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Your Touchstone Energy® Cooperative 

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JUL 06 2012

PUBLIC SERVICE  
COMMISSION

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY

In the Matter of:

APPLICATION OF BIG RIVERS ELECTRIC )  
CORPORATION FOR APPROVAL OF ITS )  
2012 ENVIRONMENTAL COMPLIANCE )  
PLAN, FOR APPROVAL OF ITS AMENDED )  
ENVIRONMENTAL COST RECOVERY )  
SURCHARGE TARIFF, FOR CERTIFICATES )  
OF PUBLIC CONVENIENCE AND )  
NECESSITY, AND FOR AUTHORITY TO )  
ESTABLISH A REGULATORY ACCOUNT )

Case No.  
2012-00063

Response to Kentucky Industrial Utility Customers'  
Second Request for Information  
Dated June 22, 2012

FILED: July 6, 2012

ORIGINAL

SULLIVAN, MOUNTJOY, STAINBACK & MILLER PSC

ATTORNEYS AT LAW

M. Sullivan  
Jesse T. Mountjoy  
Frank Stainback  
James M. Miller  
Michael A. Fiorella  
Allen W. Holbrook  
R. Michael Sullivan  
Bryan R. Reynolds  
Tyson A. Kamuf  
Mark W. Starnes  
C. Ellsworth Mountjoy  
Susan Montalvo-Gesser  
Mary L. Moorhouse

July 6, 2012

**Via Federal Express**

Jeff DeRouen  
Executive Director  
Public Service Commission  
211 Sower Boulevard, P.O. Box 615  
Frankfort, Kentucky 40602-0615

RECEIVED

JUL 06 2012

PUBLIC SERVICE  
COMMISSION

Re: *In the Matter of: Application of Big Rivers Electric Corporation for Approval of its 2012 Environmental Compliance Plan, for Approval of its Amended Environmental Cost Recovery Surcharge Tariff, for Certificates of Public Convenience and Necessity, and for Authority to Establish a Regulatory Account, P.S.C. Case No. 2012-00063*

Dear Mr. DeRouen:

Enclosed for filing are an original and ten copies of Big Rivers Electric Corporation's (i) response to the Public Service Commission's second request for information, (ii) response to the Attorney General's second request for information, (iii) response to Kentucky Industrial Utility Customers' second request for information, (iv) response to Sierra Club's second request for information, (v) response to Kentucky Industrial Utility Customers' third request for information, (vi) response to Sierra Club's third request for information, (vii) a petition for confidential treatment for certain documents being filed with the responses, and (viii) a motion to deviate from the requirement that all documents filed in response to requests for information be furnished in paper form. Copies of this letter and all enclosures have been served on each of the persons listed on the attached service list. A copy of the information for which confidential treatment is sought has also been served on each party that has entered into Big Rivers' confidentiality agreement.

Sincerely yours,



Tyson Kamuf

TAK/ej  
Enclosures

cc: Mark A. Bailey  
Albert Yockey

Telephone (270) 926-4000  
Facsimile (270) 683-6694

100 St. Ann Building  
PO Box 727  
Owensboro, Kentucky  
42302-0727

Service List  
PSC Case No. 2012-00063

Jennifer B. Hans, Esq.  
Dennis G. Howard, II, Esq  
Lawrence W. Cook, Esq.  
Matt James, Esq.  
Assistant Attorneys General  
1024 Capital Center Drive  
Suite 200  
Frankfort, KY 40601-8204

Michael L. Kurtz, Esq.  
Kurt J. Boehm, Esq.  
Boehm, Kurtz and Lowry  
36 East Seventh Street, Suite 1510  
Cincinnati, OH 45202

David C. Brown, Esq.  
Stites & Harbison PLLC  
1800 Providian Center  
400 West Market Street  
Louisville, KY 40202

Joe Childers, Esq.  
Joe F. Childers & Associates  
300 Lexington Building  
201 West Short Street  
Lexington, Kentucky 40507

Kristin Henry  
Staff Attorney  
Sierra Club  
85 Second Street  
San Francisco, CA 94105

Shannon Fisk  
745 N. 24th St.  
Philadelphia, PA 19130

Christopher Leung  
Earthjustice  
156 William Street  
Suite 800  
New York, New York 10038

Walt Drabinski  
Vantage Energy Consulting, LLC  
24160 Overseas Highway  
Cudjoe Key, Florida 33042

Chuck Buechel  
10 Eagleview Lane  
Fort Thomas, KY 41075

Mike Boismenu  
3 Lotus Bay Estate Drive  
Irving, NY 14081

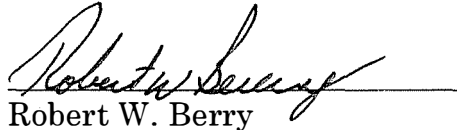
**BIG RIVERS ELECTRIC CORPORATION**

**THE APPLICATION OF BIG RIVERS ELECTRIC CORPORATION FOR  
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REVISIONS TO ITS ENVIRONMENTAL SURCHARGE TARIFF, FOR  
CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY, AND FOR  
AUTHORITY TO ESTABLISH A REGULATORY ACCOUNT**

**CASE NO. 2012-00063**

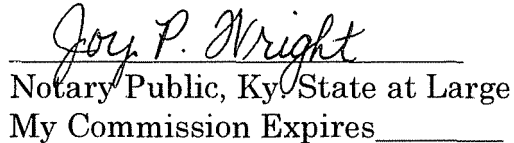
**VERIFICATION**

I, Robert W. Berry, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

  
Robert W. Berry

COMMONWEALTH OF KENTUCKY )  
COUNTY OF HENDERSON )

3<sup>rd</sup> SUBSCRIBED AND SWORN TO before me by Robert W. Berry on this the  
day of July, 2012.

  
Notary Public, Ky State at Large  
My Commission Expires \_\_\_\_\_

Notary Public, Kentucky State-At-Large  
My Commission Expires: July 3, 2014  
ID 421951


**BIG RIVERS ELECTRIC CORPORATION**

**THE APPLICATION OF BIG RIVERS ELECTRIC CORPORATION FOR  
APPROVAL OF ITS 2012 ENVIRONMENTAL COMPLIANCE PLAN AND  
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**CASE NO. 2012-00063**

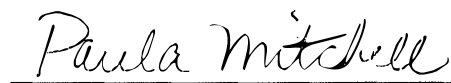
**VERIFICATION**

I, David G. Crockett, verify, state, and affirm that I prepared or supervised the preparation of my data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

  
David G. Crockett

COMMONWEALTH OF KENTUCKY     )  
COUNTY OF HENDERSON            )

SUBSCRIBED AND SWORN TO before me by David G. Crockett on this the 3<sup>rd</sup> day  
of July, 2012.

  
Notary Public, Ky. State at Large  
My Commission Expires 1-12-13

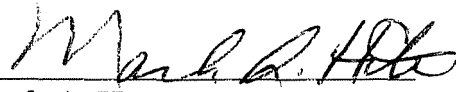
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**CASE NO. 2012-00063**


**VERIFICATION**

I, Mark A. Hite, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

  
Mark A. Hite

COMMONWEALTH OF KENTUCKY )  
COUNTY OF HENDERSON )

SUBSCRIBED AND SWORN TO before me by Mark A. Hite on this the 3<sup>rd</sup>  
day of July, 2012.

  
Notary Public, Ky. State at Large  
My Commission Expires 1-12-13

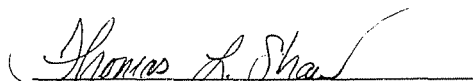
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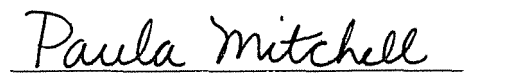
**VERIFICATION**

I, Thomas L. Shaw, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

  
Thomas L. Shaw

COMMONWEALTH OF KENTUCKY )  
COUNTY OF HENDERSON )

SUBSCRIBED AND SWORN TO before me by Thomas L. Shaw on this the  
3<sup>rd</sup> day of July, 2012.

  
Notary Public, Ky. State at Large  
My Commission Expires 1-12-13

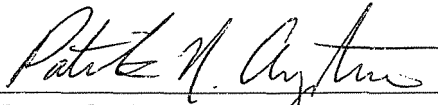
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AUTHORITY TO ESTABLISH A REGULATORY ACCOUNT**

**CASE NO. 2012-00063**


**VERIFICATION**

I, Patrick N. Augustine, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

  
Patrick N. Augustine

COMMONWEALTH OF VIRGINIA    )  
COUNTY OF FAIRFAX            )

SUBSCRIBED AND SWORN TO before me by Patrick N. Augustine on this  
the 2 day of July, 2012.

  
Notary Public, Commonwealth of  
Virginia  
My Commission Expires June 30, 2013  
# 7251149



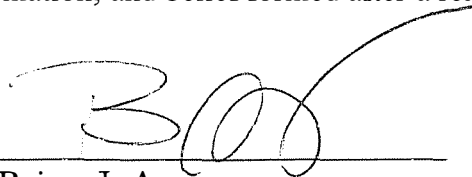
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**CASE NO. 2012-00063**

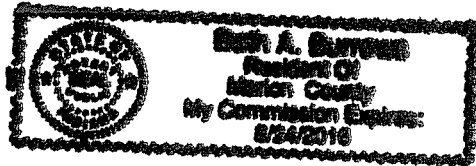
**VERIFICATION**


I, Brian J. Azman, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

  
\_\_\_\_\_  
Brian J. Azman

STATE OF INDIANA                    )  
  )  
COUNTY OF HAMILTON            )

SUBSCRIBED AND SWORN TO before me by Brian J. Azman on this the 2nd day of July, 2012.



  
\_\_\_\_\_  
Beth A. Burrows, Notary Public

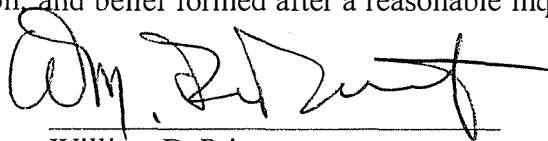
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REGULATORY ACCOUNT**

**CASE NO. 2012-00063**

**VERIFICATION**


I, William DePriest, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.



William DePriest

STATE OF ILLINOIS                    )  
COUNTY OF COOK                    )

*June* <sup>(TL)</sup> SUBSCRIBED AND SWORN TO before me by William DePriest on this the 28<sup>th</sup> day of ~~July~~, 2012.



