

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO**

* * * * *

RE: IN THE MATTER OF ADVICE)
LETTER NO. 1712-ELECTRIC FILED BY)
PUBLIC SERVICE COMPANY OF)
COLORADO TO REPLACE COLORADO) PROCEEDING NO. 16AL-_____E
PUC NO. 7-ELECTRIC TARIFF WITH)
COLORADO PUC NO. 8-ELECTRIC)
TARIFF)

DIRECT TESTIMONY AND ATTACHMENTS OF DOLORES R. BASQUEZ

ON

BEHALF OF

PUBLIC SERVICE COMPANY OF COLORADO

January 25, 2015

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SUMMARY OF THE DIRECT TESTIMONY OF DOLORES R. BASQUEZ

Ms. Dolores R. Basquez is a Pricing Consultant for Public Service Company of Colorado ("Public Service" or "Company"). In this position, she is responsible for developing cost allocation studies for Public Service, one of four utility operating company subsidiaries of Xcel Energy Inc. Her duties include cost allocation and rate design, as well as other financial and rate related analyses.

In her testimony, Ms. Basquez presents the Company's proposed Class Cost of Service Study ("CCOSS"). The proposed CCOSS classifies and allocates the revenue requirements from the functional cost of service study to each rate class. In conducting the CCOSS for this proceeding, the Company did not deviate from the methodology used by the Company in its 2009 CCOSS and approved by the Commission in the Company's 2009 Electric Phase II Rate Case, Docket No. 09AL-299E¹.

¹ With the exception of updating the allocation methodology used to allocate service lateral costs.

The total revenue requirement by class of service is the sum of the allocated (and directly assigned) customer-related revenue requirements, capacity-related revenue requirements, energy-related revenue requirements and demand-side management and low-income assistance revenue requirements. Applying this consistent methodology, the CCROSS results presented in this proceeding show a 15.5 percent cost change per kilowatt-hour (“kWh”) for the Residential class of service versus the CCROSS presented in the 2009 Electric Phase II Rate Case, and a 16.1 percent overall cost change per kWh for all Retail classes of service versus the 2009 Electric Phase II Rate Case.

Ms. Basquez recommends that the Commission approve the CCROSS proposed by the Company.

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LIST OF ATTACHMENTS

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GLOSSARY OF ACRONYMS AND DEFINED TERMS

| <u>Acronym/Defined Term</u> | <u>Meaning</u> |
|------------------------------------|--|
| 2009 Electric Phase II Rate Case | Docket No. 09AL-299E |
| 2014 Electric Phase I Rate Case | Proceeding No. 14AL-0660E |
| 4CP-AED | Four Coincident Peak – Average and Excess Demand |
| AED | Average and Excess Demand |
| C&I | Commercial and Industrial |
| CCOSS | Class Cost of Service Study |
| CP | Coincident Peak |
| CPUC or Commission | Colorado Public Utilities Commission |
| DSM | Demand-Side Management |
| EAP | Electric Assistance Program |
| GRSA | General Rate Schedule Adjustment |
| IDR | Interval Data Recorder |
| kV | Kilovolt |
| kW | Kilowatt, |
| kWh | Kilowatt hour |
| NCP | Non-Coincident Peak Demand |
| Schedule PG | Primary General |
| Public Service or Company | Public Service Company of Colorado |
| Schedule PST | Primary Standby Service |

| <u>Acronym/Defined Term</u> | <u>Meaning</u> |
|------------------------------------|--|
| Schedule PTOU | Primary Time of Use Service |
| Stratified CCOSS | CCOSS in which fixed production plant is broken down into energy-related and capacity-related components |
| Xcel Energy | Xcel Energy Inc. |

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**I. INTRODUCTION, QUALIFICATIONS, PURPOSE OF TESTIMONY, AND
RECOMMENDATIONS**

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Dolores R. Basquez. My business address is 1800 Larimer Street,
Suite 1400, Denver, Colorado 80202.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?

A. I am employed by Public Service Company of Colorado ("Public Service" or the
"Company") as a Pricing Consultant in the Public Service Regulatory
Department. Public Service Company of Colorado is the operating utility
subsidiary of Xcel Energy Inc. ("Xcel Energy").

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THE PROCEEDING?

A. I am testifying on behalf of Public Service.

Q. PLEASE SUMMARIZE YOUR RESPONSIBILITIES AND QUALIFICATIONS.

A. As a Pricing Consultant, I am responsible for developing cost allocation studies
and rate design for Public Service. My duties include cost allocation, rate design

1 and financial and rate related analyses. A description of my qualifications,
2 duties, and responsibilities is set forth in my attached Statement of Qualifications.

3 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

4 A. The purpose of my testimony is to explain and sponsor the electric Class Cost of
5 Service Study ("CCOSS") used in the design of the Company's proposed electric
6 base rates. In addition, pursuant to the Colorado Public Utilities Commission
7 ("Commission") Decision No. C10-0286 in Docket No. 09AL-299E ("2009 Electric
8 Phase II Rate Case"), dated March 29, 2010,² the Company is providing a
9 CCOSS that includes a stratification adjustment ("Stratified CCOSS"). The
10 Company is not proposing this Stratified CCOSS; we provide the Stratified
11 CCOSS to comply with the Commission's directive. Company witness Ms. Alice
12 Jackson explains why the Company does not support the Stratified CCOSS in
13 her Direct Testimony. I will describe the Stratified CCOSS in more detail later on
14 in my Direct Testimony.

