

Exhibit No:

**Issues: Aquila's Application to Join Midwest
ISO**

Witness: Ralph L. Luciani

Sponsoring Party: Aquila, Inc.

Type of Exhibit: Surrebuttal Testimony

Case No.: EO-2008-0046

MISSOURI PUBLIC SERVICE COMMISSION

SURREBUTTAL TESTIMONY

OF

RALPH L. LUCIANI

Aquila, Inc.

d/b/a Aquila Networks – MPS and Aquila Networks – L&P

CASE NO. EO-2008-0046

Washington, DC
February 2008

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

**SURREBUTTAL TESTIMONY
OF RALPH L. LUCIANI
ON BEHALF OF AQUILA, INC.**

**D/B/A AQUILA NETWORKS-MPS AND AQUILA NETWORKS-L&P
CASE NO. EO-2008-0046**

1 **Q. Please state your name, title and business address.**

2 A. My name is Ralph L. Luciani. I am a Vice President of CRA International, Inc.
3 (formerly, Charles River Associates, Inc.). My business address is 1201 F St., NW,
4 Washington, DC 20004.

5 **Q. Please briefly describe your business and educational background.**

6 A. I have more than 20 years of consulting experience analyzing economic and
7 financial issues affecting the electricity industry, including those related to costing,
8 ratemaking, generation planning, environmental compliance, fuel supply,
9 competitive restructuring, stranded cost, asset valuation, wholesale power
10 solicitations, power marketing, and Regional Transmission Organization costs and
11 benefits. Prior to joining CRA, I was a Senior Vice President at PHB Hagler Bailly,
12 and a Director at Putnam, Hayes and Bartlett, Inc. I hold a B.S in Electrical
13 Engineering and Economics from Carnegie Mellon University. I also hold an M.S.
14 from the Graduate School of Industrial Administration at Carnegie Mellon
15 University. I have previously testified before the Arkansas, Maryland, Kansas,
16 Kentucky, Louisiana, Maryland, Missouri, Ohio and Pennsylvania state regulatory
17 commissions, the Federal Energy Regulatory Commission, and the Ontario Energy
18 Board.

1 **Q. What is the purpose of your testimony?**

2 A. Under my direction, CRA International ("CRA") performed a cost-benefit analysis
3 ("Study") for Aquila Missouri electric operations to assess the impact of potential
4 membership in a Regional Transmission Organization ("RTO"). CRA considered
5 three scenarios for Aquila Missouri: Membership in the Midwest ISO, membership
6 in SPP, and a move to a stand-alone status in which Aquila performs transmission-
7 and reliability-related functions on its own. The Study was completed in March
8 2007, and was attached as Schedule DO-3 in the Direct Testimony of Dennis Odell
9 in this proceeding. I have been asked by Aquila to respond to various comments
10 regarding the Study made by Johannes P. Pfeifenberger, Michael S. Proctor and
11 Mark J. Volpe in their rebuttal and supplemental rebuttal testimonies in this
12 proceeding.

13 **Q. Mr. Volpe and Mr. Pfeifenberger express concern regarding the assumption in**
14 **the Study of a Day 2 market for SPP. Can you comment?**

15 A. Yes. As discussed in detail in the Study, the Study was performed with the
16 assumption that there would be a Day 2 market for SPP. Currently, SPP operates an
17 energy imbalance market, but does not yet operate a day-ahead market or use
18 Financial Transmission Rights ("FTRs"). The Study assumptions regarding the
19 SPP market were formulated to look over a long-term time-frame, as the decision to
20 join an RTO is generally one with long-term considerations.

21 Since the issuance of the Study, SPP has formally established a cost-benefit
22 task force to analyze a potential transition of SPP to a full Day 2 market. The scope
23 document for that task force discusses the plan for performing cost-benefit studies

1 of future market developments in SPP, such as a day-ahead market and an ancillary
2 services market. The cost-benefit task force has created a document entitled
3 "Proposed High Level Design for Southwest Power Pool, Future Market
4 Development" which notes that the task force was directed by the SPP Market
5 Operating and Planning Committee and the SPP Strategic Planning Committee to
6 develop a proposal for future market development in SPP to replace or refine the
7 recently implemented real-time Energy Imbalance Service market.

8 As Dr. Proctor notes, to the extent that SPP moves to a full Day 2 market, it
9 will be because the expected benefits to SPP exceed the expected costs. To the
10 extent then that SPP would not move to a full Day 2 market, the expectation would
11 be that the status quo is more cost beneficial to the SPP members.