Notary Public,  
State of Illinois  
My Commission Expires 5/4/2015


**BIG RIVERS ELECTRIC CORPORATION**

**THE APPLICATION OF BIG RIVERS ELECTRIC CORPORATION FOR APPROVAL OF ITS 2012 ENVIRONMENTAL COMPLIANCE PLAN AND REVISIONS TO ITS ENVIRONMENTAL SURCHARGE TARIFF, FOR CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY, AND FOR AUTHORITY TO ESTABLISH A REGULATORY ACCOUNT**

**CASE NO. 2012-00063**

**VERIFICATION**

I, John Wolfram, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

  
\_\_\_\_\_  
John Wolfram

COMMONWEALTH OF KENTUCKY )  
COUNTY OF HENDERSON )

SUBSCRIBED AND SWORN TO before me by John Wolfram on this the 3<sup>rd</sup> day of July, 2012.

  
\_\_\_\_\_  
Notary Public, Ky. State at Large  
My Commission Expires 1-12-13

—

**BIG RIVERS ELECTRIC CORPORATION**

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION  
FOR APPROVAL OF ITS 2012 ENVIRONMENTAL COMPLIANCE PLAN,  
FOR APPROVAL OF ITS AMENDED ENVIRONMENTAL COST  
RECOVERY SURCHARGE TARIFF, FOR CERTIFICATES OF PUBLIC  
CONVENIENCE AND NECESSITY, AND FOR AUTHORITY TO  
ESTABLISH A REGULATORY ACCOUNT  
CASE NO. 2012-00063**

**Response to the Kentucky Industrial Utility Customers'  
Second Request for Information  
Dated June 22, 2012**

**July 6, 2012**

1 **Item 1)** *With respect to Big Rivers' current arbitration with HMPL,*  
2 *please provide the following:*

3

4 *a. The current status of the arbitration proceedings or*  
5 *appeals;*

6 *b. A copy of the arbitration award or opinion;*

7 *c. The short and long term financial impact of this decision*  
8 *on Big Rivers;*

9 *d. What is the projected impact on the arbitration award or*  
10 *opinion on Big Rivers' margins in 2012-15?*

11 *e. What is the effect of this decision on any of the models*  
12 *that support Big Rivers' Application in this case?*

13

14 **Response)**

15 a. The arbitration panel issued an award dated May 30, 2012. Big  
16 Rivers is studying the award and considering its options. On  
17 June 26, 2012, counsel for the City of Henderson wrote Big  
18 Rivers asserting a claim of \$3,753,013.09 for "fixed costs  
19 associated with the energy taken by Big Rivers from  
20 Henderson's reserve capacity for the period beginning in August,  
21 2009 to the date of the award, May 30, 2012."

22 b. A copy of the award is attached.

**BIG RIVERS ELECTRIC CORPORATION**

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION  
FOR APPROVAL OF ITS 2012 ENVIRONMENTAL COMPLIANCE PLAN,  
FOR APPROVAL OF ITS AMENDED ENVIRONMENTAL COST  
RECOVERY SURCHARGE TARIFF, FOR CERTIFICATES OF PUBLIC  
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**Response to the Kentucky Industrial Utility Customers'  
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**July 6, 2012**

- 1                   c.     These subjects are being studied in conjunction with the  
2                             analysis of the award, and no conclusions have been reached.  
3                   d.     Please see response to subsection c.  
4                   e.     Please see response to subsection c.

5  
6  
7  
8

**Witness)**     Robert W. Berry



May 31, 2012

Southeast Case Management Center  
2200 Century Parkway, Suite 300, Atlanta, GA 30345  
telephone: 404-325-0101 facsimile: 877-395-1388  
internet: <http://www.adr.org/>

**VIA ELECTRONIC MAIL:**

C. S. Greene, Esq.  
Bryan Cave, LLP  
1201 West Peachtree Street NW  
Suite 14  
Atlanta, GA 30309-3488

Jason Renzelmann  
Frost Brown Todd LLC  
400 West Market Street  
32nd Floor  
Louisville, KY 40202-3363

Theresa A. Canaday, Esq.  
Frost Brown Todd, LLC  
400 West Market Street  
32nd Floor  
Louisville, KY 40202-3363

K. G. Haynes, Esq.  
Wyatt Tarrant & Combs, LLP  
500 W. Jefferson Street, Suite 2800  
Louisville, KY 40202-2898

Virginia H. Snell  
Wyatt, Tarrant & Combs, LLP  
PNC Plaza, Suite 2800  
500 West Jefferson Street  
Louisville, KY 40202-2898

Re: 52 198 00173 10  
Big Rivers Electric Corporation  
vs  
City of Henderson, Kentucky  
and City of Henderson Utility Commission  
dba Henderson Municipal Power and Light (HMPL)

Dear Parties:

By direction of the Arbitrators we herewith transmit to you the duly executed Final Award and Concurrence in Award in the above matter. Original copies will follow via U.S. mail. This serves as a reminder that there is to be no direct communication with the Arbitrators. All communication shall be directed to the Association.

At this time we have verified with the arbitrators that they have submitted all requests for compensation and expenses in this matter. Accordingly, we have conducted a final reconciliation of the finances and are providing each party with a Financial History and Compensation Summary. If a party had any unused

compensation deposits, we have issued a refund check that should arrive in the mail shortly. If a party has an outstanding balance, that party will continue to receive cyclical invoices until the balance is paid.

Note that the financial reconciliation reflects costs as they were incurred during the course of the proceeding. Any apportionment of these costs by the arbitrator, pursuant to the Rules, will be addressed in the award and will be stated as one party's obligation to reimburse the other party for costs incurred. Any outstanding balances the parties may have with the AAA for the costs incurred during the arbitration proceedings remain due and payable to the AAA even after the final award is issued, and regardless of the arbitrator's apportionment of these costs between the parties in the award.

Please note that the physical case file will be destroyed fifteen (15) months after the date of this letter. In the normal course of our administration, the AAA may maintain certain documents in our electronic records system. Such electronic records are not routinely destroyed and do not constitute a complete case file.

We appreciate your selection of the AAA as your alternative dispute resolution provider in this matter. As always, please do not hesitate to contact me if you have any questions.

Sincerely,

/s/ Paris Earp

Paris N. Earp  
Manager of ADR Services  
800 388 6312  
EarpP@adr.org

Encl.

cc: W.J. Michael Cody, Esq.  
T. Maxfield Bahner, Esq.  
Richard L. Pemberton, Esq.



**AMERICAN ARBITRATION ASSOCIATION**

In the matter of the arbitration between:

Re: 52 198 00173 10

Big Rivers Electric Corporation (Claimant)

vs

City of Henderson, Kentucky

and City of Henderson Utility Commission

dba Henderson Municipal Power and Light (HMPL) (Respondents)

**AWARD**

We, The Undersigned Arbitrators, having been designated in accordance with the arbitration agreement entered into between the parties and having been duly sworn and having heard the proofs and allegations of the Parties, do hereby FIND and AWARD as follows:

Complainant, Big Rivers Electric Corporation, filed this arbitration for a declaration of rights under a certain Power Sales Contract between City of Henderson, Kentucky and Big River's Rural Electric Co-Operative Corporation, dated August 1, 1970, and later amendments to that agreement.

The demand for arbitration filed February 23, 2010 requested declaratory judgment regarding contract provisions and non-monetary declaratory relief with potential injunctive relief. Big River's demand concerned the amendments to the Power Sales Contract dated July 15, 1998, specifically new Section 3.8. Its demand at paragraph 24 recited:

"There is an actual controversy among Big River's and Henderson/HMPL regarding whether (a) Henderson/HMPL can sell Excess Henderson Energy directly to a third-party without first offering the energy to Big River's and (b) Henderson/HMPL is entitled to offer the Excess Henderson Energy to Big River's at a price higher than the explicit

contractual price of \$1.50MWh plus certain variable production costs. Respondents agree that the arbitration concerns the interpretation of Section 3.8 of the power sales contract. Respondents claim that Big River's interpretation of the agreement as amended is unreasonable and would be illegal."

In January, 2011, each party filed a position statement. Thereafter, the parties engaged in various discovery.

The panel held evidentiary hearings in Louisville, Kentucky, November 5-13, 2011. The hearing was kept open for the parties to submit post-hearing briefs and present oral argument. Final arguments occurred in Louisville on March 14, 2012, followed by questions by the panel to counsel for the parties.

In the July, 1998 amendments to the 1970 Power Sales Contract, new Section 3.8 deals with energy from capacity at Station Two not utilized by the City, including capacity in excess of the City's reserved capacity. Subsection (a) provides that Big Rivers has the discretion to take and utilize all of the energy which is not scheduled or taken by City in accordance with Section 3.8(c). Subsection (b) provides that if Station Two is operated to generate power in excess of its total capacity, Big Rivers will take and utilize all of that energy unless the parties otherwise agree as provided in Section 3.8(c). Subsection (c) provides that Big Rivers must each month notify City of the amount of Excess Henderson Energy and energy associated with Excess Henderson Capacity which Big Rivers was taking during the prior month and pay for it at a rate equal to \$1.50 per mWh plus the costs of production. Subsection (d) provides:

- Big Rivers may operate Station Two to obtain capacity above the Total Capacity of Station Two.
- City agrees that it will not be permitted to sell or commit to any person other than Big Rivers any Excess Henderson Energy without first offering Big Rivers the opportunity to purchase that energy.

- After submission of the City's scheduled energy requirements Big Rivers then has a reasonable time to decide whether or not to purchase the Excess Henderson Energy not scheduled by the City.
- If it does not intend to purchase such energy Big Rivers agrees to notify City within a reasonable time so that City can make efforts to resell that power to third parties.
- City also agrees to pay Big Rivers according to its open access transmission tariff to the extent any transmission on Big Rivers transmission system is used in marketing Excess Henderson Energy.

Complainant and Respondent say that the language of Section 3.8 is not ambiguous. Yet each reach diametrically opposite conclusions about what Subsection (d) means.

Subsection (d) is not clear about the price at which Big Rivers will purchase any Excess Henderson Energy offered to it by City. Big Rivers insists that the price provided in Subsection (c) applies to Subsection (d). Henderson disagrees. The plain language of Subsection (d) does not resolve the disagreement between the parties. The drafters could have made clear the definition of price Big Rivers was to pay Henderson for this energy, but did not. Thus, the panel concludes that Subsection (d) is ambiguous because the price Big Rivers is to pay City for the energy is not clear and the words of Section 3.8 can bear differing interpretations.

