PECO ENERGY COMPANY
STATEMENT NO. 6

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

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

DOCKET NO. R-2020-3018929

DIRECT TESTIMONY

WITNESS: JIANG DING

SUBJECT: CLASS COST-OF-SERVICE STUDY

DATED: SEPTEMBER 30, 2020

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DIRECT TESTIMONY
OF
JIANG DING

I. INTRODUCTION AND PURPOSE OF TESTIMONY

1. Q. Please state your full name and business address.

A. My name is Jiang Ding. My business address is PECO Energy Company, 2301 Market Street, Philadelphia, Pennsylvania 19103.

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

A. I am employed by PECO Energy Company ("PECO" or the "Company") as Principal Regulatory & Rates Specialist.

3. Q. Please describe your educational background.

A. I received a Bachelor's Degree in Law from China University of Political Science and Law, and I received a Master of Science Degree in Finance from Texas A&M University.

4. Q. Please describe your work experience with the energy industry.

A. Upon graduation from Texas A&M University, I worked as an Accountant for Enron and as a Financial Analyst for Halliburton Energy Services. I was hired by Exelon Power as an Operational Area Analyst in 2002. I then worked for Exelon Generation and Exelon Corporation as a Senior Project Evaluation Analyst. I was appointed Principal Regulatory & Rates Specialist in PECO's Regulatory Strategy and Revenue Policy Division in 2013. My main responsibilities include revenue

requirement modeling and analyses for regulatory initiatives, cost-of-service studies, and base rate case filings.

5. Q. Please describe the purpose of your testimony?

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

6. Q. Have you prepared any exhibits to accompany your testimony?

A. Yes. PECO Exhibits JD-1 through JD-6 were prepared and are described in detail in my testimony.

7. Q. How is your testimony organized?

A. My testimony is divided into five parts. This Section I serves as the introduction to my testimony and explains its purpose. In Section II, I provide some background information, identify the exhibits that I am sponsoring, and summarize the results of the COSS. In Section III, I introduce and discuss the COSS methodology. In Section IV, I explain the development of the revenue requirement for each rate class. Lastly, in Section V, I present the results of the COSS in detail and discuss the contents of the exhibits.

8. Q. Please identify the exhibits that are included with your testimony.

A. The following exhibits are included with my testimony. They are discussed in detail in Section V of my testimony.

PECO Exhibit JD-1	Summary of Results
PECO Exhibit JD-2	Allocation by Rate Class
PECO Exhibit JD-3	Allocation by Functional Classification
PECO Exhibit JD-4	Unitized Functionally Classified Revenue Requirement
PECO Exhibit JD-5	Customer-Related Costs
PECO Exhibit JD-6	External Allocation Factors

II. BACKGROUND INFORMATION AND SUMMARY OF COST-OF-SERVICE STUDY RESULTS

9. Q. Please identify the distribution revenue requirement used for the fully projected future test year.

A. I used the total distribution revenue requirement for the fully projected future test year ("FPFTY") developed in PECO Exhibit MJT-1, which is sponsored by PECO witness Mr. Michael J. Trzaska and discussed in Mr. Trzaska's direct testimony (PECO St. No. 3). The total distribution revenue requirement for the FPFTY is $430 million (PECO Exhibit JD-1, line 81) excluding costs recovered under PECO's Purchased Gas Cost ("PGC") and $657 million (PECO Exhibit JD-1, line 133, including costs recovered under the PGC. The total distribution revenues and distribution revenues by customer class for the FPFTY under existing rates that are used in the COSS were also obtained from PECO Exhibit MJT-1.

10. Q. What is a class cost-of-service study?

A. A class cost-of-service study is a widely employed analytical tool used in supporting a utility's recommendation for a rate design. Class cost-of-service studies are utilized to determine the costs that different classes of customers impose on the utility system and to quantify the revenue requirements for the services provided by the utility to each customer class. The purpose and the guiding principles in performing a cost-of-service study are described further in Section III.

11. Q. Please summarize the results of your work as they apply to the COSS.

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

(1) The current tariff rates produce the net income by rate class shown on line 17 of PECO Exhibit JD-1, which yields the rates of return on rate base shown on line 26 of that exhibit.

