

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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|------------------------------------|---|---------------------------|
| Pennsylvania Public Utility |) | |
| Commission |) | |
| |) | |
| |) | |
| vs. |) | Docket No. R-2018-2647577 |
| |) | |
| |) | |
| Columbia Gas of Pennsylvania, Inc. |) | |
| |) | |
| |) | |

**REBUTTAL TESTIMONY OF
MARK P. BALMERT
ON BEHALF OF
COLUMBIA GAS OF PENNSYLVANIA, INC.**

July 3, 2018

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1 **I. Introduction**

2 **Q. Please state your name and business address.**

3 A. Mark P. Balmert, my business address is 290 West Nationwide Boulevard,
4 Columbus, Ohio 43215.

5 **Q. Are you the same Mark P. Balmert who submitted Direct Testimony in**
6 **this proceeding?**

7 A. Yes.

8 **Q. What is the purpose of your Rebuttal testimony?**

9 A. In my rebuttal testimony, I will be addressing several arguments and conclusions
10 presented in the direct testimony of Mr. Cline, witness for the Bureau of
11 Investigation and Enforcement ("I&E"), Mr. Mierzwa, witness for the Office of
12 Consumer Advocate ("OCA"), and Mr. Knecht, witness for the Office of Small
13 Business Advocate ("OSBA"), on the subject of the Allocated Cost of Service Studies
14 ("ACOSS"). I will also address Mr. Knecht on the subject of the C&I network.

15 **II. Allocated Cost of Service Studies**

16 **Q. The Company presented three separate ACOSS (Customer/Demand,**
17 **Peak & Average, and Average Study). Please explain why three studies**
18 **were prepared and why you believe it is the average study that should**
19 **be principally relied upon as a guide to revenue allocation.**

20 A. The Customer/Demand Study (Exhibit No. 111, Schedule 1) produces results that
21 are generally more favorable to the industrial class while the Peak & Average Study

1 (Exhibit No. 111, Schedule 2) produces results that are generally more favorable to
2 the residential class. Columbia Gas of Pennsylvania (“Columbia” or “CPA”)
3 recognizes that no one cost of service study is the “right” study and, in the past,
4 concluded that the results of two such studies provide a reasonable range of returns
5 for use as a guide in establishing appropriate rates. The third study, as presented
6 in Exhibit No. 111, Schedule 3, is an average of the Customer/Demand Study and
7 the Peak & Average Study and represents what Columbia believes is a reasonable
8 range of revenue responsibility. This Average Study, with its equal weighting of
9 the two former studies, provides the Company, the parties and the Commission
10 with a range of returns that can be used as a benchmark or guide in revenue
11 allocation.

12 It is broadly accepted that a single allocated cost of service study cannot and
13 should not be relied upon to determine the exact cost to serve each class of
14 customers. The National Association of Regulatory Utility Commissioners, in its
15 June 1989 Gas Distribution Rate Design Manual, states that “there is no one
16 correct cost of service, but rather a range of reasonable alternatives.” Although
17 OSBA’s witness, Mr. Knecht has chosen to weight the Customer/Demand and Peak
18 & Average studies differently than Columbia, in his direct testimony at pp. 21-22,
19 he states that:

20 “However, because I generally do not have sufficiently
21 detailed data to make any of these modifications myself,
22 and because the Company’s approach should generally
23 encompass the range of established cost of allocation
24 practice, I have relied on both of the Company’s ACOSS

1 methodologies for my revenue allocation and rate design
2 recommendations in this proceeding.”

3
4 Clearly, if Columbia or any other party to this case were to simply choose a single
5 study as the basis for allocating costs, doing so would produce an outcome that
6 unfairly favors or penalizes a specific class of customers.

7 Columbia submitted three studies because of the very real understanding
8 that no single study by itself can give an accurate determination of rate class cost
9 of service to be used as a basis of revenue responsibility for each rate class.

10 **Q. Do Columbia affiliates in other jurisdictions present three separate**
11 **ACOSS (customer/demand, peak & average, average study) in their**
12 **rate cases?**

13 A. Yes, Columbia Gas of Kentucky filed the same ACOSS studies in its 2016 rate case
14 (Case No. 2016-00162), as did Gas of Virginia rate in case (PUE-2016-00033), as
15 well as Columbia Gas of Maryland this year (Case No. 9480).

16 **Q. What has been the response by the utility commissions in those**
17 **jurisdictions?**

18 A. The Public Service Commission in Kentucky stated on page 54 of its final order in
19 Case No. 1988-10201:

20 “The Commission is of the opinion that a well-
21 documented and carefully separated multiple-methodology
22 approach to cost-of-service studies will provide it additional
23 information for rate design. Therefore, Columbia is
24 encouraged to submit cost-of-service studies of this sort in
25 future rate proceedings”.

26

1 The Kentucky Commission re-affirmed its position in a recent ATMOS case, (Case
2 No. 2013-00148), stating on page 34 of the final order:

3 “Hence, the Commission strongly encourages Atmos-Ky. to
4 file multiple-methodology COSSes in future cases in order to
5 give the Commission a range of results for use in determining
6 revenue allocation and rate design.”
7
8

9 In its final order in Case No. PUE-1992-00037, the State Corporation Commission
10 of Virginia addressed the purpose and use of ACOS studies, stating:

11 The primary goal of a cost of service study is to allocate and
12 assign costs and revenues to each customer class as
13 reasonably consistent as possible with the incurrence of those
14 costs. However, it must be recognized that there is no
15 scientifically correct method for allocating costs. A certain
16 amount of judgment must be used in any cost of service study.
17 Cost of service studies are not precision instruments, but
18 rather tools to facilitate the establishment of a zone of
19 reasonableness. This zone of reasonable class rates of return
20 can then be used as a guide to apportion a utility’s revenue
21 requirement.

22 In Columbia Gas of Maryland’s 2013 rate case, Case No. 9316, the Public Utility Law
23 Judge Proposed Order (later affirmed by the Maryland Commission) on page 112
24 states:

25 “Staff found the ACOSS to be properly developed, and
26 concluded it provides a reasonable cost allocation, but agreed
27 with the Company that the Company should continue
28 preparation of the customer/demand, demand/commodity,
29 and mid-point studies along with a cost of service study using
30 NCP (Non-Coincident Peak) methodology for purposes of its
31 future base rate cases.”

32 The Public Utility Law Judge Proposed Order goes on to say on page
33 114:

1 “The Company used these other cost of service studies to
2 ensure that its NCP methodology resulted in a fair and
3 reasonable allocation of the costs.

4 [The Office of Peoples’ Counsel] has not persuaded me
5 that its cost of service study using the Peak and Average cost
6 methodology is superior to the Company’s ACOSS study or
7 that the Company’s NCP study is not a fair and reasonable
8 allocation of costs to the customer classes. Consequently, I
9 find that the NCP methodology (including the bifurcation of
10 the allocation of the gas mains), used in its ACOSS, results in
11 a fair and reasonable allocation of the costs to the Company’s
12 customer classes and it’s accepted.”

13 **Q. Please describe the primary differences among the three studies**
14 **submitted by Columbia in this proceeding.**

15 A. Columbia prepared and submitted a Customer/Demand Study, a Peak & Average
16 Study, and an Average Study. With all three studies, the allocation of costs is
17 essentially the same, with the exception of the allocation of mains.

18 The Customer/Demand Study weights the allocation of mains using a factor
19 based on the number of customers (Customer) and the company’s peak day design
20 (Demand). This method recognizes the customer number component of mains.

21 In the Peak & Average Study, the allocation of mains uses a factor weighting
22 50% to the Company’s peak day design (Peak), and 50% to the Company’s
23 throughput (Average).

24 As stated above, the Average Study gives equal weight to the
25 Customer/Demand and the Peak & Average methods.

26 **Q. What is I&E witness Cline’s preferred allocated cost of service method**
27 **and what is the basis of his preference?**

1 A. Witness Cline based his determination of rate class revenue requirement on the
2 Company's Peak & Average Study, referring to the Commission's orders in
3 National Fuel Gas Distribution Company's 1994 base rate proceeding,
4 Pennsylvania American Water Company's case at Docket No. R-00932670 entered
5 July 26, 1994, and PPL Gas Utilities' case at Docket No. R-00061398, Order
6 entered February 8, 2007.

7 **Q. What is OCA witness Mierzwa's preferred allocated cost of service**
8 **method and what is the basis of his preference?**

9 A. Witness Mierzwa prefers a modified version of the Company's Peak & Average
10 Study, where he eliminates the Company's separation of mains investment by
11 operating pressure, primarily due to its use of original cost instead of net
12 investment in the development of its allocation factors for each of the distribution
13 mains categories. He states on page 16 of his direct testimony:

14 "Since distribution mains exist to deliver annual requirements,
15 and are sized to provide for peak requirements, it is proper to
16 allocate distribution mains costs on the basis of Peak & Average
17 demands, consistent with established Commission precedent."
18

19 **Q. What is OSBA witness Knecht's preferred allocated cost of service**
20 **method and what is the basis of his preference?**

21 A. Witness Knecht recommended, on page 30 of his direct testimony, a weighted
22 average cost of service study which weights 75% of the Company's Peak & Average
23 Study and 25% of its Customer/Demand Study. He states two reasons in support
24 of this method: 1) the results of his independent ACROSS in the Company's 2012
25 rate case were generally closer to the results of the Peak & Average Study than the

1 Customer/Demand Study; and 2) “the P&A ACROSS is conceptually more similar to
2 the A&E (Average & Excess) methodology that the Commission has approved for
3 gas distribution utilities.”

4 **Q. How do the positions of the parties differ from yours?**

5 A. As previously mentioned, a combination of preferences exists among the parties as
6 to which distribution mains allocation method they prefer. Witness Mierzwa and
7 Witness Cline both recommend the use of the Peak & Average Study, however
8 Witness Mierzwa preferred to modify the Company’s Peak & Average Study to
9 eliminate the Company’s separation of mains investment by operating pressure,
10 whereas Witness Cline relied solely on the Company’s Peak & Average study. Witness
11 Knecht recommends a study that incorporates a customer component of allocation.
12 Witness Knecht’s position most closely matches Columbia’s preference to use a study
13 that includes both a customer and throughput component, though his
14 recommendation is to apply a smaller weighting to the customer component. The
15 positions of Witnesses Cline and Mierzwa markedly differ from Columbia’s preferred
16 approach, in that their studies include the throughput component in lieu of the
17 customer component.

