Exhibit Number:	36
Issues:	Customer Class Cost of Service & Customer Rates
Witness Name:	Wendell R. Hubbs
Type of Exhibit:	Rebuttal Testimony
Sponsoring Party:	MoPSC Staff
Case Number:	WR-2003-0500 and WC-2004-0168
Date Testimony Prepared:	November 10, 2003

Missouri Public Service Commission

Utility Operations Division

Water & Sewer Department

Rebuttal Testimony

of

Wendell R. Hubbs

Case No. WR-2003-0500 & WC-2004-0168

Missouri-American Water Company

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Missouri-American Water Company

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November 2003

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the General Rate Increase for Water and Sewer Service Provided by Missouri-American Water Company	)))	Case No. WR-2003-0500
Staff of the Missouri Public Service Commission, Complainant, v. Missouri-American Water Company, Respondent	)))	Case No. WC-2004-0168

AFFIDAVIT OF WENDELL R. HUBBS

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Wendell R. Hubbs, of lawful age, on his oath states: that he has participated in the preparation of the foregoing testimony in question and answer form, consisting of 31 pages of testimony to be presented in the above case, that the answers in the foregoing testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true to the best of his knowledge and belief.

Wendell R. Hubbs

Subscribed and sworn to before me this 7th day of November, 2003.

DAWN L. HAKE
Notary Public – State of Missouri
County of Cole
My Commission Expires Jan 9, 2005

Dawn L. Hake
Notary Public

My commission expires

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REBUTTAL TESTIMONY
OF
WENDELL R. HUBBS

CASE NO. WR-2003-0500 & WC-2004-0168
MISSOURI-AMERICAN WATER COMPANY

Q. Please state your name and business address.

A. My name is Wendell R. Hubbs and my business address is Governor Office Building, Suite 500, 200 Madison Street, Jefferson City, Missouri 65101.

Q. Are you the same Wendell R. Hubbs who filed direct testimony in this case on behalf of the Missouri Public Service Commission Staff (Staff)?

A. Yes, I am.

Q. What is the purpose of this rebuttal testimony?

A. This testimony is presented to rebut the direct testimonies of the following witnesses: Missouri-American Water Company (Company) witness Paul R. Herbert; Company witness Edward J. Grubb; Office of the Public Counsel (OPC) witness James A. Busch; OPC Witness Barbara A. Meisenheimer; and Empire District Electric Company (Empire) witness Dennis Kalbarczyk.

CLASS COST OF SERVICE STUDY – COMPANY WITNESS HERBERT

Q. Did Company witness Herbert file a class cost of service study that is consistent with the American Water Works Association (AWWA) publication titled "Principles of Water Rates, Fees and Charges", which is normally referred to as the "AWWA M1 Manual"?

A. Except for a few areas of application, Mr. Herbert's class cost of service (COS) study was basically performed consistently with the principles contained in the AWWA M1 Manual. This testimony will discuss the major areas of impact upon the allocation of costs to the designated customer classes contained in his study with which I disagree with.

Q. On pages 3 and 4 of Mr. Herbert's direct testimony he explains the purpose of his cost allocation study and the method he used to perform his class allocations. Please respond to his purpose and method statements.

A. I agree that Mr. Herbert performed his class COS study for each of the existing customer classes in each of the districts. Also, his allocations of costs to customer classes, except in a few instances, are consistent with the base-extra capacity method as described in the AWWA M1 Manual.

Q. Where in Mr. Herbert's direct testimony is contained what you consider the first difference between your studies?

A. On page 6 of his direct testimony, Mr. Herbert explains the purpose of his cost allocation study, and explains that he classifies mains larger than 10-inch (12 inch and larger) as serving the transmission function and mains of 10-inch or smaller as serving the distribution function. Mr. Herbert then allocates transmission and distribution operation and maintenance expenses to maximum-day or maximum-hour functional factors, respectively, based on the length of pipe contained in each of these inappropriately titled categories.

Q. Please explain why you consider the titles inappropriate?

A. First, I am of the opinion that the classification of mains as either transmission or distribution based on their size, is inappropriate. All transmission and distribution mains used to provide water to the certificated service territory are used to transmit and distribute water to customers. If larger mains are used to directly serve customers, the main also has a distribution function. The distinction between major transmission facilities and local distribution lines is not sharp. In small utilities, an 8" main may be considered a part of the major transmission system, while in a large utility, a 12" main may be considered a local distribution line.[1] The distinction between transmission and distribution is not based on size, but rather on function.

Q. Where in Mr. Herbert's direct testimony is contained what you consider the first major difference in cost allocation between your studies.

A. On page 8 of his direct testimony, starting at his question 15, Mr. Herbert explains that he modified the base-extra capacity method of allocation.

Here Mr. Herbert explains that he has further modified the "Factor 4," which he explained earlier in his testimony. Mr. Herbert has modified "Factor 4" for three of the nine districts (the Joplin, St. Joseph and St. Louis districts). "Factor 4" is the maximum-hour allocator, which in both of our cost studies is used in total or in part to allocate transmission and distribution (T&D) main net plant return on and of investment and other related T&D costs. "Factor 4", the maximum-hour allocator, is used to allocate smaller T&D mains which are considered to be more of a function of hourly demand than are

[1] AWWA M31 Manual of Water Supply Practices– Distribution System Requirements for Fire Protection, page 33.

larger T&D mains. "Factor 3" of our studies is the maximum-day allocator, which is used to allocate the larger T&D mains.

