Exhibit No.:
Issues: Class Cost of Service

Witness: James A. Busch
Sponsoring Party: MO PSC Staff
Type of Exhibit: Direct Testimony
Case No.: EO-2002-0384
Date Testimony Prepared: September 19, 2005

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

DIRECT TESTIMONY

OF

JAMES A. BUSCH

AQUILA, INC.

CASE NO. EO-2002-0384

FILED 2
DEC 07 2005
Missouri Public Service Commission

Jefferson City, Missouri
September 2005

Exhibit No. 13
Case No(s). EO-2002-384
Date 11-07-05 Rptr KF

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of an Examination of the Class Cost of Service and Rate Design in the Missouri Jurisdictional Electric Service Operations of Aquila, Inc., formerly known as UtiliCorp United, Inc.)	Case No. EO-2002-0384

AFFIDAVIT OF JAMES A. BUSCH

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

James A. Busch, of lawful age, on his oath states: that he has participated in the preparation of the following Direct Testimony in question and answer form, consisting of 17 pages of Direct Testimony to be presented in the above case, that the answers in the following Direct 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.

James A. Busch

Subscribed and sworn to before me this 16th day of September, 2005.

ROSEMARIE RIEDL
MY COMMISSION EXPIRES
June 1, 2009
NOTARY SEAL
#05508538
COLE COUNTY
NOTARY PUBLIC, STATE OF MISSOURI

Rosemarie Riedl
Notary Public

My commission expires June 1, 2009

TABLE OF CONTENTS

DIRECT TESTIMONY

OF

JAMES A. BUSCH

AQUILA, INC.

CASE NO. EO-2002-0384

Q. Please state your name and business address.

A. My name is James A. Busch and my business address is P. O. Box 360, Jefferson City, Missouri 65102.

Q. By whom are you employed and in what capacity?

A. I am a Regulatory Economist III in the Economic Analysis Section of the Energy Department, Utility Operations Division of the Missouri Public Service Commission (Staff).

Q. Please describe your educational and professional background?

A. I hold Bachelor of Science and Master of Science degrees in Economics from Southern Illinois University at Edwardsville. Previously, I worked as a Public Utility Economist with the Office of the Public Counsel (Public Counsel) from 1999 to 2005. Prior to my employment with Public Counsel, I worked as a Regulatory Economist I with the Procurement Analysis Department of the Missouri Public Service Commission from 1997 to 1999. I have been employed as a Regulatory Economist III with the Staff of the Public Service Commission (Staff) since April 2005. Also, I am a member of the Adjunct Faculty of Columbia College, Jefferson City Campus. I teach both graduate and undergraduate classes in economics.

Q. Have you previously filed testimony before the Commission?

A. Yes. The cases in which I have filed testimony before the Commission are listed on Schedule JAB-1.

Q. What is the purpose of your direct testimony in this case?

A. The purpose of my testimony is to present the Staff's Class Cost of Service (CCOS) study results for each of the areas in which Aquila provides electric utility service—the two areas are served by Aquila, Inc. d/b/a Aquila Networks-MPS (MPS) and as Aquila Networks-L&P (L&P).

Q. How have you organized your testimony?

A. First, I give a brief overview of the purpose of a Class Cost of Service Study. Second, I present Staff's Class Cost of Service Study results for both MPS and L&P.

II. Class Cost of Service Study – Overview

Q. What is the primary purpose of performing a CCOS study?

A. The primary purpose of a CCOS study is to estimate a utility's costs of providing service to each of the utility's customer classes by allocating total costs in a reasonable manner. In turn, that allocation may then be relied on as a guide for setting rates to the extent allowed by other rate design objectives, such as affordability, rate shock, and continuity. A utility's total costs of providing service to its regulated customers include the utility's expenses plus a reasonable rate of return on the utility's rate base. A CCOS study is used to estimate how well each customer class fulfills its revenue responsibility by comparing that class' share of the utility's total costs to the revenue that class currently provides to the utility. The results of a CCOS study also provide guidance for determining how rate elements should be designed for collecting revenues from customers within a class, depending on customer usage levels and patterns. In other words, the overall goal of a CCOS study is to match, on a customer class basis, service received to the cost of providing that service, plus a reasonable return, so that each customer pays a "fair share" of the costs incurred to serve that customer.