18 **Q. Does the Company agree with Mr. Cline and Mr. Mierzwa that**
19 **throughput determines 50% of the amount of main investment?**

20 A. No. Each of Columbia’s customers have a unique cost that contributes to the total
21 cost to serve the rate class in which those customers are included. Obvious
22 distinctions in customer costs are: 1) the distance from the transmission main to

1 the customer meter; 2) the design day capacity of the customer; 3) the age of the
2 pipe; 4) the customer density on the distribution main; 5) the geographic location
3 of the main (urban vs. rural); 6) the number of customers and capacity
4 requirements downstream of the customer; and 7) the operating pressure of the
5 main. All are contributing factors to cost. The simple fact is, customer throughput
6 has no impact on the determination of the size, length, or cost of the distribution
7 main serving the customer. Customer throughput is simply a measurement of the
8 utilization of the distribution main and as such is a factor in the customer's
9 decision of selecting gas service. In other words, the availability of receiving gas
10 service 365 days a year is a reason the customer requests gas service and causes
11 the gas distribution company to invest in the purchase and installation of gas
12 mains but has nothing to do with Columbia's incurred cost of the pipe or the cost
13 of installing the gas main to provide service to the customer.

14 **Q. Do you agree with Mr. Mierzwa when he states on page 10 of his direct**
15 **testimony "Distribution mains are not sized for the number of**
16 **customers served from them, but for the loads placed upon them"?**

17 A. No. The "size" of a distribution main is its length and its diameter. The length of
18 the distribution main is determined by the distance a distribution main must be
19 extended to connect the customer to the existing distribution system or
20 transmission pipeline. The cost to extend the distribution main is based on the
21 Company's obligation to serve, as defined by its line extension policy. The policy
22 dictates the maximum feet of main that the Company must provide without charge

1 to the customer. That portion of main is directly related to the customer for whom
2 the main is installed. The more customers added, unless added to an existing
3 main, the longer the main, and the longer the main, the more dollars invested by
4 the Company. In the case of adding a new customer to an existing distribution
5 main, the Company may still incur additional costs by virtue of contribution
6 refunds if the Company has a line extension agreement with an existing customer
7 where the customer had made a deposit for the line extension with the agreement
8 that, as additional customers are added, the Company would refund a portion of
9 the deposit.

10 As for the diameter of the main, this is determined by the demand
11 requirements of the Company's customers that it must be able to serve at design
12 day temperatures. So it is the combination of the cost to extend a distribution main
13 (customer component) and the cost of the diameter of the pipe to serve customers
14 at design day temperatures (demand component) that determines the causation of
15 the cost of the main, and not the service received by its customers during all other
16 times of the year (throughput).

17 **Q. What information did Mr. Mierzwa use to dispute Columbia's position**
18 **that number of customers served have a direct cost causation to footage**
19 **of mains pipe?**

20 A. Mr. Mierzwa relied primarily on three arguments to dispute Columbia's position that
21 number of customers served have a direct cost causation to footage of mains pipe.
22 First he referenced the footage between Columbia's top 10 customers and the next

1 closest upstream customer; second, he gave a hypothetical example of customer
2 density; and third, he cited a quote from Professor James Bonbright.

3 **Q. What conclusion did Mr. Mierzwa make about the top 10 customers**
4 **Columbia serves?**

5 A. Mr. Mierzwa relied on a Company response to data request OCA-I-031, shown as
6 Table 2 of his direct testimony. That table shows the 10 largest non-MLS/MLDS
7 customers Columbia serves. Mr. Mierzwa then concludes on page 12 of his direct
8 testimony that “Table 2 clearly demonstrates that CMA’s¹ allocation of distribution
9 mains investment based on the number of customers, which assigns the same
10 number of feet of distribution mains to each customer, does not result in a reasonable
11 allocation of costs.”

12 **Q. Do you agree with Mr. Mierzwa that the range in footage of pipe between**
13 **each of the top 10 customers and the next closest upstream customer**
14 **demonstrates that CPA’s allocation of distribution mains investment**
15 **based on the number of customers, which assigns the same number of**
16 **feet of distribution mains to each customer, does not result in a**
17 **reasonable allocation of costs?**

18 A. No. What Mr. Mierzwa is referring to is when the number of customers served is used
19 as an allocation factor, the 10 largest customers would be allocated the same amount
20 of mains cost as would the 10 smallest customers. Applying Mr. Mierzwa’s logic, for
21 the 12 months ending November 30, 2017, the equal footage would amount to 94 feet

¹ I believe Mr. Mierzwa meant to say CPA.

1 per customer (39,943,138 feet / 426,040 customers).² The actual average footage of
2 pipe for 7 of the 10 largest customers shown with footage is 2,784 feet.

3 If Columbia were to rely solely on number of customers in the allocation of the
4 cost of mains, Mr. Mierzwa would be correct: that is, the 10 largest customers would
5 not be allocated enough cost. However, Columbia does not rely solely on number of
6 customers to allocate mains costs. Transmission class mains are allocated on design
7 day volumes. In the Customer/Demand Study, only 47.902% of low pressure mains,
8 57.120% of regulated pressure mains, and 38.658% of remaining regulated pressure
9 mains are allocated based on number of customers. Number of customers is not a
10 factor in Columbia's Peak & Average Study. As a result, the Average Study that
11 Columbia ultimately uses as a basis of revenue allocation to the rate classes only
12 allocates 23.951% of low pressure mains, 28.560% of regulated pressure mains, and
13 19.329% of remaining regulated pressure mains based on number of customers.

14 On the other hand, Mr. Mierzwa's Peak & Average study allocates 50% of
15 mains cost based on throughput and 50% on design day. Working with the same 7
16 of the top 10 customers, the average throughput for the 12 months ending November
17 30, 2017 is 981,128.3 Dth (6,867,898.5 / 7). The average design day demand is
18 3,005.7 Dth (21,040 / 7). Total throughput, excluding MLS/MLDS, is 71,387,662.0
19 Dth³ and total design day demand is 791,440 Dth. The average number of feet of
20 distribution mains that Mr. Mierzwa's Peak & Average study assigns to the 7

² Exhibit MPB-2, Alloc 20, Page 2, Line 10 and Page 12, Line 9.

³ Exhibit MPB-2, Alloc5, Page 11, Line 13, Physical Flow volumes excluding MLS/MLDS.

1 customers is 350,330 feet $((981,128.3 \text{ Dth} / 71,387,662.0 \text{ Dth} \times 50\%) + (3,005.7 \text{ Dth}$
2 $/ 791,440 \text{ Dth} \times 50\%) \times 39,943,138 \text{ feet}$).

3 When it comes to the assignment of mains cost for the 10 largest customers,
4 Mr. Mierzwa makes a point that the 10 largest customers would receive an under
5 allocation of cost if only number of customers were used as a basis of allocation. In
6 fact, Columbia effectively only uses a weighting of 19.329% to 28.560% of the
7 allocation of mains costs based on number of customers. However, clearly Mr.
8 Mierzwa's Peak & Average study grossly over allocates mains costs by effectively
9 assigning the cost of 350,330 feet (more than 66 miles) of pipe on average to 7 of the
10 largest customers.

11 **Q. Mr. Mierzwa states on page 10 of his direct testimony that "Distribution**
12 **mains are not sized for the number of customers served from them, but**
13 **for the loads placed upon them." He then cites an example that he**
14 **believes makes his point clear. What is the example that he gives and**
15 **does his example prove his statement to be true?**

16 A. The example given is as follows: Located along one city block are ten residential
17 customers with a coincident peak demand of one dekatherm ("Dth") each. The
18 distribution main running down the street would have to be capable of delivering 10
19 Dth at peak. On another city block is only one small plastics factory that exhibits a
20 maximum demand of 10 Dth. Finally, imagine that the plastics factory is torn down
21 to make room for five large residences, each of which exhibits a demand at time of
22 coincident peak of 2 Dth. Again, the main that is sized to deliver 10 Dth is adequate.

1 Mr. Mierzwa asserts that “the existence of one customer, five customers, or ten
2 customers does not determine the amount of mains investment; rather, mains
3 investment is a function of the loads to be served”.

4 Columbia believes Mr. Mierzwa is only partly correct. The amount of mains
5 investment made by the company depends on the cost to extend the main to the new
6 customer, the cost of the capacity required by the new customer, and the incremental
7 revenue the new customer will provide to recover, over time, the incremental cost
8 and a contribution toward overhead, and return.

9 First, in Mr. Mierzwa’s example, he only discusses peak demand. Columbia
10 agrees that peak demand is a causation of cost and that is why Columbia uses peak
11 demand (design day demand) in all three of its allocated cost of service studies. Peak
12 demand is the determination of the diameter of the main; in the Customer/Demand
13 Study, it is the demand component.

14 In Mr. Mierzwa’s example, he assumes that both streets are one block long.
15 I, in turn, assume he intended to infer that the capital investment on both streets
16 was the same. Under the Company’s line extension policy there must be enough
17 incremental revenue from the new customers to provide recovery, over time, of the
18 incremental cost and a contribution toward overhead, and return. Using current
19 rates, the street with the 1 commercial customer will contribute toward revenue
20 \$63.66 [(10 Dth x \$3.866/Dth) + (\$25.00 customer charge x 1 customer)]. The street
21 with the 10 residential customers will contribute toward revenue \$198.48 [(10 Dth x
22 \$4.848/Dth) + (\$15.00 customer charge x 10 customers)] Consequently because the

1 commercial customer only contributes \$63.66 toward the recovery of the mains
2 investment and the 10 residential customers contribute \$198.48, the commercial
3 customer would most likely be required to make a contribution in aid of construction
4 (“CIAC”) toward the mains investment on its street where there would be no
5 requirement of a CIAC for the 10 residential customers. So under this example, the
6 mains investment made by the Company for the 1 commercial customer is
7 significantly less than the mains investment made by the Company for the 10
8 residential customers because the commercial customer would most probably be
9 required to pay a CIAIC to compensate for the amount of the Company’s mains
10 investment.

