

**PECO ENERGY COMPANY
STATEMENT NO. 6**

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION
v.
PECO ENERGY COMPANY – ELECTRIC DIVISION

DOCKET NO. R-2021-3024601

DIRECT TESTIMONY

WITNESS: TAMARA J. JAMISON

SUBJECT: CLASS COST-OF-SERVICE STUDY

DATED: MARCH 30, 2021

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1 and specific segments of larger regulatory proceedings, including evaluating,
2 analyzing and supporting the Company's requests for changes in revenue related
3 to its regulated electric distribution and transmission businesses and its gas
4 distribution business. I am also responsible for providing expert testimony and
5 coordinating the preparation of testimony by other witnesses on behalf of the
6 Company with respect to various regulatory issues.

7 **5. Q. Have you prepared any exhibits to accompany your testimony?**

8 A. Yes. PECO Exhibits TJJ-1 to TJJ-9 were prepared and are described in detail in
9 my testimony.

10 **6. Q. Please describe the purpose of your testimony?**

11 A. I will explain the cost of service principles underlying the unbundled, fully
12 allocated class cost-of-service study ("COSS") that I performed, the methods and
13 procedures employed to perform such study and the results produced by the
14 COSS.

15 **7. Q. How is your testimony organized?**

16 A. My testimony is divided into four parts. First, I provide some background
17 information, identify the exhibits that I am sponsoring, and summarize the results
18 of the COSS. Second, I introduce and discuss the COSS methodology. Third, I
19 explain the development of the revenue requirement for each rate class. Fourth, I
20 present the results of the COSS in detail and discuss the contents of the exhibits.

21

PECO Exhibit TJJ-1	Summary of Results
PECO Exhibit TJJ-2	Total Class Allocation - Revenue Requirement by Rate Class
PECO Exhibit TJJ-3	Revenue Requirement by Functional Classification
PECO Exhibit TJJ-4	Unitized Functionally Classified Revenue Requirement
PECO Exhibit TJJ-5	Customer-Related Revenue Requirement and Customer Charge
PECO Exhibit TJJ-6	Night Service Rider-Related Costs
PECO Exhibit TJJ-7	Development of External Allocation Factors
PECO Exhibit TJJ-8	Development of Unbundled Cash Working Capital Rate for the Generation Supply Adjustment
PECO Exhibit TJJ-9	Development of Unbundled Cash Working Capital Rate for the Transmission Service Charge

1 **10. Q. Please summarize the results of the COSS as they pertain to changes in rates**
2 **proposed in PECO’s filing.**

3 A. The results of the COSS and my conclusions based on those results are as follows:

4 1. The current tariff rates produce the net income by rate class shown on
5 line 16 of PECO Exhibit TJJ-1,³ which yields the rates of return on
6 rate base shown on line 25 of that exhibit. The table below
7 summarizes these results.

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9

³ Please note that the line numbering is continuous across pages 1-3 of PECO Exhibit TJJ-1. I will refer to the line numbers in PECO Exhibit TJJ-1 without page references.

Rate Class	ROR	Ratio to Average ROR
R	4.49%	0.89
RH	4.96%	0.98
GS	5.91%	1.17
PD	5.72%	1.13
HT	5.78%	1.14
EP	7.48%	1.48
Lighting	8.65%	1.71
Average	5.05%	

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2. PECO’s total distribution revenue requirement for the FPPTY has been allocated or assigned among the rate classes based on the results of the COSS. The results of the COSS are summarized on pages 1-3 of PECO Exhibit TJJ-1, which show the total distribution revenue requirement separately for Distribution, Transmission, and Purchased Power costs.
3. The increases or (decreases) in revenue by rate class needed to produce rates of return by class equal to the Company’s proposed overall rate of return are shown on line 120 of page 3 of PECO Exhibit TJJ-1. The increases or (decreases) in revenue shown on line 120 are shown separately for Distribution base rates (line 70) and the working capital revenue requirement recovered in the TSC (line 95) and in the GSA (line 83) on page 2 of PECO Exhibit TJJ-1. While the summary on pages 1-3 of PECO Exhibit TJJ-1 shows the rate increases or decreases necessary to move each class to the system average rate of return, the Company is not proposing rates that will take all classes to their

1 indicated cost of service at this time, as explained in the direct
2 testimony of Joseph A. Bisti in PECO Statement No. 7.

3 **III. PECO'S CLASS COST-OF-SERVICE STUDY**

4 **11. Q. Briefly describe the purpose of a class COSS.**

5 A. The purpose of a COSS is to determine the cost to serve, expressed as revenue
6 requirement, for each rate class served by a utility. The revenue requirement for a
7 rate class is that portion of a utility's total cost of service attributed to that rate
8 class in accordance with principles of cost causation. In a COSS, all of the
9 utility's costs of providing service must be analyzed and assigned or allocated
10 among the rate classes. The COSS is used, along with other factors, as discussed
11 in more detail by Mr. Bisti, to design rates that fully recover the utility's costs.

12 **12. Q. What are the guiding principles for performing a class COSS?**

13 A. The central element in performing a COSS is the determination of allocation
14 factors based on causal relationships between, on the one hand, customer
15 demands, load profiles, and usage characteristics, and, on the other hand, the costs
16 incurred by the Company to meet customers' service requirements imposed by
17 those demands, load profiles, and usage characteristics. The primary goals in
18 selecting allocation factors are:

- 1 1. The appropriate recognition of cost causality;
- 2 2. The stability of study methods and their consistent application over
- 3 time, so that trends in the direction of class revenues relative to cost of
- 4 service can be discerned properly from case to case; and
- 5 3. Completeness, such that the COSS captures all the costs that each class
- 6 imposes on the distribution system.