Q. What was the general procedure Staff followed in its CCOS study?

A. The Staff generally used the procedure described in Chapter 2 of the National Association of Regulatory Utility Commissioners (NARUC) ELECTRIC UTILITY COST ALLOCATION MANUAL, January, 1992 (NARUC Manual). The CCOS studies the Staff performs are embedded cost studies. An embedded cost study is based on dollars actually spent by the utility. Generally, the historical information required to develop cost allocations, including the utility's plant investment, operating costs, current revenues, and load information, are contained in the books and records maintained by the utility, and are examined by the Staff's auditing and rate design personnel.

Q. Since this is not a general rate case, where did Staff get the appropriate data?

A. The Staff used accounting data generated in Aquila's last general rate case, Case No. ER-2004-0034. Before the Commission recently added parties to this case, the parties in this proceeding had agreed to use that data. The Staff also relied on data generated from various studies performed by Aquila.

Q. What are the primary steps in a Class Cost of Service Study?

A. Once the relevant data are gathered, there are three primary steps in performing a CCOS study. These steps are functionalization, classification, and allocation of costs.

Q. Please explain functionalization of costs.

A. The first step of a CCOS study is functionalization. Functionalization of costs involves categorizing plant investment and operation cost accounts by the type of function with which an account is associated. Each major account was categorized by whether the costs associated with that account were related to the utility's function of production, transmission, distribution, or customer services and facilities; or, to some combination of these functions.

Q. Please explain classification of costs.

A. The second step is to separate the functionalized costs into classifications based on the components of utility service being provided. In addition, some costs can be identified as logically incurred to serve a particular customer or customer group. For example, costs in each of the distribution accounts can be classified as demand related (costs that vary with kW demands) or customer related (costs that vary with the number or type of customer served), and primary (utilized by both customers taking service at the primary voltage and customers taking service at the secondary voltage) or secondary (utilized by only customers taking service at the secondary voltage). Another example is that certain plant investments can be identified as exclusively serving a special contract customer, and thus can be directly assigned.

Q. Please explain allocation of costs.

A. The third step of performing a CCOS study is called allocation. After costs have been properly classified, the analyst chooses allocation factors that will allocate a reasonable share of jurisdictional costs to each customer class. Allocation factors are based on ratios that represent the proportion of total units (total number of customers, total annual energy consumption, etc.) attributable to a certain customer class. These ratios are then used to calculate the proportions of various cost categories for which a class is responsible.

III. Staff's Class Cost Of Service Studies

Q. What was the source of the data the Staff used in its Class Cost of Service Study?

A. As mentioned above, the source of the accounting data was Aquila's previous rate case. Aquila provided other data, such as class loads.

Staff witness Ms. Janice Pyatte, and other members of Staff under her supervision, prepared class level revenue and load data from information Aquila provided to them and other parties. I used these sources for the data I input into the Staff's CCOS studies.

Q. What customer classes did the Staff use in its Class Cost of Service Studies?

A. The Staff used the following classes for Aquila Networks-MPS customers: Residential Service (RES), Small General Service (SGS), Large General Service (LGS), Large Power Service (LPS), Other, and Lighting. The Other class includes Thermal Energy Storage and the special contract customer.

The Staff used the following classes for Aquila Networks-L&P customers: Residential (RES), Small General Service (SGS), Large General Service (LGS), Large Power Service (LPS), and Lighting.

Q. Please describe how the Staff functionalized costs in its Class Cost of Service Studies.

A. Staff functionalized all plant accounts and expense accounts into the following categories: production, transmission, distribution and customer.

The production function consists of generating plants where energy resources such as natural gas and coal are converted to electricity. It also includes cost of fuel and labor to operate these plants. As illustrated in the graph attached as Schedule 2, generation facilities are the first link in the chain in providing electricity to customers.

The transmission function moves electricity at a very high voltage, from generating plants over long distances to local service areas. Electricity is transferred at high voltages to minimize the current flow and thus the amount of electrical energy converted to heat in the wires, and thereby to lessen energy loss and the risk of fire. The transmission function consists of costs for high voltage lines and transmission substations, and labor to operate and maintain these facilities. Transmission lines typically consist of large steel or wood structures and wires.

The distribution function converts high voltage power from the transmission system into lower primary voltage and delivers it to large industrial complexes, and further converts it into even lower secondary voltage power which can be delivered into homes for lights and appliances. Distribution is the final link in the chain built to deliver electricity to the customers' homes or businesses. A utility's distribution plant includes distribution substations, poles, wires, transformers and meters, as well as service and labor expenses incurred for the operation and maintenance of these distribution facilities.

The customer function includes labor expenses incurred for billing and customer services.

The pie charts below show the relative percentage of the costs for each of these functions for Aquila's Missouri regulated electric operations.

