EXECUTIVE SUMMARY
DIRECT TESTIMONY OF J. MATT TRACY
DOCKET NO. EO-2002-384

Section I: Introduction

This section provides the qualifications of the witness, the purpose of his testimony and recommendations for the Commission.

The purpose is to provide a general description of cost-of-service ("COS"), describe the process, describe the choice of the A&E-3CP demand allocator and introduce specimen tariff sheets.

The recommendations to the Commission include the following. Moving Aquila's electric rates significantly towards the results of Aquila's COS, endorsing Aquila's selection of the A&E-3CP method of demand allocation, approving the language of the specimen tariffs, and allowing for changes based on the potential sale of L&P.

Section II: Background and Purpose

This section provides a brief outline of the case history and the purpose for the case, namely to change the revenue collected from each customer class to reflect a more level rate of return including rate design changes to accomplish this.

Section III: COS General Description

This section describes the COS and how it is used in this proceeding.

Section IV: Move Towards COS Results

This section recommends moving beyond just collecting the correct total revenue from each customer class, to collecting the revenue based on the cost factors that caused them. The main point is to collect less of the customer and demand charges from energy, as that is inefficient and counterproductive.

Section V: Class Load Shapes

This section describes the creation of the class load shapes that were used by the parties to create their demand allocators. Schedule JMT-1, which lists the rate codes by class, is introduced in this section.

Section VI: Demand Allocation

This section describes demand allocation methods, and why Aquila's A&E-3CP method is most appropriate for allocating Production and Transmission expenses. Schedule JMT-2, which contains two graphs depicting the different demand allocators, is introduced in this section.

Section VII: Proposed Tariff Sheet Language

This section introduces the specimen tariff sheets, Schedule JMT-3, that implement the changes described in Aquila witness Gray's testimony. The rate design changes Aquila requests require language different from that currently in the tariff.

Section VIII: Changes if L&P is Sold

This section lists some of the changes to Aquila's proposals for L&P that may be needed in the event of the sale of that division. Fewer changes may be needed in that event.

Exhibit No.:	
Issues:	Policy, Class Loads, Demand Allocation, Specimen Tariffs
Witness:	J. Matt Tracy
Sponsoring Party:	Aquila Networks – L&P Aquila Networks – MPS
Case No.:	EO-2002-384

Before the Public Service Commission
Of the State of Missouri

Direct Testimony

Of

J. Matt Tracy

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BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI
DIRECT TESTIMONY OF J. MATT TRACY
ON BEHALF OF
AQUILA NETWORKS
AQUILA, INC.
DOCKET NO. EO-2002-384

SECTION I – Introduction

Q. Please state your name and business address.

A. My name is J. Matt Tracy and my business address is 10700 East 350 Highway, Kansas City, Missouri, 64138.

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

A. I am employed by Aquila, Inc. ("Aquila") as a Manager in Regulatory Services.

Q. What are your duties and responsibilities at Aquila?

A. I am responsible for the collection and analysis of load research, rate design, supporting cost-of-service studies, and other analyses as needed.

Q. Please state your educational background and experience.

A. I have an M.A. in Economics from the University of Missouri - Kansas City and a B.A. in Psychology and Religion from William Jewell College. From 1985 to 1996, I worked in load research at Missouri Public Service a division of Aquila, (then UtiliCorp United Inc.), and at Aquila. Duties during that time included load research sample design and analysis, cost-of-service preparation, load forecasting, and weather normalization. In 1996, I accepted a position in the analytical section of UtiliCorp's Regulatory Services. In 2002, I was again given responsibility for load research.

Q. What is the purpose of your testimony in this case before the Missouri Public Service Commission ("Commission")?

A. My testimony will discuss the background of this case and its purpose; a general description of a class cost-of-service study ("COS"); Aquila's recommendations and the reasons to move towards Aquila's COS results, particularly for the residential classes; the class load shapes used to develop the demand allocators for Aquila's COS; the choice of demand allocator for most of the Production and Transmission functions; and the specimen tariff sheets designed to implement the results of the COS. The tariff sheets are not being presented for implementation in this case, but to provide the Commission and all the parties with the form and text Aquila proposes to use when the new rate structures are implemented. I will also discuss our preferences for which changes to implement if Aquila Networks – L&P ("L&P") is sold.