7 **13. Q. What rate classes are included in the PECO COSS?**

8 A. The rate classes included in the PECO COSS are Residential (rate R), Residential
9 Heating (rate RH), General Service (rate GS), Primary Distribution (rate PD),
10 High Tension (rate HT), Electric Propulsion (rate EP), and Lighting. In the
11 COSS, all the Lighting rate schedules in PECO’s current tariff are combined into a
12 single Lighting class, because their cost and usage characteristics are very similar.
13 The separate classes consist of Private Outdoor Lighting (POL), Street Lighting-
14 Suburban (SL-S), Street Lighting-Customer-Owned (SL-E), Traffic Lighting
15 Constant Load Service (TLCL), Alley Lighting (AL), and Smart Lighting Control
16 (SL-C).

17 For customers participating in PECO’s Customer Assistance Program (“CAP”),
18 the current CAP Residential (CAP-R) rate class is combined with the Residential
19 class, because their usage characteristics are the same, and CAP-R rates are
20 designed with reference to Residential rates. For the same reasons, the current
21 CAP Residential Heating (CAP-RH) rate class is combined with the Residential
22 Heating class.

1 **14. Q. Please summarize the approach you used in preparing PECO’s COSS.**

2 A. As I previously explained, the most critical task in performing any COSS is
3 establishing relationships between customer demands, load profiles, and usage
4 characteristics, and the costs incurred to meet those customer requirements. This
5 requires an understanding of the design of the utility’s distribution system and
6 how that design relates to the characteristics of the customers it is designed to
7 serve.

8 PECO, like most electric utilities, designs its electric distribution system to meet
9 three primary objectives:

- 10 1. Connect all customers to the grid;
- 11 2. Deliver sufficient electricity to meet the aggregate peak demand for
12 electricity of all delivery customers whenever those peaks occur; and
- 13 3. Ensure that electricity is delivered to customers safely and reliably
14 throughout the year.

15 The allocation methods used in a COSS must take into account the objectives that
16 the distribution system is designed to achieve so that the allocation of plant
17 investment and operating expenses properly aligns with cost-causation factors
18 such as the need to connect all customers to the distribution system and to meet
19 class peak demands whenever they occur. Other factors, such as incentives to
20 influence customer behavior (e.g., conservation or demand reduction) or to

1 temper the impact on customers of rate changes, are more appropriately
2 considered in the revenue allocation and rate design phase.

3 The PECO COSS I prepared was performed using the proprietary Electric Cost of
4 Service Model (“Model”) developed by Management Applications Consulting,
5 Inc., which employs a Microsoft Excel platform. The Model facilitates the
6 preparation of the COSS, accelerates computations, and develops appropriate
7 documentation. The Model uses a three-step process to allocate or assign costs to
8 rate classes, in accordance with general cost of service principles. These three
9 steps consist of: (1) functionalizing rate base and costs to determine the particular
10 rate schedules that should share responsibility for each of those assets and costs;
11 (2) classifying functionalized costs into demand-related, energy-related, and
12 customer-related cost categories to facilitate allocating such costs to rate
13 schedules in accordance with identifiable characteristics; and (3) allocating the
14 functionalized, classified costs among rate classes. The Model provides
15 functionalized, classified cost information by rate class, develops unbundled
16 revenue requirements by functional classification and in total for each rate class,
17 and calculates unit costs.

18 **15. Q. Please describe the functions included in the COSS.**

19 A. The COSS includes the following functions:

20 **Energy:** The Energy function includes purchased power and related costs
21 incurred by the Company, which are recovered under its GSA, which applies to
22 default service.

1 **Transmission:** The Transmission function includes costs associated with the
2 Company’s bulk transmission system, which is designed to move power from
3 generation sources to the primary distribution system and operates at voltages of
4 69 kV and above. These costs are generally recovered in the TSC and the Non-
5 Bypassable Transmission Rider (“NBT”).⁴ The working capital included in this
6 function only applies to the bypassable portion of the TSC cost.

7 **Primary Distribution High Tension (“Primary HT”):** This function includes
8 costs associated with moving power from the transmission system to the Primary
9 Distribution system, including substations that transform power from 69 kV to 34
10 kV or 13 kV and from 34 kV to 13 kV, conductors operating primarily at voltages
11 between 13 kV and 34 kV, and related assets. This includes some facilities
12 operating at voltages of 69 kV and above that are distribution facilities.

13 **Primary Distribution (“Primary”):** This function includes costs associated with
14 moving power from the Primary HT system to the primary distribution system,
15 including transformers that reduce voltage from 13 kV to 4 kV or 2.4 kV,
16 conductors operating at voltages between 2.4 kV and 4 kV, and related assets.

17 **Secondary Distribution Customer and Demand (“Secondary Distribution”):**
18 This function includes costs associated with moving power from the Primary

⁴ The NBT is the reconcilable rate adjustment that recovers PJM charges for Regional Transmission Expansion Plan (“RTEP”), Expansion Cost Recovery, and certain Generation Deactivation / Reliability Must Run charges on a non-bypassable basis from all of PECO’s distribution customers.

1 system to customers' premises, including costs related to conductors operating at
2 secondary voltage.

3 **Distribution Transformers:** This function includes the secondary transformers
4 that reduce the voltage from primary power levels to levels at which secondary
5 voltage customers receive service.

6 **Meters:** This function includes the cost to meter customers' usage and demand.

7 **Services:** This function includes the investment in, and operating and
8 maintenance expenses related to, the service lines from the Company's
9 distribution conductors to customer locations.

10 **Customer Accounts:** This function includes the cost of customer billing and
11 records, the call center, collection of customer accounts, and uncollectible
12 accounts.

13 **Customer Service:** This function includes costs incurred to provide energy
14 efficiency education, educational advertising, and conservation-related service.

15 **Customer Other:** This function includes costs not included elsewhere, such as
16 street lighting and customer deposits.

17 **16. Q. Please describe the classification step of a COSS.**

18 A. In the classification step, the previously functionalized assets and costs are
19 separated into customer, energy, or demand classifications according to the
20 system design or operating characteristics that cause those costs to be incurred.

