

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility)	
Commission)	
)	
)	
vs.)	Docket No. R-2015-2468056
)	
Columbia Gas of Pennsylvania, Inc.)	
)	
)	

REBUTTAL TESTIMONY OF
BRIAN E. ELLIOTT
ON BEHALF OF
COLUMBIA GAS OF PENNSYLVANIA, INC.

July 16, 2015

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

2 A. Brian E. Elliott, 290 W. Nationwide Boulevard, Columbus, Ohio 43215.

3 **Q. Are you the same Brian E. Elliott who filed direct testimony in this**
4 **proceeding?**

5 A. Yes.

6 **Q. What is the purpose of your rebuttal testimony?**

7 A. In my rebuttal testimony, I will be addressing several arguments and conclusions
8 presented, in their direct testimony, by Mr. Hubert, witness for the Bureau of
9 Investigation and Enforcement ("I&E"), Mr. Mierzwa, witness for the Office of
10 Consumer Advocate ("OCA") and Mr. Knecht, witness for the Office of Small
11 Business Advocate ("OSBA"), on the subject of the Allocated Cost of Service
12 Studies.

13 **Q. The Company presented three separate ACOSS (customer/demand,**
14 **peak & average, average study). Please explain why three studies**
15 **were prepared and why you believe it is the average study that should**
16 **be principally relied upon as a guide to revenue allocation.**

17 A. The Customer/Demand Study (Exhibit No. 111, Schedule 1) produces results that
18 are generally more favorable to the industrial class while the Peak & Average
19 Study (Exhibit No. 111, Schedule 2) produces results that are generally more
20 favorable to the residential class. Columbia recognizes that no one cost of service
21 study is the "right" study and in the past believed the results of two such studies
22 provided a reasonable range of returns for use as a guide in establishing

1 appropriate rates. The third study as presented in Exhibit No. 111, Schedule 3 is
2 an average of the Customer/Demand Study and the Peak and Average Study and
3 represents what Columbia believes to provide a reasonable range of revenue
4 responsibility. This Average Study, with its equal weighting of the two former
5 studies, provides the Company, the parties and the Commission with a set of
6 returns that can be used as a benchmark or guide in revenue allocation.

7 It is broadly accepted that a single allocated cost of service study cannot
8 and should not be relied upon to determine the exact cost to serve each class of
9 customers. In his direct testimony in CPA's 2014 rate case, OCA's witness Glenn
10 Watkins stated, "...no cost allocation study should be considered surgically
11 precise and should serve only as a guide in establishing class revenue
12 responsibility..." Furthermore, the National Association of Regulatory Utility
13 Commissioners, in their June 1989 Gas Distribution Rate Design Manual, state
14 that "there is no one correct cost of service, but rather a range of reasonable
15 alternatives." Finally, OSBA's witness Robert Knecht, in his direct testimony in
16 the current case, states that "analytical models used by cost allocation experts can
17 vary considerably in their impact on the percentage of mains costs assigned to
18 each class." Clearly, if Columbia or any other party to this case were to simply
19 choose a single study as the basis for allocating costs, they would be doing so to
20 choose an outcome that unfairly favored or penalized a specific class of
21 customers.

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

4 **Q. Please describe the primary differences between the three studies**
5 **submitted by Columbia.**

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

9 The Customer/Demand Study weights the allocation of mains using a
10 factor based on the number of customers (Customer) and the company's peak day
11 design (Demand). This method recognizes the customer component of mains.

12 The Peak & Average Study the allocation of mains uses a factor weighting
13 50% the company's peak day design (Peak), and 50% the company's throughput
14 (Average).

15 As stated above, the Average study gives equal weight to the
16 Customer/Demand and the Peak and Average methods.

17 **Q. What is I&E witness Hubert's preferred allocated cost of service**
18 **method and what is the basis of his preference?**

19 **A.** Witness Hubert based his determination of rate class revenue requirement on the
20 Company's Peak & Average Method, stating on page 32 of his direct testimony "it
21 is the throughput that that determines the type of main investment. Because it is

1 the load that determines the main investment, not the number of customers
2 served”.