Q. What are your recommendations?

A. Aquila recommends that the Commission:

- Move Aquila's electric rates significantly towards the results of Aquila's COS, particularly with regard to customer and demand components for the residential class.
- Support Aquila's selection of the A&E-3CP method of demand allocation for Production and Transmission.
- Approve the language of the specimen tariffs, Schedule JMT-3, to implement the rate structure changes proposed by Aquila.

- Allow Aquila some leeway in the changes for L&P based on the potential sale of that division.

SECTION II – Background and Purpose

Q. What is the background and purpose of this case?

A. A number of motions and orders in this case describe its beginnings and its purpose. My testimony will provide a brief outline of its beginning, dates of the technical conferences and other significant events, and then Aquila's view of its purpose.

Q. Please proceed.

A. This case was established as a "spin-off docket" based on the Commission's Ordered Paragraph No. 5 in its Order Approving Stipulation and Agreement in Case No. ER-2001-672, issued on February 21, 2002. Below is the timeline of technical conferences and other notable events which transpired thereafter.

9/18/02	Initial Technical Conference
3/4/03	Weather Normalization Conference
9/23/03	Weather Normalization Conference
11/12/03	Class Load Conference, at which Aquila class load shapes for data collected from 6/1/02 through 5/31/03 were reviewed. Collecting and analyzing this data consumed most of the time from the Commission's 2/21/02 Order until this date.
6/18/04	Aquila provided initial COS to all parties. Most of the time between the previous conference and this event was spent finding weather normalization of the load shapes that were acceptable to the parties.

4/18/05	Joint Response to Order Directing Filing proposing three technical conferences
5/6/05	Conference in which Aquila presented an updated COS
6/17/05	Conference in which other parties were to present their COS results, at which Commission Staff ("Staff") and the Sedalia Industrial Energy Users Association ("SIEUA") presented COS studies
6/29/05	Billing Units Conference
8/19/05	Aquila provided billing units to all parties

Q. What is the ultimate purpose of this case from Aquila's standpoint?

A. This case was established to study, on a revenue neutral basis, Aquila's class cost-of-service, to identify load characteristics and to develop revenue neutral shifts to properly balance class rates. These revenue neutral shifts would then be implemented in a subsequent rate proceeding (a revenue requirements case) and become the starting point for further possible adjustments in that subsequent case.

Q. How does this compare to what goes on in a rate case?

A. This undertaking is different than a change in total company revenue which occurs in a rate case. In this case, the final product is a design to change the revenue collected from each class, without changing the total revenue collected by Aquila.

Q. Please summarize, then, what will happen in this case?

A. In this case, Aquila will first review the returns of the various rate classes, based on COS results, and recommend changes to the revenue collected from each class to

reflect a more level rate of return for all the classes; and second, propose rate design changes to meet the rate design goals described by Aquila witness Charles Gray.

SECTION III – COS General Description

Q. What is a COS?

A. A COS is a tool to help determine how much various groups of customers are contributing to a utility company's revenue requirement. It is needed because the majority of the equipment and labor a utility expends is not devoted to a single customer. A company making a single product and selling it to a single customer has a fairly straightforward task – it must collect all of its expenses, including a profit, from the one customer. Most of the resources of an electric utility, however, whether a generating station, a lineman, or a manager, provide service to many or all customers. Determining a price for customers individually would be a monumental task, costing more to complete than the value it would provide. As a consequence, the customers are gathered into similar groups, or classes. Then all of the various expenses are accumulated into similar functions, classified by the cause of the expense, and allocated to classes of customers based on a variety of estimates. The cause of expenses is limited to those items we can use to generate a bill: that the customer exists – a customer charge; that the customer imposes a need for power on the system – a demand charge; and that the customer consumes energy – an energy charge. There are other charges, such as for reactive demand, or late payment, but customer, demand, and energy charges account for the bulk of the expenses. Other charges are generally included in COS studies in Other Revenue.