Table 1 – Aquila Networks – MPS Functionalized Costs

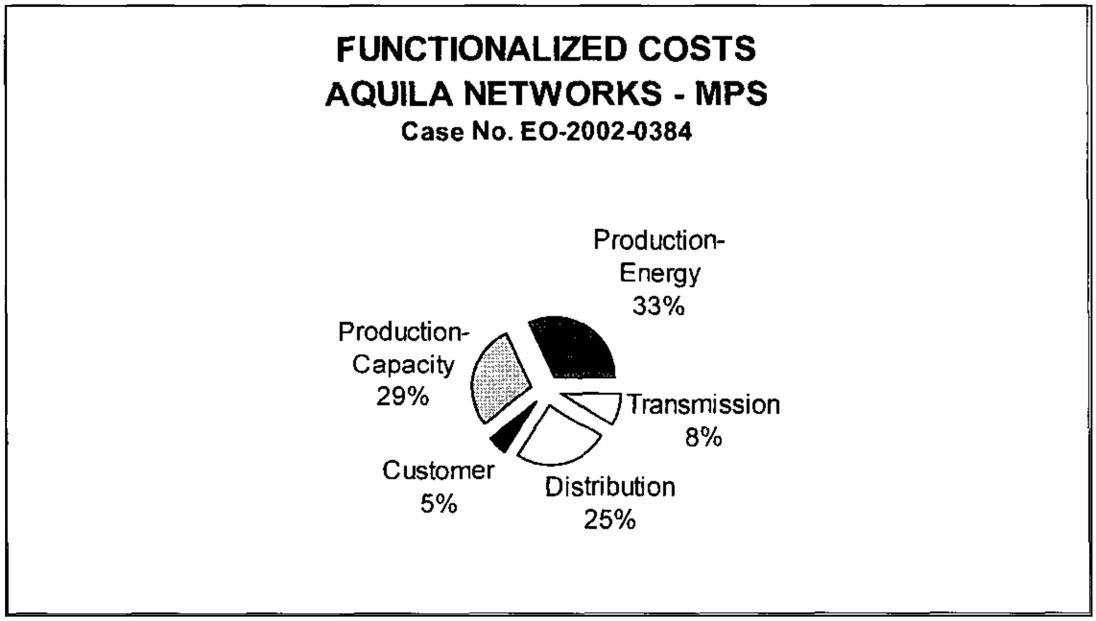
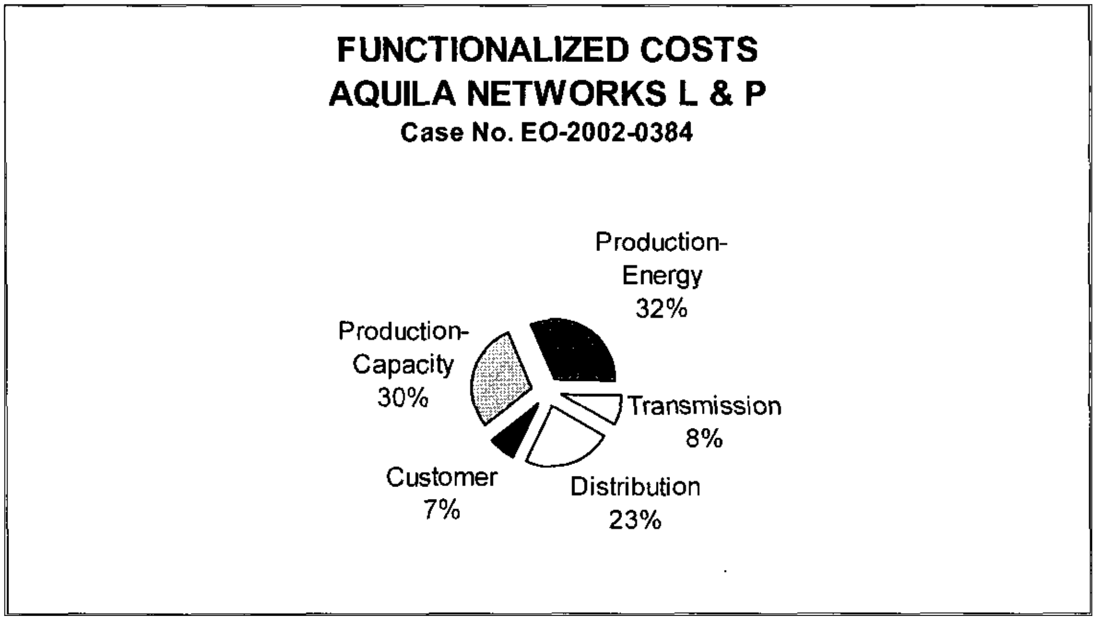


