BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	)	
	)	
	)	
v.	)	Docket No. R-2018-2647577
	)	
COLUMBIA GAS OF PENNSYLVANIA, INC.	)	
	)	

DIRECT TESTIMONY OF

JEROME D. MIERZWA

ON BEHALF OF THE

PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

June 7, 2018

EXETER

ASSOCIATES, INC.
10480 Little Patuxent Parkway, Suite 300
Columbia, Maryland 21044

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I. INTRODUCTION

1

2 Q.   PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

3 A.   My name is Jerome D. Mierzwa. I am a Principal and Vice President of Exeter

4   Associates, Inc. ("Exeter"). My business address is 10480 Little Patuxent Parkway,

5   Suite 300, Columbia, Maryland 21044. Exeter specializes in providing public utility-

6   related consulting services.

7 Q.   PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND

8   EXPERIENCE.

9 A.   I graduated from Canisius College in Buffalo, New York in 1981 with a Bachelor of

10   Science Degree in Marketing. In 1985, I received a Master's Degree in Business

11   Administration with a concentration in finance, also from Canisius College. In July

12   1986, I joined National Fuel Gas Distribution Corporation ("NFGD") as a Management

13   Trainee in the Research and Statistical Services ("RSS") Department. I was promoted

14   to Supervisor RSS in January 1987. While employed with NFGD, I conducted various

15   financial and statistical analyses related to the company's market research activity and

16   state regulatory affairs. In April 1987, as part of a corporate reorganization, I was

17   transferred to National Fuel Gas Supply Corporation's ("NFG Supply's") rate

18   department where my responsibilities included utility cost-of-service and rate design

19   analysis, expense and revenue requirement forecasting, and activities related to federal

20   regulation. I was also responsible for preparing NFG Supply's Federal Energy

21   Regulatory Commission ("FERC") Purchased Gas Adjustment ("PGA") filings and

22   developing interstate pipeline and spot market supply gas price projections. These

23   forecasts were utilized for internal planning purposes as well as in NFGD's 1307(f)

24   proceedings.

1   In April 1990, I accepted a position as a Utility Analyst with Exeter. In

2 December 1992, I was promoted to Senior Regulatory Analyst. Effective April 1996,

3 I became a Principal of Exeter. Since joining Exeter, I have specialized in evaluating

4 the gas purchasing practices and policies of natural gas utilities, utility class cost-of-

5 service and rate design analyses, sales and rate forecasting, performance-based

6 incentive regulation, revenue requirement analysis, the unbundling of utility services,

7 and evaluation of customer choice natural gas transportation programs.

8 Q.   HAVE YOU PREVIOUSLY TESTIFIED ON UTILITY RATES IN

9   REGULATORY PROCEEDINGS?

10 A. Yes. I have provided testimony on more than 300 occasions in proceedings before the

11 FERC and utility regulatory commissions in Arkansas, Delaware, Georgia, Illinois,

12 Indiana, Louisiana, Maine, Massachusetts, Montana, Nevada, New Jersey, Ohio,

13 Rhode Island, Texas, Utah, and Virginia, as well as before the Pennsylvania Public

14 Utility Commission ("Commission").

15 Q.   WHAT IS THE PURPOSE OF YOUR TESTIMONY?

16 A. On March 16, 2018, Columbia Gas of Pennsylvania, Inc. ("CPA" or "Company") filed

17 an application with the Commission to increase its distribution base rates by

18 $46.8 million, or 12.4 percent. Exeter was retained by the Pennsylvania Office of

19 Consumer Advocate ("OCA") to review the cost-of-service studies and rate design

20 proposals included in CPA's application, as well as the Company's proposals to make

21 its Weather Normalization Adjustment ("WNA") a permanent component of its tariff

22 and to adopt a Revenue Normalization Adjustment ("Rider RNA"). My testimony

23 addresses CPA's allocated cost-of-service ("ACOS") Studies and rate design, as well

24 as the Company's WNA and Rider RNA proposals.

1 Q.   HAVE YOU PREPARED EXHIBITS TO ACCOMPANY YOUR

2   TESTIMONY?

3 A.   Yes, I have. Schedules JDM-1 through JDM-5 are attached to my direct testimony.

4 Q.   PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS.

5 A.   Based on the results of my review and analysis, I have reached the following

6   conclusions:

7   • Typical of a natural gas distribution company ("NGDC"), a significant
8   percentage of CPA's plant, over 65 percent, is comprised of transmission and
9   distribution mains.

10   • CPA is sponsoring ACOS Studies in its application using two different
11   methodologies, each at present and proposed rates. Under one method,
12   distribution mains investment is allocated partially based on the number of
13   customers and partially based on design day demands ("Customer-Demand
14   Study"). Under the second method, distribution mains investment is allocated
15   utilizing the Peak and Average method ("Peak & Average Study"). CPA's
16   application also includes a third ACOS study that reflects an average of the
17   Customer-Demand and Peak & Average ACOS Studies ("Average Study").
18   CPA relies on the Average Study to support its proposed revenue distribution
19   among its various customer classes.

20   • Under each of the Company's ACOS Studies, distribution mains investment
21   has been assigned to one of three categories, and the mains investment assigned
22   to each category has been separately allocated to customer class consistent with
23   the selected ACOS methodology (i.e., either the Customer-Demand or Peak &
24   Average method). CPA's assignment of distribution mains to separate
25   categories is unreasonable, and the Company's ACOS Studies, which rely on
26   the assignment of distribution mains to separate categories, should be rejected.

27   • In addition, the Company's Customer-Demand methodology misallocates
28   distribution mains plant investment and related costs, and this method produces
29   results that do not reasonably reveal an accurate indication of class-allocated
30   cost responsibilities and should be rejected.

31   • The Peak & Average Study presented by the OCA in this proceeding reflects
32   an allocation of distribution mains investment that is more consistent with
33   established Commission precedent and cost-of-service principles.

34   • The OCA's Peak & Average Study produces results consistent with the ACOS
35   Study recently filed in a base rate proceeding by Columbia Gas of

1   Massachusetts ("CMA"), which relies on the Proportional Responsibility
2   method to allocate distribution mains investment.

3   •   CPA's proposed revenue distribution, based on its Average Study, is not
4   reasonably allocated among its customer classes.

5   •   The revenue distribution in this proceeding should be guided by the results of
6   the OCA's Peak & Average Study.

7   •   CPA's proposed Residential customer charge is unreasonable and should be
8   rejected.

9   •   CPA's proposals to make its pilot WNA a permanent component of its tariff is
10   not opposed by the OCA, provided the resulting increase in revenue stability
11   and reduction in risk is appropriately reflected in the Company's return on
12   equity ("ROE") and the Company's proposal to eliminate the 5 percent WNA
13   deadband is rejected.

14   •   CPA's proposed Rider RNA should be rejected.

15   Q.   HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

16   A.   Including this introductory section, my testimony is divided into six sections. In the

17   following section, I detail the reasons that support a finding that CPA's Average Study

18   produces an inaccurate indication of the allocated costs of serving the Company's

19   various customer classes. The next section addresses class revenue requirement

20   allocations. The fourth section of my testimony addresses CPA's proposed Residential

21   rate design. The next section of my testimony addresses CPA's proposals to make its

22   pilot WNA a permanent component of its tariff. The final section of my testimony

23   addresses CPA's proposed Rider RNA.

1   **II. COST ALLOCATION**

2 Q.   BRIEFLY DESCRIBE THE COST-OF-SERVICE STUDIES SUBMITTED

3   BY CPA IN THIS PROCEEDING.

4 A.   CPA submitted average embedded ACOS Studies employing two different cost

5   allocation methodologies. These cost allocation methods differ in the approach used

6   to allocate distribution mains investment.

7 Q.   PLEASE IDENTIFY THE CUSTOMER RATE CLASSES INCLUDED IN

8   THE COMPANY'S ACOS STUDIES.

9 A.   The Company's ACOS Studies include five rate classes:

10   •   Residential Sales Service and Residential Distribution Service ("RSS/RDS");

11   •   Low-Volume Small General Sales Service, Small Commercial Distribution
12   Service, and Small General Distribution Service ("SGSS1/SCD1/SGDS1");

13   •   High-Volume Small General Sales Service, Small Commercial Distribution
14   Service, and Small General Distribution Service ("SGSS2/SCD2/SGDS2");

15   •   Small Distribution Service and low-volume, Large General Sales Service
16   ("SDS/LGSS");

17   •   Large Distribution Service and high-volume, Large General Sales Service
18   ("LDS/LGSS"); and

19   •   Main Line Distribution Service ("MLDS").

20 Q.   HOW DO THE ACOS STUDIES PREPARED BY CPA DIFFER?

21 A.   In CPA's ACOS Studies, the Company first identified and directly assigned the actual

22   inventory of distribution mains for the MLDS rate class. Next, the Company assigned

23   the remaining mains investment to one of four categories, including the transmission

24   category and three different distribution categories:

25   •   Low Pressure Distribution;

26   •   Regulated Non-Low Pressure Distribution ("Regulated Distribution"); and

27   •   Remaining Regulated Pressure Distribution.

1   CPA then prepared ACOS Studies utilizing two different methods to allocate the mains

2   investment assigned to each of the three distribution mains categories to rate class

3   (excluding MLDS). Under both methods, transmission mains investment was allocated

4   based on design day demands. Both methods were used to prepare ACOS Studies at

5   present and proposed rates.

6   Under the first method, which I will refer to as the Customer-Demand method,

7   the distribution mains investment assigned to each category is allocated to rate class

8   partially based on the number of customers and partially based on the design day

9   demands of the customers in each rate class that are served by each of the categories of

10   distribution mains. Under the second method, which I will refer to as the Peak &

11   Average method, distribution mains investment is allocated 50 percent based on the

12   design day demands and 50 percent based on annual, or average daily, demands of the

13   customers in each rate class that are served by each of the categories of distribution

14   mains.

15   Q.   BEFORE CONTINUING, PLEASE EXPLAIN HOW CPA DEFINES EACH

16   OF THE FOUR MAINS CATEGORIES.

17   A.   CPA has defined each of the four mains categories as follows:

18
19   **Transmission Mains** – Mains that do not serve any single customer directly,
20   but rather are designed to serve an entire geographic area. These are the lines
21   that are generally of higher pressure and larger diameter, and transport the gas
22   into CPA's distribution network. The cost of these mains is allocated to all
23   customers, except the directly assigned MLDS customers.

24   **Low Pressure Mains** – Mains that have been identified as only servicing low-
25   pressure customers. These mains are downstream of regulator stations and
26   are, themselves, low-pressure. Due to their pressure, these mains do not serve
27   any customer types other than low-pressure. The cost of these mains is only
28   allocated to low-pressure customers.

29   **Regulated Non-Low Pressure Mains** – Mains that, due to their pressure, can
30   serve all customer types except low-pressure customers. These mains can be

1		either high-pressure, intermediate-pressure, or medium-pressure. The cost of
2		these mains is allocated to all customers except for the customers served by
3		the low-pressure mains and the directly assigned MLDS customers.