1 Customer-related costs are the expenditures made to attach a customer to the
2 distribution system, to meter usage, and to maintain the customer's account.

3 Customer costs are a function of the number of customers served and continue to
4 be incurred whether or not a customer uses any electricity. This classification
5 includes capital costs associated with poles, wires, services, and meters and
6 operating expenses incurred for customer service, field service, billing, and
7 accounting and related activities.

8 Energy-related costs are those that vary with the quantity of electricity sold to, or
9 transported for, customers. These costs include purchased power costs and
10 related costs.

11 Demand-related or capacity-related costs are those expenditures associated with
12 plant that is designed, installed, and operated to meet peak usage. Distribution
13 assets are designed to meet the peak loads of the customers they serve at a
14 localized level. Such localized loads exhibit far less diversity than the
15 aggregation of such localized loads that occurs at the bulk transmission and
16 generation levels. Accordingly, the costs of demand-related distribution assets are
17 allocated among the rate classes based upon their respective class non-coincident
18 peak ("NCP") demands (i.e., the peak electricity demand of each rate class, not
19 necessarily coincident with each other or with the system peak).

20 **17. Q. Do all expenses fit neatly into one of these three classifications?**

21 A. Many costs do fit neatly into one of the three classifications, but some costs must
22 be assigned between two classifications based upon special studies or based upon

1 how related costs have been classified. Special studies, such as a minimum size
2 study, are sometimes used to classify poles, conductors, and transformers between
3 customer-related and demand-related investment. A special study was not
4 performed in this case because investment related to such plant operating at
5 secondary voltage was considered to be customer-related and investment in plant
6 operating at primary voltage was considered to be demand-related and, therefore,
7 such plant was classified as customer and demand, respectively.

8 **18. Q. Please describe the class allocation step of a COSS.**

9 A. In the class allocation step, costs that have been functionalized and classified are
10 allocated among the rate classes based on appropriate causal relationships. The
11 allocation phase takes into account the design of the utility system and how it is
12 operated; cost data derived from the utility's accounting records; and usage and
13 load data both for the system overall and for specific customer classes. Based on
14 analyses of the relationship between costs and the factors driving the need to incur
15 such costs, each component of the revenue requirement is either directly assigned
16 to a rate class or an allocator is selected to apportion that component among rate
17 classes.

18 **19. Q. Please explain the term "direct assignment."**

19 A. The term "direct assignment" means identifying specific plant investments or
20 specific expenses incurred exclusively to serve a specific customer or group of
21 customers. Direct assignments reflect a direct causal connection between costs to

1 serve and the customers being served. Therefore, if data are available to make a
2 direct assignment, it is generally the preferred approach.

3 **20. Q. Can significant portions of a utility's assets and expenses generally be**
4 **directly assigned in a COSS?**

5 A. No, most costs must be allocated. Utility service is generally provided to
6 customers by facilities that are used, and expenses that are incurred, in common
7 by all, or many, classes of customers. In addition, even in instances where it
8 might be possible to associate specific physical facilities with particular
9 customers, the detailed cost information needed to make a direct assignment may
10 not be reasonably available.

11 **21. Q. Please explain how allocation factors are determined.**

12 A. External and internal allocation factors are typically used to perform a COSS and,
13 consequently, were employed in the Model. External allocators distribute costs in
14 proportion to customers' use of plant and services represented by functionalized
15 and classified costs. Examples of external allocators are kWh deliveries (for
16 energy-related costs), number of customers (for customer-related costs) and class
17 NCP demands (distribution demand-related costs). PECO Exhibit TJJ-7 shows
18 the development of the main external allocators. Internal allocators are based on
19 some combination of external allocators, directly assigned costs and other internal
20 allocators. For example, property insurance costs are allocated in proportion to
21 the plant investment allocated or assigned to each rate class, while plant
22 investment itself is allocated on the basis of one or more external allocation

1 factors (e.g., NCP demand for demand-related plant costs and customer counts for
2 customer-related plant costs).

3 **22. Q. What is the source of the total rate base amount being allocated or assigned**
4 **to customer classes in the PECO COSS?**

5 A. The total rate base amount employed in the PECO COSS is \$6.386 billion (PECO
6 Exhibit TJJ-1, line 103) and is derived from PECO Exhibit MJT-1, page 1.

7 **23. Q. What are the major components of PECO's rate base?**

8 A. For purposes of discussing how I functionalized, classified and allocated rate base
9 in the PECO COSS, I will refer to the following components of rate base:

- 10 • Intangible plant
- 11 • Distribution plant
- 12 • General plant
- 13 • Depreciation reserve
- 14 • Other rate base items

15 **24. Q. How did you functionalize, classify, and allocate each component of the rate**
16 **base among the rate classes?**

17 A. The principal allocators for each component of the rate base are discussed below:

18 **Intangible plant** represents the costs of franchises and consents and other
19 intangible assets. It was functionalized, classified, and allocated in proportion to
20 distribution plant (i.e., excluding plant serving the Energy and Transmission

1 functions) with the exception of a portion of the total that is associated with
2 Advanced Meter Infrastructure (“AMI”). Intangible AMI system costs, which
3 consist of the software necessary to operate the AMI system and to interface with
4 other systems such as billing, were classified as customer-related and allocated
5 based on the cost of meters.