The panel concludes that under Section 3.8(d) the City shall schedule and take from Station Two such energy as it, in good faith, determines is needed to serve its native load. When City does not require all of the capacity it in good faith reserved to serve its native load, the excess energy shall be considered to belong to City which it may offer to third parties subject to Big Rivers first right to purchase such energy. The price at which the energy will be offered to Big Rivers shall be the price at which City has a firm offer from a third party. Big Rivers shall then notify City within a reasonable time if

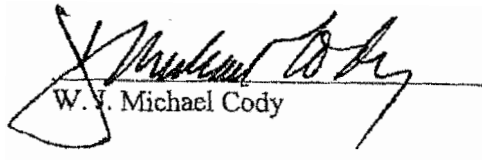
it does not intend to purchase such energy so that City can sell that power to third parties. Each party shall bear its pro rata share of the fixed and variable costs. Big Rivers shall continue to have the first right to take the energy generated by Station Two in excess of the City's reserved capacity as provided by Section 3.8(a)(b) and (c). As to Excess Henderson Energy within Henderson's reserved capacity which Henderson does not need to serve its native load which Big Rivers declines to purchase, after being notified by Henderson that the energy is available and the price at which Henderson has a bonafide offer, Henderson may sell to the third party from which it has the bonafide offer.

The panel does not find that the contracts entered into between Big Rivers and Henderson, as amended, are illegal.

The administrative fees and expenses of the American Arbitration Association totaling \$4,600.00 shall be borne equally by the parties and the fees and expenses of the Arbitrators totaling \$293,576.85 shall be borne equally by the parties. Therefore City of Henderson, Kentucky and City of Henderson Utility Commission dba Henderson Municipal Power and Light shall reimburse Big Rivers Electric Corporation the sum of \$2,300.04 representing that portion of said fees and expenses in excess of the apportioned costs previously incurred by Big Rivers Corporation.

This Award is in full settlement of all claims submitted to this Arbitration. All claims not expressly granted herein are hereby denied.

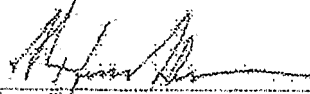
This Award may be executed in any number of counterparts, each of which shall be deemed an original and all of which shall constitute together one and the same instrument.

  
W. V. Michael Cody

\_\_\_\_\_  
T. Maxfield Bahner

Dated: May 30, 2012

W. J. Michael Cody



T. Maxfield Bahner

Dated: May 30, 2012

AMERICAN ARBITRATION ASSOCIATION

In the Matter of the Arbitration between:

Case No. 52 198 00173 10

BIG RIVERS ELECTRIC CORPORATION,

Claimant,

vs.

CITY OF HENDERSON, KENTUCKY and  
CITY OF HENDERSON UTILITY COMMISSION D/B/A  
HENDERSON MUNICIPAL POWER AND LIGHT,

Respondents.

CONCURRENCE IN AWARD

I concur in the result reached by my colleague arbitrators, Bahner and Cody. But, I believe more needs to be said. I strongly believe that the 40 year history presented by the evidentiary record shows multiple words and deeds of the parties which are both inconsistent with one another and result in ambiguity and need for arbitral construction, including, without limitation, the ambiguity focused upon by my colleague arbitrators by the silence of paragraph 3.8(d) to support Big Rivers' claim of right to take Station II generation thereunder at only \$1.50 per Mw/hr plus variable costs. My colleague arbitrators feel compelled to observe the language of that paragraph in issuing their award. I believe that language does not recognize the realities of central marketing of electric energy which exists today and therefore presents an award which is unworkable in practice.

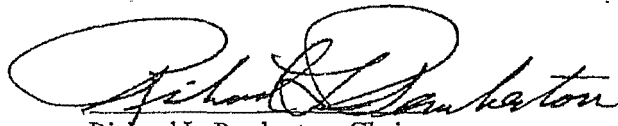
Both parties have established of record that they are members of MISO (Midwest Independent Transmission System Operator, Inc.). As such they offer to MISO the energy that is generated by Station II. MISO has a load to satisfy, as do the parties, and MISO's load includes the loads of both parties. The parties chose not to present the panel with the processes of the centralized MISO market. Thus, my colleague arbitrators are left with the language of paragraph 3.8(d) which they iterate in the award to require that Henderson obtain a "price at which City has a firm offer from a third party", notify Big Rivers of that price and that "Big Rivers shall then notify City within a reasonable time if it does not intend to purchase such energy so that City can sell to third parties."

I believe it to be common knowledge from everyday experience which a jury is entitled to apply to the evidence presented to it and which arbitrators can apply in their award as well, that the MISO market changes in intervals of a few minutes and does not allow for the leisurely process my colleagues order.

I would order that the energy generated by Station II be offered to MISO at the price per megawatt hour that will allow recovery of fixed plus variable costs of generation plus whatever additional dollars per mw/hr the market will bear, so that MISO will take rather than reject the

offered energy. Then the parties will receive the highest price MISO pays for any part of the collective offering needed to fill its load, however much more than the parties' offering price that may be. The parties can take back the energy needed to fill their respective loads at the same price they received for their offerings and the excess megawatt hours of their offering over their take back has already been sold in the MISO market at the collective price. Hopefully, with the low cost of Station II's generation (which the panel has been repeatedly advised of on the hearing record) there will be a significant profit to share on what energy went to the third party market rather than was taken back by the parties. That profit can be calculated retrospectively and divided according to the parties' respective entitlements pursuant to this award.

I also observe that the panel has been presented with 40 years of history in the form of more than 2,000 pages of hearing testimony and argument plus more than 200 exhibits, but for the limited purpose of providing, by the award, guidance to the parties for the future, and not with any request or ability to otherwise address the many happenings of the past.



Richard L. Pemberton, Chair

Dated: May 30, 2012





**BIG RIVERS ELECTRIC CORPORATION**

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION  
FOR APPROVAL OF ITS 2012 ENVIRONMENTAL COMPLIANCE PLAN,  
FOR APPROVAL OF ITS AMENDED ENVIRONMENTAL COST  
RECOVERY SURCHARGE TARIFF, FOR CERTIFICATES OF PUBLIC  
CONVENIENCE AND NECESSITY, AND FOR AUTHORITY TO  
ESTABLISH A REGULATORY ACCOUNT  
CASE NO. 2012-00063**

**Response to the Kentucky Industrial Utility Customers'  
Second Request for Information  
Dated June 22, 2012**

**July 6, 2012**

1 **Item 2)** *With respect to the dam repair work that will permit full*  
2 *resumption of energy purchases from SEPA, please provide the following:*

3

4

*a. The current status of the repair work;*

5

*b. When does Big Rivers expect to receive its full allocation  
6 of energy from SEPA?*

6

7

*c. Has Big Rivers included the full availability and price of  
8 SEPA energy in its modeling for this Application? Please  
9 explain. If not, why not?*

9

10

11 **Response)**

12

a. Based on the current schedule, the U.S. Army Corps of Engineers  
13 is projecting completing Wolf Creek repair work in December  
14 2013. Center Hill repairs are approximately one year behind Wolf  
15 Creek.

15

16

b. Big Rivers expects to resume normal operations/scheduling of  
17 Southeastern Power Administration ("SEPA") power to begin in  
18 2015.

18

19

c. Yes. Big Rivers has incorporated the above projections regarding  
20 SEPA availability and price in its modeling in this case.

20

21

22 **Witness)** Robert W. Berry



**BIG RIVERS ELECTRIC CORPORATION**

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION  
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**Response to the Kentucky Industrial Utility Customers'  
Second Request for Information  
Dated June 22, 2012**

**July 6, 2012**

1 **Item 3)** *Please provide all documents and other communications*  
2 *provided to Cobank and CFC since the filing of Big Rivers' responses to*  
3 *KIUC's Initial Request for Information. Please note this is a continuing*  
4 *request requiring updated information.*

5

6 **Response)** Please see the supporting documents which are provided in two sets.  
7 On the CONFIDENTIAL USB drive accompanying these responses are documents  
8 and other communications provided to CoBank and CFC in connection with KPSC  
9 Case No. 2012-00063 since June 1, 2012. These documents are being submitted  
10 with a Petition for Confidential Treatment. Other supporting documents are  
11 provided on a PUBLIC USB drive accompanying these responses.

12 There are only two documents pertaining to CoBank, as they are not  
13 currently involved in the planned CFC syndicated revolver for interim financing  
14 for Big Rivers' 2012 Environmental Compliance Plan ("ECP") capital  
15 expenditures. While the Disclosure Statement provided herein is principally in  
16 connection with the previously planned June 29, 2012, term loan financing, it was  
17 also used in connection with certain CFC inquiries regarding the up to \$300  
18 million CFC syndicated revolver for the purpose of interim financing for Big  
19 Rivers' 2012 ECP capital expenditures.

20

21

22 **Witness)** Mark A. Hite



**BIG RIVERS ELECTRIC CORPORATION**

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION  
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**Response to the Kentucky Industrial Utility Customers'  
Second Request for Information  
Dated June 22, 2012**

**July 6, 2012**

1 **Item 4)** *Please describe Big Rivers' current plans for the proposed*  
2 *bridge financing and later permanent financing of the construction*  
3 *projects proposed in this Application, including anticipated terms and*  
4 *conditions.*

5

6 **Response)** The first option for interim financing, or bridge financing, for Big  
7 Rivers' ECP capital expenditures has not changed. Accordingly, Big Rivers  
8 continues negotiating the terms and conditions for an up to \$300 million, up to 5  
9 year, syndicated revolver with CFC. A status update of the CFC terms and  
10 conditions is included in Big Rivers' response to Item 3 of KIUC's Second Request  
11 for Information. For permanent financing, Big Rivers continues completing an  
12 RUS loan application for an RUS-guaranteed Federal Financing Bank ("FFB")  
13 loan of an approximate 30-year term, with level debt service. Big Rivers also  
14 regularly discusses capital market financing options with its investment advisor,  
15 Goldman Sachs. If approved, an FFB loan is the most economical means of  
16 financing.

17

18

19 **Witness)** Mark A. Hite

20



**BIG RIVERS ELECTRIC CORPORATION**

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION  
FOR APPROVAL OF ITS 2012 ENVIRONMENTAL COMPLIANCE PLAN,  
FOR APPROVAL OF ITS AMENDED ENVIRONMENTAL COST  
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**Response to the Kentucky Industrial Utility Customers'  
Second Request for Information  
Dated June 22, 2012**

**July 6, 2012**

1 **Item 5)** *When does Big Rivers plan to release and file its 2011 Annual*  
2 *Report? Please provide a copy when available.*

3

4 **Response)** Please see attached.