(2) PECO's total distribution revenue requirement for the FPFTY 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 JD-1, which show the total distribution revenue requirement separately for Distribution and PGC.

(3) The increases 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 134 of page 3 of PECO Exhibit JD-1. The increase in revenue shown on line 134 is shown separately in PECO Exhibit JD-1 for: (i) distribution base rates (line 83), (ii) forfeited discounts revenues (line 63); and (iii) the non-fuel gas procurement costs recovered outside distribution base rates through the Gas Procurement Charge ("GPC") (line 126), a component of the PGC. While the rate increases are necessary to move each rate class to the system average rate of return, the Company is not proposing rates that will take all classes to their indicated cost-of-service at this time, as explained by the direct testimony of Mr. Joseph A. Bisti in PECO Statement No. 7.

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

12. Q. Please describe the purpose of performing a cost-of-service study.

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

13. Q. Please describe the guiding principles in performing a cost-of-service study.

A. The central element in performing a cost-of-service study is the determination of allocation factors based on causal relationships between, on the one hand, customer demands, load profiles, and usage characteristics, and, on the other hand, the costs incurred by the Company to meet customers' service requirements imposed by those demands, load profiles, and usage characteristics. The primary goals in selecting allocation factors are: (1) the appropriate recognition of cost causality; (2) the stability of study methods and their consistent application over time, so that trends in the direction of class revenues relative to cost-of-service can be discerned properly from case to case; and (3) completeness, such that the cost-of-service study captures all of the costs that each class imposes on the distribution system.

14. Q. Please summarize the approach that you followed in performing the COSS.

A. As I previously explained, the most critical task in performing any cost-of-service study is establishing relationships between customer demands, load profiles and usage characteristics, and the costs incurred to meet those requirements. This requires an understanding of the utility system design and the relationship of that design to the characteristics of the customers that the system is designed to serve.

PECO, like most gas utilities, designs its gas distribution system to meet three primary objectives:

(1) To extend distribution service to all customers;

(2) To meet the aggregate design peak day capacity requirements of all customers entitled to receive service on the design peak day; and

(3) To deliver volumes of natural gas to those customers either on a sales or transportation service basis.

The allocation methods used in a cost-of-service study must take into account the objectives that the distribution system is designed to achieve so that the allocation of plant investment and operating expenses properly aligns with cost-causation factors, such as the need to connect all customers to the distribution system. Other factors, such as incentives to influence customer behavior (e.g., conservation or demand reduction) or to temper the impact on customers of rate changes, are more appropriately considered in the revenue allocation and rate design phase.

The COSS I prepared was performed using the proprietary Gas Cost-of-Service Model ("Model") developed by Management Applications Consulting, Inc., which employs a Microsoft Excel platform. The Model facilitates the preparation of the COSS, accelerates computations, and develops appropriate documentation. The Model uses a three-step process to allocate or assign costs to rate classes, in accordance with general cost-of-service principles. These three steps consist of: (1) functionalizing rate base, purchased gas supply costs, and expenses to determine the particular rate schedules that should share responsibility for each of those assets and costs; (2) classifying functionalized costs into demand-related, commodity-related, and customer-related cost categories to facilitate allocating such costs to rate schedules in accordance with identifiable characteristics; and (3)

allocating the functionalized, classified costs among rate classes. The Model provides functionalized, classified cost information by rate class, develops unbundled revenue requirements by functional classification and in total for each rate class, and calculates unit costs.

15. Q. Please identify the rate classes that were included in the COSS.

A. The following nine rate classes were included: (1) GR - General Service - Residential; (2) GC - General Service - Commercial and Industrial; (3) L - Large High Load Factor Service; (4) MV-F - Motor Vehicle Service-Firm; (5) MV-I - Motor Vehicle Service-Interruptible; (6) IS - Interruptible Service; (7) TCS - Temperature Controlled Service; (8) TS-F - Gas Transportation Service-Firm; and (9) TS-I - Gas Transportation Service-Interruptible. In the COSS, the rate class in PECO's current tariff titled OL - Outdoor Lighting is combined into rate class GC because the usage of rate class OL is very small. In addition, customers participating in PECO's Customer Assistance Program ("CAP") are combined with rate class GR because their usage characteristics are the same as other rate class GR customers and because CAP rates were designed to reference rate class GR rates.