6 **Distribution plant** allocators were developed for specific subcategories of
7 distribution plant, as follows:

- 8 • Land and land rights, stations, and structures and improvements were
9 functionalized to Primary HT, classified as demand, and allocated
10 among the rate classes based on their respective class NCP demands at
11 the Primary HT level.
- 12 • Poles, towers and fixtures, overhead conductors and devices,
13 underground conduit, and underground conductors and devices were
14 functionalized between Primary HT/Primary, on one hand, and
15 Secondary Distribution, on the other, based on a detailed study of the
16 respective costs, as shown in PECO Exhibit TJJ-7 at page 3. The
17 Primary HT/Primary portion was split between Primary HT and
18 Primary based on a study of the respective wire miles of conductors in
19 each function (*see* PECO Exhibit TJJ-7, p. 5). Costs identified as
20 Primary HT and Primary were classified as demand-related and
21 allocated among the rate classes based on their respective NCP
22 demands at the Primary HT and Primary voltage levels, respectively
23 (*see* PECO Exhibit TJJ-7, p. 15). Costs identified as Secondary

1 Distribution were classified as customer-related and allocated based on
2 the number of customer locations served.

- 3 • Line transformers were functionalized to Secondary Distribution and
4 allocated among the rate classes based on NCP demands at secondary
5 voltage (*see* PECO Exhibit TJJ-7, p. 4).
- 6 • Services connect individual customers to the system and, therefore,
7 were functionalized to their own category, classified as customer-
8 related, and allocated based on the estimated total replacement cost of
9 all services in each rate class (*see* PECO Exhibit TJJ-7, p. 6). The total
10 replacement cost of services for a rate class was estimated by
11 multiplying the estimated replacement cost of a single service for a
12 member of the class by the number of customer locations in the class.
- 13 • Meters were functionalized to their own category, classified as
14 customer-related, and directly assigned based on the cost of new AMI
15 meters installed pursuant to PECO's Smart Meter Universal
16 Deployment Plan, which was approved by the Pennsylvania Public
17 Utility Commission ("Commission") on August 15, 2013 at Docket
18 No. M-2009-2173944.
- 19 • Street lighting and signal systems were functionalized to Customer
20 Other, classified as customer-related, and directly assigned to
21 Lighting.

22 **General plant** includes primarily structures and improvements relating to
23 administrative activities, tools, and communications equipment, as well as other

1 miscellaneous assets. These assets were functionalized, classified and allocated
2 among rate classes based on the direct labor component of operating expenses,
3 which reflects the nature of the assets and common cost-of-service practices for
4 this type of property.

5 **Depreciation reserve** was provided by PECO by each asset account. Each
6 component of the depreciation reserve was functionalized, classified, and
7 allocated among rate classes in the same ratio as the related assets.

8 **Other rate base items** include primarily materials and supplies, accumulated
9 deferred income taxes, customer deposits, common plant, customer advances for
10 construction, working capital, and pension and other post-retirement benefit
11 (“OPEB”) assets, as discussed below:

- 12 • Materials and supplies were functionalized, classified, and allocated
13 among rate classes in proportion to plant in service.
- 14 • Accumulated deferred income taxes were functionalized, classified,
15 and allocated among rate classes in proportion to plant in service.
- 16 • Customer deposits were directly assigned to rate classes based on
17 information provided by Mr. Trzaska (*see* PECO Exhibit TJJ-7, page 8).
- 18 • Common plant consists of assets similar to those customarily found in
19 General Plant and, therefore, was functionalized, classified, and
20 allocated among rate classes based on the direct labor component of
21 operating expenses.

- 1 • Customer advances were functionalized to Distribution and Secondary
2 Distribution, classified as demand and customer-related, and allocated
3 among the rate classes in the same proportion as Distribution and
4 Secondary Distribution assets.
- 5 • Working capital represents PECO's need for cash to keep the business
6 running until revenues are collected to pay the costs of providing
7 service. Working capital was calculated based on the results of the
8 lead-lag study prepared by Mr. Trzaska and described in PECO
9 Statement No. 3. Also, working capital was directly assigned to
10 Energy and Transmission based on the results of that lead-lag study.
11 The balance of working capital was functionalized, classified, and
12 allocated to each rate class using methodologies consistent with the
13 nature of the underlying cost.
- 14 • The pension asset and OPEB Accumulated Deferred Tax Asset, which
15 are discussed by Mr. Trzaska in PECO Statement No. 3, are directly
16 related to employees and, therefore, were functionalized, classified,
17 and allocated among rate classes based on the direct labor component
18 of operating expenses.

19 **25. Q. What are the major categories of PECO's expenses?**

20 A. The major expense categories in PECO's cost of service are:

- 21 • Distribution operating and maintenance expenses;
- 22 • Customer accounts and customer service expenses;

- 1 • Administrative and general expenses;
- 2 • Depreciation expense;
- 3 • Taxes other than income taxes; and
- 4 • Income taxes

5 **26. Q. In determining how to treat these expenses in the COSS, was there another**
6 **important grouping of expenses that had to be considered?**

7 A. Yes, there was. Labor costs affect each of the first three categories identified
8 above. Consequently, certain cost categories are allocated based on direct labor
9 costs. For example, Account 920 – Administrative and General Salaries is
10 allocated among rate classes based on the composite allocation of direct labor
11 costs included in all operating expense accounts. Likewise, employee benefits are
12 allocated using a labor allocator. In order to develop such allocators, the direct
13 labor costs included in each expense account were obtained from data assembled
14 by Mr. Trzaska.

15 **27. Q. What do PECO’s distribution operating and maintenance expenses include**
16 **and how were these expenses functionalized, classified, and allocated among**
17 **rate classes?**

18 A. PECO’s distribution system consists principally of substations; poles, towers and
19 fixtures; overhead and underground conductors and related equipment; meters;
20 line transformers; outdoor lighting plant; and other miscellaneous assets.
21 Operating and maintenance expenses were analyzed to determine the assets they

1 were incurred to operate or maintain and, therefore, were functionalized,
2 classified, and allocated among rate classes in the same manner as the assets to
3 which they relate. The COSS also includes costs of purchased power and
4 transmission costs paid to PJM that are recovered through the GSA, TSC, and
5 NBT charges. Purchased power costs were functionalized as Energy, classified as
6 energy-related, and allocated based on projected default service prices and MWh
7 of generation energy revenue in the budget. Transmission-related costs were
8 functionalized as Transmission and assigned among rate classes based on their
9 contributions to the single coincident peak. In addition to the expenses of
10 operating and maintaining PECO's distribution system, distribution expenses
11 include the following:

- 12 • **Customer-installation expenses:** These expenses relate to field
13 investigations, high-bill complaints, and potential and actual energy
14 theft, and were allocated based on number of customers.
- 15 • **Miscellaneous distribution expenses and rents:** These expenses
16 relate to information technology ("IT") and other expenses associated
17 with all distribution assets. Accordingly, they were functionalized,
18 classified, and allocated among rate classes in proportion to total
19 distribution plant.