15 **Q. ARE YOU SPONSORING ANY ATTACHMENTS AS PART OF YOUR DIRECT**
16 **TESTIMONY?**

17 A. Yes, I am sponsoring Attachments DRB-1, DRB-2, DRB-3, DRB-4 and DRB-5. I
18 prepared Attachments DRB-2, DRB-3, DRB-4 and DRB-5. Attachment DRB-1 is
19 the Functional Allocation Study prepared by the Company. Attachment DRB-2 is
20 the CCOSS the Company is proposing in this case. Attachment DRB-3 outlines
21 the results of the 2013 CCOSS by rate class. Attachment DRB-4 is the Stratified

² Please see page 14, paragraph 34 of CPUC Decision No. C10-0286.

1 CCOSS. Attachment DRB-5 is a comparison of the CCOSS and the Stratified
2 CCOSS by rate class.

3 **Q. WHAT RECOMMENDATIONS ARE YOU MAKING IN YOUR DIRECT**
4 **TESTIMONY?**

5 A. I recommend the Commission approve the Company's proposed CCOSS.

1 **II. OVERVIEW**

2 **Q. WHAT IS THE PURPOSE OF THE CCOSS?**

3 A. The purpose of the CCOSS is to allocate the adjusted total revenue requirement
4 from the Company's most recent Phase I proceeding, Proceeding No 14AL-
5 0660E ("2014 Electric Phase I Rate Case"), to various customer classes. The
6 CCOSS sets forth the revenue requirement by rate class that is used in the
7 design of the Company's proposed electric base rates. In other words, the
8 CCOSS measures the contribution each class makes to the Company's overall
9 Cost of Service. Company witnesses Mr. Scott Brockett, Mr. Robert Osborne
10 and Mr. Steven Wishart discuss rate-design issues in their testimony and present
11 the Company's proposed rate design. The class allocation study or CCOSS is
12 included as Attachment DRB-2 to my Direct Testimony.

13 **Q. DID THE COMPANY DEVIATE FROM THE METHODOLOGY APPROVED BY**
14 **THE COMMISSION IN THE 2009 ELECTRIC PHASE II RATE CASE IN**
15 **DEVELOPING ITS CCOSS FOR THIS PROCEEDING?**

16 A. No. The Company used the same methodology to prepare the CCOSS for this
17 Phase II case that the Commission approved in the 2009 Electric Phase II Rate
18 Case with the exception of updating the methodology used to allocate service
19 lateral costs. I will discuss this change later in my Direct Testimony

1 **Q. WHY DOES THE COMPANY BELIEVE THAT THE METHODOLOGY**
2 **APPROVED IN THE 2009 ELECTRIC PHASE II RATE CASE IS STILL**
3 **APPROPRIATE?**

4 A. The Company explored alternative approaches to allocating generation and
5 transmission costs. But it is important to remember that the fundamental driver
6 of the Company's proposed (and approved) allocation of generation and
7 transmission costs in the 2009 Electric Phase II Rate Case was the fact that our
8 system peak loads were much higher in the summer than in non-summer
9 months. As Mr. Brockett explains in more detail in his Direct Testimony in this
10 proceeding, Public Service remains a pronounced summer-peaking electric
11 utility. Consequently, we believe the Four Coincident Peak – Average and
12 Excess Demand ("4CP-AED") allocator applied to generation and transmission
13 costs in the last proceeding – which emphasizes class contributions to summer
14 peak loads - is still appropriate.

15 Likewise, the Company evaluated alternative approaches to allocating
16 distribution costs. Again, we concluded that the approach the Company
17 proposed and the Commission adopted in the 2009 Electric Phase II Rate Case
18 is still appropriate.

19 I will explain the Company's proposed approach to functionalizing, classifying
20 and allocating costs in more detail later in my Direct Testimony.

1 **Q. PLEASE IDENTIFY THE COSTS THAT FORM THE BASIS OF THE**
2 **COMPANY'S CCROSS.**

3 A. As a result of the Company's 2014 Electric Phase I Rate Case, a total base
4 revenue level of \$1,558,026,498³ was authorized for the electric department. A
5 General Rate Schedule Adjustment ("GRSA") was implemented to begin
6 collection of this annual revenue on February 13, 2015. Specifically, the
7 Company applied a uniform percentage rider of 14.19 percent to all base rates.
8 When new base rates from this Phase II are implemented, the 14.19 percent
9 GRSA will be eliminated.

10 **Q. IS \$1,558,026,498 THE BASE RATE REVENUE LEVEL THE COMPANY HAS**
11 **ALLOCATED AMONG THE VARIOUS RATE CLASSES IN ITS CCROSS?**

12 A. No. In the Company's 2009 Electric Phase II Rate Case, an Electric Assistance
13 Program ("EAP") was established⁴. Consistent with the continued EAP
14 approach, the Company has included an additional \$4 million in the CCROSS for
15 this program. The adjusted target revenue requirement for the CCROSS is as
16 follows:

17 Authorized Base Rate Revenue Level: \$1,558,026,498

18 EAP \$ 4,000,000

19 Adjusted Base Rate Revenue Level: \$1,562,026,498

³ Please see Attachment A to the Settlement Agreement in Proceeding No. 14AL-0660E. The Base Rate Revenue level is derived by adding line number 14 to line number 28. Please note the amount of \$1,558,026,498 is \$170 larger than the settled amount due to rounding in the Company's Functional Allocation study.

⁴ Please see paragraph 111 on page 37 of CPUC Decision No. C10-0286 in Docket No. 09AL-299E.

Q. PLEASE SUMMARIZE THE ALLOCATION BY CLASS OF THE TOTAL ADJUSTED BASE RATE REVENUE?

A. Table DRB-1, below, sets forth by class the allocation of the total adjusted base rate revenue approved in the 2014 Electric Phase I Rate Case.

