BEFORE THE PENNSYLVANIA PUBLIC
UTILITY COMMISSION

Pennsylvania Public Utility Commission, *et. al.*	:	R-2016-2537349, *et al.*
	:	
v.	:	
	:	
Metropolitan Edison Company	:	
Pennsylvania Public Utility Commission, *et. al.*	:	R-2016-2537352, *et al.*
	:	
v.	:	
	:	
Pennsylvania Electric Company	:	
Pennsylvania Public Utility Commission, *et. al.*	:	R-2016-2537355, *et. al.*
	:	
v.	:	
	:	
Pennsylvania Power Company	:	
Pennsylvania Public Utility Commission, *et. al.*	:	R-2016-2537359, *et al.*
	:	
v.	:	
	:	
West Penn Power Company	:	

DIRECT TESTIMONY

OF

CLARENCE L. JOHNSON

ON BEHALF OF
OFFICE OF CONSUMER ADVOCATE
(Corrected)

JULY 22, 2016

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Clarence L. Johnson. My business address is 3707 Robinson Ave, Austin, Texas 78722.

Q. ON WHOSE BEHALF ARE YOU PRESENTING TESTIMONY IN THIS PROCEEDING?

A. I am presenting testimony on behalf of the Pennsylvania Office of Consumer Advocate ("OCA").

Q. WHAT IS YOUR CURRENT EMPLOYMENT?

A. I am self-employed as a consultant providing technical analysis, advice, and testimony regarding energy and utility regulatory issues.

Q. DO YOU HAVE PREVIOUS EXPERIENCE AS AN EXPERT ON REGULATED UTILITY MATTERS?

A. Yes. I have over 30 years of experience as a utility regulatory expert, including 25 years as director of regulatory analysis for the Texas Office of Public Utility Counsel ("OPC"). As a consultant, I have provided expert advice, assistance, and testimony on utility-related issues to a number of parties. My clients have included state consumer advocate offices, customer groups, and various coalitions of municipalities in Texas. Municipalities in Texas act as original jurisdiction regulators over electric utility rates within city boundaries.

Q. HAVE YOU PROVIDED AN ATTACHMENT WHICH DETAILS YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE?

A. Yes. Please see Appendix A.

Q. PLEASE OUTLINE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I have a B.S. in Political Science and a M.A. in Urban Studies from the University of Houston. My graduate degree is in an interdisciplinary program offered by the University of Houston's College of Social Science, which incorporated substantial training in economics, including course work in the application of cost-benefit analysis to public policy. During my 25-year tenure at OPC, I gained experience in virtually all phases of economic review required for the ratemaking process. I was chairman of the Economics and Finance Committee of the National Association of State Utility Consumer Advocates ("NASUCA") and served as a presenter for NASUCA's workshops and panels on cost allocation and rate design, demand-side management incentives, market power and electric utility competition. Also, at various times, I have undergone training in specific subjects, such as electric wholesale market design, cogeneration engineering and Electric Reliability Council of Texas ("ERCOT") operations.

I have previously filed testimony in more than 140 proceedings at the Public Utility Commission of Texas, Pennsylvania Public Utility Commission, and Connecticut Public Utility Regulatory Authority. With a few exceptions, the testimony has exclusively addressed electric rate issues.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?

A. FirstEnergy filed rate increase applications for each of its four electric distribution utilities ("Company" or "Companies") operating in Pennsylvania: Metropolitan Edison ("Met-Ed" or "ME"), Pennsylvania Electric ("Penelec" or "PN"), Pennsylvania Power ("PP"), and West Penn ("WP"). I have been asked by the OCA to address class cost allocation and rate design issues related to the Companies' applications for a rate increase. For purposes of reviewing those issues, I have utilized each Company's class cost of service study ("CCOSS"), which is based on each of the utilities' proposed revenue requirement. My use of the filed costs should not be construed as agreement or acceptance of the Companies' requested revenues. Other witnesses retained by OCA will address the Companies' proposed revenue requirements. Because the Companies utilized common methodologies and principles to support their cost of service and rate design, my testimony addresses those issues together. To the extent that Company-specific issues are addressed, my testimony will identify the Company and provide specific discussion pertaining to that Company's particular issue.

Q. WHAT DOCUMENTS HAVE YOU REVIEWED IN PREPARING THIS TESTIMONY?

A. I reviewed relevant testimony and exhibits in each Company's rate filing. I also propounded numerous interrogatories to each Company and reviewed the responses and accompanying information.

II. SUMMARY

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.

A. My recommendations are as follows:

- The Companies' CCOSS proposal to classify portions of poles, lines, underground plant, and transformers as customer-related should be rejected.
- The minimum grid study used to classify distribution plant in the CCOSS is flawed. My recommendation is to classify meters and services as 100% customer-related and the remaining distribution infrastructure as 100% demand-related. If the Commission is inclined to adopt a minimum system study, my alternative recommendation is to reduce the resulting customer classification percentage in order to eliminate double counting of demands.
- FERC Account 910, Miscellaneous Customer Assistance and Information, should be allocated 50% on a customer basis and 50% on a class revenues basis.
- The CCOSS revisions, above, produce relative rates of return among the customer classes which diverge significantly from the filed results. For all four FirstEnergy Companies, the residential class, as measured by the CCOSS, produces significantly above average relative rates of return.
- The Companies' proposals to increase the residential monthly customer charge by 24% - 141% should be rejected. My recommendation is to maintain the current residential customer charge for Met Ed, Penn Power, and Penelec. The increase in the West Penn customer charge should be limited to 99 cents.
- The CCOSS results are used only as a guide for distribution of the revenue increase among rate classes. The proposed spread of the revenue increase recommended in my testimony recognizes the revised CCOSS results, as well as rate moderation. Classes with significantly below average rates of return receive a revenue increase capped at 150% of system average. The residential class receives a revenue increase below the system average increase. Given the special circumstances of the street lighting classes, my testimony recommends additional revenue increase mitigation for street light rates.
- My testimony also discusses intra-class rate design related to LED street lights.

III. CLASS COST OF SERVICE STUDY

A. Overview

Q. WHAT IS A CLASS COST OF SERVICE STUDY (CCOSS)?

A. The CCOSS is a fully allocated cost study which distributes the Company's costs to customer classes. The intent of the study is to allocate costs based on cost causation, generally resulting in a portion of costs allocated on causal measures and the remainder of indirect costs following those costs. The CCOSS is at best a broad benchmark for evaluating customer class cost responsibility. The CCOSS can provide guidance to the regulator, but considerations other than the CCOSS also are appropriate in determining the ultimate allocation of costs among customer classes. The CCOSS provides rates of return for each customer class at current and proposed class rates. Sometimes the class rates of return are divided by the total retail rate of return to arrive at a relative rate of return. The relative rate of return (or unitized return) may be used as a benchmark for guiding the direction of revenue changes at the class level. The CCOSS also provides class revenues based upon equalized rates of return (all classes' revenue produce the proposed overall retail rate of return). The class revenues at equalized rates of return can be used as a rough target for apportioning class revenue increases, but the results at equalized rates of return do not necessarily dictate the exact levels of class revenues. The class revenues may depart from equalized rates of return in order to recognize rate gradualism, relative risks associated with serving each class, or other non-cost considerations. However, the resulting revenues indicated by the CCOSS may provide useful information regarding the equitable distribution of a system revenue increase among customer classes.

Q. HOW IS THE COST CAUSATION CRITERION APPLIED IN THE CCOSS?

A. Some costs are incurred directly to serve only an individual customer or set of customers. For example, substations are sometimes dedicated to serving an individual customer and can be directly assigned.

However, the provision of electric utility service is predominated by common and joint costs, which either support the overall enterprise or produce shared benefits for all or most customers. These costs often are assigned based upon indirect, and often weak, measures of causation. For example, overhead costs, such as Board of Director fees, might be allocated based upon measures as diverse as revenues, labor costs, energy sales, plant or demand. No single objective economic basis supports the allocation of these costs; therefore, the allocation decisions are subjective or based on rate making conventions. Ideally, the analyst selects a method that best recognizes the manner in which customer classes' characteristics contributed to the incurrence of utility investments and expenses. The manner in which a utility plans and installs an investment often informs the analyst's evaluation of causal factors related to classification or allocation of the investment.

The three major steps of the embedded cost of service study are functionalization, classification, and allocation. Functionalization is the procedure for separating costs into functional segments, such as generation, transmission, and distribution. The next two accounting steps, classification and allocation, facilitate the recognition of causation. The classification procedure, which pools costs into general categories of causation (i.e., demand, customer, energy), is an intermediate step in determining the allocation factors that are used to divide costs among jurisdictions and customer classes. The allocation step determines the appropriate percentage of a particular FERC account which is attributed to each customer class.

Q. CAN YOU PROVIDE MORE DETAIL REGARDING THE DEVELOPMENT OF ALLOCATION FACTORS FOR DISTRIBUTION COST OF SERVICE STUDIES?

A. Yes. The principal external allocators in the Companies' studies are customer allocators and demand allocators. Customer allocators are based on class customer count as a percentage of total retail customer count. Sometimes weighting factors are applied to the customer count in order to reflect differences in cost per customer. For instance, meter reading customer allocators may be weighted to reflect the differences in time required to read different types of meters.

The predominant demand allocation factor for the distribution systems is non-coincident peak demand (NCP). NCP is based on the maximum hour of demand for the class. Since classes incur peak demand in different time periods, the NCP method is said to reflect demand diversity on the system. Each class' demand allocator is the ratio of the class maximum kW demand relative to the sum of all classes' maximum demands.

Indirect costs in the CCOSS usually are allocated on the basis of internal allocation factors which "follow" the allocation of direct costs. An example is the labor allocator, which may be used to allocate administrative & general expenses; the labor allocator will be driven by the labor portion of accounts which are classified as customer, demand, or both. A substantial portion of the customer and demand costs in the CCOSS will consist of indirect costs which are not inherently customer or demand related, but follow the customer/demand classification of other accounts. This explains in part why the results of a CCOSS frequently are sensitive to small changes in the customer/demand classification for certain accounts.

Q. PLEASE DESCRIBE YOUR REVIEW OF THE CCOSS PRESENTED BY EACH COMPANY.

A. I evaluated the studies for consistency and accuracy in the allocation of costs among classes. Based on my review, the allocation or classification of several cost elements were identified as insufficiently justified or warranting improvement. Each of these issues is common to the four utilities. My testimony proposes modifications to the treatment of those costs in each Company's CCOSS; the recommended modifications are discussed in subsections III. (A) through III. (C) below. These changes affect my recommendations with respect to class revenue distribution. My recommendations focus on a limited number of CCOSS issues; omission of other issues should not be construed as agreement with all other aspects of the Companies' cost studies. The OCA does not agree with the proposed revenue requirements in the CCOSS; therefore, the revised versions of the CCOSS should be used only to examine class cost relationships rather than absolute revenue levels.

Q. DID YOU MODIFY EACH COMPANY'S CCOSS TO REFLECT YOUR PROPOSED REVISIONS?

A. Yes. The Companies provided OCA with live versions[1] of the CCOSS in Excel format after execution of a confidentiality agreement; FirstEnergy considers the model itself to be confidential, but the output of the model is not confidential. After revising certain inputs in each of the four cost studies, the resulting modified CCOSS output is used in my rate design analysis to develop a recommended allocation of any proposed revenue increase for each Company among its customer classes.

Q. HAVE YOU PREVIOUSLY REVIEWED THE FIRST ENERGY COMPANIES' CLASS COST OF SERVICE STUDIES?

A. Yes. I filed testimony on class cost allocation and rate design issues for OCA in the 2014 First Energy base rate cases. Those cases were settled by the parties.

B. Minimum Distribution Plant

Q. DO YOU AGREE WITH THE COMPANIES' ALLOCATION OF DISTRIBUTION PLANT INVESTMENT TO CUSTOMER CLASSES?

A. No. The Companies classify and allocate part of distribution plant investment in poles, lines, transformers, and underground facilities on the basis of number of customers. The Companies rely upon the concept of a minimum distribution system (which they label as minimum grid studies[2]) to support the classification of distribution infrastructure as customer-related. I will discuss this concept in more detail below. The Companies'

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[1] Confidential Responses: I&E-WP-RS-1-D Att. K; I&E-PN-RS-1-D Att. K; I&E-PP-RS-1-D Att. K; I&E-ME-RS-1-D Att. K.

[2] Note that the term "minimum grid" is interchangeable with "minimum system."

proposed classification of poles, transformers, and lines as customer-related should be rejected because the jointly used distribution system is sized and designed to provide adequate capacity to meet maximum demands. The objective of distribution system planning is to provide reliable service; as a result, distribution facilities must be sized to meet the maximum demand that will be placed on the facility, and failure to do so can result in outages, burned out equipment, and voltage dropping outside of acceptable limits.

My recommendation opposes the classification resulting from the Companies' minimum grid study because: (1) the minimum distribution plant concept is inherently flawed and fails to reflect cost causation; (2) the Companies' application of the minimum system methodology overstates the amount of customer costs; (3) the methodology double counts demands and, therefore, over allocates cost to the residential class; and (4) the methodology was not applied in a complete fashion by the Companies. My testimony below will elaborate on these reasons.

Q. WHY DOES THE CUSTOMER VS. DEMAND CLASSIFICATION OF DISTRIBUTION FACILITIES PRODUCE SIGNIFICANT IMPACTS FOR THE RESIDENTIAL CLASS?

A. The residential class comprises the largest number of customers on the system, but has a relatively small usage per customer. For instance, the residential NCP demand allocation factor for the Companies is in the 50% range, while the residential customer allocation factor is close to 90%. This means that the customer classification will allocate roughly 40% more cost to the residential class than the demand classification.

Q. WHAT PORTIONS OF ACCOUNTS 364-368 WERE CLASSIFIED AS CUSTOMER-RELATED BY THE COMPANIES?

A. The Companies' CCOSS splits distribution plant accounts into demand and customer classifications based on the ratio of minimum size component costs (as determined by the minimum grid study) to the account's average costs (adjusted for inflation). Consequently, the combined balance of secondary and primary voltage facilities are classified as customer-related, based on the percentages below.

Classification Customer Percentage

	Metropolitan Edison	**Pennsylvania Electric**	**Pennsylvania Power**	**West Penn Power**
A364 Poles	73.1%	74.3%	80.9%	82.2%
A365 OH Conductors	82.4%	84.0%	89.9%	91.7%
A366-367 Underground	90.0%	81.5%	84.7%	86.7%
A368 Transformers	52.4%	62.2%	60.1%	70.5%

Some electric distribution utilities in Pennsylvania which utilize the minimum distribution method do not apply the customer classification to *both* primary and secondary voltage facilities. The FirstEnergy Companies' have chosen to apply the method to facilities at both voltage levels, even though the primary poles and lines tend to be larger in size and farther upstream from the end use customer.