1 **28. Q. What do PECO’s customer accounts and customer service expenses include**
2 **and how were those expenses functionalized, classified, and allocated among**
3 **the rate classes?**

4 A. Customer accounts and customer service expenses primarily include meter-
5 reading expenses, customer records and collection expenses, uncollectible
6 accounts expense, miscellaneous customer accounts expense, customer-assistance
7 expense, and sales expense. These costs were functionalized to Customer
8 Accounts, classified as customer-related, and allocated as follows:

- 9 • **Meter reading expenses** have been supplanted by the new AMI
10 system expenses except for some minor expenses.

- 11 • **Customer records and collection expenses** relate to billing, call
12 center operations, payment processing, arrearage recoveries, support
13 for administering PECO’s CAP program, and termination and
14 restoration of service. The account was analyzed in detail, discrete
15 functions were identified, and expenses related to each function were
16 allocated among rate classes using an appropriate allocation factor (*see*
17 PECO Exhibit TJJ-7, p. 9). For example, expenses incurred for billing
18 activities were allocated based on number of bills, and call center costs
19 were allocated based on number of customers. A single customer
20 allocation could not be used because some costs are specific to
21 residential customers while others are specific to commercial and

1 industrial customers; therefore, a weighted allocator, based upon the
2 analysis discussed above, was used for this account.

- 3 • **Uncollectible accounts expense**, or bad debt expense, was allocated
4 among rate classes based on the Company's experience over a historic
5 three-year period (2018-2020) (*see* PECO Exhibit TJJ-7, p. 12).
- 6 • **Miscellaneous customer accounts expense** includes IT support for the
7 other customer account functions and was allocated among rate classes
8 based on number of customers.
- 9 • **Customer assistance expense** comprises expenses incurred for the
10 Low Income Usage Reduction Program and marketing. Costs specific
11 to the residential class were allocated to Rates R and RH based on
12 number of customers.
- 13 • **Costs specific to the C&I classes** were allocated to Rates GS, PD and
14 HT based on energy at generation. General marketing and
15 conservation costs were allocated based on number of customers (*see*
16 PECO Exhibit TJJ-7, p 10).
- 17 • **Informational advertising expense** includes the cost of activities
18 which primarily convey information as to what the utility urges or
19 suggests customers should do in utilizing electric service to protect
20 health and safety, to encourage environmental protection, to utilize
21 their electric equipment safely and economically, or to conserve

1 electric energy, and was allocated to customer classes based on
2 number of customers.

- 3 • **Sales expenses** include expenses incurred in activities, which promote
4 or retain the use of utility distribution services by present and
5 prospective customers, and was allocated to Rates GS, PD and HT
6 customers based on customer energy consumption.

7 **29. Q. How were administrative and general expenses functionalized, classified, and**
8 **allocated among rate classes?**

9 A. Administrative and general expenses include administrative and general salaries,
10 office supplies and expenses, outside services, property insurance costs, injuries
11 and damages, employee benefits, regulatory commission expenses, miscellaneous
12 general expenses, and maintenance of general plant.

13 Except for items discussed below, administrative and general expenses are related
14 to labor costs and, therefore, were functionalized, classified, and allocated among
15 rate classes in the same ratio as direct labor expenses.

16 Property insurance costs were functionalized, classified, and allocated among rate
17 classes in the same ratio as distribution and general plant in service.

18 Regulatory commission expenses and miscellaneous general expense were
19 functionalized, classified, and allocated among rate classes in proportion to
20 revenue.

1 Maintenance of general plant was functionalized, classified, and allocated among
2 rate classes in the same ratio as general plant in service.

3 **30. Q. How were depreciation expense and depreciation reserve functionalized,**
4 **classified, and allocated among the rate classes?**

5 A. Depreciation expense was derived from PECO Exhibit CF-3, which is sponsored
6 by PECO witness Caroline Fulginiti, and PECO Exhibit MJT-1, which show
7 depreciation expense by plant account. The depreciation reserve was obtained
8 from the same sources. Both the depreciation expense and the depreciation
9 reserve were functionalized, classified, and allocated among rate classes in the
10 same ratio as the plant account to which they relate.

11 **31. Q. How were taxes other than gross receipts tax and income taxes**
12 **functionalized, classified, and allocated among the rate classes?**

13 A. Taxes, other than gross receipts tax and income taxes, include Public Utility
14 Realty Tax (“PURTA”), payroll-related taxes, local use taxes, and real estate
15 taxes. Payroll-related taxes were functionalized, classified, and allocated among
16 rate classes in proportion to direct labor expenses. PURTA taxes were allocated
17 based on the allocation of land, local use taxes were allocated based on revenue,
18 and real estate taxes were allocated based on total plant.

1 **32. Q. How was gross receipts tax functionalized, classified, and allocated among**
2 **the rate classes?**

3 A. Gross receipts tax is based on transmission and distribution revenue, purchased
4 power revenue, and forfeited discounts (i.e., late payment charges). Accordingly,
5 gross receipts tax was calculated separately by function and was classified and
6 allocated among rate classes based on taxable revenue.

7 **33. Q. How was income tax expense functionalized, classified, and allocated among**
8 **rate classes?**

9 A. Income tax expense was calculated based on revenue at present rates using the
10 same methodology employed by Mr. Trzaska in PECO Exhibit MJT-1, Schedule
11 D-18. Income tax expense was primarily functionalized, classified, and allocated
12 among rate classes based on total plant.

