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Issue(s): Class Cost of Service/ Single Tariff Pricing/ District Specific Pricing/ Rate Design
Witness/Type of Exhibit: Meisenheimer/Direct
Sponsoring Party: Public Counsel
Case No.: WR-2011-0337

DIRECT TESTIMONY

OF

BARBARA A. MEISENHEIMER

Submitted on Behalf of
the Office of the Public Counsel

MISSOURI AMERICAN WATER COMPANY

Case No. WR-2011-0337

December 12, 2011

DPC Exhibit No. 4
Date 2-21-12 Reporter JL
File No. WR-2011-0337

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Missouri-American Water Company's Request for Authority to Implement a General Rate Increase for Water and Sewer Service Provided in Missouri Service Areas.	)))))	**Case No. WR-2011-0337**

AFFIDAVIT OF BARBARA A. MEISENHEIMER

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Barbara A. Meisenheimer, of lawful age and being first duly sworn, deposes and states:

1. My name is Barbara A. Meisenheimer. I am a Chief Utility Economist for the Office of the Public Counsel.

2. Attached hereto and made a part hereof for all purposes is my direct testimony.

3. I hereby swear and affirm that my statements contained in the attached affidavit are true and correct to the best of my knowledge and belief.

Barbara A. Meisenheimer

Subscribed and sworn to me this 12th day of December 2011.

KENDELLE R. SEIDNER
My Commission Expires
February 4, 2015
Cole County
Commission #11004782

Kendelle R. Seidner
Notary Public

My commission expires February 4, 2015..

DIRECT TESTIMONY

OF

BARBARA A. MEISENHEIMER

MISSOURI AMERICAN WATER COMPANY

CASE NO. WR-2011-0337

Q. PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.

A. Barbara A. Meisenheimer, Chief Utility Economist, Office of the Public Counsel (OPC or Public Counsel), P O Box 2230, Jefferson City, Missouri 65102.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL AND EMPLOYMENT BACKGROUND.

A. I hold a Bachelor of Science degree in Mathematics from the University of Missouri-Columbia (UMC) and have completed the comprehensive exams for a Ph.D. in Economics from the same institution. My two fields of study were Quantitative Economics and Industrial Organization. My outside field of study was Statistics. I have taught economics courses for the University of Missouri-Columbia, William Woods University, and Lincoln University, mathematics for the University of Missouri-Columbia and statistics for William Woods University.

Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE THE COMMISSION?

A. Yes, I have testified on numerous issues before the Missouri Public Service Commission (PSC or Commission).

Q. WHAT IS YOUR PREVIOUS EXPERIENCE IN THE PREPARATION OF CLASS COST OF SERVICE STUDIES?

A. I have prepared or supervised the preparation of cost studies on behalf of Public Counsel for over 15 years. These include class cost of service studies related to natural gas, water and electric utilities, and cost studies related to telecommunications services.

Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE THE COMMISSION ON WATER RELATED COST OF SERVICE AND RATE DESIGN ISSUES?

A. Yes. I testified on class cost of service and rate design issues in the last four Missouri American rate cases WR-2003-0500, WR-2007-0216, WR-2008-0311 and WR-2010-0131.

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my testimony is to present Public Counsel's preliminary Class Cost of Service (CCOS) studies and to discuss Public Counsel's position on how the results of these studies should affect the rate design for customer classes within each district. I will also provide testimony on district specific pricing versus single tariff pricing.

I. RATE DESIGN

Q. WHAT IS THE RELATIVE IMPORTANCE OF CCOS STUDY RESULTS IN DESIGNING RATES?

A. A CCOS study provides the Commission with a general guide as to the just and reasonable rate for the provision of service that corresponds to costs. In addition, other factors are also relevant considerations when determining the appropriate rate for service, including the value of service, affordability, rate impact, and rate continuity, etc. The determination as to the manner in which the results of a cost of service study and all the other factors are balanced in setting rates can only be determined on a case-by-case basis.

Q. HOW DOES PUBLIC COUNSEL ACCOMMODATE OTHER FACTORS SUCH AS AFFORDABILITY, RATE IMPACT, AND RATE CONTINUITY IN THE RATE DESIGN RECOMMENDATIONS THAT IT MAKES TO THE COMMISSION?

A. Generally, Public Counsel has recommended that the Commission adopt a rate design that balances movement toward cost of service with rate impact and affordability considerations. In cases where the existing revenue structure within a district differs greatly from the class cost of service or where the district revenues differ greatly from district costs, a movement toward costs should be made.

Q. PLEASE PROVIDE SOME BACKGROUND ON PAST COMMISSION DECISIONS RELATED TO MISSOURI AMERICAN'S DISTRICT COST RECOVERY.

A. With respect to shifts between districts, the Commission decided in its Report and Order in WR-2000-281 to move away from single tariff pricing (a single company-wide tariff that would apply to each class) toward district specific pricing. The Commission approved additional movement toward district specific pricing in cases WR-2003-0500, WR-2007-216, WR-2008-0311 and WR-2011-0337. Although in most of these cases parties have reached agreement and offered joint proposals on district cost and rate design, these proceedings have been extremely contentious in part due to a long history of alleged subsidies between and within districts.

Q. DO YOU SUPPORT THE COMMISSION'S PAST EFFORTS TO MOVE THIS COMPANY TOWARD DISTRICT SPECIFIC PRICING?

A. Yes. The Commission's efforts have merit from both an economic and public policy perspective. Moving each district's revenue closer to its district specific cost can work to reduce market distortions by reducing incentives for making excessive district specific investments. The decision to move toward district specific cost recovery also better reflected the sentiment received in public comments indicating that districts generally are willing to pay their own cost of service. The Commission has not mandated that district specific cost recovery be

achieved in all cases or within a specific timeframe. This flexibility has allowed for deviation from strict district specific cost recovery when reasonably necessary based on consideration of all relevant factors.

Q. DO YOU RECOMMEND THAT THE COMMISSION CONTINUE THIS APPROACH TO DETERMINING INTER-DISTRICT COSTS?

A. Yes.

Q. HAVE YOU PERFORMED A STUDY OF THE INTRA-DISTRICT COSTS OF SERVING CUSTOMER CLASSES WITH DIFFERING DEMAND CHARACTERISTICS?

A. Yes. I performed a class cost of service study for nine water districts served by the Company. I will refer to these districts as Warren County, Brunswick, Jefferson City, Joplin, Mexico, Parkville, St Joseph, Warrensburg, and St. Louis Metro which includes the previously distinct service areas of St. Louis County and St. Charles. I did not perform class cost of service studies for the recently acquired Roark, Loma Linda and Aqua Missouri properties. In some cases the districts for which I did not prepare a CCOS study serve only one customer class making a study that is designed to determine rates based on differences in cost characteristics between customer classes unnecessary. In other cases, there was limited or insufficient data to develop reliable cost allocations.