5

6

7 **Witness)** Mark A. Hite

8



ANNUAL REPORT 2011



MAINTAINING  
BALANCE

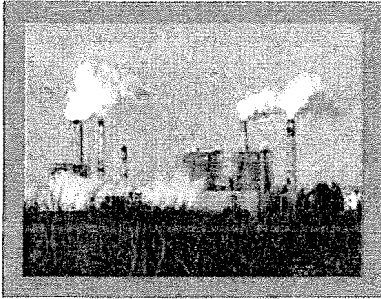
Big Rivers  
ELECTRIC CORPORATION



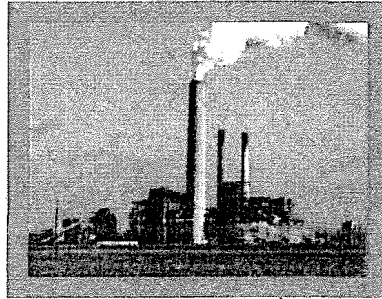
## Table of Contents

2	Profile of the Big Rivers System
4	Member Cooperatives
7	Message from Board Chair and CEO
12	2011 in Review
30	2011 Financial Review
34	Financial Statements
39	Notes to Financial Statements
61	Five-Year Review

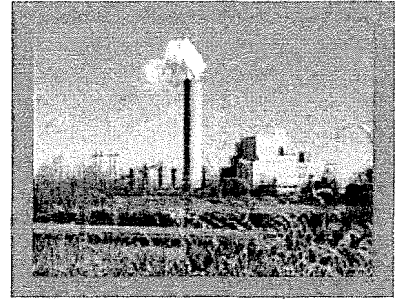
# BIG RIVERS ELECTRIC GENERATING STATIONS



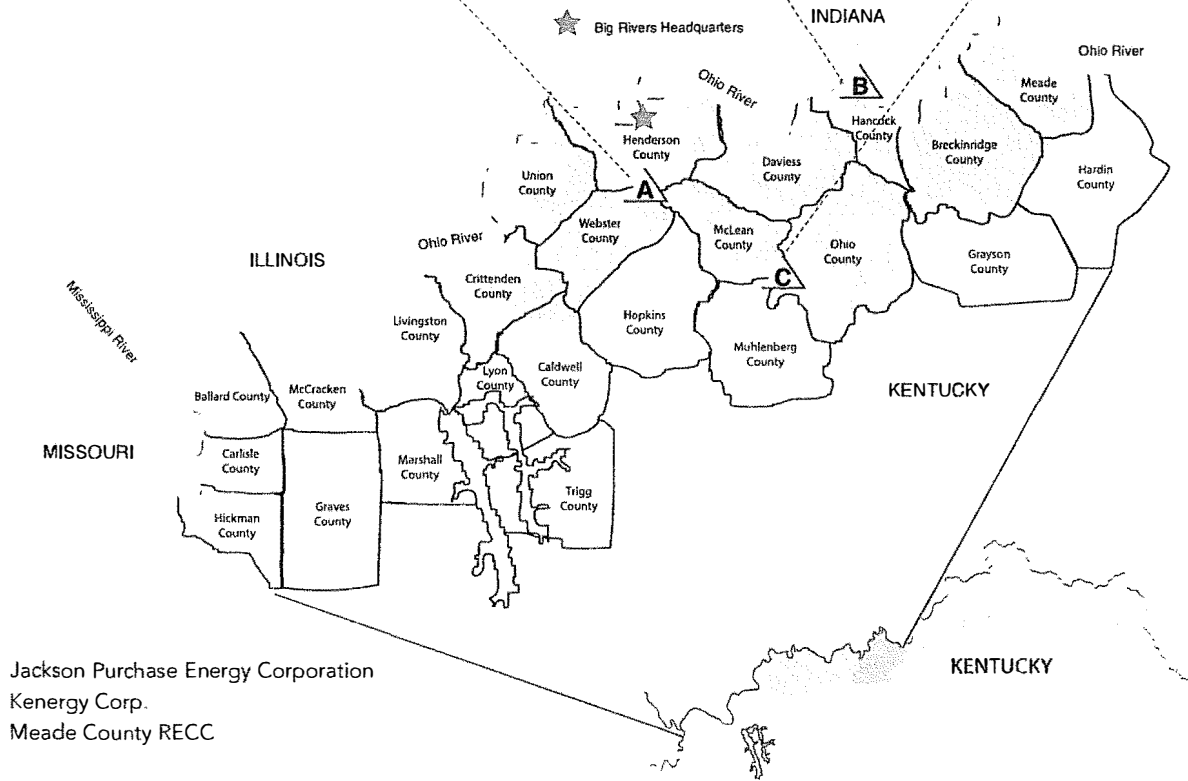
**A** Reid Plant CT  
HMP&L Station Two  
Reid Plant Unit 1  
Green Plant Units 1 & 2

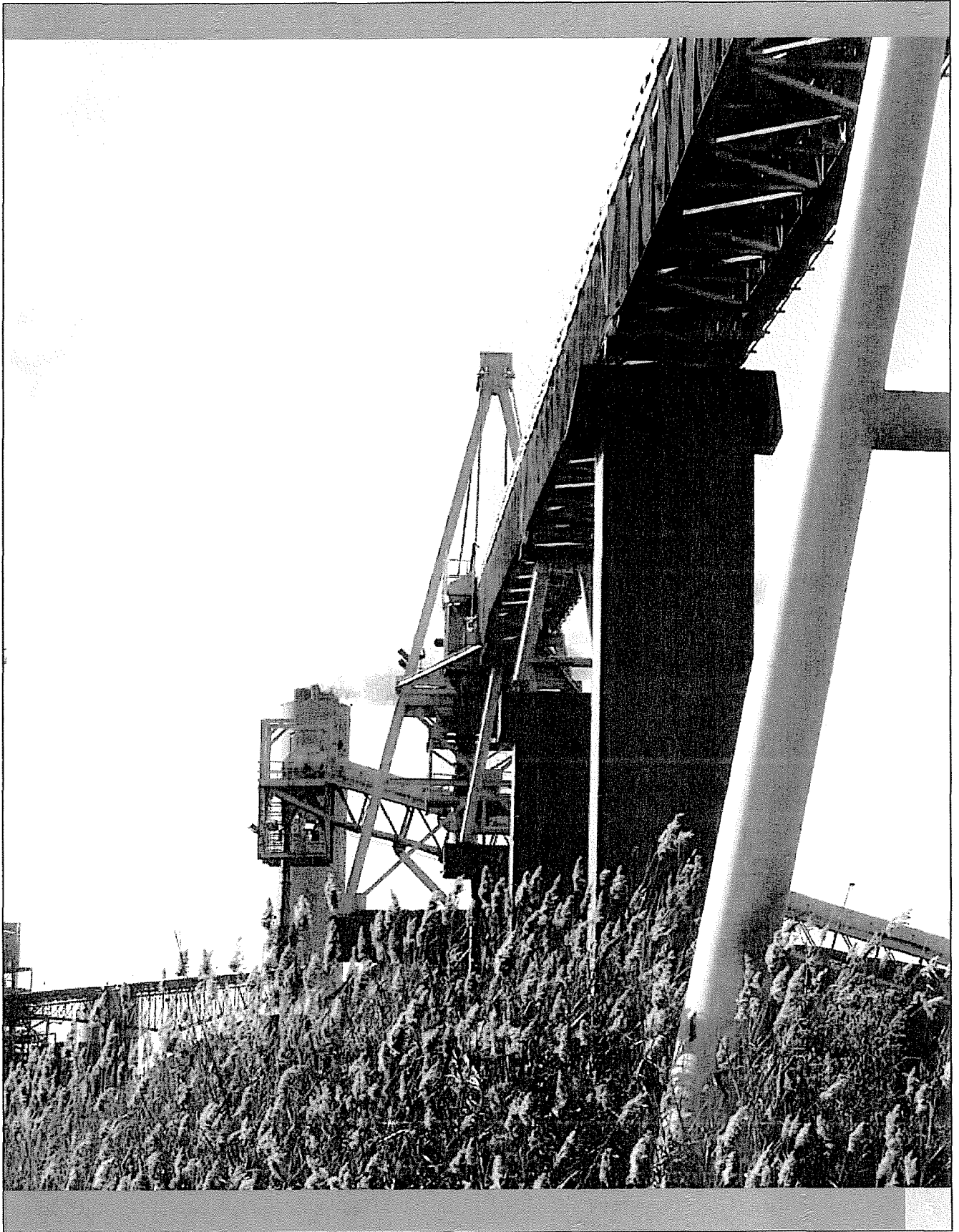


**B** Coleman Plant  
Units 1,2,3



**C** D.B. Wilson  
Unit 1







Mark A. Bailey  
President and CEO

Dr. James Sills  
Chair, Board of Directors

## MESSAGE FROM THE BOARD CHAIR AND CEO

**F**ounded in June of 1961, Big Rivers Electric Corporation celebrated its 50th anniversary in 2011. We are proud of this milestone and owe a significant debt of gratitude to the vision and foresight of our founders. Much of our success today is a tribute to our predecessors' planning and ambition.

Half a century later, we remain dedicated to our mission of safely delivering low-cost, reliable wholesale power and cost-effective services desired by our Members. Our electric rates continue to be some of the lowest in the country, while our generating units remain among the most reliable in our region. Likewise, our employees have continued their commitment to excellence. One of the most visible examples is their record of being some of the safest workers nationally within the electric cooperative program. These accomplishments were no

accident, as Big Rivers relies upon dedicated employees committed to serving our Members and the company's success. Teamwork is a core value for Big Rivers, since it is one of the key factors necessary for the company to successfully achieve our mission.

As the times have changed since our creation in 1961, so has the electric utility industry's business climate. Like many electric generation and transmission cooperatives, we have experienced rapid transformation in recent years. This year alone, we faced uncertainty in nearly every sector of our business—the most pressing being a difficult economy and impending environmental regulations. A competent and well-prepared team will be vital to successfully navigating the rough waters ahead. To meet those challenges, Big Rivers' management team is continuously exploring options to

ance rules will create some of the greatest challenges ever faced by electric generators in the U.S. The rules are complex, aggressive and will negatively impact electricity production, availability and rates. Their impact will go well beyond the confines of Kentucky, impacting our U.S. economy and national security.