Q. Please explain how Mr. Herbert modified "Factor 4" for these three districts.

A. Mr. Herbert modified the base-extra capacity study to exclude some large customers' consumption in the development of his "Factor 4" for certain large customers connected primarily to large mains. He states these large mains are commonly referred to as transmission mains.

Q. Please explain why Mr. Herbert modified "Factor 4" for these three districts.

A. Mr. Herbert made these modifications, which exclude consumption for certain large industrial and "sales for resale" customers, to recognize that certain industrial and sales for resale customers are connected directly to what he has categorized as the "transmission system". Because these customers are connected directly to the "transmission system", Mr. Herbert does not believe they receive a benefit from smaller distribution mains.

Q. Please explain why Mr. Herbert's development of "Factor 4" for these three districts is not appropriate to use for allocation of costs for existing customer classes.

A. If certain customers of a defined class have water usage characteristics that differentiate them from the other customers in that class, and if they are contained in an existing class, they should be further subdivided into separate classes to recognize the

factors that differentiate them from other customers with regard to cost responsibility.[2] Since the size of the main directly serving the customer appears to be the main service criteria for Mr. Herbert's differentiation of allocation of T&D costs to the customers, the existing industrial class should be broken into two different classes. The first class being defined as "industrial customers who are served directly from T&D mains of 10" or greater" and the second class being defined as "industrial customers who are served directly from T&D mains of 8" or less."

Once these new classes are determined valid, they should be added to the class list and costs should be allocated on the base-extra capacity method, as they are to the other valid classes of service. Mr. Herbert did not perform this class redesign. He instead performed partial elimination of cost from the existing industrial class as a whole. By not performing the redesign and related subsequent allocations, he is combining customers whose water usage characteristics are different enough that Mr. Herbert has differentiated them from other customers in the existing class.

Q. Are you of the opinion that the redesign of the industrial class into the two classes, as you have defined above, is valid based on the usage characteristics of main size directly serving the industrial customer for the districts of St. Joseph, Joplin and St. Louis?

A. I am of the opinion that such allocations can be valid. If the Company has determined that the allocation of T&D main costs to customers should be accomplished by allocating costs based on what size main the customer is directly served by, then should all customers of each class should be afforded such allocation based on this usage

[2] AWWA M1 Manual – Principles of Water Rates, Fees and Charges, page 64.

criteria, not just two classes? In other words, should customers served directly by 36" mains only be allocated T&D costs related to 36" mains and not be required to pay costs related to all smaller mains, should customers served directly by 24" mains only be allocated T&D costs related to 24" mains and not be required to pay costs related to all smaller mains, and should customers served directly by 18" mains only be allocated T&D costs related to 18" mains and not be required to pay costs related to all smaller mains, etc? This type of uniform application of the limiting T&D main allocation related to the size of main the customer is directly served by has not been consistently applied to any of the existing classes. This being said, limited segregation of the existing class into new classes based on T&D main size usage can still be a more appropriate way to allocate costs.

Q. Mr. Hubbs, does the base-extra capacity method of allocation consider appropriate the non-allocation of some facilities not used by a certain class of customer?

A. Yes, it does. It recognized that certain service characteristic differences like the non-use of some system facilities by larger customers must sometimes be considered when establishing customer classes and their costs of service.[3] Creation of a separate class representing large industrial customers and subsequent non-allocations of smaller main costs can be appropriate in the base-extra capacity method of cost allocation to customers.

Q. Mr. Hubbs, as he explains on page 8 of his direct testimony, Mr. Herbert has also modified his "Factor 4" allocator for the "sales for resale"

[3] AWWA M1 Manual – Principles of Water Rates, Fees and Charges, page 63.

customers for these same three districts. Do you believe that the "sales for resale" customers should also be redefined into groups like the industrial customers and allocated cost based on the size of main from which they are directly served? Please explain your answer.

A. Although it may be true that certain large "sales for resale" customers may not use smaller T&D mains (8" and below), smaller "sales for resale" customers currently in the "sales for resale" class would use the small mains. Because of the same arguments as presented above for the industrial customer classes, dividing the current "sales for resale" class into redefined classes may be a valid consideration.

But, in conjunction with the decision to create a large and small "sales for resale" class, it would also be appropriate to question the level of large T&D mains costs to allocate to the newly formed classes. The base-extra capacity method of cost allocation results in the costs related to the large T&D mains based on usage of the average lengths of mains serving all customers. If the large "sales for resale" customers are located on the outskirts of the districts' distribution systems, although they are not using the small T&D mains, they could be using the larger T&D mains at much greater than the average length of large T&D main embedded in the base-extra capacity allocation methodology. When a large "sale for resale" customer is at the outskirts of the distribution system, he may be the reason that larger T&D mains were built instead of smaller T&D mains. Smaller T&D mains could have served smaller customers absent the large "sale for resale" customer. This above average use of the large T&D mains required to serve the new large "sale for resale" class located on the outskirts of the district's distribution system would require allocation of additional large T&D mains cost associated with the

use above average of the large T&D mains. Such additional costs related to large T&D mains usage and causation would need to be shifted to this large "sale for resale" class.