Q. WHAT ARE THE RESULTS OF PUBLIC COUNSEL'S PRELIMINARY CLASS COST OF SERVICE STUDIES?

A. Schedule BAM-1 provides a detailed summary of the preliminary results of my study for each district. Table 1 illustrates each customer class's share of cost and the class's share of revenue if costs were based on an equalized rate of return:

TABLE 1

Percentage of Current Cost at Equalized Return and Percentage of Current Rate Revenue by Customer Class

		TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE
Jefferson City	Cost %		53.53%	28.54%	7.07%	8.83%		2.03%
	Revenue %		54.98%	27.58%	5.63%	8.62%		3.18%
Brunswick	Cost %		65.86%	26.22%	0.41%	3.78%	3.16%	0.56%
	Revenue %		64.42%	22.84%	0.77%	3.71%	4.53%	3.74%
Joplin	Cost %		47.76%	22.83%	18.00%	3.55%	4.11%	3.75%
	Revenue %		53.90%	21.80%	14.36%	3.23%	3.52%	3.20%
Mexico	Cost %		49.91%	12.73%	15.48%	7.25%	11.74%	2.88%
	Revenue %		49.83%	12.05%	15.94%	6.92%	11.33%	3.93%
Parkville	Cost %		68.87%	20.62%	0.68%	1.38%	4.73%	3.72%
	Revenue %		68.11%	22.22%	0.44%	1.47%	4.56%	3.20%
St. Joseph	Cost %		50.79%	18.19%	14.28%	3.75%	10.89%	2.10%
	Revenue %		52.12%	19.28%	13.10%	3.82%	10.32%	1.37%
Warren County	Cost %		98.97%	1.03%				
	Revenue %		98.77%	1.23%				
Warrensburg	Cost %		57.43%	16.20%	3.04%	11.39%	7.10%	4.85%
	Revenue %		55.19%	18.60%	3.04%	12.41%	7.57%	3.19%
			RES COM OPA Rate A & K	INDUSTRIAL Rate J	OTHER WATER UTILITIES Rate B			PRIVATE FIRE Rate E & F
St Louis	Cost %		93.16%	3.70%	1.52%			1.61%
	Revenue %		93.35%	3.77%	1.76%			1.12%

Table 2 illustrates the percentage change in rate revenue necessary to achieve an equalized return:

TABLE 2

Revenue Neutral Shift to Equalize Current Rate of Return by Customer Class							
	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE
Jefferson City	Shift %	-2.65%	3.46%	25.67%	2.44%		-36.22%
Brunswick	Shift %	2.24%	14.83%	-46.49%	1.98%	-30.28%	-84.92%
Joplin	Shift %	-11.38%	4.70%	25.29%	10.09%	16.93%	17.41%
Mexico	Shift %	0.16%	5.65%	-2.86%	4.80%	3.62%	-26.68%
Parkville	Shift %	1.12%	-7.22%	56.78%	-6.23%	3.70%	16.18%
St. Joseph	Shift %	-2.54%	-5.67%	9.04%	-1.64%	5.56%	52.61%
Warren County	Shift %	0.20%	-16.34%				
Warrensburg	Shift %	4.05%	-12.95%	0.05%	-8.19%	-6.29%	52.17%
		RES COM OPA Rate A & K	INDUSTRIAL Rate J	SALE FOR RESALE Rate B			PRIVATE FIRE Rate E & F
St Louis	Shift %	-0.20%	-1.79%	-13.48%			43.94%

Q. WHAT ARE PUBLIC COUNSEL'S PRELIMINARY RATE DESIGN RECOMMENDATIONS?

A. Based on my initial results, I recommend that the Commission move customer classes toward district specific cost of service by first implementing a revenue neutral shift among classes and second spreading any net increase or decrease in district revenue to the classes as an equal percentage. I also recommend that the Commission cap class increases resulting from revenue neutral shifts in order to

mitigate the combined impact of a large district increase coupled with interclass increases. For example, Table 3 illustrates the revenue neutral shifts that would result from one-half the revenue neutral increase indicated by my class cost of service with a cap on revenue neutral increases of 5% of a class's current revenue:

TABLE 3

Proposed Maximum Revenue Neutral Shift by Customer Class							
	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE
Jefferson City	Shift %	-0.88%	1.73%	5.00%	1.22%		-11.99%
Brunswick	Shift %	1.12%	5.00%	-18.02%	0.99%	-11.74%	-32.92%
Joplin	Shift %	-2.46%	0.51%	5.00%	5.00%	5.00%	5.00%
Mexico	Shift %	0.08%	2.83%	-1.43%	2.40%	1.81%	-13.34%
Parkville	Shift %	0.56%	-2.75%	5.00%	-2.38%	1.85%	5.00%
St. Joseph	Shift %	-1.04%	-2.31%	5.00%	-0.67%	2.78%	5.00%
Warren County	Shift %	0.10%	-8.17%				
Warrensburg	Shift %	2.03%	-4.24%	0.02%	-2.68%	-2.06%	5.00%
		RES COM OPA Rate A & K	INDUSTRIAL Rate J	SALE FOR RESALE Rate B			PRIVATE FIRE Rate E & F
St Louis	Shift %	-0.08%	-0.69%	-5.20%			5.00%

Under my recommendation, each customer class would be adjusted by the revenue neutral shift shown in Table 3 and then by the net percentage increase or decrease approved by the Commission for the class's district.

Q. HOW SHOULD CLASS RATES BE ADJUSTED IN OTHER DISTRICTS?

A. For districts for which I did not prepare a class cost of service study including Roark, Lake Taneycomo, Lakewood, Loma Linda, Maplewood, Ozark, Rankin Acres, Spring Valley, and White Ranch, I recommend allocating any revenue requirement increase or decrease as an equal percentage increase on current class revenues.

Q. HAVE YOU DETERMINED A LEVEL OF COSTS THAT COULD REASONABLY BE RECOVERED IN THE CUSTOMER CHARGE?

A. Yes. The fixed monthly customer charge should include those costs directly related to the number of customers. My class cost of service studies identify the investments and expenses directly related to the number of customers by class as including meters, services, operations and maintenance, and depreciation expenses related to meters and services, meter reading and arguably some portion of customer records expense. Based on my studies, Table 4 identifies a maximum level of costs for the Residential and small Commercial classes that could reasonably be recovered through a customer charge:

Table 4

Class Cost of Service Study Customer Charge Cost				
	RESIDENTIAL (Monthly)	RESIDENTIAL (Quarterly)	COMMERCIAL (Monthly)	COMMERCIAL (Quarterly)
Jefferson City	$ 4.05	$ 12.16	$ 6.02	$ 18.05
Brunswick	$ 14.26	$ 42.77	$ 20.37	$ 61.11
Joplin	$ 7.31	$ 21.92	$ 11.05	$ 33.14
Mexico	$ 10.04	$ 30.12	$ 16.18	$ 48.54
Parkville	$ 9.62	$ 28.87	$ 17.94	$ 53.83
St. Joseph	$ 5.44	$ 16.31	$ 8.09	$ 24.26
Warren County	$ 5.18	$ 15.53	$ 4.93	$ 14.79
Warrensburg	$ 6.84	$ 20.51	$ 12.03	$ 36.09

	RES COM OPA Rate A & K (Monthly)	RES COM OPA Rate A & K (Quarterly)
St Louis	$ 8.71	$ 26.13

II. SINGLE TARIFF OR DISTRICT SPECIFIC PRICING

Q. DESCRIBE SINGLE TARIFF PRICING.

A. Single-tariff pricing (STP) in the provision of water or sewer service is defined as the use of a unified rate structure for multiple water or sewer systems that are owned and operated by a single utility, but that may or may not be physically interconnected. Under single-tariff pricing, all customers of the utility pay the same rate for service, even though the individual systems providing service may vary in terms of operating characteristics and costs.

Q. DESCRIBE DISTRICT SPECIFIC PRICING.

A. District Specific Pricing (DSP) is defined as a rate structure where direct costs associated with a specific district are recovered from that district. Under DSP, common corporate costs are allocated throughout the system to each district for recovery in rates.

Q. DOES THE COMMISSION HAVE AUTHORITY TO ORDER SINGLE TARIFF PRICING?

A. Yes. I am advised by counsel that there is no statute in Missouri that expressly prohibits STP and the use of STP is lawful in Missouri provided that the resulting rates are just and reasonable.

Q. WHAT FACTORS SHOULD THE COMMISSION CONSIDER IN DETERMINING IF RATES ARE JUST AND REASONABLE?

A. The cost of service and other factors such as the value of service, affordability, rate impact, and rate continuity are relevant factors in determining just and reasonable rates. An inherent difficulty in achieving just and reasonable rates under a single tariff pricing structure is that costs may not be similar for water utilities characterized by distinct, diverse, and non-interconnected systems.

Q. WHAT ARE THE PRIMARY BENEFITS ASSOCIATED WITH STP?

A. From a consumer perspective, a primary benefit of STP is that STP may mitigate the rate shock associated with a significant capital improvement in one rate district by spreading recovery of those costs to more customers. STP may also help to keep rates affordable for customers in high cost districts.