11 **Q. Witness Mierzwa relies on reference materials from Professor James**
12 **Bonbright to support his conclusion that it is improper to allocate a**
13 **portion of mains on the basis of being customer-related. Does**
14 **Professor Bonbright provide any opinion supporting the allocation of**
15 **a portion of mains on the basis of being customer-related?**

16 A. Yes. Professor James Bonbright firmly states the appropriateness of the
17 recognition of a customer component of distribution mains for cost allocation in
18 his book, Principles of Public Utility Rates.⁴ On pages 400-401, he refers to the use
19 of the two-part Hopkinson⁵ rate structure, which is based on the assumption that,
20 part of the total cost of a utility’s business is a function of the output or energy of the

⁴ Principles of Public Utility Rates, Second Edition, James C. Bonbright, Albert L. Danielsen, David R. Kamerschen, Public Utility Reports., 1988.

⁵ Dr. John Hopkinson, a British electrical-utility engineer, introduced a two-part rate composed of an energy charge and a demand charge.

1 system and the other part is a function of plant and equipment capacity and all costs
2 associated with this capacity. He continues by noting that “this two-fold distinction
3 fails to acknowledge that a material part of the operating and capital costs of a utility
4 business is more directly and closely related to the number of customers than to
5 energy consumption on the one hand or maximum kilowatt demand on the other.”

6 Furthermore, Professor Bonbright says that:

7 “customer costs are invariant with respect to consumption.
8 They are the costs incurred to serve a customer even if the
9 customer does not use the service at all. The most obvious
10 examples of these customer costs are the expenses associated
11 with local connection facilities, metering equipment and meter
12 reading, billing and accounting, and a portion of the
13 distribution system.”

14 Lastly, on page 492, he states that “In actual practice the vast majority of
15 utilities utilize some form of minimum system to classify costs, which is in line with
16 the FERC accounts.”

17 **Q. Are there any other recognized authorities who agree that it is proper to**
18 **include a customer component in the distribution mains allocation?**

19 A. Yes. Dr. Charles F. Phillips, Jr., in The Regulation of Public Utilities,⁶ states that
20 “customer costs vary with the number of customers. These costs include a portion of
21 the distribution system, local connection facilities, metering equipment, billing and
22 accounting. Customer costs, moreover, are independent of consumption.”

⁶ The Regulation of Public Utilities, Charles F. Phillips, Jr., Public Utility Reports, 1984.

1 Also, the American Gas Association published Gas Rate Fundamentals,⁷ in
2 which it is stated that customer-related costs are primarily distribution and customer
3 accounting costs. Among other things, it is also stated that “the closer a plant item
4 (e.g., a meter and service line) is located to a customer, the more that particular item
5 is related to the specific requirements of that customer. Thus, the customer
6 component of distribution costs reflects the theoretical distribution system that
7 would be needed to serve customers at nominal or minimum load conditions.” In
8 regards to the many different functions and cost causative components attributable
9 to the gas distribution operations, these authorities support the concept that the main
10 cost causation component for distribution costs is one that is customer-related.

11 **Q. Mr. Mierza points out on page 15 of his direct testimony that CPA has**
12 **since 2003 increased its investment in distribution mains by nearly**
13 **\$1.1 billion which represents an increase of 300 percent in mains**
14 **investment, but the number of customers served has only increased**
15 **approximately 7 percent. He claims that this supports his argument**
16 **that increased investment in distribution mains is not related to the**
17 **increase in number of customers. Do you agree?**

18 **A.** Mr. Mierza is using the fact that a great deal of recent investment is in the
19 replacement of mains due to age and condition. In the instance of mains
20 replacement investment, neither customer counts nor throughput necessarily
21 increase and neither does design day demand. However, Mr. Mierzwa’s suggested

⁷ Gas Rate Fundamentals, Fourth Edition, American Gas Association, 1987.

1 “throughput basis” of mains allocation seems to have an even weaker relationship
2 to the increase in mains investment. When looking at throughput for the same
3 period, throughput dropped from 87,100,594.5 Mcf to 76,691,754.8 Dth since
4 2003 or (12%).

5 **Q. Please respond to Mr. Mierzwa’s contention on page 15 of his direct**
6 **testimony that CPA’s Customer/Demand Study did not properly**
7 **consider customer demands that can be met from a 2-inch main when**
8 **determining the allocation of the demand-related portion of**
9 **distribution mains.**

10 A. I do agree with Mr. Mierzwa that all (or nearly all) residential customers could be
11 provided service through 2-inch mains. What I mean by that is, the design day
12 requirements of even Columbia’s largest residential customers can be delivered
13 using a 2-inch main operated at a high enough pressure. However, not all
14 residential customers are directly served off only 2” pipe and for most of those that
15 are, an upstream larger diameter pipe feeds the 2” pipe. In either case, residential
16 customers rely on larger diameter pipe for service and should pay for the cost of
17 that pipe based in part on their design day demand requirements.

18 The 2” minimum system method recognizes that all customers require, at a
19 minimum, 2” of mains capacity and therefore each customer should be assigned,
20 at a minimum, 2” of capacity. The most efficient method of delivering gas to the
21 2-inch systems is through upstream larger diameter pipe due to economies of scale.
22 For example, a 4” main has a four-fold increase in capacity over a 2” main.

1 Therefore, the residential customers served off a 2" system also benefit from the
2 upstream capacity of larger diameter pipe. In addition, more than 82% of the
3 footage in Columbia's low pressure systems that residential customers are served
4 from are larger than 2" diameter pipe. The cost of the capacity of larger diameter
5 pipe in excess of the capacity of 2" pipe is allocated to the rate classes by the
6 minimum system method using design day volumes.

7 It is because of this more efficient and cost-effective method of residential
8 mains investment, that the residential customers are as much reliant on what Mr.
9 Mierzwa calls "demand-related" pipe as non-residential customers. Therefore,
10 residential customers should share in the cost of "demand-related" pipe in
11 proportion to their design day requirements.

12 **Q. On page 16 of his direct testimony, Mr. Mierzwa refers to an article in**
13 ***Public Utilities Fortnightly* entitled "The Customer Charge and**
14 **Problem of Double Allocation of Costs" by George J. Sterzinger**
15 **published in July 2, 1981, as justification of a Residential demand**
16 **credit stating "Failing to provide a demand credit results in a double**
17 **allocation of costs to Residential customers". Do you have any**
18 **comment on the article?**

19 **A.** Yes. Mr. Sterzinger states the following in his article when referring to minimum
20 sized equipment:

21 "So a residential customer who has a demand of two
22 kilowatts will have paid for all the distribution costs
23 associated with his load through the customer charge,
24 but will also have his two-killowatt usage go into the

1 demand allocation factor to allocate distribution costs
2 associated with above minimum usage.”

3
4 Mr. Sterzinger, like Mr. Mierzwa assumes that the entire requirements of a
5 residential customer can be accommodated by the minimum-sized equipment and
6 because of that, the residential class should not contribute toward the cost of
7 facilities that are larger in size than the minimum sized system and to do so would
8 constitute a “double allocation of cost”. However, what Mr. Sterzinger fails to
9 address is the fact that most residential customers are served downstream from
10 larger sized facilities and that a large percent of residential customers are served
11 off larger diameter pipe because they are served from a low pressure system. As
12 stated above, upstream larger diameter pipe used to serve the residential class at
13 least in part is the most efficient and economical means to deliver gas to customers.
14 If a residential demand credit were used in the allocation of mains investment, it
15 would result in a severe under-allocation of the capacity that the larger diameter
16 pipe provides to the residential class. I would also observe that Mr. Sterzinger’s
17 article concerns electric distribution facilities, and Pennsylvania uses a customer
18 component in the allocation of electric distribution facilities. Finally, it is
19 important to note that the current residential customer charge of \$16.75 that Mr.
20 Mierzwa proposes the Company maintain, does not recover any mains investment,
21 much less mains capacity investment caused by load requirements.

22 **Q. Mr. Mierzwa states on page 16 of his direct testimony “mains**
23 **investment is undertaken when annual gas consumption is high**
24 **enough to warrant the investment”. Do you agree?**

1 A. Yes, as long as rate design includes a volumetric base rate. I believe Mr. Mierzwa
2 is referring to the Company's main extension policy where annual demand and
3 associated revenues is a factor considered in Columbia's main extension
4 investment decision to extend a gas main to a new customer.

5 The Company's main extension policy takes into account the incremental costs to
6 serve a new customer. Mains costs are based upon the capacity level necessary to
7 meet the new customer's peak hour demand (design day demand component) and
8 the length of pipe required to extend the existing gas main to the new customer
9 (customer component). Expected annual revenue from the new customer has to
10 economically justify the line extension to the new customer. Because current rate
11 design charges both a customer charge and a volumetric rate per dekatherm, the
12 new customer's annual consumption has to be high enough to warrant the
13 investment. Mr. Mierzwa is attempting to justify cost causation on the basis of the
14 Company's existing rate design.

15 **Q. What impact would throughput have on Columbia's main extension**
16 **investment decision-making if current rate design was recovering all**
17 **costs through the fixed monthly customer charge?**

18 A. None. Removing throughput as a factor in the generation of revenue recovery of
19 mains investment would eliminate throughput as a factor in the decision making
20 to extend the gas main. In other words, throughput has no impact on the
21 determination of the cost of the mains extension, throughput only impacts the
22 economic feasibility of the line extension because of current rate design.