13 **34. Q. How was revenue at present rates computed for each rate class?**

14 A. Distribution revenue at present rates is shown in the proof of revenues set forth in
15 PECO Exhibit JAB-6. The total was assigned to the rate classes based on the
16 proof of revenues. Distribution revenue at present rates for each rate class is
17 shown on line 4 of PECO Exhibit TJJ-1.

18 Supply charge revenue, which consists of revenue collected under the GSA tariffs
19 for energy, administrative costs, and cash working capital, was assigned to rate
20 classes based on projected default service prices and MWh of generation. For
21 each rate class, and in total, supply charge revenue equals the sum of the supply

1 cost (including administrative costs), gross receipts tax, and the revenue
2 requirement for cash working capital.

3 Transmission charge revenue under the TSC was functionalized to Transmission
4 and allocated among the rate classes in proportion to costs that are allocated based
5 on contributions to the single coincident peak. Revenue equals the sum of the
6 cost plus the revenue requirement for associated cash working capital.

7 Forfeited discount revenue was functionalized, classified, and allocated in the
8 same ratio as the uncollectible accounts expense.

9 Rent for electric property represents pole rental revenue and was functionalized,
10 classified, and allocated in the same ratio as the plant costs for poles, towers and
11 fixtures.

12 Decommissioning payments in the FPPTY represent PECO's transfer to Exelon
13 Generation Company of amounts that PECO collects from customers for nuclear
14 decommissioning expense. Both PECO's recovery of these costs and the transfer
15 of such funds to Exelon Generation Company, LLC were approved in the
16 Commission's Order approving the Settlement of PECO's restructuring
17 proceeding.⁵ This amount was allocated among the rate classes in the same ratio
18 as the revenue was collected, which is in proportion to each class' billed kWh.

⁵ *Application of PECO Energy Co. for Approval of its Restructuring Plan Under Section 2806 of the Public Utility Code and Joint Petition for Partial Settlement; Petition of Enron Energy Services Power, Inc. for Approval of an Electric Competition and Choice Plan and for Authority Pursuant to Section 2807(E)(C) of the Public Utility Code to Serve as the Provider of Last Resort in the Service Territory of PECO Energy Co.*, Docket Nos. R-00973953 and P-00971265, 1997 Pa. PUC LEXIS 51 at *120 (Dec. 23, 1997). On June 9, 2009, the Commission initiated an investigation at Docket No. I-2009-2101331 to determine whether or not it would be appropriate for PECO to

1 Other electric revenue was allocated among the rate classes based on distribution
2 plant.

3 **IV. DEVELOPMENT OF RATE CLASS REVENUE REQUIREMENT**

4 **35. Q. How did you develop the revenue requirements for each class?**

5 A. The revenue requirements for each rate class were calculated using the same
6 method employed by Company witness Mr. Trzaska to compute the overall
7 revenue requirement for the FPPTY. Thus, the revenue requirements for each rate
8 class are the sum of that class' allocated operating expenses, depreciation
9 expense, general taxes, return on rate base, and income tax expense. Return on
10 rate base for each rate class was computed by multiplying the rate class' rate base
11 by the proposed system average rate of return. Income taxes included in the revenue
12 requirement for each rate class were computed directly by grossing up the required non-
13 debt return on rate base for the class at the applicable statutory income tax rates. PECO
14 Exhibit TJJ-1, line 64, shows the total revenue requirements by rate class
15 reflecting the fully allocated distribution cost of service at the proposed system
16 average rate of return. PECO Exhibit TJJ-1, line 69, shows the portion of the total
17 revenue requirements PECO proposes to collect in distribution rates.

continue the collection of nuclear decommissioning costs from retail customers after the expiration of PECO's rate caps on December 31, 2010 and reaffirmed its earlier holding in PECO's restructuring proceeding. *Investigation into PECO Energy Company's Electric Service Tariff PA P.U.C. No. 4, 2010 Pa. PUC LEXIS 299* (Order entered July 22, 2010).

1 36. Q. How did you determine the increase or decrease in revenue needed for each
2 class to produce the system average rate of return?

3 A. The increase or decrease needed for each rate class was calculated by comparing
4 the revenue requirements for each rate class to the forecasted revenue at present
5 rates for that class for the FPFTY. This is the same method used by Mr. Trzaska
6 in PECO Exhibit MJT-1, Schedule A-1, with respect to the overall revenue
7 requirement and revenue deficiency. The increases or (decreases) in rate class
8 revenue needed to produce a rate of return equal to the Company's proposed
9 overall rate of return are shown in PECO Exhibit TJJ-1 at line 120, which total
10 \$246.0 million. The increases or (decreases) in class distribution revenue are
11 shown on line 70, which total \$251.1 million. The increase in Transmission
12 revenue under the TSC are shown on line 95, which total, on a net basis, \$0.3
13 million, and the (decrease) in Purchased Power revenue under the GSA of (\$5.3)
14 million is shown on line 83. In addition, forfeited discounts are expected to
15 increase by \$0.9 million as a result of the increase in distribution rates.

16 V. RESULTS OF THE PECO COST-OF-SERVICE STUDY

17 37. Q. Please describe what is shown on PECO Exhibit TJJ-1.

18 A. PECO Exhibit TJJ-1, which sets forth the substance of the COSS, compares the
19 revenue at current rates by rate class to the revenue requirement allocated on a
20 cost-of-service basis to each rate class. Net income at present rates, shown on line
21 16, is computed by subtracting operating expenses, depreciation and amortization,
22 taxes other than income taxes, and income taxes (lines 10 to 14) from revenue at

1 present rates (line 7). The return on rate base at present rates for each rate class is
2 shown on line 25, and the relative rates of return are shown on line 26.