Q. WHAT IS YOUR RECOMMENDATION?

A. My principal recommendation is to classify 100% of accounts 364 - 368 as demand-related, and classify 100% of services and meters as customer-related. I will discuss the reason for rejecting the customer classification for all facilities except services and meters in sections (1) through (4), below. My recommendation regarding customer classification is consistent with the following description of regulatory practice in a report prepared for the National Association of Regulatory Utility Commissioners (NARUC):

> The most common method [for apportioning distribution facilities between demand and customer] used is the "basic customer method" which classifies all wires, transformers, and poles as demand-related, and meters, meter reading, and billing as customer-related. This general approach is used by more than 30 states."[3]

The states' regulatory preference for the "basic customer method" is logical. Meters and service lines are located on or near the customer's premises. The remaining distribution facilities radiate outward from the customer's location and are part of an integrated electrical system which is designed and sized to support aggregations of load which may be nearly equivalent to the demand of the total system as the lines approach major substations. By establishing a clear demarcation for facilities classified as either 100% demand-related or 100% customer-related, the regulatory authorities avoid the complications associated with relying upon minimum system studies.

<u>1. Conceptual Flaws in the Minimum System Method</u>

Q. WHAT IS A MINIMUM DISTRIBUTION SYSTEM STUDY?

A. The minimum system study ("minimum grid study") attempts to develop the cost of a hypothetical distribution system with little or no load carrying capability. Because the minimum system, in theory, has minimal ability to carry electrical current, the analyst assumes that the costs are not demand-related and should be allocated on a customer

[3] "Charges for Distribution Service: Issues in Rate Design," Regulatory Assistance Project, Dec. 2000, page 30, Weston, Harrington, Cowart, Moskovitz, and Shirley.

basis. Most such studies either identify minimum size plant components or perform a statistical regression analysis to determine the hypothetical cost of a system which has zero load carrying capability. The nature of a minimum system study—developing a theoretical cost structure for a distribution system which is uninfluenced by demand—can produce a wide range of results, depending on the assumptions made by the analyst. Furthermore, the process of identifying zero or minimum load components is subjective and may lead to double-counting demands, as I will discuss later. In this case, the Companies used the minimum size study method, rather than using a zero intercept regression methodology.[4]

Q. WHY DO YOU QUESTION THE THEORY BEHIND A MINIMUM DISTRIBUTION SYSTEM?

A. The minimum distribution system concept introduces a theoretical cost to the study without any clear evidence that the hypothetical account is related to the number of customers. Dr. James Bonbright's critique of the minimum distribution system concept is frequently cited by cost analysts:

> [T]he annual costs of this phantom, minimum sized distribution system are treated as customer costs and are deducted from the annual costs of the existing system, only the balance being included among those demand-related costs…. Their inclusion among the customer costs is defended on the ground that, since they vary directly with area of the distribution system (or else with the lengths of the distribution lines, depending on the type of distribution system), they therefore vary indirectly with the number of customers.

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[4] The zero intercept method uses a statistical equation to project the price of a component if the size is extrapolated to zero load.

> What this last-named cost imputation overlooks, of course is the very weak correlation between the area (or the mileage) of a distribution system and the number of customers served by this system. For it makes no allowance for the density factor (customers per linear mile or per square mile). Indeed, if the company's entire service area stays fixed, an increase in number of customers does not necessarily betoken any increase whatever in the costs of a minimum-sized distribution system.[5]

The implication of Dr. Bonbright's conclusion is that this "residual" cost of the distribution system (i.e. the cost ascribed to the customer classification) is not closely related to either demand or customer factors, but instead varies on the basis of less easily discerned geographic variables such as customer density.

Q. EVEN IF THE MINIMUM PLANT STUDY IDENTIFIES COSTS WHICH ARE NOT NECESSARILY DEMAND-RELATED, DOES IT FOLLOW THAT SUCH COSTS ARE CUSTOMER-RELATED?

A. No. My opinion is consistent with Dr. Bonbright's conclusion that the hypothetical minimum costs should be regarded as inherently unallocable:

> If the cost is neither demand nor customer related…to which cost function does it then belong? The only defensible answer, in my opinion, is that it belongs to none of them. Instead, it should be recognized as a strictly unallocable portion of total costs.[6]

As noted in the previous passage, the accuracy of a customer allocator is distorted by variations in spatial density among customers. A number of other factors, which are not clearly related to either customers or capacity (that is, demand), such as economies of scale in facility costs, component reliability, and objectives related to minimizing energy

[5] JAMES C. BONBRIGHT, PRINCIPLES OF PUBLIC UTILITY RATES, Columbia University Press, 347-349 (1961).

[6] Bonbright at 347-349.

losses influence distribution costs. Dr. Bonbright's conclusion that the minimum system investment should be treated as "unallocable" is consistent with allocating those costs in proportion to the remaining allocable costs, a typical method for allocating costs without a clear causal basis. Because distribution investment is overwhelmingly allocable on a demand basis, classifying the residual minimum plant amount as demand-related achieves basically the same result.

Q. DO EMPIRICAL STUDIES SHOW THAT DISTRIBUTION COSTS VARY WITH CUSTOMERS?

A. No. Empirical analyses have reported that distribution plant and customer sales accounts are correlated with load density, but are not significantly affected by the number of customers served.[7]

Q. CAN YOU PROVIDE AN EXAMPLE OF THE EFFECT OF CUSTOMER DENSITY ON THE ALLOCATION OF THE COMPANIES' CUSTOMER-RELATED PLANT?

A. Yes. Line transformers provide an illustration, because the number of transformers per customer can vary significantly between classes and within a class. In applying the minimum grid to classify transformer costs, the Companies did not weight the customer allocation factors to recognize differences in the average number of transformers per customer for each class. The Companies state that one transformer typically serves 6 – 8 customers in a residential sub-division. In more dense residential areas, one transformer

[7] "Antitrust in the Electric Industry," by Leonard Weiss, *Promoting Competition in Regulated Markets*, Phillips, Almaric, Ed., The Brookings Institution (1975) at 145; "The Economics of Electric Distribution System Costs and Investments," by David Lessels, *Public Utilities Fortnightly*, Dec. 4, 1980 at 37-40.

may serve 10 – 25 residential customers. In rural residential areas, one transformer may serve 1 – 2 customers.[8] A larger commercial and industrial customer may be served by a single dedicated transformer because of the size of the load and the distance between properties. For underground networks, multiple transformers may serve a single large building or a single large transformer may serve hundreds of smaller customers over many blocks.[9] The Companies' allocation of a portion of transformer cost on the basis of unweighted customer count is inaccurate because it assumes that all customer classes are served by the same number of transformers per customer. To the extent that the residential class is associated with more customers per transformer, the customer allocation will overstate the amount of minimum transformer cost attributed to the residential class. Similarly, customer density raises analogous customer allocation issues with respect to feet of conductor per customer and number of poles per customer.

2. Application of Minimum Grid Method Overstates Minimum Costs

Q. EVEN IF ONE ACCEPTS THE MINIMUM SYSTEM CONCEPT, HAVE THE COMPANIES CORRECTLY APPLIED THE METHOD?

A. In my opinion, no. The manner in which the Companies have applied the method raises questions about the accuracy of the customer classification percentages and the identification of minimum size facilities. The first issue pertains to demand-related devices included in the FERC Accounts 364 – 368. The second issue is whether the minimum grid study represents actual minimum facility costs.

8 OCA-ME-III-23; OCA-PN-III-23; OCA-PP-III-23; OCA-WP-III-23.

9 OCA-ME-III-24; OCA-PN-III-24; OCA-PP-III-24; OCA-WP-III-24.

Q. PLEASE EXPLAIN HOW THE FIRST ISSUE RESULTS IN AN OVERSTATEMENT OF CUSTOMER CLASSIFICATION PERCENTAGES.

A. The Companies' minimum grid study develops customer percentages for FERC Accounts 364 – 368 based on the relative prices of poles, overhead conductors, underground cable, and transformers. These percentages are applied to all of the costs in the FERC account. However, other devices which are clearly demand-related[10] are also recorded in these accounts. As a result, these demand-related devices are incorrectly classified as partially customer-related. Capacitors, voltage regulators, and reactors are recorded in several accounts, including FERC Account 368; these devices are used to maintain the proper power factor, reduce line losses, and increase the load carrying capacity of conductors. Faulted circuit indicators (FCI) and reclosers are devices recorded in FERC Accounts 365 and 367 which identify faults and isolate outages on the distribution system. These devices enhance the reliability of the system and, therefore, are demand-related. Application of the minimum grid percentages to the costs of these devices within those accounts will overstate customer costs. In order to correct this overstatement, customer percentages for overhead and underground conductors, and transformers should be reduced.[11] Schedule CJ-1 provides the percentages of devices which should be removed from the plant balances before applying the minimum grid ratio.

[10] Arguably a portion of these devices could be classified as energy-related, given the reduction in energy losses which are associated with capacitors. However, the important point is that the devices are not customer-related.

[11] OCA-PN-III-12,13; OCA-PP-III-12,13; OCA-WP-III-12,13; OCA-ME-III-12,13.

Q. DO YOU QUESTION WHETHER THE MINIMUM GRID STUDY PRODUCES RESULTS THAT REPRESENT ACTUAL MINIMUM COSTS?

A. Yes. The Companies' studies rely upon facility component sizes for the minimum system which are not actually minimum size. To some extent, this reflects the subjectivity of the minimum size methodology. In preparing a minimum distribution system study, utilities choose minimum size components based upon a wide range of criteria such as: (a) currently in use on the system; (b) currently purchased by the utility; (c) currently used within the electric utility industry; (d) available from electrical component suppliers; (e) currently required by safety codes; or (f) representing the current standard component of the utility. The criteria chosen will determine the size of minimum facilities, which in turn can produce significant swings in the percentages attributable to the customer classification. The Companies' practice of using larger standard sizes is inconsistent with the underlying rationale for the minimum system concept. The results are supposed to reflect purely the cost of access for a customer with little or no demand.

Some examples of minimum grid components which are not the smallest available size:

- The smallest conductor installed on the Companies' systems is 14% - 60% of the load carrying capability (measured in amps) of the overhead minimum conductor used in the Companies' minimum grid study.[12]
- Minimum size underground conductors in the study provide 23% - 69% more load carrying capability (measured in amps), than the smallest underground conductor installed on the Companies' systems.[13]

[12] OCA-ME-III -4,5; OCA-PP-III-4,5; OCA-PN- III-4,5; OCA-WP- III-4,5.

[13] Ibidem.

- The Companies' Minimum Grid Study uses a 25 Kva transformer as the minimum size transformer. The smallest transformer on the Companies' system is 3 Kva.[14] Other utilities have used minimum sizes of 3 – 5 Kva transformers in minimum system studies. The Minimum Grid Study's transformer analysis indicates that the 10 Kva transformers on the system have a direct cost which is approximately 36% of the cost for the 25 Kva transformer used as the minimum size component.[15]

- The Companies' Minimum Grid Study uses 35 foot poles as the minimum components for Account 364. The study purposefully omitted poles of 20 feet or less in the Companies' data base from its analysis, implying that the Companies have installed much smaller poles in the past.[16] Although poles have no direct electrical load carrying ability, the size of poles is influenced by the size, weight and voltage of the conductors (which is related to demand capacity). A more reasonable 25 foot size pole requires a direct cost 60% less than the 35 foot size used by the Companies, which indicates that the minimum grid cost for Account 364 could have been reduced significantly.

- Due to data limitations, the Minimum Grid Study used only primary poles and conductors—excluding secondary poles and conductors—to determine the minimum plant cost for all poles and conductors.[17] Thus, primary poles and conductors were utilized to determine the minimum cost of the *secondary* distribution plant. Because primary facilities are used at higher voltages and often are sized to carry larger aggregations of load, this will tend to overstate the minimum plant cost.

The Minimum Grid Study has not selected <u>minimum size components</u> based on the smallest available, or the minimum size used in the industry. This practice results in higher customer classification percentages. In addition, this practice results in more demand-related costs embedded in the minimum size component, thereby increasing the magnitude of double counting demand costs.

[14] Ibidem.

[15] ME-PP-PN-WP Response to OCA-III-3-confidential Attachment H.

[16] Met-Ed/PenElec/Penn Power/West Penn General Base Rate Filing, Exhibit TJD-2 (Supporting Study No. 7 Primary/Secondary and Minimum Grid).

[17] Ibidem.

Q. WHY DO YOU DISAGREE WITH THE COMPANIES' RELIANCE UPON "STANDARD SIZE" FACILITIES, IN LIEU OF SMALLER COMPONENTS, TO QUANTIFY THE MINIMUM GRID?

A. On a conceptual level, this approach is inconsistent with the underlying theory of the minimum system, because the facilities do not have minimum load carrying capability. In addition, a more significant problem is that the causal factors which affect the size of standard equipment cannot be attributed as customer-related. Factors which can affect determinations of optimal standard size include economies of scale, efficiency considerations in procuring standardized sizes, the cost-effectiveness of installing excess capacity for future load growth, and the objective of reducing energy losses. However, these factors are not customer-related. In response to a question regarding planning criteria related to reduction of energy losses, the Companies cited their distribution planning guidelines:[18]

> …the Company's Distribution System Planning Criteria, Section 6.1.2 – Sizing Overhead Conductors addresses the consideration of electric losses as follows:
>
> 6.1.2 Sizing Overhead Conductors
> When a conductor is to be installed or replaced due to projected overload or poor condition, several factors shall be considered when determining its optimum size: cost of losses, anticipated contingencies, impact on inventories or conductors, splices, clamps, and fittings, and availability of tools and dies. The latest Economic Wire Size Evaluation performed by the FE Distribution Standards Section in 2007 recommends the following optimum sizes based on initial loading under normal condition…

[18] OCA-PP-III-10; OCA-PN-III-10; OCA-WP-III-10; OCA-ME-III-10.

The Companies' practice of optimizing standard wire sizes in order to reduce energy losses is more closely related to energy and demand, rather than number of customers, as a measure of cost causation.

<u>3. Double-Counting Class Demands</u>

Q. DO THE COMPANIES' MINIMUM SYSTEMS DOUBLE COUNT DEMAND?

A. Yes. The Minimum Grid Study did not use the smallest size components which results in a minimum system size which can accommodate substantial demands. As a result, a double-counting issue arises because customer class demands are reflected in the allocation of both customer and demand-related investment. First, demands that can be served by the minimum size facilities are allocated to classes on a customer basis; second, all class demands, including the demand associated with minimum facilities, are used to allocate the demand portion of distribution facilities. The double counting of demand results in the over-allocation of costs to classes with a relatively low average use per customer (such as the residential class).

The NARUC Cost Allocation Manual acknowledges this issue and indicates that adjustments may be required for the demand allocation factors:[19]

> Cost analysts disagree on how much of the demand costs should be allocated to customers when the minimum-size distribution method is used to classify distribution plant. *When using this distribution method, the analyst must be aware that the minimum-size distribution equipment has a certain load-carrying capability, which can be viewed as a demand-related cost.*
>
> When allocating distribution costs determined by the minimum-size method, some cost analysts will argue that some customer classes can receive a disproportionate share of demand

[19] *NARUC Electric Utility Cost Allocation Manual* at 95 (emphasis added).