Remaining Regulated Pressure Mains – Mains that are not specifically
assigned to one of the three groups identified above. Rather, they are mains
that can either: (1) deliver gas to customers requiring high-pressure,
intermediate-pressure, or medium-pressure service; or (2) deliver gas into
downstream low-pressure systems and regulated non-low-pressure systems.
The cost of these mains is allocated to all customers, except the directly
assigned MLDS customers.

11 Q. DO YOU AGREE WITH CPA'S PROPOSED ALLOCATION OF

12 TRANSMISSION MAINS INVESTMENT IN ITS ACOS STUDIES?

13 A. No, I do not. As subsequently explained, the distribution of the revenue increase

14 authorized in this proceeding should be based on the OCA's Peak & Average ACOS

15 Study. As such, transmission mains should be allocated utilizing the Peak & Average

16 method for the same reasons distribution mains should be allocated utilizing the Peak

17 & Average method. I address why distribution mains should be allocated utilizing the

18 Peak & Average method later in my testimony. However, reflecting this change to the

19 allocation of transmission mains in the OCA's Peak & Average ACOS Study does not

20 have a material impact on the study results.[1] Therefore, I am not challenging CPA's

21 proposed allocation of transmission mains in this proceeding.

22 Q. DO YOU AGREE WITH CPA'S PROPOSED SEPARATE ASSIGNMENT

23 AND ALLOCATION OF DISTRIBUTION MAINS INVESTMENT INTO

24 THREE SEPARATE CATEGORIES IN EACH OF ITS ACOS STUDIES?

25 A. No, I do not. CPA's proposed separate assignment and allocation of distribution mains

26 fails to consider the net investment of each distribution mains category.

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[1] A change to the allocation of transmission mains investment under the Peak & Average method results in a change of 0.1 percent to the allocation of total mains investment for the RSS/RDS class.

1	Q.	WHAT ARE THE IMPLICATIONS OF FAILING TO CONSIDER THE
2		NET INVESTMENT OF EACH DISTRIBUTION MAINS CATEGORY?
3	A.	CPA uses the original cost of its distribution mains investment to develop its allocation

4   factors for the three distribution mains categories. The allocation factors developed by

5   CPA assume that all distribution mains of similar size and type (plastic or steel) cost

6   the same per foot, are of the same vintage, and have the same depreciation expense per

7   foot. This fails to recognize that low-pressure mains are generally older, are more fully

8   depreciated, and that the net investment associated with the low-pressure system is

9   likely less than that of the regulated-pressure system. This is important because rates

10   in this proceeding will be set based on net investment, not original costs.

11 Q.   DID YOU ATTEMPT TO DETERMINE THE NET INVESTMENT OF

12   EACH DISTRIBUTION MAINS CATEGORY?

13 A.   Yes. In OCA-1-002, CPA was requested to provide the net investment associated with

14   each mains category. The Company indicated that the requested information is not

15   readily available.

16 Q.   WHAT EVIDENCE IS THERE THAT THE LOW-PRESSURE SYSTEM IS

17   OLDER AND MORE FULLY DEPRECIATED THAN THE REGULATED-

18   PRESSURE SYSTEM?

19 A.   CPA mains are almost exclusively either plastic or steel (>99.5 percent). The average

20   in-service date of the Company's plastic mains is 1997, and the average in-service date

21   of the Company's steel mains is 1954. Approximately 55 percent of the low-pressure

22   system consists of steel mains and 45 percent is plastic. For the regulated-pressure

23   system, approximately 28 percent is steel and 72 percent is plastic. This indicates that

24   the low-pressure system is older and more fully depreciated than the regulated-pressure

25   system.

1   Q.   HOW DID CPA DETERMINE THE CUSTOMER COMPONENT OF

2   DISTRIBUTION MAINS INVESTMENT UNDER THE CUSTOMER-

3   DEMAND METHOD?

4   A.   The Company utilized a minimum-sized unit approach to separately determine the

5   customer component of mains investment for each of the three distribution mains

6   categories.   More specifically, CPA determined the installed unit cost per foot of

7   distribution main by pipe size for each of the three distribution mains categories. Pipe

8   sizes generally ranged in diameter from 2-inch pipe to 20-inch pipe. Next, using the

9   average cost of 2-inch-sized pipe in each category, the Company multiplied the unit

10   cost of the installed 2-inch-sized pipe by the total number of feet of pipe installed for

11   each category to determine the cost of the minimum system for that category. This was

12   then compared to the total cost of that category of pipe on the CPA system to determine

13   the percentage of that category of distribution mains investment that should be

14   considered customer-related. Table 1 summarizes the approach used by the Company

15   and the percentages of distribution mains investment, by category, that were

16   determined to be customer-related and allocated to customer class based on the number

17   of customers served by those distribution mains.

Category	Unit Cost of 2-inch-sized Pipe	Total Feet of Type of Pipe Installed	Cost of Minimum System	Total Cost of Type of Pipe Installed	Percent
(a)	(b)	(c)	(d) = (b) x (c)	(e)	(f) = (d)/(e)
Low-pressure	$11.39	10,866,169	$123,765,665	$258,371,148	47.9%
Regulated-pressure	14.04	23,228,744	326,131,566	570,958,138	57.1
Remaining Regulated-pressure	17.17	5,372,969	92,253,878	238,639,305	38.7
Total/Weighted Average:	**$13.71**	**39,467,882**	**$542,151,108**	**$1,067,968,591**	**50.8%**

Table 1.
CPA Analysis of Customer Component of Distribution Mains

1   To further explain CPA's approach, by way of example, the Company

2   determined the cost to install 2-inch, low-pressure distribution mains to be $11.39 per

3   foot. This cost was then multiplied by the total number of feet of low-pressure

4   distribution mains installed (10,866,169 feet) to determine the minimum system

5   component cost of low-pressure distribution mains to be $123,765,665. The Company

6   compared the minimum system component of low-pressure distribution mains to the

7   total cost of low-pressure distribution mains ($258,371,148) to claim that 47.9 percent

8   of CPA's low-pressure distribution mains investment was customer-related. Overall,

9   CPA has allocated 50.8 percent of distribution mains investment based on the number

10   of customers.

11 Q.   DO YOU AGREE WITH CPA'S CUSTOMER CLASSIFICATION OF

12   DISTRIBUTION MAINS?

13 A.   No. Allocating distribution mains investment on the basis of the number of customers

14   in each class misallocates these costs of providing service. Distribution mains are not

15   sized for the number of customers served from them, but for the loads placed upon

16   them. This is made clear in the following example: Located along one city block are

17   ten Residential customers with a coincident peak demand of one dekatherm ("Dth")

1   each. The distribution main running down the street would have to be capable of
2   delivering 10 Dth at peak. On another city block is only a small plastics factory that
3   exhibits a maximum demand of 10 Dth. The main for that one customer must be sized
4   to deliver 10 Dth when the plastics factory demand peaks. It is clear that the mains
5   investment is driven by the loads placed upon it—not by the number of customers
6   served from it. Finally, imagine that the plastics factory is torn down to make room for
7   five large residences, each of which exhibits a demand at time of coincident peak of 2
8   Dth. Again, the main that is sized to deliver 10 Dth is adequate. The existence of one
9   customer, five customers, or ten customers does not determine the amount of mains
10   investment; rather, mains investment is a function of the loads to be served.

11   Viewed alternatively, what CPA's minimum system analysis purportedly
12   indicates is that the Company incurs a certain amount of minimum costs *per foot* to
13   install each category of distribution mains, regardless of main size. It is this cost that
14   CPA contends is customer-related, and it is this cost that is allocated to customer classes
15   based on the number of customers. This allocation procedure assigns the same quantity
16   of each category of distribution pipe to each customer in each category, and fails to
17   recognize differences in customer density. CPA's minimum system approach assigns
18   65 feet of low-pressure distribution mains to each customer served by that category of
19   pipe, 137 feet of regulated-pressure distribution mains to each customer served by that
20   category of pipe, and 13 feet of remaining regulated-pressure mains to each customer
21   served by that category of pipe. It is simply unreasonable to believe that each rate class
22   served by CPA required the same length of main extension by distribution mains
23   category in order to be connected to CPA's system. Larger-use customers are typically
24   located farther apart than lower-use Residential customers and, as such, would
25   generally require more main to be connected to the CPA system. Moreover, this

1   disparity in the feet assigned to low-pressure customers, regulated-pressure customers,

2   and remaining regulated-pressure customers further illustrates the unreasonableness of

3   the Company's distribution mains assignment/customer component allocation

4   approach.

5 Q.   DO YOU HAVE SPECIFIC EVIDENCE TO INDICATE THAT

6   LARGE-USE CUSTOMERS ARE TYPICALLY LOCATED FARTHER

7   APART THAN LOWER-USE RESIDENTIAL CUSTOMERS?

8 A.   Yes. Presented below in Table 2 are the number of feet by which CMA was required

9   to extend its system to connect its ten largest non-MLDS customers as well as the

10   design day and annual usage of those customers. Table 2 clearly demonstrates that

11   CMA's allocation of distribution mains investment based on the number of customers,

12   which assigns the same number of feet of distribution mains to each customer, does not

13   result in a reasonable allocation of costs.

Table 2. Service and Usage Characteristics of CMA's Ten Largest Non-MLDS Customers			
Customer	Design Day (Dth)	Throughput (Dth)	Distance (Ft)
1	2,793	2,095,084	[1]
2	6,127	2,084,501	4,505
3	2,949	1,127,060	7,317
4	3,637	1,108,822	1,661
5	2,243	782,579	2,017
6	2,485	638,064	840
7	1,867	592,522	877
8	1,657	547,652	[2]
9	1,732	534,350	2,274
10	1,654	493,204	[2]

[1] With the exception of a Residential and a Small Commercial account, this customer is the only one served off the main.

[2] There is no next meter; this customer is the only one served off the main.

1 Q. DOES ANY RECOGNIZED AUTHORITY AGREE WITH YOUR

2 CONCLUSION THAT IT IS IMPROPER TO ALLOCATE A PORTION OF

3 THE MAINS DISTRIBUTION SYSTEM ON THE BASIS OF BEING

4 CUSTOMER-RELATED?

5 A. Yes. Professor James Bonbright, at pages 491 and 492 of his *Principles of Public*

6 *Utility Rates*, utilizing an example from the electric industry, states:

7 But the really controversial aspect of customer-cost
8 imputation arises because of the cost analyst's
9 frequent practice of including, not just those costs
10 that can be definitely earmarked as incurred for the
11 benefit of specific customers but also a substantial
12 fraction of the annual maintenance and capital costs
13 of the secondary (low voltage) distribution system –
14 a fraction equal to the estimated annual costs of a
15 hypothetical system of minimum capacity. This
16 minimum capacity is sometimes determined by the
17 smallest sizes of conductors deemed adequate to

1   maintain voltage and to keep from falling of their
2   own weight. In any case, the annual costs of this
3   phantom, minimum-sized distribution system are
4   treated as customer costs and are deducted from the
5   annual costs of the existing system, only the balance
6   being included among those demand-related costs to
7   be mentioned in the following section. Their
8   inclusion among the customer costs is defended on
9   the ground that, since they vary directly with the
10   area of the distribution system (or else with the
11   lengths of the distribution lines, depending on the
12   type of distribution system), they therefore vary
13   indirectly with the number of customers.