Table DRB-1

| Rate Class | 2014 Electric Phase I Retail Base Rate Revenue | CCOSS Allocated Electric Retail Base Rate Revenue by Class |
|-------------------------|---|---|
| Residential | | 644,533,804 |
| Small Commercial | | 89,583,237 |
| C&I Secondary | | 605,105,094 |
| C&I Primary | | 118,785,831 |
| C&I Transmission | | 62,284,509 |
| Total Lighting | | 41,217,303 |
| Interconnection Charges | | 516,720 |
| Total Retail | \$1,562,026,498 | \$1,562,026,498 |

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR CCOSS BY RATE CLASS, INCLUDING THE TOTAL COST CHANGE AND THE TOTAL COST CHANGE PER KILOWATT HOUR (“kWh”) SINCE THE 2009 ELECTRIC PHASE II RATE CASE.

A. Table DRB-2, below, sets forth the percentage cost change and the percentage cost change per kWh by broad customer class from the 2009 Electric Phase II Rate Case to my proposed CCOSS in this proceeding.

1

Table DRB-2

| Rate Class | Cost Change Difference % | Cost Change/kWh Difference % |
|---------------------|-------------------------------------|---|
| Residential | 18.1 | 15.5 |
| Small Commercial | 7.9 | 18.3 |
| C&I Secondary | 14.1 | 18.7 |
| C&I Primary | 11.4 | 9.3 |
| C&I Transmission | 25.3 | 20.1 |
| Total Lighting | 1.9 | 0.6 |
| Total Retail | 15.2 | 16.1 |

2

Attachment DRB-3 outlines the changes in more detail.

3

**Q. IN TABLE 2, YOU SHOW THE COST CHANGE AND THE COST CHANGE
PER KWH. PLEASE EXPLAIN THIS DISTINCTION.**

4

5

A. The cost change represents the percentage change in the revenue requirement from the 2009 Electric Phase II Rate Case CCOSS to the CCOSS proposed in this proceeding. The cost change per kWh represents the percentage change in cost per kWh from the 2009 Electric Phase II Rate Case CCOSS to the CCOSS proposed in this proceeding. In other words, the cost change per kWh takes into consideration not only the change in a class's cost responsibility, but also the change in class billing determinants.

6

7

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9

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12

Q. WHY IS THIS AN INFORMATIVE OR APPROPRIATE COMPARISON?

13

A. Comparing the proposed CCOSS to the 2009 Electric Phase II Rate Case CCOSS provides information about how the allocation of costs by rate class have changed since the 2009 Electric Phase II Rate Case, which is the basis for our

14

15

- 1 current base rates. Ms. Jackson also provides more detail on the results of the
- 2 CCOSS and another look or comparison in her Direct Testimony.

1 **III. THE COST ALLOCATION PROCESS**

2 **Q. PLEASE DESCRIBE THE PROCESS OF PREPARING A CCOSS.**

3 A. The process of conducting a CCOSS involves three steps: functionalization,
4 classification and allocation. The end result is a revenue requirement by rate
5 class that is used in rate design.

6 **Q. PLEASE DESCRIBE THE FIRST STEP – THE FUNCTIONALIZATION OF**
7 **COSTS.**

8 A. Functionalization entails the sorting of plant investment and expenses by system
9 component, such as production, transmission, distribution or customer
10 operations. For the most part, the functionalization of costs is accomplished
11 through the Company's accounting system. For example, FERC Account 312 is
12 Boiler Plant Equipment. Boiler Plant Equipment is equipment used in the
13 production of steam, to be used primarily for generating electricity. Therefore,
14 FERC account 312 is assigned to steam production.

15 **Q. PLEASE DESCRIBE THE SECOND STEP OF CONDUCTING A CCOSS – THE**
16 **CLASSIFICATION OF COSTS.**

17 A. Classification takes the functionalization step beyond the accounting records by
18 identifying the primary driver of each cost. Here, I am referring to three basic
19 types of costs: (1) energy-related costs incurred to generate the energy that
20 customers require during the test year; (2) capacity-related costs incurred to
21 ensure reliable service during periods when system load is at its highest; and (3)

1 customer-related costs incurred to connect customers to the system, bill them
2 and administer their service on an ongoing basis.

3 **Q. CAN YOU PROVIDE EXAMPLES OF COSTS THAT ARE CONSIDERED**
4 **ENERGY-RELATED?**

5 A. The most significant energy-related costs are the costs of fuel and purchased
6 energy. But these costs are recovered through the Electric Cost Adjustment.
7 The proposed CCOSS captures only non-fuel energy-related costs. Examples of
8 these non-fuel costs are costs of chemicals, water and ash handling. These
9 costs vary with the amount of electric energy produced.

10 **Q. CAN YOU PROVIDE EXAMPLES OF COSTS THAT ARE CONSIDERED**
11 **CAPACITY-RELATED?**

12 A. The costs of generation, transmission and distribution plant are examples of
13 costs that are generally considered capacity-related costs. The Company must
14 design its bulk-power and delivery systems with sufficient capacity to produce
15 and deliver energy during periods when system demand is at its highest.

16 **Q. CAN YOU PROVIDE EXAMPLES OF COSTS THAT ARE CONSIDERED**
17 **CUSTOMER-RELATED?**

18 A. Generally, the investment costs of meters and services and expenses associated
19 with meter reading, billing, and customer accounting are classified as customer-
20 related costs, because these costs vary with the number of customers on the
21 system.

1 **Q. PLEASE DESCRIBE THE THIRD AND FINAL STEP OF CONDUCTING A**
2 **CCOSS - ALLOCATING COSTS AMONG RETAIL RATE CLASSES.**

3 A. The allocation step involves the assignment of classified costs to the various
4 customer classes. One of the primary goals of a CCOSS is to develop class cost
5 allocation factors that accurately reflect cost causation. Therefore, the allocation
6 of costs is usually based on some measure of class loads or class service
7 characteristics. For example, service lateral costs are allocated to various
8 customer classes based on service lateral replacement costs weighted by the
9 number of customers for each type of service lateral the Company installs. Other
10 allocators are used to allocate energy-related or demand- related costs.