The base-extra capacity allocation method allocates all T&D mains costs on a system basis to established classes. If the established "sales for resale" class has customers located throughout the distribution system that do not use smaller T&D mains, then I would support not allocating the costs associated with smaller T&D mains to the established class. Where an established "sales for resale" class uses smaller T&D mains to serve customers, the allocation on a system basis should be accomplished.

Q. Mr. Hubbs, beginning on page 9 of his direct testimony Mr. Herbert explains how he modified the allocation of small mains in the three districts. Please address each district treatment he presents.

A. Mr. Herbert first discusses the modification to the industrial customers in the **Joplin operating district**. Mr. Herbert here modifies his second definition of the "Factor 4" allocator by not only eliminating sales of customers who are served directly from larger T&D mains, but also eliminating the sales of one customer served directly from an 8" T&D main who is located a short distance from 12" and 16" T&D mains. With this new modification he reduces the allocation of cost to existing industrial customer class based on newly modified service characteristics. If he created a new customer class based on the modified service characteristics as described by the base-extra capacity method of cost allocation, it would be defined as an industrial customer that is served by mains greater that 10" except for one customer who is served by an 8" line that is located a short distance from 12" and 16" mains. He has decided to give

preference to this one customer by not allocating any of the smaller mains costs related to the plant he is using.

By not creating separate industrial classes based on their service characteristics, Mr. Herbert combines the costs for the differentiated customers in his study. Different costs of service for the two classes of differentiated services needs to be maintained to assure appropriate recovery from each differentiated service class.

Mr. Herbert next discusses the modification to the industrial and "sales for resale" customers in the **St. Joseph operating district**. He explains that the five largest industrial accounts are served from mains 12" and larger, and that their test year consumption was excluded from the development of "Factor 4". This factor development is consistent with his second modification definition, not his third. Again, certain service characteristic differences like the non-use of some system facilities by larger customers must sometimes be considered when establishing customer classes and their costs of service.[4] Creation of a separate class representing large industrial customers and subsequent non-allocations of smaller main costs can be appropriate in the base-extra capacity method of cost allocation to customers.

Mr. Herbert also states that in the **St. Joseph operating district** that the six largest "sales for resale" accounts are served from mains 12" or larger and that test year consumption of these customers was excluded in the development of "Factor 4". Again, certain service characteristic differences like the non-use of some system facilities by larger customers must sometimes be considered when establishing customer classes and

[4] AWWA M1 Manual – Principles of Water Rates, Fees and Charges, page 63.

their costs of service.[5] Creation of a separate class representing large "sales for resale" customers and subsequent non-allocations of smaller main costs can be appropriate in the base-extra capacity method of cost allocation to customers.

Again, in conjunction with the decision to create a large and small "sales for resale" class, it is appropriate to question the level of large T&D mains costs to allocate to the newly formed classes. The base-extra capacity method of cost allocation results in the costs related to the large T&D mains based on average lengths of mains serving all customers. If the "sales for resale" customers connected to the larger T&D mains are located far way from the treatment plant or a purchased water delivery point, on the outskirts of the districts' distribution systems, although they are not using the small T&D mains, they could be using the larger T&D mains at much greater than the average length of large T&D main embedded in the base-extra capacity allocation methodology. When a large "sale for resale" customer is located at the outskirts of the distribution system located far way from the treatment plant or purchased water delivery point, he may be the reason that the larger T&D mains were built instead of small T&D mains. Smaller T&D mains could have served smaller customers absent the large "sale for resale" customer. This above average investment and use of the large T&D mains required to serve this large "sale for resale" class so located would require allocation of additional large T&D mains costs associated with the use above average of the large T&D mains. Such additional costs related to large T&D mains usage and causation would need to be shifted to this large "sale for resale" class.

[5] AWWA M1 Manual – Principles of Water Rates, Fees and Charges, page 63.

Mr. Herbert next discusses the modification to the industrial and "sales for resale" customers in the **St. Louis County operating district.** Mr. Herbert states that sales from all "sales for resale" customers are served from T&D mains of 10" or larger and were therefore excluded from the "Factor 4" allocator. In analyzing the location of these customers on the distribution system, it appears that the exclusion of these customers from allocation of small T&D main related costs is appropriate. Also, the customers being served from the larger T&D main are already segregated as a separate class of customers.

Mr. Herbert then discusses the **St. Louis County operating district's** industrial rate classification, "Rate J". Mr. Herbert states that an analysis was performed to determine the size main that each "Rate J" customer is served from. The analysis showed that of the 215 "Rate J" customers, 112 customers are connected to 12" mains or larger. The remaining 103 customers are connected to T&D mains 10" or smaller. Mr. Herbert defines the service characteristics for the 112 customers connected to the 12" or larger mains to justify the elimination of costs related to smaller T&D mains. Mr. Herbert has redefined what constitutes "transmission lines". This time smaller T&D mains are redefined 10" or smaller rather than 8" or smaller. As a redefined class, the creation of a new large class based from customers directly served from a 12" line or larger can still be a valid designation.