> costs. Their rationale is that customers are allocated a share of distribution costs classified as demand-related. Then those customers receive a second layer of demand costs that have been mislabeled customer costs because the minimum-size method was used to classify those costs.

The zero intercept methodology, which uses regression analysis to estimate the cost of facilities sized for zero demand, was developed in part to address this problem. The Companies do not use this method, nor do they adjust demands to correct the double counting.

Q. IS THE DOUBLE-COUNTING ISSUE A SERIOUS DEFECT IN THE MINIMUM SYSTEM STUDY?

A. Yes. The demand carrying capability associated with minimum size components could, in theory, be deducted from the class demand allocation factors. A frequently cited article regarding the double-counting issue describes such an adjustment but concludes that a 100% demand classification is the more straightforward solution:[20]

> One way to solve the double allocation problem would be to determine, for each piece of minimum equipment, the demand level it would be capable of serving, and then adjusting the demand allocation factors used to allocate the costs of all equipment of that type in order to assure that minimum use customers and the residential class were not charged twice. In many cases this would mean calculating several allocation factors for each FERC distribution account, since more than one type of equipment is used in the account.
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> * * *
>
> The direct way to assure that problems of overcollection are not built into the methodology used to determine class costs of service is to classify all distribution costs as demand costs. If this methodology is used in embedded cost studies, the studies produce

[20] "The Customer Charge and Problems of Double Allocation of Costs," George Sterzinger, Public Utilities Fortnightly, page 31 (July 2, 1981).

more equitable estimates of the cost of serving low-use residential customers. (emphasis added)

My recommendation is consistent with the conclusion that distribution infrastructure costs should classified as 100% demand-related, rather than customer-related.

Q. ARE YOU AWARE OF ANY OTHER METHODS FOR ESTIMATING THE MAGNITUDE OF THE DOUBLE-COUNTING ADJUSTMENT?

A. Yes. Some analysts contend that limiting the minimum size costs to the labor installation portion of the minimum cost is appropriate in order to avoid double-counting. The labor portion of the facility cost is considered relatively fixed, and removing the material component eliminates the portion most relevant to demand carrying capability. The premise of this method is that the minimum plant's load carrying capability is principally confined to the material cost, since labor costs would be incurred regardless of the load size. The labor percentages, below, can be multiplied by the account customer percentage to determine the reduction in customer classification if the minimum size component is limited to labor costs. The Companies state that the following labor installation percentages are associated with the minimum components:[21]

Labor Percent For Minimum Components

POLES	46.9%
OH CONDUCTORS	48.9%
UG CONDUCTORS	22.6%
TRANSFORMERS	16.0%

Schedule CJ-2 provides customer classification percentages adjusted to reflect only the labor component for minimum size plant. Schedule CJ-3 provides the summary

[21] OCA-ME-III-4(e); OCA-PP-III-4(e); OCA-PN-III-4(e); OCA-WP-III-4(e).

of CCOSS results at Current Rates which reflects the correction of double-counting of demand, basing the customer percentage of minimum size components on labor. Even if the Commission declines to reject the minimum system concept, this method provides an alternative minimum grid amount. The residential class produces rates of return higher than system average for each Company if these alternative customer classification percentages are used in the CCOSS.

4. Companies' Minimum Distribution System is Incomplete

Q. WHY DO YOU CONTEND THAT THE COMPANIES' MINIMUM SYSTEM STUDY IS INCOMPLETE?

A. The Companies classify 100% of services (Account 369) as customer-related. I agree with the classification *if* the minimum system study is *not* applied to distribution facilities. However, if a minimum system study is used, the method should be applied in a symmetric fashion to service conductors, which are ordinarily classified as customer-related. The minimum system concept attempts to divide facilities into percentages of cost that are demand and customer-related. Just like overhead conductors, different sizes of service lines have varying load carrying capability, and a complete application of the minimum system approach would recognize that part of the services' cost is demand-related. The incorporation of a demand classification for services would reduce the overall customer classification amount within the Companies' cost of service study.

Q. DOES THE NARUC ELECTRIC UTILITY COST ALLOCATION MANUAL'S DESCRIPTION OF THE MINIMUM DISTRIBUTION SYSTEM RECOGNIZE THAT PART OF SERVICES SHOULD BE CLASSIFIED AS DEMAND?

A. Yes. The minimum size method, according to the NARUC Cost Allocation Manual (CAM), "involves determining the minimum size pole, conductor, cable, transformer *and service* that is currently installed by the utility."[22] The Companies' witness, Mr. Dolezal, recognizes that service lines could be classified partially as demand-related based on the NARUC CAM, but states that the Companies do not have the data to apply the minimum grid study to services.[23]

Q. IF THE COMPANIES HAD APPLIED THE MINIMUM SYSTEM STUDY IN A COMPLETE MANNER, WOULD A PORTION OF SERVICES BE CLASSIFIED AS DEMAND-RELATED?

A. Yes. This, in turn, would reduce the amount of costs classified as customer-related in the CCOSS. Comparing the per foot cost of services provided by the Companies, the smallest service line installed today is approximately 70% of the cost of the standard service line.[24] This suggests that approximately 30% of service line cost would be classified as demand-related, if a minimum grid study was applied to the FERC account,

[22] NARUC Electric Utility Cost Allocation Manual (1992) at 90 and 92. (Emphasis added).

[23] ME, PP, PN, WP-Dolezal Statement No. 4 at 16.

[24] OCA-ME-III-4(p-q); OCA-PP-III-4(p-q); OCA-PN-III-4(p-q); OCA-WP-III-4(p-q).

5. Conclusion

Q. WHAT IS YOUR CONCLUSION REGARDING THE MINIMUM SYSTEM STUDY?

A. My recommendation is to disregard the results of the Companies' minimum system plant study. The customer classifications for distribution plant other than services and meters should be replaced by a demand classification in the CCOSS. In the alternative, if the Commission decides to implement a minimum system concept, my recommendation is to revise the customer classification based on the labor portion of minimum plant as shown on Schedule CJ-2.

Q. DOES ELIMINATING THE MINIMUM SYSTEM PRODUCE A SIGNIFICANT IMPACT ON THE COST POSITION OF THE RESIDENTIAL CLASS?

A. Yes. The table below shows the impact of eliminating the minimum system (i.e., 100% demand for distribution facilities) on residential rates of return at present rates, based on the Companies' claimed revenue requirement.

Residential ROR at Present Rates

	System	Per Company	Unitized	No Minimum Grid	Unitized
PP	3.32%	3.52%	106%	7.15%	215%
ME	2.86%	2.43%	85%	4.78%	167%
PN	3.43%	2.37%	69%	5.57%	162%
WP	4.14%	2.86%	69%	5.60%	135%

The unitized column is an index called relative rate of return and shows the class rate of return as a percentage of the system rate of return. For three Companies, the residential relative rate of return shifts from below average to well above average due to the elimination of the minimum grid. For the fourth Company, Penn Power, the relative rate of return was slightly above average in the filed case, and increases to well above average without the minimum grid. The residential relative rate of return is also above average under my alternative recommendation, which reduces the customer percentage to avoid double counting of demand.

Q. DO YOU HAVE A SCHEDULE QUANTIFYING THIS ISSUE?

A. Yes. Schedule CJ-4 shows the results for OCA's CCOSS, which excludes the minimum grid. Schedule CJ-3 summarizes the results of the Companies' CCOSS at current rates if the customer classification percentages in the minimum system are adjusted based on my alternative recommendation.

C. Customer Service Expenses (Customer Information Account 910)

Q. HOW DO THE COMPANIES ALLOCATE CUSTOMER INFORMATION AND SERVICE EXPENSES?

A. The Companies use a pure customer allocator for most customer service costs. This results in an allocation of 88% - 97% to the residential class.

Q. IS THERE EVIDENCE THAT SOME CUSTOMER SUPPORT EXPENSES ARE AIMED AT NON-RESIDENTIAL CUSTOMERS?

A. Yes. The four Companies incurred the following amounts for the Customer Support department: **ME** $972 thousand; **PN** $940 thousand; **PP** $346 thousand; **WP** $1.245 million. The customer support departments include personnel who are primarily involved with commercial and industrial customers and street lighting customers.[25] Customer

[25] OCA-ME-III-20; OCA-PP- III-20; OCA-PN- III-20; OCA-WP- III-20.

Support department personnel primarily focus on the following rate classes: **ME** GSL, GP, TP; **PN** GSL, GP, LP; **PP** GS, GM, GP; **WP** 46, 44, 40, 30, and 20.[26] These personnel also may be involved in preparing rate studies, investigating outages, and making rate suggestions.[27] Ideally, these expenses should be assigned only to those classes, but I have not seen sufficient tracking information to apply class assignments in that manner. However, the existence of customer support personnel who primarily focus on classes other than residential substantiates the validity of reflecting a more general allocation basis besides a pure customer allocation for customer service expenses.

Q. WHAT IS ACCOUNT 910, MISCELLANEOUS CUSTOMER INFORMATION EXPENSE?

A. The FERC account description states:

> This account shall include the cost of labor, materials used and expenses incurred in connection with customer service and informational activities which are not includible in other customer information expense accounts.

The Companies identify A910 as consisting of customer service labor and payroll overheads.[28] The largest component of A910 pertains to call center costs.[29]

Q. HOW DO THE COMPANIES ALLOCATE ACCOUNT 910?

A. The Companies use a weighted customer allocation. The customer allocation is weighted by the percent of call center calls associated with particular customer classes. In some

[26] Ibidem.

[27] Ibidem.

[28] OCA-ME-III-17; OCA-PP- III-17; OCA-PN- III-17; OCA-WP- III-17.

[29] OCA-ME-III-14; OCA-PP- III-14; OCA-PN- III-14; OCA-WP- III-14.

cases, the weighted allocation (as high as 97%) to the residential class exceeds the allocation associated with a customer count allocator.

Q. DO YOU AGREE WITH THE COMPANIES' USE OF CALL CENTER CALLS TO ALLOCATE ACCOUNT 910 EXPENSE?

A. No. The rate class and subject matter related to a large proportion of calls are unknown because they involve the interactive voice response system. [30] A substantial number of calls involve reports of outages, and it is not obvious why the customer's rate class should affect the allocation of this cost.[31] Customers should be encouraged to report outages because it enables the utility to repair equipment more quickly, which can benefit other customers. Call centers can be a principal means of identifying the location of outages. The call may also include inquiries regarding customer choice or other general issues which are more appropriately allocated on a broad basis. Also, the number of calls by class does not reflect the average minutes per call for each class, which can vary due to the complexity of billing or other issues. Call center personnel also assist in marketing the utility's energy efficiency programs.[32] Energy efficiency program costs are more appropriately allocated on a general basis (such as revenues), rather than a customer allocation basis. Furthermore, the nature of any non-call center expenses reported in this account are not clear.

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[30] OCA-ME-III-15 Attachment A; OCA-PP- III-15 Attachment A; OCA-PN- III-15 Attachment A; OCA-WP- III-15 Attachment A.

[31] Ibidem.

[32] OCA-ME-III-16; OCA-PP- III-16; OCA-PN- III-16; OCA-WP- III-16.

Q. HOW DO YOU RECOMMEND ALLOCATING ACCOUNT 910?

A. I propose allocating one half of the account on a revenue basis and the remainder on a customer basis. This recognizes that part of the call center operation is allocable to customers, but that a portion of costs in this account are reasonably allocated broadly across the customer classes. Furthermore, given that customer support department personnel focus on classes other than residential, customer service labor expense in the account is reasonably allocated on a general basis.

D. CCOSS Conclusion

Q. HAVE YOU QUANTIFIED THE IMPACT OF YOUR RECOMMENDED ADJUSTMENTS TO THE CCOSS?

A. Yes. Schedule CJ-4 sets forth the revised CCOSS results for each Company. I have included summary sheets which show the class rate of return at present rates and the increase/decrease in revenues compared to the Company's filing at equalized rates of return, which is the hypothetical scenario for moving classes directly to the cost of service revenue levels. As noted previously, OCA does not agree with the Companies' proposed revenue requirement in these CCOSS computations, so the results of these schedules should be viewed as a general guide for class cost relationships rather than a reflection of the actual revenue levels which will be adopted in this case. A comparison of the rates of return (ROR) and relative rates of return (RROR or unitized return) based on the Companies' and OCA's CCOSS, at current rates, are shown below. The succeeding step, allocating the revenue increase, will be discussed in Sec. IV.

Penelec

	RS	GSV	GSS	GSM	GSL	GP
ROR Per OCA	4.4%	8.1%	1.1%	3.9%	0.8%	2.8%
RROR Per OCA	121%	235%	34%	112%	22%	82%
ROR Per Company	2.3%	12.1%	-0.6.%	12%	8.5%	1.6%
RROR Per Company	69%	353%	-17%	352%	247%	49%

	LP	BRD	H	POL	STLT
ROR Per OCA	5.2%	12.1%	2%	9.5%	-6.3%
RROR Per OCA	1.7%	353%	58%	277%	-184%
ROR Per Company	10.8%	21%	10.8%	9.0%	-6.2%
RROR Per Company	325%	611%	316%	265%	-182%

As shown above, the residential relative rate of return produced by my revision is nearly twice the comparable ratio produced by the Company’s study.

Penn Power

	Res	GSR	GSS	GSM	GSL	GP
ROR Per OCA	7.7%	6.9%	3.5%	-1.5%	-1.4%	-4.4%
RROR Per OCA	219%	210%	106%	-48%	-44%	-134%
ROR Per Company	3.5%	10.7%	0.9%	5.5%	10.9%	-4.3%
RROR Per Company	106%	324%	29%	167%	330%	-131%

	OH	PNP	POL	STLT	GT
ROR Per OCA	0	2.7%	6.3%	-0.4%	91%
RROR Per OCA	0	82%	191%	-12%	2700%
ROR Per Company	0	8.2%	1.6%	-0.6%	93%
RROR Per Company	0	248%	48%	-19%	2825%

As shown above, the residential relative rate of return produced by my revision is more than 100 points higher than the comparable ratio produced by the Company’s study.

Met-Ed

	RS	GSV	GSS	GSM	GSL	GP
ROR Per OCA	4.9%	5.72%	8.1%	0.34%	-4.4%	1.3%
RROR Per OCA	171%	200%	281%	12%	-155%	43%
ROR Per Company	2.4%	14.4%	0.3%	9.1%	-.47%	.0.2%
RROR Per Company	85%	505%	12%	119%	-16%	-10%

	TP	BRD	MS	POL	STLT
ROR Per OCA	-2.3%	-5.4%	0.07%	4.9%	5.8%
RROR Per OCA	193.2%	-189.6%	2%	173%	201%
ROR Per Company	2.4%	-1.4%	7.5%	3.2%	8.%
RROR Per Company	85%	-120%	264%	114%	280%

As shown above, the residential relative rate of return produced by my revision is 86 points higher than the comparable ratio produced by the Company's study.