This year, we have taken a proactive approach to inform local officials and community leaders, as well as state and national legislators, regarding our concerns with these burdensome proposals, which come at a time when the economy is still struggling from recession. In April of 2011, we testified before the U.S. Congressional Subcommittee on Energy and Power regarding how these regulations will affect Big Rivers and our Members. We also worked hard to inform our Members' customers how these regulations will ultimately increase electric costs, affect reliability and reduce employment. To help further address these matters, Big Rivers hired Eric Robeson as vice president of plant construction in 2011. Since joining the management team, he has analyzed compliance options, costs and implementation timeframes.

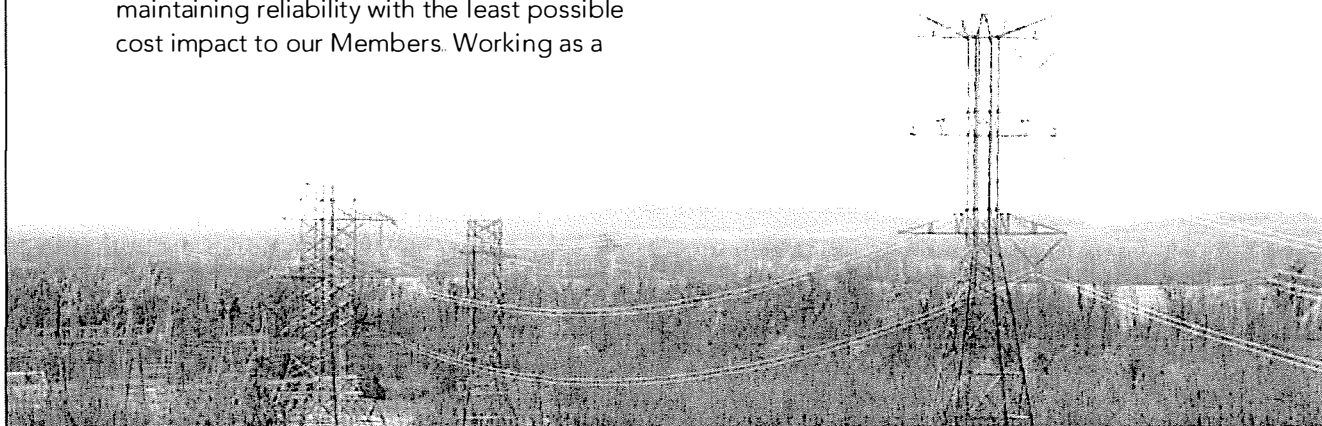
Big Rivers' executive management and board of directors will continue to carefully evaluate all options to optimize our investment and ensure environmental compliance, while safely maintaining reliability with the least possible cost impact to our Members. Working as a



team, Big Rivers' board, management and employees have accomplished major milestones in 2011. We know that maintaining the right balance in the future will be the key to Big Rivers and our Members' continuing success in the coming years. The future holds great challenges, but we are confident in our ability to navigate the uncertain waters ahead. We will continue to add value for Members through excellence in providing reliable and low-cost power for years to come.

Dr. James Sills  
Chair, Board of Directors

Mark A. Bailey  
President and CEO



## BOARD OF DIRECTORS



*Standing (left to right):*

Dr. James Sills, Chair  
*Meade County RECC*

Wayne Elliott, Vice-Chair  
*Jackson Purchase Energy Corporation*

William Denton  
*Kenergy Corp.*

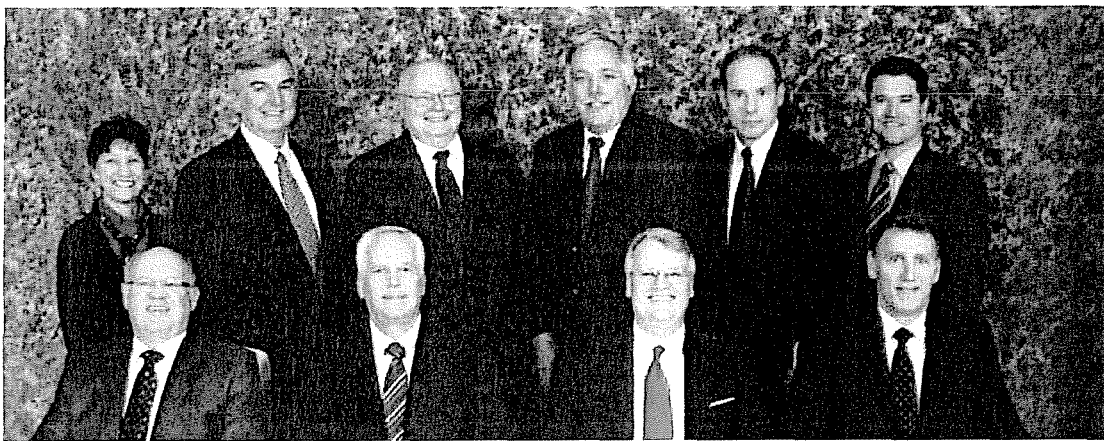
*Seated (left to right):*

Lee Bearden  
*Jackson Purchase Energy Corporation*

Paul Edd Butler  
*Meade County RECC*

Larry Elder, Secretary-Treasurer  
*Kenergy Corp.*

## MANAGEMENT TEAM



*Standing (left to right):*

Paula Mitchell, *Executive Assistant*

James Miller, *Corporate Counsel*

Albert Yockey, *V.P. Governmental  
Relations & Enterprise Risk  
Management*

David Crockett,  
*V.P. System Operations*

James Haner,  
*V.P. Administrative Services*

Marty Littrel, *Communications &  
Community Relations Manager*

*Seated (left to right):*

Eric Robeson, *V.P. Environmental  
Services & Construction*

Robert Berry, *V.P. Power  
Production*

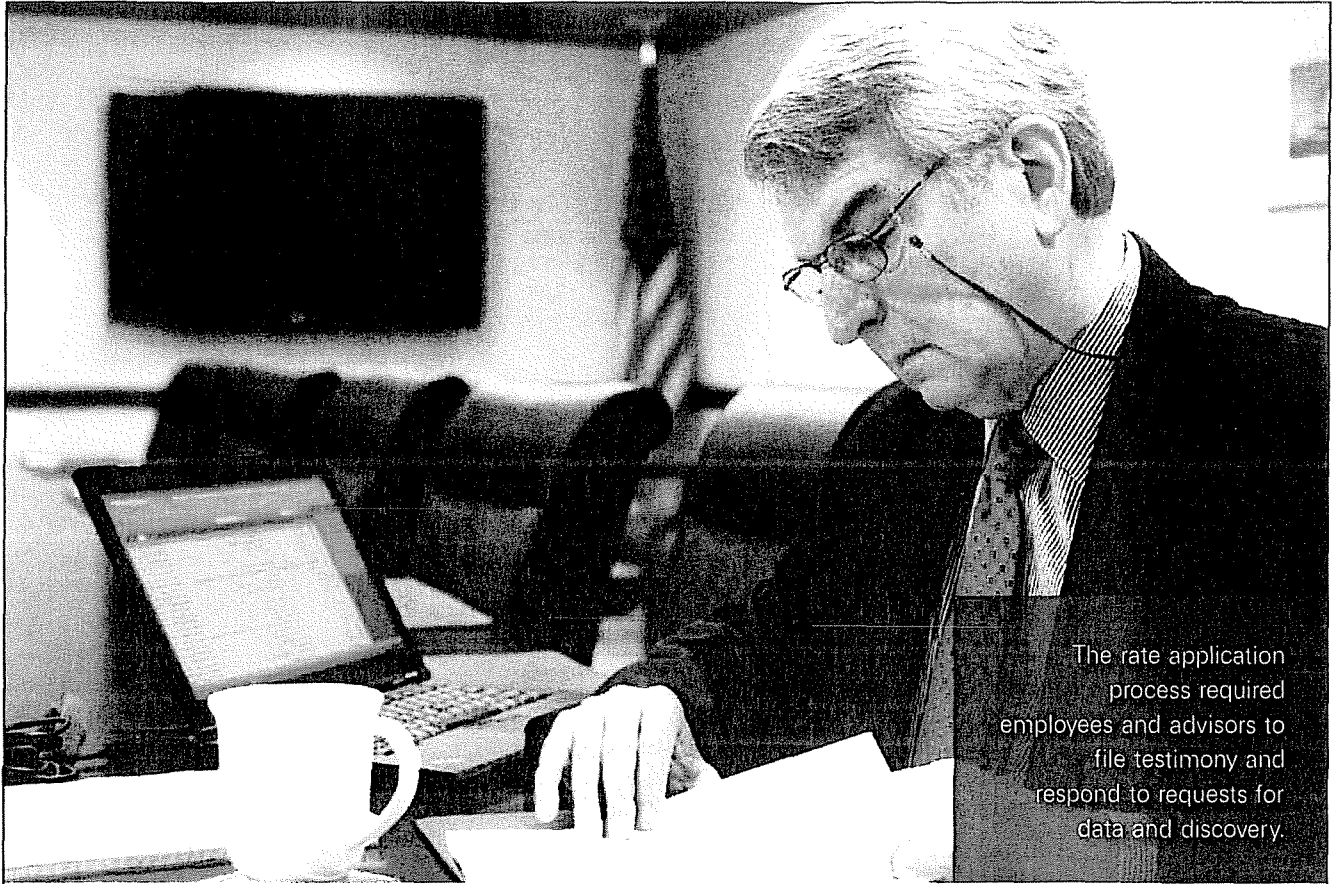
Mark Bailey, *President & CEO*

Mark Hite, *V.P. Accounting &  
Interim CFO*



Line crew personnel inspect, treat, and replace transmission poles as part of an ongoing maintenance program.





The rate application process required employees and advisors to file testimony and respond to requests for data and discovery.

Rivers' generating units are operated in a way that minimizes cost and maximizes efficiency. In light of the low demand for electricity and low market prices for off-system energy sales, Big Rivers has been challenged to meet the needs of Members while still achieving financial objectives. As noted earlier, cost containment measures have enabled Big Rivers to do both.