Mr. Herbert then states that the analysis shows that although certain "Rate J" customers are connected to smaller mains, the length of those mains is only a small fraction of the total length of the system's distribution mains. As a redefined class of industrial customers, the partial use of the smaller T&D main system can be a valid

allocator of the smaller T&D main system. Footage of smaller T&D mains should not be used as the basis for cost allocation. What should be used as the allocator is the cost of the small T&D main system used by the industrial customers that are served off of the small T&D mains. It would make sense that many of industrial customers would be using the larger more expensive "smaller T&D mains" and that the cost of the smaller T&D mains used to serve this redefined class in proportion to the total cost of the smaller T&D mains would be a more valid allocator. The allocation of a portion of the smaller main costs to the redefined industrial customer directly served from the smaller T&D mains based on the relative cost of the T&D mains that are used by this industrial class can be a valid method of allocation.

Based on the Company's analysis for both types of industrial customers' service characteristics, 10% of the "Rate J" consumption was used in the "Factor 4" computation. Based on Mr. Herbert's stated service characteristics, two new classes of customers should have been created and no costs for the smaller T&D mains should have been assigned to the Industrial customers directly connected to the larger T&D mains. A partial allocation of mains costs should have been assigned to the industrial customers who are directly served from the 10" and smaller mains based on the cost of such mains used by those customers in relation to the total 10" and smaller mains. This smaller industrial customer class should be allocated this portion of the costs and such costs should be recovered in their rates. The 10% allocation of Rate J consumption for the existing class allocates these costs to all customers of the existing industrial class.

Q. Mr. Hubbs, what is another major issue related to the cost allocation to classes that you have with Mr. Herbert's study?

A. On page 6 of his direct testimony Mr. Herbert explains that for the allocation of operation and maintenance expenses related to T&D mains ("Factor 7"), he allocated the costs to the maximum-day and maximum-hour allocators based on the relative weighting of the footage of his large T&D main group (what he calls "transmission mains") and his smaller T&D mains group (what he calls "distribution mains".) I am of the opinion that T&D mains operations and maintenance cost responsibility is not a function of the footage the two groups. Mr. Herbert's per foot weighting assumes that it takes the same weighted portion of cost to operate and maintain a foot of 36" main as it does a foot of 4"main. Without direct allocation of T&D main O&M costs to the two different large and smaller main groupings, it makes more sense that the cost allocation responsibility be weighted by the net plant investment of the two different sized mains.

Weighting for the two groups of mains is dramatically different depending on the basis for that weighting. As an example, in the St. Joseph district using the feet of mains in the two groups of T&D main sizes, Mr. Herbert has allocated 80.63 percent of the total T&D operations and maintenance costs to the smaller T&D mains (8" and smaller in this district) and 19.37 percent of the total T&D operations and maintenance expense to the larger T&D mains (10" and greater.) If the net plant investment value for each of the sized main groups is used as the basis for the allocation, 27.85 percent of the total T&D operations and maintenance costs goes to the smaller T&D mains (8" and smaller in this district) and 72.15 percent of the total T&D operations and maintenance expense goes to the larger T&D mains. This means that 72.25 percent of the investment in T&D mains is related to the larger T&D mains. Although neither basis probably has a direct correlation

to the operation and maintenance expense actually incurred, I am of the opinion that the cost of investment of mains is a better allocation basis than the footage of mains.

Q. Mr. Hubbs, what is the other major issue related to the cost allocation to classes that you have with Mr. Herbert's study?

A. On page 8 of his direct testimony, in the question and answer numbered 14, Mr. Herbert explains the factors he considered in estimating the maximum-day extra capacity and the maximum-hour extra capacity factors used to perform the classification portion of the allocation factors 2, 3, and 4. I am of the opinion that the "sales for resale" factors that he uses in his study, 0.6 for the maximum-day extra capacity factor and 2.0 for the maximum-hour extra capacity factor, are grossly understated for most of the districts.

Q. Please explain why you are of the opinion that Mr. Herbert's class allocation factors for "sales for resale" customers are grossly understated.

A. The maximum-day extra capacity factors are used to develop the maximum-day extra capacity rate of flow for each defined customer class. These flow rates are then used to allocate appropriate costs. Mr. Herbert uses a factor of 1.0 for the residential class of customer. This means that on a maximum day, the residential class will consume twice its yearly computed daily average consumption. Mr. Herbert's study assigns maximum-day factors of 0.8 for commercial and other public authorities and a maximum-day factor of 0.5 for the industrial class. For the "sales for resale" class Mr. Herbert assigns a factor of 0.6.

I disagree with Mr. Herbert's measure of maximum-day over average usage factor of 0.6 for the "sales for resale" class, whose customers are essentially residential in nature

from a usage perspective. With the use of this factor, Mr. Herbert is assigning demand characteristics to this class that are below commercial and other public authorities and that are close to the demands of industrial customers. I do not believe that the maximum-day demand of the "sale for resale" class is more similar to the industrial class demands than it is to the residential class demands. I have used a maximum-day factor of 0.9 in my study to represent a demand closer to what I know the "sales for resale" systems' residential end-users would actually be using. I did not make my "sales for resale" factor equal to the residential factor of 1.0 to account for possible commercial type usage on the "sales for resale" customer's own distribution system.

I also disagree with Mr. Herbert's use of his maximum-hour extra capacity factor for the "sales for resale" customer class. Mr. Herbert uses a factor of 3.5 for the residential class of customer. This means that the residential class will consume approximately three and half times the capacity over its hourly average consumption during a maximum hour take. Mr. Herbert's study assigns maximum-hour factors of 2.8 for commercial and other public authorities and a maximum-hour factor of 1.5 for the industrial class. For the "sales for resale" class Mr. Herbert assigns a factor of 2.0.