Table 2 - Aquila Networks – L & P Functionalized Costs



Q. Please describe how the Staff classified costs in its Class Cost of Service Study.

A. The functionalized costs were further classified into the following categories:

Production – Energy

Production – Capacity

Transmission – Capacity

Distribution – Substations – Primary demand

Distribution – Feeder Lines – Primary demand

Distribution – Overhead Lines & Poles – Primary customer

Distribution – Overhead Lines & Poles – Secondary customer

Distribution – Underground Lines & Conduits – Primary customer

Distribution – Underground Lines & Conduits – Secondary customer

Distribution – Lines, Poles, & Conduits – Primary demand

Distribution – Lines, Poles, & Conduits – Secondary demand

Distribution – Transformers – Secondary customer

Distribution – Transformers – Demand

Distribution – Customer Installations

Distribution – Services

Distribution – Meters

Customer – Customer Deposits

Customer – Meter Reading

Customer – Billing, Customer Sales & Services

Assigned – Special Contract

Assigned – Large Power

Assigned – LGS/LPS/SC Classes

Assigned – RES/SGS Classes

Revenue Related

Lighting

Q. Why is Production Plant classified into two different categories?

A. Production Plant includes the cost of land, structures and equipment used in connection with power generation. Both demand and energy characteristics of a system's loads are important determinants of production plant costs. Specifically, fuel expenses and purchased power costs are directly related to the amount of electricity sold, and are thus classified as energy related. The costs of generation facilities are directly related to a utility's generation capacity, which is determined through the utility's system planning, where many factors including both load factor and demand are considered, and are thus classified as capacity related.

Q. How did the Staff allocate Production – capacity cost?

A. The Staff allocated Production – capacity cost based on a Time of Use allocator (TOU).

Q. How did the Staff allocate Production – energy cost?

A. The Staff allocated Production – energy cost based on a TOU allocator.

Q. Why did the Staff use TOU allocators to allocate production costs?

A. Since different types of generating units (base, intermediate, and peaking) have different operational and cost characteristics, utilities attempt to build the amounts and types of generating units that provide flexibility to match supply to demand in every hour throughout the year at the lowest possible annual cost. Because production-capacity costs are determined by loads throughout the year, each class's contribution to the sum of hourly class loads was used to allocate hourly production-capacity costs. For consistency and because production-energy costs also vary throughout the year, each class's contribution to the sum of hourly class loads was used to allocate hourly production-energy costs.

Q. Did the Staff use the same TOU allocator to allocate both production-capacity and production-energy costs?

A. No. While the allocator is the same on an hourly basis, it is not the same on an annual basis. Weather-sensitive classes have a larger contribution to the sum of the hourly class demands during periods when incremental capacity costs are relatively low and incremental energy costs are relatively high, while the opposite is true for classes with little weather sensitivity.

Q. How were the TOU allocators calculated?

A. Hourly energy costs from a production simulation model run (fuel run) were used to develop a functional relationship between hourly energy costs and load level. This functional relationship was used to calculate hourly marginal energy costs. Hourly marginal production-capacity costs were derived from the hourly marginal energy costs. In each hour the marginal energy costs are summed to determine the total energy cost. The total energy cost in each hour is then allocated to the classes based on their contribution to total load in that hour. A similar process was followed for summing marginal capacity costs and allocating the total to the classes each hour. This is equivalent to the capacity utilization method when each increment of capacity is priced at its marginal cost. Hourly transmission-capacity costs were derived from functionalized transmission-capacity costs based on capacity utilization with each increment of capacity priced the same, i.e. transmission-capacity costs per kW were assumed to be constant.

In each hour the production-capacity costs, production-energy costs, and the transmission-capacity costs (separately) are allocated to each class based on their contribution in that hour to the sum of the class loads. Summing the allocated costs over all hours for each class results in annual costs. The TOU allocator is then calculated as each class's contribution to the sum of the annual costs.

Q. How did the Staff allocate transmission plant cost?

A. Transmission plant is generally considered to be an extension of production plant. It can be used as a substitute for generation facilities to provide reliable service throughout the year, including periods of scheduled maintenance. It can be used to minimize the cost of generation facilities through the sales or purchase of power. The planning and operation of transmission plant is inexorably linked to production plant, with the major factors that drive production costs tending also to drive transmission costs. Therefore, transmission plant costs can be equitably allocated on the same basis as Production Plant costs. Accordingly, the Staff allocated transmission plant costs based on a TOU allocator.