Q. How does a COS study fit into the purpose of this case?

A. A COS study is a best-effort estimate of revenue requirements by class. Some of the classifications and allocations in it are subjective and open to argument. The load research that serves as a foundation for the bulk of the demand allocations is itself estimated, so contains a degree of uncertainty. The COS is a guide in setting revenue requirements and designing rates, it is not a ruler. A COS follows the maxim about being measured with a micrometer, marked with a piece of chalk, and cut with an axe. However, it is the best information available. Any given number in it is as likely to be too low as too high, which means the numbers determined by it are the best targets available. Aquila's COS employs reasonable classifications and allocations, and is well suited for use in this case. Aquila witness David Stowe addresses the detailed creation of Aquila's COS in his direct testimony.

SECTION IV – Move Towards COS Results

Q. What changes in rates set themselves apart in Aquila's proposal?

A. Aquila witness Gray addresses the changes in Aquila's rate structures, but the philosophical shift we are proposing is a decrease in the recovery of customer and demand costs through the variable energy charge. This is probably most pronounced in the residential classes, where the fixed charge has been much lower than the cost.

Q. What are the effects of the current philosophy, as reflected in existing tariffs, where the customer charge is kept at a level much lower than cost, and energy charges are raised to collect the remainder?

A. The first effect is that for which it was presumably intended – it reduces the bills of low-use customers. The second effect is that it encourages conservation by raising the cost of consumption at the margin. That is, the next unit of electricity costs the consumer more than it costs Aquila to generate, thus encouraging the customer to find ways to reduce energy consumption.

Q. Are there undesirable aspects to the reduced bill to low-use customer effect?

A. Yes. To lower the bills of low-use customers, the bills of high-use customers are raised. Aquila found in reviewing its Colorado customers that those customers receiving LIHEAP assistance actually used more energy than average, not less. In that circumstance, lowering the cost to low-use customers actually increased the cost to those in need of assistance. To the extent that other customers provide the assistance funds, they have to provide more than they would if all customers were paying energy rates that included less of the fixed costs.

Q. Are there undesirable aspects to the conservation effect?

A. Yes. By raising the marginal cost of consumption of electricity, the price signal to consumers is distorted. Those who can afford to buy more energy-efficient homes and appliances will spend more on those goods than is warranted by the cost to society. That will reduce their use of electricity, while raising the relative use of those who cannot afford newer, more energy-efficient homes and appliances. The reduced consumption of electricity will impact Aquila's ability to collect its fixed costs, requiring Aquila to return for a rate increase. If the increase is again distributed largely to the energy charges, rather than the customer charge, then the distortion of

the energy price is amplified. That leads to another round of energy savings by those who can afford the capital investment in more efficient goods, under-recovery of revenue requirement by Aquila, and so on. All of this drives up the cost of electricity to those customers least able to afford it.

Q. Does collecting much of the fixed customer and demand costs in the variable cost of energy increase the frequency of rate cases?

A. Yes. My answer above gives the scenario for variable energy efficiency changes in the customer population, but a similar scenario plays out if average use-per-customer changes, either up or down. To the extent that fixed costs are being collected from variable energy, and consumers change the amount of energy they use, then fixed costs will either be over- or under-recovered. Keeping the fixed and variable charges close to their respective costs minimizes the impact on Aquila of changes in consumer consumption patterns. I need to note that a number of other variables come into play for any of the parties in determining when to file for a revenue change, and in any given scenario this one may not be the most important. However, all else being equal, raising the customer charge much closer to its cost will reduce the need for rate cases, thereby lowering the cost to consumers by reducing rate case expenses, freeing up resources of Staff and other parties for other needs, all while protecting the consumer and helping stabilize rates.

SECTION V – Class Load Shapes

Q. What is the purpose of creating class load shapes?

A. The class load shapes are used in creating demand allocators for the COS to assign costs to the various classes. Aquila witness Stowe will address this topic in his direct testimony. Class load shape information is not available from data collected in the routine billing of customers, so is estimated based on samples drawn from classes of customers. The sample customers have recording demand meters that track use for the customer in 15-minute increments, allowing for the creation of hourly load shapes, rather than just monthly total kWh available with the typical meter reading done for billing purposes.

