tr. 4274) Further proof of this, if necessary, can be found in the intense interest in PECO's Auxiliary Service Rider, currently before this Commission at Docket # R-850290. The many parties to that case, the mass of testimony filed in a short time and the unusual removal by the Commission of that subject from this rate case for special investigation, all bear witness to the fact that cogenerators are an important new source of kw's for PECO's customers and that as charges for demand increase, revenues will destabilize further as more cogenerators find ways to curb their demand for electricity. (Tr. 3931-3985)

For all these reasons, and particularly because the Record is clear and overwhelming that Limerick was not built for realiability reasons and is not justified on this basis by any witness, we respectfully request this Commission not to allocate its costs based on coincident demand, but to adjust PECO's proposal based on energy allocation.



IV. THE 80% RATCHET HAS NOT BEEN JUSTIFIED BY PECO

In our Main Brief, at p. 69, we commented that PECO did not criticize the basic point: the 80% demand ratchet overcollects the costs of providing peak power. Predictably, PECO's brief criticizes Dr. Wirtshafter's comparison of bills to other utilities, already addressed in our Brief, but fails to rebut this basic point: the 80% ratchet overcollects.

Interestingly, PECO's Brief (p. 7-180) defines the need for a ratchet as follows:

> The ratchet also ensures that the Company will at least recover a portion of the costs it incurs when customers add a kw of demand during the summer.

This is a valid theoretical goal, as the addition of capacity to meet a kw of additional demand in the summer costs about $10 per kw per year to own. If the ratchet recovered that amount, perhaps there would be no dispute. But, the ratchet is going to recover $120/kw/year (Main Brief p. 68, UUC/UP Statement 3, p. 18-19). If the Commission wishes to allow PECO a ratchet which recovers $10 per kw, that would be a far better result than the $120 penalty ratchet offerred by PECO.

At p. 7-181 of its Brief, PECO mentions that it costs $366.73 to cover a kw of summer demand and that the ratchet returns only $323.02 of peak costs. This calculation is valid only if one pretends that the costs of Limerick were incurred

to meet summer peak needs, a contention that even the Company witnesses, on Limerick have not supported.

V. DR. FELDMAN'S VALIDATION OF THE FORECAST OF JOB LOSSES IS WELL GROUNDED

Unlike PECO's witnesses who reviewed Dr. Schinnar's model and had no idea what they were looking at, Dr. Feldman has a working knowledge of the Starloc model. He has used it in his own testimony in other cases, has attended seminars with Dr. Shinnar on the model, works with Dr. Shinnar on a daily basis and has consulted with him on its use and application.

Nonetheless, at p. A-41 of its Brief, PECO argues that Dr. Feldman can't confirm Dr. Shinnar's study because he doesn't haye perfect knowledge of it. But the Company would have the Commission overlook the above-cited knowledge as well as other salient points, such as:

1. Dr. Feldman read some of the technical report, though not all. (What he didn't read, one can conclude, he didn't need to read.)

2. Dr. Feldman reviewed the testimony and cross-examination of Dr. Shinnar.

3. Dr. Feldman examined the computer runs.

4. Dr. Feldman examined the equations of the report.

5. Dr. Feldman used the model to run a sensitivity analysis.

6. Dr. Feldman examined the data base.

By these answers, Dr. Feldman clearly demonstrated that he was in a unique position (Tr. p. 3859) of understanding the model so completely that he could use it himself.

We believe that the record amply demonstrates that Dr. Shinnar's analysis is a valid one, confirmed through the independent expertise of Dr. Feldman, and should be considered by this Commission in developing a fair allocation of rates to the various customer classes.

VII. CONCLUSION

For the reasons set forth in our Main Brief, as further addressed, the UUC/UP urges this Commission to reject PECO's rate increase request and to modify it in the manner described by us.