Q. Is there an alternative way to describe TOU allocations?

A. Yes. Three sets of hourly prices were developed – one for production capacity, one for transmission capacity, and one for energy. Each class's hourly load is then priced out on each set of hourly prices and summed over all hours. The resulting sum is each class's allocation of production capacity costs, transmission capacity costs, and production energy costs, respectively.

The TOU allocation methodology has been favored by past Commissions because it has the characteristic that every customer, large or small, residential or industrial, pays exactly the same price as every other customer taking service in the same hour. In this respect, TOU allocations mimic a truly competitive retail electricity market. Real-time pricing tariffs, which are offered in various forms by several utilities in Missouri, are also based on this concept.

Q. Who developed the TOU allocator you utilized in the Staff's Class Cost of Service Study?

A. Staff witness James Watkins developed the TOU allocators I utilized in the Staff's Class Cost of Service Study. Please see his direct testimony in this case for the rationale for its use in a CCOS study.

Q. Why is the distribution function classified into primary and secondary categories?

A. An electric utility's distribution system includes a primary (higher voltage) system and a secondary (lower voltage) system. Some industrial customers and research centers require higher voltage or stricter voltage regulation than can be provided by the secondary distribution system, thus they receive services at the high voltage side of the transformer.

Q. Why is the overhead and underground distribution function classified into customer and demand categories?

A. The cost of distribution conductors is directly related to their size as well as their length. Conductors are sized based on customers' demand. The length of a conductor is determined by customers' locations relative to the source of the electricity they use. In other words, a portion of the costs of conductors is not directly related to the customers' demand and should reasonably be separated from the portion of the costs of the conductors that varies directly with capacity or demand. Poles and underground conduits are used to support the conductors and thus should receive the same treatment.

Q. How did the Staff determine the primary/secondary, and customer/demand splits?

A. The Staff relied on a distribution study performed by Aquila for determining the primary/secondary and customer/demand splits.

Q. How did the Staff allocate the portion of substations, poles, and conductors related to primary demand?

A. The Staff used class contribution to the sum of annual class peak demands to allocate the portion of substations, poles, and conductors related to primary demand since substations and primary conductors are sized to meet the diversified demands of customers. Diversity incorporates the fact that not all individual customer's usage of electricity peak at the same time. However, since each substation serves a geographic area smaller than the total service territory, system coincident peak demands are not appropriate. The class peak demands incorporate the diversity within each class, but do not take that diversity all the way to the total system.

Q. How did the Staff allocate the portion of poles, conductors, and transformers costs related to secondary demand?

A. Secondary lines are sized to meet the diversified demands of the secondary customers and therefore class contribution to the sum of annual non-coincident class peak demands were used to allocate secondary poles, conductors, and conduits. Line transformers serve an even smaller group of customers. Class peaks incorporate too much diversity for allocating this cost, and customer maximum demand incorporates too little since it accounts for none of the diversity between customers within these small groups. Therefore, the Staff used class contribution to customer diversified demand at secondary, which is a mix of the non-coincident class peak and customer maximum demand, to allocate line transformer costs.

Q. How did the Staff allocate the customer portion of poles, conductors, and conduits?

A. The Staff used weighted customer costs. The Staff developed the weighted customer allocator based on the number of customers in each class, multiplied by a set of weights that approximately reflect customer density for each customer class. I believe this is a reasonable way to allocate the portion of costs of poles, conductors, and conduits that varies with length.

Q. How did the Staff allocate costs associated with service lines?

A. Costs of service lines were allocated on a service-weighted customer allocator, each of which is equal to customer numbers for each particular class multiplied by the service weight. The weights used in the allocations reflect the cost of a "typical" service by class.

Q. How did the Staff allocate costs associated with meters?

A. The Staff allocated the cost of meters on the same service-weighted customer allocator described above.

Q. Please discuss the methods that you used to classify and allocate expenses.

A. Expenses were directly assigned, if possible. For the expenses that could not be directly assigned, classification of costs are made consistent with the principle that "expenses follow plant."

Q. Please explain the "expenses follow plant" principle.

A. "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. Why did the Staff use allocators based on weighted number of customers to allocate the cost of meter reading?

A. Since meter reading costs are related both to the number of customers and customer density, these costs were allocated based on weighted customers.

Q. How did the Staff allocate uncollectible accounts, billing and records, customer services, and sales promotion expenses?

A. The Staff allocated these costs on non-weighted customer numbers because they vary with the number of customers and no special studies have been done to determine what, if any, weighting would be appropriate.