14   What this last-named cost imputation overlooks, of
15   course, is the **very weak correlation between the**
16   **area (or the mileage) of a distribution system and**
17   **the number of customers served by this system.**
18   [Emphasis added.] For it makes no allowance for
19   the density factor (customers per linear mile or per
20   square mile). Indeed, if the Company's entire
21   service area stays fixed, an increase in number of
22   customers does not necessarily betoken any increase
23   whatever in the costs of a minimum-sized
24   distribution system.

25   While, for the reason just suggested, the inclusion
26   of the costs of a minimum-sized distribution system
27   among the customer related costs seems to me
28   clearly indefensible, its exclusion from the demand-
29   related costs stands on much firmer ground.

30   Professor Bonbright clearly agrees that distribution costs, except for those costs that

31   can be definitively earmarked to benefit specific customers, are not properly classified

32   as customer costs.

33 Q.   HAS THIS COMMISSION PREVIOUSLY ADDRESSED THE

34   ALLOCATION OF DISTRIBUTION MAINS INVESTMENT BASED ON

35   THE NUMBER OF CUSTOMERS?

1   A.   Yes. In Philadelphia Gas Works, Docket No. R-00061931, 2007 Pa. PUC Lexis 46

2   (2007), the Commission found that mains allocations based on the number of customers

3   was not acceptable.

4   Q.   WOULD AN NGDC LIKE CPA ALWAYS INVEST IN DISTRIBUTION

5   MAINS TO ATTACH A NEW CUSTOMER TO ITS SYSTEM?

6   A.   No. At times, no incremental distribution mains investment is required to extend

7   service to a new customer. In addition, at other times, CPA makes distribution mains

8   investment for purposes other than to connect new customers. For example, CPA has,

9   and expects to make, significant distribution mains investment to replace existing

10   mains. In fact, since 2003, CPA has invested nearly $1.1 billion in distribution mains,

11   which represents an increase of 300 percent in its mains investment, but the number of

12   customers served has only increased approximately 7 percent.

13   Q.   CAN THE DEMANDS OF RESIDENTIAL CUSTOMERS BE SERVED

14   FROM CPA'S CUSTOMER COMPONENT OF DISTRIBUTION MAINS?

15   A.   Yes. CPA's minimum system consists of 2-inch mains. It is common for many

16   Residential customers to be provided with all of their gas service requirements from a

17   2-inch main.

18   Q.   IN CPA'S CUSTOMER-DEMAND STUDIES, DID THE COMPANY

19   PROPERLY CONSIDER CUSTOMER DEMANDS THAT CAN BE MET

20   FROM 2-INCH MAINS WHEN IT DETERMINED ITS ALLOCATION OF

21   THE DEMAND-RELATED PORTION OF DISTRIBUTION MAINS

22   COSTS?

23   A.   No. For example, all (or nearly all) Residential customers could be provided service

24   through 2-inch mains. This being the case, there would be little to no unmet Residential

25   gas service requirements that would be dependent upon demand-related mains costs.

---

1   However, Residential customers are still allocated more than 60 percent of non-

2   customer, demand-related distribution mains costs in the Company's Customer-

3   Demand ACOS Studies. Clearly, under the Customer-Demand Study, Residential

4   customers should be given credit for their demands that can be met with the so-called

5   minimum system when it comes to determining who is responsible for the remaining

6   portion of distribution mains classified as demand-related. In performing its Customer-

7   Demand ACOS Studies, CPA has failed to consider any Residential demand crediting

8   when determining Residential demands that are responsible for, or cause, costs

9   classified as demand-related. Failing to provide a demand credit results in a double

10 allocation of costs to Residential customers. This issue was addressed by George J.

11 Sterzinger in his article, "The Customer Charge and Problems of Double Allocation of

12 Costs" published in the July 2, 1981 edition of *Public Utilities Fortnightly*.

13 Q.   WHAT DO YOU CONCLUDE REGARDING CPA'S ALLOCATION OF

14   50 PERCENT OF ITS DISTRIBUTION MAINS COST ON A

15   CUSTOMER-RELATED BASIS IN ITS CUSTOMER-DEMAND ACOS

16   STUDIES?

17 A.   First, I conclude that it is incorrect to consider distribution mains as being customer-

18 related. This is because mains investment is undertaken when annual gas consumption

19 is high enough to warrant the investment, and mains are sized to meet expected demand

20 levels, independent of the number of customers. In addition, CPA's allocation of

21 50 percent of its distribution mains cost on the basis of number of customers, combined

22 with its failure to consider the demands that can be met with that investment when it

23 allocates the remainder of its mains costs on a demand basis, is improper.

24   Since distribution mains exist to deliver annual requirements, and are sized to

25 provide for peak requirements, it is proper to allocate distribution mains costs on the

1   basis of Peak & Average demands, consistent with established Commission precedent.

2   Therefore, CPA's Customer-Demand method should be given zero weight by the

3   Commission.

4 Q.   WOULD IT BE REASONABLE TO ALLOCATE DISTRIBUTION MAINS

5   INVESTMENT BASED SOLELY ON DESIGN PEAK DAY DEMANDS,

6   AS CPA HAS DONE FOR A PORTION OF DISTRIBUTION MAINS

7   INVESTMENT IN ITS CUSTOMER-DEMAND ACOS STUDIES?

8 A.   No. The design day demands utilized in CPA's Customer-Demand ACOS Studies are

9   based on a day with a 1-in-15 probability of occurrence. If an allocation of distribution

10   mains costs on the basis of design peak day demands was in accordance with the

11   principle of cost causality,[2] then the demand for natural gas under design peak day

12   weather conditions would have to be the only cause for the existence of and customer

13   utilization of CPA's distribution mains. Design peak day demands represent the

14   maximum demands that are expected under the most severe weather assumptions used

15   for planning purposes. While a portion of CPA's distribution mains costs are

16   associated with, and should be allocated on, design peak demands, it is obviously

17   wrong to profess that most distribution mains costs are caused by consumer demands

18   on the coldest day experienced in CPA's service territory every 15 years or so. Quite

19   simply, if CPA's customers had a demand for gas only on days that occur every 15

20   years, there would not be a CPA gas distribution system. The costs of delivered gas

21   supplies on that one design peak day would be prohibitively high, and the cost of

22   delivering gas through CPA's distribution system on that one day simply could not

23   compete with alternative energy costs. For example, CPA's claimed annual cost of

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[2] The principle of cost causality requires costs to be allocated to customers on the basis of the customers' relative use of the service units that gave rise to the costs in the first place.

1		providing service is approximately $460 million, and its projected design day demands
2		are 791,440 Dth. This implies a cost of $580 per Dth to meet design day demands. If
3		a design day occurred only once every 15 years, this would imply a cost of nearly
4		$8,700 per Dth to meet demands on that single day.
5	Q.	IF LOCAL GAS DISTRIBUTION SYSTEMS ARE NOT BUILT SOLELY
6		TO MEET THE COLDEST DAY THAT MAY BE EXPERIENCED EVERY
7		15 YEARS, WHY DO NGDCs INCUR DISTRIBUTION MAINS
8		INVESTMENT COSTS?
9	A.	The basic reason why NGDCs like CPA invest in their distribution systems is to meet
10		the annual demands for gas by end-use customers. This is the reason for the existence
11		of the NGDC in the first place. Without sufficient annual gas usage by which to
12		amortize the annual costs of providing service, there would be no gas distribution
13		system. Additionally, as I will describe later, a portion of the total cost of distribution
14		service is related to installing a system with enough throughput capacity to meet design
15		day demands in excess of annual demands. Because distribution mains exist and are
16		related to both annual demands and peak demands, both annual and peak demands must
17		be recognized in the allocation of distribution mains costs if the allocation is to be in
18		accordance with the principle of cost causality.
19	Q.	DOES CPA'S MAINS EXTENSION POLICY CONSIDER DESIGN PEAK
20		DEMANDS IN THE COMPANY'S DECISION-MAKING PROCESS?
21	A.	No. With the general exception of main extensions up to 150 feet for new Residential
22		customers, the net present value ("NPV") of base rate revenues is considered in CPA's
23		mains extension decision-making process. The Company's base rate revenues are
24		primarily collected on a volumetric basis. This policy is described in Section 8.2 of the
25		Company's tariff. The exception for Residential main extensions of up to 150 feet is a

1   recent change to the Company's main extension policy, which was adopted in the

2   Settlement approved in Docket No. R-2015-2468056. Since its adoption, the exception

3   has been applied to approximately 4,000 Residential customers. Prior to adopting this

4   exception, the NPV of base rate revenues was considered in all Residential mains

5   extension decisions.

6 Q.   WHY IS IT PROPER TO ALLOCATE DISTRIBUTION MAINS

7   INVESTMENT ON THE BASIS OF ANNUAL, AS WELL AS PEAK,

8   DEMANDS?

9 A.   The allocation of mains investment costs on the basis of both annual and peak demands

10   is in accordance with the principle of allocating costs on the basis of cost causality.

11   Natural gas is of little to no value to the customer if that gas cannot be delivered to the

12   location of the gas-burning equipment. CPA's distribution system imparts locational

13   value to the natural gas delivered across that system by allowing for the movement of

14   that gas from its acquisition source to each customer's location. CPA's distribution

15   system exists, and related costs are incurred, to deliver gas to its customers whenever,

16   over the course of each year, its customers demand gas. In other words, CPA's system

17   was built and costs were incurred to deliver gas; both at the time of peak system demand

18   and generally throughout the year. Because costs are incurred to deliver gas generally

19   throughout the year, and additional costs are incurred to meet peak demands, CPA's

20   distribution mains costs must be allocated on the basis of both annual and peak

21   demands if those costs are to be allocated in accordance with the principle of cost

22   causality.

23 Q.   PLEASE EXPLAIN YOUR STATEMENT THAT COSTS ARE INCURRED

24   TO DELIVER BOTH ANNUAL AND PEAK VOLUMES ACROSS CPA'S

25   SYSTEM.

1   A.   The customers included in CPA's ACOS Studies, excluding MLDS customers, are

2   projected to move approximately 77.4 million Dth across CPA's system during the

3   fully forecasted future test period. This equates to an average demand of about

4   212,000 Dth per day. CPA's design demand is about 791,440 Dth. CPA cannot meet

5   its customers' annual gas demands with a system capability any smaller than

6   212,000 Dth. In other words, if there were no variance in the daily demands on CPA's

7   system, the capacity of that system would have to be designed to accommodate the

8   daily movement of 212,000 Dth just to meet the annual demands. To meet peak

9   demands, CPA's system capacity must be 3.7 times greater than 212,000 Dth. Thus,

10   some costs are related to the average deliveries each day on the CPA system, and some

11   costs are related to the movement of gas when demands are above the average demand.

12   Rational investment decision analysis requires the consideration of annual

13   volumes delivered across an NGDC's system. A gas distribution system would not

14   exist if all demand-related costs were the responsibility of design peak demands.