16. Q. Please describe the functionalization step of the COSS.

A. In the functionalization step, costs are separated by the utility's basic service characteristics, as stated below.

- ***Production*** function includes operation and management costs related to gas production, including production of liquid propane gas ("LPG").

- ***Storage*** function reflects costs incurred to ensure that firm customers' demand can be met on the design day. It includes the costs of operation and management of liquefied natural gas ("LNG") facilities.

- ***Commodity*** function includes PGC, balancing service cost, and gas storage inventory.

- ***Service*** function includes the investment in, and operating and maintenance expenses related to, the service lines from the Company's main to customer locations.

- ***Meter*** function includes the investment in meters and devices, including the installation of meters.

- ***Customer Installation*** function includes the expenses incurred in working on customers' premises.

- ***Customer Service*** function includes customer assistance and demonstrating and selling expenses.

- ***Customer Accounts*** function includes the costs of customer billing and records, call center, collection of customer accounts, and uncollectable accounts.

- ***Distribution*** function includes all other investments and costs, including investments in distribution plant, operating and maintenance expenses, and costs that are part of PECO's regulated utility function.

17. Q. Please describe the classification step of the COSS.

A. In the classification step, the previously functionalized costs are separated according to the system design or operating characteristics that cause those costs to be incurred in the first instance. In this step, each cost is determined to be incurred to serve customers, to supply the natural gas commodity, or to meet various capacity demands related to the customers' peak usage.

18. Q. Please describe the class allocation step of the COSS.

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

19. Q. What does "direct assignment" mean?

A. The term "direct assignment" means identifying specific plant investments or specific expenses incurred exclusively to serve a specific customer or group of customers. Direct assignments reflect a direct causal connection between costs to serve and the customers being served. Therefore, if data are available to make a direct assignment, it is generally the preferred approach.

20. Q. Are most plant and expenses directly assigned in a cost-of-service study?

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

21. Q. What is the role of allocation factors under the class allocation step of PECO's COSS?

A. External and internal allocation factors are typically used to perform a cost-of-service study and, consequently, were employed in the Model.

An external allocation factor is a factor that is developed from an external source, outside the cost-of-service model. Examples of external allocators are number of customers (CUST) and estimated design day send-out (DPKDAYS). Exhibit JD-6 shows the development of the external allocators.

An internal allocation factor is one that is developed within the cost-of-service model using other allocated line items. Internal allocators are based on some combination of external allocators, directly assigned costs and other internal allocators. For example, the allocator for property insurance costs is based on plant investment amounts assigned to components of the rate base; it is necessary to compute the rate base before property insurance costs can be assigned.

Other examples of internal allocation factors include total operation and maintenance salaries and wages expense (SALWGES) and total gross gas distribution plant (DISTPLT). PECO Exhibit JD-2, pages 18 through 21, shows internationally developed allocation factors.

22. Q. What is the rate base and how does it affect the COSS?

A. The rate base is the cost, net of accumulated depreciation, of PECO's investment in plant and other assets used to serve customers.

23. Q. What is PECO's total rate base and what are its major components?

A. The total rate base amount employed in the COSS is $2.46 billion (PECO Exhibit JD-1, line 46) and is derived from PECO Exhibit MJT-1, page 1.

For purposes of discussing how I functionalized, classified, and allocated the rate base in the COSS and treated major rate base categories, I will refer to the following groupings of rate base items: production plant, storage plant, distribution plant, general plant, depreciation reserve, other rate base items and cash working capital.

- ***Production plant*** represents the investment in LPG production assets which are used to meet design peak day and short-term needs of firm sales customers. These assets have been functionalized to Production, classified to demand, and allocated among rate classes based on design peak day send-out.

- ***Storage plant*** represents the investment in LNG facilities which are used to meet design peak day and short-term needs of firm sales customers. These assets have been functionalized to Storage, classified to demand, and allocated among rate classes based on design peak day send-out.