3 **Q. What is OCA witness Mierzwa’s preferred allocated cost of service**
4 **method and what is the basis of his preference?**

5 **A.** Witness Mierzwa prefers a modified version of the Company’s Peak & Average
6 Method, where he eliminates the Company’s separation of mains investment by
7 operating pressure, primarily due to its use of original cost instead of net
8 investment in the development of its allocation factors for each of the distribution
9 mains categories. He states on page 15 of his direct testimony, “Since
10 distribution mains exist to deliver annual requirements, and are sized to provide
11 for peak requirements, it is proper to allocate distribution mains costs on the
12 basis of Peak & Average demands, consistent with established Commission
13 precedent.”

14 **Q. What is OSBA witness Knecht’s preferred allocated cost of service**
15 **method and what is the basis of his preference?**

16 **A.** Witness Knecht recommended on page 19 of his direct testimony a weighted
17 average cost of service study which weights 75% of the Company’s Peak &
18 Average study and 25% of its Customer Demand study for two reasons 1) the
19 results of his independent ACOSS in the Company’s 2012 rate case were generally
20 closer to results of the Peak & Average than the Customer Demand study and 2)
21 “the P&A ACOSS is conceptually more similar to the A&E methodology that the
22 Commission has approved for gas distribution studies.”

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

2 **A.** As previously mentioned, a combination of preferences exists among the parties as
3 to which distribution mains allocation method they prefer. Witness Mierzwa and
4 witness Hubert both recommend the use of the Peak & Average Study, whereas
5 witness Knecht recommends a study that incorporates a customer component of
6 allocation. Witness Knecht's position most closely matches Columbia's preference
7 to use a study that includes both a customer and throughput component, though his
8 recommendation is to apply a smaller weighting to the customer component. The
9 positions of witnesses Hubert and Mierzwa are most different from Columbia's
10 preference in that their studies only include the throughput component and
completely disregard the customer component.

12 **Q. Does the Company agree with Mr. Hubert and Mr. Mierzwa that**
13 **throughput determines the type of main investment?**

14 **A.** No. Each of Columbia's customers have a unique cost that contributes to the
15 total cost to serve the rate class in which those customers are included. Obvious
16 distinctions in customer costs are 1) the distance that the customer is located
17 from the point of delivery from where the distribution main connects to the
18 transmission pipeline, 2) the design day capacity of the customer, 3) the age of
19 the pipe, 4) the customer density on the distribution main, 5) the geography of
20 the main (urban vs rural), 6) the number of customers and capacity requirements
21 downstream of the customer, and 7) the operating pressure of the main. All are
22 contributing factors. The simple fact is customer throughput consumption has

1 absolutely no impact on the determination of the size, length, or cost of the
2 distribution main the customer is connected to.

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

6 **A.** No. The “size” of a distribution main is determined by its length and its diameter.
7 The length of the distribution main is determined by the distance a distribution
8 main must be extended to connect the customer to the existing distribution
9 system or transmission pipeline. The cost to extend the distribution main is
10 based on the Company’s obligation to serve defined by its line extension policy.
11 The policy dictates the maximum feet of main that the Company must provide
12 without charge to the customer. That portion of main is directly related to the
13 customer for whom the main is installed. The more customers added, unless
14 added to an existing main, the longer the main, and the longer the main, the
15 more dollars invested by the Company. In the case of adding a new customer to
16 an existing distribution main, the Company may still incur additional investment
17 in the main if the Company has a line extension agreement with an existing
18 customer where the customer had made a deposit for the line extension with the
19 agreement that as additional customers were added that the Company refunded a
20 portion of the deposit.

21 As for the diameter of the main, this is determined by the demand
22 requirements of the Company’s customers that it must be able to serve at design

1 day temperatures. So it's the combination of the cost to extend a distribution
2 main (customer component) and the cost of the diameter of the pipe to serve
3 customers at design day temperatures (demand component) that determines the
4 causation of the cost of the main, and not the service received by its customers
5 during all other times of the year (throughput).