Q. How did the Staff allocate property and payroll taxes?

A. Staff allocated property taxes on the basis of allocated total plant, and payroll taxes on the basis of allocated payroll expenses.

Q. How did the Staff allocate state and federal income taxes?

A. These taxes were allocated on the basis of rate base since a utility company's income taxes will be a function of the size of its rate base, and thus each class should contribute revenues for income taxes in proportion with the amount of rate base that is necessary to serve it.

Q. What were the results of the Staff's Class Cost of Service Study?

A. The Staff's Class Cost of Service Study for MPS shows that the Residential, Large Power and Other revenues need to be increased and the Small General Service, Large General Service, and Lighting revenues need to be decreased. For L&P, the results are similar, the revenues for the Residential and Large Power classes need to be increased and the Small General Service, Large General Service, and Lighting need to be decreased. The class specific information for MPS and L&P is provided in Schedule JAB-2 and JAB-3, and is summarized below in Tables 3 and 4.

Table 3 – Aquila Networks - MPS CCOS Class Revenues

		Residential	SGS	LGS	LPS	Other	Lighting
Revenue Deficiency		5,382,207	(1,880,429)	(3,463,580)	1,418,776	74,534	(1,531,508)
%		3.16%	-3.49%	-7.84%	2.78%	13.21%	-29.64%

Table 4 – Aquila Networks - L&P CCOS Class Revenues

		Residential	SGS	LGS	LPS	Lighting
Revenue Deficiency		3,167,745	(1,206,592)	(1,753,980)	632,665	(839,838)
%		7.71%	-15.93%	-9.89%	2.76%	-37.51%

Q. Does this conclude your direct testimony?

A. Yes.

Cases of Filed Testimony
James A. Busch

Company	Case No.
Union Electric Company	GR-97-393
Missouri Gas Energy	GR-98-140
Laclede Gas Company	GO-98-484
Laclede Gas Company	GR-98-374
St. Joseph Light & Power	GR-99-246
Laclede Gas Company	GT-99-303
Laclede Gas Company	GR-99-315
Fiber Four Corporation	TA-2000-23; et al.
Missouri American Water Company	WR-2000-281/SR-2000-282
Union Electric Company d/b/a AmerenUE	GR-2000-512
St. Louis County Water	WR-2000-844
Empire District Electric Company	ER-2001-299
Missouri Gas Energy	GR-2001-292
Laclede Gas Company	GT-2001-329
Laclede Gas Company	GO-2000-394
Laclede Gas Company	GR-2001-629
UtiliCorp United, Inc.	ER-2001-672
Union Electric Company d/b/a AmerenUE	EC-2001-1
Laclede Gas Company	GR-2002-356
Empire District Electric Company	ER-2002-424
Southern Union Company	GM-2003-0238
Aquila, Inc.	EF-2003-0465
Missouri American Water Company	WR-2003-0500
Union Electric Company d/b/a AmerenUE	GR-2003-0571
Aquila, Inc.	ER-2004-0034
Aquila, Inc.	GR-2004-0072
Missouri Gas Energy	GR-2004-0209
Empire District Electric Company	ER-2004-0570

STAFF CLASS COST-OF-SERVICE RESULTS

(At Revenue Neutral ROR 8.62%)