Respectfully submitted,

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APPENDIX A

PECO has devoted many pages to criticizing the cost-benefit analyses of Messrs. Chernick, Komanoff and Falkenburg in its Main Brief (Chapter 5 and Appendix D). What should be emphasized is that PECO is essentially attempting to deflect attention from the overwhelming evidence of Record submitted by these highly qualified witnesses. Working independently, and using different methodologies, they have all reached the same conclusion: Limerick I will likely never provide net economic benefits to ratepayers.

The reason all three witnesses come to the same conclusion relates to several serious biases of PECO's analysis which make it as unrealistic as previous projections for Limerick provided to this Commission. These previous projections have all turned out to be biased, flawed and incorrect. (For a discussion of PECO's bias and the reasons for it, see Judge Turner's Recommended Decision at I-840381 at pp. 115-117.)

Mr. Chernick has described the biases in PECO's life cycle analysis:

PECO'S assumptions are biased in favor of Limerick I in several ways:

1. Only half of the cost of common plant is included, even though PECo seeks recovery of 100% of common plant starting in 1986.

2. The projection of avoided capacity costs assumes that PECo would take

extremely inefficient actions in the absence of Limerick I.

3. PECo's projections of avoided energy costs appear to be inconsistent with its fuel price projections, unless PECo is suggesting that it would never have built additional fuel-saving capacity in the absence of Limerick I.

4. PECo's fuel price projections are much higher than those of its fuel price consultant, Data Resources, Inc. (DRI).

5. PECo's assumptions regarding Limerick I capacity factors imply considerably better performance than would be indicated by recent experience.

6. PECo assumes that Limerick I non-fuel O&M expenses and capital additions will be considerably lower than would be indicated by recent experience and trends.

7. PECo assumes that Limerick I will experience a very long life, and that current estimates of decommissioning costs will prove correct 40 years in the future.

UUC/UP Statement No. 1, pp. 33-34.

Messrs. Chernick, Falkenburg and Komanoff all have attempted to correct <u>some</u> of these biases. Thus, PECO's criticism of their specific adjustments must be viewed in the overall context: PECO has provided a picture of Limerick that is so rosey as to be lacking in credibility. While one may legitimately quarrel with one way or another of adjusting PECO's picture to make it more realistic, one must not lose sight of the fact that PECO's picture is fundamentally in need of correction.

O & M PROJECTIONS.

PECO vigorously attacks Mr. Chernick's O&M projections as if those projections are crucial to his analysis. Of course, this is not the case: Mr. Chernick only uses the adjusted O&M data (and Capital Addition Projections, which PECO finds moderate) in his Case 4 (see UUC Statement No. 1, pp. 39, 63-70 and Table 3.7). PECO conveniently overlooks Cases 2, 3a, 3b and 3c which all provide a dismal picture of Limerick ever producing net benefits. See our Main Brief, pp. 20-21. As Mr. Chernick explains the various cases.

- Case 2, which uses PECo's assumptions, except for the inclusion of 100% of common costs;

- Case 3a, which estimates more likely benefits for Limerick I by replacing PECo's fancifully high avoided capacity charges with my estimates from Section 2, and by replacing PECo's optimistic capacity factor estimates with my estimates from Section 4.1 (representing actual BWR performance in the 1980's);

- Case 3b, which is identical to Case 3a, except for the use of the fuel savings calculated in PECo's response to a request from the Consumer Advocate;

- Case 3c, which is identical to Case 3b, except for the use of my capacity factor estimates; and

- Case 4, which uses the savings assumptions from Case 3c, and also partially corrects for PECo's optimism in the cost of running Limerick I, by replacing PECo's assumptions regarding certain

operating costs with my estimates from Sections 4.2 and 4.3, resulting in annual capital additions about three times as large as PECo assumes, and station O&M expenses which continue to escalate at something like historical rates.