1 **Q. Throughout Mr. Mierzwa’s direct testimony he discusses “the principle**
2 **of cost causality” where above in your testimony you discuss the**
3 **“principle of cost causation”. Is there a difference?**

4 A. Yes. Mr. Mierzwa describes his principle of cost causality on page 19 of his direct
5 testimony stating:

6 “Because costs are incurred to deliver gas generally
7 throughout the year, and additional costs are incurred
8 to meet peak demands, CPA’s distribution mains costs
9 must be allocated on the basis of both annual and peak
10 demands if those costs are to be allocated in
11 accordance with the principle of cost causality.”
12

13 Mr. Mierzwa’s principle of cost causality refers to the reason customers request gas
14 service. That is, the customer requests gas service so that the customer can utilize
15 that service 365 days a year, regardless of the weather. Mr. Mierzwa theorizes that
16 the utility installs gas mains because the customer requests service and the
17 customer would only request service if he or she can utilize the service 365 days a
18 year and, therefore, what “causes” the utility to incur additional costs (make
19 additional investment in mains) is the utilization of the gas mains during peak
20 demand and throughout the year. According to Mr. Mierzwa, it then follows that,
21 because utilization of the gas main causes the cost of the main, the cost of the main
22 should be recovered on a volumetric basis (ie. via a volumetric base rate).

23 Quite in contrast, the principle of cost causation is based on cost incurrence.
24 In other words, what are the costs that the Company incurs to build the gas mains
25 to serve the requirements of each customer? There are two fundamental causes of

1 mains cost: 1) cost is incurred as the Company extends the gas main to attach the
2 new customer to the distribution system; and 2) capacity cost is incurred to meet
3 maximum hourly gas flow requirements. It follows that, because the Company
4 incurs cost each time the Company extends a gas main for a new customer, at a
5 minimum, a portion of the mains cost equal to the cost of a minimum size pipe
6 should be recovered from each customer, regardless of the customer's demand. It
7 also follows that the capacity-related costs incurred by the Company for
8 installation of pipe in excess of the minimum size pipe should be recovered either
9 through a demand charge or a fixed monthly charge.

10 **Q. Is the Company saying that the Peak & Average Study should not be**
11 **used in the determination of rate class revenue requirement?**

12 A. No. As previously stated, the Company believes the Peak & Average Study should
13 be used to establish the "range of reasonableness," but that the Average Study
14 appropriately sets the basis of rate class revenue requirement. What the Company
15 is stating, though, is that the Peak & Average Study is based on the utilization of
16 the distribution mains system. Because 50% of the Peak & Average Study is based
17 on throughput, it does not reflect the manner in which the Company actually incurs
18 costs to provide service. The Company's Customer/Demand Study does reflect the
19 manner in which the Company actually incurs costs to provide service, commonly
20 known as cost causation, and that is why the Company applies equal weight to both
21 the Peak & Average and Customer/Demand Studies in the determination of rate
22 class revenue requirement.

1 **Q. Witness Mierzwa and Cline reference the 1994 National Fuel Gas**
2 **Distribution Corporation (“NFGD”) base rate proceeding when**
3 **supporting their respective arguments that the peak & average method**
4 **of cost allocation should be relied upon. Do you have any comments**
5 **about the use of this case and its relevance to Columbia’s current case?**

6 A. I have reviewed the 1994 NFGD case and have found a significant difference
7 between that case and Columbia’s current case. In its Final Order in the case, the
8 Commission described the NFGD Cost of Service Study on page 208 as follows:

9 “NFG has presented two separate cost of service
10 studies in this proceeding. Its preferred study, found
11 at NFG Exhibit Nos. 111-1 (present rates) and 111-2
12 (proposed rates), separates distribution mains into
13 large and small categories for cost allocation purposes,
14 and uses a peak and average allocation methodology.
15 The alternate study, found at NFG Exhibit Nos. 111-3
16 (present rates) and 111-4 (proposed rates) also uses the
17 peak and average methodology, but makes no
18 distinction among mains, treating all main sizes
19 equally for allocation purposes.”
20

21 From this summary, it is clear to see that NFGD only submitted studies based on
22 the Peak & Average methodology. In its ruling, the Commission, as Witness Cline
23 provided in his direct testimony, stated “[t]he Peak and Average method that
24 allocates mains equally is a sound and reasonable method of cost allocation and
25 should remain intact.”

26 In its ruling, the Commission was obviously choosing between two slightly
27 different Peak & Average studies.

1 On page 215 of the order the Commission stated “NFG’s proposed small
2 mains adjustment suffers from the same weaknesses that we have previously found
3 required the rejection of other alternatives to a Peak and Average cost of service
4 study.” The Commission then cited Pa. P.U.C. v National Fuel Gas Distribution
5 Corp., 73 Pa. PUC 552, 617 (1990) (Docket No. R-901670) and the Pennsylvania P.
6 U. C. v. Peoples Natural Gas Co., 63 Pa. 6 (1986) as two cases.

7 In the 1990 Pa. P.U.C. v National Fuel Gas Distribution case, National Fuel
8 Gas supported an allocated cost of service study constructed by the Peak & Average
9 method, but employed a customer cost component of mains as well as a demand
10 cost component. In the final order on page 65, the Commission noted: “the ALJ is
11 persuaded that the allocation of the costs related to distribution mains should
12 reflect a customer component in these costs”. The ALJ stated that: “clearly, the cost
13 of mains is affected by the total length of pipe used in their construction, and the
14 Company has presented clear evidence indicating a positive relationship between
15 miles of distribution mains and the number of customers on the system”. “For
16 these reasons, the ALJ believes the Company’s P&A cost of service study utilizing
17 a customer component of distribution mains costs is reasonable as a guide to
18 revenue allocation and rate design in this proceeding, and recommends its
19 adoption for this purpose”. The Commission finished on page 67 that “On the
20 other hand, the OCA has cast serious doubt upon the credibility of Distribution’s
21 calculation of the cost of a theoretical zero capacity system. The OCA’s discovery
22 that NFGD employs a higher cost for a "0" inch main than the actual average cost

1 for one inch and 1 1/2 inch implies an overstatement of the customer component.
2 Likewise, NFGD's regression equation does not conform to actual data points. In
3 our judgment, enough doubt has been cast upon NFGD's study as to merit its
4 rejection herein. Accordingly, we will adopt the OCA's study for the purpose of this
5 case”.

6 The Commission was clear in that case, that it was the manner in which the
7 zero-intercept method was applied that cast doubt upon the validity of the results.
8 There was no mention that the Commission disagreed with the ALJ that there is a
9 customer component to mains. The only issue mentioned was the calculated
10 results of the zero-intercept method employed by the Company. It is important to
11 note that Columbia is not calculating the customer component of mains in this case
12 based on a zero intercept method using a theoretical 0 inch main. In contrast,
13 Columbia has calculated its customer component of mains based on the actual cost
14 of its 2” mains pipe, not a theoretical 0” pipe.

15 In the 1986 Pennsylvania P. U. C. v. Peoples Natural Gas Co. case, the basis
16 of the Commission’s decision was explained on page 32 of the opinion and order
17 where the Commission said “Peoples' transmission facilities may have been
18 designed to meet anticipated peak loads, a distribution system would still have to
19 be constructed and maintained if these peak loads did not occur. Clearly, these
20 facilities provide gas service to customers every day of the year. Absent an
21 alternative to the cost of service studies presented by the Company, we prefer the
22 fifty percent demand, fifty percent commodity allocation offered by the OCA”.

1 It is clear the Commission selected the Peak & Average study “absent an
2 alternative to the cost of service studies presented”. An average study was not
3 proposed in this case, so the Commission selected the Peak & Average study over
4 the 2 inch minimum system study as the sole study to base the allocation of revenue
5 to the rate classes.

6 **Q. Mr. Cline says “The commission also reaffirmed that the cost of mains
7 should be allocated on a combination of throughput and demand citing
8 PPL Gas Utilities, Docket No. R-00061398, Order entered February 8,
9 2007 where Administrative Law Judge Jones noted that “the
10 Commission has rejected minimum and zero-intercept system
11 methods as inconsistent with causation”. Do you have any comments
12 about the use of this case and its relevance to Columbia’s current case?**

13 **A.** Page 70 of the Administrative Law Judge’s Recommended Decision states: “Mr.
14 Watkins (OCA witness) posits that Mr. Knecht’s method of determining the
15 percentage of costs that should be demand-related and customer related, the zero-
16 intercept method is problematic. The Commission has in the past rejected the
17 zero-intercept and minimum system methods as inconsistent with cost causation.”
18 The report then cites the Pa. P.U.C. v National Fuel Gas Distribution Corp., 83 Pa.
19 PUC 262 (1994) and Pa. P.U.C. v National Fuel Gas Distribution Corp., 73 Pa. PUC
20 552 (1990) cases as proof.

21 It is important to note that the Administrative Law Judge emphasized that
22 Mr. Watkins stated “The Commission has in the past rejected the zero-intercept

1 and minimum system methods as inconsistent with cost causation". The
2 Administrative Law Judge stated on page 70 of "Most compelling is Commission
3 precedent that has rejected minimum and zero-intercept system methods as
4 inconsistent with causation. OSBA does not even attempt to distinguish this
5 proceeding from the case law presented regarding a natural gas distribution
6 company. Further, the OSBA does not reference any Commission order accepting
7 a company's COSS which uses the minimum and zero-intercept method". Finally,
8 the Administrative Law Judge stated on page 71 "The concept of main costs derived
9 from both distance and capacity factors is persuasive, yet the model and
10 calculations provided present misgivings to implement the concept as proposed.
11 Consequently, the alternative provided by OSBA is substantially uncertain as
12 representative of the costs for use".

13 It was the statistical basis of the OSBA zero-intercept model as presented
14 and the lack of OSBA citing Commission precedent that caused the judge to reject
15 the OSBA proposal. This case is just another example where the inaccuracy of the
16 zero-intercept model as presented, caused the judge to look at precedent that
17 accepted the Peak & Average study "absent an alternative to the cost of service
18 studies presented".