- ***Distribution plant*** comprises mains, services, meters and meter installation, and other distribution plant. A description of each of those components is as follows:

    - ***Mains*** were functionalized to Distribution and classified as capacity. A portion of mains costs was directly assigned. The balance of mains costs (approximately 99% of the total) was classified and allocated using the "Average and Excess Demand" method. In that method, the portion of mains costs equal to the system average load factor are allocated among the rate classes based on their average daily deliveries (annual deliveries divided by 365 days). The balance of mains costs is allocated based on excess demand, which is the excess of design peak demand over average demand. The excess demand is allocated among rate classes in proportion to each class' peak demand over its average demand (Exhibit JD-6, page 5). This is the same method used by PECO in its March 2010

gas base rate case (Docket R-2010-2161592) and has been recognized as an acceptable method by the American Gas Association's *Gas Rate Fundamentals*, 1987 Edition.

- ***Services*** connect individual customers to the system. These assets have been functionalized to their own category, classified as customer-related costs, and allocated among rate classes based on the estimated total replacement cost for each rate class. Total replacement cost-of-service for a rate class was estimated by multiplying the estimated replacement cost of a service line for the rate class by the number of customers in the rate class. Replacement costs were developed based on PECO's actual costs from July 2015 to June 2020 (Exhibit JD-6, page 8).

- ***Meters and Meter installation*** includes assets that have been functionalized to their own category, classified as customer-related costs. A portion of meter and meter installation was directly assigned. The balance of meter and meter installation costs (approximately 99.8% of the total) was allocated among rate classes based on the average cost of meters of each type for each rate class, as determined from the Company's records (Exhibit JD-6, page 6 and page 9).

- ***Other distribution plant*** comprises primarily a) measuring and regulating station equipment (M&R), a portion of which was directly assigned, and the balance of which was functionalized to Distribution, classified as demand-related, and allocated among the rate classes based on mains

allocation and b) land and land rights and structures and improvements, which were functionalized to Distribution, classified as demand-related, and allocated among rate classes using averages for distribution plant in main and measuring and regulating station equipment.

- ***General plant*** includes primarily structures and improvements, tools and shop and garage equipment. These assets were functionalized, classified, and allocated among rate classes based on direct labor content of operating expenses, reflecting the nature of the assets and common cost-of-service practice.

- ***Depreciation reserve*** was based on each asset account. Each component of the depreciation reserve items was functionalized, classified, and allocated among rate classes in the same ratio as the related assets.

- ***Other rate base items*** include primarily gas storage inventory, accumulated deferred income taxes ("ADIT"), common plant, customer deposits, customer advances, cash working capital and pension, which are discussed below.

    - ***Gas storage inventories*** are used to support the planned winter heating requirements of the Company's sales customers and the daily balancing requirements of all its customers. Gas storage inventories were functionalized and classified to commodity. The Company has identified that 2.2%[1] of its storage activity relates to the daily balancing of its

[1] The Company updated the percentage of storage costs applicable to its Transportation Customers as part of the settlement of its 2020 annual Purchased Gas Cost ("PGC 37") case, Docket No. R-2020-3019661. *See* Joint

transportation service customers (Exhibit JD-6, page 6). Therefore, 2.2% of PECO's gas storage inventory costs were allocated among its transportation rate classes based on their annual volumes. The remainder of the Company's storage activity was allocated among the firm sales rate classes based on the average excess of their winter (November-March) gas volumes over their average annual volumes.

- ***ADIT*** refers to tax liabilities that are deferred as a result of accelerated depreciation and includes "excess" ADIT that has been removed from the ADIT account and recorded as a regulatory liability. Those ADIT liabilities were functionalized, classified, and allocated among rate classes in proportion to plant in service.

- ***Common plant*** contains assets similar to those customarily found in general plant, and therefore, was functionalized, classified, and allocated among rate classes based on direct labor content of operating expenses.

- ***Customer deposits and customer advances*** were directly assigned to rate classes based on information from the Company's records (Exhibit JD-6, page 14).