UUC/UP Statement No. 1, pp. 34-35

PECO criticizes Mr. Chernick for not adjusting his historical regression analysis on O&M. But as Mr. Chernick replies with respect to his Table 4.8:

> Q. And is it your testimony that $132.7 billion is a little bit more likely to occur than the $801 million that PECO has projected; is that correct?
>
> A. No. I was talking about the trends being more likely. If you continue along the trend in column (3), then sometime relatively early in the next century the continued operation of Limerick would almost certainly become non-cost effective; and, therefore, whether it is in 2005 or 2010, the plant would be shut down, and you never get to spending $13 billion in 1983 dollars or $132 billion in 2024 dollars because it wouldn't pay. That is the general reason that you don't see protracted exponential growth in most real components. You can see it in inflation, because that's just a change of a measuring stick, if you will. But population growth rates, for example, a classic case, can't go on growing at fixed rates forever because the system winds up changing; you run out of places to put people. In the same way, you reach a point where it no longer becomes viable to spend money on running Limerick; something else would be cheaper.
>
> So the projection can be reasonable,

even though a particular number, obviously, would never be reached, because the plant would not last that long.

Tr. 2909-2910. See also UUC/UP Statement No. 1A, pp. 4-6.

With respect to capital additions, PECO apparently considers Mr. Chernick to be more reasonable and moderate, at least when compared to Mr. Komanoff. By taking a quote of Mr. Chernick out of context, (PECO Main Brief, p. D-15) PECO argues that Mr. Chernick disagrees with Mr. Komanoff on this issue. This is simply not true. By simply continuing to the next page of the transcript, Mr. Chernick clearly states his finding that Mr. Komanoff's approach to capital additions is reasonable:

> So I really didn't believe that you were going to be able to do any better, than one was going to be able to do any better than looking at averages over time. I have now found that that pessimism on my part was unwarranted.
>
> Q. You have now found that it was unwarranted, did you say?
>
> A. Yes.
>
> Q. Is another way to state the same things as you did in the interrogatory, that, "The annual variability is so large that I do not expect to be able to derive reasonable regression results"?
>
> A. Yes. About two weeks after I responded to that I did derive some reasonable regression results, and, while I haven't reviewed his regressions in detail, I have to say that it

> appears that Mr. Komanoff has also found, at least on a statistical basis, regression is applicable to capital additions data.

Tr. 2918

With respect to PECO's criticisms of Mr. Chernick's own projections, Mr. Chernick properly raises the question of credibility. PEC and its witnesses have simply consistently misprojected the data and there comes a point where it becomes foolish to rely on their projections any longer:

> The nuclear utilities have repeatedly presented Pollyanna projections of nuclear construction costs, and of operating parameters, which have turned out to be incorrect. For example, Dr. Perl (a PECo witness in this case) repeatedly projected in the late 1970's and early 1980's that nuclear construction cost overruns and schedule slippages were over, and that costs would stabilize. He was repeatedly wrong. In 1983, Dr. Hieronymus filed testimony on behalf of the Public Service Company of New Hampshire, supporting the company's $5.2 billion cost estimate for the two-unit seabrook plant and rejecting estimates by intervenor witnesses (including me) in the $7-$10 billion range. Before Unit 2 was canceled in 1984, the cost estimates for the plant had reached the $9-10 billion range. Current utility estimates for Unit 1 alone are $4.5 billion or more. The nuclear utilities, and their witnesses in regulatory proceedings, have generally been wrong in projecting that the bad news is over. I hope that Dr. Hieronymus is correct, and that the bad news in capital additions (at least as it affects Limerick I) is over. I believe the Commission would not be well advised to accept the assurances of PECo or

Dr. Hieronymus in this regard.[6]

---

[6] As I noted above, the appropriate rate-making treatment for Limerick I in this decade is probably not very sensitive to the operating cost projections, since Limerick I is uneconomical even with PECo's cost projections.

UUC/UP Statement No. 1A, p. 7

Capacity Factor

PECO insists on projecting a capacity factor of 65% for Limerick. In response, we believe it sufficient to state two facts in support of Mr. Komanoff's and Mr. Chernick's position that 60% is more realistic, but probably too generous to PECO.