Q. Were the load shapes estimated using methods generally accepted within the industry?

A. Yes, they were. In this case in particular, the parties to the case were kept informed of the development of the load shapes. Staff and Aquila personnel then worked to take the initial load shapes and normalize them for weather. The final load shapes were provided to all parties then participating, and all agreed they were acceptable, or at least none objected to them.

Q. For what classes of customers did you provide estimated load shapes?

A. Attached to my testimony is Schedule JMT-1 listing the classes and the rate codes in each class.

Q. How were the load shapes estimated?

A. The classes with many customers used a combined-ratio estimator ("CRE"). The classes with fewer customers generally used a census estimate grossed up for missing data with a CRE. The Lights and MO800 load shapes were calculated from other information.

Q. How was the Lights load estimated?

A. The Lights load started with sunrise and sunset times from the U.S. Naval Observatory's Astronomical Applications Department, http://aa.usno.navy.mil/. Times for St. Joseph, Missouri, were used for L&P. Times for Lone Jack, Missouri, were used for Aquila Networks – MPS ("MPS"). Based on those times, daylight hours were given a value of zero, nighttime hours were given a value of one, with the hours including sunrise or sunset prorated based on the time of the rise or set. The annual sum of those values is near 4380, or half of the 8760 hours in a 365 day year. The ratio of annual billed kWh to 4380 is then multiplied times each hour to create the estimated load. The months nearer the summer solstice have fewer hours of darkness, and those near the winter solstice have more. This can be significant because a system peak time of 18:00 during the summer would result in no contribution from the lighting class, but an 18:00 system peak is after dark in the winter, resulting in a contribution to peak by the lighting class.

Q. How was the MO800 class load estimated?

A. The MO800 class was estimated last. The sum of the load shapes of the previously estimated classes was reduced by the ratio of the MO800 kWh to the kWh in the summed load shape. The MO800 class includes three rates: MO800 – Municipal Water Pumping and Special Street Lighting; MO810 – Municipal Parks and Recreation, single-phase; and MO811 – Municipal Parks and Recreation, three-phase.

SECTION VI – Demand Allocation

Q. Is there only one method to allocate demand costs?

A. No. There are a number of methods.

Q. Did Aquila use only one method to allocate demand costs in its COS?

A. No. Several demand allocators were used. Various methods are generally accepted for different functions within the COS. While I will discuss several methods, the main purpose of my discussion of demand allocation is to show why we chose the A&E-3CP method to allocate the demand component of most of the Production and Transmission functions.

Q. What methods are available to allocate the demand component of costs?

A. I am not prepared to provide a comprehensive list, but believe that the following are a representative group: non-coincident peak ("NCP"), single coincident peak ("1-CP"), average of three coincident peaks ("3-CP"), average of four coincident peaks ("4-CP"), average of twelve coincident peaks ("12-CP"), average and excess ("A&E"), peak and average ("P&A"), and average annual demand ("ENERGY").

Q. What are the basics of the calculations for these methods?

A. For most of these, I will describe the numerator used in the ratio. The denominator is the sum of the class numerators for that method.

For NCP, it is the sum of the individual customer maximum demands for a class. This is normally the limiting case on one end of the spectrum of possible demand allocators.

For 1-CP, it is the class contribution to the system at the time of the system's annual peak.

For 3-CP and 4-CP, it is the average of the class contributions to the system's three or four highest monthly peaks. In Missouri, these are typically summer months, generally June through September.

For 12-CP, it is the average of the class contributions to the system's twelve monthly peaks.

Both A&E and P&A use energy weighted by the system load factor, plus one of the other demands weighted by one minus the system load factor.

For ENERGY, it is the annual usage of the class. I include this in a discussion of demand allocation because it is the limiting case on the other end of demand allocators from NCP, as energy is the load-weighted average demand for all hours in the year.