6 **Q. Is there a positive correlation between footage of mains pipe and**
7 **customer counts over time?**

8 **A.** Yes. See the graph below from 1999 through 2014 where footage of mains pipe is
9 compared to customer counts. The graph clearly shows that over time the
10 footage of mains installed by Columbia tends to increase as customers are added.
11 This graph is consistent with the Company's premise that as customers are
12 added, distribution mains have to be extended to connect the customer to the
13 existing system and, therefore, there is cost causation between customers and
14 footage of mains and mains investment. Performing a regression analysis on the
15 data that supports this graph results in an R Square of 0.94201759 meaning there
16 is a relationship between the footage of mains and customers 94.2% of the time.

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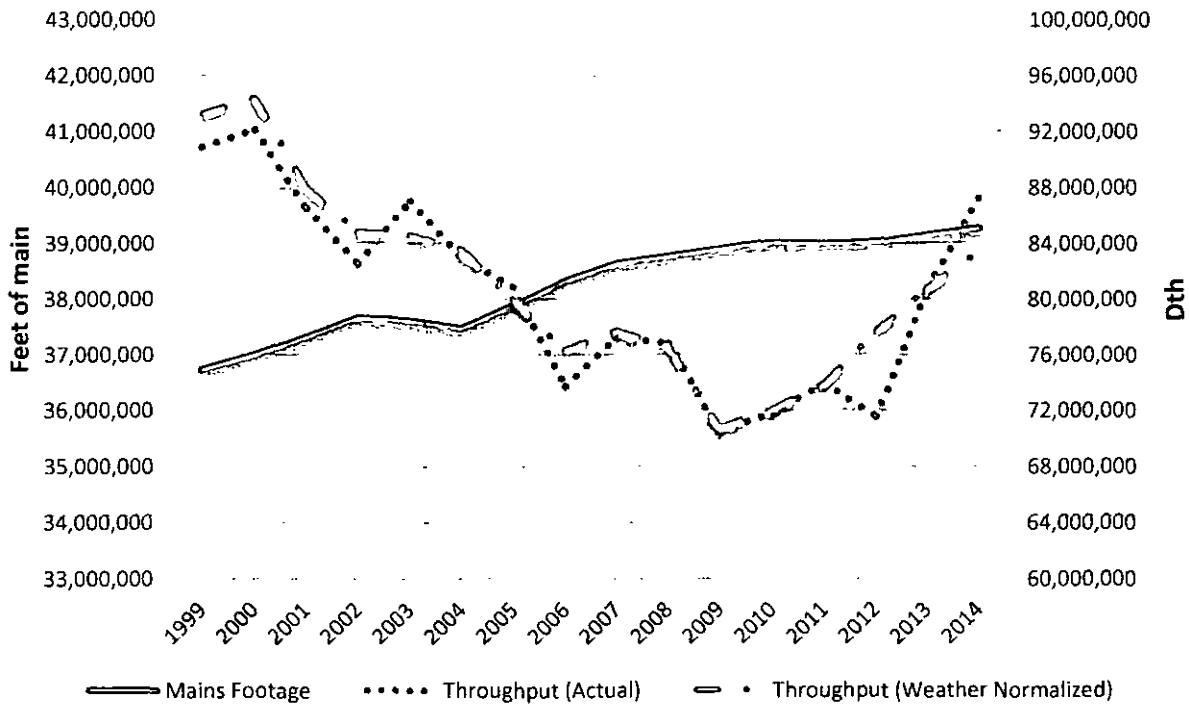
Mains & Customers



Q. Is there a positive correlation between footage of mains pipe and annual throughput consumption?

A. No. See the graph below from 1999 through 2014 where footage of mains pipe is compared to annual throughput consumption. The graph shows that as throughput changes over time, there is not a corresponding change in footage of mains meaning throughput does not cause the footage of mains to change over time. Performing a regression analysis on the data that supports this graph results in an R Square of 0.526505823 meaning there is a relationship between the footage of mains and throughput 52.7% of the time.