19 **Q. Mr. Mierzwa discusses on page 25 of his direct testimony The Indiana**
20 **Utility Regulatory Commission (IURC) finding in re Citizens Gas &**
21 **Coke Utility, IURC Cause No. 42767 (Oct. 19, 2006) when supporting**
22 **his argument that the Peak & Average method of cost allocation should**

1 **be relied upon. Do you have any comments about the use of this case**
2 **and its relevance to Columbia's current case?**

3 A. Yes. Starting at page 73, under "Discussion and Findings" the IURC describes how
4 there were "three interclass cost-of-service studies for possible use in determining
5 the appropriate proportion of Petitioner's total authorized revenue requirement to
6 be assigned to each of its customer classes". The three studies were: 1) Citizens
7 (the company) provided a study based on 100% of distribution mains cost based
8 on "peak day" consumption and 0% of these costs on average annual consumption;
9 2) CIG (industrial intervenor) submitted an alternative cost-of-service study
10 designed to correct the Company's study for what it believed to be an
11 overstatement of costs assigned to the Large Volume customer class by allocating
12 distribution mains based solely on peak day demand; and 3) OUCC (consumer
13 advocate) submitted a Peak & Average cost-of-service study based on 20% of
14 distribution mains cost based on "peak day" consumption and 80% of these costs
15 on average annual consumption. The IURC described the OUCC study on page 74
16 as the "middle-of- the-road" approach.

17 The IURC rejected the Peak Day method proposed by the company stating:
18 "While we do not doubt that distribution mains must be constructed with peak
19 demand in mind, distribution mains do not only serve customers on peak demand
20 days". The IURC rejected the CIG's Peak Day method as well, stating: "We reject
21 Mr. Phillips' cost of service study for the same reason. Allocation of distribution

1 mains based solely on peak day demand may be advantageous to some industrial
2 customers, but is still an undue burden on other rate classes”.

3 I have two observations about this case. First, clearly this was a case about
4 the merits of solely utilizing a Peak Responsibility method of allocating mains
5 compared to a Peak & Average method. Columbia did not file nor did it advocate
6 for the Pennsylvania Public Utility Commission to allow Columbia to use the Peak
7 Responsibility as the sole basis of allocating revenue requirement in this case.
8 Second, the IURC was not presented with a minimum system (Customer/Demand)
9 method of allocating distribution mains in the Citizens case. Therefore, IURC
10 relied on what it called a “middle-of-the-road” approach to allocate the distribution
11 mains by rejecting the Peak Responsibility method in favor of the Peak & Average
12 method.

13 **Q. On page 27 of his direct testimony, Mr. Mierzwa discusses the Illinois**
14 **Commerce Commission’s (“ICC”) finding in Re Central Illinois Public**
15 **Service Company or CIPS and Union Electric Company or UE Case No.**
16 **02-0798, 03-0008, 03-0009 (2003) when supporting his argument**
17 **that the Peak & Average method of cost allocation should be relied**
18 **upon. Do you have any comments about the use of this case and its**
19 **relevance to Columbia’s current case?**

20 A. Yes. On page 27 of his direct testimony, Mr. Mierzwa provides a lengthy quote
21 from page 95 of the final order in the CIPS and UE case supporting the Peak &

1 Average study. However, what is also of important is what the ICC concluded just
2 above the quote on page 95 of the order. Specifically:

3 “At issue is which allocation method most
4 appropriately assigns transmission and distribution
5 demand costs to the ‘cost causer’. Each of the methods
6 advocated in this proceeding consider in some manner
7 the costs associated with peak demand and average
8 demand. Use of NCP demand and the A&E method
9 result in greater emphasis on peak demand than does
10 use of the A&P method. The Commission is faced with
11 placing the proper emphasis on peak demand.”
12

13 The ICC states quite clearly that only the Average & Excess and the Average &
14 Peak methods were presented in this case and that the only issue was to determine
15 the “proper emphasis on peak demand”.

16 Columbia did not file nor does it advocate here for the Commission to allow
17 Columbia to use the A&E method as the basis for allocating revenue requirement
18 in this case. The ICC was not presented with a minimum system
19 (Customer/Demand) method of allocating distribution mains in the CIPS and UE
20 case. Because the only methods presented in the CIPS and UE case advocated cost
21 allocation considering peak demand and average demand, the ICC chose the
22 method it determined properly emphasized peak demand.

23 **Q. Is Columbia recommending that the Commission consider adopting a**
24 **method other than the Peak & Average Study in setting rates?**

25 A. Yes. The goal of an allocated cost of service study is to fairly and reasonably assign
26 the total company revenue requirement established in the case to the rate classes that
27 cause the incurrence of the costs.

1 The Company is requesting the Commission continue to accept that there is
2 no single cost allocation method that should be solely relied upon for revenue
3 allocation, but instead, that a range of accepted cost allocation methods should be
4 considered, with the Peak & Average Study being just one of them.

5 The Peak & Average Study should be included because it takes into account
6 that the distribution system is constructed to serve both peak and average demands
7 and offsets the short-comings of the Customer/Demand Study. The
8 Customer/Demand Study should be included because the cost of mains is affected by
9 the total length of pipe and the diameter of the pipe. Examples of exceptions can
10 always be found, but there is no doubt that distribution mains are extended to add
11 customers and the diameter of the pipe is directly related to the design peak day
12 requirements of customers. The Customer/Demand Study is a viable way to offset
13 the short-comings of the Peak & Average Study.

14 In each of the cases cited by I&E Witness Cline and OCA Witness Mierzwa
15 where the Commission has accepted the Peak & Average method the Commission
16 has always pointed out the shortcomings of either the zero-intercept method's
17 theoretical 0" main, the over-reliance of customer count as a basis of cost, or simply
18 the absence of any other method of allocation offered by the utility as the basis of
19 their decision to accept the Peak & Average method. However, by examining the
20 "main assignment" example proposed by Mr. Mierzwa, we can also see the danger in
21 using only the Peak & Average Study. His example makes clear that it would not be

1 fair or reasonable to rely solely on one method in the assignment of mains cost to the
2 rate classes.

3 An equal weighting of both methods is the fair and reasonable way to allocate
4 revenue requirement to the rate classes, not an arbitrary allocation weighting of one
5 study as claimed by Mr. Knecht, and not the single use of the Peak & Average Study
6 that clearly assigns the cost of so much pipe footage to the Company's largest
7 customers that there can simply be no logical justification.
8

9 **III. Allocated Cost of Service Studies by Operating Pressure**

10
11 **Q. Witness Mierzwa states that the Company's ACOSS which relies on the**
12 **assignment of distribution mains to separate pressure groups should**
13 **be rejected. Do you agree with this statement?**

14 A. No. The primary purpose of assigning distribution mains into separate categories
15 is to develop a mains cost allocation that is more consistent with cost incurrence.
16 Because of the Company's Graphical Information System ("GIS"), the Company
17 has the capability to identify which premises are served off which pipe segments,
18 the operating pressures of those pipe segments, the size of pipe, and the kind of
19 pipe (ie. steel, plastic). This further refinement allows Columbia to more
20 accurately identify the specific mains being used to serve customers and, therefore,
21 more accurately reflect that mains separation when determining the revenue
22 responsibility for each rate class.

1 **Q. What ACOS Study is I&E witness Cline using to evaluate proposed**
2 **revenue in this proceeding?**

3 A. The Company's Peak & Average Study, which includes separation of the operating
4 pressure groups in the determination of the mains allocator.

5 **Q. What was the key reason Mr. Mierzwa gave as to why he recommended**
6 **rejection of the Company's separation of the operating pressure groups**
7 **in the determination of the mains allocator?**

8 A. Mr. Mierzwa stated on page 7 of his direct testimony that "CPA's proposed separate
9 assignment and allocation of distribution mains fails to consider the net
10 investment of each distribution mains category." Mr. Mierzwa goes on to explain
11 that the separation of the pressure groups based on gross plant investment does
12 not take into account the age of the pipe. He then states that low pressure pipe is
13 generally older and therefore more depreciated than regulated pressure pipe and
14 that is important because rates are set on net investment, not original cost.

15 **Q. Mr. Mierzwa disagrees with CPA's proposed separate assignment and**
16 **allocation of distribution mains investment by operating pressure**
17 **because the allocation uses original cost and not net investment. Does**
18 **Columbia have any comments on his opinion?**

19 A. Yes. Mr. Mierzwa criticizes CPA's ACOS studies because Columbia matches the
20 allocation of depreciation reserve with the allocation of plant in service to come up
21 with net plant. However, Mr. Mierzwa in his ACOS study does the exact same

1 thing. The difference is that CPA first identifies mains cost by operating pressure
2 on a customer by customer basis using customer and engineering information.

3 Mr. Mierzwa speculates that because 55% low pressure system pipe is
4 constructed of steel, and because steel pipe is generally older and therefore more
5 depreciated than plastic pipe, customers served off low pressure should be
6 assigned less net investment than regulated pressure customers.

7 CPA's ACOS studies which allocate distribution mains investment by
8 operating pressure by pipe size does account for the assignment of steel versus
9 plastic pipe to the rate class based upon customer and engineering information.
10 To the extent Mr. Mierzwa is correct that steel pipe is older, then using CPA's
11 studies, the original cost allocated to the rate classes will be lower to those
12 customers who utilize steel mains than those who utilize plastic mains. Mr.
13 Mierzwa's Peak & Average study does not allocate costs in that manner. In fact,
14 the net plant based on original cost in Mr. Mierzwa's Peak & Average study gives
15 no weight to customers served by a low pressure system or even steel pipe in
16 general.

17 **Q. As support for his conclusion that his Peak & Average Study produces**
18 **results consistent with those of a Proportional Responsibility method**
19 **for allocation and, therefore, should be supported by CPA, Witness**
20 **Mierzwa references Columbia Gas of Massachusetts' ("CMA") most**
21 **recent base rate case (D. P. U. 18-45). Does this case reference have**
22 **any relevance to the current CPA case?**

1 A. No. If the purpose of witness Mierzwa referencing the CMA rate case is to
2 somehow infer that the Proportional Responsibility method of allocating costs is a
3 method preferred by all of the Columbia Companies, including CPA, that logic
4 would be incorrect. In Massachusetts, the Department of Public Utilities, and not
5 CMA, has determined that the Proportional Responsibility method of allocating
6 the cost of service is the required study that must be included in its rate case filing
7 and the rate case filings of all natural gas distribution companies in the state. Thus,
8 while CMA must use this method, CPA does not endorse this method.