Q. WHAT ARE THE PRIMARY DIFFICULTIES ASSOCIATE WITH STP?

A. An inherent difficulty in achieving just and reasonable rates under a single tariff pricing structure is that costs may not be similar for water utilities characterized by distinct, diverse, and non-interconnected systems. MAWC's districts have substantially different characteristics including source of supply, processing and treatment requirements, and customer density and other distribution

characteristics. STP may also create market distortions by increasing incentives for making excessive district specific investments.

Q. ARE YOU AWARE OF OTHER ARGUMENTS FOR AND AGAINST SINGLE-TARIFF PRICING FOR REGULATED WATER UTILITIES?

A. Yes. In a 1999 report titled "Consolidated Water Rates: Issues and Practices in Single-Tariff Pricing", the United States Environmental Protection Agency in cooperation with the National Association of Regulatory Utility Commissioners summarized the results of a 1996 survey of state commission staffs identifying arguments in favor and against single-tariff pricing. The cover page and summary of the Report are included in this testimony as Schedule BAM DIR 2.

Q. WHAT IS PUBLIC COUNSEL'S GENERAL POSITION REGARDING STP AND DSP?

A. In general, Public Counsel supports the continuation of pricing that is based on district specific costs in cases where costs among districts differ substantially. In addition to aligning rates with costs, DSP seems to better reflect the sentiment received in past public comments indicating that customers are willing to pay for their own district's cost of service but are concerned about subsidizing other districts.

Q. IS PUBLIC COUNSEL WILLING TO CONSIDER SOME LEVEL OF RATE CONSOLIDATION?

A. Yes. Public Counsel is willing to consider some level of rate consolidation, where the consolidation gives reasonable weight to cost considerations as well as other relevant factors. Based on my initial review, MAWC's proposal for STP goes too far in consolidating rates for districts that exhibit substantially different costs.

Q. WHAT EVIDENCE HAVE YOU REVIEWED THAT LEADS TO YOUR CONCLUSION THAT MAWC'S PROPOSAL FOR STP GOES TOO FAR IN CONSOLIDATING RATES FOR DISTRICTS THAT EXHIBIT SUBSTANTIALLY DIFFERENT COSTS?

A. I compared the cost of investments and expenses on both a district basis and customer class basis. First, using Staff accounting data on net plant, key expense categories and district customer counts including Residential, Commercial, Industrial and Public Authority customers, I compared a per customer level of investment and expenses between districts. The district cost comparison is shown in Schedule BAM DIR 3. The results suggest that on a per customer basis there is substantial variation between districts in the levels of investment and key expenses. In some cases the highest district investment and expense levels were 4 to 6 times those of the lowest district investment and expense levels.

To evaluate whether differences existed for particular customer classes across districts, I used results from district specific CCOS studies provided in the Company's workpapers for 9 districts to compare the per customer costs for the Residential Class across districts. Similarly, I compared the per customer costs for the Commercial Class across districts. While I do not necessarily agree with the Company's specific CCOS methods or allocations, I used the Company CCOS study results in the comparison to illustrate that the Company's own calculations produce substantially different costs across districts. It is also important to note that for the St. Louis Metro District, Rate A shown in the comparison reflects blended costs for Residential, Commercial and Public Authority customers. The district cost comparison for the Residential Class is shown in Schedule BAM DIR 4. The district cost comparison for the Commercial Class is shown in Schedule BAM DIR 5. For both the Residential Class and Commercial classes, the results indicate significant differences in the level of investment and key expenses between districts. In some cases the highest district investment and expense levels were 3 to 6 times those of the lowest district investment and expense levels.

Q. WHAT EVIDENCE MIGHT PERSUADE PUBLIC COUNSEL TO SUPPORT A MORE LIMITED RATE CONSOLIDATION PROPOSAL?

A. Based on my review of the district data, it appears that there is some correlation between the number of customers in a district and the investment and expenses per customer so consolidating districts of similar size might be more reasonable

than STP. Evidence of converging costs would also increase Public Counsel's support for consolidating the rates for certain districts.

III. CLASS COST OF SERVICE STUDY METHOD

Q. WHAT IS THE PURPOSE OF YOUR CLASS COST OF STUDY?

A. My class cost of service study apportions the total cost of activities and facilities used in providing service among customer classes based on cost allocations that reflect the underlying customer characteristics that drive costs. This is accomplished by first dividing costs into functional "buckets" including Source of Supply, Pumping, Water Treatment, Transmission and Distribution, Operations and Maintenance. The costs in each functional bucket are then further divided by classification into subcategories based on characteristics of cost causation. For example, the Base Extra Capacity method that I used for my study classifies costs into four primary cost components: Base Costs, Extra Capacity Costs, Customer Costs, and costs directly attributable to Fire Protection.

- Base Costs vary with the total quantity of water used under average use at an average rate. These costs include certain facilities costs and O&M expenses of supply, treatment, pumping, and distribution facilities.

- Extra capacity costs are associated with use requirements in excess of average. These costs include facilities costs, O&M expenses and capital costs for system capacity in excess of average. These costs were further subdivided based on the maximum-day extra demand and maximum-hour demand.

- Customer costs vary directly with the number of customers, not the amount or rate of water used. The cost of meter reading, billing, accounts and collections expense, and facilities costs and expenses related to meters and services are generally treated as customer related costs.

- Fire costs are directly attributable to providing both private and public fire services. These costs include facilities costs and expenses related to providing hydrants and fire lines.

The final step in my study apportioned the "functionalized and classified" costs to each customer class based on allocation factors reflective of the classification. For example, I used average use by class to allocate Base Costs. I used a max day factor and a max hour factor to allocate Excess Capacity costs. An example of a customer related allocation is that I used a weighted allocator of meters actually used by each class to allocate the total district meter costs to the class. I have provided an electronic copy of my workpapers to the parties. The workpapers provide a full breakdown of the functionalization and classification of

costs as well as formulaic links to the calculations and sources of information I used to complete each district study.

Q. WHAT CUSTOMER CLASSES DID YOU USE IN YOUR CCOS STUDIES?

A. For most of the Districts, I used a Residential Class, Commercial Class, an Industrial Class, an Other Public Authority Class, a Sale for Resale Class and a Private Fire Class. For the St. Louis Metro District, I used customer classes based on current rate groups; Rate Group A & K which includes residential commercial and other public authority customers, Rate Group J which includes large industrials, Rate Group B which includes another water utility that resells service and Rate Groups E & F which include fire service customers.

Q. HOW ARE CONTRACT CUSTOMER REVENUES AND COSTS APPORTIONED IN YOUR CCOS STUDIES?

A. I did not use a special contract customer class in this case. Instead, the factors used to allocate costs to customer classes within a district exclude contract customers. Contract customer revenues were allocated proportionately to the remaining customer classes based on overall class cost of service.

Q. HOW ARE PUBLIC FIRE REVENUES AND COSTS APPORTIONED IN YOUR CCOS STUDIES?

A. As an intermediate step in allocating class costs, I did use a Public Fire class within each district. However, Public Fire costs and revenues were later allocated to retail customer classes within each district based on meter weighted customers.

Q. WHAT DATA IS USED AS THE BASIS FOR YOUR COST STUDY?

A. Data used for this study includes MAWC workpapers filed in support of its direct case, MAWC responses to Staff's data requests, and Staff Accounting data in this case.

Q. HOW IS THE BASE-EXTRA CAPACITY METHOD APPLIED TO MAINS COST ALLOCATION?

A. Mains costs are allocated to base and maximum day and maximum hour extra capacity cost components in recognition of the fact that mains provide for some constant level of average annual water usage as well as peaking associated with volatility in daily use and hourly use.

Because mains are used to satisfy base and peak demand, there is no clear separation between these two cost categories with respect to constant and peaking needs. To apportion cost between average and peak use, I used a "weighted factor" that reflects average day, max day, and peak hour demands.