Mains & Throughput



12 ——— Mains Footage Throughput (Actual) ○ • Throughput (Weather Normalized)

13

14 **Q. Is the Company saying that the Peak & Average study should not be**

15 **used in the determination of rate class revenue requirement?**

16 **A.** No. As previously stated, the Company believes the Peak & Average study should

17 be used to establish the “range of reasonableness” so that the Average study can

18 set the basis of rate class revenue requirement. What the Company is stating,

19 though, is that the Peak and Average study is a study based on the utilization of

20 the distribution mains system. Because 50% of the Peak and Average study is

21 based on throughput, it does not reflect the manner in which the Company

22 actually incurs costs to provide service. The Company’s Customer/Demand study

1 does reflect the manner in which the Company actually incurs costs to provide
2 service, commonly known as cost causation, and that is why the Company applies
3 equal weight to both the Peak & Average and Customer/Demand allocated cost of
4 service studies in the determination of rate class revenue requirement.

5 **Q. Witness Hubert references the 1994 National Fuel Gas Distribution**
6 **Corporation (“NFGD”) base rate proceeding when supporting his**
7 **argument that the peak & average method of cost allocation should be**
8 **relied upon. Do you have any comments about the use of this case**
9 **and its relevance to Columbia’s current case?**

10 **A.** I have reviewed the 1994 NFGD case and have found a significant difference
11 between that case and Columbia’s current case. The Commission in that case, in
12 its Final Order, described the NFGD Cost of Service Study as follows:

13 “NFG has presented two separate cost of service
14 studies in this proceeding. Its preferred study, found
15 at NFG Exhibit Nos. 111-1 (present rates) and 111-2
16 (proposed rates), separates distribution mains into
17 large and small categories for cost allocation
18 purposes, and uses a peak and average allocation
19 methodology. The alternate study, found at NFG
20 Exhibit Nos. 111-3 (present rates) and 111-4 (proposed
21 rates) also uses the peak and average methodology,
22 but makes no distinction among mains, treating all
23 main sizes equally for allocation purposes.”
24

25 From this summary, it is clear to see that NFGD only submitted studies based on
26 the Peak & Average methodology. In its ruling, the Commission, as witness
27 Hubert provided in his direct testimony, stated “[t]he Peak and Average method

1 that allocates mains equally is a sound and reasonable method of cost allocation
2 and should remain intact.”

3 In its ruling, the Commission was obviously choosing between two slightly
4 different Peak & Average studies and was in no way making a statement about the
5 applicability of a Customer/Demand Study to NFGD's or any other company's
6 case.

7 Columbia, in many of its previous cases and in its current case, has
8 continued to provide three separate studies, which are the Customer/Demand
9 study, the Peak & Average study, and the Average study. As earlier discussed by
10 me, the reason for submitting three separate studies is to provide a range of
11 reasonableness for cost allocation and to provide the midpoint of that range to
12 reflect what Columbia believes is a fair and representative allocation of the cost of
13 service.

14 To conclude that the Commission's previous approval of the use of the
15 Peak & Average method should be applicable to Columbia's current case is
16 illogical. The facts and circumstances in each case can quite often vary widely,
17 and this difference between the NFGD case and Columbia's case is an obvious
18 example of that type of variability. While witness Hubert's statement that the
19 Commission's approval of the use of the Peak & Average method implies that the
20 same type of study should be adopted in the current Columbia case, no such
21 conclusion should be made.

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

3 **A.** Yes. The Company's position is that the Commission should consider specifically
4 endorsing the concept that a single cost allocation method should not be used, but
5 instead that a range of accepted cost allocation methods should be considered with
6 the Peak & Average Study being one of them. The Peak & Average Study should be
7 included because it takes into account the utilization of the distribution system.
8 The Customer/Demand should be included because it is based on cost causation
9 principles. An equal weighting of both methods, not an arbitrary allocation
10 weighting of one study as recommended by Mr. Knecht, and not the single use of
11 the Peak & Average Study that favors low use customers at the detriment of high
12 use customers should be the basis of class revenue requirement.