1 **IV. COMPANY IMPLEMENTATION OF THE COST ALLOCATION PROCESS**

2 **Q. PLEASE IDENTIFY THE CUSTOMER CLASSES USED IN THE COMPANY'S**
3 **CCOSS?**

4 A. The customer classes used in the Company's CCOSS are as follows:

- 5 • Residential General
- 6 • Residential Demand
- 7 • Small Commercial
- 8 • Commercial and Industrial ("C&I") Secondary
- 9 • C&I Primary
- 10 • C&I Transmission
- 11 • Street and Area Lighting
- 12 • Traffic Signal Lighting

13 **Q. WOULD YOU PLEASE DESCRIBE HOW INDIVIDUAL SERVICE SCHEDULES**
14 **ARE AGGREGATED INTO THESE CUSTOMER CLASSES FOR**
15 **ALLOCATION PURPOSES?**

16 A. A designated customer class in the CCOSS may comprise multiple service
17 schedules. For example, the broad C&I Primary class includes Primary General
18 Service ("Schedule PG"), Primary Standby Service ("Schedule PST") and
19 Primary Time of Use Service ("Schedule PTOU"). I do not directly allocate costs
20 to each of these service schedules. Instead, I allocate costs to the broad Primary
21 C&I customer class. Other Company witnesses then design rates for each
22 service schedule that recover in aggregate the costs allocated to the C&I Primary
23 class.

24 **Q. ARE ALL COSTS ALLOCATED IN THE CCOSS?**

25 A. No. There are some costs that are directly assigned.

1 **Q. PLEASE EXPLAIN DIRECT COST ASSIGNMENT.**

2 A. A cost is directly assigned if it can be specifically linked to a specific rate class or
3 individual customer.

4 **Q. PLEASE SUMMARIZE THE COSTS THAT WERE DIRECTLY ASSIGNED IN**
5 **THE CCROSS.**

6 A. In some cases, a distribution substation is dedicated to serving a single large
7 customer in the C&I Transmission class. If so, I directly assign the costs of this
8 substation to the individual customer using the substation. In addition, the
9 lighting classes are directly assigned lighting equipment.

10 **Q. ARE THERE CUSTOMER CLASSES THAT DO NOT HAVE CERTAIN COSTS**
11 **ALLOCATED TO THEM?**

12 A. Yes. The C&I Primary and the C&I Transmission Classes do not use the
13 secondary distribution system, since they are connected to the Company's
14 system at the primary and transmission voltage levels. Therefore, these
15 customers are not allocated any costs associated with the secondary distribution
16 system. Likewise, since the C&I Transmission class is connected to the
17 Company's system at transmission voltage, they do not use the primary
18 distribution system and are not allocated primary distribution costs.

19

1 **Q. PLEASE DESCRIBE HOW THE COMPANY IMPLEMENTED THE THREE-**
2 **STEP CLASS COST ALLOCATION PROCESS YOU DESCRIBED EARLIER.**

3 A. To functionalize the Company's costs, we first separated them into 17 specific
4 cost functions. We directly assigned each rate base or expense item to one of
5 the specific cost functions, or allocated items to functions using a fundamental or
6 derived allocator. The result of this first process is the development of a CPUC
7 jurisdictional revenue requirement for each function. Attachment DRB-1 is the
8 "functional allocation study."

9 The functionalized costs were then classified as capacity-related, energy-
10 related or customer-related. I classified the fixed production, transmission,
11 distribution substation, primary distribution and secondary distribution costs as
12 capacity-related. Costs that vary with the amount of energy generated - such as
13 the costs of water, chemicals and ash disposal -- were classified as energy-
14 related. Costs that vary with the number of customers rather than their annual or
15 peak loads - such as the costs of service laterals, metering, meter reading and
16 customer accounting - were classified as customer-related.

17 The CPUC jurisdictional revenue requirements for the classified costs were
18 then allocated among the retail rate classes. This process involves the
19 aggregation of customer loads associated with individual rate schedules into rate
20 classes for allocation purposes and the determination of the appropriate
21 allocation basis for each classified cost. I will discuss allocators later in my Direct
22 Testimony. Table DRB-3 below summarizes the Company's three-step process.

1

Table DRB-3

| Step One | Step Two | | | Step Three |
|-------------------------------|-----------------------|-------------------|---------------------|---------------------------|
| <u>Functionalization</u> | <u>Classification</u> | | | <u>Allocation</u> |
| | Capacity Related | Energy Related | Customer Related | |
| Functions: | | | | |
| PRODUCTION | | | | |
| Steam Production | X | | | 4CP-AED |
| Hydro Production | X | | | 4CP-AED |
| Comb Turbine Production | X | | | 4CP-AED |
| Purchased Capacity | X | | | 4CP-AED |
| Transmission Interconnect | X | | | 4CP-AED |
| Production Energy | | X | | Energy |
| TRANSMISSION | | | | |
| Transmission System | X | | | 4CP-AED |
| Transmission by Others | X | | | 4CP-AED |
| DISTRIBUTION | | | | |
| Distribution Substations | X | | | 4CP-AED/Direct Assignment |
| Primary Distribution System | X | | | Annual NCP |
| Secondary Distribution System | X | | | Secondary NCP |
| Service Lateral | | | X | Weighted No. of Customers |
| Metering | | | X | Weighted No. of Customers |
| Lighting | X | X | X | Direct Assignment |
| CUSTOMER OPERATIONS | | | | |
| Meter Reading | | | X | Weighted No. of Customers |
| Customer Accounting | | | X | Weighted No. of Customers |

Please note: Demand Side Management is considered a function in the Functional Allocation Study, DRB-1.