Petition for Complete Settlement at ¶ 18 (Aug. 17, 2020). On September 17, 2020, the Administrative Law Judge recommended "that the Joint Petition for Complete Settlement be approved without modification," and further noted that "the fact that the settlement agreement is unopposed is further evidence of its reasonableness." *See* Recommended Decision at p. 24 (Sept. 17, 2020). As of the filing of the Company's present request for an increase in base rates, the Commission had not yet issued an order in the PGC 37 proceeding. In the event that the Commission does not approve the PGC 37 settlement, the Company will update the gas storage inventory costs that were allocated among its transportation rate classes.

- ***Cash working capital*** represents PECO's need for cash to keep the business running until revenues are collected to pay the costs of providing services. Cash working capital was calculated based on the results of the lead-lag study prepared by Mr. Trzaska and described in PECO Statement No. 3. Payroll and pension-related cash working capital were allocated based on labor; commodity related cash working capital was directly assigned to commodity.

- ***Pension assets***, discussed by Mr. Trzaska in PECO Statement No.3, are directly related to employees and, therefore, were functionalized, classified, and allocated among rate classes based on the direct labor component of operating expenses.

24. Q. What are the major categories of PECO's costs?

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

- Production costs;
- Storage costs;
- Distribution costs;
- Customer accounts and customer service expenses;
- Administrative and general expenses;
- Depreciation and amortization expense;
- Taxes other than income taxes; and
- Income taxes.

25. Q. In determining how you would treat these expenses in PECO's COSS, was there any other important category of costs that you considered?

A. Yes, labor costs affect some cost categories. Consequently, certain cost categories are allocated based on the direct labor costs. For example, Administrative & General Salaries, Account 920, is allocated among rate classes based on the direct labor costs. In order to develop such labor cost allocators, the direct labor costs included in each expense account were obtained from data assembled by Mr. Trzaska.

26. Q. What costs are included in PECO's production costs and how were these costs functionalized, classified, and allocated among the rate classes?

A. Production costs include costs related to operating and maintaining of LPG production assets and natural gas operating costs. Costs related to LPG have been functionalized to Production, classified to demand, and allocated among rate classes based on design peak day send-out.

27. Q. What costs are included in PECO's storage costs and how were these costs functionalized, classified, and allocated among the rate classes?

A. Storage costs are the costs of operating PECO's LNG facilities, which PECO maintains to meet the design peak day and short-term needs. Therefore, these costs were functionalized to Storage, classified as demand, and allocated among rate classes based on design peak day send-out.

28. Q. What costs are included in PECO's distribution costs and how were these costs functionalized, classified, and allocated among the rate classes?

A. Most of PECO's distribution costs are the costs of operating and maintaining PECO's mains, services, and meters, i.e., the gas delivery system. Some of these costs are functionalized to distribution and some to their own categories. To the extent possible, costs were directly assigned. The balance of the costs of operating and maintaining PECO's gas delivery system were analyzed to determine which assets they were incurred to operate or maintain, and were functionalized, classified, and allocated among rate classes in the same manner as the assets they were incurred to operate or maintain. In addition to the costs of operating and maintaining PECO's gas delivery system, distribution costs include:

- ***Customer installation expenses*** include field investigations for odors, high bill complaints, and potential and actual energy theft, and were allocated based on number of customers; and

- ***Other Operating and Maintenance expenses*** were allocated in proportion to total distribution plant.

29. Q. What costs were included in PECO's customer accounts and customer service costs and how were these costs functionalized, classified, and allocated among the rate classes?

A. PECO's customer accounts and customer service costs include meter reading expenses, customer records and collection expenses, uncollectible accounts

expense, miscellaneous customer accounts expense, customer assistance expense, and demonstrating and selling expense.

- ***Meter reading expenses*** were functionalized to Customer Accounts, classified to the customer category, and allocated among rate classes based on the number of customers.

- ***Customer records and collection expenses*** include activities for billing, call center, payments processing, recoveries, and support for CAP customers. These costs were functionalized to Customer Accounts and classified to the customer category. The account was analyzed in detail to identify the activities included and each activity was allocated among the rate classes using an appropriate basis. For example, the costs of bill activities were allocated based on customer counts, and call center costs were allocated based on a study of calls over a twelve-month period (Exhibit JD-6, page 10). A single customer allocation could not be used because some costs are specific to residential customers while others are specific to commercial and industrial customers. Therefore, a weighted allocator, based upon the analysis discussed above, was used for this account.