I disagree with this measure of maximum-hour over average hourly usage factor because the "sales for resale" classes in most districts consist of customers who resale is mainly to residential customers. With the use of this factor, Mr. Herbert is assigning demand characteristics to this class that are much below commercial and other public authorities and that are closer to the demands of industrial customers. I do not believe that the maximum-hour demand of the "sale for resale" class is more similar to the industrial class demands than it is to the residential class demands. I have used a

maximum-hour factor of 3.2 for the "sales for resale" class in my study to represent a demand closer to what I know the "sales for resale" systems' residential end-users would actually be using. I did not make my "sales for resale" factor equal to the residential factor of 3.5 to account for possible commercial type usage on the "sales for resale" customer's own distribution system.

RATE DESIGN – COMPANY WITNESS HERBERT

Q. Please speak to Mr. Herbert's agreement with the Company's guidelines he was given to affect the design of rates.

A. On page 11 of his direct testimony, starting with the answer to question 20, Mr. Herbert provides the list of guidelines that the management of the Company provided him to guide his design of rates.

The first is to maintain district specific pricing for each district's rate structures. I agree with this guideline since the Commission approved such in the Company's last general rate proceeding.

The second guideline is to determine a per-unit cost so that public fire protection costs can be recovered from each customer in a similar manner as the current practice in St. Louis County. I disagree with this guideline and will discuss such later in this testimony.

The third is to design a rate structure for St. Charles that is similar to St. Louis County. I do not believe that this has been accomplished and do not agree with the concept. I will discuss this guideline later in this testimony.

The fourth is that for all other districts; use a one-block structure for the residential class and tow-to four-block structure for non-residential customers

The fifth to design minimum charges and volumetric relates so that proposed revenues by customer classification move toward the indicated cost of service in each district.

Q. Please speak to Mr. Herbert's proposed minimum charges for each of the districts.

A. On page 12 of his direct testimony, Mr. Herbert explains his thought process on how he set the minimum charge for each of the districts. Mr. Herbert explains that he has determined the customer related costs for each district, but did not use the class customer related costs per district developed from his class cost of service study for setting these customer related costs. Mr. Herbert's study performed the appropriate allocation of customer related costs, but then he did not use the results of that study to recover the costs on a per customer basis. The customer-associated costs are different for each operating district and he should have set the recovery of customer costs consistent with the results of the study, as I have done. Movement to cost of service for customer costs needs to be accomplished. Absent recovery of appropriate customer costs consistent with the COS study; shortfalls in the recovery of costs caused by inadequate rates will be recovered in the commodity charge. This action has the affect of shifting this customer charge cost responsibility to customers who use more water. If rates are designed to recover the total allocated cost of service to the specific class, the net increase or decrease to the class will be the same, with the only difference being each customer paying its appropriate cost of service. The Commission should order the full customer costs per meter size be implemented in rates to appropriately recover costs consistent with each districts class cost of service study, not as Mr. Herbert has proposed.

Q. Please address Mr. Herbert's proposed determination of volumetric charges that starts on page 13 of his testimony.

A. Mr. Herbert explains that he has proposed a single volumetric rate for the **residential** classification in each district, except St. Charles and St. Louis. He explains that this is a proposed change from the existing declining block structure for residential customers, and that it recognizes that large residential users do not have favorable load factors and should not pay less for their usage than small users. I agree with the concept of charging the same uniform commodity rate to customers in a designated class. Such is consistent with the results of the base-extra capacity allocation method of cost allocation. It is consistent in that the affects of load factors by class are applied in the study on a per class basis. Load factor has been given its weight in the allocation of costs to the class. This weighting is affected by the extra capacity factors being given to each class. I agree with Mr. Herbert in that large users do not necessarily have better load factors than smaller customers. If after the application of the base-extra allocation method to a class occurs, a declining block structure is applied to the customers, it yields recovery of a cost of service for the larger customers that is below that of smaller usage customers. Absent other reasons for charging more of the class allocated costs to smaller use customers and less of the class allocated costs to larger use customers, there is no reason besides anti-conservation of providing the larger customers in an appropriately defined class a volumetric price break. If a class of customers needs to be further differentiated to affect load factor, then a separate class should be created and the separate load factor determinations need to be made related to each newly created class.

With regard to the St. Charles and St. Louis County districts' residential rates, the St. Louis County district's existing rates combine the cost of service study for the residential and commercial classes of customers. I am of the opinion that instead of combining the classes for rate recovery consistent with the St. Louis County district, as Mr. Herbert has done, that the St. Charles district's rates should be determined by class consistent with the base-extra capacity allocation method's allocated residential and commercial costs of service.

With regard to the St. Louis County district's rates, I recommend that the Commission order the Company to segregate its Rate A customers into Residential and Commercial in its next general rate case. The reason for this recommendation is that the demonstrated demands related to residential and commercial customers are different and that a measured loading difference and cost allocation to differentiated class will affect recovery more consistent with the class load factor differences. With regard to this rate case, I recommend a rate design consistent with the minimum customer charges being priced at the full cost of service, with the remaining costs being spread to customers on the resulting single per unit commodity rate.