West Penn

	RS	GS10	GSS	GSM	PP40	GSL
ROR Per OCA	5.8%	8.9%	2.9%	3.1%	0.3%	0.4%
RROR Per OCA	140%	216%	71%	74%	7%	1%
ROR Per Company	2.8%	20%	-2.2%	12.8%	2.8%	10.5%
RROR Per Company	69%	489%	-54%	311%	69%	254%

	POL	PSU	PP44	PP46	AGS	STLT
ROR Per OCA	24%	-2.5%	246%	1.6%	0	2.0%
RROR Per OCA	585%	-63%	5960%	39%	0	50%
ROR Per Company	15.9%	8.5%	256%	2.6%	0	3.1%
RROR Per Company	386%	206%	6197%	64%	0%	75%

As shown above, the residential relative rate of return produced by my revision is 71 points higher than the comparable ratio produced by the Company's study.

IV. CLASS DISTRIBUTION OF REVENUE INCREASE

Q. IS THE CLASS COST OF SERVICE STUDY THE ONLY CONSIDERATION IN DISTRIBUTING REVENUE INCREASES AMONG THE CUSTOMER CLASSES?

A. No. The class cost of service study provides useful information for developing the class revenue increases, but it should not be the sole consideration. Non-cost considerations are appropriate in mitigating pure cost of service study results. This principle has been recognized in longstanding regulatory texts, such as Dr. James Bonbright's seminal *Principles of Public Utility Rates*.[33] Although the Companies' CCOSS results are significantly different than OCA's, the Companies' recommendations recognize that movement toward the CCOSS results should be mitigated.[34] Similarly, my position is that rate moderation constraints should be applied to class increases in distribution revenues. My recommendation, as presented here, is based on the Companies' revenue requirement in order to facilitate comparison with the Companies' proposals.

Q. HOW DID YOU DEVELOP CLASS REVENUE INCREASES AT THE COMPANIES' PROPOSED REVENUE REQUIREMENT?

A. Class revenue percent increase proposals are frequently described in terms of a ratio of the class percentage increase relative to the system percentage increase. In general terms, my proposed class revenue spread is based upon the following guidelines: (1) To the

[33] Bonbright, *Principles of Public Utility Rates* at 29, (Columbia Press 1961).

[34] The Companies have implemented an approach of moving classes' share of revenue requirement mid-way between the proportionate responsibility at current and equalized ROR revenues, as determined by the CCOSS.

extent feasible, limit class base revenue increases to 150% of the system average percent increase; (2) No class receives a selective revenue decrease; (3) Classes which produce above average rates of return should receive below system average percent base revenue increases; (4) Given the special characteristics of street lighting, apply additional revenue mitigation as necessary. Under my CCOSS, the residential class produces significantly above average rates of return, and receives a percent increase below the system average. The percent of system average increase for the residential class is shown below:

OCA Recommendation for RS Class
Percent of Sys Avg. Increase

Met-Ed	**0.85**
Penelec	0.82
Penn Power	0.88
West Penn	0.79

Q. PLEASE DESCRIBE THE ADDITIONAL REVENUE INCREASE MITIGATION WHICH YOU APPLIED TO STREET LIGHTING.

A. In addition to the 150% of system average base revenue constraint, I also attempted to limit the increase in street lighting total revenues to 20%. This is consistent with the criterion discussed by Companies' witness Mr. Seidt that customer classes should not experience an average increase in total revenues greater than 20%, assuming customers were taking default service.[35] The Companies did not appear to apply this criterion to street light classes. In addition, for **West Penn**, I propose a street lighting percentage increase slightly higher than system average. West Penn presented conflicting

[35] Seidt Statement No. 3 at 11.

Errata

information as to whether the Company proposed a base revenue increase or decrease for street lighting.[36]

Q. PLEASE DISCUSS THE UNIQUE CHARACTERISTICS OF STREET LIGHTING WHICH JUSTIFY ADDITIONAL REVENUE MITIGATION.

A. Except for Met Ed, my CCOS results indicate that street lighting is producing revenues below cost. However, non-cost considerations related to the unique characteristics of the class are also relevant. Most significantly, street lighting has unique load characteristics--principally the 100% off-peak usage. Street lighting inherently adds economies of diversity to the electric utility system.[37] This provides an important benefit to the electric utility system because the off-peak nature of the service frees up capacity which can be used by other system loads without incurring any incremental capacity costs. The Companies' CCOS studies do not adequately recognize the diversity benefits provided by the lighting class. Although NCP allocations are generally reasonable in measuring demand-related costs for most classes, NCP methods are not ideal for completely off-peak loads. Thus, the CCOSS will tend to overstate the cost contribution of street lighting classes.

[36] Exhibit KMS-2 indicates a 18% base revenue increase for WP street lighting. However, the WP CCOSS incorporates proposed base revenue less than current revenue for the class.

[37] "Diversity Ratio" (total NCP demand divided by total coincident peak demand) is used to measure diversity benefits. Street lighting has the highest such ratio of any class.

Q. HAVE YOU PREPARED A SCHEDULE SETTING OUT THE OCA REVENUE DISTRIBUTION RECOMMENDATION BASED ON THE COMPANIES' PROPOSED REVENUE REQUIREMENT?

A. Yes. Schedule CJ-6 sets forth the base revenue distribution for each Company by customer class. OCA proposes a reduction to the Companies' filed requests for increased revenues, but my schedules are based on the Companies' request in order to facilitate comparisons of revenue spread proposals. I recommend a proportionate scale back of my class revenue requirements to match reductions in the overall revenue requirement ultimately adopted by the Commission.

Q. PLEASE SUMMARIZE THE IMPACT OF THE CLASS ALLOCATION OF THE REVENUE INCREASE WHICH YOU PROPOSE.

A. Based on the Company's proposed revenue requirement, the Companies' class revenue increase distribution is compared to my recommendation in the tables below.

Met Ed (000's)	RS	GSV	GSS	GSM	GSL	GP	TP	BRD	MS	POL	STLT
Company Proposed Incr.	88,291	125	5,830	10,915	7,225	18,054	1,477	18	24	294	2,226
Percentage Increase	37%	26%	46%	22%	95%	102%	45%	59%	22%	39%	43%
Incr.-OCA Rev Spread	**80,879**	**164**	**4,278**	**29,818**	**4,569**	**10,687**	**1,987**	**18**	**67**	**256**	**1,755**
Percentage Increase	**34%**	**34%**	**34%**	**60%**	**60%**	**60%**	**60%**	**60%**	**60%**	**34%**	**34%**
Penelec (000's)	**RS**	**GSV**	**GSS**	**GSM**	**GSL**	**GP**	LP	BRD	H	POL	STLT
Company Proposed Incr.	99,872	287	5,947	25,318	5,968	9,234	1765	-0.94	118.4	1441.04	2607
Percentage Increase	43%	36%	41%	37%	40%	58%	16%	-4%	14%	42%	48%
Incr.-OCA Rev Spread	80,186	269	4,910	41,974	9,163	5,739	7,018	10	519	1,143	1,626
Percentage Increase	34%	34%	34%	62%	62%	36%	62%	38%	62%	33%	30%
Penn Power (000's)	**RS**	**GSR**	**GSS**	**GSM**	**GSL**	**GP**	**PNP**	**POL**	**STLT**	**GT**	
Company Proposed Incr.	27,108	25	2,294	4,919	1,480	3,272	18	163	340	616	
Percentage Increase	40%	42%	60%	47%	41%	125%	23%	42%	46%	46%	
Incr.-OCA Rev Spread	26,353	21	1,685	6,827	2,355	1,704	50	136	231	876	
Percentage Increase	39%	35%	44%	65%	65%	65%	65%	35%	31%	65%	
West Penn (000's)	**RS**	**GS10**	**GSS**	**GSM**	**PP40**	**GSL**	**POL**	**PSU**	**PP44**	**PP46**	**STLT**
Company Proposed Incr.	74,116	92	5,236	5,815	3,026	1,476	3,407	99	34	1,042	(1,239)
Percentage Increase	32%	13%	43%	9%	33%	6%	76%	10%	108%	36%	-19%
Incr.-OCA Rev Spread	48,619	133	3,281	24,278	3,585	9,025	880	406	6	1,138	1,754
Percentage Increase	21%	19%	27%	40%	40%	40%	20%	39%	18%	40%	27%

V. RESIDENTIAL CUSTOMER CHARGE

Q. WHAT ARE THE COMPANIES' PROPOSALS REGARDING RESIDENTIAL CUSTOMER CHARGE?

A. Each of the Companies propose a substantial percentage increase in residential customer charges. The requested monthly charges are shown below.

Companies' Proposed Customer Charge Increases

	Current	Proposed	Percent Increase
ME	$10.25	$17.42	70%
PN	$9.99	$17.10	71%
PP	$10.85	$13.41	24%
WP	$5.81	$13.98	141%

Errata

Q. WERE THE CURRENT CUSTOMER CHARGE AMOUNTS SET RECENTLY?

A. Yes. The customer charge levels were fixed at their current amount in the settlement of the 2014 First Energy base rate proceedings. Thus, the large proposed increases in this case do not result from a lengthy lag between rate cases. And, in fact, the settlement customer charge levels set in 2015 represented substantial increases of 16% - 29%. The large increases proposed in this case are on top of recent substantial changes in the customer charges.

Q. DO YOU AGREE WITH THE INCREASES PROPOSED FOR THE CUSTOMER CHARGE?

A. No. The customer charge does not provide price signals which are particularly relevant to resource allocation. In the rate making process, the customer charge level is closely linked to the utility's usage rates (per kWh and per kW), since costs which are not collected through the customer charge will be recovered through the usage rates. Because the electric utility cost structure is dominated by costs which vary with changes in demand and annual electric load over the long run, the usage-sensitive rate is the primary source of meaningful price signals. A lower customer charge ensures that a greater proportion of costs are recovered through a usage-sensitive price. A lower customer charge is more consistent with energy conservation goals and provides pricing policies appropriate for consumption of finite natural resources. In addition, a policy that minimizes the customer charge is more equitable to low usage and low income residential customers.[38]

[38] See also, OCA St. No. 4, pp. 11-22.

Q. WHAT IS THE APPROPRIATE BENCHMARK FOR SETTING THE CUSTOMER CHARGE?

A. The customer charge should recover costs which directly vary with the number of customers, and this is the appropriate benchmark for determining whether the customer charge is compensatory. Public policy supports the use of a narrow measure of costs for the monthly fixed charge. The only economic pricing function of a customer charge is to ration access to the utility system; and public policy favors expansion, rather than limitation, of public access to regulated monopoly essential service. There is ample reason to base the customer charge on the following components: O&M expense for meters, services, meter reading, and customer accounting, and return and depreciation on meter and service investment, minus credits for customer deposits and related deferred federal income taxes. In my view, general overhead, such as administrative and general expense, and customer classified costs which are only weakly related to customer count, should be excluded from the customer charge computation, because these costs do not vary directly with number of customers.

Q. IS YOUR VIEW OF THE APPROPRIATE CUSTOMER CHARGE BENCHMARK CONSISTENT WITH THIS COMMISSION'S PRACTICE?

A. My understanding is that the Commission historically favored a "basic customer cost" composed of costs for meter/service drops, meter reading, and billing.[39] This is a reasonable benchmark for the scope of costs included in the customer charge.

[39] *See e.g. Re: West Pennsylvania Power Co.*, 69 PUR4th 470 (1985); *Re: West Pennsylvania Power Co.*, 119 PUR4th 110 (1990).

Q. HAVE YOU CALCULATED CUSTOMER CHARGES BASED ON YOUR APPROACH, WHICH LIMITS THE COSTS TO COMPONENTS WHICH VARY DIRECTLY WITH CUSTOMERS?

A. Yes. My calculation of the basic customer charge is shown below.

Utility	Current Customer Charge	OCA Cost Analysis
ME	$10.25	$6.21
PN	$9.99	$5.17
PP	$10.85	$6.67
WP	$5.81	$6.56

With the exception of West Penn, the calculated basic customer charge cost is substantially less than the current customer charge. And, in the case of West Penn, the calculated charge is less than one dollar more than the current charge. Details of the calculation are shown on Schedule CJ-5.

Q. PLEASE DESCRIBE THE SPECIFIC COMPONENTS OF YOUR CUSTOMER CHARGE CALCULATION.

A. The following expense accounts are included: meter O&M expense, customer accounting excluding uncollectibles, meter and services depreciation, amortization components for smart meters and retired legacy meters, and a portion of Account 910 call center cost.[40] A rate base component is comprised of meter and service net plant, plus unamortized legacy meter cost and deductions for customer advances and deposits and customer-related deferrals associated with liberalized depreciation. The return reflects both equity and debt rates and the federal and state income tax rates. I have used the OCA

[40] Attachment A, OCA-ME-III-15; Attachment A, OCA-PN-III-15; Attachment A, OCA-PP-III-15; Attachment A, OCA-WP-III-15; OCA-ME-III-14; OCA-PN-III-14; OCA-PP-III-14; OCA-WP-III-14.

recommended rate of return. The call center component is limited to billing, which I estimated by calculating the residential billing calls and call duration as a percent of all calls. In my view, the inclusion of retired legacy meter costs is an example of conservatism, since it reflects early retirement costs rather than the incremental cost of adding customers. I could not quantify a deduction for deferred taxes associated with services and meters, which results in a rate base slightly higher than I would normally utilize.

Q. PLEASE CONTRAST YOUR COSTING APPROACH WITH THE COMPANY'S COST ANALYSIS.

A. My cost benchmark is based on the costs required to maintain residential customers' access to the utility system. The costs which are solely required to add or maintain residential customer access are confined to the direct costs of billing the customer and providing customer premises equipment to measure usage and provide access to electricity. Exhibit KMS-3 of Mr. Siedt's testimony in each of the Companies' rate filings summarizes his customer charge analysis. Appropriately, the analysis excludes minimum grid costs. However, the calculation includes customer classified costs which do not vary directly with the number of customers. Such indirect costs include portions of administrative and general expense, general plant, and customer assistance and information expenses, which are only weakly related to customers, if at all. These costs include portions of items such as corporate general consulting expenses, advertising, storm damage amortization, rate case expense, and expenses for employees engaged in economic development. These are not directly related to maintaining residential customers' access to the utility system, but instead arithmetically "follow" customer costs in the context of a fully allocated embedded cost of service study. In my view, the Companies' customer charge calculation is not consistent with a basic customer charge concept.

Q. DID THE COMPANIES ATTEMPT TO MODERATE THEIR PROPOSED CUSTOMER CHARGE INCREASES?

A. No. Each Company proposed a residential customer charge exactly equal to its cost analysis. This approach is contrary to the principle of rate gradualism, which the Companies recognized in their approach to inter-class revenue distribution but did not acknowledge in the proposed residential rate structures. Furthermore, the Companies' proposed customer charges for other rate classes did not adhere to the same procedure. Each of the Companies attempted to limit other classes' customer charge increases to the overall revenue increase for the class. However, the proposed increases for the residential customer charges exceeded the proposed overall percentage increases for the residential class.