3 Line 114 shows each rate class' revenue requirement (including revenue from
4 distribution charges, transmission charges, purchased power, forfeited discounts,
5 and other revenue) at the proposed overall rate of return. Line 107 shows
6 operating expenses, line 108 shows depreciation and amortization expense, line
7 109 shows taxes other than income taxes excluding the gross receipts tax, line 110
8 shows gross receipts tax, and line 111 shows income tax expense. Line 104
9 shows operating income assuming each rate class pays its full cost of service.
10 Line 120 shows the increase (decrease) in revenue needed for each rate class to
11 produce revenues equal to its revenue requirement at full cost of service and
12 produce the system average rate of return (excluding forfeited discounts on the
13 increased revenue). Line 70 shows the increase (decrease) in distribution revenue
14 for each rate class to produce revenue from distribution charges equal to its
15 distribution revenue requirement at full cost of service. Line 95 shows the
16 increase (decrease) in transmission revenue for each rate class to produce revenue
17 from transmission charges equal to its transmission revenue requirement at full
18 cost of service.

19 **38. Q. What information is shown on PECO Exhibit TJJ-2?**

20 A. PECO Exhibit TJJ-2, as noted above, is the rate class cost of service and shows
21 the allocation of each element of measures of value also known as rate base (RB
22 schedules), operating expenses (E schedules), depreciation expense (D schedules),

1 and taxes (TO and TI schedules) among the rate classes. This information is
2 contained on the first 16 pages of the exhibit.

3 Also included in this exhibit are the external and internal allocators used for the
4 rate class allocations, which are shown on pages 17 to 31 of the exhibit.

5 **39. Q. Please describe the information contained in PECO Exhibit TJJ-3.**

6 A. PECO Exhibit TJJ-3 contains the COSS by functional category and classification.
7 The summary appears on pages 1 to 6 and the account by account allocation to
8 functional category and classification is provided on pages 7 to 33. Pages 33 to
9 66 of this exhibit provide the external and internal allocators used for the exhibit.

10 **40. Q. Please describe what is shown in PECO Exhibit TJJ-4.**

11 A. PECO Exhibit TJJ-4 presents unitized revenue requirement for each rate class.
12 The unitized revenue requirements are the functionalized and classified revenue
13 requirements allocated to each class of service divided by the appropriate units.
14 For example, demand-related cost is divided by kW of demand, energy-related
15 cost is divided by kWh, and customer-related cost is divided by number of
16 customers. The unit cost is provided by classification and functional area.

17 **41. Q. Which costs were considered in developing the proposed customer charges?**

18 A. The proposed customer charges are based on the specific customer-classified
19 costs in the PECO COSS that are approved for recovery in customer charges.
20 Customer related costs include all costs incurred to attach a customer to the

1 distribution system, to meter usage and to maintain the customer's account. They
2 include: (1) capital costs associated with portions of the distribution system,
3 services and meters, and general plant supporting the functions identified above;
4 and (2) operating and maintenance expenses related to those assets described in
5 (1), associated administrative and general expense, metering and billing expense,
6 and customer service and account expenses. Total customer costs by rate class for
7 the FPFTY are shown on PECO Exhibit TJJ-4, in the unit cost analysis.

8 The costs typically considered in Pennsylvania in developing residential customer
9 charges exclude allocated portions of the distribution system. PECO Exhibit TJJ-
10 5 excludes the component shown on PECO Exhibit TJJ-4 associated with the
11 distribution system. The residential customer charge includes the costs of the
12 service and meter, meter reading-related expense, billing expense, and customer
13 accounting expense together with appropriate pensions and benefits and payroll
14 taxes that are part of the applicable labor expenses. Also included are other
15 supporting administrative and general costs and associated general and common
16 plant and working capital.

17 **42. Q. Please briefly describe the Night Service Rider ("NSR").**

18 A. The NSR applies to distribution service provided to eligible commercial and
19 industrial customers for demand registered in off-peak hours that exceeds their
20 demand during on-peak hours (*i.e.*, 8:00 a.m. to 8:00 p.m. daily (Friday is 4 p.m.),
21 except Saturdays and Sundays). For example, if a customer has an off-peak
22 maximum demand of 200 kW and an on-peak maximum demand of 190 kW, the

1 10 kW excess of the maximum off-peak demand over the on-peak demand would
2 be billed at the NSR rate, not the standard tariff rate.

3 **43. Q. What costs were included in developing the NSR rate?**

4 A. In developing the NSR rate, I included the cost of overhead and underground
5 conductors, transformers, and the maintenance expenses associated with those
6 conductors and transformers as well as an allocable portion of administrative and
7 general expenses and the cost of common and general plant. These costs are
8 properly included in the NSR rate because off-peak usage affects the size of
9 conductors and transformers.

10 Those facilities serve load at the localized level and, therefore, do not benefit from
11 load diversity as does other plant, such as substations.

12 I excluded from the NSR rate the cost of substations, poles, and underground
13 conduit because of the location of substations on the system. The size of
14 substations is affected by on-peak demand. The cost of poles and conduit were
15 also excluded because off-peak demand in excess of on-peak demand is unlikely
16 to affect the size of those facilities (PECO Exhibit TJJ-6).

17 Mr. Bisti uses these costs to determine the appropriate charge for the NSR as
18 discussed in PECO Statement No. 7.

1 **44. Q. Please describe the information shown on PECO Exhibit TJJ-7.**

2 A. PECO Exhibit TJJ-7 shows the development of the external allocators, which are
3 described below and are used in the COSS. Except where noted, all data are for
4 the FPFTY.