- ***Uncollectible accounts expense***, or bad debt expense, was classified to the customer category. A portion of this amount was determined to be related to Pre-Program Arrearages and was directly assigned to residential customers. The balance of the expense was allocated among rate classes based on the

Company's write-off experience over a historic five-year period (July 1, 2015-June 30, 2020) (Exhibit JD-6, page 13).

- ***Miscellaneous customer accounts expenses*** were functionalized to Customer Accounts and classified to the customer category. These expenses include primarily IT support costs and communication and marketing costs. Those costs were allocated among rate classes based on number of customers.

- ***Customer assistance expense*** comprises expenses incurred for the Low Income Usage Reduction Program. The associated costs were directly assigned to residential customers (Exhibit JD-6, page 11).

- ***Demonstrating and selling expense*** includes expense incurred in demonstrating activities. The expense was functionalized to Customer Accounts, classified to the customer category, and directly assigned to different customer classes based on the Company's records (Exhibit JD-6, page 11).

30. Q. How were administrative and general expenses functionalized, classified, and allocated among rate classes?

A. Administrative and general ("A&G") costs include administrative and general salaries, office supplies and expenses, outside services, injuries and damages, employee benefits, property insurance costs, regulatory commission expenses, miscellaneous general expenses, and maintenance of general plant.

Except for items discussed immediately below, A&G costs are related to labor costs and therefore were functionalized, classified, and allocated among rate classes in the same ratio as direct labor content.

- ***Property insurance costs*** were functionalized, classified, and allocated among rate classes in the same ratio as plant in service.

- ***Regulatory commission expenses*** were functionalized, classified, and allocated among rate classes in proportion to claimed revenue.

- ***Maintenance of general plant expenses*** were functionalized, classified, and allocated among rate classes in the same ratio as general plant in service.

31. Q. How was depreciation expense functionalized, classified, and allocated among the rate classes?

A. Depreciation and amortization expenses were derived from PECO Exhibit CF-3, which is sponsored by Ms. Caroline Fulginiti, and PECO Exhibit No. MJT-1, which shows depreciation expense by plant account. Each component of depreciation/amortization expense item was functionalized, classified, and allocated among rate classes in the same ratio as the related assets.

32. Q. How was Manufactured Gas Plant remediation expense functionalized, classified, and allocated among the rate classes?

A. Manufactured Gas Plant ("MGP") expense is the normalized level of expense for

remediating former MGP sites in the Company's service territory. This cost was allocated among rate classes based on annual gas throughput volumes.

33. Q. How were taxes other than income taxes functionalized, classified, and allocated among the rate classes?

A. Taxes other than income tax include payroll-related taxes, Public Utility Realty Tax ("PURTA"), local use taxes, and real estate taxes. Payroll-related taxes were functionalized, classified, and allocated among rate classes based on direct labor expenses. PURTA taxes and real estate taxes were allocated based on total plant in service, and local use taxes based on claimed revenue.

34. Q. How was income tax expense functionalized, classified, and allocated among rate classes?

A. Income tax expense was calculated on the basis of revenue at present rates using the same methodology employed by Mr. Trzaska in PECO Exhibit MJT-1, Schedule D-18. Income tax expense includes income taxes for plant and for pension. Plant related components were functionalized, classified, and allocated among rate classes based on total plant; pension related components were allocated based on labor.

35. Q. How were PECO's revenues at present rates computed and assigned among rate classes?

A. The revenues were computed and assigned as follows:

- ***Distribution revenue*** at present rates is shown in PECO Exhibit MJT-1, Schedule D-5, and in the proof of revenues set forth in PECO Exhibit JAB-4. The total was assigned to the rate classes based on the same revenue requirement exhibit and the proof of revenues. Distribution revenue at present rates for each rate class is shown on line 5 of PECO Exhibit JD-1.

- ***Purchased gas revenue*** consists of revenues collected under the PGC tariffs for commodity and balancing service. Commodity revenue and balancing service revenue are determined and assigned based upon PECO's budget. For each rate class, and in total, purchased gas revenue equals the sum of the commodity cost, the balancing service cost, and the revenue requirement for cash working capital.