9 The Proportional Responsibility method also has no relevance in
10 independently verifying Mr. Mierzwa's modified Peak & Average Study as the sole
11 study in which to determine revenue by rate class. The Peak & Average method
12 uses 50% weighting based on throughput and 50% weighting based on design day
13 demand. The Proportional Responsibility method is based on monthly throughput
14 throughout the year with a weighting from lowest usage months toward highest
15 usage months to account for design day usage. It is no wonder that an allocation
16 of mains based on average throughput and design day usage would produce similar
17 results to an allocation of mains based solely on monthly throughput weighted to
18 account for design day usage.

19 **Q. Do you agree with Mr. Mierzwa that the cost of major account**
20 **representatives should be allocated to the large customer classes 50**
21 **percent based on customers and 50 percent based on annual volumes?**

1 A. No. Mr. Mierzwa is selectively identifying an expense that the Company incurs to
2 negotiate flex rate agreements, accommodate billing inquiries, operational needs
3 and marketing of large competitive customers. Residential customers do benefit
4 when Columbia can retain a large customer who has alternative fuel capabilities,
5 because the large customer contributes to the recovery of shared costs. As for
6 billing inquiries, the residential customer has the call center for their billing
7 inquiries. If major accounts representatives cost were only assigned to the large
8 customers, it would only be fair to credit the large customers in some way to
9 recognize that they do not use the call center for bill inquiries. The same argument
10 goes for marketing activities. The residential class has specific representatives that
11 are experts in residential marketing that arguably provide no benefit to the large
12 customers. Under Witness Mierzwa's approach, it would only be fair to credit the
13 large customers for this expense. As for operational needs, it is as important to
14 residential customers as large customers when the major account representatives
15 ensure the large accounts manage their usage during peak periods. Because the
16 residential class does benefit from the major account representatives and because,
17 like the major accounts, residential accounts have their own representatives whose
18 costs are equally assigned to the major accounts, it makes no sense to allocate this
19 cost differently than based on number of customers.

20 **Q. Do the results of the studies prepared by witnesses Cline, Mierzwa, and**
21 **Knecht vary widely from the results of the Company's ACOSS?**

A. Yes. For each of the other parties' studies, all of which contain a demand component, the difference in the results is driven primarily by the selection of the remaining component of the allocator—the customer component, annual throughput component or an average of both customer and throughput. Table MPB-1 below illustrates how the use of one or the other can produce results that vary widely. This table also illustrates why revenue allocation to the rate classes should not solely rely on a single study, because as explained above, all studies have short-falls. However, the Customer/Demand and Peak & Average Studies do show a range of reasonableness.

Table MPB-1

Mains Allocation Percentages

| | Total Co | RSS/RDS | SGSS1/SC D1/ SGDS1 | SGSS2/SCD2 /SGDS2 | SDS/LGSS | LDS/LGSS |
|---|----------|---------|--------------------------|----------------------|----------|----------|
| OCA – Peak & Avg | 100.00% | 49.884% | 8.888% | 12.120% | 8.742% | 20.366% |
| OCA – Proportional Responsibility | 100.00% | 47.883% | 9.222% | 11.857% | 8.354% | 22.684% |
| I&E – Peak & Avg | 100.00% | 56.162% | 9.262% | 11.856% | 8.042% | 14.678% |
| OSBA – Wtd Avg Peak & Avg and Cust/Demand | 100.00% | 61.151% | 9.134% | 10.644% | 7.248% | 11.823% |
| CPA – Peak & Avg | 100.00% | 56.162% | 9.262% | 11.856% | 8.042% | 14.678% |
| CPA – Cust/Demand | 100.00% | 76.123% | 8.749% | 7.008% | 4.863% | 3.257% |
| CPA – Avg Study | 100.00% | 66.141% | 9.006% | 9.432% | 6.453% | 8.968% |

Because the residential rate class is the largest and would be expected to be allocated the largest percentage of mains costs, my discussion will focus only on that group. However, this is not meant to imply that the allocation factors suggested for each of the other groups are not meaningful.

1 As can be seen from this table, the calculated mains allocation factors range
2 widely from a low of 47.883% to a high of 76.123%. The mains allocation factors
3 relied upon by the various parties have a narrower range from a low of 49.884% to
4 a high of 66.141%. The lowest is from the OCA's Peak & Average Study, which
5 produces an allocation factor based on an equal weighting of throughput and
6 demand, while ignoring the bifurcation of mains by Columbia into four distinct
7 pressure groups. The highest is from the Average study giving equal weight to the
8 Customer/Demand Study and the Peak & Average study while recognizing the gas
9 main each customer is directly tapped from and the upstream mains that feed the
10 gas main into four distinct pressure groups.

11 The allocation factor proposed by the OCA falls well below the range of
12 reasonableness that has been produced by Columbia and well below the
13 residential mains allocation factors proposed by any other intervenor in this case.
14 Within this range is OSBA at 61.151%, which is based on a 25% weighting of the
15 Customer/Demand Study and a 75% weighting based on the Peak & Average Study.
16 As discussed earlier, Columbia is not proposing that the Commission specifically
17 adopt its Customer/Demand Study, nor is it recommending the Commission
18 specifically adopt the Peak & Average Study. Instead, these two studies establish
19 a reasonable range within which a mains allocation factor would be expected to lie.
20 As discussed above, to simply choose an allocation method that either fully ignores
21 annual throughput or completely ignores the customer component, creates
22 illogical allocations of mains footage as demonstrated when comparing allocated

1 mains footage to actual footage identified for 7 of Columbia's 10 largest customers.
2 Solely relying on either study would not produce a fair and reasonable allocation
3 of costs. For this reason, Columbia continues to recommend the results of its
4 Average Study as the study that should be relied upon as a revenue allocation
5 guide.

6 **IV Customer Charge Study**

7
8 **Q. Have you compared the Company's Customer Charge study for the**
9 **residential class with I&E Witness Mr. Cline's and OCA Witness Mr.**
10 **Mierzwa's suggested changes to the Company's study?**

11 A. Yes. Exhibit MPB-1R shows three summary pages that compare what the Company
12 originally filed in this case as Exhibit 111, Schedule 1, pages 23, 24, and 25 to what
13 Mr. Cline and Mr. Mierzwa have calculated in their work papers and/or discussed
14 in direct testimony.

15 As can be seen on Exhibit MPB-1R page 1, both I&E and OCA excluded
16 accounts 904 uncollectible accounts and account 905 miscellaneous customer
17 accounts expense from the calculation of their residential customer charge. I&E
18 also excluded all customer service & information expenses. Both I&E and OCA
19 excluded sales expense from their residential customer charges. Customer-related
20 benefits and payroll taxes were included in the customer charge studies for both
21 I&E and OCA, however I&E used the Peak & Average Study for the allocation of

1 these costs to the residential class. I&E also used the Peak & Average Study for the
2 allocation of Depreciation Expense, Income Tax and return.

3 OCA erred when it calculated the difference between Columbia's total
4 company income tax and return and OCA's recalculated income tax on a total
5 company basis using its recommended ROE of 9.38% and total company return
6 using its recommended 7.28% return on rate base and subtracted the total
7 company difference from Columbia's residential class costs.

8 As can be seen on Exhibit MPB-1R page 2, both I&E and OCA included all
9 the plant accounts that the Company included in its customer charge for
10 depreciation expense, however, I&E again used the Peak & Average Study for the
11 allocation of Account 190, Deferred Taxes, and Account 303.30 Customer & Other
12 based software to the residential class.

13 And finally, as can be seen on Exhibit MPB-1R page 3, both I&E and OCA
14 included all the plant accounts that the Company included in its customer charge,
15 however I&E again used the Peak & Average Study for the allocation to the
16 residential class.

17 As discussed below, Columbia does continue to believe all the costs that it
18 has included in its minimum system customer charge study are fixed and should,
19 at a minimum, be recovered through the customer charge.

20 **Q. Do you agree with Mr. Cline's and Mr. Mierzwa's exclusion of**
21 **uncollectible accounts from the calculation of the customer charges?**

1 A. No. Mr. Cline explains on page 53 and 54 of his direct testimony that the only costs
2 to be included in a customer charge are a 1994 Opinion and Order in the
3 Pennsylvania American Water Company case at Docket No. R-00932670, Order
4 entered July 26, 1994, at pages 111-115. Mr. Mierzwa states on page 37 of his direct
5 testimony "A customer charge should only include those basic costs associated
6 with serving customers, regardless of their usage or demand characteristics.
7 Customer costs include the expenses and capital costs related to meters,
8 regulators, and services, as well as expenses related to meter reading and billing."

9 The final order in the Pennsylvania American Water Company case did not
10 specifically mention which costs that were proposed to be in the customer charge were,
11 in fact, disallowed. The order simply refers to the ALJ statement:

12 "The OCA opposed the Company's inclusion of these "additional
13 direct" and "indirect" costs in the customer charge. These
14 indirect costs are not basic customer costs as the Commission
15 defines those costs in previous cases. The expense amount
16 attributed to each of these accounts does not increase or
17 decrease with the addition or loss of each residential customer.
18 For these reasons, the Commission should reject PAWC's
19 attempt to include these additional costs in the customer charge
20 and only allow recovery of appropriate amounts in the
21 volumetric charge".
22

23 When a Company bills a customer charge there is a percentage of those
24 customer charges that will be uncollectible. Because the billing of the customer
25 charge generates uncollectible accounts, it should follow that at a minimum a
26 percentage of Non-gas cost related Uncollectible Accounts should be considered a
27 "basic customer cost" and therefore be included in the determination of the
28 customer charge. Also, both Mr. Cline and Mr. Merzwa include the costs in

1 account 903 expenses associated with the billing and the collection of the customer
2 charge, it is logical that the uncollectible expense of not collecting payment of the
3 customer charge should also be recovered by the customer charge.

4 **Q. Do you agree with I&E witness Mr. Cline to exclude O&M accounts 905,**
5 **907, 908, 909, 910, 912, and 916 from the customer charge study?**

6 A. No. These accounts include customer-based costs such as marketing, energy
7 conservation, Demand Side Management programs, customer conversion to gas, low
8 income weatherization, communications, CAP program, community relations
9 programs, telephone, telecommunications, and radio. These are customer programs
10 and communications with customers that are clearly customer-based. None of the
11 intervening parties, including Mr. Cline, have disagreed with the Company that these
12 accounts should be allocated to the rate classes based on number of customers. Mr.
13 Knecht on page 35 of his direct testimony says “I take a relatively simple approach to
14 the problem, in that I include all costs that are allocated on a customer basis” when
15 answering the question “How do you determine the cost basis for the customer
16 charge?”. The Company agrees with Mr. Knecht that all costs allocated on a basis of
17 number of customers should be included in the determination of the customer
18 charge.