AQUILA NETWORKS - MPS

CASE NO. EO-2002-384

FUNCTIONAL CATEGORY			RES	SGS	LGS	LPS	Other	Lighting	TOTAL	% OF TOTAL
PRODUCTION	CAPACITY		$49,153,574	$15,536,040	$14,320,412	$19,400,882	$225,753	$404,493	$99,041,154	28.81%
PRODUCTION	ENERGY		$50,689,967	$16,846,630	$16,943,319	$24,433,245	$278,100	$813,850	$110,003,111	32.00%
TRANSMISSION	CAPACITY		$13,397,158	$4,403,860	$4,400,486	$6,218,959	$70,495	$197,193	$28,688,150	8.35%
DISTRIBUTION	SUBSTATIONS	DEMAND	$5,986,894	$1,751,571	$1,371,379	$1,617,761	$24,218	$0	$10,751,813	3.13%
DISTRIBUTION	POLES AND CONDUCTORS	PRI. FEEDER - DEMAND	$0	$0	$0	$0	$0	$0	$0	0.00%
DISTRIBUTION	POLES AND CONDUCTORS	PRI. TAP -CUSTOMER	$6,998,398	$3,028,578	$243,047	$48,321	$0	$0	$10,318,945	3.00%
DISTRIBUTION	POLES AND CONDUCTORS	SEC. CUSTOMER	$5,809,911	$2,466,007	$194,191	$29,932	$308	$0	$8,390,350	2.44%
DISTRIBUTION	POLES AND CONDUCTORS	PRI. TAP - DEMAND	$10,426,782	$3,051,123	$2,386,854	$2,818,018	$42,186	$0	$18,726,864	5.45%
DISTRIBUTION	POLES AND CONDUCTORS	SEC. DEMAND	$4,794,269	$1,400,745	$1,057,921	$628,086	$19,394	$0	$7,900,415	2.30%
DISTRIBUTION	TRANSFORMERS	SEC. CUSTOMER	$11,929,968	$2,267,089	$963,058	$508,711	$14,672	$0	$15,683,498	4.56%
DISTRIBUTION	TRANSFORMERS	DEMAND	$0	$0	$0	$0	$0	$0	$0	0.00%
DISTRIBUTION	CUSTOMER INSTALLATIONS		$1,110,061	$297,757	$205,494	$118,272	$3,589	$0	$1,735,474	0.50%
DISTRIBUTION	SERVICES		$6,210,651	$895,893	$123,967	$42,310	$344	$0	$7,273,165	2.12%
DISTRIBUTION	METERS		$4,212,403	$607,643	$84,081	$28,697	$233	$0	$4,933,058	1.44%
	CUSTOMER DEPOSITS		($272,570)	($39,318)	($1,582)	($209)	($3)	$0	($313,682)	-0.09%
	METER READING		$1,220,360	$528,114	$42,487	$8,426	$66	$0	$1,799,452	0.52%
	BILLING, SALES, SERVICE		$5,985,857	$860,581	$34,617	$4,577	$64	$0	$6,885,696	2.00%
	ASSIGNED LGS/LPS/BC		$0	$0	$1,035,337	$136,888	$1,928	$0	$1,174,153	0.34%
	ASSIGNED RES/SGS		$7,349,251	$1,060,137	$0	$0	$0	$0	$8,409,388	2.45%
	Assigned Lighting		$0	$0	$0	$0	$0	$2,342,925	$2,342,925	0.68%
TOTAL			$184,875,233	$54,962,451	$43,407,668	$56,042,868	$679,348	$3,758,462	$343,726,028	100.00%
	Allocate Cost of Service for Others		$0	$0	$0	$0	$0	$0	$0	
	TOTAL COST OF SERVICE		$184,875,233	$54,962,451	$43,407,668	$56,042,868	$679,348	$3,758,462	$343,726,028	
	%		53.79%	15.99%	12.63%	16.30%	0.20%	1.09%	100%	
RATE REVENUE			$170,084,867	$53,661,537	$44,188,703	$51,095,135	$564,116	$5,167,156	$324,941,314	
	Allocate Rate Revenues for Others		$0	$0	$0	$0	$0	$0	$0	
	NON RATE REVENUE		$2,034,732	$844,424	$528,894	$611,326	$8,749	$61,622	$3,887,748	
	Interruptible Credit		$0	$0	$0	$0	$0	$0	$0	
	OffSystem Revenue		$7,386,948	$2,334,803	$2,152,116	$2,915,823	$33,027	$60,788	$14,884,205	
	Excess Facility Revenue		$0	$0	$0	$0	$0	$0	$0	
	Interdepartmental Sales		$6,679	$2,116	$1,735	$2,007	$22	$203	$12,761	
	Allocate Non Rate Revenues for Others		$0	$0	$0	$0	$0	$0	$0	
TOTAL REVENUE			$179,493,026	$56,842,880	$46,871,247	$54,624,091	$604,814	$5,289,970	$343,726,028	
	%		52.22%	16.54%	13.64%	15.89%	0.18%	1.54%	100%	
	REVENUE DEFICIENCY		$5,382,207	($1,880,429)	($3,463,580)	$1,418,776	$74,534	($1,531,508)	$0	
	% CHANGE		3.16%	-3.49%	-7.84%	2.78%	13.21%	-29.64%	0.00%	

STAFF CLASS COST-OF-SERVICE RESULTS

(At Revenue Neutral ROR 8.58%)