- ***Forfeited discount revenue*** is determined from PECO's budget, and was allocated among the rate classes based on an analysis of forfeited discount over a historic three-year period (July 1, 2017-June 30, 2020) (Exhibit JD-6, page 14).

- ***Other gas revenue*** consists of interdepartmental rents, and was allocated among the rate classes based on distribution plant.

IV. DEVELOPMENT OF RATE CLASS REVENUE REQUIREMENT

36. Q. Please explain how you developed the revenue requirement for each class.

A. The revenue requirements for each rate class were calculated using the same method employed by Company witness Mr. Trzaska to compute the overall

revenue requirement for the FPFTY. Thus, the revenue requirement for each rate class is the sum of that class' allocated operating expenses, depreciation expense, general taxes, return on rate base, and income tax expense. Return on rate base for each rate class was computed by multiplying the rate class' rate base by the proposed system average rate of return. Income taxes included in the revenue requirement for each rate class were computed directly by grossing up the required non-debt return on rate base for the class at the applicable statutory income tax rates. PECO Exhibit JD-1, line 133, shows the total revenue requirement by rate class reflecting the fully allocated distribution cost-of-service at the proposed system average rate of return. PECO Exhibit JD-1, line 81, shows the portion of the total revenue requirement PECO proposes to collect in distribution rates.

37. Q. Please explain how you determined the increase or decrease in revenue needed for each class to produce the system average rate of return.

A. The increase or decrease needed for each rate class was calculated by comparing the revenue requirements for each rate class to the forecasted revenue at present rates for that class for the FPFTY. This is the same method used by Mr. Trzaska in PECO Exhibit MJT-1, Schedule A-1, with respect to the overall revenue requirement and revenue deficiency. The increases or (decreases) in rate class revenue needed to produce a rate of return equal to the Company's proposed overall rate of return are shown in PECO Exhibit JD-1 at line 134, which total $68.72 million. The increases in class distribution revenue are shown on line 83, which total $68.71 million. The increase in purchased gas revenue of $0.1 million

under the PGC is shown on line 126. In addition, forfeited discounts (i.e., late payment charges) are expected to increase by $0.1 million as a result of the increase in distribution revenue.

V. RESULTS OF THE COST-OF-SERVICE STUDY

38. Q. Please describe the information in Exhibit JD-1.

A. PECO Exhibit JD-1, which sets forth the substance of the COSS, compares the revenue at current rates by rate class to the revenue requirement allocated on a cost-of-service basis to each rate class. Net income at present rates, shown on line 17, is computed by subtracting operating expenses, depreciation and amortization, taxes other than income taxes, and income taxes (lines 10 to 14) from revenue at present rates (line 7). The return on rate base at present rates for each rate class is shown on line 26, and the relative rates of return are shown on line 27.

Line 133 shows each rate class' revenue requirement (including revenue from distribution charges and purchased gas) at the proposed overall rate of return. Line 68 shows operating expenses, line 69 shows depreciation and amortization expense. Lines 79 and 122 show operating income assuming each rate class pays its full cost-of-service. Line 134 shows the increase in revenue needed for each rate class to produce revenues equal to its revenue requirement at full cost-of-service and produce the system average rate of return. Line 83 shows the increase (decrease) in distribution revenue for each rate class to produce revenue from

distribution charges equal to its distribution revenue requirement at full cost-of-service.

39. Q. Please describe the information in Exhibit JD-2.

A. PECO Exhibit JD-2 is the rate class cost-of-service and shows the allocation of each element of measures of value also known as rate base (RB schedules), operating expenses (E schedules), depreciation expense (D schedules), and taxes (TO and TI schedules) among the rate classes. This information is contained on the first fourteen pages of the exhibit.

Also included in this exhibit are the external and internal allocators used for the rate case allocations, which are shown on pages 14-30 of the exhibit.

40. Q. Please describe the information in Exhibit JD-3.

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

41. Q. Please describe the information in Exhibit JD-4.

A. PECO Exhibit JD-4 presents unitized revenue requirement for each rate class. The unitized revenue requirements are the functionalized and classified revenue requirements allocated to each class of service divided by the appropriate units. For example, capacity and commodity related cost are divided by Mcf and

customer-related cost is divided by number of customers. The unit cost is provided by classification and functional area.