Q. HOW DO YOUR DEMAND RELATED ALLOCATORS COMPARE WITH THOSE THAT WILL LIKELY BE USED BY OTHER PARTIES?

A. I used a Base and Excess Capacity allocator for Transmission and Distributions Mains as well as other demand related allocators. I adjusted the results to accommodate some of the points made by the Company regarding a reduction in the allocation of the cost of smaller mains to large customers in the Joplin, St Joseph and St Louis districts. The adjustments I made are reflected in reduced allocation factors that were provided to the other parties in my workpapers.

Q. HOW DID YOU DEVELOP SOME OF THE OTHER ALLOCATORS USED IN YOUR STUDY?

A. The allocators were developed in order to reflect the differences in costs of furnishing service to the different classes. Plant expenses were allocated on the same basis as Plant accounts. Customer related allocators such those for allocating the costs of meters and services accounts were developed using weights to reflect the fact that there are generally greater meter and service costs associated with serving a bigger customer than a smaller customer.

Q. PLEASE DESCRIBE HOW YOU ALLOCATED VARIOUS PLANT ACCOUNTS.

A. Investment in source of supply was allocated based on Base Day allocations by rate class. This recognizes the fact that such facilities are sized to meet the base supply requirements.

Pumping facilities were allocated based respectively on the Base and Max Day capacity allocator. Treatment facilities were allocated based respectively on the Base and Max Day with Fire capacity allocator.

Distribution reservoir and standpipes serve principally to assist in meeting the peak requirements of the system and to provide some element of system reliability. These items were allocated based on a Storage allocator that reflects regular system load and peak load, with a greater weight given to the peak load.

Transmission and Distribution Mains were allocated based on Base Day, Max Day, and Max Hour factors. The factors for Industrial and Sale for Resale customers in Joplin, St Joseph, and St Louis were reduced to reflect customer use.

Fire mains and hydrants were allocated directly to private and public fire protection services.

General plant includes office buildings, furniture and equipment, vehicles, and other related items. General plant was allocated to all customer classes based on

the overall allocation resulting from the allocation of all other non-general plant facilities.

Q. HOW WERE OPERATION AND MAINTENANCE EXPENSES ALLOCATED?

A. Source of supply, pumping, water treatment, and transmission and distribution expenses were allocated using the "expenses follow plant" principle for most accounts in this category. "Expenses follow plant" basically means that for any expense related to a particular rate base component, the expense should be allocated in the same manner as the rate base account.

Q. ARE THERE OTHER OPERATION AND MAINTENANCE EXPENSES TO WHICH THE "EXPENSES FOLLOW PLANT" PRINCIPLE DOES NOT APPLY?

A. Yes. Customer account expenses were allocated based on the number of meters and the number of customer bills in each class.

Property insurance expenses were allocated based on the resulting allocation of total plant since this expense is linked to the amount of plant that the Company requires in order to serve each customer class.

Injuries and damages and employee pensions and benefits are payroll-related expenses so they were allocated on the basis of the amount of labor expense that I had previously allocated to each class.

The remaining administrative and general expenses accounts represent expenditures that support the Company's overall operation, so they were allocated on the basis of each customer class' share of total plant or cost of service.

Q. HOW DID YOU ALLOCATE TAXES OTHER THAN INCOME TAXES?

A. Property taxes were allocated on the basis of the amount of gross plant that I had previously allocated to each class. Taxes related to the workforce were allocated based on Labor. Other taxes in this category were allocated on the basis of rate base.

Q. HOW DID YOU ALLOCATE STATE AND FEDERAL INCOME TAXES?

A. These taxes were allocated on the basis of rate base since a utility company's income taxes are a function of the size of its rate base and associated earnings. Thus a class should contribute revenues for income taxes in accordance with the proportion of rate base that is necessary to serve it.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

Office of the Public Counsel
MAWC Class Cost of Service Summary

St. Louis Metro District

	CLASS COST OF SERVICE SUMMARY:	TOTAL	RATE A & K	RATE J	RATE B			PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	88,556,208	78,623,979	4,557,152	2,135,315			975,853	2,263,908
2	Depreciation ExpensesTOIT Def Tax Exp	40,259,877	35,151,112	968,949	304,251			853,445	2,982,119
3	Current Income Taxes	5,402,385	4,744,447	111,735	29,612			113,960	402,631
4	TOTAL Expenses and Taxes	134,218,470	118,519,538	5,637,836	2,469,178			1,943,258	5,648,659
5									
6	Spread of fire expenses & taxes to others	5,648,659	5,613,936	34,723	0			0	(5,648,659)
7	TOTAL Expenses and Taxes after Spread	134,218,470	124,133,474	5,672,559	2,469,178			1,943,258	
8									
9	Current Revenue								
10	Rate Revenue	172,974,288	152,668,931	6,379,992	2,996,664	0	0	1,934,785	8,993,916
11	Other Revenue	5,279,616	4,794,639	288,269	136,093			60,615	0
12	Spread of fire revenue to others	8,993,916	8,938,630	55,286	0			0	0
13	TOTAL Current Revenues	178,253,905	166,402,200	6,723,547	3,132,757			1,995,400	0
14	Current Revenue Percentage	100.00%	93.35%	3.77%	1.76%			1.12%	0.00%
15									
16	Net OPERATING INCOME	44,035,435	42,268,725	1,050,989	663,579			52,142	0
17									
18	TOTAL Rate Base	554,730,846	487,172,051	11,473,247	3,040,646			11,701,676	41,343,226
19									
20	Spread of fire rate base to others	41,343,226	41,089,086	254,140	0			0	(41,343,226)
21	TOTAL Rate Base after Spread	554,730,846	528,261,137	11,727,387	3,040,646			11,701,676	
22									
23	Implicit Rate of Return (ROR)	7.94%	8.00%	8.96%	21.82%			0.45%	
24									
25	Net Operating Income with Equalized ROR	44,035,435	41,934,226	930,939	241,371			928,898	
26									
27	Class COS with Equalized ROR	178,253,905	166,067,701	6,603,498	2,710,550			2,872,156	
28	Current Class COS Percentage	100.00%	93.16%	3.70%	1.52%			1.61%	
29									
30	Net Operating Income with Equalized ROR	44,035,435	41,934,226	930,939	241,371			928,898	
31	Revenue Neutral Shift to Equalize Class ROR	0	(334,499)	(120,050)	(422,207)			876,756	
32	**Revenue Increase/Decrease % of Current Revenue**	**0.00%**	**-0.20%**	**-1.79%**	**-13.48%**			**43.94%**	

Office of the Public Counsel
MAWC Class Cost of Service Summary

Warrensburg District

	CLASS COST OF SERVICE SUMMARY:	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	1,792,584	904,351	261,271	54,093	191,902	133,806	67,202	179,958
2	Depreciation ExpensesTOIT Def Tax Exp	992,767	454,299	141,992	28,406	102,570	66,453	56,236	142,812
3	Current Income Taxes	68,652	29,973	9,630	1,951	7,121	4,694	4,139	11,144
4	TOTAL Expenses and Taxes	2,854,003	1,388,623	412,893	84,451	301,592	204,953	127,577	333,915
5									
6	Spread of fire expenses & taxes to others	333,915	260,554	47,850	2,832	22,678		0	(333,915)
7	TOTAL Expenses and Taxes after Spread	2,854,003	1,649,177	460,742	87,283	324,271	204,953	127,577	
8									
9	Current Revenue								
10	Rate Revenue	3,634,103	2,004,091	679,479	109,814	451,564	274,117	115,038	0
11	Other Revenue	148,712	83,650	24,308	5,093	17,711	12,349	5,600	0
12	Spread of fire revenue to others	0	0	0	0	0	0	0	0
13	TOTAL Current Revenues	3,782,815	2,087,741	703,787	114,907	469,275	286,466	120,638	0
14	Current Revenue Percentage	100.00%	55.19%	18.60%	3.04%	12.41%	7.57%	3.19%	0.00%
15									
16	Net OPERATING INCOME	928,812	438,564	243,045	27,624	145,005	81,513	(6,938)	0
17									
18	TOTAL Rate Base	13,125,109	5,730,271	1,841,163	373,060	1,361,360	897,380	791,249	2,130,627
19									
20	Spread of fire rate base to others	2,130,627	1,662,532	305,318	18,072	144,705	0	0	(2,130,627)
21	TOTAL Rate Base after Spread	13,125,109	7,392,802	2,146,481	391,132	1,506,065	897,380	791,249	
22									
23	Implicit Rate of Return (ROR)	7.08%	5.93%	11.32%	7.06%	9.63%	9.08%	-0.88%	
24									
25	Net Operating Income with Equalized RC	928,812	523,159	151,898	27,679	106,578	63,504	55,994	
26									
27	Class COS with Equalized ROR	3,782,815	2,172,336	612,640	114,962	430,849	268,457	183,570	
28	Current Class COS Percentage	100.00%	57.43%	16.20%	3.04%	11.39%	7.10%	4.85%	
29									
30	Net Operating Income with Equalized ROR	928,812	523,159	151,898	27,679	106,578	63,504	55,994	
31	Revenue Neutral Shift to Equalize Class ROR	0	84,595	(91,147)	55	(38,426)	(18,009)	62,932	
32	**Revenue Increase/Decrease % of Current Revenue**	**0.00%**	**4.05%**	**-12.95%**	**0.05%**	**-8.19%**	**-6.29%**	**52.17%**	