15   Customers would simply choose other energy alternatives. A viable gas market is

16   dependent upon the ability to amortize delivery costs over a sufficient volume of

17   service so as to result in a unit cost that can be recovered at a price at which gas can be

18   sold and still compete with other energy sources. The association of costs with annual,

19   as well as peak, demands, and the allocation of costs on the basis of both annual and

20   peak demands for gas, are absolutely essential to the economic feasibility of a gas

21   delivery system. To largely ignore annual demands and allocate total mains costs on

22   peak demands would be inconsistent with the consideration of annual demands, which

23   are absolutely essential to the economic justification of the very costs being allocated.

24   Q.   HOW DO THE COSTS OF PROVIDING FOR THE MOVEMENT OF GAS

25   TO MEET DESIGN DAY PEAK DEMANDS COMPARE TO THE COSTS

1		OF PROVIDING FOR THE MOVEMENT OF GAS TO MEET LESSER
2		DEMANDS?
3	A.	Many of the costs associated with the distribution delivery system do not depend upon
4		pipe sizes. These costs would include planning, surveying, excavation, hauling, pipe
5		bed preparation, unloading and stringing of pipe, municipal inspection, backfill, and
6		pavement and sidewalk replacement. Since a portion of total costs does not vary with
7		pipe size, or are fixed costs, total costs do not increase at a 1-to-1 ratio with increases
8		in maximum demands. The additional costs associated with meeting elevated demands
9		are largely related to the cost of the pipe itself.
10		Moreover, throughput capability increases not at a 1-to-1 ratio with the size of
11		the pipe, but at a rate equal to the square of pipe diameter. Doubling the diameter of a
12		pipe, for example, increases its capacity by four times the original capacity. Thus, the
13		additional costs of providing additional capacity are lower than the average costs of
14		providing capacity. This means that the costs associated with providing capacity for
15		the movement of average demands are greater on a unit basis than the costs associated
16		with providing capacity for additional demands. CPA's distribution system exists to
17		deliver annual system requirements. There are costs that are uniquely associated with
18		meeting peak demands, and as such, peak demands should bear some cost
19		responsibility.
20	Q.	ARE GAS FLOWS DURING THE DESIGN PEAK SO IMPORTANT
21		THAT MOST OF CPA'S TOTAL DISTRIBUTION SYSTEM COSTS ARE
22		DIRECTLY RELATED TO, AND CAUSED BY, PEAK DAY DEMAND
23		REQUIREMENTS?
24	A.	No. Peak demands are not the major cause of CPA's demand-related mains cost, and
25		it would be wrong to allocate distribution mains-related costs largely on the basis of

1   peak demands. Only the marginal costs incurred to meet peak demands above other

2   demands are caused by, or directly related to, peak requirements. CPA's gas delivery

3   system simply would not be viable and would not exist if the only demand for gas was

4   the demand associated with extreme weather conditions. CPA's delivery system exists

5   because the total annual demand for gas is sufficient to warrant its existence. Because

6   CPA's system exists to deliver annual gas requirements, but some additional costs are

7   related to the delivery of gas during periods of elevated demand, it is appropriate to

8   allocate the Company's distribution mains costs on both annual and peak demands.

9   The allocation of distribution system-related costs only on the basis of peak demands

10   misallocates substantial costs.

11   Q.   TO WHAT EXTENT DO THE COSTS OF MEETING PEAK GAS FLOW

12   REQUIREMENTS EXCEED THE COSTS OF MEETING AVERAGE GAS

13   FLOW REQUIREMENTS?

14   A.   As noted, CPA's design peak day peak demand is about 3.7 times its average demand.

15   A pipe's cross-sectional area, and correspondingly its capacity, varies with the square

16   of its radius. Therefore, doubling the size of a pipe's radius (or diameter) increases the

17   capacity of the pipe fourfold. For example, doubling the diameter of a 2-inch pipe to

18   four inches increases the capacity by four times the capacity of the 2-inch pipe.

19   Increasing the diameter of a 2-inch pipe to eight inches increases the capacity by 16

20   times. The costs of meeting increased flow requirements that are caused by, or

21   associated with, elevated demands are answered by the relationship of the change in

22   total capacity costs to the change in capacity.

23   I explained earlier that since many distribution delivery system costs do not

24   vary with pipe size, the increased costs associated with meeting increased capacity

25   requirements are expected to be small. Indeed, it is largely these economies of scale

1   that lead to falling average costs of service and the provision of gas distribution service

2   more economically by one monopoly provider, like CPA, rather than by many

3   competing providers.

4 Q.   DO YOU HAVE CPA-SPECIFIC DATA IDENTIFYING THE COSTS

5   ASSOCIATED WITH MEETING INCREASED CAPACITY

6   REQUIREMENTS?

7 A.   Yes. The most common category of distribution mains installed by CPA is regulated-

8   pressure mains, and the most common type of this category of distribution mains is

9   plastic. In the minimum system analysis prepared by CPA, provided in the response to

10   OCA-1-001, the Company determined the per-foot cost to install plastic regulated-

11   pressure distribution mains. Those costs are reflected in Table 3 for those pipe sizes

12   with a total investment in excess of $20 million.

Table 3. CPA Cost of Installed Regulated-pressure Mains	
Diameter (inches)	Average Cost (per foot)
2	$17.19
4	49.32
6	74.90
8	112.70

13   As shown on Table 3, the average cost of installing a 2-inch main was

14   approximately $17 per foot, while the average cost of installing a 4-inch main was

15   approximately $49 per foot. Thus, for a fourfold increase in capacity, CPA's total

16   average costs increased by nearly 200 percent (($49 - $17) / $17). Based on this

17   example, a doubling of the pipe size (and hence a quadrupling of capacity) increased

18   capacity costs by nearly 200 percent, indicating that increased demands above average

1   demands can be accommodated at increased distribution mains costs that are

2   approximately 50 percent (200 percent / fourfold increase in capacity) of the costs of

3   meeting average demands:

Cost per Foot				Capacity Increase	Cost of Peak
2-inch	4-inch	Increase	Percent		
(a)	(b)	(c) = (b)-(a)	(d) ~ (c)/(a)	(e)	(f) = (d)/(e)
$17.00	$49.00	$32.00	200%	4	50%

4   Table 3 also indicates that the average cost of installing an 8-inch main was

5   approximately $113 per foot. Thus, for a 16-fold increase in capacity, CPA's total

6   average costs increased by more than 560 percent (($113 - $17) / $17) over the cost of

7   a 2-inch pipe. Based on this example, a quadrupling of pipe size (and hence a 16-fold

8   increase in capacity) increased capacity costs by about 560 percent, indicating that

9   increased demands above average demands can be accommodated at an increased

10   distribution mains costs that are 40 percent (600 percent / 16-fold increase in capacity)

11   of the costs of meeting average demands:

Cost per Foot				Capacity Increase	Cost of Peak
2-inch	8-inch	Increase	Percent		
(a)	(b)	(c) = (b)-(a)	(d) = (c)/(a)	(e)	(f) = (d)/(e)
$17.00	$113.00	$96.00	560%	16	35%

12   Given these two CPA-specific examples above, less than half of distribution

13   mains costs are associated with meeting elevated peak demand requirements and could

14   be allocated based on peak demands, and the remainder is related to customers' annual

15   demands for natural gas and could be allocated on average demands.

16   Q.   HOW CAN DISTRIBUTION MAINS INVESTMENT COSTS BE

17   PROPERLY ALLOCATED?

1   A.   The additional costs of providing capacity in order to meet peak demands, as opposed

2   to lesser demands, should be allocated on a peak demand basis. As I just demonstrated,

3   less than half of CPA's distribution mains costs are associated with meeting increased

4   demands; hence, a portion of mains costs should be allocated on the basis of peak

5   demands. I recommend that 50 percent of CPA's distribution mains system costs,

6   instead of a lesser amount, be allocated on the basis of peak demands. The remaining

7   50 percent of CPA's distribution mains costs, being related to, or caused by, CPA's

8   annual gas requirements, should be allocated on annual, or average, demands.

9   Q.   HAS THIS COMMISSION PREVIOUSLY APPROVED THE USE OF THE

10   PEAK & AVERAGE METHOD?

11 A.   Yes. The Commission has previously accepted the fact that distribution mains are built

12   on the basis of year-round demands as well as peak demands. In NFGD's 1994 base

13   rate proceeding, the Commission accepted the Peak & Average methodology, stating,

14   "The Peak & Average method that allocates mains equally is a sound and reasonable

15   method of cost allocation and should remain intact." *Pa. P.U.C. v. National Fuel Gas*

16   *Distribution Co.*, 83 Pa. PUC 262, 360 (1994). See also *Pa. P.U.C. v. National Fuel*

17   *Gas Distribution Co.*, 73 Pa. PUC 552 (1990); *Pa. P.U.C. v. Equitable Gas Co.*, 73 Pa.

18   PUC 301 (1990); and *Pa. P.U.C. v. CPA Gas Co.*, 69 Pa. PUC 138 (1989).

19 Q.   HAVE OTHER COMMISSIONS ACCEPTED THE USE OF THE PEAK &

20   AVERAGE METHOD?

21 A.   Yes. The Indiana Utility Regulatory Commission ("IURC") has strongly endorsed the

22   use of the Peak & Average methodology. See *In re Citizens Gas & Coke Utility*, IURC

23   Cause No. 42767 (Oct. 19, 2006). The IURC found that the Peak & Average method

24   was the "equitable and realistic" method for allocating distribution mains costs, and

25   provided the following analysis:

1	Based upon the record evidence, this Commission
2	concludes that the OUCC's cost-of-service study is
3	most reflective of cost causation and possesses a
4	high degree of objectivity upon which the
5	Commission may place reliance in establishing the
6	rates and charges in this proceeding.
7	While we do not doubt that distribution mains must
8	be constructed with peak demand in mind,
9	distribution mains do not only serve customers on
10	peak demand days. Therefore, a measure of the
11	costs of distribution mains must be allocated to
12	customers based on their usage that takes place on
13	non-peak days. For example, a customer that does
14	not take service at all on the peak demand day-and
15	therefore contributes nothing to peak demand
16	requirements of distribution mains-but receives
17	service through distribution mains at other times
18	should be responsible for some portion of
19	distribution main costs.
20	The OUCC's approach is much more equitable and
21	realistic. Rather than allocating distribution main
22	costs exclusively based on either peak demand day
23	or average annual consumption, the OUCC used a
24	compromise approach that allocated these costs
25	based on both. Under the OUCC's cost-of-service
26	study, 80% of distribution main costs are allocated
27	based on average demand. (Public's Ex. No. 6 at
28	13.) In this way, the OUCC's approach allocates
29	part of distribution main costs to customers who
30	receive service through distribution mains
31	throughout the year but who may not receive much
32	or any service on the peak demand day.
33	For the reasons set forth above, we find the OUCC's
34	cost-of-service study most accurately reflects the
35	manner in which distribution main costs are actually
36	incurred. See, In Re Citizens Gas & Coke Utility,
37	IURC Cause No. 39066, at 31 (Nov. 1, 1999). We
38	therefore adopt the OUCC's cost-of-service study to
39	implement the rates increase approved in this
40	Cause.

1   [*In re Citizens Gas & Coke Utility*, IURC Cause
2   No. 42767, at 74-75 (Oct. 19, 2006)]

3   The Illinois Commerce Commission ("ICC") has accepted the Peak & Average

4   method for allocating transmission and distribution costs in the natural gas industry.