19
20 **V. C&I Network**

1 **Q. Mr. Knecht's opinion is that small general service classes with annual**
2 **load above 5,000 Dth should not be required to have (and pay for) C&I**
3 **Network equipment. Does Columbia have any comments on his**
4 **opinion?**

5 A. Mr. Knecht states on page 11 of his direct testimony "The settlement of the
6 Company's last base rates proceeding did not contemplate installing this
7 equipment for those customers. As such, there was no reason for parties to believe
8 that the Company's filing at Docket No. R-2017-2586190 would affect SGS
9 customers. Moreover, as noted earlier, none of the impact evaluations in the
10 Company's filing at that docket contemplated the effects on SGS customers, and
11 the approved tariff language does not specify the usage level which would trigger
12 this required equipment. As such I (as a non-lawyer) would generally conclude
13 that these customers did not receive any reasonable warning that they would be
14 assuming the cost for this equipment in that proceeding."

15 The settlement in the Company's 2016 base rate proceeding, the parties
16 agreed to the terms and conditions of paragraph 545, which is reflected in relevant
17 part below:

18 54. Within ninety (90) days of the entry of an Order by the
19 Commission approving this Settlement:

20
21 a) Columbia agrees to propose in a non-general tariff filing
22 that all customers eligible to be served on Rate Schedules SDS,
23 LDS and MLDS [Small Distribution Service, Large Distribution
24 Service, and Main Line Distribution Service] must have installed
25 Electronic Flow Correctors ("EFC") and telephonic equipment to
26 transmit daily usage information to Columbia.

1 Supplement No. 255 page 8 Section C (Customer Impacts), which was filed in
2 compliance with the 2016 rate case Order, made clear that “Columbia proposes to
3 install daily measurement capability for customers with annual usage equal to or
4 greater than 50,000 therms. Although the minimum annual usage requirement to
5 qualify for service under rate Schedule SDS is in excess of 64,400 therms annually,
6 Columbia recognizes that commercial customer usage can fluctuate from year to
7 year due to weather and a variety of other factors. Installing daily measurement
8 capability for customers with annual usage of 50,000 therms or greater allows for
9 these fluctuations in usage. A total of 572 customers will be affected by the
10 proposed change. Because some customers have multiple accounts and some
11 accounts have more than one meter, a total of 667 accounts and 863 meters will be
12 affected. Customer accounts with more than one meter are referred to as
13 "combined accounts." For accounts with more than one meter, usage on all meters
14 is combined to determine whether the account meets the 50,000 therms threshold.
15 Of the 863 meters affected, 180 meters use less than 50,000 therms annually but
16 are combined on the same account with a meter or meters using more than 50,000
17 therms”.

18 The final order in that compliance filing, (Docket No. R-2017-2586190)
19 states on page 3: “a total of 572 customers will be affected by the proposed change.
20 Because some customers have multiple accounts and some accounts have more
21 than one meter, a total of 667 accounts and 863 meters will be affected.”

1 Exhibit 111, Schedule 1, Page 31 Line 23 shows that the C&I Network costs
2 are for the installation to 667 customers of which 136 are SGSS2/SCD2/SGDS2
3 customers using greater than 50,000 therms.

4 The final order in the compliance filing, specifically identifies 667 customers
5 to be affected by the proposed change and Settlement No. 255 was clear that
6 Columbia proposed to install daily measurement capability for customers with
7 annual usage equal to or greater than 50,000 therms and that those customers
8 were included as part of the 667 customers that the C&I Network costs were
9 estimated to provide service for.

10 In the event the Commission approves the recovery of the C&I Network in
11 this base rate case for customers, exclusive of the 136 SGSS2/SCD2/SGDS2
12 customers using greater than 50,000 therms, a new C&I Network study would
13 have to be performed to identify the estimated costs of the new customer group.
14 In other words, the estimated costs in this case are specific to the 667 customers
15 identified in Supplement No. 255.

16 **Q. Does this complete your Prepared Rebuttal Testimony?**

17 A. Yes, it does.

COLUMBIA GAS OF PENNSYLVANIA, INC.
CUSTOMER BASED COSTS - CUSTOMER CHARGE CALCULATION EXCLUDING MAINS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2019

ALLOCATED COST OF SERVICE
CUSTOMER/DEMAND
111, SCHEDULE 1
PAGE 25 OF 30
WITNESS: M. P. BALMERT

| LINE NO. | ACCT NO. (A) | ACCOUNT TITLE (B) | ALLOC FACTOR (C) | TOTAL COMPANY (D) | RSS/RDS (E) | I&E RSS/RDS (F) | OCA RSS/RDS (G) |
|----------|--------------|---|------------------|-------------------|--------------|-----------------|-----------------|
| 1 | 874.00 | MAINS & SERVICES [SERVICES ONLY][1] | | \$ 4,532,528 | \$ 4,117,652 | \$ 4,117,652 | \$ 4,117,652 |
| 2 | 876.00 | M & R - INDUSTRIAL | 17 | 282,622 | 0 | 0 | 0 |
| 3 | 878.00 | METERS & HOUSE REGULATORS | 23 | 2,617,608 | 2,027,966 | 2,027,966 | 2,027,966 |
| 4 | 879.00 | CUSTOMER INSTALLATIONS | 15 | 6,830,672 | 6,205,461 | 6,205,461 | 6,205,461 |
| 5 | 890.00 | M & R - INDUSTRIAL | 17 | 150,902 | 0 | 0 | 0 |
| 6 | 892.00 | SERVICES | 15 | 7,471,330 | 6,787,479 | 6,787,479 | 6,787,479 |
| 7 | 893.00 | METERS & HOUSE REGULATORS | 23 | 505,241 | 391,430 | 391,430 | 391,430 |
| 8 | | TOTAL DISTRIBUTION | | 22,390,903 | 19,529,988 | 19,529,988 | 19,529,988 |
| 9 | 901.00 | SUPERVISION | 6 | 0 | 0 | 0 | 0 |
| 10 | 902.00 | METER READING | 6 | 686,852 | 627,089 | 627,089 | 627,089 |
| 11 | 903.00 | CUSTOMER RECORDS AND COLLECTION EXPENSES | 6 | 7,794,148 | 7,115,979 | 7,115,979 | 7,115,979 |
| 12 | 904.00 | INTEREST ON CUSTOMER DEPOSITS | 9 | 108,514 | 79,468 | 79,468 | 79,468 |
| 13 | 903.00 | UNCOLLECTIBLES-DIS REVENUE | 7 | 4,410,259 | 4,257,355 | 4,257,355 | 4,257,355 |
| 14 | 904.00 | UNCOLLECTIBLES-GMB/GTS REVENUE | 8 | 323,417 | (5) | (5) | (5) |
| 15 | 905.00 | MISCELLANEOUS | 6 | 3,951 | 3,607 | 3,607 | 3,607 |
| 16 | 921.00 | OFFICE SUPPLIES & EXPENSES | 6 | 0 | 0 | 0 | 0 |
| 17 | | TOTAL CUSTOMER ACCOUNTS | | 13,327,141 | 12,083,493 | 12,083,493 | 12,083,493 |
| 18 | 907.00 | SUPERVISION | 6 | 0 | 0 | 0 | 0 |
| 19 | 908.00 | CUSTOMER ASSISTANCE | 6 | 20,892 | 19,074 | 19,074 | 19,074 |
| 20 | 909.00 | INFORMATIONAL & INSTRUCTIONAL EXPENSES | 6 | 203,522 | 185,814 | 185,814 | 185,814 |
| 21 | 910.00 | MISCELLANEOUS | 6 | 1,024,093 | 934,987 | 934,987 | 934,987 |
| 22 | 921.00 | OFFICE SUPPLIES & EXPENSES | 6 | 0 | 0 | 0 | 0 |
| 23 | 931.00 | RENTS - GENERAL | 6 | 0 | 0 | 0 | 0 |
| 24 | 932.00 | MAINTENANCE | 6 | 0 | 0 | 0 | 0 |
| 25 | | TOTAL CUST SERVICE & INFORMATION | | 1,248,507 | 1,139,875 | 1,139,875 | 1,139,875 |
| 26 | 912.00 | DEMONSTRATION | 6 | 605,075 | 552,428 | 552,428 | 552,428 |
| 27 | 913.00 | ADVERTISING | 6 | 274,671 | 250,772 | 250,772 | 250,772 |
| 28 | | TOTAL SALES | | 879,746 | 803,200 | 803,200 | 803,200 |
| 29 | | CUSTOMER-RELATED BENEFITS | 24 | 888,779 | 683,713 | 683,713 | 683,713 |
| 30 | | CUSTOMER-RELATED PAYROLL TAXES | 11 | 814,781 | 645,289 | 645,289 | 645,289 |
| 31 | | TOTAL CUST-RELATED O&M [LINES 8, 17, 25, 28, 29 & 30] | | 38,498,857 | 34,885,558 | 34,885,558 | 34,885,558 |
| 32 | | DEPRECIATION EXPENSE | Pg 24 | 23,669,455 | 20,322,715 | 20,322,715 | 20,322,715 |
| 33 | | INCOME TAXES | | 10,055,003 | 8,868,694 | 8,868,694 | 8,868,694 |
| 34 | | RETURN ON RATE BASE | Pg 24 | 34,975,032 | 30,848,609 | 30,848,609 | 30,848,609 |
| 35 | | TOTAL ANNUAL CUSTOMER-BASED COST | | 108,198,347 | 94,925,576 | 94,925,576 | 94,925,576 |
| 36 | | AVERAGE ANNUAL CUSTOMER BILLS [2] | | 5,283,795 | 4,828,182 | 4,828,182 | 4,828,182 |
| 37 | | MONTHLY CUSTOMER BASED COST/BILL [LINE 35 / LINE 36] | | \$ 20.48 | \$ 19.66 | \$ 18.25 | \$ 17.67 |

[1] MAINS AND SERVICES @ 24.711% OF TOTAL ACCOUNT 874. (PAGE 27)
[2] AVERAGE ANNUAL CUSTOMER BILLS INCLUDE FINAL BILLS (ALLOCATION FACTOR 6 DETAIL).