Q. Are there variations on these allocators?

A. Yes. In addition to non-coincident demands and coincident demands, there are class demands. Class demand is the maximum coincident demand for a class of customers, regardless of the time the system peaked. NCP can be calculated on an annual basis, which is perhaps most representative of its intent, or on a monthly basis, which is much simpler to calculate, as data is collected month by month. The A&E and P&A methods can both use various other demands for the excess or peak portion.

Q. Do the different demand allocation methods have different impacts on the classes?

A. Yes. Classes with high load factors are impacted opposite to those with low load factors. The class with the highest load factor for both L&P and MPS is Large Power

Service ("LPS"), and the class with the lowest load factor is residential ("RES"). The different impact is easily seen in graphs, which are provided in Schedule JMT-2.

Q. What does Schedule JMT-2 show?

A. Schedule JMT-2 shows two bar graphs, one for L&P and the other for MPS. The graphs represent the values of various demand allocations shown across the lower front of the graph, to the classes shown along the lower right of the graph. The sum of the classes in each graph for any one allocation method is 100%. The classes are sorted from front to back with the tallest in back, to facilitate viewing, and sorted from left to right from lowest to highest allocation for RES.

Q. What did you find most notable in reviewing the graphs?

A. First, that LPS's allocation goes down as RES's allocation goes up. This is the expected result from the two classes with the most extreme load factors. The ENERGY allocator is the worst for the LPS class, which uses energy most efficiently as measured by its load factor, and best for the RES class. The complement is true for the NCP allocator, with it being best for the LPS class, and worst for RES.

Second, that for both L&P and MPS, the RES class is the largest. Note that the RES class is particularly dominant for MPS.

Third, that there are a number of allocation methods that produce very similar results. For L&P, those are A&E-3CP, 3-CP, 12-CP, and 4-CP. For MPS, those are 4-CP, A&E-3CP, and 3-CP.

Fourth, that the Staff's demand allocation method is very close to the ENERGY allocator.

Fifth, even though for L&P the Staff method ranks next to the A&E-3CP method, which is what Aquila used to allocate most of its demand for the Production and Transmission functions, if one looks at the difference between the heights of the LPS and RES bars for Staff, versus the similar bars for A&E-3CP, one sees a notable difference, even though the LGS allocation is similar for the two methods.

Sixth, the 1-CP, 3-CP, and 4-CP allocation methods do not allocate any demand to LIGHTS, because LIGHTS are not on during the peaks used to calculate those methods. I included the LIGHTS class for MPS to show this phenomenon. This is one of the reasons we chose A&E-3CP, rather than a 3-CP or 4-CP allocator. Our method allocates some demand to LIGHTS. It is also noteworthy that except for Staff's method, all of the remaining demand allocators for LIGHTS are either zero, or about half the level of ENERGY. Staff's method actually allocates about 5% more than the ENERGY method to LIGHTS.

Q. What impact did these observations have on your choice of allocator?

A. The first clear need was for an allocator that was balanced in its allocation of costs between high and low load factor customers. RES loads dominate both L&P and MPS, but particularly MPS. An allocator that is less biased towards ENERGY will encourage more efficient use of facilities. By rebalancing towards NCP there is a better opportunity for high load factor customers to enter, or expand in Aquila's territory. Increasing the proportion of those types of customers in the current mix will help reduce costs for everyone as existing facilities are used at a higher overall load factor. Using an allocator that leans more towards ENERGY, such as Staff's,

discourages the expansion of high load factor customers. So relative to Aquila's A&E-3CP method, Staff's allocator will tend to decrease the overall load factor, raising the cost of providing service on the system to everyone.

The second impact was seeing that a number of allocators produce similar results. As mentioned above, we wanted to see some allocation of demand to LIGHTS. To the extent we felt the group of similar methods displayed an overall allocation that we believed was fair, we chose one that included an allocation to LIGHTS.

Q. What is the value of the A&E-3CP method of demand allocation for Production and Transmission functions?

A. The A&E-3CP method takes several perspectives into consideration. It recognizes the significance of the summer peaks to the overall cost of building the system. It notes that all classes use the system regardless of the time of their peak. And it sees the value to the entire system of having diversity between classes – it costs less to serve the sum of the diverse loads than would be needed to serve each of the loads separately.