(1) Actual experience with BWR's show that even 69% is optimistic. See, e.g., Taqble 4.5 in UUC/UP Statement No. 1 and see also Tables 4.1-4.4. Again PECO argues that the future will be better than the past. Again, UUC/UP believes the Commission cannot rely on such rosey projections. As Mr. Chernick testified:

> Q. Are PECo's projections for Limerick I capacity factor reasonable?
>
> A. No. To compare the accuracy of the capacity factors I derived above, and PECo's projections, to actual results, I have performed the calculations presented in Table 4.4. For the five BWRs over 1000 MW which had entered service by 1979, the average capacity factor as of August 1985 was 54.5%. The capacity factor estimates which I derived in Table 4.3 (Equation 4) predict an average of 53.4% while PECo would predict an average of 64.4%. Clearly, PECo's expectations are highly optimistic. The lifetime performance of these five units is raised (relative to recent experience) by their performance in the 1970's, when BWR capacity factors were consistently higher than they are today; the Browns Ferry 1 and 2 results reflect the effects of the fire at that plant. The actual five-unit average will

vary with refueling schedules, is based on only two plants and two utilities, and has much less data than I used. At the very least, the actual data supports the conclusion that PECo's projections significantly overstate the capacity factors of large BWR's. On the other hand, my results closely approximate actual capacity factors, based on average historical conditions.

UUC/UP) Statement No. 1, p. 60

(2) ALJ Turner has accurately and properly adjudicated this issue very recently in I-840381:

> The capacity factor position of PECO and the OCA both contain assailable assumptions. However the OCA position on capacity factor for Limerick 2 of 60% appears to be the capacity factor which best depicts what may be expected over the total life of Limerick 2. The 69% includes the early year problems as well as the problems that will undoubtedly occur as the plant ages. In addition, the historical data used by the OCA appears to reflect experienced capacity factors of similar BWR operation. The Company's data appears to reflect selective bias to a greater degree than OCA's. Dr. Perl's regression analysis also produced a projection of 60% levelized lifetime capacity factor for Limerick 2. Although he discussed this factor might actually be improved, I believe that the 60% represents his best estimate. Concerning the use of the MDC versus the DER, I find design electric rating to be the most appropriate standard to employ in calculating capacity factors, because it is the rating with most certainty attached to it. For these reasons I recommend that the Commission use a 69% capacity factor in evaluating the decision to complete Limerick 2 versus other alternatives.

p. 238.

Fossil Fuel Prices

UUC/UP on this issue directs the Commission to the OCA discussion in its testimony and briefs. Given recent developments in this area, we respectfully submit that adjustment of PECO's assumption was both necessary and proper. As stated by Mr. Chernick:

> First, the extensive discussion of coal prices by Mr. English and Dr. Hieronymus is largely irrelevant to this proceeding. As I demonstrate in Table 2.5 of my direct testimony, PECO's replacement fuel costs are at the level of oil-fired steam or combustion turbines: coal prices clearly have little effect on the economics of Limerick 1, as PECO has constrained this case. If PECO had provided comparisons of the cost of Limerick 1 to that of a contemporaneous coal plant, coal prices would be very important. Since PECO has chosen to compare Limerick 1 to existing oil-fired capacity and largely oil-based purchases, coal prices do not matter very much.
>
> Second, PECO's rebuttal on oil prices simply indicates that PECO does not believe their usual oil price consultant, DRI, and that PECO has found one part-time forecaster, Dr. Hogan, who agrees. No oil price forecasts are offered from other independent commercial forecasters (comparable to DRI), whose incentives are oriented to correct predictions, or even from corporate forecasters (such as for the oil companies) who may have axes to grind. In the absence of such alternative forecasts (which PECO could certainly have found and presented, had any agreed with its positions), we must assume that the DRI

forecasts represent the consensus in the industry, at least before the current downturn in prices.

UUC/UP Statement No. 1A, pp. 22-23. (footnote omitted).