AQUILA NETWORKS - L&P

CASE NO. EO-2002-384

FUNCTIONAL CATEGORY			RES	SGS	LGS	LPS		Lighting	TOTAL	% OF TOTAL
PRODUCTION	CAPACITY		$11,864,392	$1,681,604	$5,670,528	$8,963,258	$0	$238,658	$28,418,431	29.33%
PRODUCTION	ENERGY		$11,956,062	$1,729,236	$6,141,175	$10,298,041	$0	$361,133	$30,485,646	31.47%
TRANSMISSION	CAPACITY		$3,119,436	$442,135	$1,490,920	$2,356,660	$0	$62,749	$7,471,900	7.71%
DISTRIBUTION	SUBSTATIONS	DEMAND	$2,282,480	$326,663	$942,070	$1,223,324	$0	$0	$4,774,537	4.93%
DISTRIBUTION	POLES AND CONDUCTORS	PRI. FEEDER - DEMAND	$0	$0	$0	$0	$0	$0	$0	0.00%
DISTRIBUTION	POLES AND CONDUCTORS	PRI. TAP -CUSTOMER	$1,385,158	$252,376	$114,390	$7,212	$0	$0	$1,759,136	1.82%
DISTRIBUTION	POLES AND CONDUCTORS	SEC. CUSTOMER	$1,368,536	$249,347	$112,496	$6,626	$0	$0	$1,737,006	1.79%
DISTRIBUTION	POLES AND CONDUCTORS	PRI. TAP - DEMAND	$2,831,525	$405,241	$1,168,682	$1,517,592	$0	$0	$5,923,041	6.11%
DISTRIBUTION	POLES AND CONDUCTORS	SEC. DEMAND	$679,928	$97,310	$279,113	$309,054	$0	$0	$1,365,404	1.41%
DISTRIBUTION	TRANSFORMERS	SEC. CUSTOMER	$2,290,215	$385,931	$417,694	$313,667	$0	$0	$3,407,506	3.52%
DISTRIBUTION	TRANSFORMERS	DEMAND	$0	$0	$0	$0	$0	$0	$0	0.00%
DISTRIBUTION	CUSTOMER INSTALLATIONS		$204,956	$29,783	$72,183	$73,968	$0	$0	$380,890	0.39%
DISTRIBUTION	SERVICES		$1,317,948	$240,130	$106,840	$8,862	$0	$0	$1,673,780	1.73%
DISTRIBUTION	METERS		$1,077,468	$196,315	$88,980	$5,610	$0	$0	$1,368,373	1.41%
	CUSTOMER DEPOSITS		($32,312)	($3,443)	($625)	($33)	$0	$0	($36,413)	-0.04%
	METER READING		$377,446	$68,771	$31,171	$1,965	$0	$0	$479,353	0.49%
	BILLING, SALES, SERVICE		$3,037,457	$323,640	$58,745	$3,089	$0	$0	$3,422,931	3.53%
	ASSIGNED LGS/LPS/SC		$0	$0	$373,061	$19,618	$0	$0	$392,698	0.41%
	ASSIGNED RES/SGS		$2,759,041	$293,975	$0	$0	$0	$0	$3,053,016	3.15%
	Assigned Lighting		$0	$0	$0	$0	$0	$807,417	$807,417	0.83%
TOTAL			$46,519,729	$6,719,012	$17,069,443	$25,106,514	$0	$1,469,956	$96,884,654	100.00%
Allocate Cost of Service for Others			$0	$0	$0	$0	$0	$0	$0	
TOTAL COST OF SERVICE			$46,519,729	$6,719,012	$17,069,443	$25,106,514	$0	$1,469,956	$96,884,654	
%			48.02%	6.94%	17.62%	25.91%	0.00%	1.52%	100%	
RATE REVENUE			$41,106,120	$7,675,521	$17,728,841	$22,910,401	$0	$2,238,976	$91,559,859	
Allocate Rate Revenues for Others			$0	$0	$0	$0	$0	$0	$0	
NON RATE REVENUE			$746,413	$137,558	$382,853	$442,966	$0	$40,656	$1,750,446	
Interruptible Credit			$0	$0	($4,927)	($12,317)	$0	$0	($17,244)	
OffSystem Revenue			$1,499,451	$212,525	$716,656	$1,132,799	$0	$30,162	$3,591,593	
Excess Facility Revenue			$0	$0	$0	$0	$0	$0	$0	
Sale of Emission			$0	$0	$0	$0	$0	$0	$0	
Allocate Non Rate Revenues for Others			$0	$0	$0	$0	$0	$0	$0	
TOTAL REVENUE			$43,351,984	$7,925,604	$18,823,423	$24,473,849	$0	$2,309,794	$96,884,654	
%			44.75%	8.18%	19.43%	25.26%	0.00%	2.38%	100%	
REVENUE DEFICIENCY			$3,167,745	($1,206,592)	($1,753,980)	$632,665	$0	($839,838)	$0	
% CHANGE			7.71%	-15.93%	-9.80%	2.76%		-37.51%	0.00%	

Schedule JAB-3