5   The ICC explained the reasoning behind utilizing a Peak & Average methodology in

6   their decision as follows:

7   Generally, [Central Illinois Public Service Company
8   or CIPS] and [Union Electric Company or UE] gas
9   transmission and distribution facilities exist because
10   there is a daily need for such facilities. Regardless
11   of when CIPS and UE experience their respective
12   peak and the level of the peak, customers depend on
13   the continued operation of the Ameren gas
14   transmission and distribution systems to meet their
15   daily needs. On the day that the peak does occur.
16   Ameren's own Mr. Carls testifies that CIPS' and
17   UE's respective systems are built to accommodate
18   the system peak without regard to each class' peak.
19   In light of the nature in which the transmission and
20   distribution systems are used and because of the
21   relatively declining cost of increasing capacity,
22   peak demand is not the appropriate emphasis in
23   allocating demand costs…As the Commission
24   concluded in Docket 94-0040, a utility can not
25   justify its transmission and distribution investment
26   on demands for a single day. The allocation method
27   that properly weights peak demand is the [Average
28   & Peak or A&P] method, the same method that the
29   Commission adopted in CIPS' and UE's last gas
30   rate cases. The A&P method properly emphasizes
31   the average component to reflect the role of year-
32   round demands in shaping transmission and
33   distribution investments.
34
35   [*Central Ill. Pub. Service Co. Proposed General*
36   *Increase in Natural Gas Rates, et al.*, 2003 Ill. PUC
37   Lexis 824, 231-232 (2003)]

1 Q.   DOES THE COMPANY'S ACOS PEAK & AVERAGE STUDY REFLECT

2   A REASONABLE ALLOCATION OF DISTRIBUTION MAINS

3   INVESTMENT?

4 A.   No, it does not. As indicated previously, in CPA's Peak & Average ACOS Study,

5   distribution mains investment is separately assigned to one of three categories, and each

6   category is separately allocated to each rate class. As previously explained, this

7   assignment is unreasonable. In addition, the Company has not appropriately assigned

8   the costs associated with the major account representatives that manage large Industrial

9   and Commercial customer accounts.

10 Q.   UNDER WHAT ACCOUNTS ARE THE COSTS ASSOCIATED WITH

11   MAJOR ACCOUNT REPRESENTATIVES INCLUDED IN THE

12   COMPANY'S ACOS STUDY AND HOW WERE THEY ALLOCATED TO

13   THE VARIOUS CUSTOMER CLASSES?

14 A.   The costs associated with major account representatives are included in FERC Account

15   910 – Miscellaneous Customer Service & Information Expenses. These costs were

16   allocated to the various customer classes based on the average number of customers.

17   As a result, more than 90 percent of these costs were assigned to CPA's Residential

18   class.

19 Q.   WHY IS THE COMPANY'S ALLOCATION OF THE COSTS

20   ASSOCIATED WITH MAJOR ACCOUNT REPRESENTATIVES NOT

21   APPROPRIATE?

22 A.   As the name implies, major account representatives serve large customers, not small

23   Residential customers. Therefore, an allocation of these costs based on the number of

24   customers is unreasonable.

1 Q. HOW DO YOU RECOMMEND THAT THE COSTS ASSOCIATED WITH

2   MAJOR ACCOUNT REPRESENTATIVES BE ALLOCATED?

3 A. I recommend that major account representatives' costs be allocated to the Company's

4   larger customer classes 50 percent based on the number of customers and 50 percent

5   based on annual volumes.

6 Q. WHAT ARE THE RESULTS OF THE COMPANY'S PEAK & AVERAGE

7   ACOS STUDY?

8 A. Table 4 shows the results of CPA's Peak & Average Study at present rates.

Table 4. Class Rates of Return CPA Peak & Average ACOS Study Results at Present Rates		
Class	Rate of Return	Index
RSS/RDS	7.159%	1.14
SGSS1/SCD1/SGDS1	6.825	1.08
SGSS2/SCD2/SGDS2	7.593	1.20
SDS/LGSS	4.401	0.70
LDS/LGSS	0.500	0.08
MLDS	90.589	14.37
Overall:	6.302%	1.00

9 Q. HAVE YOU PREPARED A PEAK & AVERAGE ACOS STUDY THAT

10   ELIMINATES THE SEPARATE ASSIGNMENT OF DISTRIBUTION

11   MAINS TO CATEGORIES AND APPROPRIATELY ASSIGNS THE

12   COSTS ASSOCIATED WITH MAJOR ACCOUNT REPRESENTATIVES?

13 A. Yes. Schedule JDM-1 present the results of the OCA's Peak & Average ACOS Study

14   that eliminates the separate assignment of distribution mains to categories and assigns

15   the costs associated with major account representatives to the appropriate classes. This

1   study provides a reasonable indication of the cost of service for each rate class. Table

2   5 provides a summary of the OCA's Peak & Average Study at present rates.

Table 5. Class Rates of Return OCA Peak & Average ACOS Study Results at Present Rates		
Class	**Rate of Return**	**Index**
RSS/RDS	8.134%	1.29
SGSS1/SCD1/SGDS1	7.178	1.14
SGSS2/SCD2/SGDS2	7.286	1.16
SDS/LGSS	3.634	0.58
LDS/LGSS	(1.112)	(0.18)
MLDS	85.131	13.51
Overall:	**6.302%**	**1.00**

3

4   Q.   CPA PRESENTED ACOS STUDIES USING TWO DIFFERENT

5   ALLOCATION METHODS FOR MAINS INVESTMENT. ARE YOU

6   PRESENTING AN ACOS STUDY IN THIS PROCEEDING USING AN

7   ALLOCATION METHOD FOR DISTRIBUTION MAINS INVESTMENT

8   OTHER THAN THE PEAK & AVERAGE METHOD?

9   A.   Yes. In addition to presenting an ACOS study using the Peak & Average method at

10   present rates, I am presenting an ACOS study allocating mains investment using the

11   Proportional Responsibility ("PR") method. I am presenting this additional study to

12   support the reasonableness of the results of the ACOS study prepared using the Peak

13   & Average method. I would note that the ACOS study presented by Columbia Gas of

14   Massachusetts ("CMA"), CPA's affiliate, in a current base rate proceeding before the

15   Massachusetts Department of Public Utilities ("D.P.U."), utilizes the PR method.

16   (D.P.U. 18-45).

| 1 | Q. | DID CMA PRESENT ACOS STUDIES THAT WERE PREPARED USING |
| | | A METHOD OTHER THAN THE PR METHOD IN D.P.U. 18-45? |

1   Q.   DID CMA PRESENT ACOS STUDIES THAT WERE PREPARED USING

2   A METHOD OTHER THAN THE PR METHOD IN D.P.U. 18-45?

3   A.   No, it did not.

4   Q.   PLEASE DESCRIBE THE PR METHOD.

5   A.   Under the PR method, distribution mains investment is allocated to customer class on

6   the basis of PR allocators. The PR method recognizes that capacity on the distribution

7   system has some value each month throughout the year, although that value is

8   diminished in the summer months when demands are much lower. The PR method

9   was developed by Gary H. Grainer of the Wisconsin Public Service Commission.

10   Q.   PLEASE EXPLAIN HOW THE PR ALLOCATORS ARE DEVELOPED.

11   A.   Schedule JDM-2 presents a calculation of PR allocators for the assignment of

12   distribution mains costs to CPA's rate classes using the method presented by CMA in

13   D.P.U. 18-45. First, shown on Schedule JDM-2, distribution volumes by month and

14   by class are adjusted by the applicable fuel retention charge to develop monthly sendout

15   volumes by class and for the Company in total. Total sendout volumes by month are

16   then ranked from highest to lowest (Column 2), and a percentage of each month's

17   sendout compared to the peak month's sendout is calculated (Column 3).

18   For example, as shown on Schedule JDM-2 (Column 2), January is CPA's peak

19   month, and January sendout is 100.0000 percent of peak month sendout (Column 3),

20   while May sendout is 35.7810 percent of peak month sendout (Column 3). In the next

21   step (Column 4), the next lowest rank month is identified, and the percent of peak for

22   the next ranked month (Column 5) is subtracted from each month's percent of peak

23   (Column 3) to determine the incremental increase in each monthly percentage peak,

24   which is shown in Column 6. For example, from the percent of peak for May, which

25   is the seventh-highest ranked month, the percent of peak for October, which is the

1   eighth-highest ranked month, is subtracted. The difference between the percent of peak

2   for the current month and the next ranked month is then divided by the rank of the

3   current month.

4   Using May as an example again, the difference between May's percent of peak

5   and the next highest-ranked month's 7.0189 percent of peak (Column 6) is divided by

6   May's percent of peak ranking of 7 to arrive at an individual monthly weighting

7   (Column 7).   Cumulative total Company weightings for each month are then

8   determined (Column 9).   These weights are determined by starting at the lowest

9   individual weighted month, which is August at 1.7697 percent, and adding to the

10   second-lowest individual weighted month the previous month's weighted average,

11   which is July. Therefore, under the PR method, sendout in July would be weighted

12   based on the individual weightings of August and July. Eventually, January, the

13   highest-ranked month's weighting, would be based on the cumulative weighting of all

14   months.   Thus, under the PR method, each higher-ranked month is assigned a

15   successively higher percentage allocation. The cumulative weighting for each month

16   is then multiplied by each class' share of monthly sendout to develop individual class

17   PR allocations (Column 10).

18 Q.   HAVE YOU PREPARED AN ACOS STUDY USING THE PR METHOD?

19 A.   Yes. Schedule JDM-3 presents the results of the PR study at present rates. Table 6

20   presents a summary of the PR study at present rates.

Table 6. CPA Class Rates of Return Proportional Responsibility ACOS Study at Present Rates		
Class	Rate of Return	Index
RSS/RDS	8.500%	1.35
SGSS1/SCD1/SGDS1	6.864	1.09
SGSS2/SCD2/SGDS2	7.557	1.20
SDS/LGSS	4.012	0.64
LDS/LGSS	(1.559)	(0.25)
MLDS	85.131	13.51
Overall:	6.302%	1.00

1   A comparison of Table 5 and Table 6 reveals that the Peak & Average and PR methods

2   produce nearly identical cost-of-service results.

3

4   **III. CLASS REVENUE REQUIREMENTS**

5 Q.   PLEASE DESCRIBE HOW CPA IS PROPOSING TO DISTRIBUTE ITS

6   REQUESTED REVENUE INCREASE AMONG ITS CUSTOMER

7   CLASSES IN THIS PROCEEDING.

8 A.   CPA generally sought to allocate the revenue increase toward the cost of service

9   indicated by the results of its Average ACOS Study. The Company's proposed base

10   rate revenue distribution is presented in Table 7.