Office of the Public Counsel
MAWC Class Cost of Service Summary

Brunswick District

	CLASS COST OF SERVICE SUMMARY:	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	567,496	314,490	127,585	1,714	18,464	16,049	5,284	83,911
2	Depreciation ExpensesTOIT Def Tax Exp	135,536	71,128	26,968	641	3,797	3,215	1,956	27,831
3	Current Income Taxes	0	0	0	0	0	0	0	0
4	TOTAL Expenses and Taxes	703,032	385,618	154,553	2,355	22,261	19,264	7,239	111,741
5									
6	Spread of fire expenses & taxes to others	111,741	85,822	21,319	2,053	2,547	0	0	(111,741)
7	TOTAL Expenses and Taxes after Spread	703,032	471,440	175,872	4,408	24,809	19,264	7,239	
8									
9	Current Revenue								
10	Rate Revenue	378,048.0	243,464.0	86,156.0	2,941.0	14,016.0	17,202.0	14,269.0	0.0
11	Other Revenue	6,223	4,077	1,598	29	228	196	95	0
12	Spread of fire revenue to others	0	0	0	0	0	0	0	0
13	TOTAL Current Revenues	384,271	247,541	87,754	2,970	14,244	17,398	14,364	0
14	**Current Revenue Percentage**	**100.00%**	**64.42%**	**22.84%**	**0.77%**	**3.71%**	**4.53%**	**3.74%**	**0.00%**
15									
16	Net OPERATING INCOME	(318,761)	(223,899)	(88,119)	(1,437)	(10,564)	(1,866)	7,125	0
17									
18	TOTAL Rate Base	2,067,425	1,042,574	394,333	9,343	55,599	46,268	32,901	486,406
19									
20	Spread of fire rate base to others	486,406	373,579	92,803	8,936	11,089	0	0	(486,406)
21	TOTAL Rate Base after Spread	2,067,425	1,416,153	487,135	18,279	66,688	46,268	32,901	
22									
23	Implicit Rate of Return (ROR)	-15.42%	-15.81%	-18.09%	-7.86%	-15.84%	-4.03%	21.66%	
24									
25	Net Operating Income with Equalized ROR	(318,761)	(218,346)	(75,108)	(2,818)	(10,282)	(7,134)	(5,073)	
26	Plus Current Taxes	-		0	0	0	0	0	
27	Class COS with Equalized ROR	384,271	253,094	100,764	1,589	14,526	12,130	2,167	
28	**Current Class COS Percentage**	**100.00%**	**65.86%**	**26.22%**	**0.41%**	**3.78%**	**3.16%**	**0.56%**	
29									
30	Net Operating Income with Equalized ROR	(318,761)	(218,346)	(75,108)	(2,818)	(10,282)	(7,134)	(5,073)	
31	Revenue Neutral Shift to Equalize Class ROR	(0)	5,553	13,011	(1,381)	282	(5,268)	(12,198)	
32	**Revenue Increase/Decrease % of Current Revenue**	**0.00%**	**2.24%**	**14.83%**	**-46.49%**	**1.98%**	**-30.28%**	**-84.92%**	

Office of the Public Counsel
MAWC Class Cost of Service Summary

Jefferson City District

	CLASS COST OF SERVICE SUMMARY:	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	4,138,190	2,037,734	1,143,927	305,034	343,878		59,825	247,792
2	Depreciation ExpensesTOIT Def Tax Exp	1,226,815	511,477	302,613	76,906	94,887		41,477	199,456
3	Current Income Taxes	202,655	83,068	49,076	12,345	15,384		7,301	35,481
4	TOTAL Expenses and Taxes	5,567,660	2,632,279	1,495,616	394,285	454,148		108,603	482,729
5									
6	Spread of fire expenses & taxes to others	482,729	347,652	95,587	2,069	37,421		0	(482,729)
7	TOTAL Expenses and Taxes after Spread	5,567,660	2,979,931	1,591,203	396,354	491,569		108,603	
8									
9	Current Revenue								
10	Rate Revenue	5,688,328	3,132,723	1,566,089	316,898	490,086		182,532	0
11	Other Revenue	152,687	78,890	45,020	11,906	13,673		3,198	0
12	Spread of fire revenue to others	0	0	0	0	0		0	0
13	TOTAL Current Revenues	5,841,015	3,211,613	1,611,109	328,804	503,759		185,730	0
14	Current Revenue Percentage	100.00%	54.98%	27.58%	5.63%	8.62%		3.18%	0.00%
15									
16	Net OPERATING INCOME	273,355	231,682	19,906	(67,550)	12,190		77,127	0
17									
18	TOTAL Rate Base	16,273,667	6,670,546	3,940,927	991,341	1,235,332		586,293	2,849,227
19									
20	Spread of fire rate base to others	2,849,227	2,051,959	564,186	12,211	220,871		0	(2,849,227)
21	TOTAL Rate Base after Spread	16,273,667	8,722,505	4,505,113	1,003,552	1,456,203		586,293	
22									
23	Implicit Rate of Return (ROR)	1.68%	2.66%	0.44%	-6.73%	0.84%		13.15%	
24									
25	Net Operating Income with Equalized ROR	273,355	146,515	75,674	16,857	24,460		9,848	
26									
27	Class COS with Equalized ROR	5,841,015	3,126,446	1,666,877	413,211	516,029		118,451	
28	Current Class COS Percentage	100.00%	53.53%	28.54%	7.07%	8.83%		2.03%	
29									
30	Net Operating Income with Equalized ROR	273,355	146,515	75,674	16,857	24,460		9,848	
31	Revenue Neutral Shift to Equalize Class ROR	0	(85,167)	55,768	84,407	12,270		(67,279)	
32	**Revenue Increase/Decrease % of Current Revenue**	**0.00%**	**-2.65%**	**3.46%**	**25.67%**	**2.44%**		**-36.22%**	