Big Rivers successfully integrated into Midwest Independent Transmission System Operator, Inc. (MISO) in late 2010 and actively participates in related activities and training to ensure the effectiveness of Big Rivers' operations within the MISO market. Examination of the costs and benefits of MISO membership versus other options is ongoing, and the company filed an annual report to update the KPSC on this matter in 2011. To develop

new revenue streams, Big Rivers continues to identify and evaluate power supply business opportunities and strategic partnerships. Now that full integration into MISO is complete, the focus is on optimizing participation and developing strategies designed to maximize Member benefit. Personnel received training in 2011 to gain additional understanding of MISO procedures, as well as oversee transmission-related issues and advocate Big Rivers' position

By maintaining a balance between risks and benefits, Big Rivers manages Member rate volatility and the impact on net margins. Personnel monitor the effectiveness of enterprise risk management policies and work with the Members to implement depreciation studies, cost of service studies, and rate design to stabilize earnings for Big Rivers and our Members.



Control room operators are responsible for the safe and efficient operation of our generating units. Personnel improve or maintain performance and troubleshoot operating issues.

for Big Rivers and all three Members began in 2011 and will be completed in 2012.

As part of an ongoing maintenance program, Energy Transmission & Substation employees inspected and treated 3,375 poles and replaced 62 rejected poles. They performed a ground inspection of 466 miles of transmission line right-of-way as required by NERC, treated 380 miles with herbicide, and performed a full-width cut on 48 miles of right-of-way. In addition, employees tested 43 circuit breakers,

39 transformers, six capacitor banks, 37 line switches, and 78 battery banks. Big Rivers also completed two aerial inspections of the transmission system as required by Kentucky Public Service Commission regulations.



Coleman Station employees completed five years with no lost-time incidents in January 2011 and received the Governor's Safety Award at the 2011 Governor's Safety and Health Conference.

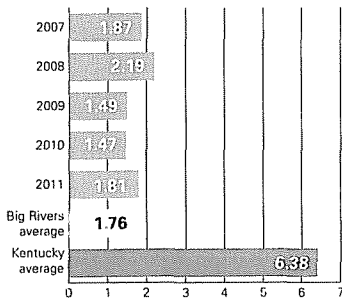


Sebree Station employees completed two years with no lost-time incidents in January 2011 and received the Governor's Safety Award at the 2011 Governor's Safety and Health Conference.

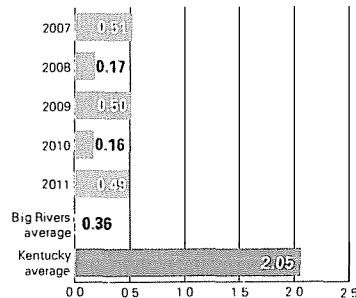


Wilson Station employees completed four years with no lost-time incidents in May 2011 and received their eighth Governor's Safety Award from Kentucky Secretary of Labor Mark Brown.

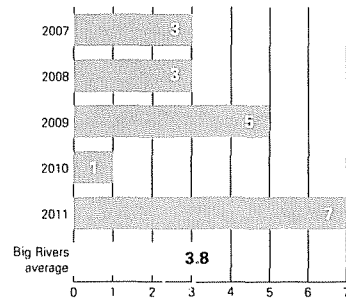
OSHA Recordable Incident Rate

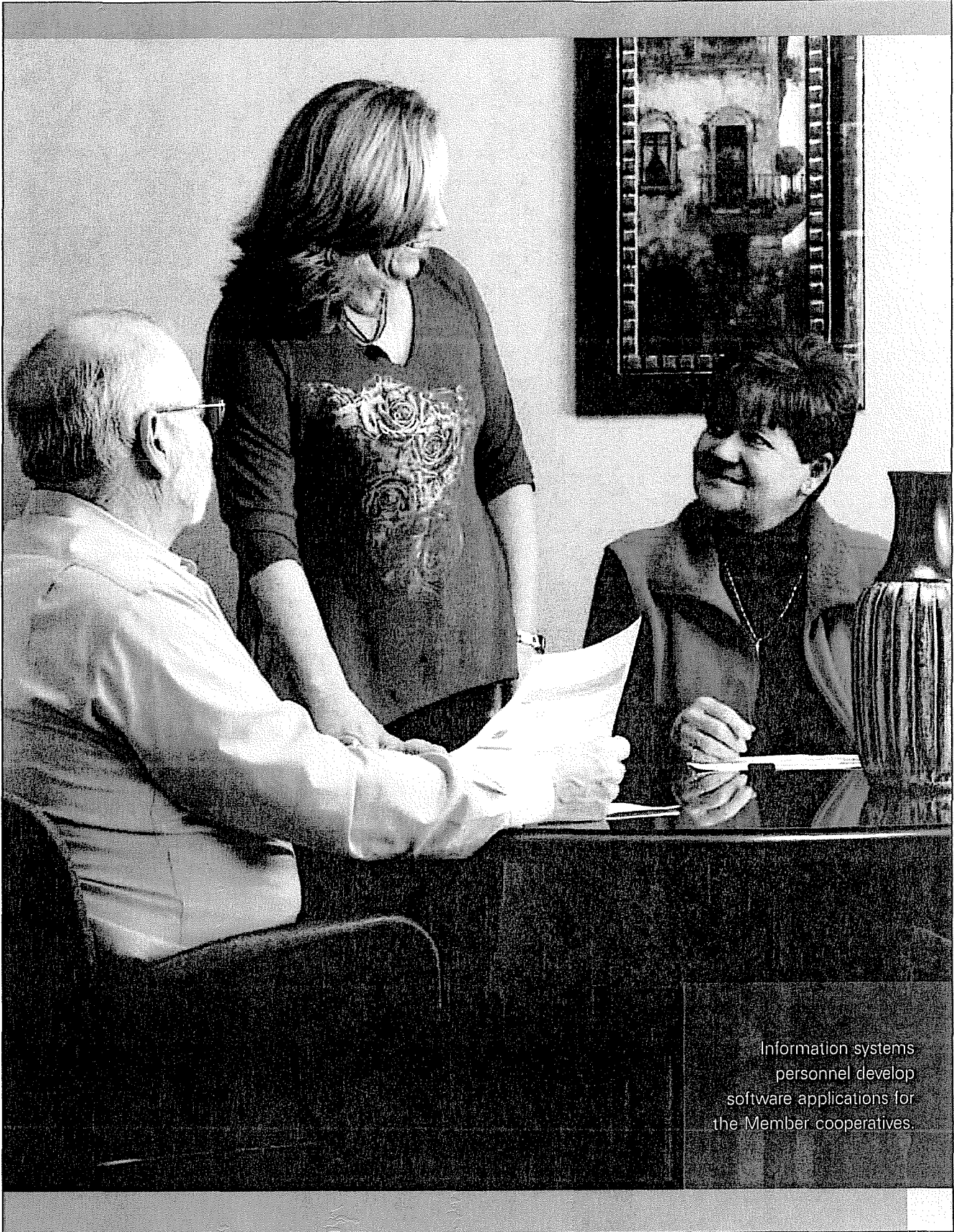


Lost-Time Incident Rate



Number of Vehicle Incidents





Information systems  
personnel develop  
software applications for  
the Member cooperatives.

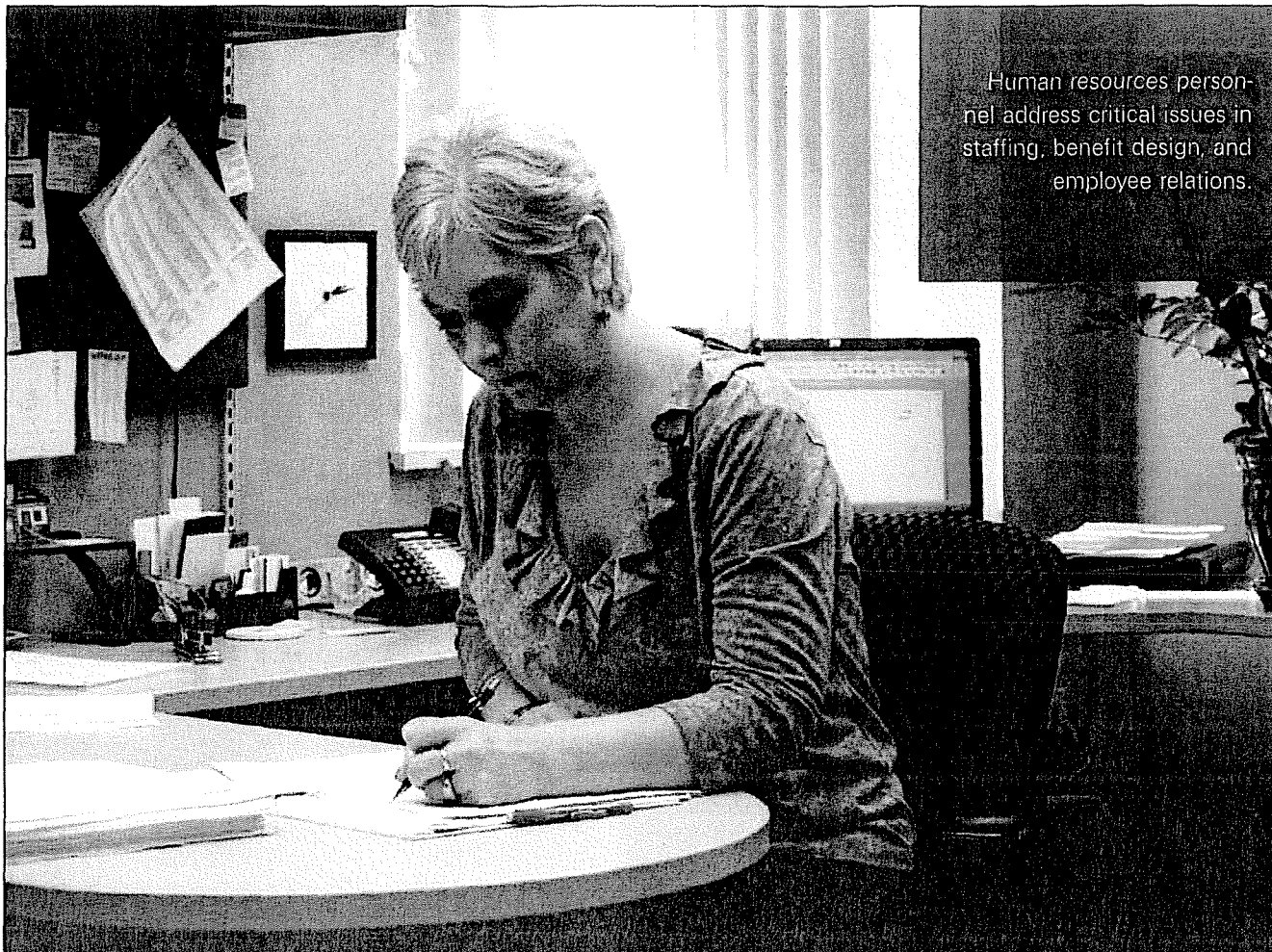


Big Rivers supports a team of employees annually to participate in the March for Babies walk in Henderson, Kentucky.