Table 7. CPA Proposed Revenue Distribution				
Class	Present Rates	Proposed Rates	Increase	Percent
RSS/RDS	$271,367,083	$308,997,512	$37,630,429	13.9%
SGSS1/SCD1/SGDS1	34,668,145	37,049,399	2,381,254	6.9
SGSS2/SCD2/SGDS2	34,273,349	36,429,484	2,156,135	6.3
SDS/LGSS	17,687,766	20,187,758	2,499,992	14.1
LDS/LGSS	17,899,205	20,024,743	2,125,538	11.9
MLDS	1,204,052	1,246,230	42,178	3.5
Total:	**$377,099,600**	**$420,935,126**	**$46,035,526**	**12.4%**

1 Q.   IS CPA'S PROPOSED REVENUE ALLOCATION REASONABLE?

2 A.   No. CPA's revenue allocation is guided by the results of its Average Study. As

3   explained in the prior section of my testimony, this study violates the principle of

4   allocating costs on the basis of cost causality, and does not reasonably reflect the costs

5   of providing service to the various customer classes. The OCA's Peak & Average

6   Study should be used as a guide for the allocation of any increase authorized by the

7   Commission in this proceeding.

8 Q.   WHAT ARE SOME OF THE PRINCIPLES OF A SOUND REVENUE

9   ALLOCATION?

10 A.   A sound revenue allocation should:

11   • Utilize class cost-of-service study results as a guide;

12   • Provide stability and predictability of the rates themselves, with a minimum of
13   unexpected changes that are seriously adverse to ratepayers or the utility
14   (gradualism);

15   • Yield the total revenue requirement;

16   • Provide for simplicity, certainty, convenience of payment, understandability,
17   public acceptability, and feasibility of application; and

18   • Reflect fairness in the apportionment of the total cost of service among the
19   various customer classes.

1 Q. WHAT DO YOU RECOMMEND WITH RESPECT TO THE

2 ALLOCATION OF CPA'S PROPOSED REVENUE INCREASE?

3 A. Table 8 summarizes my recommended revenue distribution at proposed rates for the

4 Company's claimed revenue deficiency. This distribution is developed on Schedule

5 JDM-4 and is based on the OCA's Peak & Average ACOS study.

Table 8. OCA Proposed Revenue Distribution				
Class	Present Rates	Proposed Rates	Increase	Percent
RSS/RDS	$271,367,083	$301,237,105	29,870,022	11.0%
SGSS1/SCD1/SGDS1	34,668,145	39,407,755	4,739,610	13.7
SGSS2/SCD2/SGDS2	34,273,349	39,577,530	5,304,181	15.5
SDS/LGSS	17,687,766	22,002,163	4,314,397	24.4
LDS/LGSS	17,899,205	20,356,981	2,457,776	13.7
MLDS	1,204,052	1,353,600	149,548	12.4
Total:	$377,099,600	$423,935,134	$46,835,534	12.4%

6 Q. HOW DID YOU DEVELOP YOUR PROPOSED REVENUE

7 DISTRIBUTION?

8 A. First, because the MLDS class has not received an increase of any significance in a

9 number of years, I recommend a system average increase for this class. I assigned a

10 rate increase to the LDS/LGSS class that moved this class toward the indicated cost of

11 service and that recognized that a number of customers in this class receive service at

12 negotiated discount (flex) rates. I assigned an increase to the SDS/LGSS class, which

13 moved that class 75 percent toward the indicated cost of service. For the

14 SGSS1/SCD1/SGDS1 and SGSS2/SCD2/SGDS2 classes, I assigned a rate increase

15 that maintained the unitized rates of return at present rates. I assigned an increase that

16 moved the RSS/RDS class toward the indicated cost of service and provided for the

1		recovery of the remainder of CPA's requested increase not assigned to the other class
2		served by CPA.
3	Q.	WHAT DO YOU RECOMMEND WITH RESPECT TO THE SCALE-
4		BACK OF YOUR PROPOSED REVENUE DISTRIBUTION TO REFLECT
5		THE INCREASE ACTUALLY AUTHORIZED BY THE COMMISSION IN
6		THIS PROCEEDING?
7	A.	In the event that CPA's authorized increase is less than its requested increase, I
8		recommend a proportionate scale-back of the increase for each rate class.
9		

IV. RATE DESIGN

11	Q.	PLEASE DESCRIBE CPA'S CURRENT AND PROPOSED RESIDENTIAL
12		RATES.
13	A.	CPA's current Residential sales and transportation customer distribution rates consist
14		of a $16.75-per-month customer charge and a single delivery charge of $5.5316 for
15		each Dth of gas delivered. CPA's proposed Residential rate would consist of a
16		$18.25-per-month customer charge and a $6.1887-per-Dth delivery charge. CPA
17		justifies its proposed Residential customer charge as being within a calculated customer
18		cost range of $19.66 to $46.05 and in proportion to the overall percentage increase
19		proposed for the Residential rate class. The $19.66 charge is based on CPA's Peak &
20		Average Study, while the $46.05 charge is based on CPA's Customer-Demand Study,
21		which includes a customer component of distribution mains.
22	Q.	SHOULD CPA'S PROPOSED RESIDENTIAL CUSTOMER CHARGE BE
23		APPROVED?
24	A.	No, for several reasons. First, CPA's customer cost calculations, which are relied upon
25		to support the $18.25 Residential customer charge, are unreasonable because they

1		include costs that are not customer costs. Second, CPA's Residential customer charge
2		proposal is out of line with the Residential customer charges of other NGDCs in the
3		Commonwealth. Third, as discussed in the testimony of OCA Witness Colton, CPA's
4		proposal will have a disproportionate impact on low-income customers. Finally, a high
5		fixed monthly customer charge is inconsistent with the Commission's general goal of
6		fostering energy conservation.
7	Q.	WHY IS CPA'S CALCULATED RANGE OF CUSTOMER COSTS OF
8		$19.66 TO $46.05, WHICH THE COMPANY USES TO SUPPORT THE
9		$18.25 MONTHLY CUSTOMER CHARGE, UNREASONABLE?
10	A.	A customer charge should only include those basic costs associated with serving
11		customers, regardless of their usage or demand characteristics. Customer costs include
12		the expenses and capital costs related to meters, regulators, and services, as well as
13		expenses related to meter reading and billing. The Company's calculated customer
14		charge of $46.05 is unreasonable because it includes an allocated portion of mains
15		investment that has consistently been rejected by this Commission. The calculated
16		customer charge of $19.66 is unreasonable because it includes an allocation of costs
17		not properly reflected in the fixed monthly charge: expenses associated with
18		uncollectibles, miscellaneous, informational, demonstration, and advertising.
19	Q.	HOW DOES CPA'S RESIDENTIAL CUSTOMER CHARGE PROPOSAL
20		COMPARE WITH THE MONTHLY RESIDENTIAL CUSTOMER
21		CHARGES OF OTHER NGDCs IN THE COMMONWEALTH?
22	A.	Table 9 provides a comparison of CPA's Residential customer charge proposal with
23		the customer charges of other Pennsylvania NGDCs. As shown there, CPA's current
24		charge is already the highest in the Commonwealth, and if adopted, CPA's proposed

1   monthly Residential customer charge would be significantly higher than that of any

2   other NGDC in the Commonwealth.

Table 9. Comparison of Residential Customer Charges for Pennsylvania NGDCs	
Columbia Gas of Pennsylvania – Proposed	$18.25
Columbia Gas of Pennsylvania – Current	16.75
Peoples TWP	15.75
UGI Central Pennsylvania	14.60
Peoples Natural Gas	13.95
Philadelphia Gas Works	13.75
Peoples – Equitable Division	13.25
UGI Penn Natural Gas	13.17
National Fuel Gas Company	12.00
PECO Energy Company	11.75
UGI Gas Utilities	11.75

3   Q.   WHY IS A HIGH FIXED MONTHLY CUSTOMER CHARGE

4   INCONSISTENT WITH THE COMMISSION'S GENERAL GOAL OF

5   FOSTERING ENERGY CONSERVATION?

6   A.   The more revenue collected through the fixed monthly charge, the lower the volumetric

7   charge. The higher the volumetric charge, the greater the incentive to lower usage.

8   Q.   HAVE YOU CALCULATED A CUSTOMER CHARGE THAT

9   ELIMINATES THE COSTS NOT PROPERLY REFLECTED IN A

10   CUSTOMER CHARGE CALCULATION?

11 A.   Yes. A customer charge calculation that eliminates the cost not properly reflected in

12   such a calculation is presented in Schedule JDM-5 at CPA's requested revenue

13   increase. My calculation indicates a Residential customer charge of $18.61.

1   Q.   WHAT IS YOUR RECOMMENDATION WITH RESPECT TO CPA'S

2   MONTHLY RESIDENTIAL CUSTOMER CHARGE?

3   A.   CPA's monthly Residential customer charge is already the highest in the

4   Commonwealth. Based on CPA's requested increase, a cost-based charge would be

5           $18.61. At the revenue increase authorized by the Commission in this proceeding, a

6   cost-based charge would certainly be less than the $18.61 calculated charge. For

7   example, adjusting CPA's overall requested rate of return from 8.1 percent to reflect

8   the OCA's recommended return of 7.28 percent would further reduce the calculated

9   customer charge to $17.67. This calculation is also presented on Schedule JDM-5.

10   Other adjustments to CPA's revenue requirement claim are likely to further reduce the

11   calculated customer charge. Therefore, I recommend that the existing $16.75 monthly

12   charge be maintained, unless the increase authorized by the Commission is sufficient

13   to justify a higher charge based on the OCA's cost-based approach.

14

15   **V. <u>WEATHER NORMALIZATION ADJUSTMENT</u>**

16 Q.   BRIEFLY DESCRIBE CPA'S WEATHER NORMALIZATION

17   ADJUSTMENT PILOT.

18 A.   The WNA adjusts a Residential customer's monthly charges to account for differences

19   in usage attributable to variations between actual recorded heating degree days

20   ("HDDs") and normal HDDs during the months of October through May. The WNA

21   provides for the collection of additional revenues from Residential customers when

22   actual HDDs experienced are less than normal HDDs, and provides a revenue credit

23   when actual HDDs experienced are greater than normal HDDs. The formula used to

24   develop the WNA applied to each bill is presented on page 5 of CPA Statement No.

25   12.