Q. Please address Mr. Herbert's proposed determination of non-residential volumetric charges that he explains on page 13 of his direct testimony.

A. Mr. Herbert explains that for non-residential customers he is proposing a two, three or four block declining block commodity design. He has set the initial block equal to the residential rate and the remaining blocks are designed to move revenue recovery toward or equal to the cost of service for that block.

For the **Commercial class** of customers, the Company has proposed a two-tier declining block for all districts except the St. Louis County and the St. Charles districts, where they are proposing a uniform commodity rate to be applied to all volumes.

There are no reasons provided in Mr. Herbert's testimony as to why he chose a two-tier declining block for commercial customers in most of the districts and a uniform (single) commodity rate for the other two. If the reason he is implementing the two-tier rate for some of the districts is related to the reason he stated he is proposing to eliminate the existing declining blocks for the residential class (to recognize favorable load factors for larger customers), then I am of the opinion that some measurable level of increased usage yielding more favorable load factors needs to be demonstrated. Small customers can have much more favorable load factors than large customers. Looking at the proposed commodity rates generated by Mr. Herbert's rate block determinations for commercial customers in the Mexico district, the first block is set at $4.0140 per Mgallon for the first 100 Mgallons. The second block is set at $1.5000 per Mgallon for all usage over 100 Mgallons. This rate equates to a small commercial customer with a better than average load factor being exposed to paying twice the cost per unit of water than the volumetric rate of a large commercial customer with a worse than average load factor. This design does not represent an equitable recovery of the costs related to the load factor affected inside of the class. Uniform commodity rates are more equitable because customers pay the same unit price for water service as other members of the defined class.

With regard to the commodity rate for commercial service to be used in the St. Charles district for commercial service, I agree with Mr. Herbert that one commodity rate

should be used, but I am of the opinion that the commodity rate should be determined from the actual cost of service remaining to be recovered after customer charge revenues have been subtracted.

The effect of Mr. Herbert's rate design for the St. Charles district is that cost of service differentials for the residential and commercial classes have been determined by his COS study and subsequently ignored in designing rates by charging both customer classes the same customer charge and the same single commodity rate.

Q. Please discuss the multiple designed industrial class volumetric rates that Mr. Herbert has proposed for the industrial customers in each of the districts.

A. In the St. Louis and St. Charles districts, Mr. Herbert has proposed a single commodity rate for the industrial class. I agree with the design of a single rate for all industrial customers. Mr. Herbert's design for the St. Charles district has assigned the same commodity rate for the industrial customer class as the residential and commercial customer classes. Again, the commodity rate for each district should be computed from the actual cost of service of the specific district's industrial class remaining to be recovered after class customer charge revenues have been subtracted, to recover the allocated cost of service to the class generated by the study.

In the Jefferson City district, Mr. Herbert is proposing an industrial rate design based on a two-tier commodity charge design. In the Mexico and St. Joseph districts he is proposing a three-tier commodity charge design. In the remaining districts he is proposing a four-tier commodity charge design.

As I explained previously in this testimony, addressing the proposed commercial tier design, these multiple tier designs do not represent an equitable recovery of cost

related to load factor affected inside of the class. Uniform commodity rates are more equitable because customers pay the same unit price for water service as other members of the defined class. I am of the opinion that the single commodity rate for the industrial class of customers, which Mr. Herbert has proposed in two of the Company's districts, should be used for all the districts. Again, consideration of the daily and hourly load factors have been afforded the industrial class with the base-extra capacity method allocations performed by Mr. Herbert and myself.

Q. Please discuss the multiple designed "Other Public Authority" (OPA) class volumetric rates that Mr. Herbert has proposed for the OPA customers in each of the districts.

A. In the St. Louis County district there is no OPA designated class. These customers most probably are contained in the "Rate A" class, a class for which Mr. Herbert has proposed a single commodity rate.

In the St. Charles district, Mr. Herbert has proposed a single commodity rate for the OPA class. I agree with the design of a single rate for all OPA customers. Again, the commodity rate for each district should be computed from the actual cost of service of the specific district's OPA class remaining to be recovered after class customer charge revenues have been subtracted, to recover the allocated cost of service to the class by the study.

In the Jefferson City district, Mr. Herbert is proposing an OPA rate design based on a two-tier commodity charge design. In the Mexico and St. Joseph districts, Mr. Herbert is proposing a three-tier commodity charge design. In the remaining districts he is proposing a four-tier commodity charge design.

As I explained previously in this testimony addressing the proposed commercial and industrial tier designs, these multiple tier designs do not represent an equitable recovery of cost related to load factor affected inside of the class. Uniform commodity rates are more equitable because customers pay the same unit price for water service as other members of the defined class. I am of the opinion that the single commodity rate for the OPA class of customers, which Mr. Herbert has proposed in the St. Charles district, should be used for all the districts. Again, consideration of the daily and hourly load factors have been afforded the OPA class with the base-extra capacity method allocations performed by Mr. Herbert and myself.

Q. Please discuss the multiple designed "Sales for Resale" class volumetric rates that Mr. Herbert has proposed for the "Sales for Resale" customers in each of the districts.