Q. DOES ENERGY CONSERVATION POLICY FAVOR THE USE OF THE BASIC CUSTOMER CHARGE CALCULATION?

A. Yes. In weighing the appropriateness of limited or broad calculations of the customer charge, the Commission should consider the effect on energy efficiency policies. A high customer charge tends to inhibit energy conservation. Minimizing the customer charge provides the ratepayer with a greater ability to control his/her bill on the basis of usage. For that reason, an excessive customer charge can promote wasteful energy consumption.

Pennsylvania's policy favoring energy efficiency, as evidenced by directives requiring utility funded energy conservation programs, provides convincing support for utilizing a basic customer charge benchmark. Public utilities have an incentive to propose fixed charges because the charges produce less financial risk; however, they do not propose to compensate customers for the lower risk through a reduction in the allowable return on equity. Without such explicit compensation to ratepayers, the utilities' frequent argument in favor of the "revenue stability" aspect of fixed charges is not a reasonable policy basis for adopting methods that produce high customer charges.

Q. CAN YOU PROVIDE AN ILLUSTRATION OF THE IMPACT OF CUSTOMER CHARGE METHODS ON ENERGY EFFICIENCY CHOICES?

A. Yes. I performed a comparison of the net life cycle savings, as measured by the present value of bill savings net of appliance purchase price, for Energy Star central air conditioning and Energy Star heat pumps, relative to less efficient appliance options.[41] I prepared a comparison of net life cycle savings for purchasing the more efficient appliance based on maintaining the current customer charge versus the Companies' proposed customer charge, assuming the Companies' proposed residential revenue requirement. Assuming a constant residential class revenue requirement, the lower current customer charge places higher revenue recovery on the energy rate component, thereby increasing the incentive for customers to engage in energy efficiency actions. As shown in the table below, the current customer charge provides significant net life cycle

[41] I utilized Energy Star spreadsheets which were developed for the EPA and U.S. Department of Energy ro calculate "net life cycle energy cost savings," which is based on the discounted bill savings, net of higher appliance purchase cost, over the life of the energy efficient appliance.

energy efficiency savings compared to implementing the higher proposed customer charge.[42] Thus, the lower customer charge is consistent with—rather than at odds with—the mandated energy efficiency programs.

Net Life Cycle Energy Cost Savings for Residential Customer
(Average for Four First Energy Delivery Companies)

	Company Requested Customer Charge	With Current Customer Charge	Percentage Difference
Central Air (3 ton) 18 SEER vs. 13 SEER	**$305**	$401	**31%**
Heat Pump (3 ton) 18 SEER vs. 13 SEER	$3,413	$3,696	8.3%

Q. WHAT IS YOUR RECOMMENDATION REGARDING THE RESIDENTIAL CUSTOMER CHARGE?

A. **[ME, PN, PP]** My recommendation for these three utilities is to maintain the Companies' current customer charge amount. The current customer charge levels are higher than the basic customer cost analysis. However, given that the current customer charge level was fixed at its current level last year, my recommendation is to maintain rate continuity with the current monthly charge instead of lowering the charge. My recommendation recognizes the energy efficiency policies of the Commonwealth, as well as the traditional rate principle of gradualism.

[WP] The West Penn current customer charge is less than the basic customer cost analysis presented above. Therefore, my recommendation for the West Penn residential class is to set the customer charge at $6.80, which is slightly above the cost-based customer charge level. This results in an increase in the customer charge from $5.81 to

42 For simplicity in this illustration, my analysis provides an average impact for all four Companies.

$6.80—or 99 cents more per month. This increase is moderate in comparison to the 141% increase proposed the by Company.

VI. LED STREET LIGHTING

Q. DID YOU EXAMINE THE INTRA-CLASS REVENUE INCREASES FOR STREET LIGHTING PROPOSED BY THE COMPANIES?

A. Yes. I reviewed the increases proposed for LED street lights. The Companies, for the first time, included LED street lights among their street lighting tariffs in the previous rate case. Subsequent to that rate case, the Companies have also disseminated marketing information to municipalities in Pennsylvania which promote LED street lights as an option to reduce cities' energy costs. However, the Companies have proposed substantial rate increases for LED lights in this case. LED lighting is consistent with energy efficiency goals, because the replacement of standard street lights with LED will reduce the amount of energy required for an equivalent illumination level. This results in both lower energy costs for the user *and* societal benefits associated with more efficient use of scarce resources.

Q. DO THE COMPANIES PROPOSE DISPROPORTIONATELY HIGHER INCREASES FOR LED LIGHTS COMPARED TO THE OVERALL STREET LIGHTING CLASS?

A. Yes. Mr. Siedt contends that LED lighting is currently underpriced relative to standard street light installations, and therefore "the Companies shifted more of the revenue allocation to LED street lights."[43] The table below compares the total revenue increase for LED lighting compared to the overall street lighting class.[44]

Total Revenue Percentage Increase

Company	LED Increase	STL Class Increase
ME	66.6%	29.3%
PN	46.9%	32.0%
PP	37.0%	32.8%
WP	62.1%	13.6%

Q. WHAT IS YOUR OPINION OF THE INTRA-CLASS REVENUE DISTRIBUTION FOR LED LIGHTS?

A. The current LED rates were put into effective less than two years ago. Regardless of Mr. Siedt's view that the rates are underpriced, the significant relative increase for LED street lights should be mitigated. Moreover, policy considerations related to energy efficiency are a legitimate non-cost factor in designing class rates. The magnitude of increase could be a deterrent to future replacement of less efficient street lights with LED lights and may prevent existing LED customers from experiencing the cost savings promoted by the Companies. An internal FirstEnergy memorandum expresses a concern that, depending on the size of the rate increase in this case, "from our customers' standpoint, the reduction or elimination of their savings will cause complaints and negative impacts to our relationships."[45]

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43 Response of ME, PP, PN, WP to OCA VI-1(e).

44 Response of ME, PP, PN, WP to OCA VI-1(d); Exhibit KMS-2, Summary of Revenues.

45 Response of ME, PP, PN, WP to OCA VI-1-Attachment B.

Q. DO YOU HAVE A RECOMMENDATION?

A. Yes. My recommendation is to limit the LED street light revenue increase to the same percentage as the overall street light class. Although this will shift some cost recovery to other street lighting tariffs, the impact is likely to be relatively small if it is spread across all street lighting rates. Currently LED lighting constitutes only a slight proportion of total installed street lights.[46]

Q. DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?

A. Yes.

[46] For example, the Companies state that LED lights have a "negligible" effect on street light class demands. Response of ME, PP, PN, WP to OCA VI-1-(e).

**BEFORE THE PENNSYLVANIA PUBLIC
UTILITY COMMISSION**

Pennsylvania Public Utility Commission, *et. al.* v. Metropolitan Edison Company	: : : : :	R-2016-2537349, *et al.*
Pennsylvania Public Utility Commission, *et. al.* v. Pennsylvania Electric Company	: : : : :	R-2016-2537352, *et al.*
Pennsylvania Public Utility Commission, *et. al.* v. Pennsylvania Power Company	: : : : :	R-2016-2537355, *et. al.*
Pennsylvania Public Utility Commission, *et. al.* v. West Penn Power Company	: : : : :	R-2016-2537359, *et al.*

ATTACHMENT AND EXHIBITS ACCOMPANYING THE

DIRECT TESTIMONY

OF

CLARENCE L. JOHNSON

**ON BEHALF OF
OFFICE OF CONSUMER ADVOCATE**

JULY 22, 2016

SUMMARY OF QUALIFICATIONS

CLARENCE JOHNSON

EDUCATION

Bachelor of Science, Political Science, University of Houston.

Master of Arts, College of Social Science (Interdisciplinary/Urban Studies), University of Houston.

EXPERIENCE

Mr. Johnson has more than 25 years experience as an expert witness and analyst related to electric and telecommunications utility issues.

CURRENT EMPLOYMENT

Mr. Johnson currently provides professional consulting and analytical analyses regarding regulatory and public policies related to public utilities and the energy industry.

PREVIOUS EMPLOYMENT 1983-2008

From September 1983 to June 2008, Mr. Johnson was a Regulatory Analyst for the Office of Public Utility Counsel. He was the professional staff person with primary responsibility for advising the Public Counsel on economic and regulatory policy issues. His responsibilities included: presenting expert testimony on regulatory matters; research related to rate filings of regulated public utilities; acting as a non-testifying expert and advising attorneys in cross-examination of witnesses and development of trial exhibits for utility regulatory proceedings; analyzing policies and practices for regulating public utilities; and preparing comments on proposed Public Utility Commission rules; assisting financial and economic staff in the development and preparation of testimony; providing expert testimony on selected issues; preparation of reports to the Legislature regarding the utility regulatory process.

EMPLOYMENT BEFORE 1983

During the period 1977 to 1983, Mr. Johnson extensively engaged in analysis and supervision of public interest advocacy programs. He directed two non-profit corporations involved in public policy research from 1978 to 1980 and 1982 to 1983, respectively; responsibilities included overall management of the corporations, negotiation and management of grants and contracts, supervision of research activities, and presentations of research findings to legislative and administrative governmental entities. From 1980 to 1982, he also performed policy analysis and substantive research on the impact of governmental policies for two publicly-funded entities. His responsibilities for the statewide support center for legal services programs in Texas assessed the effect of federal and state regulatory changes upon indigent clients. As an analyst for the Texas State Senate's Natural Resources

Committee, Mr. Johnson was responsible for research related to low-level radioactive waste disposal and low-head hydropower, and the committee's staff's interim report on energy conservation.

AWARDS Mr. Johnson was the recipient of the first annual Texas Outstanding Public Service Award in 1988.

MEMBERSHIP American Economics Association.

TESTIMONY ON BEHALF OF TEXAS OFFICE OF PUBLIC UTILITY COUNSEL	Docket No. 6588, Re Southwestern Bell Telephone Company, Subject: Declassification of Documents.
	Docket Nos. 7195 and 6755, Re Gulf States Utilities Company, Subject: Rate Design/Cost Allocation.
	Docket No. 7510, Re West Texas Utilities Company, Subject: Rate Design/Cost Allocation.
	Docket No. 8095, Re Texas-New Mexico Power Company, Subject: Rate Design/Cost Allocation.
	Docket No. 8363, Re El Paso Electric Company, Subject: Rate Design/Cost Allocation.
	Docket No. 8425, Re Houston Lighting & Power Company, Subject: Revenue Requirements.
	Docket No. 8425, Re Houston Lighting & Power Company, Subject: Rate Design/Cost Allocation.
	Docket No. 8646, Re Central Power and Light Company, Subject: Revenue Requirements.
	Docket No. 8646, Re Central Power and Light Company, Subject: Rate Design/Cost Allocation.
	Docket No. 8646, Re Central Power and Light Company, Subject: Interim Rate Relief.
	Docket No. 8555, Proceedings Concerning Houston Lighting & Power Company on Remand From Cause No. C-5705 and Cause No. 352,044, Subject: Determination of Remand Amount.
	Docket No. 8928, Re Texas-New Mexico Power Company, Subject: Rate Design/Cost Allocation.
	Docket No. 8585, Re Southwestern Bell Telephone Company, Subject: Revenue Requirements/Affiliates.
	Docket No. 8585, Re Southwestern Bell Telephone Company, Subject: Reply, Revenue Requirements/Affiliates.

Docket No. 8585, Subject:	<u>Re Southwestern Bell Telephone Company</u>, Reply, Rate Design.
Docket No. 8585, Subject:	<u>Southwestern Bell Telephone Company</u>, Proposed Non-Unanimous Stipulation.
Docket No. 9300, Subject:	<u>Texas Utilities Electric Company</u>, Revenue Requirement.
Docket No. 9300, Subject:	<u>Texas Utilities Electric Company</u>, Cost Allocation and Rate Design.
Docket No. 9300, Subject:	<u>Texas Utilities Electric Company</u>, Prudence of Plant Acquisition.
Docket No. 9561, Subject:	<u>Central Power and Light Company</u>, Revenue Requirement.
Docket No. 9561, Subject:	<u>Central Power and Light Company</u>, Cost Allocation and Rate Design.
Docket No. 9578, Subject:	<u>Sugar Land Telephone Company</u>, Inquiry into Sale.
Docket No. 9850, Subject:	<u>Houston Lighting & Power Company</u>, Revenue Requirement.
Docket No. 9850, Subject:	<u>Houston Lighting & Power Company</u>, Cost Allocation and Rate Design.
Docket No. 9850, Subject:	<u>Houston Lighting & Power Company</u>, Settlement Testimony: Revenue Requirement and Rate Design.
Docket No. 9981, Subject:	<u>Central Telephone Company</u>, Revenue Requirement/Affiliates.
Docket No. 10894, Subject:	<u>Gulf States Utilities Company</u>, Affiliate Transactions/Power Purchases.
Docket No. 11735, Subject:	<u>Texas Utilities Electric Company</u>, Revenue Requirement and Rate Design.

Docket No. 11892,	General Counsel's Original Petition for Generic Proceeding Regarding Purchased Power,
Subject:	Impact of Purchased Power on Cost of Capital.
Docket No. 12700,	El Paso Electric Company,
Subject:	Acquisition, Revenue Requirement and Rate Design.
Docket No. 12957,	Houston Lighting & Power Company,
Subject:	Contract Pricing Tariff.
Docket No. 13100,	Texas Utilities Electric Company,
Subject:	Competitive Pricing Tariffs.
Docket No. 13575,	Texas Utilities Electric Company,
Subject:	Demand Side Management and Purchase Power Recovery.
Docket No. 12065,	Houston Lighting & Power Company,
Subject:	Revenue Requirement/Plant Cancellation/Prudence.
Docket No. 12065,	Houston Lighting & Power Company,
Subject:	Cost Allocation and Rate Design.
Docket No. 13943,	Gulf Coast Power Connect,
Subject:	Transmission Line CCN.
Docket No. 13575,	TUEC Application for Relief Regarding Recovery Solicitations,
Subject:	DSM and Purchase Power Cost Recovery.
Docket No. 13369,	West Texas Utilities Company,
Subject:	Cost Allocation and Rate Design.
Docket No. 14435,	Southwestern Electric Power Co.,
Subject:	Rate Design.
Docket No. 14716,	Texas Utilities Electric Company,
Subject:	Wholesale Competitive Rate.
Docket No. 14965,	Central Power and Light Company,
Subject:	Cost Allocation, Rate Design and Competitive Issues.

Docket No. 14965, <u>Central Power and Light Company</u>,
Subject: Reply, Cost Allocation, Rate Design and Competitive Issues.

Docket No. 15560, <u>Texas-New Mexico Power Company</u>,
Subject: Competitive Issues.

Docket No. 16705, <u>Entergy Gulf States, Inc.</u>,
Subject: Cost Allocation, Rate Design and Competitive Issues.

Docket No. 16705, <u>Entergy Gulf States, Inc.</u>,
Subject: Reply, Cost Allocation, Rate Design and Competitive Issues.

Docket No. 16995, <u>Central Southwest Corp.</u>,
Subject: Integrated Resource Planning.

Docket No. 17751, <u>Texas-New Mexico Power Company</u>,
Subject: Rate Design and Competitive Issues.

Docket No. 18845, <u>CPL, WTU, and SWEPCO</u>,
Subject: Integrated Resource Planning.