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

16 **A.** No. The primary purpose of assigning distribution mains into separate categories
17 is based on developing a mains cost allocation that is more consistent with cost
18 causation. Because of the Company's Graphical Information System ("GIS"), the
19 Company has the capability to identify which premises are served off which pipe
20 segments, the operating pressures of those pipe segments, the size of pipe, and
21 the kind of pipe (ie. steel, plastic). This further refinement allows Columbia to
22 more accurately identify the specific mains being used to serve customers and,

1 therefore, more accurately reflect that separation when determining the revenue
2 responsibility for each rate class. Columbia should not only continue to utilize
3 the data it currently has to identify specific mains being used to serve its
4 customers, but as witness Knecht suggested, should be encouraged to further
5 define mains costs to the extent that current information systems allow.

6 **Q. As support for his conclusion that CPA's Peak & Average study**
7 **produces results consistent with those of a Proportional**
8 **Responsibility method for allocation and, therefore, should be**
9 **supported by CPA, witness Mierzwa references the recently filed base**
10 **rate proceeding by Columbia Gas of Massachusetts ("CMA"). Does**
11 **this case reference have any relevance to the current CPA case?**

12 **A.** No. Not only does CMA not operate within Pennsylvania, it is also regulated by
13 the Massachusetts Department of Public Utilities ("DPU") and not by the
14 Pennsylvania Public Utility Commission. As such, the method of allocating its
15 cost to serve is not relevant to the current CPA rate case. If the purpose of
16 witness Mierzwa referencing the CMA rate case is to somehow infer that the Peak
17 Responsibility method of allocating costs is a method preferred by all of the
18 Columbia Companies, including CPA, that logic would be incorrect. In
19 Massachusetts, the DPU, and not CMA, has determined that the Peak
20 Responsibility method of allocating the cost of service is the required study that
21 must be included in its rate case filing. Thus, CMA does not endorse this method.
22 To imply that CPA should adopt and endorse the allocation methodology

1 required in Massachusetts because it closely matches the results of a Peak &
2 Average study is no more meaningful than to suggest that CPA should adopt the
3 specific allocation methodology of one or more of its sister companies—
4 Columbia Gas of Ohio, which received Commission approval for and is currently
5 utilizing straight-fixed variable billing; Columbia Gas of Kentucky and Columbia
6 Gas of Virginia, both of which filed three studies using the same methodology
7 that CPA used. CPA continues to believe that the Average Study, which represents
8 the straight average of the results of the Customer/Demand and Peak & Average
9 Studies, is the best solution.

10 **Q. Please respond to Mr. Mierzwa's contention on page 14 of his direct**
11 **testimony that CPA's Demand/Commodity study did not properly**
12 **consider customer demands that can be met from a 2-inch main when**
13 **determining the allocation of demand-related portion of distribution**
14 **mains.**

15 **A.** I do agree with Mr. Mierzwa that all (or nearly all) residential customers could be
16 provided service through 2-inch mains. Please see rebuttal testimony of M. P.
17 Balmert beginning on page 29 and ending on page 32 that shows how that is
18 mathematically possible. However I disagree with Mr. Mierzwa's conclusion on
19 page 14 of his direct testimony that "This being the case, there would be little to
20 no unmet Residential gas service requirements that would be dependent upon
21 demand-related pipe cost."

1 Although it is true that 2" pipe carries some level of capacity, this fact is
2 irrelevant to the determination of the relative demand of each rate class that is
3 served by the capacity of the remaining larger diameter distribution mains. In
4 fact, the Company has proven, in its study that separates mains investment by
5 operating pressure that identifies each customer within each rate class by pipe
6 segment, that residential customers most definitely rely on large diameter
7 distribution mains even if they are directly connected to a 2" main.