2 **Q. WOULD YOU PLEASE BRIEFLY DESCRIBE THE LAYOUT OF THE CCROSS**
 3 **IN ATTACHMENT DRB-2?**

4 A. Yes. The first page of Attachment DRB-2 contains a summary of the revenue
 5 requirements by specific cost function, as determined by the Functional
 6 Allocation Study, and also sets forth the revenue requirements factor for each
 7 function.

1 Pages 2 through 5 of Attachment DRB-2 contain a summary of the customer
2 sales and load data used to determine the specific demand and energy
3 allocators.

4 Pages 6 through 10 of Attachment DRB-2 contain the derivation of the
5 specific demand and energy allocators that are used to allocate the functional
6 revenue requirements.

7 Pages 11 through 21 of Attachment DRB-2 show the actual allocation of the
8 individual functional revenue requirement amounts to the various rate classes.

9 Page 22 of Attachment DRB-2 contains a summary of the allocated customer-
10 related revenue requirements.

11 Page 23 of Attachment DRB-2 presents an overall summary of allocated total
12 revenue requirements. This summary displays the revenue requirements
13 separately by customer costs, system capacity costs, and energy costs. The
14 system capacity costs are broken down into the five levels of the production and
15 delivery systems that I mentioned previously.

16 Finally, Page 24 of Attachment DRB-2 provides the allocation of Demand-
17 Side Management (“DSM”) and EAP revenue requirements to each rate class
18 using a revenue allocation factor and shows the total revenue requirement for
19 each rate class.

1 **Q. PLEASE EXPLAIN THE “REVENUE REQUIREMENT FACTOR” REFERRED**
2 **TO IN THE PREVIOUS Q&A.**

3 A. The revenue requirement factor is calculated by dividing the revenue requirement
4 for each function by the basic plant investment or operating expense that
5 underlies that specific function. For example, the “Metering” function represents
6 the cost of owning and maintaining the Company’s meters. The revenue
7 requirement factor for the Metering function is determined by dividing the
8 Metering function revenue requirement by the total original cost investment in
9 metering equipment from Plant Account 370.

10 Likewise, the “Meter Reading” function represents the cost of reading meters
11 for billing purposes. The revenue requirement factor for the Meter Reading
12 function is determined by dividing the Meter Reading function revenue
13 requirement by the total meter reading expense from Expense Account 902.

14 **Q. WHY ARE THE REVENUE REQUIREMENT FACTORS IMPORTANT?**

15 A. These factors are used in the class allocation process to determine the revenue
16 requirements associated with plant and expense items that are allocated to a
17 specific rate class.

1 **V. ALLOCATION FACTORS**

2 **Q. IN GENERAL, HOW DID YOU DETERMINE THE APPROPRIATE**
3 **ALLOCATORS FOR THE VARIOUS FUNCTIONALIZED AND CLASSIFIED**
4 **COST COMPONENTS?**

5 A. An allocator should reflect the classification and functionalization of the costs
6 being allocated. Costs associated with producing energy are allocated in
7 proportion to the energy consumed by each rate class, with adjustments to
8 account for the different level of system losses at various delivery voltages.

9 Capacity costs are allocated on some measure of the peak load that each
10 class places on the system. I discuss demand allocation methods more
11 thoroughly later in my Direct Testimony.

12 Customer-related costs are generally allocated on the basis of the number of
13 customers within each class of service, with appropriate weighting to recognize
14 specific service characteristics. For service laterals, the Company identified
15 replacement costs for three different categories of service laterals based on the
16 type of service (single phase, three phase small and three phase large). These
17 replacement costs were then used to determine an average investment per
18 customer within each category.

19 For meters, the cost of each type of new meter installation was used to
20 determine the allocated investment.

1 For meter reading and billing expenses, the weighting factors were derived
2 from an analysis of the costs of meter reading and bill processing for the various
3 types of meter installations.

1 **VI. DEMAND ALLOCATION FACTORS**

2 **Q. PLEASE DISCUSS THE DETERMINATION OF DEMAND ALLOCATION**
3 **METHODS FOR SYSTEM CAPACITY COSTS.**

4 A. As explained in more detail below, I rely on three types of demand allocation
5 factors: the 4CP-AED allocator, and two Non-Coincident Peak Demand ("NCP")
6 allocators.

7 **A. DEMAND ALLOCATION: 4CP-AED ALLOCATOR**

8 **Q. WHICH ALLOCATOR IS THE COMPANY PROPOSING TO USE TO**
9 **ALLOCATE THE COSTS OF THE BULK-POWER SYSTEM?**

10 A. We used the 4CP-AED allocator that was approved in the 2009 Electric Phase II
11 Rate Case to allocate Production, Transmission and Distribution Substation
12 capacity costs among the various rate classes.

13 **Q. WHY DOES THE COMPANY BELIEVE THE 4CP-AED ALLOCATOR SHOULD**
14 **BE USED TO ALLOCATE THESE CAPACITY-RELATED COSTS?**

15 A. The Company is a summer-peaking utility. Consequently, all costs driven by
16 system peak loads should be allocated to classes based on their contributions to
17 summer peak loads. The 4CP component of the Company's proposed allocator
18 accomplishes this goal by isolating class contributions to system peak loads
19 during the four summer months of June, July, August and September.
20 Specifically, the 4CP component is based on the average of the class system
21 Coincident Peak ("CP") demands for June, July, August and September. The
22 AED component of the allocator allocates costs on the basis of both class energy

requirements (the average demand) and class contributions to system peak demand (the excess demand).