42. Q. Please describe the costs considered in developing the proposed customer charges.

A. The proposed customer charges are based on the specific customer-classified costs in the COSS that are approved by the Commission for recovery in customer charges. Customer-related costs include all costs incurred to attach a customer to the distribution system, for meter usage, and to maintain the customer's account. They include: (1) capital costs associated with services and the meters, and general plant supporting the functions identified above; (2) operating and maintenance expenses related to those assets described in (1); and (3) associated administrative and general expense, metering and billing expenses, customer service and account expenses, appropriate pensions and benefits, payroll taxes that are part of the applicable labor expenses, and working capital. Total customer costs by rate class for the FPFTY are shown in PECO Exhibit JD-4, in the unit cost analysis. PECO Exhibit JD-5 provides a summary and each element of measures of value of customer charges.

43. Q. Please describe the information in Exhibit JD-6.

A. Exhibit JD-6 presents the development of the main external allocators that are described below and used in the COSS. Except where noted, all data are for the FPFTY.

Index (page 1) – Table of External Allocators.

Summary of External Allocator Values by Rate Class (page 2)

Gas Deliveries (page 3) – Annual and monthly gas deliveries in Mcf, for each rate class.

Customer Numbers (page 4) – Monthly and average annual number of customers for each rate class.

Demand (page 5) – Average and Excess Demand allocator, which is used to allocate a portion of main, measuring and regulating station equipment costs.

Storage (page 6) – Storage allocator based on usage of storage assets for balancing needs of firm sales customers and transportation customers.

Mains, M&R and Meter Direct (page 7) – Data for customers with directly assigned mains, measuring and regulating station equipment, meter and meter installation. Data include cost, accumulated depreciation, depreciation expense, and annual usage as of June 30, 2020.

Service Costs (page 8) – Computes investment in services for each rate class at average replacement cost for the period July 2015 to June 2020. PECO does not account for services separately and, therefore, has used estimated replacement cost to allocate the account to the classes of service.

Meter Costs (page 9) – Computes investment in meters for each rate class at current costs for each meter type as of June 2020.

Account 903 Allocator (page 10) – Allocates costs associated with each activity recorded in Account 903 (July 2019 to June 2020, Customer Records and Collection), by using an appropriate external allocator. Each activity, the cost of the activity, and the allocator assigned to each is shown in a separate row. Row 19 summarizes the costs by rate class. The weighted allocators are shown on row 20. The separate allocations are necessary because some costs are only applicable to specific rate classes.

Account 908-916 Allocator (page 11) – Allocates the costs of each activity recorded in Account 908-916 (July 2019 to June 2020, including Customer Assistance and Sales Expenses), by using an appropriate external allocator. Rows 1-6 list each activity, the cost of the activity and the allocator assigned to it. Row 13 summarizes the costs by rate class. The weighted allocators are on row 14.

Accounts Receivable Over 60-Day (page 12) – Computes the A/R Over 60-Day allocators. The column "Over 60-Day Allocator" shows the percentage of PECO's total gas accounts receivable outstanding for more than two months for each rate class at each month-end from July 2019 to June 2020.

Write-Offs (page 13) – Computes the write-off allocators by using net charge-offs for July 2015 to June 2020.

Directs (page 14) – Direct assignments for deposits, interest deposits (July 2017 to June 2020), advances (as of June 2020), and forfeited discounts (July 2017 to June 2020).

Purchased Gas Cost (page 15) – Annual costs for each rate class.

Balancing Service Cost (page 16) – Annual costs for each rate class.

Purchase of Receivables (page 17) – Annual costs for each rate class.

44. Q. Please describe how the purchased gas supply section of the COSS is used.

A. In the COSS summary, there is a section for purchased gas. This section is used to derive the non-fuel gas procurement costs to be recovered in the GPC. The revenue requirement associated with those costs is used to develop a rate for the GPC.

VI. CONCLUSION

45. Q. Please summarize your conclusion with respect to the COSS.

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

46. Q. Does this complete your direct testimony at this time?

A. Yes, it does.

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