Exhibit No.:
Issues: System Energy Losses

Witness: Erin L. Maloney
Sponsoring Party: MO PSC Staff
Type of Exhibit: Direct Testimony
Case No.: ER-2007-0004
Date Testimony Prepared: January 18, 2007

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

DIRECT TESTIMONY

OF

ERIN L. MALONEY

AQUILA, INC.
DBA/AQUILA NETWORKS - MPS AND AQUILA NETWORKS - L&P

CASE NO. ER-2007-0004

Jefferson City, Missouri
January 2007

Staff Exhibit No. 216
Case No(s). ER-2007-0004
Date 4-12-07 Rptr KF

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the matter of Aquila, Inc. d/b/a Aquila Networks-MPS and Aquila Networks-L&P, for authority to file tariffs increasing electric rates for the service provided to customers in the Aquila Networks-MPS and Aquila Networks-L&P service areas.	))))))	Case No. ER-2007-0004

AFFIDAVIT OF ERIN L. MALONEY

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

Erin L. Maloney, of lawful age, on her oath states: that she has participated in the preparation of the following Direct Testimony in question and answer form, consisting of 4 pages of Direct Testimony to be presented in the above case, that the answers in the following Direct Testimony were given by her; that she has knowledge of the matters set forth in such answers; and that such matters are true to the best of her knowledge and belief.

Erin L. Maloney

Erin L. Maloney

Subscribed and sworn to before me this 17th day of January, 2007.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

SUSAN L. SUNDERMEYER
My Commission Expires
September 21, 2010
Callaway County
Commission #06942086

Susan L. Sundermeyer

Notary Public

My commission expires 9-21-10

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CASE NO. ER-2007-0004

Q. Please state your name and business address?

A. Erin L. Maloney, P.O. Box 360, Jefferson City, Missouri, 65102.

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

A. I am employed by the Missouri Public Service Commission (Commission) as a Utility Engineering Specialist II in the Energy Department of the Utility Operations Division.

Q. Please describe your educational and work background.

A. I graduated from the University of Nevada - Las Vegas with a Bachelor of Science degree in Mechanical Engineering in June 1992. From August 1995 through November 2002, I was employed by Electronic Data Systems of Kansas City, Missouri, as a System Engineer. In January 2005, I joined the Commission Staff (Staff) as a Utility Engineering Specialist I.

Q. Have you previously filed testimony before the Commission?

A. Yes. Please see Schedule ELM 1 for a list of the testimony I have filed previously before the Commission.

Q. What is the purpose of this testimony?

A. The purpose of this testimony is to recommend that the Commission adopt the system energy loss factors for Aquila Inc. d/b/a Aquila Networks-MPS (MPS) and Aquila Networks-L&P (L&P) set forth in the table below:

System Energy Loss Factors

MPS - 0.0663

L&P - 0.0845

SYSTEM ENERGY LOSS FACTOR

Q. What is the result of your system energy loss factor calculation?

A. As shown on Schedule ELM 2, attached to this Direct Testimony, the calculated system energy loss factor for the MPS system of 0.0663 or 6.63%. The calculated system energy loss factor for the L&P system is 0.0845 or 8.45%.

Q. What are system energy losses?

A. System energy losses largely consist of the energy losses that occur in the electrical equipment (e.g., transmission and distribution lines, transformers, etc.) in Aquila, Inc.'s (Aquila or the Company's) system between the generating sources and the customers' meters. In addition, small, fractional amounts of energy either stolen (diversion) or not metered are included as system energy losses.

Q. How are system energy losses determined?

A. The actual amount of system energy loss is the difference in energy between what the company generates or purchases (sources) and what the company ultimately sells (sinks). This can be expressed as:

Net System Input (NSI) = Total Sales + System Energy Losses

NSI and Total Sales are known; therefore, system energy losses may be calculated as follows:

System Energy Losses = NSI – Total Sales

The system energy loss factor is the ratio of system energy losses to NSI:

System Energy Loss Factor = System Energy Losses ÷ NSI

Q. What is "Total Sales" and how is this value determined?

A. Total Sales includes all of Aquila's retail and wholesale sales of energy as well as the energy used by Company facilities. This information was provided by the Company in response to Staff data request nos. 283 and 290.

Q. How is NSI determined?

A. In addition to the relationship expressed in the equation above, NSI is also equal to the sum of Aquila's net generation, net interchange, and any inadvertent flows. The equation for NSI can also be expressed as follows:

NSI = Net Generation + Net Interchange + Inadvertent Flows

Net interchange is the difference between interchange purchases and off-system sales. Net generation is the total energy output of each generating station minus the energy consumed internally to enable its production. The output of each generating station and the net of off-system purchases and sales are monitored continuously. The difference between scheduled and actual flows on a system is termed inadvertent interchange; this information is also monitored continuously. The net generation and interchange purchases and sales information was obtained from the monthly data reported as required by 4 CSR 240-3.190. The inadvertent flow information was obtained from data supplied by the Company in response to Staff data request no. 91. NSI was provided by the Company in response to Staff data request nos. 35 and 36.

Q. Which Staff witness used your calculated system energy loss factor?

A. The system energy loss factor was used by Staff witness Shawn E. Lange.

Q. Does this conclude your prepared Direct Testimony?

A. Yes, it does.

Previous Testimony Filed by
Erin L. Maloney

Case Number	Type of Testimony	Issues
ER-2005-0436	Direct	Reliability
ER-2006-0315	Direct	System Losses and Jurisdictional Demand and Energy Allocation
ER-2006-0314	Direct, Rebuttal, Surrebuttal, True-up Direct	System Losses and Jurisdictional Demand and Energy Allocation
ER-2007-0002	Direct	System Losses and Jurisdictional Energy Allocation

Staff's Calculated System Energy Loss Factors
Aquila, Inc., Case No. ER-2007-0004

	MPS	L&P
Componenents of System Input:		
Net Generation - 3190 Data	4,257,262	1,474,441
Net Interchange - 3190 Data	1,826,313	654,672
Inadvertent Flows from Native Purchases spreadsheet provided in response to DR # 91	29,693	-29,180
AECI Loss Replacement	-2,815	-5,939
Subtotal:	**6,110,453**	**2,093,994**
Componenents of System Output:		
Retail Sales - DR # 283	5,664,922	1,915,158
Wholesale Sales - DR # 283	31,768	0
Company Use DR # 290	8,899	4,272
Subtotal:	**5,705,589**	**1,919,430**
Calculated Net System Losses	**404,864**	**174,564**
Percentage of NSI*:	6.63%	8.45%

NSI* DRs # 35 and 36	
MPS	6,106,435
L&P	2,067,033