Q. PLEASE EXPLAIN HOW YOU DEVELOPED THE 4CP-AED ALLOCATORS FOR THE VARIOUS RATE CLASSES.

A. The development of the 4CP-AED allocators is a two-step process. The first step is to calculate the average of the class CP demands during the four summer months – or the class 4CP. These averages are shown in the first column of page 6 of Attachment DRB-2. The Average Demand for each rate class is calculated by dividing the class annual energy, adjusted for losses, by the number of hours (8,760) in the test year. Each class's Average Demand is then subtracted from the class 4CP to determine the Excess Demand for that class, if any.

Q. AFTER YOU DETERMINE THE AEDs FOR EACH RATE CLASS, WHAT IS THE SECOND STEP?

A. The second step is to allocate to the rate classes the Average Excess Demand, which is the difference between the total retail system peak and the total of the retail average demands. Any Average Excess Demand is allocated to each class using the ratio of each rate class's Excess Demand (as explained above) to the total retail Excess Demand. The sum of a class's Allocated Excess Demand and Average Demand is the 4CP-AED demand allocator for that class.

**B. DEMAND ALLOCATION: CLASS ANNUAL NCP ALLOCATOR / SUM
OF THE INDIVIDUAL CUSTOMERS' ANNUAL NCP ALLOCATOR.**

**Q. HAVE YOU USED THIS SAME 4CP-AED ALLOCATOR TO ALLOCATE THE
CAPACITY-RELATED COSTS OF THE SECONDARY AND PRIMARY
SYSTEMS?**

A. No. It is important to recognize the role of load diversity in the choice of demand allocators for the various components of the electric system. At all levels of the system, adequate capacity must be installed to meet the expected maximum load at that point on the system. At the delivery point to an individual customer, there is no diversity. At the level of the delivery point to a particular customer, the delivery system must be sized to meet the customer's maximum load, regardless of the timing or duration of that maximum load. However, as you move up to higher levels, through the secondary transformers and primary distribution feeders to the distribution substations, the maximum load at any particular point on the system will be less than the sum of the maximum demands of all customers on that portion of the system because of the diversity among those loads. The highest level of diversity is reached at the generation level, where the loads of all customers on the system are aggregated. Accordingly, at lower levels of the distribution system, it is necessary to use an allocation method that takes into account the decreasing level of load diversity.

1 **Q. WHAT ALLOCATION METHOD HAVE YOU USED TO ALLOCATE THE**
2 **CAPACITY-RELATED COSTS OF THE PRIMARY SYSTEM?**

3 A. For this “in-between” portion of the system, the Company proposes to use the
4 class NCP to allocate capacity costs. The Primary Distribution System is made
5 up of the 13 Kilovolt (“kV”) and 25 kV distribution feeders between the distribution
6 substations and the distribution transformers. Each feeder must be sized to meet
7 the coincident peak demand of the group of customers that it serves. The level
8 of diversity on these feeders falls somewhere between the fully diverse load that
9 exists at the generation level and the sum of the individual maximum demands of
10 all the customers served from the feeder. The Company recognizes this diversity
11 by using the class peak demand during the test year, regardless of when this
12 class peak demand occurs, to allocate Primary Distribution System capacity
13 costs. The Commission has accepted this approach in previous Electric Phase II
14 proceedings.

15 **Q. WHAT ALLOCATION METHOD(S) HAVE YOU APPLIED TO THE CAPACITY-**
16 **RELATED COSTS OF THE SECONDARY DISTRIBUTION SYSTEMS?**

17 A. I use the average of the class annual NCP and the sum of individual customers’
18 annual NCP. For identification purposes, I will refer to this allocation method as
19 the “Secondary NCP method.”

20 The Secondary Distribution System includes distribution transformers serving
21 either individual customers or small groups of customers, secondary voltage
22 conductors and other low-voltage equipment. The load diversity is much lower at

1 this level of the system. The Company believes that using only the sum of the
2 individual customers' annual NCP to allocate secondary distribution costs would
3 not recognize that there is some load diversity even on the secondary system.
4 On the other hand, using only the class NCP to allocate secondary costs would
5 overstate the diversity.

6 To balance these considerations, the Company proposes to allocate the
7 capacity costs of the Secondary Distribution System to customer classes taking
8 service at secondary voltage based on the average of the class annual NCP and
9 the sum of individual customers' annual NCP. The derivation of this allocator is
10 shown on Page 9 of Attachment DRB-2. The Commission has accepted this
11 method for the allocation of Secondary Distribution System capacity costs in
12 previous Public Service Electric Phase II proceedings.

VII. DERIVATION OF CCROSS ALLOCATION FACTORS

Q. PLEASE EXPLAIN WHICH ALLOCATION FACTORS ARE DERIVED FROM THE 2014 ELECTRIC PHASE I RATE CASE DATA?

A. The kWh used to derive the production base energy allocation factors and the customer counts used to allocate billing and customers accounting, service laterals, metering and meter reading costs are derived from the 2014 Electric Phase I Rate Case.

Q. PLEASE EXPLAIN WHICH ALLOCATORS ARE DERIVED FROM LOAD RESEARCH DATA?

A. The class 4CP, class annual NCP and the sum of the individual customers' annual NCP are derived from load research data.

Q. PLEASE EXPLAIN WHICH ALLOCATORS ARE DERIVED FROM SPECIAL STUDIES THE COMPANY CONDUCTED?

A. The Company completed special studies to develop allocation factors to apply to the revenue requirements for service laterals, meters, lighting equipment, meter reading and billing and customer accounting.

Q. WHAT IS A SPECIAL STUDY?

A. The Company conducts a special study to determine the proper allocation factors to apply to the various customer-related costs that I addressed previously. For example, the Company conducted a special study to determine the allocation factors for meter reading. Meter reading costs are driven by the type of meter installed. Meters can be broken down into three categories: kWh, Demand

1 Interval and Interval Data Recorder ("IDR"). Demand Interval and IDR meters
2 are more complex, and IDR meters require manual meter reads. Consequently,
3 these two types of meters entail higher meter reading costs than kWh meters.
4 Therefore, to allocate meter reading costs, the Company conducted a special
5 study to determine the respective costs of reading the three types of meters on
6 our system and developed weighting factors based on these cost differences.