8 By identifying by customer, the pipe segment the customer is connected
9 to, and the upstream pipe segments that the customer is served by, what is clear
10 from this analysis is 1) most residential customers are served off low pressure
11 systems, 2) low pressure systems require upstream larger diameter higher
12 pressure systems to serve customers, 3) as for residential customers served off 2"
13 regulated pressure systems, it would be inefficient and not cost effective if that 2"
14 main was not fed from an upstream larger diameter pipe because of economies of
15 scale and 4) in spite of the individual residential customer's requirements, the
16 fact is some residential customers are served off larger diameter pipe simply
17 because of the capacity requirements of downstream customers. In this instance,
18 it would be inefficient to lay a parallel 2" pipe to serve the individual residential
19 customer.

20 And finally, there is no evidence to suggest that the residential rate class'
21 proportionate share of the capacity of the 2" main is any different from that class'
22 proportionate share of the entire distribution system. The 2" minimum system

1 method is simply a means to identify for cost allocation purposes that portion of
2 mains investment attributable to the need to extent a distribution main to
3 connect a customer, commonly called the customer component of mains.

4 **Q. Witness Mierzwa relies on reference materials from Professor James**
5 **Bonbright to support his conclusion that it is improper to allocate a**
6 **portion of mains on the basis of being customer-related. Does**
7 **Professor Bonbright provide any opinion supporting the allocation of**
8 **a portion of mains on the basis of being customer-related?**

9 **A.** Yes. Professor James Bonbright firmly states the appropriateness of the
10 recognition of a customer component of distribution mains for a utility in his
11 book, Principles of Public Utility Rates.¹ On pages 400-401, he refers to the use of
12 the two-part Hopkinson² rate structure, which is based on the assumption that part
13 of the total cost of a utility's business is a function of the output or energy of the
14 system and the other part is a function of plant and equipment capacity and all cost
15 associated with this capacity. He continues by noting that "this two-fold distinction
16 fails to acknowledge that a material part of the operating and capital costs of a
17 utility business is more directly and closely related to the number of customers than
18 to energy consumption on the one hand or maximum kilowatt demand on the
19 other."

¹ *Principles of Public Utility Rates, Second Edition, James C. Bonbright, Albert L. Danielsen, David R. Kamerschen, Public Utility Reports., 1988.*

² Dr. John Hopkinson, a British electrical-utility engineer, introduced a two-part rate composed of an energy charge and a demand charge.

1 Furthermore, Professor Bonbright says that “customer costs are invariant
2 with respect to consumption. They are the costs incurred to serve a customer even
3 if the customer does not use the service at all. The most obvious examples of these
4 customer costs are the expenses associated with local connection facilities, metering
5 equipment and meter reading, billing and accounting, and a portion of the
6 distribution system.”

7 Lastly, on page 492, he states that most utilities use some form of minimum
8 system to classify costs, which are in line with the FERC accounts.

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

11 **A.** Yes. Dr. Charles F. Phillips, Jr., in The Regulation of Public Utilities,³ states that
12 “customer costs vary with the number of customers. These costs include a portion
13 of the distribution system, local connection facilities, metering equipment, billing
14 and accounting. Customer costs, moreover, are independent of consumption.”

15 The American Gas Association published Gas Rate Fundamentals,⁴ in which
16 it is stated that customer-related costs are primarily distribution and customer
17 accounting costs. Among other things, it is also stated that “the closer a plant item
18 (e.g., a meter and service line) is located to a customer, the more that particular
19 item is related to the specific requirements of that customer. Thus, the customer
20 component of distribution costs reflects the theoretical distribution system that

³ The Regulation of Public Utilities, Charles F. Phillips, Jr., Public Utility Reports, 1984.

⁴ Gas Rate Fundamentals, Fourth Edition, American Gas Association, 1987.

1 would be needed to serve customers at nominal or minimum load conditions.” In
2 regards to the many different functions and cost causative components attributable
3 to the gas distribution operations, the main cost causation component for
4 distribution costs is one that is customer-related.

