

Exhibit No.:
Witness: Maurice Brubaker
Type of Exhibit: Direct Testimony
Issues: Rate Design
Sponsoring Party: Federal Executive Agencies,
Sedalia Industrial Energy
Users' Association
Ag Processing, Inc. a Cooperative,
with St. Joe Industrial Group
Case No.: ER-2007-0004

**Before the Public Service Commission
of the State of Missouri**

FILED

MAY 3 2007

**Missouri Public
Service Commission**

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) Case No. ER-2007-0004
in the Aquila Networks-MPS and Aquila)
Networks-L&P service areas)

Direct Testimony of

Maurice Brubaker

on Rate Design

On behalf of

**Federal Executive Agencies
Sedalia Industrial Energy Users' Association
Ag Processing, Inc. a Cooperative, with St. Joe Industrial Group**

Project 8629
January 25, 2007



BRUBAKER & ASSOCIATES, INC.
ST. LOUIS, MO 63141-2000

Exhibit No. 501
Case No(s) ER-2007-0004
Date 4/9/07 Rptr Att

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In the Matter of Aquila, Inc. d/b/a Aquila)	
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STATE OF MISSOURI)	
)	SS
COUNTY OF ST. LOUIS)	

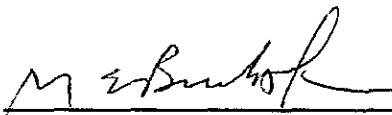
Affidavit of Maurice Brubaker

Maurice Brubaker, being first duly sworn, on his oath states:

1. My name is Maurice Brubaker. I am a consultant with Brubaker & Associates, Inc., having its principal place of business at 1215 Fern Ridge Parkway, Suite 208, St. Louis, Missouri 63141-2000. We have been retained by the Federal Executive Agencies, the Sedalia Industrial Energy Users' Association and Ag Processing, Inc. a Cooperative, with St. Joe Industrial Group in this proceeding on their behalf.

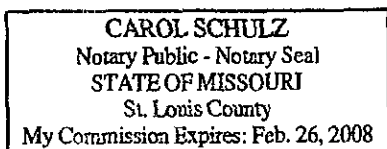
2. Attached hereto and made a part hereof for all purposes is my direct testimony which was prepared in written form for introduction into evidence in Missouri Public Service Commission Case No. ER-2007-0004.


3. I hereby swear and affirm that the testimony is true and correct and that it shows the matters and things it purports to show.



Maurice Brubaker

Subscribed and sworn to before this 24th day of January, 2007.





Notary Public

My Commission Expires February 26, 2008.

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Direct Testimony of Maurice Brubaker

1 **Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A Maurice Brubaker. My business address is 1215 Fern Ridge Parkway, Suite 208,
3 St. Louis, Missouri 63141-2000.

4 **Q WHAT IS YOUR OCCUPATION?**

5 A I am a consultant in the field of public utility regulation and president of Brubaker &
6 Associates, Inc., energy, economic and regulatory consultants.

7 **Q PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.**

8 A This information was provided in Appendix A to my revenue requirements testimony.

9 **Q ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?**

10 A I am appearing on behalf of the Federal Executive Agencies (FEA), Sedalia Industrial
11 Energy Users' Association (SIEUA) and Ag Processing, Inc. a Cooperative, with
12 St. Joe Industrial Group (AP-SJIG). The FEA, and the SIEUA and AP-SJIG
13 memberships are large energy consumers with facilities served by Aquila-L&P and
14 Aquila-MPS.

**Maurice Brubaker
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1 **Q WHAT IS THE SUBJECT OF YOUR RATE DESIGN TESTIMONY?**

2 A I address how any revenue change should be allocated among customer classes. I
3 also address the issue of losses in connection with the recovery of fuel costs outside
4 of base rates.

5 Mr. Donald Johnstone is also offering testimony on the subject of fuel cost
6 recovery outside of base rates.

7 **Q WHAT IS YOUR RECOMMENDATION WITH RESPECT TO THE ALLOCATION OF**
8 **ANY CHANGE IN REVENUES AMONG CUSTOMER CLASSES AND RATE**
9 **SCHEDULES?**

10 A It is my recommendation that any change in revenues be allocated as an equal
11 percent across-the-board change to the existing rates.

12 The across-the-board increase is consistent with the Stipulation and
13 Agreement (approved by the Commission) in Case No. ER-2005-0436. This
14 Stipulation and Agreement was not only applicable to the rate case, but also to the
15 class cost of service issues which were simultaneously being heard in Case
16 No. EO-2002-0384. Because of the results of the inter-class realignment which took
17 place in that case, and the Stipulation among Aquila, Inc., the Staff of the Missouri
18 Public Service Commission, the Missouri Department of Natural Resources, the City
19 of Kansas City, the City of St. Joseph, and the parties that I represent in this
20 proceeding, an equal percentage across-the-board allocation of any revenue change
21 is appropriate in this proceeding.