1	Q.	WHAT IS CPA PROPOSING WITH RESPECT TO ITS WNA IN THIS
2		PROCEEDING?
3	A.	CPA is proposing that its current WNA pilot, which was established in Docket No. R-
4		2012-2321748, and which will expire absent further Commission action at the
5		conclusion of this proceeding, become a permanent component of the Company's tariff.
6	Q.	SHOULD THE COMMISSION AUTHORIZE THE WNA TO BECOME A
7		PERMANENT COMPONENT OF CPA'S TARIFF?
8	A.	The WNA increases the Company's revenue stability and reduces the Company's risk
9		for purposes of determining an adequate ROE. The OCA does not oppose the
10		Company's proposal for the WNA to become a permanent component of CPA's tariff,
11		so long as the increase in revenue stability and reduced risk is reflected in establishing
12		the ROE in this proceeding and the OCA's other recommendations regarding the WNA
13		are adopted.
14	Q.	IS CPA PROPOSING ANY MODIFICATIONS TO THE EXISTING WNA?
15	A.	Yes. First, the WNA is currently assessed during the months of October through May.
16		CPA is proposing to discontinue assessing the WNA in the month of October. Second,
17		the current WNA includes a 5 percent deadband. That is, the WNA is not assessed if
18		weather is less than 5 percent warmer or colder than normal. The Company is
19		proposing to eliminate the 5 percent deadband.
20	Q.	SHOULD THE MODIFICATIONS TO THE WNA PROPOSED BY CPA
21		BE APPROVED IF THE COMMISSION AUTHORIZES THE WNA TO
22		BECOME PERMANENT?
23	A.	The OCA does not oppose discontinuing assessing the WNA in the month of October.
24		However, the OCA does not agree that the 5 percent deadband should be eliminated.
25		It is unreasonable to assume that weather and natural usage is abnormal if a particular

1		day is only a few HDDs warmer or colder than normal. If the deadband is eliminated,
2		the WNA would be applied if actual weather was only one HDD colder or warmer than
3		normal. An HDD is determined by taking the average of daily high and low
4		temperatures, and daily usage can vary due to factors other than temperature.
5		Therefore, the 5 percent deadband should be maintained to help ensure that the
6		assessment of the WNA is limited to changes in usage attributable to variations in
7		temperature.
8		
9		**VI. <u>REVENUE NORMALIZATION ADJUSTMENT</u>**
10	Q.	BRIEFLY DESCRIBE RIDER RNA PROPOSED BY CPA.
11	A.	Under Rider RNA, a benchmark revenue per Residential customer ("Benchmark
12		Distribution Revenue per Bill" or "BDRB") would be established through a base rate
13		case proceeding.[3] Through Rider RNA, the Company would collect or refund any
14		variation in Residential revenues that differed from the BDRB not due to differences
15		between actual and normal weather. Rider RNA would be calculated and assessed on
16		a total Residential class revenue basis rather than an individual customer revenue basis.
17	Q.	SHOULD RIDER RNA BE APPROVED BY THE COMMISSION?
18	A.	No. Rider RNA should not be approved for the following reasons:

19
20 • The proposed Rider RNA could increase earnings beyond those that the
21   Company would ordinarily be entitled to.

22 • The proposed Rider RNA unreasonably applies to customers whose usage is
23   relatively constant over time.

24 • The proposed Rider RNA embodies a take-or-pay pricing policy.

25 • The proposed Rider RNA inappropriately adjusts rates without considering
26   other changes in total revenues and costs.

---

[3] The RNA would not apply to Residential customer assistance program customers.

1   • CPA has not demonstrated that its current system of rates and charges result in
2   inadequate revenue stability.

3   Q.   PLEASE EXPLAIN HOW THE RNA COULD INCREASE EARNINGS

4   BEYOND THOSE TO WHICH THE COMPANY WOULD ORDINARILY

5   BE ENTITLED.

6   A.   When CPA adds a new Residential customer, margins from that customer are set under

7   Rider RNA at the BDRB. A new customer is likely to have purchased a more energy-

8   efficient gas appliance than an average existing customer, and would have lower usage

9   than an average customer, all else being equal. This would increase CPA's earnings

10   beyond what they would have been without Rider RNA because CPA's margins would

11   be based on average Residential customer margins.

12 Q.   DOES THE PROPOSED RIDER RNA UNREASONABLY APPLY TO

13   CUSTOMERS WHOSE USAGE IS RELATIVELY CONSTANT OVER

14   TIME?

15 A.   Yes. Rider RNA would collect or refund any variation in total Residential revenues

16   that differed from the BDRB and that are not due to differences between actual and

17   normal weather. Therefore, Rider RNA would unreasonably apply to those Residential

18   customers whose usage is relatively constant over time.

19 Q.   DOES THE PROPOSED RIDER RNA EMBODY A TAKE-OR-PAY

20   PRICING POLICY?

21 A.   Yes. In the marketplace, consumers pay for the goods and services they receive. Under

22   the proposed Rider RNA, consumers would pay for distribution service they do and do

23   not receive. No matter how much distribution service is actually purchased by CPA's

24   Residential customers, ultimately, under the proposed Rider RNA, those customers

25   would pay for the presumed level of service whether they take delivery or not. This

1		conversion of a volumetric rate into rates that yield a given revenue, regardless of the
2		amount of service purchased, converts CPA's volumetric rate into a take-or-pay billing
3		feature.
4	Q.	PLEASE EXPLAIN HOW RIDER RNA COULD RESULT IN
5		INAPPROPRIATE RATE ADJUSTMENTS.
6	A.	The proposed Rider RNA operates to change rates, automatically, between rate cases,
7		simply as a function of Residential distribution revenues being different from
8		benchmark revenues due to factors other than weather. There is no review of CPA's
9		costs, or the volumes and attendant revenues from other customer classes that are not
10		included under Rider RNA. For example, if Residential usage per customer were to
11		fall over time, while SGSS1/SCD1/SGDS1 deliveries increased, CPA's Residential
12		rates would be increased under Rider RNA with no recognition of the increased
13		SGSS1/SCD1/SGDS1 distribution service revenues. Moreover, if Residential
14		customer distribution service requirements decreased over time, Residential allocated
15		costs should also decrease, thus reducing the Residential revenue requirement. There
16		is no provision in the proposed Rider RNA to adjust Residential class revenue
17		requirements as they may be affected by the very events that trigger automatic price
18		changes under Rider RNA. The proposed Rider RNA can operate to delay base rate
19		cases, leading to rate increases between base rate cases that may not be supported by a
20		broader review of CPA's revenue/cost relationship, and leading to Residential class
21		revenue relationships that no longer reflect any basis in allocated costs of service.
22	Q.	HAS CPA DEMONSTRATED THAT ITS CURRENT SYSTEM OF RATES
23		AND CHARGES DO NOT PROVIDE FOR ADEQUATE REVENUE
24		STABILITY?

1   A.   No. CPA's current system of rates and charges, which include fixed monthly customer

2   charges, a Purchased Gas Adjustment mechanism, and Rider RNA, provide for revenue

3   stability and CPS has not demonstrated that this stability is inadequate.

4   Q.   DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

5   A.   Yes, it does at this time.

6

7

8   251309

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	)	
	)	
	)	
v.	)	Docket No. R-2018-2647577
	)	
COLUMBIA GAS OF PENNSYLVANIA, INC.	)	
	)	

SCHEDULES ACCOMPANYING THE

DIRECT TESTIMONY OF

JEROME D. MIERZWA

ON BEHALF OF THE

PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

June 7, 2018

ALLOCATED COST OF SERVICE
OCA PEAK & AVERAGE STUDY

COLUMBIA GAS OF PENNSYLVANIA, INC.
RATE OF RETURN BY CLASS - CURRENT @ CURRENT RATES
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2019

LINE NO.	ACCOUNT TITLE (A)	ALLOC FACTOR (B)	TOTAL COMPANY (C) $	RSS/RDS (D) $	SGSS1/SCD1/SGDS1 (E) $	SGSS2/SCD2/SGDS2 (F) $	SDS/LGSS (G) $	LDS/LGSS (H) $	MLDS (I) $
1	TOTAL REVENUE [PAGE 6]		575,348,119	425,172,396	56,439,518	53,366,260	20,955,081	17,939,579	1,475,286
2	PRODUCTS PURCHASED [PAGE 7]		163,506,936	120,184,061	21,240,416	18,646,735	3,167,707	0	268,017
3	OPERATING & MAINTENANCE EXPENSES [PAGES 7 & 8]		191,017,256	142,572,396	13,523,846	11,094,794	7,977,564	15,732,117	116,538
4	DEPRECIATION & AMORTIZATION [PAGE 5]		77,301,907	47,625,153	6,832,567	7,017,958	4,983,764	10,799,147	43,319
5	TAXES OTHER THAN INCOME [PAGE 9]		3,456,803	2,338,215	304,826	259,854	172,851	380,289	767
6	TOTAL EXPENSES & TAXES OTHER THAN INCOME		435,282,902	312,719,825	41,901,655	37,019,342	16,301,886	26,911,553	428,641
7	OPERATING INCOME BEFORE TAXES		140,065,217	112,452,570	14,537,864	16,346,918	4,653,196	(8,971,975)	1,046,644
8	INCOME TAXES [PAGE 11]		19,611,902	20,030,043	2,348,013	2,707,243	(50,108)	(5,716,064)	292,774
9	INVESTMENT TAX CREDIT	12	(299,568)	(180,622)	(26,599)	(28,312)	(19,538)	(44,360)	(138)
10	NET INCOME TAXES		19,312,334	19,849,421	2,321,415	2,678,931	(69,646)	(5,760,424)	292,636
11	OPERATING INCOME		120,752,883	92,603,149	12,216,449	13,667,987	4,722,841	(3,211,551)	754,008
12	RATE BASE [PAGE 10]		1,915,996,457	1,138,439,439	170,192,468	187,599,359	129,969,496	288,909,992	885,703
13	RATE OF RETURN EARNED ON RATE BASE		6.302%	8.134%	7.178%	7.286%	3.634%	-1.112%	85.131%
14	UNITIZED RETURN		1.00	1.29	1.14	1.16	0.58	(0.18)	13.51

COLUMBIA GAS OF PENNSYLVANIA, INC.
Development of Proportional Responsibility Mains Cost Allocation Factors

Fuel: 0.5%

COMPANY PROJECTED SALES

	Company	RSS/RDS	SGSS1	SGSS2	SDS	LDS
Jan	12,493,901	6,690,351	1,352,418	1,578,287	888,681	1,984,165
Feb	12,348,446	6,498,224	1,319,405	1,553,234	915,463	2,062,120
Mar	10,368,963	5,363,055	1,057,935	1,266,790	769,485	1,911,697
Apr	7,559,658	3,616,870	655,562	897,334	629,076	1,760,816
May	4,470,446	1,657,361	244,291	470,133	486,625	1,612,038
Jun	3,261,147	903,823	115,595	296,525	400,083	1,545,121
July	2,706,428	548,015	78,032	225,495	366,469	1,488,417
Aug	2,653,249	536,970	68,475	207,049	371,653	1,469,103
Sep	2,822,258	575,844	80,644	224,284	384,942	1,556,544
Oct	3,593,513	928,326	183,613	374,711	458,958	1,647,906
Nov	5,735,591	2,354,907	411,719	611,747	582,961	1,774,257
Dec	9,370,030	4,763,859	889,232	1,129,892	747,288	1,839,760
Total	77,383,630	34,437,601	6,456,921	8,835,480	7,001,685	20,651,944

COMPANY PROJECTED SENDOUT

	Total X-ML	RSS/RDS	SGSS1	SGSS2	SDS	LDS
Nov	5,764,413	2,366,740	413,788	614,821	585,891	1,783,173
Dec	9,417,116	4,787,798	893,700	1,135,570	751,043	1,849,005
Jan	12,556,684	6,723,970	1,359,214	1,586,218	893,147	1,994,136
Feb	12,410,499	6,530,878	1,326,035	1,561,039	920,063	2,072,482
Mar	10,421,068	5,390,005	1,063,251	1,273,156	773,352	1,921,304
Apr	7,597,646	3,635,045	658,856	901,843	632,237	1,769,665
May	4,492,911	1,665,689	245,518	472,495	489,070	1,620,138
Jun	3,277,535	908,364	116,176	298,015	402,094	1,552,886
July	2,720,028	550,768	78,424	226,628	368,310	1,495,897
Aug	2,666,582	539,668	68,819	208,089	373,520	1,476,486
Sep	2,836,440	578,737	81,050	225,411	386,877	1,564,366
Oct	3,611,570	932,991	184,535	376,594	461,264	1,656,187
Total	77,772,493	34,610,654	6,489,368	8,879,879	7,036,869	20,755,723