A. In the St. Louis County and St. Charles districts, Mr. Herbert has proposed a single commodity rate for the "Sales for Resale" class. I agree with the design of a single rate for all "Sales for Resale" customers. In the Jefferson City district, Mr. Herbert is proposing a "Sales for Resale" rate design based on a two-tier commodity charge design. In the Mexico and St. Joseph districts he is proposing a three-tier commodity charge design. In the remaining districts he is proposing a four-tier commodity charge design.

As I explained previously in this testimony addressing the proposal for all of the other class tier designs, these multiple tier designs do not represent an equitable recovery of cost related to load factor affected inside of the class. Uniform commodity rates are more equitable because customers pay the same unit price for water service as other

members of the defined class. I am of the opinion that the single commodity rate for the Sales for Resale class of customers, which Mr. Herbert has proposed in the St. Louis and St. Charles districts, should be used for all the districts. Again, consideration of the daily and hourly load factors have been afforded the Sales for Resale class with the base-extra capacity method allocations performed by Mr. Herbert and myself.

Q. Please address Mr. Herbert's proposal for the recovery of Private Fire Costs.

A. On page 13 of his direct testimony, in the answer to question number 25, Mr. Herbert addresses his rate design proposals for the recovery of private fire charges. Mr. Herbert states that in most districts, the existing private fire rates exceed the costs of service. Instead of reducing the private fire rates to reflect the cost of service generated by his study, he is proposing no changes to their rates at this time. Existing rates should be adjusted to recover their cost of service. It is not equitable to these customers to overcharge them on purpose. The private fire rates should be adjusted to recover the allocated cost of service resulting from the base-extra capacity cost study.

Q. Please address Mr. Herbert's proposal for the recovery of Public Fire Costs.

A. On page 14 of his direct testimony, in the answer to question number 26, Mr. Herbert addresses his rate design proposals for the recovery of public fire charges. Mr. Herbert states that he is proposing to create a public hydrant charge and recover this charge on a per customer basis for each district as a separate charge in a similar manner as the existing practice in St. Louis County.

Pursuant to the proposed tariff language for the districts, this charge will be made to all residential, commercial, industrial and public authority customers on a per customer basis. The existing and proposed tariff language contains an automatic adjustment clause, which can increase or decrease the billed cost of fire service to a customer's bill based on the change in the total number of hydrants in service and/or the total number of customers. The per hydrant charge for public fire service shown of the proposed tariff sheet is not actually the charge a customer will pay for the public fire service. The actual rate to be charged has to be computed based on the number of hydrants in service and the total number of customers being served. I am of the opinion that it is necessary and appropriate to set the actual rate that each class of customer is responsible to pay for this service in the context of a general rate case. Mr. Herbert's proposal does not do such. If the customer's rates need to be changed, such should be accomplished pursuant to a rate case before the Commission. This is the first automatic adjustment clause whereby customer rates (the rates the customers are ultimately charged) can be changed without specific Commission approval. The proposed tariff sheet does not set a specific rate for customers and in fact allows for the modification of the rate for this service based on the variables of the number of fire hydrants in service and/or the number of customers at different dates in the future.

I also disagree with the recovery of public fire protection cost on a per customer basis as proposed by Mr. Herbert. It is my opinion that recovery of the public fire protection costs should be recovered based upon the benefit received by the Company's customers. As a result, it does not seem to me that a flat, per customer charge is appropriate, since the benefit of fire protection obviously varies from customer to

customer. I am of the opinion that a customer using 50,000 gallons of water a month most likely has facilities that are more valuable than a customer using 5,000 gallons per month. Because of this, I am of the opinion that a usage charge is a more appropriate recovery mechanism than recovery on a per customer basis.

Current tariffed rates for public fire service in every district but the St. Louis County district are recovered on a per sales unit basis as I am proposing. The recovery of public fire service costs is done with the automatic adjustment clause on a per customer basis.

I have recommended that the St. Louis County district public fire protection costs be recovered consistent with the other districts, on a per sales unit basis.

COST-OF-SERVICE & RATE DESIGN – COMPANY WITNESS GRUBB

Q. Are there some areas contained in Company witness Grubb's direct testimony that you wish to address?

A. Yes, there are. The first area I would like to speak to starts on page 33 of Mr. Grubb's direct testimony under the title "(13) Revenue Contribution Between Districts." Mr. Grubb is proposing that St. Louis pay for some part of the allocated cost of service from the Brunswick, Mexico, Parkville Water, St. Joseph and Warrensburg districts. Mr. Grubb states that in the Company's last rate case the Commission identified $880,000 of revenue to be contributed from one district of the Company to six other districts. My recollection of the Commission action was that it decided that Joplin district's cost of service was not going to be reduced during a period when such major increases were occurring in other districts. In my opinion this was a single case decision and was not a long-term policy decision of the Commission. I therefore am of the

opinion that reducing the current cost of service levels of the Brunswick, Mexico, Parkville Water, St. Joseph and Warrensburg districts and having the customers of the St. Louis County district subsidize such reductions for the purpose Mr. Grubb states in his direct testimony is not appropriate.

Q. Is there an area regarding rate design contained in Mr. Grubb's direct testimony that you wish to address?

A. Yes, there is. I have addressed the rate design changes "highlighted" on page 35 of his testimony in my rebuttal of Mr. Herbert's testimony.