Docket No. 21527, <u>TXU Financing Order</u>,
Subject: Cost Allocation.

Docket No. 21528, <u>CPL Financing Order</u>,
Subject: Cost Allocation.

Docket No. 21591, <u>Sharyland Utilities Initial Rates & Tariffs</u>,
Subject: Deferrals.

Docket No. 21956, <u>Reliant Business Separation Plan</u>,
Subject: Price to Beat and Capacity Auction.

Docket No. 22344, <u>Generic Rate Design and Customer Classification for TDUs</u>,
Subject: Rate Design.

Docket No. 22349, <u>TNMP Unbundling</u>,
Subject: Competitive Transition Charge and Revenue Requirements/Cost Allocation/Rate Design.

Docket No. 22350, TXU Unbundling,
Subject: Competitive Transition Charge.

Docket No. 22351, Southwestern Public Service Company Unbundling,
Subject: Cost Allocation/Rate Design.

Docket No. 22352, Central Power & Light Company,
Subject: Competitive Transition Charge.

Docket No. 22355, Reliant Unbundling,
Subject: Non-Bypassable Charges and Competitive Transition Charge/Cost Allocation/Rate Design.

Docket No.22356, Entergy Gulf States Utilities Unbundling,
Subject: Revenue Requirements/Cost Allocation/Competitive Transition Charge/Settlement Rate Design.

Docket No. 24194, Application of TNMP to Establish Price to Beat Fuel Factor,
Subject: Fuel and purchased power costs.

Docket No. 25230, Joint Application for Approval of Stipulation Regarding TXU Electric Company Transition to Competition Issues,
Subject: Retail Clawback Provisions of Non-Unanimous Agreement.

Docket No. 25314, Application of West Texas Utilities Company and Mutual Energy WTU to Establish a Fuel Reconciliation Methodology for Southwest Power Pool (SPP) Customers,
Subject: Fuel Cost Method.

Docket No. 24336, Application of Entergy Gulf States, Inc. for Approval of Price to Beat Factor,
Subject: Unaccounted for Energy.

Docket No. 23320, Petition of ERCOT for Approval of the ERCOT Administrative Fee,
Subject: ERCOT Fee Structure.

Docket No. 26194, El Paso Electric Company Fuel Reconciliation,
Subject: Purchased Power and Off-System Sales.

Docket No. 27576,	Application of Texas-New Mexico Power Company for Reconciliation of Fuel Costs,
Subject:	Fuel Reconciliation.
Docket No. 28813,	Inquiry Into Rates of Cap Rock Energy,
Subject:	Revenue Requirements/Cost Allocation/Rate Design.
Docket No. 28840,	Application of AEP Texas Central Company for Change in Rates,
Subject:	Cost Allocation/Rate Design/Affiliate Transactions.
Docket No. 30485,	Application of CenterPoint Energy Houston Electric, LLC For A Financing Order,
Subject:	Transition Charge Recovery.
Docket No. 30143,	Petition of El Paso Electric Company to Reconcile Fuel Costs (Initial and Rebuttal Testimonies),
Subject:	Fuel Reconciliation.
Docket No. 30706,	Application of CenterPoint Energy Houston Electric, LLC for A Competition Transition Charge,
Subject:	Competitive Transition Charge Structure.
Docket No. 31315,	Application of Entergy Gulf States, Inc. for Approval of Incremental Purchased Capacity Recovery Rider,
Subject:	Purchase Power Capacity Rates.
Docket No. 31544,	Application of Entergy Gulf States, Inc. for Recovery of Transition to Competition Costs,
Subject:	Allocation of Transition Costs.
Docket No. 31994,	Application of Texas-New Mexico Power Company's to Establish a Competition Transition Charge Pursuant to P.U.C. Subst. R. 25.263(N),
Subject:	Competition Transition Charge.
Docket No. 32475,	Application of AEP Texas Central Company for a Financing Order,
Subject:	Securitization of Stranded Costs.

Docket No. 32758,	Application of AEP Texas Central Company for a Competition Transition Charge Pursuant to P.U.C. Subst. R. 25.263(n),
Subject:	Competitive Transition Charge.
Docket No. 32795,	Staff's Petition to Initiate Generic Proceeding to Re-Allocate Stranded Costs Pursuant to PURA § 39.253(f),
Subject:	Stranded Costs Allocation.
Docket No. 32907,	Application of Entergy Gulf States, Inc. for Determination of Hurricane Reconstruction Costs,
Subject:	Cost Allocation.
Docket No. 32766,	Application of Southwestern Public Service Company for: (1) Authority to Change Rates; (2) Reconciliation of its Fuel Costs for 2004 and 2005; (3) Authority to Revise the Semi-Annual Formulae Originally Approved in Docket No. 27751 Used to Adjust its Fuel Factors; and (4) Related Relief,
Subject:	Cost Allocation/Rate Design.
Docket No. 33586,	Application of Entergy Gulf States, Inc. for a Financing Order,
Subject:	Financing Order Allocation.
Docket No. 32710,	Application of Entergy Gulf States, Inc. for Authority to Reconcile Fuel and Purchased Power Costs,
Subject:	Capacity Rider Allocation.
Docket No. 31461,	Application of AEP Texas North Company for a Competition Transition Charge Under to Subst. R. §25.263(N),
Subject:	Competition Transition Charge.
Docket No. 32795,	Staff's Petition to Initiate a Generic Proceeding to Re-Allocate Stranded Costs Pursuant to PURA § 39.253(f),
Subject:	Stranded Cost Allocation.
Docket No. 33309,	Application of AEP Texas Central Company for Authority to Change Rates,
Subject:	Rate Design and Energy Efficiency Costs.

Docket No. 33310,	Application of AEP Texas North Company for Authority to Change Rates,
Subject	Energy Efficiency Costs and Riders.
Docket No. 32902,	CenterPoint Energy Houston Electric, LLC Compliance Tariff,
Subject:	Allocation of Stranded Costs.
Docket No. 34077,	Joint Report and Application of Oncor and EFH Pursuant to § 14.101,
Subject:	Leveraged buyout of utility.
Docket No. 35105,	Compliance Tariff Filing of AEP Texas,
Subject:	Allocation of Stranded Costs.
Docket No. 35038,	Texas-New Mexico Power Company Tariff Filing in Compliance with the Final Order in Docket No. 33106,
Subject:	Allocation of Stranded Costs.
Docket No. 34800,	Application of Entergy Gulf States, Inc. for Authority to Change Rates and to Reconcile Fuel Costs,
Subject:	Cost Allocation & Rate Design.
*Docket No. 37482,	Application of Entergy Texas for a PCRF,
Subject:	Purchase Power.
*Docket No. 37744,	Application of Entergy Texas, Inc. for Authority to Change Rates,
Subject:	Cost allocation, rate design, proposed riders, & storm damage expense.
*Docket No. 38951,	Application of Entergy Texas, Inc. for Approval of CGS Tariff,
Subject:	Rate Design, Competitive Tariffs
*Docket No. 42454,	Application of SPS for Revision of EECRF[1]
Subject:	Recovery of energy efficiency costs

[1] Asterick (*) denotes testimony for Texas OPC as a consultant.

TESTIMONY ON BEHALF OF STEERING COMMITTEE OF ONCOR CITIES	Docket No. 35634,	Re Oncor Electric Delivery's Request for an Energy Efficiency Cost Recovery Factor,
	Subject:	Energy Efficiency Cost Recovery.
	Docket No. 36958,	Application of Oncor Electric Delivery Company LLC for 2010 Energy Efficiency Cost Recovery Factor,
	Subject:	Energy Efficiency Cost Recovery.
	Docket No. 39375,	Application of Oncor Electric Delivery Company LLC for 2012 EECRF,
	Subject:	Energy Efficiency Cost Recovery.
TESTIMONY ON BEHALF OF ALLIANCE OF XCEL MUNICI-PALITIES	Docket No. 35664,	Application of SPS to Revise Interruptible Credit Option Tariff,
	Subject:	Interruptible Rate Avoided Costs.
	Docket No. 35763,	Application of SPS to Change Rates and Reconcile Fuel and Purchased Power Costs,
	Subject:	Energy Efficiency, Renewable Energy Credits, Power Cost Credits, and Interruptible Credits.
	Docket No. 37173,	Petition for Declaratory Order of Southwestern Public Service Company Regarding the Generation Demand Charge as a Cap on Compensation for Interruptible Resources
	Subject:	Interruptible Curtailable Option ("ICO").
Docket No. 43695,		Application of SPS to Change Base Rates.
	Subject:	Cost Allocation / Rate Design/ Jurisdictional
TESTIMONY ON BEHALF OF CERTAIN TNMP CITIES	Docket No. 36025,	Application of TNMP for Authority to Change Rates,
	Subject:	Cost Allocation and Rate Design.
	Docket No. 39362,	Application of TNMP for 2012 EECRF
	Subject:	Energy Efficiency Cost Recovery

TESTIMONY ON BEHALF OF PENNYSLVANIA OFFICE OF CONSUMER ADVOCATE	Docket No. R-2010-2161575, et. al.,	PECO Energy Co.-Electric Division Base Rate Case,
	Subject:	Cost Allocation and Rate Design.
	Docket No. R-2010-2179522,	Duquesne Light Company Base Rate Case,
	Subject:	Cost Allocation and Rate Design.
	Docket No. R-2014-248745,	Met Edison General Base Rate Case,
	Subject:	Cost Allocation and Rate Design.
	Docket No. R-2014-2478743,	Penelec Power General Base Rate Case,
	Subject:	Cost Allocation and Rate Design.
	Docket No. R-2014-2478744,	Penn Power General Base Rate Case,
	Subject:	Cost Allocation and Rate Design.
	Docket No. R-2014-248752,	West Penn Power General Base Rate Case,
	Subject:	Cost Allocation and Rate Design.
TESTIMONY ON BEHALF OF BEHALF OF GULF COAST COALITION OF CITIES	Docket No. 38339,	Application of CenterPoint Energy Houston Electric, LLC for Authority to Change Rates,
	Subject:	Cost Allocation, Rate Design, Riders.
TESTIMONY ON BEHALF OF SWEPCO CITIES	Docket No. 40443,	Application of SWEPCO for Rate Change.
	Subject:	Cost Allocation, Rate Design, Fuel Rule, Revs.
TESTIMONY ON BEHALF OF ST.LAWRENCE COTTON GROWERS	Docket No. 41474,	Application of Sharyland Utilities for Unbundled Delivery Rates.
	Subject:	Cost Allocation, Rate Design, Unbundling.

TESTIMONY ON BEHALF OF LIVE OAK TENANTS Docket No.41987 <u>Complaint Against Live Oak Resort</u>
Subject: Sub Metering Complaint Case

TESTIMONY FOR CONNECTICUT CONSUMER COUNSEL Docket No.14-05-06 <u>CL&P Rate Increase Application</u>
Subject: Cost Allocation, Rate Design, Decoupling

TESTIMONY FOR TEXAS COAST UTILITIES COALITION Docket No.44572 <u>Centerpoint Application for DCRF</u>
Subject: Distribution Cost Recovery Factor

TESTIMONY FOR CITY OF EL PASO Docket No.44941 <u>El Paso Electric Rate Case</u>
Subject: Class Cost Allocation; Rate Design

TESTIMONY FOR INDEPENDENT CONSUMER ADVOCATE City of Austin <u>2016 Austin Energy Rate Review</u>
Subject: Municipal Utility Rates

Demand-Related Devices Recorded as Conductors and Transformers

FERC ACCOUNT	BOOK COST (Set III, No. 12 & 13)	FERC ACCT. PLANT	BOOK COST % OF TOTAL BOOK COST
MetEd			
36500	$2,958,160	$583,447,000	0.51%
36700	$6,655,789	$250,704,000	2.65%
36800	$28,049,680	$417,848,180	6.71%
PennElec			
36500	$2,104,055	$905,830,000	0.23%
36700	$4,157,676	$179,327,000	2.32%
36800	$12,791,123	$394,487,521	3.24%
PennPower			
36500	$52,716	$177,733,000	0.03%
36700	$943,193	$70,997,000	1.33%
36800	$5,016,184	$112,735,325	4.45%
WestPenn			
36500	$1,065,847	$559,726,000	0.19%
36700	$1,759,658	$163,957,000	1.07%
36800	$18,181,620	$405,397,508	4.48%

Sources:

Book Cost taken from Response to OCA Interrogatory Set III, No. 12 & 13 for MetEd, Penn Elec, Penn Power, and West Penn.
Total Book Cost taken from electric utility CCOS.xlsm ("Plant in Service" sheet) for Met Ed, Penn Elec, Penn Power and West Penn. Totals for 365P & 365S, 367P & 367S, and 368 taken from "Total Retail" (column) for Met Ed, Penn Elec, Penn Power and West Penn Power. West Penn FERC Accounts 365 and 367 include subaccounts P, S and SUB.

Minimum Plant Based on Labor Percent

FERC ACCOUNT	METROPOLITAN EDISON	PENNSYLVANIA ELECTRIC	PENNSYLVANIA POWER	WEST PENNSYLVANIA
FERC 364: Poles, Towers & Fixtures				
Labor Only	46.9%	46.9%	46.9%	46.9%
Adjusted Customer %	**34.3%**	**42.2%**	**37.9%**	**38.6%**
FERC 365: Overhead Conductors & Devices				
Labor Only	48.9%	48.9%	48.9%	48.9%
Adjusted Customer %	**40.3%**	**41.1%**	**44.0%**	**44.8%**
FERC 367: Underground Conductors & Devices				
Labor Only	22.6%	22.6%	22.6%	22.6%
Adjusted Customer %	**20.3%**	**18.4%**	**19.1%**	**19.6%**
FERC 368: Line Transformers				
Labor Only	16.0%	16.0%	16.0%	16.0%
Adjusted Customer %	**8.4%**	**10.0%**	**9.6%**	**11.3%**

Source:
Met-Ed/PenElec/Penn Power/West Penn General Base Rate Filing.   Response to OCA Interrogatory Set III, No. 4(e).
NOTE: The percentage of labor installation cost for overhead conductors and undergound cables is an average.
Met-Ed/PenElec/Penn Power/West Penn 2016 General Base Rate Filing. Response to I&E RS-1 for ME, PN, PP, WP.
Formula: Labor ratio X Filed Customer %

Customer Percent Adjusted for Labor Percent and Demand Devices

FERC ACCOUNT	METROPOLITAN EDISON	PENNSYLVANIA ELECTRIC	PENNSYLVANIA POWER	WEST PENNSYLVANIA
FERC 364: Poles, Towers & Fixtures				
Labor Ratio	46.9%	46.9%	46.9%	46.9%
Customer % Excluding Devices	**34.3%**	**34.8%**	**37.9%**	**38.6%**
FERC 365: Overhead Conductors & Devices				
Labor Ratio	48.9%	48.9%	48.9%	48.9%
Customer % Excluding Devices	**40.1%**	**41.0%**	**43.9%**	**44.8%**
FERC 367: Underground Conductors & Devices				
Labor Ratio	22.6%	22.6%	22.6%	22.6%
Customer % Excluding Devices	**19.8%**	**18.0%**	**18.9%**	**19.4%**
FERC 368: Line Transformers				
Labor Ratio	16.0%	16.0%	16.0%	16.0%
Customer % Excluding Devices	**7.8%**	**9.6%**	**9.2%**	**10.8%**

Sources:

Met-Ed/PenElec/Penn Power/West Penn General Base Rate Filing. Response to OCA Interrogatory Set III, No. 4(e).