5 **Index (page 1) - Table of External Allocators**

6 **Summary of External Allocator Values (page 2) - Class Allocation**

7 **Summary of External Allocator Values (page 3) - Functionalization**

8 **Conductors-Functional Splits (page 4) - Allocates the cost of Overhead**
9 **Conductors and Underground Conductors between Primary HT/Primary and**
10 **Secondary based on a study that the Company prepared to separate costs by**
11 **voltage levels. The functional split for poles follows the overhead conductor**
12 **split, and the functional split for underground conduit follows underground**
13 **conductor split.**

14 **Conductors-Primary Splits (page 5) - Allocates the cost of Overhead**
15 **Conductors operating at primary voltage between Primary HT and Primary based**
16 **on the wire miles of those conductors. The same approach was used for**
17 **Underground Conductors. The functional split for poles follows the overhead**
18 **conductor split, and the functional split for underground conduit follows**
19 **underground conductor split.**

1 **Service Costs (page 6)** - Computes investment in services for each rate class at
2 average replacement cost for the period 2018-2020. PECO does not account for
3 services separately and, therefore, has used estimated replacement cost to allocate
4 the account to the classes of service.

5 **Meter Costs (page 7)** - Meter costs were allocated among rate classes based on
6 the average cost of meters of each type for each rate class, as determined from the
7 Company's records. Meter costs include both materials and labor.

8 **Customer Deposits (page 8)** - Allocates FPFTY customer deposits based on the
9 13-month average customer deposit balances for each class for the period from
10 December 2019 through December 2020.

11 **Acct 903 Allocator (page 9)** - Allocates costs associated with each activity
12 recorded in Account 903 – Customer Records and Collection Expense using an
13 appropriate external allocator. Each activity, the cost of the activity, and the
14 allocator assigned to each is shown in a separate row. Row 12 summarizes the
15 costs by rate class. The weighted allocators are shown on row 13. The separate
16 allocations are necessary because some costs are only applicable to specific rate
17 classes.

18 **Acct 908 Allocator (page 10)** - Allocates the costs of each activity recorded in
19 Account 908 – Customer Assistance using an appropriate external allocator.
20 Rows 1-5 list each activity, the cost of the activity and the allocator assigned to it.
21 Row 6 summarizes the costs by rate class. The allocators are on row 7.

1 **Acct 912 and 916 Allocator (page 11)** - Allocates the cost of each activity
2 recorded in Accounts 912 – Demonstrating and Selling Expense and 916 –
3 Miscellaneous Sales Expense using an appropriate external allocator. Each
4 activity, the costs of the activity, and the allocator assigned to each is shown in a
5 separate row. Row 2 summarizes the costs by rate class. The weighted allocators
6 are shown on row 3.

7 **Write-Offs (page 12)** - Computes the Write-Off allocators using net charge-offs
8 for 2018 through 2020.

9 **Over 60-Day (page 13)** - Computes the Over 60-Day allocators. The column
10 “Over 60-Day Allocator” shows the percentage of PECO’s total electric accounts
11 receivable outstanding for more than two months for each rate class at each
12 month-end from January 2019 through December 2019.

13 **Purchase of Receivables (page 14)** - Computes the allocator used in the COSS to
14 allocate the POR portion of cash working capital.

15 **Demand Allocators (page 15)** - Computes the demand allocators used in the
16 COSS.

17 **MWh Deliveries at Generation (page 16)** - Computes MWh at the different rate
18 classes based on projected 2022 sales at the meter and appropriate loss factors for
19 each rate class. The class loss factors are the same as those set forth in the
20 Company’s Electric Generation Supplier Coordination Tariff.

1 **Customer and Location-Based Allocators (page 2)** - The demand-based,
2 customer-based and location-based allocators are shown on page 2 at lines 8-14.
3 The location-based allocator (Location Secondary) shown on line 14 was
4 modified for street lighting to reflect 25% of each of the total locations for the
5 Lighting class. This adjustment was made to more accurately reflect cost
6 causation. Street lights are generally located where there are existing Company
7 facilities serving other load. In some cases, street lights were installed after the
8 grid was in place and, therefore, did not contribute to the need for poles,
9 conductors, or conduit to be installed. However, that is not always the case and,
10 in some instances, the system was built out for the lights, for example, as on some
11 bridges and roads. Counting each location as a separate customer would allocate
12 too much cost to street lighting. On the other hand, not counting any lighting
13 locations as customers would understate the costs allocated to street lighting.
14 Even where the system was in place before street lights were installed, it is
15 appropriate to allocate some cost to the Lighting class because the service is
16 benefiting from the poles, conductors, and conduit. I have, therefore, applied a
17 25% factor to the number of locations to allocate a reasonable level of cost to the
18 Lighting class.

19 **45. Q. Please explain how the purchased power and transmission sections of the**
20 **COSS are used?**

21 A. In the cost of service summary there is a section for purchased power and a
22 section for transmission. These sections are used to derive the unbundled cash
23 working capital requirement that is recovered in the GSA and the TSC. The

1 revenue requirement associated with cash working capital is used to develop a
2 rate for the GSA and TSC. The total revenue requirement used to develop the
3 rate is the operating income consisting of return, income taxes, and the associated
4 gross receipts tax. I am providing PECO Exhibit TJJ-8 to show the calculation of
5 the unbundled cash working capital rate for the GSA. PECO Exhibit TJJ-9
6 provides the calculation of the unbundled cash working capital rate for the TSC.
7 The rate developed in PECO Exhibit TJJ-8 of \$0.00021 per kWh will replace the
8 rate of \$0.00019 per kWh currently in the GSA. The rate developed in PECO
9 Exhibit TJJ-9 of \$278 per MW-year will replace the current rate of \$221 per MW-
10 year in the TSC.

11 **46. Q. Please summarize your conclusions with respect to cost of service.**

12 A. The Company's COSS was prepared using an appropriate and well-accepted cost
13 of service method. The results of the Company's COSS provide a reasonable
14 allocation of PECO's cost of service among its rate classes and are an appropriate
15 guide for use in designing PECO's proposed rates.

16 VI. CONCLUSION

17 **47. Q. Does this complete your direct testimony at this time?**

18 A. Yes, it does.

19