Avoided Capacity Payments

PECO's projections of huge avoided capacity payments are extreme and unreasonable as carefully explained by Messrs. Komanoff, Chernick and Falkenberg. Again, UUC/UP believes the OCA witnesses and brief fully and convincingly deal with this issue. Even Dr. Hieronymus impliedly concedes the extreme unlikelihood of his projections on this issue:

Q. Referring you to the bottom of page 17, there is a discussion, I believe Dr. Hieronymus, regarding your projections as part of your cost/benefit analysis for Limerick where you make certain assumptions regarding payment of penalty rates to PJM had Limerick not been constructed; is that correct?

A. I am discussing the fact that the capacity charge which I use in two of my cases is a penalty rate.

Q. And am I correct that you use that penalty rate for purposes of coming up with your overall view of the cost/benefit of the Limerick project?

A. For some of the cases; yes.

Q. At the bottom of the page you indicate that the penalty rates -- by the way, you do state at the top of that page, lines 1 and 2, that you do not know specifically what PJM would actually do under these circumstances; is that correct?

A. That's correct. We're talking about a hypothetical situation.

Q. Nevertheless, for purposes of your calculation you make the assumption that PJM will act in a certain manner, namely, it will impose penalty charges; is that also correct?

A. Yes.

Q. At the bottom of page 17 you indicate that the purpose of the penalty rates is to provide an inducement to insure that each utility will build its fair share of the baseload capacity. That is at the very bottom. Is that correct?

A. That is correct.

Q. Is it not correct, therefore, that you are stating that the very purpose of these penalty rates is to avoid a situation where a utility would select, as an option for the future, the non-construction of units, as opposed to relying unduly on PJM for purchase of power?

A. Yes.

Tr. 4381-82. See also UUC/UP Statement No. 2, p. 15, footnote 11.

Discount Rates

Mr. Chernick's calculations are done based on alternative assumptions regarding discount rates. Even using PECO's rate, the results are very unfavorable to any conclusion that Limerick I will ever provide net benefits to ratepayers. See Summary of these calculations at Table 3.8 UUC/UP Statement No. 1. We respectfully submit, however, that both Mr. Chernick and Mr. Falkenberg have provided clear and convincing reasons why PECO's projected rate is not reflective of the real world. See, e.g. UUC/UP Statement No. 1, pp. 77-81. As Mr. Chernick

points out, if PECO truly believes that 9.7% is the appropriate discount rate, it should be taken at it word:

> PECO asserts that 9.7% is the effective annual cost at which it can finance projects for the benefit of ratepayers. PECO further insists that the benefits it projects in 2024 are just as real as the costs in 1986. The Commission can simply take the Company at its word, and let it recover its investment, including 9.7% financing, from the benefits it expects Limerick 1 to produce late in this century and into the next. To be generous, the Commission could allow PECO to retain its projected energy savings per kWh, as forecasted in this case, plus the capacity benefits I have quantified. The real benefits of Limerick 1, compared to an efficient expansion plan, would be lower than the combined energy and capacity value calculated in this way. If Dr. Perl, Dr. Hieronymus, and the other PECO witnesses are correct about the operating costs, capacity factor, and discount rate for Limerick 1, the Company would be fully compensated.

UUC/UP Statement No. 1A, pp. 30-31.

CERTIFICATE OF SERVICE

I hereby certify that I caused a true and correct copy of the foregoing Reply Brief of the Utilities User's Committee/ University of Pennsyvlania ("UUC/UP") to be hand delivered to the individuals listed below:

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Dated: April 14, 1986

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Public Utility Commiss

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION, et al.	:	
v.	:	Docket No. R-850152
PHILADELPHIA ELECTRIC COMPANY	:	

DOCUMENT
FOLDER

REPLY BRIEF OF PENNSYLVANIA FOOD MERCHANTS ASSOCIATION

DOCKETED
APR 15 1986

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800 North Third Street
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The positions of the Pennsylvania Food Merchants Association ("PFMA") on the major rate structure issues in this proceeding have been set forth in the Main Brief previously filed by PFMA, and the arguments in that brief will not be repeated here. With the extensive filing materials, the detailed prepared statements of the numerous witnesses, the lengthy hearing transcripts and the voluminous main briefs already filed by the parties, the record in this case must be approaching 10,000 pages, and one is understandably hesitant to add to that mountain of paper. For that reason PFMA submits only these summary comments in response to (1) PECO's objections to PFMA's two rate design recommendations in this case, and (2) the energy based cost allocation proposal for Limerick Unit One that was advanced by certain parties as an alternative to the PECO's rate structure proposals.