5 **Q. In his review of Columbia’s allocation method pertaining to customer-**
6 **related mains costs, witness Knecht concluded that the Columbia**
7 **method was arithmetically incorrect. Do you agree with his**
8 **conclusion?**

9 **A.** No. In his direct testimony on Page 24, Lines 19 through 21, witness Knecht states,
10 “[t]he Company incorrectly allocates customer-related mains cost on the basis of a
11 weighted average of customer and demand allocation factors, rather than simply
12 allocating customer costs on the basis of number of customers.” I will explain how
13 he came to this incorrect conclusion. The mains allocation factor development
14 studies that Columbia produced include a line that reads “Minimum System
15 Allocation Factor”⁵ with the percentages shown on that line representing a weighted
16 average of both the customer component and the design day component. I believe
17 this is the part of the study that is the subject of witness Knecht’s comment
18 regarding the math error. The purpose of this line and its allocation factors is to
19 compute the total mains cost, within each pressure group, applicable to each of the
20 various rate classes, as part of the overall development of the mains allocation
21 factor. Because the line description includes “minimum system,” I understand how

⁵ Exhibit BEE-2, Page 27, Line 15; Page 28, Line 15; Page 29, Line 15

1 one may assume that it should only be applied to the minimum system mains cost.
2 However, in spite of the line description, the factors should have been, and indeed
3 were, applied to total mains costs and not only to the minimum system component
4 of mains in all of Columbia's ACROSS. To explain why and how the Columbia
5 calculation is incorrect, in his opinion, Witness Knecht also provides a simple
6 example, as Table IEC-5 in his direct testimony, illustrating how the customer cost
7 of mains should be allocated separately based on customer counts alone. If you
8 compare his table to the allocation study that Columbia submitted in this case, you
9 will find that, though grouped and labeled differently, the results would be the
10 same. To illustrate this fact, I have attached Table BEE-1 to show the calculation of
11 the mains cost per customer, using actual Columbia data, and using the model that
12 witness Knecht provided as his Table IEC-5. In his table, he ultimately is
13 determining what the minimum system mains cost per customer should be, across
14 all rate classes. As he stated, and I do agree, the minimum system mains cost per
15 customer should be the same, regardless of rate class.

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Table BEE-1
Calculation of Mains Customer Cost by Rate Class

	Total	RSS RDS	SGSS SCD SGDS	SDS LGSS	LDS LGSS
(1)No. Customers	418,439	381,074	36,801	466	98
(2)Cust Allocator	100.000%	91.070%	8.795%	0.111%	0.023%
(3)Demand Allocator	100.000%	57.917%	23.956%	8.296%	9.831%
(4)Mains Costs	\$160,511,272				
(5)Cust Component	\$60,260,027	\$54,879,037	\$5,299,767	\$67,109	\$14,113
(6)Demand Component	\$100,251,245	\$58,062,546	\$24,016,527	\$8,316,602	\$9,855,870
(7)Allocated Mains Costs	\$160,511,272	\$112,941,583	\$29,316,294	\$8,383,711	\$9,869,683
(8)Mains Customer Cost	\$60,260,027	\$54,879,037	\$5,299,767	\$67,110	\$14,113
(9)Per Customer	\$144.01	\$144.01	\$144.01	\$144.01	\$144.01

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To validate the results shown above, it is only necessary to calculate the average minimum system cost per customer for mains, at the "Total Company" level, for any

1 of the pressure groups presented in the Customer/Demand portion of Exhibit BEE-
2 2. In this case, I chose the Remaining Regulated Pressure Pipe portion that appears
3 on Page 29 of Exhibit BEE-2. To calculate this cost per customer, I simply divided
4 the total minimum system costs of \$60,260,027.09 (Exhibit BEE-2, Page 29, Line
5 5) by 418,439 (Exhibit BEE-2, Page 29, Line 9, Column labeled "Total Company"),
6 which is the total number of customers. The result is \$144.01 and this amount
7 represents the total mains customer cost that should appear across all rate classes if
8 Columbia is arithmetically correct in its calculation of the customer-related mains
9 costs. As can be observed in Table BEE-3 above, Line 9 clearly and consistently
10 shows this exact result across all rate classes. Therefore, though the calculation
11 methods are different and one line description on Columbia's exhibit may be
12 slightly imprecise, the resulting calculations are the same and there are no
13 mathematical errors in Columbia's model. In any subsequent filings by Columbia,
14 we will reword this line in question to make it clear that it is being applied to all
15 mains costs and not just to the minimum system portion.