NOTE: The percentage of labor installation cost for overhead conductors and undergound cables is the average .

Met-Ed/PenElec/Penn Power/West Penn 2016 General Base Rate Filing. Response to I&E RS-1 for ME, PP, PN, WP.

Met-Ed/PenElec/Penn Power/West Penn 2016 General Base Rate Filing. Response to I&E RS-1 for ME, PP, PN, WP.

Book Cost taken from Response to OCA Interrogatory Set III, No. 12 & 13 for ME, PP, PN, WP.

Total Book Cost taken from electric utility CCOS.xlsm ("Plant in Service" sheet) for ME, PP, PN, WP.

(000'S)

RESULTS OF ALTERNATIVE CCOS STUDY: REDUCED MINIMUM GRID CUSTOMER PERCENT

(REFLECTS SCH. CJ-1 AND CJ-2 ADJUSTMENTS)

METROPOLITAN EDISON COMPANY	RS	GSV	GSS	GSM	GSL	GP	TP	BRD	MS	POL	STLT	TOTAL
ROR AT CURRENT RATES	3.75%	8.19%	3.94%	2.43%	-3.57%	0.82%	-0.89%	-4.91%	1.96%	4.42%	6.86%	2.86%
ROR AT CURRENT RATES PER COMPANY	2.43%	14.49%	0.34%	9.14%	-0.47%	0.17%	2.44%	-3.45%	7.56%	3.25%	8.01%	2.86%
CHANGE IN REV INCREASE	$ (33,916)	$ 123	$ (6,306)	$ 28,853	$ 10,793	$ (2,267)	$ 2,266	$ 65	$ 62	$ (93)	$ 420	(0.00)

PENNSYLVANIA ELECTRIC COMPANY	RS	GSV	GSS	GSM	GSL	GP	LP	BRD	H	POL	STLT	TOTAL
ROR AT CURRENT RATES	3.96%	8.14%	1.62%	4.07%	0.88%	2.98%	5.50%	12.51%	2.15%	9.91%	-6.20%	3.43%
ROR AT CURRENT RATES PER COMPANY	2.37%	12.12%	-0.59%	12.06%	8.46%	1.60%	10.80%	20.95%	10.85%	9.08%	-6.24%	3.43%
CHANGE IN REV INCREASE	$ (22,897)	$ (266)	$ 3,278	$ 2,447	$ 8,595	$ (1,060)	$ 788	$ (5)	$ 504	$ (1,678)	$ 10,298	-

PENNSYLVANIA POWER COMPANY	RS	GSR	GSS	GSM	GSL	GP	OH	PNP	POL	STLT	GT	TOTAL
ROR AT CURRENT RATES	5.41%	8.32%	2.47%	0.27%	0.95%	-4.35%	0.00%	4.62%	4.07%	-0.82%	93.88%	3.20%
ROR AT CURRENT RATES PER COMPANY	3.52%	10.76%	0.95%	5.54%	10.96%	-4.35%	0.00%	8.25%	1.60%	-0.64%	93.88%	3.20%
CHANGE IN REV INCREASE	$ (12,720)	$ 8	$ (1,058)	$ 9,535	$ 4,237	$ (0)	$ -	$ 24	$ (135)	$ 110	$ -	0.00

WEST PENNSYLVANIA POWER COMPANY	RS	GS10	GSS	GSM	PP40	GSL	POL	PSU	PP44	PP46	STLT	TOTAL
ROR AT CURRENT RATES	4.34%	12.39%	0.03%	5.65%	1.28%	2.46%	20.54%	0.28%	256.45%	1.96%	2.48%	4.14%
ROR AT CURRENT RATES PER COMPANY	2.86%	20.22%	-2.26%	12.85%	2.87%	10.50%	15.95%	8.52%	256.45%	2.66%	3.09%	4.14%
CHANGE IN REV INCREASE	$ (34,093)	$ 142	$ (8,025)	$ 23,589	$ 1,771	$ 15,340	$ (451)	$ 956	$ 0	$ 179	$ 592	0.00

OCA Class Cost of Service Study: Met Ed

(At Company Rev Req in 000's)

AT CURRENT RATES	PA JURIS	RS	GSV	GSS	GSM	GSL	GP	TP	BRD	MS	POL	STLT
Plant in Service	2465539	1418155	3078	54863	565017	179653	146921	51800	1254	1253	7262	36281
Depreciation Reserve	817008	480746	997	18714	184645	57467	45180	16324	410	407	3733	8384
Net Plant	1648530	937408	2082	36149	380372	122187	101741	35476	844	846	3529	27898
Rate Base Additions	228413	134709	299	7032	46797	17424	14773	3884	101	111	548	2735
Rate Base Deductions	471053	270719	583	10782	109981	33225	27856	9449	229	232	1334	6662
Rate Base Other Total	-242640	-136010	-284	-3750	-63183	-15801	-13083	-5565	-129	-121	-787	-3927
Rate Base Total	1405890	801398	1798	32399	317188	106386	88658	29911	715	724	2742	23970
INCOME STATEMENT												
Revenue												
Tariff Revenue Total	334931	237776	483	12576	49449	7576	17724	3295	30	110	753	5158
Other Revenue Total	18626	13100	18	880	2677	726	793	262	6	6	25	134
Retail Total	353557	250876	500	13456	52126	8302	18516	3557	36	117	778	5293
Expenses												
Total Operation & Maintenance Expense	121830	84016	111	3738	18446	5362	6773	2243	38	41	150	911
Depreciation Expense	85730	49878	108	2043	19290	6299	4859	1618	43	43	250	1297
Other Expenses Amortization Expense Total	32395	19848	44	1329	5621	2559	2260	391	12	15	64	253
Taxes Other than Income Taxes Excl GRT	3712	2274	4	121	732	224	224	76	2	2	8	46
Gross Receipts Tax	19761	14029	28	742	2918	447	1046	194	2	7	44	304
Total Operating Expense	263427	170045	297	7974	47006	14891	15162	4522	96	107	516	2812
Income Before Taxes	90129	80830	204	5482	5120	-6588	3355	-965	-60	9	262	2480
Income taxes												
Current State Income Tax	10560	9176	22	660	640	-558	452	-94	-6	1	29	238
Current Federal Income Tax	27127	25409	63	1946	587	-2217	1056	-427	-22	1	72	657
Provision for Deferred Income Taxes	12561	7118	16	274	2914	937	777	271	6	6	27	214
Investent Tax Credit Adjustments	-372	-211	0	-8	-86	-28	-23	-8	0	0	-1	-6
Total Income Tax	49876	41493	101	2873	4054	-1866	2262	-258	-21	9	126	1103
Net Income After Tax	40253	39337	103	2609	1066	-4722	1092	-707	-39	0	136	1377
Company CCOS Rate of Return	2.86%	2.43%	14.49%	0.34%	9.14%	-0.47%	0.17%	2.44%	-3.45%	7.56%	3.25%	8.01%
Rate of Return-OCA CCOS	2.86%	4.91%	5.72%	8.05%	0.34%	-4.44%	1.23%	-2.36%	-5.42%	0.07%	4.96%	5.75%
Difference in Rev Incr at Equalized ROR	0	(57,001)	203	(9,818)	47,634	17,605	(3,767)	4,069	106	102	(133)	1,000

OCA Class Cost of Service Study: Penelec

(At Company Rev Req in 000's)

At Current Rates	PA JURIS	RT	RS	GSV	GSS	GSM	GSL	GP	LP	BRD	H	POL	STLT
RATE BASE													
Plant in Service	2,841,589	-	1,369,633	5,546	85,124	787,966	245,898	115,367	101,073	153	12,726	37,910	80,192
Depreciation Reserve	925,393	-	449,923	1,779	27,754	252,294	77,611	36,358	32,295	49	4,065	24,083	19,183
Net Plant	1,916,195	-	919,710	3,767	57,370	535,673	168,287	79,010	68,778	104	8,661	13,827	61,009
Rate Base Additions	247,702	-	128,803	460	9,751	60,645	20,285	10,274	8,101	13	965	2,743	5,663
Rate Base Deductions	532,664	-	256,992	1,048	16,256	149,392	45,070	21,556	18,486	28	2,314	7,229	14,293
Rate Base Other Total	(284,962)	-	(128,189)	(588)	(6,506)	(88,747)	(24,785)	(11,282)	(10,385)	(15)	(1,348)	(4,487)	(8,630)
Rate Base Total	1,631,234	-	791,521	3,179	50,864	446,926	143,502	67,728	58,392	89	7,313	9,341	52,379
INCOME STATEMENT													
Revenue													
Tariff Revenue Total	368,770	-	234,052	791	14,386	67,700	14,778	15,942	11,319	26	837	3,464	5,476
Other Revenue Total	12,197	-	8,322	18	779	1,753	433	250	212	0	24	50	356
Retail Total	380,967	-	242,374	809	15,164	69,453	15,211	16,191	11,531	26	861	3,514	5,832
Expenses													
Total Operation & Maintenance Expense	129,615	-	78,832	188	5,025	23,397	6,703	4,725	4,019	5	349	522	5,850
Depreciation Expense	93,791	-	46,375	176	3,003	24,511	7,768	3,577	3,035	5	394	1,005	3,942
Other Expenses Amortization Expense Total	17,486	-	11,548	26	1,249	2,219	1,103	767	394	1	31	59	90
Taxes Other than Income Taxes Excl GRT	3,948	-	2,075	7	165	884	263	159	137	0	14	29	215
Gross Receipts Tax	21,757	-	13,809	47	849	3,994	872	941	668	2	49	204	323
Total Operating Expense	266,597	-	152,639	444	10,291	55,005	16,709	10,169	8,254	12	837	1,818	10,420
Income Before Taxes	114,370	-	89,735	365	4,873	14,448	(1,497)	6,022	3,278	14	24	1,696	(4,588)
Income taxes													
Current State Income Tax	11,949	-	9,583	36	590	1,252	(184)	625	321	1	(2)	180	(455)
Current Federal Income Tax	27,471	-	25,339	95	1,557	1,091	(1,474)	1,554	648	4	(51)	430	(1,720)
Provision for Deferred Income Taxes	19,675	-	9,402	39	588	5,529	1,738	813	708	1	89	143	625
Investent Tax Credit Adjustments	(457)	-	(219)	(1)	(14)	(129)	(40)	(19)	(16)	(0)	(2)	(3)	(15)
Total Income Tax	58,637	-	44,106	169	2,721	7,743	39	2,972	1,661	6	34	750	(1,564)
Net Income After Tax	55,732	-	45,629	196	2,152	6,705	(1,536)	3,050	1,617	8	(10)	946	(3,024)
ROR as Filed By Company	3.42%		2.37%	12.12%	-0.59%	12.06%	8.46%	1.60%	10.80%	20.95%	10.85%	9.08%	-6.24%
Rate of Return-OCA CCOS	3.42%		5.76%	6.17%	4.23%	1.50%	-1.07%	4.50%	2.77%	8.83%	-0.14%	10.12%	-5.77%
Difference in Rev Incr at Equalized			(59,740)	(148)	(1,963)	32,122	19,183	(4,221)	4,396	(0)	1,039	(1,705)	11,046

OCA CCOS: Penn Power

At Current Rates

At Company Rev Req ($000s)

	PA JURIS	RS	GSR	GSS	GSM	GSL	GP	OH	PNP	POL	STLT	GT
RATE BASE												
Plant in Service	698,940	371,628	377	28,460	169,542	60,150	42,506	-	673	4,934	19,628	1,041
Depreciation Reserve	199,862	109,657	107	8,306	47,042	16,539	9,762	-	189	2,977	5,111	173
Net Plant	499,078	261,972	271	20,154	122,500	43,611	32,744	-	485	1,957	14,517	868
Rate Base Additions	39,084	21,749	21	1,716	8,706	3,023	2,413	-	36	246	982	192
Rate Base Deductions	124,643	65,998	68	5,117	30,794	10,513	7,281	-	121	874	3,493	384
Rate Base Other Total	(85,560)	(44,248)	(47)	(3,401)	(22,089)	(7,490)	(4,867)	-	(85)	(629)	(2,510)	(192)
Rate Base Total	413,519	217,723	224	16,753	100,411	36,120	27,877	-	400	1,328	12,007	676
INCOME STATEMENT												
Revenue												
Tariff Revenue Total	90,994	67,799	61	3,830	10,502	3,623	2,621	-	76	388	747	1,347
Other Revenue Total	3,196	2,357	1	185	392	101	131	-	2	12	9	4
Retail Total	94,190	70,156	62	4,016	10,895	3,724	2,752	-	79	399	756	1,351
Expenses												
Total Operation & Maintenance Expense	36,806	23,175	17	1,513	6,649	2,218	2,909	-	29	76	166	54
Depreciation Expense	24,387	13,045	13	1,025	5,854	2,069	1,494	-	24	157	630	78
Other Expenses Amortization Expense Total	1,700	1,227	1	106	161	36	124	-	1	0	0	43
Taxes Other than Income Taxes Excl GRT	853	495	0	39	178	61	61	-	1	4	12	2
Gross Receipts Tax	5,369	4,000	4	226	620	214	155	-	5	23	44	79
Total Operating Expense	69,114	41,943	35	2,908	13,462	4,598	4,742	-	59	259	853	256
Income Before Taxes	25,076	28,214	27	1,108	(2,567)	(874)	(1,990)	-	20	140	(97)	1,094
Income taxes												
Current State Income Tax	2,203	2,710	3	104	(364)	(130)	(220)	-	2	15	(28)	113
Current Federal Income Tax	2,778	6,339	6	157	(2,166)	(771)	(944)	-	1	16	(209)	350
Provision for Deferred Income Taxes	6,351	3,326	3	257	1,563	556	415	-	6	25	189	11
Investent Tax Credit Adjustments	-	-	-	-	-	-	-	-	-	-	-	-
Total Income Tax	11,333	12,375	12	517	(968)	(344)	(750)	-	9	56	(47)	474
Net Income After Tax	13,743	15,839	16	590	(1,599)	(529)	(1,240)	-	11	84	(50)	621
Rate of Return Per Filed CCOS		3.52%	10.76%	0.95%	5.54%	10.96%	-4.35%	0.00%	8.25%	1.60%	-0.64%	93.88%
Difference in Revs at Equalized		-21846	14	-1653	16164	7146	36	0	41	-216	292	21
Rate of Return Per OCA CCOS	3.32%	7.27%	6.97%	3.52%	-1.59%	-1.47%	-4.45%		2.73%	6.35%	-0.41%	91.83%

OCA CCOS: West Penn

(Based on Company Rev Req $000's)