Office of the Public Counsel
MAWC Class Cost of Service Summary

Joplin District

	CLASS COST OF SERVICE SUMMARY:	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	8,226,213	3,730,667	1,743,625	1,606,871	268,617	381,420	186,182	308,832
2	Depreciation ExpensesTOIT Def Tax Exp	2,636,296	1,101,701	570,688	468,009	88,857	106,224	119,597	181,221
3	Current Income Taxes	2,569,464	1,034,065	574,984	412,937	91,306	91,521	131,900	232,751
4	TOTAL Expenses and Taxes	13,431,973	5,866,433	2,889,297	2,487,816	448,780	579,165	437,679	722,803
5									
6	Spread of fire expenses & taxes to others	722,803	567,972	123,886	13,429	17,517		0	(722,803)
7	TOTAL Expenses and Taxes after Spread	13,431,973	6,434,405	3,013,182	2,501,245	466,297	579,165	437,679	
8									
9	Current Revenue								
10	Rate Revenue	17,706,656	9,581,409	3,860,865	2,507,111	570,633	614,973	571,665	0
11	Other Revenue	515,423	239,733	111,723	110,049	17,122	26,238	10,558	0
12	Spread of fire revenue to others	0	0	0	0	0	0	0	0
13	TOTAL Current Revenues	18,222,079	9,821,142	3,972,588	2,617,160	587,755	641,211	582,223	0
14	Current Revenue Percentage	100.00%	53.90%	21.80%	14.36%	3.23%	3.52%	3.20%	0.00%
15									
16	Net OPERATING INCOME	4,790,106	3,386,737	959,405	115,915	121,458	62,046	144,544	0
17									
18	TOTAL Rate Base	70,228,945	28,263,206	15,715,540	11,286,453	2,495,597	2,501,465	3,605,100	6,361,584
19									
20	Spread of fire rate base to others	6,361,584	4,998,869	1,090,352	118,191	154,172	0	0	(6,361,584)
21	TOTAL Rate Base after Spread	70,228,945	33,262,075	16,805,892	11,404,643	2,649,769	2,501,465	3,605,100	
22									
23	Implicit Rate of Return (ROR)	6.82%	10.18%	5.71%	1.02%	4.58%	2.48%	4.01%	
24									
25	Net Operating Income with Equalized ROR	4,790,106	2,268,706	1,146,279	777,877	180,733	170,617	245,893	
26									
27	Class COS with Equalized ROR	18,222,079	8,703,111	4,159,462	3,279,122	647,030	749,782	683,572	
28	Current Class COS Percentage	100.00%	47.76%	22.83%	18.00%	3.55%	4.11%	3.75%	
29									
30	Net Operating Income with Equalized ROR	4,790,106	2,268,706	1,146,279	777,877	180,733	170,617	245,893	
31	Revenue Neutral Shift to Equalize Class ROR	(0)	(1,118,031)	186,874	661,962	59,275	108,571	101,349	
32	**Revenue Increase/Decrease % of Current Revenue**	**0.00%**	**-11.38%**	**4.70%**	**25.29%**	**10.09%**	**16.93%**	**17.41%**	

Office of the Public Counsel
MAWC Class Cost of Service Summary

Mexico District

	CLASS COST OF SERVICE SUMMARY:	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	1,761,125	808,921	209,740	289,924	122,508	222,668	29,743	77,619
2	Depreciation ExpensesTOIT Def Tax Exp	917,242	404,136	109,048	129,783	63,065	99,408	36,526	75,275
3	Current Income Taxes	7,209	3,113	847	1,016	493	784	297	658
4	TOTAL Expenses and Taxes	2,685,576	1,216,171	319,635	420,724	186,067	322,860	66,567	153,553
5									
6	Spread of fire expenses & taxes to others	153,553	120,317	20,373	4,768	8,094		0	(153,553)
7	TOTAL Expenses and Taxes after Spread	2,685,576	1,336,488	340,009	425,492	194,161	322,860	66,567	
8									
9	Current Revenue								
10	Rate Revenue	3,505,157	1,747,507	422,182	557,960	242,344	396,088	139,076	0
11	Other Revenue	55,002	26,395	6,892	9,536	4,023	7,286	869	0
12	Spread of fire revenue to others	0	0	0	0	0	0	0	0
13	TOTAL Current Revenues	3,560,159	1,773,902	429,074	567,496	246,367	403,374	139,945	0
14	Current Revenue Percentage	100.00%	49.83%	12.05%	15.94%	6.92%	11.33%	3.93%	0.00%
15									
16	Net OPERATING INCOME	874,583	437,414	89,066	142,005	52,207	80,513	73,379	0
17									
18	TOTAL Rate Base	16,321,448	7,048,892	1,917,071	2,300,760	1,116,412	1,775,234	672,494	1,490,585
19									
20	Spread of fire rate base to others	1,490,585	1,167,959	197,768	46,284	78,574	0	0	(1,490,585)
21	TOTAL Rate Base after Spread	16,321,448	8,216,852	2,114,839	2,347,043	1,194,985	1,775,234	672,494	
22									
23	Implicit Rate of Return (ROR)	5.36%	5.32%	4.21%	6.05%	4.37%	4.54%	10.91%	
24									
25	Net Operating Income with Equalized ROR	874,583	440,299	113,323	125,766	64,033	95,126	36,036	
26									
27	Class COS with Equalized ROR	3,560,159	1,776,787	453,332	551,258	258,194	417,986	102,602	
28	Current Class COS Percentage	100.00%	49.91%	12.73%	15.48%	7.25%	11.74%	2.88%	
29									
30	Net Operating Income with Equalized ROR	874,583	440,299	113,323	125,766	64,033	95,126	36,036	
31	Revenue Neutral Shift to Equalize Class ROR	(0)	2,885	24,258	(16,239)	11,827	14,612	(37,343)	
32	**Revenue Increase/Decrease % of Current Revenue**	**0.00%**	**0.16%**	**5.65%**	**-2.86%**	**4.80%**	**3.62%**	**-26.68%**	

Office of the Public Counsel
MAWC Class Cost of Service Summary

Parkville District

	CLASS COST OF SERVICE SUMMARY:	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	1,965,681	1,276,547	396,467	8,504	23,671	114,693	34,025	111,775
2	Depreciation ExpensesTOIT Def Tax Exp	1,940,716	1,072,618	333,142	14,931	21,982	78,574	93,095	326,374
3	Current Income Taxes	11,512	6,175	1,967	85	127	473	577	2,108
4	TOTAL Expenses and Taxes	3,917,909	2,355,340	731,576	23,519	45,779	193,741	127,697	440,257
5									
6	Spread of fire expenses & taxes to others	440,257	351,442	79,492	1,638	7,685		0	(440,257)
7	TOTAL Expenses and Taxes after Spread	3,917,909	2,706,782	811,067	25,157	53,465	193,741	127,697	
8									
9	Current Revenue								
10	Rate Revenue	5,258,503	3,581,300	1,169,163	22,902	77,490	239,017	168,631	0
11	Other Revenue	48,668	33,313	10,350	283	637	2,873	1,213	0
12	Spread of fire revenue to others	0	0	0	0	0	0	0	0
13	TOTAL Current Revenues	5,307,171	3,614,613	1,179,513	23,185	78,127	241,890	169,844	0
14	Current Revenue Percentage	100.00%	68.11%	22.22%	0.44%	1.47%	4.56%	3.20%	0.00%
15									
16	Net OPERATING INCOME	1,389,262	907,831	368,446	(1,972)	24,662	48,149	42,147	0
17									
18	TOTAL Rate Base	23,784,755	12,757,439	4,063,157	175,404	262,812	977,657	1,192,082	4,356,204
19									
20	Spread of fire rate base to others	4,356,204	3,477,409	786,545	16,204	76,045	0	0	(4,356,204)
21	TOTAL Rate Base after Spread	23,784,755	16,234,848	4,849,701	191,608	338,858	977,657	1,192,082	
22									
23	Implicit Rate of Return (ROR)	5.84%	5.59%	7.60%	-1.03%	7.28%	4.92%	3.54%	
24									
25	Net Operating Income with Equalized ROR	1,389,262	948,274	283,270	11,192	19,793	57,105	69,629	
26									
27	Class COS with Equalized ROR	5,307,171	3,655,056	1,094,337	36,349	73,258	250,845	197,326	
28	Current Class COS Percentage	100.00%	68.87%	20.62%	0.68%	1.38%	4.73%	3.72%	
29									
30	Net Operating Income with Equalized ROR	1,389,262	948,274	283,270	11,192	19,793	57,105	69,629	
31	Revenue Neutral Shift to Equalize Class ROR	(0)	40,443	(85,176)	13,164	(4,869)	8,956	27,482	
32	**Revenue Increase/Decrease % of Current Revenue**	**0.00%**	**1.12%**	**-7.22%**	**56.78%**	**-6.23%**	**3.70%**	**16.18%**	