SECTION VII – Proposed Tariff Sheet Language

Q. Do you have new tariff sheets for review?

A. Yes. Schedule JMT-3 consists of specimen tariff sheets containing language to implement the rate structure changes we are requesting.

Q. Are you submitting these tariff sheets for approval in this docket?

A. No. This is not an appropriate docket to submit, or approve tariff sheets. The purpose of the tariff sheets in Schedule JMT-3 is to provide the Commission and

other parties with the language we propose to implement the new rate structures. The changes to existing rates are in more than just rate values, so the language on the existing tariff sheets must be changed to reflect the new structure.

Q. Are the rate values in Schedule JMT-3 to be relied upon?

A. No. The rate values we are proposing are provided by Aquila witness Gray. The values in Schedule JMT-3 may be the same, but the purpose of the schedule is to provide the language, not the values.

Q. Are there changes to the tariffs that are not described in Aquila witness Gray's testimony?

A. Yes, there are two. First, we are standardizing the language between L&P and MPS. As part of trying to have similar rate structures for the two divisions, we want the language to be the same to the extent possible. Second, we added language about Web Usage Service to the LPS rates. All LPS customers have metering in place that can be accessed remotely and interrogated to show usage. This language places the charges for customers to access the information from their meters via an Internet service into the tariff. The charges recover the cost of the service, and reflect the cost of additional phone calls to the meter as more readings are needed throughout a day.

Q. Do you have a detailed description of the changes from the existing tariffs that are contained in the specimen tariffs which make up Schedule JMT-3?

A. No. The changes are largely described in the direct testimony of Aquila witness Gray, but the changes are so widespread that we believe they are more easily reviewed by

looking through the tariffs, rather than attempting a word-by-word explanation of changes.

SECTION VIII – Changes if L&P is Sold

Q. Will your recommended changes for L&P differ if an announcement of its sale is made before the end of this docket?

A. Yes. If a sale is announced, we will limit the changes for L&P. This will be partially in deference to the preferences of the potential buyer, and also to reduce the changes to L&P customers. If the potential buyer wants to change the rate structure for L&P to match its existing rates, it seems unnecessary to switch those customers to a new rate structure in the interim.

Q. What are the minimum changes you would still want for the L&P tariffs?

A. The minimum change out of this docket would be adjusting the rate levels of the various classes to better account for the COS results. We would like to have a percentage increase or decrease by which to multiply each of the rate values for each class.

Q. Are there additional changes you would recommend for the L&P tariffs?

A. Yes. Again, while we would tend to defer to the potential buyer, some changes seem warranted. For example, there are a few separate tariff sheets for L&P that have the same structure, and the same rate values. We would like to consolidate those. We would also consider incorporating the Primary Discount Rider into the LGS and LPS rates, such that there would be secondary and primary voltage rates for LGS and LPS.

The value of these changes is largely administrative, making it simpler to identify and summarize similar customers.

Q. Is there a chance Aquila would want to implement all of the changes for L&P, even if a sale is announced?

A. Yes. There is a chance that either at the request of a potential buyer, or otherwise, we may want to proceed with implementing all of the changes as if L&P were not being sold.

Q. Are you making a recommendation as to the course of action for the Commission in the event of an announced sale of L&P during this proceeding?

A. No. We are going forward as if there is no sale pending, and that L&P will continue as a part of Aquila indefinitely.

Q. Does this conclude your direct testimony?

A. Yes it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the matter of an Examination of 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-2002-384

County of Jackson)
) ss
State of Missouri)

AFFIDAVIT OF J. MATT TRACY

J. Matt Tracy, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Direct Testimony of J. Matt Tracy;" that said testimony was prepared by him and under his direction and supervision; that if inquiries were made as to the facts in said testimony and schedules, he would respond as therein set forth; and that the aforesaid testimony and schedules are true and correct to the best of his knowledge, information, and belief.

J. Matt Tracy

Subscribed and sworn to before me this 16TH day of SEPTEMBER, 2005.

Marvin L Friedrich
Notary Public
MARVIN L. FRIEDRICH

My Commission expires:

March 10, 2007