12 Mr. Volpe suggests that the trade benefits in the SPP case be eliminated
13 prior to 2011 and performs some calculations to do so. However, his calculations
14 do not accurately modify the analysis. In order to correctly do the calculations that
15 he suggests, one would also need to eliminate the related SPP Day 2 administrative
16 costs in those years, and also would need to calculate the present value impact of the
17 annual impacts as the total results are on a present value basis.

18 **Q. In his rebuttal testimony, Mr. Pfeifenger expresses concern that the Aquila**
19 **Missouri jointly-owned and contracted units located outside of the Aquila**
20 **Missouri service territory were not included in the GE MAPS model**
21 **commitment for Aquila Missouri. Can you comment?**

22 A. Yes. GE MAPS recognizes pool ownership for jointly-owned units. If either pool
23 in which a jointly-owned unit is located needs the unit for commitment purposes,

1 it will be committed and available for both pools to use. Commitment and
2 dispatch hurdle rates apply for a jointly-owned unit that is located in an external
3 control area.

4 As such, the Aquila external resources were available for commitment for
5 the Aquila Missouri load in all cases in the Study. Commitment and dispatch
6 hurdle rates applied to these external resources for Aquila-area commitment in the
7 Stand-alone case and the MISO case, and to the Cooper and Gentleman resources
8 in the SPP case. These jointly-owned external resources are baseload in nature,
9 and likely would be committed by the pool in which the resource is located
10 regardless of a commitment hurdle rate into Aquila Missouri.

11 In the calculation of trade benefits, an adjustment was made to the Aquila
12 Missouri tie-line flows for the power produced by the Aquila Missouri jointly-
13 owned and contracted units located outside of the Aquila Missouri control area.

14 **Q. In his rebuttal and supplemental rebuttal testimony, Mr. Pfeifenberger**
15 **expresses concern regarding the commitment and dispatch in GE MAPS of the**
16 **Aries merchant unit located in the Aquila Missouri service territory and the**
17 **resulting impact on the Aquila Missouri trade benefits. Can you comment?**

18 A. Yes. Each of the three cases modeled in the Study are different than the current
19 circumstances of Aquila Missouri, which is currently a transmission owner under
20 the SPP tariff but not a member of the SPP balancing market. The commitment and
21 dispatch of Aries and the Aquila generating resources are optimized simultaneously
22 in the Study modeling. In the Study, the Aries unit was treated as a unit under
23 contract with Aquila with Aquila paying market revenues for the output of the unit.

1 Absent a contract, alternative assumptions would have to be made about the
2 disposition of Aries power. For example, if assumed to be exported, the Aries
3 generation would need to be netted from the Aquila tie-lines in calculating Aquila
4 trade benefits and replaced with additional purchases.

5 As Mr. Pfeifenberger notes, there is significant uplift for Aries in the Stand-
6 alone and Midwest ISO cases in the 2008 GE MAPS runs, relative to that in the SPP
7 case. Uplift revenues represent market revenues that are received when a unit's
8 production costs during an operating cycle are not fully recovered at the simulated
9 locational marginal price ("LMP"), and are a standard calculation in our GE MAPS
10 modeling. The existence of uplift market revenue indicates that the unit is being
11 committed, and then replaced by less expensive external power during the dispatch
12 phase. For methodological consistency, the uplift market revenues as well as the
13 LMP-based market revenues need to be included in the Aquila market revenue
14 payments to Aries.¹

15 Upon completion of the Study, stakeholders requested in May 2007 further
16 information regarding the differences in Aries operation between the cases in the
17 Study. The result of that evaluation was included in the Direct Testimony of Dennis
18 Odell as Schedule DO-4. Aside from seams charges and transmission limitations,
19 Schedule DO-4 noted the importance of the relative level of natural gas prices in
20 Missouri for the Aries unit with respect to the level of gas prices elsewhere in the
21 SPP and elsewhere in the Midwest ISO. In the Study, gas prices were somewhat
22 lower in Missouri, and thus for Aires, relative to other combined-cycle plants in the

¹ While Mr. Pfeifenberger generally cites 2008 model data in his rebuttal testimony, it is important to also consider the remaining years of data in the 10-year Study as, for example, the Aries uplift in the Standalone and Midwest ISO cases declines over time.