Office of the Public Counsel
MAWC Class Cost of Service Summary

St. Joseph District

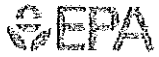
	CLASS COST OF SERVICE SUMMARY:	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	10,495,079	5,147,031	1,782,048	1,441,269	366,380	1,204,140	146,123	408,089
2	Depreciation ExpensesTOIT Def Tax Exp	5,833,453	2,502,638	1,031,791	853,096	217,745	616,755	159,191	452,236
3	Current Income Taxes	0	0	0	0	0	0	0	0
4	TOTAL Expenses and Taxes	16,328,532	7,649,669	2,813,839	2,294,365	584,125	1,820,895	305,314	860,325
5									
6	Spread of fire expenses & taxes to others	860,325	708,289	118,797	14,545	18,694		0	(860,325)
7	TOTAL Expenses and Taxes after Spread	16,328,532	8,357,958	2,932,636	2,308,909	602,819	1,820,895	305,314	
8									
9	Current Revenue								
10	Rate Revenue	19,473,592	10,187,047	3,775,043	2,524,884	744,619	1,976,317	265,682	0
11	Other Revenue	1,454,182	720,080	259,992	216,019	53,829	182,595	21,667	0
12	Spread of industrial discount to others	0	0	0	0	0	0	0	0
13	TOTAL Current Revenues	20,927,774	10,907,127	4,035,035	2,740,903	798,448	2,158,912	287,349	0
14	Current Revenue Percentage	100.00%	52.12%	19.28%	13.10%	3.82%	10.32%	1.37%	0.00%
15									
16	Net OPERATING INCOME	4,599,242	2,549,169	1,102,399	431,994	195,629	338,017	(17,966)	0
17									
18	TOTAL Rate Base	80,385,209	34,089,904	14,325,997	11,764,044	3,042,638	8,007,125	2,328,021	6,827,480
19									
20	Spread of fire rate base to others	6,827,480	5,620,932	942,768	115,424	148,355	0	0	(6,827,480)
21	TOTAL Rate Base after Spread	80,385,209	39,710,837	15,268,765	11,879,468	3,190,994	8,007,125	2,328,021	
22									
23	Implicit Rate of Return (ROR)	5.72%	6.42%	7.22%	3.64%	6.13%	4.22%	-0.77%	
24									
25	Net Operating Income with Equalized ROR	4,599,242	2,272,057	873,603	679,684	182,573	458,128	133,198	
26									
27	Class COS with Equalized ROR	20,927,774	10,630,015	3,806,239	2,988,593	785,392	2,279,023	438,512	
28	Current Class COS Percentage	100.00%	50.79%	18.19%	14.28%	3.75%	10.89%	2.10%	
29									
30	Net Operating Income with Equalized ROR	4,599,242	2,272,057	873,603	679,684	182,573	458,128	133,198	
31	Revenue Neutral Shift to Equalize Class ROR	0	(277,112)	(228,796)	247,690	(13,056)	120,110	151,164	
32	**Revenue Increase/Decrease % of Current Revenue**	**0.00%**	**-2.54%**	**-5.67%**	**9.04%**	**-1.64%**	**5.56%**	**52.61%**	

Office of the Public Counsel
MAWC Class Cost of Service Summary

Warren County

	CLASS COST OF SERVICE SUMMARY:	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITY	SALES FOR RESALE	PRIVATE FIRE SERVICE	PUBLIC FIRE SERVICE
1	O & M Expenses	316,148	226,551	2,877					86,720
2	Depreciation ExpensesTOIT Def Tax Exp	62,607	50,990	691					10,926
3	Current Income Taxes	0	0	0					0
4	TOTAL Expenses and Taxes	378,755	277,541	3,569					97,645
5									
6	Spread of fire expenses & taxes to others	97,645	97,216	429					(97,645)
7	TOTAL Expenses and Taxes after Spread	378,755	374,757	3,998					
8									
9	Current Revenue								
10	Rate Revenue	334,880.0	330,754.0	4,126.0					0.0
11	Other Revenue	2,826	2,790	36					0
12	Spread of fire revenue to others	0	0	0					0
13	TOTAL Current Revenues	337,706	333,544	4,162					0
14	**Current Revenue Percentage**	**100.00%**	**98.77%**	**1.23%**					**0.00%**
15									
16	Net OPERATING INCOME	(41,049)	(41,213)	164					0
17									
18	TOTAL Rate Base	1,308,663	1,017,844	15,232					275,587
19									
20	Spread of fire rate base to others	275,587	274,376	1,211					(275,587)
21	TOTAL Rate Base after Spread	1,308,663	1,292,221	16,442					
22									
23	Implicit Rate of Return (ROR)	-3.14%	-3.19%	1.00%					
24									
25	Net Operating Income with Equalized ROR	(41,049)	(40,533)	(516)					
26	Plus Current Taxes	-		0					
27	Class COS with Equalized ROR	337,706	334,224	3,482					
28	**Current Class COS Percentage**	**100.00%**	**98.97%**	**1.03%**					
29									
30	Net Operating Income with Equalized ROR	(41,049)	(40,533)	(516)					
31	Revenue Neutral Shift to Equalize Class ROR	(0)	680	(680)					
32	**Revenue Increase/Decrease % of Current Revenue**	**0.00%**	**0.20%**	**-16.34%**					

United States Environmental Protection Agency | Office of Water Washington, DC 20460 | EPA September 1999



CONSOLIDATED WATER RATES: Issues and Practices in Single-Tariff Pricing

September 1999

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the National Association of Regulatory
Utility Commissioners

Consolidated Water Rates: Summary

Purpose

Consolidated rates or single-tariff pricing is the use of a unified rate structure for multiple water (or other) utility systems that are owned and operated by a single utility, but that may or may not be contiguous or physically interconnected. The purpose of this report is to provide policymakers and other stakeholders with an overview of consolidated ratemaking and an appreciation of the complex trade-offs involve in its implementation.

The report provides a review of historical, theoretical, and practical issues related to consolidated ratemaking, implementation data, and key decisions by the state public utility commissions. A detailed survey of state public utility commission staff regarding single-tariff pricing is presented. General commission policies are summarized, along with citations of specific regulatory decisions concerning single-tariff pricing.

How Consolidated Pricing Works

Under consolidated pricing, all customers of the corporate utility pay the same rate for the same service, even though the individual systems providing service may vary in terms of operating characteristics and stand-alone costs. In many respects, consolidated rates are the conceptual opposite of "zonal" or spatially differentiated rates.

Single-tariff pricing is used by many investor-owned water utilities, with the approval of state regulators, but it also can be implemented by publicly owned utilities. Single-tariff pricing can be an incentive for larger water utilities to acquire small water systems that lack capacity because it makes it possible to spread costs over a larger service population and maintain more stable and affordable rates for customers of some smaller and more expensive systems. Single-tariff pricing can be used by publicly owned or nonprofit water utilities that operate satellite systems, but few examples are readily available.

Unfortunately, the literature on utility ratemaking, which leans heavily toward the conditions and experiences of the energy and telecommunications industries, yields little theoretical insight or empirical evidence on the implications of single-tariff pricing. Much of the understanding of this issue is derived from case-specific regulatory proceedings. However, an analysis of historical and theoretical perspectives suggests that single-tariff pricing is not necessarily inconsistent with the prevailing principles of ratemaking.

The Tradeoffs

Single-tariff pricing is a provocative issue precisely because of the tradeoffs involved in its application, including possible tradeoffs among different types of efficiency. Single-tariff pricing might lessen some kinds of efficiency (such as those related to spatial allocation of costs and price signals to customers), while improving other kinds of

efficiency (such as those related to management and innovation). Of particular importance, but hardest to gauge, is whether single-tariff pricing and related restructuring can lead to long-run efficiency improvements in the water industry. Water utilities and policymakers must consider and weigh the evidence and trade-offs prior to implementing or approving single-tariff pricing.