Notes:
1/ I&E eliminated the O&M costs as not being in the PPL model.
2/ I&E switched to the Peak and Average Study which changed internally generated allocation factors that change these items. Total costs did not change.
3/ OCA eliminated these costs as not being a customer cost.
4/ OCA adjusted Income Tax because OCA used OCA proposed ROE of 9.38% on a total company basis and applied the total company adjustment to the residential class.

COLUMBIA GAS OF PENNSYLVANIA, INC.
CUSTOMER BASED COSTS - CUSTOMER CHARGE CALCULATION EXCLUDING MAINS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2019

ALLOCATED COST OF SERVICE 111, SCHEDULE 1
CUSTOMER/DEMAND PAGE 24 OF 30
WITNESS: M. P. BALLMERT

| LINE NO. | ACCT NO. | ACCOUNT TITLE (A) | ALLOC FACTOR (B) | TOTAL COMPANY (C) | RSS/RDS (D) | I&E RSS/RDS (E) | OCA RSS/RDS (F) |
|----------|-------------|--|------------------|-------------------|--------------|-----------------|-----------------|
| 1 | 154.00 | CUSTOMER BASED MATERIALS & SUPPLIES | Pg 30 | \$ 233,507 | \$ 204,135 | \$ 204,135 | \$ 204,135 |
| 2 | 190-282-283 | CUSTOMER BASED DEFERRED INCOME TAXE | Pg 30 | (102,033,658) | (89,087,547) | (88,890,556) | (89,087,547) |
| 3 | 235.00 | CUSTOMER DEPOSITS | 9 | (2,838,227) | (2,078,518) | (2,078,518) | (2,078,518) |
| 4 | 252.00 | CUSTOMER BASED ADVANCES | Pg 30 | 700 | 612 | 612 | 612 |
| 5 | | TOTAL CUSTOMER-BASED RATE BASE | | 431,790,508 | 380,847,020 | 380,244,337 | 380,847,020 |
| 6 | | EQUITY CAPITAL @ 52.340% | | 225,999,152 | 199,335,330 | 199,335,330 | 199,335,330 |
| 7 | | RETURN ON RATE BASE @ 8.100% | | 34,975,031 | 30,848,609 | 30,799,791 | 27,307,927 |
| 8 | | RETURN ON EQUITY @ 10.950% | | 24,746,907 | 21,827,219 | 21,792,678 | 18,697,654 |
| 9 | 303.30 | CUSTOMER & OTHER-BASED SOFTWARE [1] | 11 | 1,238,036 | 980,500 | 801,232 | 980,500 |
| 10 | 380.00 | SERVICES | 15 | 17,294,953 | 15,711,946 | 15,711,946 | 15,711,946 |
| 11 | 380.00 | DIRECT - SERVICES | Pg 15 | 49 | 0 | 0 | 0 |
| 12 | 380.12 | CSL REPLACEMENT | 15 | 0 | 0 | 0 | 0 |
| 13 | 381.00 | METERS | 16 | 937,707 | 705,840 | 705,840 | 705,840 |
| 14 | 381.10 | AUTOMATIC METER READING | 16 | 1,297,423 | 976,609 | 976,609 | 976,609 |
| 15 | 382.00 | METER INSTALLATIONS | 16 | 825,547 | 621,414 | 621,414 | 621,414 |
| 16 | 383.00 | HOUSE REGULATORS | 21 | 298,012 | 270,124 | 270,124 | 270,124 |
| 17 | 384.00 | HOUSE REG INSTALLATIONS | 21 | 37,255 | 33,769 | 33,769 | 33,769 |
| 18 | 385.00 | IND M&R EQUIPMENT | 17 | 437,919 | 0 | 0 | 0 |
| 19 | 385.00 | DIRECT - IND M&R EQUIPMENT | Pg 15 | 11,470 | 0 | 0 | 0 |
| 20 | 385.10 | IND M&R EQUIPMENT - LG VOLUME | 17 | 0 | 0 | 0 | 0 |
| 21 | | TOTAL DEPRECIATION EXPENSES | | 22,378,371 | 19,300,202 | 19,120,934 | 19,300,202 |
| 22 | | TOTAL NET SALVAGE AMORTIZED [1] | 11 | 1,291,084 | 1,022,513 | 835,563 | 1,022,513 |
| 23 | | TOTAL DEPRECIATION & AMORTIZATION EXPENSES | | 23,669,455 | 20,322,715 | 19,956,497 | 20,322,715 |

[1] NET SALVAGE @ 27.211% OF TOTAL REPRESENTING CUSTOMER PORTION (PAGE 26)

Notes:
1/ I&E eliminated the O&M costs as not being in the PPL model.
2/ I&E switched to the Peak and Average Study which changed internally generated allocation factors that change these items. Total costs did not change.
3/ OCA eliminated these costs as not being a customer cost.
4/ OCA adjusted Income Tax because OCA used OCA proposed ROE of 9.38% on a total company basis and applied the total company adjustment to the residential class.

COLUMBIA GAS OF PENNSYLVANIA, INC.
CUSTOMER BASED COSTS - CUSTOMER CHARGE CALCULATION EXCLUDING MAINS
FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2019

111, SCHEDULE 1
 PAGE 23 OF 30
 WITNESS: M. P. BALMERT

| LINE NO. | ACCT NO. | ACCOUNT TITLE (A) | ALLOC FACTOR (B) | TOTAL COMPANY (C) | RSS/RDS (D) | I&E RSS/RDS (E) | OCA RSS/RDS (F) |
|----------|----------|-------------------------------------|------------------|-------------------|-------------|-----------------|-----------------|
| 1 | 303.30 | CUSTOMER & OTHER-BASED SOFTWARE [1] | 11 | 9,754,907 | 7,725,691 | 6,313,180 2/ | 7,725,691 |
| 2 | 380.00 | SERVICES | 15 | 592,415,097 | 538,191,343 | 538,191,343 | 538,191,343 |
| 3 | 380.00 | DIRECT - SERVICES | Pg 14 | 1,966 | 0 | 0 | 0 |
| 4 | 380.12 | CSL REPLACEMENT | 15 | 0 | 0 | 0 | 0 |
| 5 | 381.00 | METERS | 16 | 40,150,510 | 30,222,493 | 30,222,493 | 30,222,493 |
| 6 | 381.10 | AUTOMATIC METER READING | 16 | 19,350,242 | 14,565,506 | 14,565,506 | 14,565,506 |
| 7 | 382.00 | METER INSTALLATIONS | 16 | 43,214,952 | 32,529,192 | 32,529,192 | 32,529,192 |
| 8 | 383.00 | HOUSE REGULATORS | 21 | 13,305,976 | 12,060,803 | 12,060,803 | 12,060,803 |
| 9 | 384.00 | HOUSE REG INSTALLATIONS | 21 | 3,864,772 | 3,503,107 | 3,503,107 | 3,503,107 |
| 10 | 385.00 | IND M&R EQUIPMENT | 17 | 8,110,311 | 0 | 0 | 0 |
| 11 | 385.00 | DIRECT - IND M&R EQUIPMENT | | 373,618 | 0 | 0 | 0 |
| 12 | 385.10 | IND M&R EQUIPMENT - LG VOLUME | 17 | 1,085,273 | (1) | (1) | (1) |
| 13 | | TOTAL GROSS PLANT | | 731,627,623 | 638,798,134 | 637,385,623 | 638,798,134 |
| 14 | 303.30 | CUSTOMER & OTHER-BASED SOFTWARE [1] | 11 | 4,232,304 | 3,351,900 | 2,739,063 2/ | 3,351,900 |
| 15 | 380.00 | SERVICES | 15 | 135,665,837 | 123,248,343 | 123,248,343 | 123,248,343 |
| 16 | 380.00 | DIRECT - SERVICES | Pg 14 | 1,920 | 0 | 0 | 0 |
| 17 | 380.12 | CSL REPLACEMENT | 15 | 0 | 0 | 0 | 0 |
| 18 | 381.00 | METERS | 16 | 17,411,447 | 13,106,118 | 13,106,118 | 13,106,118 |
| 19 | 381.10 | AUTOMATIC METER READING | 16 | 13,729,683 | 10,334,744 | 10,334,744 | 10,334,744 |
| 20 | 382.00 | METER INSTALLATIONS | 16 | 13,549,487 | 10,199,106 | 10,199,106 | 10,199,106 |
| 21 | 383.00 | HOUSE REGULATORS | 21 | 4,334,095 | 3,928,511 | 3,928,511 | 3,928,511 |
| 22 | 384.00 | HOUSE REG INSTALLATIONS | 21 | 3,112,325 | 2,821,074 | 2,821,074 | 2,821,074 |
| 23 | 385.00 | IND M&R EQUIPMENT | 17 | 3,051,516 | 0 | 0 | 0 |
| 24 | 385.00 | DIRECT - IND M&R EQUIPMENT | Pg 14 | 110,824 | 0 | 0 | 0 |
| 25 | 385.10 | IND M&R EQUIPMENT - LG VOLUME | 17 | 0 | 0 | 0 | 0 |
| 26 | | TOTAL DEPRECIATION RESERVE | | 195,199,438 | 166,989,796 | 166,376,959 | 166,989,796 |

[1] INTANGIBLE PLANT @ 27.211% OF TOTAL REPRESENTING CUSTOMER PORTION (PAGE 26)

Notes:

- 1/ I&E eliminated the O&M costs as not being in the PPL model.
- 2/ I&E switched to the Peak and Average Study which changed internally generated allocation factors that change these items. Total costs did not change.
- 3/ OCA eliminated these costs as not being a customer cost.
- 4/ OCA adjusted Income Tax because OCA used OCA proposed ROE of 9.38% on a total company basis and applied the total company adjustment to the residential class.
- 5/ OCA changed the return to the proposed OCA return of 7.28%