1 Midwest ISO. In contrast, the Missouri/Aries gas prices were somewhat higher than
2 the gas prices in most other areas of SPP. The combination of gas prices,
3 transmission limitations and seams charges results in Aries being committed and
4 dispatched less often in the SPP case.

5 **Q. In his rebuttal and supplemental rebuttal testimony, Mr. Pfeifenberger**
6 **expresses concern regarding the use of pool commitment in the GE MAPS runs**
7 **in the Study. Can you comment?**

8 A. Yes. The alternative in GE MAPS to the use of pool commitment is system
9 commitment. The commitment assumption would apply to each and every pool and
10 individual control area in the modeled footprint (i.e., the Eastern Interconnect). In
11 CRA's cost benefit work, we have used pool commitment rather than system
12 commitment because pool commitment provides a more appropriate reflection of
13 the unit commitment process performed by an individual pool than system
14 commitment. System commitment is likely too efficient absent the type of seams
15 agreements that provide system operators the real-time data and operational controls
16 that would result in commitment co-optimization across pools. While actually
17 running the model under both a pool commitment and system commitment
18 methodologies may yield differences between the cases and provide further insight
19 on this issue, CRA does not at this point have a reason to believe that any particular
20 case would be advantaged.

21 **Q. In his supplemental rebuttal testimony, Mr. Pfeifenberger expresses concern**
22 **regarding the scheduling of planned unit outages in the Study. Can you**
23 **comment?**

1 A. Yes. As far as particular concerns about case results, Mr. Pfeifenger seems to be
2 referencing CRA model runs performed for Mr. Pfeifenger under a separate
3 agreement outside of the Study. The CRA modeling assumption is that the
4 maintenance of the Aquila units will be scheduled based on load shapes of the
5 market in which Aquila is participating. This is a consistent assumption applied to
6 all units in the pool (and to all units in all other pools) and thus treats all entities in
7 the pool on a consistent basis. CRA has applied this same standard planned outage
8 modeling assumption in other RTO cost-benefit studies it has performed. Setting
9 the maintenance for the units of one entity in a pool raises the question as to what
10 assumption to make for the other entities in the pool. As such, in CRA's view
11 allowing GE MAPS to schedule planned outages against the pool load shapes is the
12 better modeling assumption, absent an explicit reason to believe that this scheduling
13 method would create an advantage for any particular case in the study.

14 Q. **Based upon your review of the rebuttal and supplemental rebuttal testimony**
15 **criticizing various aspects of the Study, can the Study continue to be relied**
16 **upon by Aquila in evaluating its RTO options?**

17 A. Yes, the study represents a reasonable, valid and independent analysis of the
18 economics of Aquila's RTO alternatives and can be relied upon by Aquila in
19 evaluating those alternatives.

20 Q. **Does this conclude your testimony?**

21 A. Yes.

22

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of the Application of)
Aquila, Inc.; d/b/a Aquila)
Networks – MPS and Aquila)
Networks – L&P for Authority to)
Transfer Operational Control of)
Certain Transmission Assets)
to the Midwest Independent)
Transmission System Operator, Inc.)

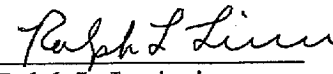
Case No. EO-2008-0046

AFFIDAVIT OF RALPH L. LUCIANI

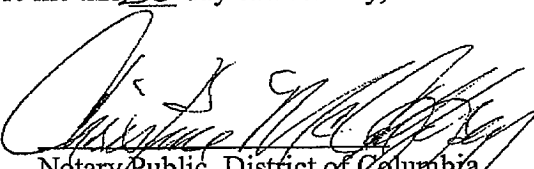
DISTRICT OF COLUMBIA)
CITY OF WASHINGTON)

Ralph L. Luciani, being first duly sworn on his oath, states:

1. My name is Ralph L. Luciani. I am presently a Vice President for CRA International, which serves as a consultant for Aquila, Inc.
2. Attached hereto and made a part hereof for all purposes is my surrebuttal testimony.
3. I hearby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct to the best of my personal knowledge, information and belief.


Ralph L. Luciani

Subscribed and sworn before me this 25 day of February, 2008.


Notary Public, District of Columbia
My Commission Expires: October 14, 2012



CHRISTINE McCAFFREY
NOTARY PUBLIC
DISTRICT OF COLUMBIA
My Commission Expires
October 14, 2012