At Current Rates	PA JURIS	RS	GS10	GSS	GSM	PP40	GSL	POL	PSU	PP44	PP46	STLT
RATE BASE												
Plant in Service	2,422,305	1,292,384	3,913	61,000	536,701	108,786	288,353	17,235	16,707	5	33,521	63,698
Depreciation Reserve	878,013	460,865	1,390	21,096	190,469	50,390	103,453	8,132	5,938	1	16,865	19,413
Net Plant	1,544,292	831,520	2,523	39,904	346,232	58,396	184,901	9,103	10,769	4	16,656	44,285
Rate Base Additions	196,600	111,115	300	7,617	40,682	7,917	20,696	1,058	1,074	3	2,235	3,904
Rate Base Deductions	376,676	199,201	611	9,817	86,917	16,260	44,302	2,791	2,438	1	4,935	9,403
Rate Base Other Total	(180,076)	(88,086)	(311)	(2,200)	(46,236)	(8,344)	(23,606)	(1,734)	(1,363)	2	(2,699)	(5,499)
Rate Base Total	1,364,216	743,434	2,212	37,704	299,997	50,052	161,295	7,370	9,406	6	13,957	38,785
INCOME STATEMENT												
Revenue												
Tariff Revenue Total	353,143	231,994	703	12,150	61,463	9,077	22,847	4,458	1,041	31	2,880	6,498
Other Revenue Total	17,165	12,211	17	879	2,067	436	1,002	85	69	0	134	267
Retail Total	370,309	244,206	720	13,029	63,530	9,513	23,849	4,542	1,109	31	3,014	6,765
Expenses												
Total Operation & Maintenance Expense	139,733	89,006	180	5,529	22,789	4,894	11,795	566	898	1	1,440	2,634
Depreciation Expense	78,455	45,153	116	2,463	15,648	2,851	8,164	625	476	0	830	2,129
Other Expenses Amortization Expense Total	19,222	12,333	25	1,320	3,276	579	1,401	30	45	1	116	96
Taxes Other than Income Taxes Excl GRT	3,889	2,218	6	143	762	166	396	21	26	0	51	101
Gross Receipts Tax	20,835	13,688	41	717	3,626	536	1,348	263	61	2	170	383
Total Operating Expense	262,135	162,398	368	10,171	46,102	9,025	23,104	1,505	1,507	4	2,607	5,343
Income Before Taxes	108,174	81,807	352	2,858	17,428	488	745	3,037	(397)	27	407	1,422
Income taxes												
Current State Income Tax	11,156	8,581	35	387	1,690	59	6	298	(46)	3	41	103
Current Federal Income Tax	19,766	18,900	85	837	1,880	(514)	(1,836)	829	(253)	9	(87)	(85)
Provision for Deferred Income Taxes	21,592	11,558	36	551	4,880	820	2,607	128	151	0	234	627
Investent Tax Credit Adjustments	(795)	(426)	(1)	(20)	(180)	(30)	(96)	(5)	(6)	(0)	(9)	(23)
Total Income Tax	51,719	38,613	154	1,755	8,272	334	681	1,251	(154)	12	179	622
Net Income After Tax	56,454	43,194	198	1,103	9,156	154	63	1,786	(243)	16	228	800
Difference in Rev Incr at Equalized		(56,468)	236	(13,445)	38,625	2,930	25,674	(747)	1,811	0	210	1,176
Class Rate of Return Per Company		2.86%	20.22%	-2.26%	12.85%	2.87%	10.50%	15.95%	8.52%	256.45%	2.66%	3.09%
Rate of Return Per OCA CCOS	4.14%	5.81%	8.94%	2.93%	3.05%	0.31%	0.04%	24.23%	-2.59%	246.69%	1.63%	2.06%

Metropolitan Edison Customer Charge Analysis

Rate Base/Return		Debt ratio	48.80%
Meters	45,760	Equity ratio	51.20%
Services	165,087	Debt cost:	5.24%
Meter Accum. Dep.	3,432	Equity cost:	9.15%
Services Acc. Dep.	67,209	Tax Adjusted Cost of Capital	6.09%
Customer Deposits	16,099	Weighted average cost of capital	7.24%
Cust. Defer.Deprec.	42,250	Composite Tax Rate	0.449
Ret. Legacy Meters	30,192	Tax Multiplier	1.81
Sub Total Rate Base	112,050		
Return and Taxes	12,392		

Expenses	
Meter Operation	374
Meter Maintenance	1,042
Customer Accounts	**20,149**
Exclude Uncollect.	(7,675)
Meter Depreciation	3,069
Services Deprec.	3,719
SMIP Legacy Amort.	(4,319)
Smart Meter Amort.	6,542
Billing-call center	1,583
Total Expenses	24,484
Total Cost	36,876
Billing Units	5,936,304
customer charge	$ 6.21

Penn Electric Customer Charge Analysis

Rate Base/Return

Meters	70,762		
Services	106,286		
Meter Accum. Dep.	5,122		
Services Acc. Dep.	50,807		
Customer Deposits	13,149		
Cust. Defer.Deprec.	33,899	Debt ratio	47.40%
Ret. Legacy Meters	32,154	Equity ratio	52.60%
Sub Total Rate Base	106,224	Debt cost:	5.55%
Return and Taxes	12,073	Equity cost:	9.15%
		Tax Adjusted Cost of Capital	6.26%
Expenses		Weighted average cost of capital	7.44%
Meter Operation	552	Composite Tax Rate	0.449
Meter Maintenance	1,258	Tax Multiplier	1.81
Customer Accounts	19,203		
Exclude Uncollect.	(7,919)		
Meter Depreciation	4,721		
Services Deprec.	1,663		
SMIP Legacy Amort.	(8,733)		
Smart Meter Amort.	6,762		
Billing-Call Center	1,332		
Total Expenses	18,838		
Total Cost	30,911		
Billing Units	5,984,628		
customer charge	$ 5.17		

Penn Power Customer Charge Analysis

Rate Base/Return

Meters	27965
Services	34,244
Meter Accum. Dep.	4,022
Services Acc. Dep.	17,290
Customer Deposits	2,822
Cust. Defer.Deprec.	11,404
Ret. Legacy Meters	3,980
Rate Base	34,673
Return and Taxes	3,902
Expenses	
Meter Operation	43
Meter Maintenance	186
Customer Accounts	4,077
Exclude Uncollect.	(1,156)
Meter Depreciation	1,869
Services Deprec.	462
SMIP Legacy Amort.	1,560
Smart Meter Amort.	85
Billing-Call Center	452
Total Expenses	7,579
Total Cost	11,481
Billing Units	1,720,992
customer charge	$ 6.67

Debt ratio	49.90%
Equity ratio	50.10%
Debt cost:	5.88%
Equity cost:	9.15%
Tax Adjusted Cost of Capital	6.20%
Weighted average cost of capital	7.52%
Composite Tax Rate	0.449
Tax Multiplier	1.81

West Penn Customer Charge Analysis

Rate Base/Return			
Meters	54,471		
Services	98,932		
Meter Accum. Dep.	4204		
Services Acc. Dep.	40,327		
Customer Deposits	10,183		
Cust. Defer.Deprec.	25,035		
Ret. Legacy Meters	50,187	Debt ratio	49.68%
Sub Total Rate Base	128,045	Equity ratio	50.32%
Return and Taxes	13,790	Debt cost:	4.86%
		Equity cost:	9.15%
Expenses		Tax Adjusted Cost of Capital	5.93%
Meter Operation	1,061	Weighted average cost of capital	7.02%
Meter Maintenance	1,009	Composite Tax Rate	0.449
Customer Accounts	18,898	Tax Multiplier	1.81
Exclude Uncollect.	(5,169)		
Meter Depreciation	3,633		
Services Deprec.	2,374		
SMIP Legacy Amort.	5,589		
Smart Meter Amort.	6,893		
Billing-call center	806		
Total Expenses	35,095		
Total Cost	48,885		
Billing Units	7,447,512		
customer charge	$ 6.56		

(000'S)

COMPARISON OF CLASS REVENUE DISTRIBUTION PROPOSALS (RATE SCHEDULE)

ERRATA VERSION

METROPOLITAN EDISON COMPANY	RS	GSV	GSS	GSM	GSL	GP	TP	BRD	MS	POL	STLT	TOTAL
Current Tariff Revenues*	237,776	483	12,576	49,449	7,576	17,724	3,295	30	110	753	5,158	334,931
Company Proposed Increase	88,291	125	5,830	10,915	7,225	18,054	1,477	18	24	294	2,226	134,478
Percentage Increase	37%	26%	46%	22%	95%	102%	45%	59%	22%	39%	43%	40.2%
Ratio of Class Percent Increase to System Increase	0.92	0.65	1.15	0.55	2.38	2.54	1.12	1.47	0.54	0.97	1.07	1.00
Ratio at Equalized Per OCA CCOS	0.49	0.41	0.01	2.26	7.99	1.56	4.31	14.53	2.40	0.52	0.50	100.00
Increase-OCA Rev Spread	80,879	164	4,278	29,818	4,569	10,687	1,987	18	67	256	1,755	134,478
Percentage Increase	34.0%	34.0%	34.0%	60.3%	60.3%	60.3%	60.3%	60.3%	60.3%	34.0%	34.0%	40.2%
Ratio of Class Percent Increase to System Increase	85%	85%	85%	150%	150%	150%	150%	150%	150%	85%	85%	100%

PENNSYLVANIA ELECTRIC COMPANY	RS	GSV	GSS	GSM	GSL	GP	LP	BRD	H	POL	STLT	TOTAL
Current Tariff Revenues*	234,052	791	14,386	67,700	14,778	15,942	11,319	26	837	3,464	5,476	368,770
Company Proposed Increase	99,872	287	5,947	25,318	5,968	9,234	1,765	-1	118	1,441	2,607	152,555
Percentage Increase	43%	36%	41%	37%	40%	58%	16%	-4%	14%	42%	48%	41.4%
Ratio of Class Percent Increase to System Increase	1.03	0.88	1.00	0.90	0.98	1.40	0.38	-0.09	0.34	1.01	1.15	1.00
Ratio at Equalized Per OCA CCOS	41%	0.42	0.67	2.05	4.11	0.76	1.32	-0.04	3.34	-0.18	6.03	100.00
Increase-OCA Rev Spread	80,186	269	4,910	41,974	9,163	5,739	7,018	10	519	1,143	1,626	152,556
Percentage Increase	34.3%	34.0%	34.1%	62.0%	62.0%	36.0%	62.0%	38.4%	62.0%	33.0%	29.7%	41.4%
Ratio of Class Percent Increase to System Increase	82.82%	82.19%	82.51%	149.87%	149.87%	87.02%	149.87%	92.80%	149.87%	79.77%	71.78%	100.00%

PENNSYLVANIA POWER COMPANY	RS	GSR	GSS	GSM	GSL	GP	OH	PNP	POL	STLT	GT	TOTAL
Current Tariff Revenues*	67,799	60	3,830	10,502	3,623	2,621	-	76	388	747	1,347	90,993
Company Proposed Increase	27,108	25	2,294	4,919	1,480	3,272	-	18	163	340	616	40,236
Percentage Increase	40.0%	41.6%	59.9%	46.8%	40.9%	124.8%	-	23.3%	42.2%	45.5%	45.8%	44.2%
Ratio of Class Percent Increase to System Increase	0.90	0.94	1.35	1.06	0.92	2.82	-	0.53	0.95	1.03	1.03	1.00
Ratio at Equalized Per OCA CCOS	0.18	0.26	0.92	4.04	4.16	5.74	-	1.28	0.33	6.02	-1.71	1.00
Increase-OCA Rev Spread	26353	21	1685	6827	2355	1704		50	136	231	876	40,235
Percentage Increase	38.9%	35.0%	44.0%	65.0%	65.0%	65.0%		65.0%	35.0%	30.9%	65.0%	44.2%
Ratio of Class Percent Increase to System Increase	87.90%	79.15%	99.51%	147.00%	147.00%	147.00%		147.00%	79.15%	69.81%	147.00%	100.00%

WEST PENNSYLVANIA POWER COMPANY	RS	GS10	GSS	GSM	PP40	GSL	POL	PSU	PP44	PP46	STLT	TOTAL
Current Tariff Revenues*	231,994	703	12,150	61,463	9,077	22,847	4,458	1,041	31	2,880	6,498	353,143
Company Proposed Increase	74,116	92	5,236	5,815	3,026	1,476	3,407	99	34	1,042	(1,239)	93,104
Percentage Increase	32%	13%	43%	9%	33%	6%	76%	10%	108%	36%	-19%	26.4%
Ratio of Class Percent Increase to System Increase	1.21	0.50	1.63	0.36	1.26	0.25	2.90	0.36	4.08	1.37	-0.72	1.00
Ratio at Equalized Per OCA CCOS	0.46	-0.22	1.06	1.63	2.89	3.82	-1.86	6.53	-3.35	2.09	2.40	1.00
Increase-OCA Rev Spread	48,619	133	3,281	24,278	3,585	9,025	880	406	6	1,138	1,754	93,104
Percentage Increase	21.0%	18.9%	27.0%	39.5%	39.5%	39.5%	19.7%	39.0%	18.0%	39.5%	27.0%	26.4%
Ratio of Class Percent Increase to System Increase	79.49%	71.56%	102.41%	149.82%	149.82%	149.82%	74.89%	147.93%	68.27%	149.82%	102.41%	100.00%

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission, *et. al.* v. Metropolitan Edison Company	: : : : :	R-2016-2537349, *et al.*
Pennsylvania Public Utility Commission, *et. al.* v. Pennsylvania Electric Company	: : : : :	R-2016-2537352, *et al.*
Pennsylvania Public Utility Commission, *et. at.* v. Pennsylvania Power Company	: : : : :	R-2016-2537355, *et. al.*
Pennsylvania Public Utility Commission, *et. al.* v. West Penn Power Company	: : : : :	R-2016-2537359, *et al.*

VERIFICATION

I, Clarence L. Johnson, hereby state that the facts above set forth in my Direct Testimony, OCA Statement No. 3, are true and correct and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

Signature: ______________________
Clarence L. Johnson

Consultant Address: CJEnergy Consulting
3707 Robinson Avenue
Austin, TX 78722

DATED: July 22, 2016

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission, *et. al.* v. Metropolitan Edison Company	:	R-2016-2537349, *et al.*
Pennsylvania Public Utility Commission, *et. al.* v. Pennsylvania Electric Company	:	R-2016-2537352, *et al.*
Pennsylvania Public Utility Commission, *et. at.* v. Pennsylvania Power Company	:	R-2016-2537355, *et. al.*
Pennsylvania Public Utility Commission, *et. al.* v. West Penn Power Company	:	R-2016-2537359, *et al.*

VERIFICATION

I, Clarence L. Johnson, hereby state that the facts above set forth in the Errata to my Direct Testimony, OCA Statement No. 3, are true and correct and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

Signature: ______________________
Clarence L. Johnson

Consultant Address: CJEnergy Consulting
3707 Robinson Avenue
Austin, TX 78722

DATED: August 25, 2016