Q. Is there an additional area contained in Mr. Grubb's direct testimony that you wish to address?

A. Yes, there is. The company is proposing to change its charge for the installation of service lines. The Staff does not oppose the proposed increases to these charges.

COST-OF-SERVICE & RATE DESIGN – OFFICE OF THE PUBLIC COUNSEL

Q. Do you have an area of concern regarding the cost-of-service study performed by the OPC? Please explain.

A. Yes, I do. OPC witness Busch, on page 5 of his direct testimony, starting at line 17, explains that he modified his cost allocation study to utilize the same economies of scale factor developed by Ms Hong Hu in Case No. WR-2000-281. The Commission rejected the used of this modification of the base-extra capacity allocation method in this past case.

Q. Do you agree with OPC's "economies of scale adjustment" to the base-extra capacity allocation method as contained in the testimonies of OPC witnesses Busch and Meisenheimer?

A. No. Although scale economies exist, what is termed extra capacity in the Base-Extra Capacity Method of class cost-of-service allocation is essential to providing service to all customers. This extra capacity is not extra in that it is not needed; it is extra in that it is the amount of capacity over average flows. The entire system is needed to supply water service, both base and extra capacity.

OPC "economies of scale adjustment" modifies each class' usage characteristics based on the "square root" of the maximum-day and maximum-hour capacity factors. This equates to modifying the actual usage patterns of the different classes, overstating the actual class use of the system for base usage and understating the actual class use of the system for extra-capacity use.

Allocation of costs under a hypothetical scenario that shows that a base system would have cost more if it had been built by itself, overlooks the fact that the Company builds most of its facilities at the same time to handle the loads that include both the base capacity (average usage) and extra capacity (that capacity over average usage). This scenario also overlooks that no one would design and build a base capacity facility for a utility supplying any type of normal customers. It is not logical to assign more value to the base component of cost of supplying average supply because a certain size of pipe that was not built, nor would ever have be designed to be built, would have cost proportionally more if the system had not been built the way it was. Allocation of the

cost of facilities based on class usage and capacities is more logical than shifting cost based on a plant scenario that would never have been designed and built.

OPC's allocation makes the hypothetical assumption that a base system is priced out as if it had been built by itself, without the capacity needed to provide adequate service over this average flow. OPC's economies-of-scale allocation then reduces the extra capacity allocator, shifting costs to the base capacity function.

The extra capacity factors contained in the OPC's study are inconsistent with those contained in the AWWA's M1 Manual.

Q. Mr. Hubbs, please address Ms. Meisenheimer's rate design proposals.

A. Ms. Meisenheimer on page 13 and 14 of her direct testimony explains her rate design proposals. I agree that the minimum usage component of the customer charges for the Jefferson City District should be removed.

I disagree that the existing meter (customer) charges should not be altered. These charges should be set at the rates generated by the customer related cost accumulations in the base-extra capacity COS study approved by the Commission.

Contrary to her proposal to temper rate increases of more than 15%, I am of the opinion that the fully allocated rates generating the total cost of service for each district should be implemented. I do agree that Brunswick should not be taken to its total cost of service, but such rates increases should be gradually increased until the COS study rates are finally realized.

On page 10 of her testimony, starting with line 15, Ms. Meisenheimer recommends that maximum class revenue shift of one half within each district. This would equate to COS results never being reached. I recommend that the rates generated

in each district for each class be implemented in each district so that customer are paying their determined cost of service without being subsidized by others.

COST-OF-SERVICE & RATE DESIGN – EMPIRE DISTRICT ELECTRIC

Q. Please address the direct testimony of Empire witness Kalbarczyk.

A. Mr. Kalbarczyk filed testimony for the Empire District Electric Company seeking the Commission's approval of an industrial interruptible rate in the Joplin district.

Q. Did Mr. Kalbarczyk's testimony seeking Commission establishment of an industrial interruptible rate surprise you?

A. Yes, it did. What surprised me the most is that the Company and Empire have entered into a "contract" to provide a type of service that the Commission has not approved. I cannot find in the Commission approved service tariff sheets for the Joplin area where the Company is authorized to require Empire to enter into a service agreement that includes a minimum annual revenue charge and which provides for "liquidation of damages" if Empire terminates the service agreement. I was surprised that the Company signed a contract to provide limited service and did not come to the Commission to seek a more appropriate rate. The Company has brought other such special contracts and rates to the Commission for approval, and I do not understand why they did not seek approval of this contract. I question whether a contract modifying the service characteristics of a customer is valid without Commission approval.

Q. Are you of the opinion that any party just hearing about this request for a lower contractual rate has adequate time to review the proposal?

A. No, I do not. For other special contracts the reviews of the proposals can, and usually do, take months to investigate and process. The Staff has not had the resource or time since the filing of the direct testimonies in this case to see whether they could even support approval of the proposed contractual service much less attempt to set a rate for such a service. I recommend that the Commission not approve an interruptible rate or the special contract between Empire and the Company, until such time that the two file for approval of the special contract service and the resulting proposed rates that should be charged for such service.

The Staff will have no problem processing such a special service contract and has recommended Commission approval of special service contracts in the past.

The tariff class Mr. Kalbarczyk is proposing is only for one customer and rates for service should be of a special tariffed rate instead of being applicable to a class of similar customers.

Q. Does this conclude your pre-filed rebuttal testimony in this case?

A. Yes, it does.