Electric Cooperative Association International Foundation, which brings electricity to rural villages). Thanks to active participation and a concern for helping others, this year's fundraising efforts were a success and brought value to our communities.

Over the past 50 years, employees at Big Rivers have consistently offered their leadership abilities by serving on numerous committees and boards throughout the area. This year, many of our employees gave back to the local communities in our region by serving in advisory positions for children advocacy groups,

economic development organizations, health care foundations, chambers of commerce, and contributing to university and school boards. Helping our local communities grow and prosper is a long tradition for Big Rivers and our Members



Human resources personnel address critical issues in staffing, benefit design, and employee relations.

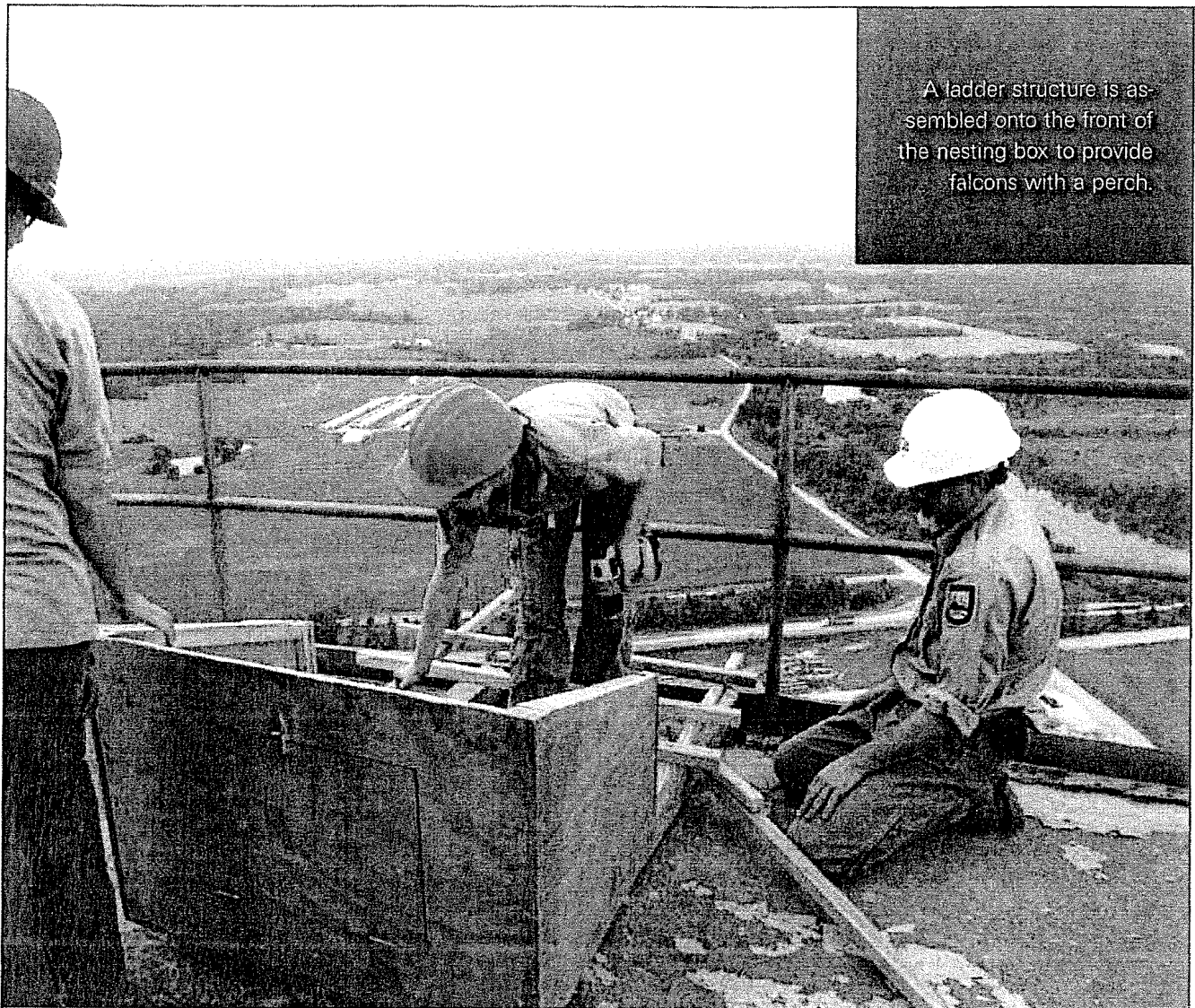
impact of an aging workforce. This includes temporarily hiring additional employees at the generating stations before they are needed due to upcoming retirements.

In addition, the production department purchased a power plant operator training simulator in 2011 to improve the quality of its control room operator training program and to expedite the training of new operators to replace retirees. In order to continue serving Members with excellence, Big Rivers also sharpens employees' skills through various training activities

Benefit costs were also a focus in 2011, with

the decision made to market the employee health plan. As a result of that effort, Big Rivers is self-insuring its medical plan and moved to a new dental plan provider in 2012 with significant expected savings in the cost of providing employee health plan benefits.

A compensation study was initiated to gauge the competitiveness of pay rates and appropriateness in design of the non-bargaining employee salary structure. Adjustments as determined by the study were implemented in early 2012.



A ladder structure is assembled onto the front of the nesting box to provide falcons with a perch.

### HELPING WILDLIFE

Personnel from the Kentucky Department of Fish and Wildlife Resources installed a Peregrine Falcon nesting box at the top of the Wilson Generating Station stack in mid-September.

Kate Heyden, aviation biologist, offered her thanks to the Wilson crew that helped with the installation. "We greatly appreciate your support of our Peregrine Falcon restoration pro-

gram. The Peregrine Falcon is a rare species, with only 13 nesting pairs in Kentucky (most of which are in nest boxes)."

Hopefully, this nest box will provide another safe nesting location for these birds in the near future. A similar nesting box was installed at Coleman Generating Station in 2010.

### EXPLORING ELECTRIC VEHICLES

Big Rivers purchased the highly-touted Chevy



Big Rivers purchased this Chevy Volt to test its performance and raise awareness of electric vehicle technology.

sent to the Henderson, Kentucky landfill and extend its usable life, which is only about six more years at current usage levels.

As part of another recycling partnership, the city of Hartford, Kentucky delivered a new recycle trailer to Wilson Generating Station, one of six tailor-made trailers Hartford purchased with grant money for recycling. Wilson employees are pleased to join the city of Hartford in this effort to reduce recyclable materials going to landfills.

Thanks to the conscientious efforts of our employees, their waste recycling will not only reduce the volume of material being sent to landfills, it will also reduce the cost associated with traditional garbage removal. These recycling programs at Energy Transmission & Substation, Sebree Station, and Wilson Station exemplify our corporate values of community service, teamwork, and environmental consciousness.



## NET MARGINS AND EQUITIES

The 2011 net margin was \$5.6 million, resulting in a 1.12 times interest earned ratio (TIER) and margins for interest ratio (MFIR), and a 1.47 debt service coverage ratio (DSCR). Equities to total assets were 27.49 percent at December 31, 2011.

The net margin for 2010 was \$7.0 million. Three items account for the majority of the \$1.4 million decline in the 2011 net margin. First, 2011 reflects additional expense of \$4.6 million related to a full year of MISO membership fees versus one month of membership expense in 2010. Second, following a thorough analysis during 2010, the balance of the reserve for obsolescence that was established for certain materials and supplies inventory upon the Unwind closing was written off, resulting in a positive impact of \$1.9 million to the 2010 net margin. Third, largely offsetting the unfavorable expense variance is a \$5.0 million increase in net sales margin (electric sales revenue less variable cost) in 2011. This is principally due to the Member rate increase and higher smelter and off-system sales volumes in 2011, largely offset by lower market pricing in off-system sales.

## ENERGY SALES AND ELECTRIC REVENUES

Energy sales increased to 13,255,125 MWh in 2011, up from 11,969,420 MWh in 2010. There were two primary reasons for the MWh sales increase. First, an additional 506,389 MWh were sold to the smelters, a 7.98 percent increase over 2010, due to the restarting of an idle potline at Century Aluminum. Second, an additional 846,675 MWh were sold in the off-system market, a 38.32 percent increase over 2010.

Non-smelter Member sales decreased 67,359 MWh in 2011, or 1.98 percent, driven by weather. Electric energy revenue increased to \$558.4 million in 2011, up from \$514.5 million in 2010, due to a combination of off-system sales, Century Aluminum restarting one of their potlines, and the September 1, 2011, rate increase.

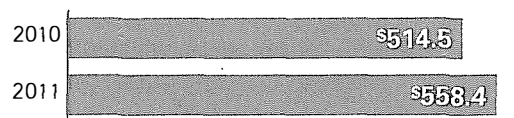
### Energy Sales

Megawatt-hours (MWhs) in millions



### Electric Revenues

Dollars in millions



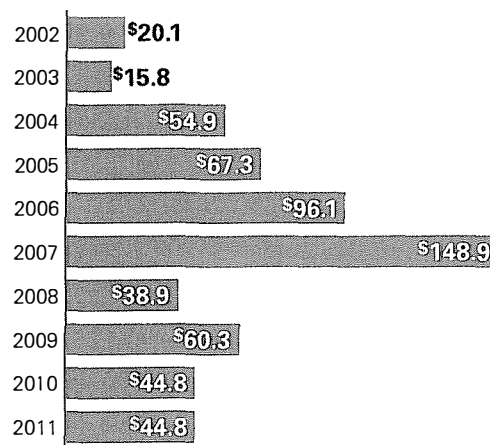
Big Rivers has two issues of tax-exempt pollution control bonds outstanding, totaling \$142.1 million. The larger of the two issues was refinanced June 8, 2010—the \$83.3 million County of Ohio, Kentucky, Pollution Control Revenue Bonds, Series 2010A. These Series 2010A Bonds now bear interest at a 6 percent fixed rate, with a maturity date of July 15, 2031. The second issue—the \$58.8 million County of Ohio, Kentucky, Pollution Control Revenue Bonds, Series 1983—are variable rate demand bonds currently being held by the liquidity provider, bearing an interest rate of 3.25 percent.