(1) <u>The PFMA Rate Design Proposals</u>

PFMA recommended two modest rate design proposals affecting only the GS and PD rate classes (see the PFMA Main Brief, pp. 12-15), and PECO has taken exception to both of them. The PFMA proposal for lower tail block energy charges in the GS and PD tariffs is criticized by PECO on the grounds that Charles Larson, the PFMA expert who proposed these changes, based his proposal on the mistaken belief that the Bary Curve cannot be used to develop rates for high load factor customers. It is

PECO, not Mr. Larson, that is mistaken. Mr. Larson testified that the Bary Curve was developed "...independent of the time of peaking" (Tr. 3531) and should not be used for designing rates for service that is rendered entirely in the utility's off-peak period. (PFMA Stmt. 1, pp. 11-12). More importantly, the principal reason for that PFMA proposal is that the tail block energy charge in a properly designed rate should cover only the variable costs of off-peak production (1.8 cents per KWH, Tr. 3527) plus an incentive margin to PECO, and the PFMA proposals do that. (PFMA Stmt. 1, pp. 9-12). The fixed or demand costs should be collected from these high load factor customers through the charges for the earlier energy blocks (and the separate demand charge in the PD tariff) - they should not be recovered as well in the tail block energy charge.

PECO criticizes the PFMA proposal for a time-of-use adjustment for the GS and PD rate schedules on the grounds that no analysis has been provided as to the impact of such an adjustment and the required metering would be expensive. The same objections to this proposal were made by PECO in the last case. It is PECO, not PFMA, however, that can best perform such an impact analysis, and it still has not done so. If such a time-of-use adjustment is warranted for conservation reasons for the HT class where it is already included in the tariff, PECO at the very least should now be directed to perform such an analysis to see if that worthwhile provision can be extended to the GS and PD

classes without undue disruption to the customers in those classes. And a metering investment for this adjustment of approximately $600 (Tr. 3535) is hardly a major obstacle with respect to the large volume general service customers who would be covered by the time-of-use adjustment if the PFMA proposal is adopted.

(2) Energy or Demand Based Allocation of Limerick One

PECO's cost-of-service study in this case (Exhibit WFS-1) allocates the investment in the new Limerick nuclear unit on the same 4 Coincident Peak ("4 CP") methodology the utility has used for years in allocating investment in the company's production plant. That approach has been endorsed here by PFMA as well as by the Commission Trial Staff, the City of Philadelphia, the Philadelphia Area Industrial Energy Users Group[1] and the Southeastern Pennsylvania Transportation Authority and the National Railroad Passenger Corporation ("SEPTA/AMTRAK"). Proposals for the allocation of that investment on an energy basis in lieu of PECO's demand based allocation were advocated by the Office of the Consumer Advocate, the University of Pennsylvania/Utility Users Committee, the Pennsylvania Business Utility Users Group and the Consumers Education and Protective

---

1. PAIEUG endorsed the 4CP methodology while advocating certain modifications in the cost study to correct certain errors it perceived in that study.

Association. Those energy based alternative proposals, and the corresponding rate design recommendations favoring low load factor, on-peak energy usage, are inconsistent, unbalanced and inappropriate in the context of this proceeding. They should be rejected here just as they have been in all of PECO's recent rate cases.