7 **Q. HOW DID THE COMPANY ALLOCATE SERVICE LATERAL COSTS?**

8 A. The Company conducted a special study to determine the replacement
9 investment costs of the three different types of service lateral installations on its
10 system: single phase, three phase small and three phase large. These
11 replacement investment costs are then weighted by the number of customers
12 using each type of installation.

13 **Q. IS THIS THE SAME METHODOLOGY THE COMPANY USED IN ITS 2009**
14 **ELECTRIC PHASE II RATE CASE CCOSS?**

15 A. No. In the 2009 Electric Phase II Rate Case CCOSS the Company allocated
16 service lateral costs based on each class's contribution to the sum of the
17 individual customers' annual maximum demands.

18 **Q. WHY DID THE COMPANY CHANGE ITS METHODOLOGY?**

19 A. Again, one of the primary goals of a CCOSS is to develop class cost allocation
20 factors that accurately reflect cost causation. The Company's service lateral
21 costs are driven by the installation type; therefore, it makes sense to allocate

1 these costs based on the replacement cost of each installation type weighted by
2 the number of customers using each installation type.

3 **Q. WHAT IS THE MAJOR IMPACT OF THIS METHODOLOGICAL CHANGE?**

4 A. The change results in a large reduction to the customer-related costs allocated to
5 the C&I Secondary class.

VIII. LOAD RESEARCH

Q. YOU MENTIONED IN THE PREVIOUS SECTION OF YOUR DIRECT TESTIMONY THAT YOU RELIED UPON LOAD RESEARCH TO OBTAIN DATA FOR DEVELOPING THE CLASS 4CP, CLASS NCP AND SUM OF THE INDIVIDUAL CUSTOMERS' ANNUAL NCP. CAN YOU EXPLAIN WHY LOAD RESEARCH WAS NECESSARY TO OBTAIN THIS DATA?

A. The Company does not have the interval data metering in place for all customer classes to collect the load data needed for the CCOSS. Consequently, for those classes the Company creates a sample of customers within the class and installs meters capable of collecting the necessary load data. This sample data is then collected and applied to the entire class in the load research process. Therefore, the Company relies upon load research data to obtain the necessary information.

Q. CAN YOU ELABORATE ON THE LOAD RESEARCH PROCESS?

A. Yes. Load research is the systematic collection and analysis of customers' electrical energy and demand requirements by time-of-day, month, season and year. This data, which includes load research samples, is collected and analyzed by customer class, strata of customer classes, and other subsets of customer classes. Load research enables utilities including Public Service to better understand customers' consumption patterns, their consumption responses to various factors, and the impact of customers' energy requirements on the electric utility's system. In addition, load research data can be used to

1 develop demand and energy allocators for cost allocation studies and rate
2 design.

3 **Q. WHAT ARE LOAD RESEARCH SAMPLES?**

4 A. Load research samples are subsets of the entire population that Public Service
5 surveys in order to estimate the characteristics of the entire population. The
6 Company installs IDR meters on a random sample of customers in each class for
7 which IDR meters are not typically installed. The sample size and random
8 selection allow us to extrapolate the demand data for the remainder of the class
9 with statistical reliability.

10 **Q. CAN YOU BRIEFLY DESCRIBE PUBLIC SERVICE'S LOAD RESEARCH**
11 **PROGRAM?**

12 A. Yes. Public Service's program records the use of each sampled customer for
13 every 15-minute interval of the year. Some of the characteristics that are used in
14 the CCOSS are: (1) class use during times when system demand is at its
15 greatest – necessary to develop the class 4CP I describe above; (2) the
16 maximum demand of each class regardless of when this peak demand occurs --
17 necessary to develop the class annual NCP I describe above; (3) sum of the
18 individual customers' annual NCP and (4) the amount of energy that each class
19 uses for every hour of the year. The Company does not use class hourly energy
20 in our proposed CCOSS, but we do use hourly energy to allocate costs in the
21 Stratified CCOSS, which I describe later in my Direct Testimony.

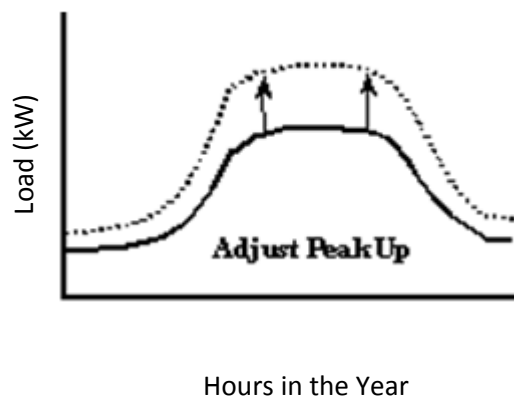
Q. ARE YOU AWARE OF ANY ADJUSTMENTS MADE TO THE DATA THAT IS PROVIDED TO YOU FROM THE QUANTITATIVE RISK TEAM?

A. It is my understanding that the hourly loads for the sample classes are estimates. This is because the sum of each hourly load for each class, adjusted to generation level, will almost never equal the Company's total system load. To account for this difference, the CP for the sample classes was adjusted so that the total system load was equal to Public Service's system peak demand.

Q. HOW WAS THIS ADJUSTMENT ACCOMPLISHED?

A. Each class's relative contribution to the sum of the class CP as calculated through the load research calibration process was applied to the total difference between the calculated peak loads from the load research data and the system peak loads. Census class peaks (where all customers have IDR meters) were not adjusted, as there is no sampling error for those classes. An illustration of the proportional calibration process used to adjust class system peak demands is shown in Figure DRB-1.