A variety of theoretical and practical arguments in favor and against the use of single-tariff pricing can be made. Single-tariff pricing tends to stabilize rates and revenues, mitigate rate shock, and make rates more affordable for the customers of the smallest and more expensive systems. While achieving certain capacity-development, affordability, and operation efficiency goals, however, single-tariff pricing also might trade a degree of economic efficiency by ignoring spatial differences in costs and diluting price signals. A 1996 survey of commission staff members identified several arguments in favor of and against single-tariff pricing were identified.

Summary of Select Arguments in Favor and Against Single-Tariff Pricing

Select Arguments in Favor of Single-Tariff Pricing	Select Arguments Against Single-Tariff Pricing
☐ Mitigates rate shock to utility customers (17)	☐ Conflicts with cost-of-service principles (14)
☐ Lowers administrative costs to the utilities (16)	☐ Provides subsidies to high-cost customers (12)
☐ Provides incentives for utility regionalization and consolidation (15)	☐ Not acceptable to all affected customers (10)
☐ Physical interconnection is not considered a prerequisite (13)	☐ Considered inappropriate without physical interconnection (8)
☐ Addresses small-system viability issues (13)	☐ Distorts price signals to customers (7)
☐ Improves service affordability for customers (12)	☐ Fails to account for variations in customer contributions (6)
☐ Provides ratemaking treatment similar to that for other utilities (10)	☐ Justification has not been adequate in a specific case (or cases) (6)
☐ Facilitates compliance with drinking water standards (9)	☐ Discourages efficient water use and conservation (4)
☐ Overall benefits outweigh overall costs (9)	☐ Encourages growth and development in high-cost areas (4)
☐ Promotes universal service for utility customers (8)	☐ Undermines economic efficiency (3)
☐ Lowers administrative cost to the commission (8)	☐ Provides unnecessary incentives to utilities (2)
☐ Promotes ratepayer equity on a regional basis (6)	☐ Not acceptable to other agencies or governments (2)
☐ Encourages investment in the water supply infrastructure (5)	☐ Insufficient statutory or regulatory basis or precedents (2)
☐ Promotes regional economic development (3)	☐ Overall costs outweigh overall benefits (2)
☐ Encourages further private involvement in the water sector (2)	☐ Encourages overinvestment in infrastructure (1)
☐ Other: Can be consistent with cost-of-service principles (1) and found to be in the public interest (1)	

Source: Author's construct. See Tables E3 and E4. Numbers in parentheses represent number of mentions (out of 21 applicable survey responses).

Dirstrict Comparison of Rate Base and Expenses Per Customer

GAS PLANT - NET	Brunswick	Jefferson City	Joplin	Mexico	Parkville	St. Joseph	St. Louis Metro	Warrensburg	Warren County
Source of Supply	546	34	522	335	56	369	15	130	1,422
Pumping	278	212	413	260	317	282	78	139	370
Water Treatment Plant	824	334	1,002	1,218	484	1,091	190	436	55
Transmission & Distribution	3,156	1,390	2,506	2,133	5,026	1,300	1,969	2,004	1,296
Total Rate Base	4,830	1,511	2,922	3,358	4,198	2,520	1,529	1,816	2,961

EXPENSES	Brunswick	Jefferson City	Joplin	Mexico	Parkville	St. Joseph	St. Louis Metro	Warrensburg	Warren County
Source of Supply	28	2	19	45	59	2	4	25	17
Pumping	119	24	31	19	21	41	26	2	0
Water Treatment	81	72	39	24	47	58	35	5	11
Transmission & Distribution	269	29	41	43	54	41	38	60	404
Customer Accounts	29	24	21	25	21	22	17	18	18
Admistrative and General	821	236	193	208	147	165	125	140	265
Total Operational and Maintenance Expenses	1,348	386	343	363	349	329	245	250	715
Total Depreciation and Amortization Expense	214	54	107	105	135	90	55	69	93

Dirstrict Comparison of Rate Base and Expenses Per Customer

GAS PLANT - NET	Lake Taneycomo	Lakewood	Loma Linda	Maplewood	Ozark Mountain	Rankin Acres	Riverside Estates	Roark	Spring Valley	White Ranch
Source of Supply	183	432	114	100	397	44	549	101	257	470
Pumping	173	-90	309	-22	44	112	-3	-91	-35	168
Water Treatment Plant	32	0	9	15	10	1	1	18	0	1
Transmission & Distribution	965	2,514	840	840	1,470	186	574	2,191	227	947
Total Rate Base	1,338	3,011	742	549	1,443	487	851	1,712	499	1,362

EXPENSES	Lake Taneycomo	Lakewood	Loma Linda	Maplewood	Ozark Mountain	Rankin Acres	Riverside Estates	Roark	Spring Valley	White Ranch
Source of Supply	11	3	10	0	4	5	2	2	188	1
Pumping	1	1	0	0	1	1	1	0	1	0
Water Treatment	120	68	177	53	83	42	80	221	50	81
Transmission & Distribution	143	359	37	96	150	147	67	38	17	113
Customer Accounts	53	63	7	49	40	15	51	0	65	48
Admistrative and General	417	469	67	369	398	220	344	79	390	417
Total Operational and Maintenance Expenses	745	962	297	567	677	429	545	339	710	660
Total Depreciation and Amortization Expense	49	91	31	23	59	16	28	62	20	34

Comparison of Rate Base and Expenses Per Residential Customer
(Based on Company CCOS Study Results)

RATE BASE	Brunswick	Jefferson City	Joplin	Mexico	Parkville	St. Joseph	Warrensburg	Warren County	St. Louis Metro Rate A
Utility Plant in Service	3,445	1,557	1,687	1,977	3,498	1,360	1,179	2,526	1,752
Other Rate Base Elements	-363	-115	-196	-198	-423	-152	-154	-244	-205
Total Original Cost Measure of Value	3,082	1,442	1,491	1,779	3,075	1,209	1,025	2,282	1,548

EXPENSES	Brunswick	Jefferson City	Joplin	Mexico	Parkville	St. Joseph	Warrensburg	Warren County	St. Louis Metro
Source of Supply	21	1	8	21	40	1	13	18	4
Pumping	78	13	14	8	16	18	1	0	25
Water Treatment	73	40	17	13	34	18	3	8	34
Transmission & Distribution	33	15	24	15	28	22	31	74	37
Customer Accounts	35	25	23	27	24	25	19	10	19
Admistrative and General	316	127	108	105	115	100	90	86	137
Total Operational and Maintenance Expenses	556	221	195	189	257	184	157	196	256
Total Depreciation and Amortization Expense	144	42	55	57	166	43	41	71	54

Comparison of Rate Base and Expenses Per Commercial Customer

(Based on Company CCOS Study Results)

RATE BASE	Brunswick	Jefferson City	Joplin	Mexico	Parkville	St. Joseph	Warrensburg	Warren County	St. Louis Metro Rate A
Utility Plant in Service	7,156	4,883	5,393	5,382	9,717	4,967	3,973	7,387	1,752
Other Rate Base Elements	-742	-376	-661	-547	-1,186	-579	-530	-677	-205
Total Original Cost Measure of Value	6,414	4,507	4,732	4,835	8,531	4,388	3,444	6,710	1,548

EXPENSES	Brunswick	Jefferson City	Joplin	Mexico	Parkville	St. Joseph	Warrensburg	Warren County	St. Louis Metro
Source of Supply	51	3	31	69	153	4	55	49	4
Pumping	195	49	54	28	53	78	4	0	25
Water Treatment	183	143	65	46	110	80	12	30	34
Transmission & Distribution	78	39	62	47	90	68	96	432	37
Customer Accounts	35	25	23	27	24	25	19	10	19
Administrative and General	690	279	251	225	254	229	219	383	137
Total Operational and Maintenance Expenses	1,232	539	486	443	684	484	405	903	256
Total Depreciation and Amortization Expense	306	125	165	149	447	147	130	218	54