PROPORTIONATE RESPONSIBILITY FACTOR DEVELOPMENT

	Rank (2)	Percent of Peak (3)	Next Ranked Month (4)	Next Ranked Percent of Peak (5)	Difference (6)	Individual Weighting (7)
Nov	6	45.9071%	7	35.7810%	10.1261%	1.6877%
Dec	4	74.9968%	5	60.5068%	14.4900%	3.6225%
Jan	1	100.0000%	2	98.8358%	1.1642%	1.1642%
Feb	2	98.8358%	3	82.9922%	15.8436%	7.9218%
Mar	3	82.9922%	4	74.9968%	7.9954%	2.6651%
Apr	5	60.5068%	6	45.9071%	14.5997%	2.9199%
May	7	35.7810%	8	28.7621%	7.0189%	1.0027%
Jun	9	26.1019%	10	22.5891%	3.5128%	0.3903%
July	11	21.6620%	12	21.2364%	0.4256%	0.0387%
Aug	12	21.2364%			21.2364%	1.7697%
Sep	10	22.5891%	11	21.6620%	0.9271%	0.0927%
Oct	8	28.7621%	9	26.1019%	2.6602%	0.3325%

Rank (8)		Cumulative Weighting (9)	RSS/RDS	SGSS1	SGSS2 (10)	SDS	LDS
6	Nov	5.3143%	2.1819%	0.3815%	0.5668%	0.5401%	1.6439%
4	Dec	11.8568%	6.0282%	1.1252%	1.4298%	0.9456%	2.3280%
1	Jan	23.6079%	12.6418%	2.5555%	2.9823%	1.6792%	3.7492%
2	Feb	22.4437%	11.8107%	2.3981%	2.8231%	1.6639%	3.7480%
3	Mar	14.5219%	7.5110%	1.4817%	1.7742%	1.0777%	2.6774%
5	Apr	8.2343%	3.9396%	0.7141%	0.9774%	0.6852%	1.9179%
7	May	3.6266%	1.3445%	0.1982%	0.3814%	0.3948%	1.3078%
9	Jun	2.2914%	0.6351%	0.0812%	0.2084%	0.2811%	1.0857%
11	July	1.8084%	0.3662%	0.0521%	0.1507%	0.2449%	0.9945%
12	Aug	1.7697%	0.3582%	0.0457%	0.1381%	0.2479%	0.9799%
10	Sep	1.9011%	0.3879%	0.0543%	0.1511%	0.2593%	1.0485%
8	Oct	2.6239%	0.6779%	0.1341%	0.2736%	0.3351%	1.2033%
	Factors:	100.0000%	47.8829%	9.2216%	11.8567%	8.3548%	22.6840%

COLUMBIA GAS OF PENNSYLVANIA, INC.
RATE OF RETURN BY CLASS - CURRENT @ CURRENT RATES
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2019

SCHEDULE JDM-3

ALLOCATED COST OF SERVICE
OCA PROPORTIONATE RESPONSIBILITY METHOD

LINE NO.	ACCOUNT TITLE (A)	ALLOC FACTOR (B)	TOTAL COMPANY (C) $	RSS/RDS (D) $	SGSS1/SCD1/SGDS1 (E) $	SGSS2/SCD2/SGDS2 (F) $	SDS/LGSS (G) $	LDS/LGSS (H) $	MLDS (I) $
1	TOTAL REVENUE [PAGE 6]		575,348,119	425,172,246	56,439,540	53,366,240	20,955,055	17,939,752	1,475,286
2	PRODUCTS PURCHASED [PAGE 7]		163,506,936	120,184,061	21,240,416	18,646,735	3,167,707	0	268,017
3	OPERATING & MAINTENANCE EXPENSES [PAGES 7 & 8]		191,017,256	141,027,566	13,748,352	10,892,458	7,706,876	17,525,466	116,538
4	DEPRECIATION & AMORTIZATION [PAGE 5]		77,301,907	46,509,134	6,994,918	6,871,681	4,788,156	12,094,700	43,319
5	TAXES OTHER THAN INCOME [PAGE 9]		3,456,803	2,299,601	310,435	254,791	166,108	425,101	767
6	TOTAL EXPENSES & TAXES OTHER THAN INCOME		435,282,902	310,020,361	42,294,120	36,665,665	15,828,847	30,045,267	428,641
7	OPERATING INCOME BEFORE TAXES		140,065,217	115,151,885	14,145,420	16,700,575	5,126,208	(12,105,514)	1,046,644
8	INCOME TAXES [PAGE 11]	12	19,611,902	21,137,537	2,186,992	2,852,397	144,004	(7,001,803)	292,774
9	INVESTMENT TAX CREDIT		(299,568)	(175,975)	(27,273)	(27,701)	(18,723)	(49,758)	(138)
10	NET INCOME TAXES		19,312,334	20,961,562	2,159,719	2,824,696	125,281	(7,051,561)	292,636
11	OPERATING INCOME		120,752,883	94,190,323	11,985,700	13,875,879	5,000,927	(5,053,954)	754,008
12	RATE BASE [PAGE 10]		1,915,996,457	1,108,119,022	174,607,171	183,628,172	124,652,658	324,103,731	885,703
13	RATE OF RETURN EARNED ON RATE BASE		6.302%	8.500%	6.864%	7.557%	4.012%	-1.559%	85.131%
14	UNITIZED RETURN		1.00	1.35	1.09	1.20	0.64	(0.25)	13.51

Columbia Gas of Pennsylvania, Inc.
Allocation of Proposed Annual Revenues by Rate Schedule Based on Revenue Requirement
For the 12 Months Ended December 31, 2019

Line No.	Description	Total (1)	RS/RDG/RGSS RDS/ RDGDS/RCC (2)	SGSS1/SCD1/SGDS1 (3)	SGSS2/SCD2/SGDS2 (3)	SDS/LGS (4)	LDS/LGS (5)	MDS/NSS (6)
1	Determination of Revenue Distribution							
2	Rate Base (Exhibit 111, Schedule 1, Page 2, Line 12)	$1,915,996,457	$1,138,439,439	$170,192,468	$187,599,359	$129,969,496	$288,909,992	$885,703
3								
4	Untized Return @ Current Rates (Exhibit 111, Schedule 1, Page 2, Line 14)	1.00000	1.29070	1.13900	1.15614	0.57864	(0.17645)	13.50857
5	Proposed Unitized Return	1.00000	1.24244	1.13900	1.15614	0.75000	(0.06000)	12.04300
6	Change in Unitized Return	0.00000	(0.04826)	(0.00000)	(0.00000)	0.17336	0.11645	(1.46557)
7	Rate of Return Requested	8.100%	10.064%	9.226%	9.365%	6.075%	-0.486%	97.548%
8	Net Operating Income @ Requested Return (Line 2 x Line 7)	$155,195,713	$114,569,553	$15,701,957	$17,568,880	$7,895,847	($1,404,103)	$863,996
9	Net Operating Income @ Current Rates (Exhibit 111, Sch. 1, Page 2, Line 11)	$120,752,883	$92,603,149	$12,216,449	$13,667,987	$4,722,841	($3,211,551)	$754,008
10	Income Deficiency (Line 8 - Line 9)	$34,442,830	$21,966,404	$3,485,508	$3,900,693	$3,172,806	$1,807,448	$109,978
11	Gross Conversion Factor	1.36275815	1.36275815	1.36275815	1.36275815	1.36275815	1.36275815	1.36275815
12	Revenue Required Increase (Exhibit 102 Sch. 3 Page 3)	46,937,254	29,934,895	4,749,904	5,315,701	4,323,767	2,463,114	149,873
13	Percent Distribution to Rate Classes	100.00%	57.34%	10.12%	17.78%	9.21%	5.25%	0.32%
14 Less:	Proposed Change in STAS (Page 1 Line 1 through Line 17)	0	0	0	0	0	0	0
15 Less:	Proposed Change Other Gas Department Revenue (Page 1 Line 17)	101,720	64,873	0	0	0	5,338	325
16 Less:	Proposed Change in Rider CC (Page 2 Line 18 through Line 34)	0	0	0	0	0	0	0
17 Less:	Proposed Change in Gas Procurement Revenue (Page 2 Line 5 through Line 17)	0	0	0	0	0	0	0
18	Proposed Increase to Base Revenue	$46,835,534	$29,870,022	$4,739,610	$5,304,181	$4,314,397	$2,457,776	$149,548
19	Percent Distribution to Rate Classes	100.00%	63.77%	10.12%	11.33%	9.21%	5.25%	0.32%
20	Current Base Revenue	$377,099,600	$271,367,083	$34,668,145	$34,273,349	$17,687,766	$17,899,205	$1,204,052
21	Current Percent Distribution of Rate Classes	100.00%	71.96%	9.19%	9.09%	4.69%	4.75%	0.32%
22	Proposed Base Revenue	$423,835,134	$301,237,105	$39,407,755	$39,577,530	$22,002,163	$20,356,981	$1,353,600
23	Proposed Percent Distribution of Rate Classes	100.00%	71.06%	9.30%	9.34%	5.19%	4.80%	0.32%
	Proposed Percent Increase	12.42%	11.01%	13.67%	15.48%	24.39%	13.73%	12.42%

COLUMBIA GAS OF PENNSYLVANIA, INC.

Analysis of Residential Customer Costs (1)

PER COMPANY REQUESTED INCREASE

Annual Customer Base Costs per Company	$	94,925,576
OCA Adjustments:		
Uncollectibles	$	(4,257,355)
Miscellaneous	$	(3,607)
Demonstation	$	(552,428)
Advertising	$	(250,772)
Total OCA Adjustments	$	(5,064,162)
Annual Customer Base Costs per OCA	$	89,861,414
Average Annual Customer Bills		4,828,182
Monthly Customer Charge	$	18.61

ADJUSTMENT TO REFLECT OCA RETURN RECOMMENDATION

Annual Customer Base Costs per OCA	$	89,861,414

Per Company

Customer Cost Rate Base	$	431,790,508	
Return @ 8.1%	$	34,975,031	
Income Taxes	$	10,055,003	
Total Return and Taxes			$ 45,030,034

Per OCA

Customer Cost Rate Base	$	431,790,508	
Return @ 7.28%	$	31,434,349	
Income Taxes	$	9,037,089	
Total Return and Taxes			$ 40,471,438

OCA Return and Income Tax Adjustment	$	(4,558,596)
Adjusted Customer Costs	$	85,302,818
Monthly Customer Charge	$	17.67

Note: (1) Costs from Exhibit No. 111, Schedule 1, pages 23 - 25.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission   :
                                            :
                    v.   :   Docket No. R-2018-2647577
                                            :
Columbia Gas of Pennsylvania, Inc.   :

VERIFICATION

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

June 6, 2018
Date

Signed: _____
Jerome D. Mierzwa