Figure DRB-1



1 The loads in Figure DRB-1 are summed to derive a total demand for the year.
2 This sum is compared to the target value for annual demand, and an adjustment
3 amount is computed. If this difference is positive, hourly loads must be adjusted
4 upward for the year. This adjustment can be thought of as a pivot applied to the
5 load duration curve, with the pre-existing peak values held constant. The
6 adjustment to all points is proportional to their distance from the pre-existing
7 peak.

8 **Q. DO YOU PERSONALLY DEVELOP THE LOAD RESEARCH DATA USED IN**
9 **THE ALLOCATION?**

10 A. No. This information is provided to me by the Company's Quantitative Risk
11 Analysis Department.

IX. STRATIFIED CCOSS

Q. PLEASE EXPLAIN WHY YOU HAVE PROVIDED THE STRATIFIED CCOSS.

A. Pursuant to CPUC Decision No. C10-0286 in the 2009 Electric Phase II Rate Case, the Company was ordered to provide in its next Electric Phase II filing a CCOSS that includes a stratification adjustment in addition to the Company's proposed CCOSS. This stratified CCOSS is provided as Attachment DRB-4.

Q. WHAT IS YOUR UNDERSTANDING OF "STRATIFIED ADJUSTMENT"?

A. A "stratified adjustment" is a method of classifying fixed generation costs as either capacity-related or energy-related. The decision further requires the Company to allocate the energy-related component of fixed generation costs to customers based on class hourly energy requirements, which are weighted by system hourly marginal energy costs.

Q. HOW DID THE COMPANY DETERMINE THE CAPACITY AND ENERGY RELATED SPLIT OF FIXED GENERATION COSTS YOU USED IN THE STRATIFIED CCOSS?

A. The Company completed a stratification study to determine the capacity- and energy-related components of the fixed generation costs. Mr. Wishart describes this process in more detail in his Direct Testimony.

Q. ONCE THE CAPACITY/ENERGY SPLIT WAS DETERMINED, HOW DID YOU ALLOCATE THE CAPACITY-RELATED PORTION OF FIXED GENERATION COSTS YOU USED IN THE STRATIFIED CCOSS?

A. I used the 4CP-AED allocator to allocate these costs.

1 **Q. ONCE THE CAPACITY/ENERGY SPLIT WAS DETERMINED, HOW WAS THE**
2 **ENERGY-RELATED PORTION OF FIXED GENERATION COSTS**
3 **ALLOCATED IN THE STRATIFIED CCROSS?**

4 A. Once the allocator for each class was calculated, I applied that allocator to the
5 energy-related portion of the fixed generation costs (please see page 13 of
6 Attachment DRB-4). Mr. Wishart discusses the derivation of this energy allocator
7 in his Direct Testimony.

8 **Q. WHAT WERE THE RESULTS OF THE STRATIFIED CCROSS?**

9 A. As compared to Attachment DRB-2, the Company's proposed CCROSS, the
10 stratified CCROSS results in costs being shifted from the Residential (Schedule
11 R), Small Commercial and C&I Secondary classes to the Residential Demand,
12 C&I Primary, C&I Transmission and Lighting classes. Please see Attachment
13 DRB-5 for a comparison of the CCROSS and the Stratified CCROSS.

14 **Q. IS THE COMPANY PROPOSING THE STRATIFIED CCROSS?**

15 A. No. The Company is providing the Stratified CCROSS to comply with CPUC
16 Decision No. C10-0286.

X. CONCLUSION

Q. PLEASE SUMMARIZE THE CCOSS PROPOSED IN YOUR TESTIMONY.

A. The proposed CCOSS classifies and allocates the revenue requirements from the functional cost of service study to each rate class. In conducting the CCOSS for this proceeding, the Company did not deviate from the methodology that we proposed – and the Commission approved - in the Company's 2009 Electric Phase II Rate Case with the discussed exception.

Costs that vary with the amount of energy generated were classified as energy-related costs and were allocated based on the proportion of energy consumed by each rate class.

The other investment costs and expenses attributable to the production, transmission and distribution substation functions were classified as demand-related costs. They were then allocated using the 4CP-AED allocator.

The remaining distribution costs were also classified as demand-related costs and allocated using the class NCP and/or the sum of the individual customers' annual NCP.

Metering, service laterals, meter reading and billing functions were allocated using direct costs and/or weighting factors.

DSM and low-income assistance revenue requirements were allocated using class base revenue.

The total revenue requirement by class is the sum of the allocated (and directly assigned) customer-related revenue requirements, capacity-related

1 revenue requirements, energy-related revenue requirements, and DSM and low-
2 income assistance revenue requirements.

3 The Company requests that the Commission approve our proposed CCOSS.

4 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

5 A. Yes, it does.

Statement of Qualifications

Dolores Basquez

I hold a Bachelor of Science Degree in Business Administration from Metropolitan State University of Denver. I began my career at Public Service in 2001. I have held various regulatory positions, where I was responsible for managing all aspects of a regulatory case including the coordination and preparation of applications, advice letters, regulatory testimony, exhibits, discovery and reports for filing with regulatory agencies. From 2008 to 2014, I have held various Pricing Analyst positions with increasing responsibility for retail and wholesale pricing issues. As an Analyst I was responsible for cost allocation and rate design, developing the Company's cost adjustment filings, completion of financial and rate related analyses for the Company's electric, gas and steam operations. In January 2015 I assumed my current position of Pricing Consultant. In this role my primary responsibility is developing cost allocation studies and rate design for retail rate cases.

During my tenure with Public Service Company of Colorado, I have testified on issues related to the Company's Electric Commodity Adjustment and the development of buyback rates for Qualifying Facilities.