An energy allocation of the Limerick One investment is inconsistent with the cost-of-service studies submitted by PECO in rate cases stretching back over the last decade or so. It is inconsistent with the Commission precedents that approved the 4CP methodology in all of those rate cases. And, as presented here, it is internally inconsistent in that its proponents seek to apply the energy based allocation only to this newest addition to PECO's production plant, while continuing the usual demand based allocation of all of the remaining PECO generating facilities, including several other nuclear units.[2]

The energy allocation proposals are unbalanced in favor of low load factor, primarily on-peak general service and industrial consumers. While tilting the allocation of the Limerick investment towards the large volume, high load factor customers

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2. An energy based allocation is even inconsistent with the prior testimony of one of its advocates in this case, Robert L. Figley, who in the last PECO base rate case supported PECO's demand based allocation rather than the energy allocation advocated by certain other parties in that case. (Tr. 3598-3600).

on the capital cost side of the equation, the proposals that have been made here do not include any corresponding allocation to those customers of an appropriate share of the operating cost reductions that result from PECO's investment in such a nuclear base load plant. The proposals are thus skewed to benefit the most inefficient commercial and industrial consumers while further burdening the high load factor customers who have been subsidizing the utility's other customers for so many years under PECO's prior tariffs.

To reverse the Commission's repeated rejection of such energy based allocation proposals by abandoning the consistently applied 4CP methodology in a rate case of this magnitude would be contrary to the concepts of rate continuity and gradualism in rate structure modification. The PECO proposals for the allocation of the rate increase will result in a generally equal sharing of that increase by the various customer classes. The burdens that this potentially very large rate increase will impose on all of PECO's customers certainly should not be aggravated for certain groups of those customers by simultaneously implementing such a drastic change in the rules that have previously been applied for distributing rate increases among the classes.

For more detailed responses to these various energy allocation proposals, see the rebuttal testimony submitted by Messrs. Sundermeir (PECO Stmt. 24A, pp. 1-7), Pollock (PAIEUG

Stmt. 3A, pp. 2-23), Rudden (SEPTA/AMTRAK Stmt. 1A, pp. 6-8) and Ileo (City Stmt. 3, pp. 9-29) and the PECO Main Brief, pages 7-148 through 7-155.

CONCLUSION

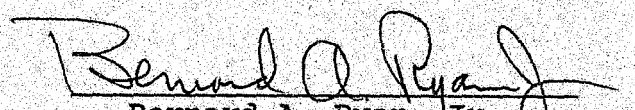
In its Main Brief, the Commission Trial Staff points to the "very real possibility of 'rate shock' [to all of PECO's customers] should the company receive all or most of its request for additional revenue," and recommends that any rate increase awarded to the utility "....be distributed among the various rate classes in as uniform a manner as possible... given the cost to provide service." The Staff's rate structure recommendations are then concisely summarized:

> "Although Staff recognizes that there may be certain flaws in the company's implementation of its cost of service analysis, it does not believe that they are significant enough to preclude the use of the company's proferred cost of service methodology in this proceeding. Staff, therefore, recommends that the company's four coincident peak cost of service study be accepted as an appropriate guide to be used in allocating any rate increase granted in this proceeding. Concurrently, it is recommended also that any such increase be allocated among the rate classes proportionally to the company's allocation proposal." Commission Trial Staff Main Brief, pp. 260-61.

PFMA agrees with the Trial Staff that this simply is not the time for reconsidering once again these radical changes in PECO's rate structure that have been so often proposed and rejected by the Commission in the past.

The PECO rate structure proposals, modified by the two rate design changes for the GS and PD tariffs that were recommended by PFMA, are reasonable and fair to all of the utility's customers, and should be adopted in this proceeding.

Respectfully Submitted,



Bernard A. Ryan, Jr.
Attorney for Pennsylvania Food
Merchants Association

Dated: April 14, 1986.

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Public Utility Commission

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION, et al.

v.