16 **Q. Do the results of the studies prepared by witnesses Hubert, Mierzwa,**
17 **and Knecht vary widely from the results of the Company's ACOSS?**

18 **A.** For each of the other parties' studies, all of which contain a demand component,
19 the difference in the results is driven primarily by the selection of the remaining
20 component of the allocator—the customer component or annual throughput.
21 Table BEE-2 below illustrates how the use of one or the other can produce results
22 that vary widely. This table also illustrates why a single study should not be

1 relied on because no one study is the right study and the Customer-Demand and
2 Peak and Average Studies are, by their very nature, showing the bounds of
3 reasonableness.

4 **Table BEE-2**

5 **Mains Allocation Percentages**

	Total Co	RSS/RDS	SGSS/SCD/SGDS	SDS/LGSS	LDS/LGSS
OCA – Peak & Avg	100.00%	52.667%	22.044	8.57	16.719
I&E – Peak & Avg	100.00%	56.714%	22.120%	7.792%	13.374%
OSBA – Wtd Avg Peak & Avg and Cust/Demand	100.00%	61.460%	20.669%	6.872%	10.999%
CPA – Peak & Avg	100.00%	56.714%	22.120%	7.792%	13.374%
CPA – Cust/Demand	100.00%	75.694%	16.318%	4.113%	3.875%
CPA – Avg Study	100.00%	66.203%	19.219%	5.953%	8.625%

6
7 Because the residential rate class is the largest and would be expected to be
8 allocated the largest percentage of mains costs, my discussion will focus only on
9 that group. However, this is not meant to imply that the allocation factors
10 suggested for each of the other groups are not meaningful.

11 As can be seen from this table, the suggested mains allocation factors
12 range widely from a low of 52.667% to a high of 75.694%. The lowest is from the
13 OCA's Peak & Average Study, which produces an allocation factor based on an
14 equal weighting of throughput and demand, while ignoring the bifurcation of
15 mains by Columbia into four distinct pressure groups. The highest is from CPA's

1 Customer/Demand study based on cost causation, which includes a customer
2 component of mains instead of annual throughput which simply recognizes the
3 utilization of mains. Columbia's Customer/Demand study produces results that
4 establish the highest allocation factor for the residential class. Columbia provides
5 that study to establish the upper limits of the reasonable range. What is
6 surprising though is that the allocation factor proposed by the OCA falls well
7 below the range of reasonableness that has been produced by Columbia and well
8 below the minimum residential mains allocation factors proposed by any other
9 intervener in this case. Within this range is OSBA at 61.460%, which is based on
10 a 25% weighting of the customer component and a 75% weighting based on
11 annual throughput, and the other two Company studies—the Peak & Average and
12 the Average Study. As discussed earlier, Columbia is not proposing that the
13 Commission specifically adopts its Customer/Demand study, nor is it
14 recommending the Commission specifically adopt the Peak & Average study.
15 Instead, as can obviously be seen, these two studies establish a reasonable range
16 within which a mains allocation factor would be expected to lie. Indeed, to
17 simply choose an allocation method that either fully ignores annual throughput
18 or completely ignores the customer component should not be seriously
19 considered as fair and reasonable. For this reason, Columbia continues to
20 recommend the results of its Average Study as the study that should be
21 principally relied upon as a revenue allocation guide.

1 **Q. Does this complete your rebuttal testimony?**

2 **A.** Yes, it does.