1 **Q WHAT ISSUE DO YOU ADDRESS WITH RESPECT TO THE FUEL ADJUSTMENT**
2 **CLAUSE?**

3 A I address the issue of the appropriate recognition of line loss differentials among
4 customer classes.

5 **Q WHAT IS THIS ISSUE?**

6 A The rules adopted by the Commission for fuel adjustment and interim energy charges
7 (IEC) make recognition of line losses by voltage level mandatory. If a utility does not
8 follow the Commission's rules, then it should not be permitted to have a fuel
9 adjustment clause or an IEC.

10 **Q WHAT LINE LOSS DIFFERENTIALS DID AQUILA ASSUME IN CONSTRUCTING**
11 **ITS PROPOSED FUEL ADJUSTMENT CLAUSE?**

12 A Aquila assumed that every class had the same line losses. This results from the fact
13 that it has a single base (equal to the proposed included cost of fuel and variable
14 purchased power divided by kilowatthour sales) and a single adjustment factor equal
15 to the adjustment period cost per kWh sold minus the base cost. As a result of
16 dividing costs by kWh sales, it is implicit that everybody is charged the system
17 average loss factor.

18 **Q IS THIS APPROPRIATE?**

19 A No. Losses increase as more and more facilities are used to supply customer needs.
20 For example, losses are lowest at the transmission voltage level, higher at the
21 primary level, and still higher at the secondary voltage level. This occurs because
22 more lines and more transformers are needed to deliver power to the lower voltage

1 customers. To conform with the Commission's fuel adjustment rules, these
2 differences in line loss factors must be recognized in the fuel adjustment clause.

3 **Q WHAT ARE THE LINE LOSS FACTORS THAT ARE APPLICABLE TO**
4 **CUSTOMERS SERVED BY L&P AND MPS?**

5 **A** They are shown in Table 1 below.

TABLE 1				
<u>Losses and Loss Multipliers*</u>				
<u>Description</u>	<u>L&P</u>		<u>MPS</u>	
	<u>Loss Percent</u>	<u>Multiplier</u>	<u>Loss Percent</u>	<u>Multiplier</u>
	(1)	(2)	(3)	(4)
Secondary	7.79%	1.0063	6.92%	1.0077
Primary	5.87	0.9883	4.02	0.9804
Weighted Average	7.12		6.10	
*From Case No. EO-2002-0384				

6 **Q PLEASE EXPLAIN TABLE 1.**

7 **A** Table 1 shows the actual losses from the generator to the customer, and also shows
8 the "relative" losses compared to the weighted system average. Given that Aquila
9 has expressed its fuel adjustment clause using system average fuel and variable
10 purchased power costs for L&P and MPS, it is appropriate that the fuel adjustment
11 factor applicable at each voltage level be equal to the system average cost, minus the
12 base cost, multiplied by the ratio of: (1 + the voltage level loss factor) to (1 + the
13 system average loss factor).

1 For L&P, this means that for secondary voltage customers the multiplier would
2 be 1.0063, and for primary voltage level customers it would be 0.9883. For MPS, the
3 factors are 1.0077 and 0.9804, respectively.

4 **Q CAN YOU ILLUSTRATE HOW THESE LOSS FACTORS WOULD BE APPLIED?**

5 A Yes. For purposes of illustration, I will use MPS. I will also assume that the base
6 period cost of fuel and variable purchased power per kWh sold is 2.0¢ per kWh, and
7 that in a subsequent period the corresponding cost is 2.50¢ per kWh. The first step in
8 calculating the factor would be to subtract the 2.0¢ per kWh base cost from the new
9 cost of 2.5¢ per kWh to produce 0.5¢ per kWh. The fuel adjustment factor applicable
10 at the secondary level would be 0.5¢ per kWh times the multiplier of 1.0077, or
11 0.5039¢ per kWh. At the primary voltage level, the factor would be 0.5¢ per kWh
12 times the multiplier of 0.9804, or 0.4902¢ per kWh.

13 **Q IN THIS CASE, STAFF WITNESS ERIN MALONEY HAS CALCULATED SLIGHTLY**
14 **HIGHER SYSTEM AVERAGE LOSS FACTORS BOTH FOR MPS AND L&P.**
15 **WOULD THE "MULTIPLIERS" WHICH YOU HAVE CALCULATED IN TABLE 1 BE**
16 **APPLICABLE TO THOSE DIFFERENT SYSTEM AVERAGE LOSS FACTORS?**

17 A Yes. If system average loss factors are higher, then losses at both the secondary
18 voltage level and the primary voltage level would be higher. Absent a major change
19 in system configuration, the losses would be in the same proportion as they were
20 previously. Thus, the multipliers shown in Columns 2 and 4 of Table 1 are
21 appropriate for use in this case.

1 Q DOES THIS CONCLUDE YOUR DIRECT TESTIMONY ON RATE DESIGN
2 ISSUES?

3 A Yes, it does.

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