PHILADELPHIA ELECTRIC COMPANY

: Docket No. R-850152

CERTIFICATE OF SERVICE

I certify that, as noted below, I have today served copies of the Reply Brief of Pennsylvania Food Merchants Association by Federal Express or by first class mail as follows:

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CITY OF PHILADELPHIA

FEDERAL EXPRESS MAIL

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Public Utility Commission

Jerry Rich, Secretary
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New Filing Section
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Harrisburg, PA 17120

RE: Pennsylvania Public Utility Commision v. Philadelphia Electric Company, Docket No. R-850152

Dear Secretary Rich:

Enclosed for filing, please find an original and nine (9) copies of a corrected page 44 of the City of Philadelphia's ("City") Main Brief which was filed on April 7, 1986. The new page corrects a typographical error in the first sentence of the first full paragraph on page 44. The corrected sentence reads "For all the foregoing reasons, the City recommends that PECO's allocation of production and transmission plant costs using coincident peak demand be adopted." This corrected sentence is consistent with the caption which appears at page 42 of the City's Main Brief.

As per the attached certificate of service, the Administrative Law Judge and all parties have been served with this corrected page.

Sincerely,

Charles E. Rainey, Jr.

Charles E. Rainey, Jr.
Assistant City Solicitor

Enclosures
cc: Administrative Law Judge
All Parties of Record

DOCUMENT FOLDER

CERTIFICATE OF SERVICE

I hereby certify that I have this day served two (2) copies of the following document, corrected page 44 to Main Brief of the City of Philadelphia, upon the following persons by first class mail postage prepaid or by Federal Express mail, which service satisfies the requirements of 52 Pa. Code §1.54:

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Counsel for City of Philadelphia

Charles E. Rainey, Jr.
Assistant City Solicitor

Dated: April 14, 1986

benefit of other customers because the system load factor improves with increased off peak sales. Id. This results in lower system unit costs for all customers. Id. SLP and other off-peak customers should be rewarded and not penalized for this benefit which they provide. It should also be noted that to shift costs onto SLP and other off-peak customers may lead to depressed sales which would serve to worsen the system load factor to the detriment of all customers. Id. PECO witness Sundermeir also testified that such increases would "tend to discourage off-peak use." PECO St. No. 24A at 3.

For all the foregoing reasons, the City recommends that PECO's allocation of production and transmission plant costs using coincident peak demand be adopted. The City further recommends adoption of PECO's allocation of no increase in rates to Philadelphia Street Lighting.

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Public Utility Commission

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April 14, 1986

Secretary Jerry Rich
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SECRETARY'S OFFICE
Public Utility Commission

Re: Pennsylvania Public Utility Commission
v.
Philadelphia Electric Company
Docket No. R-850152

Dear Secretary Rich:

This letter is to make the following correction on our Reply Brief: On page A-8, line 6, the figure 69% should read 60%. In addition, on page A-9 in the quotation from ALJ Turner wherever 69% appears, it should read 60%.

Very truly yours,

Mark P. Widoff

MPW/jd

cc: ALJ Matuschak
All parties of record

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May 7, 1986

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Public Utility Commission

FEDERAL EXPRESS MAIL

Jerry Rich, Secretary
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Re: Pennsylvania Public Utility Commission v. Philadelphia Electric Company, R-850152

Dear Secretary Rich:

Please be advised that the new mailing address of the undersigned appears above in the letterhead. Parties of record to the above-captioned case have been previously informed of this matter.

Sincerely,

Charles E. Rainey, Jr.

Charles E. Rainey, Jr.
Assistant City Solicitor

CERJ/kyt

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P. O. BOX 3265, HARRISBURG, Pa. 17120

May 14, 1986

IN REPLY PLEASE
REFER TO OUR FILE

R-850152
R-850152C001
through
R-850152C014

To All Parties of Record

Pennsylvania Public Utility Commission
v.
Philadelphia Electric Company

In consideration of the quantity and complexity of the issues to be addressed in this general rate increase proceeding, it has been deemed appropriate to double the page allowances contained in 52 Pa. Code §§5.533 and 5.535 for Exceptions and Replies to Exceptions.

Accordingly, the Exceptions and supporting reasons shall be limited to 80 pages in length and Replies to Exceptions shall be limited to 50 pages in length.

Any inquiries regarding this matter should be directed to Cheryl Walker Davis, Director, Office of Special Assistants.

Very truly yours,

Jerry Rich
Secretary

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MAY 14 1986