## LIQUIDITY

Liquidity is good, as cash and cash equivalents total \$44.8 million at December 31, 2011. Additionally, the company has the two lines of credit totaling \$100 million discussed earlier. Also of significance, at December 31, 2011, Big Rivers had voluntarily prepaid \$11.5 million on its 5.75 percent RUS Series A Note, which the company may claw back by avoiding future quarterly debt service payments. Big Rivers funded all of its operating expenses and capital expenditures in 2011 internally without any new borrowing. Capital expenditures totaled \$38.7 million in 2011, versus \$42.7 million in 2010.

## Cash and Cash Equivalents

Dollars in millions



## BALANCE SHEETS As of December 31, 2011 and 2010 — (Dollars in thousands)

Assets	2011	2010
UTILITY PLANT – Net	<u>\$1,092,063</u>	<u>\$ 1,091,566</u>
RESTRICTED INVESTMENTS – Member rate mitigation	<u>163,162</u>	<u>217,562</u>
OTHER DEPOSITS AND INVESTMENTS – At cost	<u>5,911</u>	<u>5,473</u>
CURRENT ASSETS:		
Cash and cash equivalents	44,849	44,780
Accounts receivable	44,287	45,905
Fuel inventory	33,894	37,328
Nonfuel inventory	25,295	23,218
Prepaid expenses	<u>4,217</u>	<u>2,502</u>
Total current assets	<u>152,542</u>	<u>153,733</u>
DEFERRED CHARGES AND OTHER	<u>4,244</u>	<u>3,851</u>
TOTAL	<u><u>\$1,417,922</u></u>	<u><u>\$ 1,472,185</u></u>
Equities and Liabilities		
CAPITALIZATION:		
Equities	\$ 389,820	\$ 386,575
Long-term debt	<u>714,254</u>	<u>809,623</u>
Total capitalization	<u>1,104,074</u>	<u>1,196,198</u>
CURRENT LIABILITIES:		
Current maturities of long-term obligations	72,145	7,373
Notes payable	-	10,000
Purchased power payable	1,878	1,516
Accounts payable	28,446	29,782
Accrued expenses	10,380	10,627
Accrued interest	<u>9,899</u>	<u>11,134</u>
Total current liabilities	<u>122,748</u>	<u>70,432</u>
DEFERRED CREDITS AND OTHER:		
Regulatory liabilities – Member rate mitigation	169,001	185,893
Other	<u>22,099</u>	<u>19,662</u>
Total deferred credits and other	<u>191,100</u>	<u>205,555</u>
COMMITMENTS AND CONTINGENCIES (see Note 14)		
TOTAL	<u><u>\$1,417,922</u></u>	<u><u>\$ 1,472,185</u></u>

See accompanying notes to financial statements

## STATEMENTS OF EQUITIES (Deficit)

For the years ended December 31, 2011, 2010 and 2009 — (Dollars in thousands)

	Total Equities (Deficit)	Accumulated Margin (Deficit)	Other Equities		Accumulated Other Comprehensive Income
			Donated Capital and Memberships	Consumers' Contributions to Debt Service	
BALANCE – December 31, 2008	\$ (154,602)	\$ (146,823)	\$ 764	\$ 3,681	\$(12,224)
Comprehensive income:					
Net margin	531,330	531,330	-	-	-
Defined benefit plans	<u>2,664</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>2,664</u>
Total comprehensive income	<u>533,994</u>	<u>531,330</u>	<u>-</u>	<u>-</u>	<u>2,664</u>
BALANCE – December 31, 2009	379,392	384,507	764	3,681	(9,560)
Comprehensive income:					
Net margin	6,991	6,991	-	-	-
Defined benefit plans	<u>192</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>192</u>
Total comprehensive income	<u>7,183</u>	<u>6,991</u>	<u>-</u>	<u>-</u>	<u>192</u>
BALANCE – December 31, 2010	386,575	391,498	764	3,681	(9,368)
Comprehensive income:					
Net margin	5,600	5,600	-	-	-
Defined benefit plans	<u>(2,355)</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>(2,355)</u>
Total comprehensive income	<u>3,245</u>	<u>5,600</u>	<u>-</u>	<u>-</u>	<u>(2,355)</u>
BALANCE – December 31, 2011	<u>\$ 389,820</u>	<u>\$ 397,098</u>	<u>\$ 764</u>	<u>\$ 3,681</u>	<u>\$(11,723)</u>

See accompanying notes to financial statements

# NOTES TO FINANCIAL STATEMENTS

As of December 31, 2011 and 2010 (Dollars in thousands)

## 1. ORGANIZATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

- (a) General Information — Big Rivers Electric Corporation (Big Rivers or the Company), an electric generation and transmission cooperative, supplies wholesale power to its three member distribution cooperatives (Kenergy Corp., Jackson Purchase Energy Corporation, and Meade County Rural Electric Cooperative Corporation) under all requirements contracts, excluding the power needs of two large aluminum smelters (the Aluminum Smelters). Additionally, Big Rivers sells power under separate contracts to Kenergy Corp. for the Aluminum Smelters load and markets power to nonmember utilities and power marketers. The members provide electric power and energy to industrial, residential, and commercial customers located in portions of 22 western Kentucky counties. The wholesale power contracts with the members remain in effect until December 31, 2043. Rates to Big Rivers' members are established by the Kentucky Public Service Commission (KPSC) and are subject to approval by the Rural Utilities Service (RUS). The financial statements of Big Rivers include the provisions of the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 980, *Certain Types of Regulation*, which was adopted by the Company in 2003, and gives recognition to the ratemaking and accounting practices of the KPSC and RUS.

Management evaluated subsequent events up to and including March 26, 2012, the date the financial statements were available to be issued.

- (b) Principles of Consolidation — The financial statements of Big Rivers include the accounts of Big Rivers and its wholly owned subsidiary, Big Rivers Leasing Corporation (BRLC). All significant intercompany transactions have been eliminated. BRLC was dissolved July 7, 2009.
- (c) Estimates — The preparation of the financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, and disclosure of contingent assets and liabilities. The estimates and assumptions used in the accompanying financial statements are based upon management's evaluation of the relevant facts and circumstances as of the date of the financial statements. Actual results may differ from those estimates.
- (d) System of Accounts — Big Rivers' maintains its accounting records in accordance with the Uniform System of Accounts as prescribed by the RUS Bulletin 1767B-1, as adopted by the KPSC. These regulatory agencies retain authority and periodically issue orders on various accounting and ratemaking matters. Adjustments to RUS accounting have been made to make the financial statements consistent with generally accepted accounting principles in the United States of America.
- (e) Revenue Recognition — Revenues generated from the Company's wholesale power contracts are based on month-end meter readings and are recognized as earned. Prior to its termination, in accordance with FASB ASC 840, *Leases*, Big Rivers' revenue from the Lease Agreement was recognized on a straight-line basis over the term of the lease. The major components of this lease revenue include the annual lease payments and the Monthly Margin Payments (described in note 2).
- (f) Utility Plant and Depreciation — Utility plant is recorded at original cost, which includes the cost of contracted services, materials, labor, overhead, and an allowance for borrowed funds used during construction. Replacements of depreciable property units, except minor replacements, are charged to utility plant.

Allowance for borrowed funds used during construction is included on projects with an estimated total cost of \$250 or more before consideration of such allowance. The interest capitalized is determined by applying the effective rate of Big Rivers' weighted average debt to the accumulated expenditures for qualifying projects included in construction in progress.

expected to be taken, in a tax return are recorded only when the more-likely than-not recognition threshold is satisfied and measured at the largest amount of benefit that is greater than 50% likely of being realized upon settlement.

- (l) Patronage Capital — As provided in the bylaws, Big Rivers accounts for each year's patronage-sourced income, both operating and nonoperating, on a patronage basis. Notwithstanding any other provision of the bylaws, the amount to be allocated as patronage capital for a given year shall not be less than the greater of regular taxable patronage-sourced income or alternative minimum taxable patronage-sourced income.
- (m) Derivatives — Management has reviewed the requirements of FASB ASC 815, *Derivatives and Hedging*, and has determined that certain contracts the Company is party to may meet the definition of a derivative under FASB ASC 815. The Company has elected the Normal Purchase and Normal Sale exception for these contracts and, therefore, the contracts are not required to be recognized at fair value in the financial statements
- (n) Fair Value Measurements — FASB ASC 820, *Fair Value Measurements and Disclosures*, defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal, or most advantageous, market for the asset or liability in an orderly transaction between market participants at the measurement date. FASB ASC 820 establishes a three-level fair value hierarchy that prioritizes the inputs used to measure fair value. This hierarchy requires entities to maximize the use of observable inputs when possible. The three levels of inputs used to measure fair value are as follows:
  - Level 1 – quoted prices in active markets for identical assets or liabilities
  - Level 2 – observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar assets and liabilities in markets that are not active; or other inputs that are observable or can be corroborated by observable market data; and
  - Level 3 – unobservable inputs that are supported by little or no market activity and that are significant to the fair values of the assets or liabilities, including certain pricing models, discounted cash flow methodologies and similar techniques that use significant unobservable inputs.

- a. WKEC was to lease and operate Big Rivers' generation facilities through 2023.
- b. Big Rivers retained ownership of the generation facilities both during and at the end of the lease term.
- c. WKEC paid Big Rivers an annual lease payment of \$30,965 over the lease term, subject to certain adjustments.
- d. On the Effective Date, Big Rivers received \$69,100 representing certain closing payments and the first two years of the annual lease payments. In accordance with FASB ASC 840, *Leases*, the Company amortized these payments to revenue on a straight-line basis over the life of the lease.
- e. Big Rivers continued to provide power for its members, excluding the member loads serving the Aluminum Smelters, through its power purchase agreements with LEM and the Southeastern Power Administration, based on a pre-determined maximum capacity. When economically feasible, the Company also obtained the power necessary to supply its member loads, excluding the Aluminum Smelters, in the open market. Kenergy Corp's retail service for the Aluminum Smelters was served by LEM and other third party providers that included Big Rivers. To the extent the power purchased from LEM did not reach pre-determined minimums, the Company was required to pay certain penalties. Also, to the extent additional power was available to Big Rivers under the LEM contract, Big Rivers made sales to nonmembers.
- f. LEM reimbursed Big Rivers the margins expected from the Aluminum Smelters, defined as the net cash flows that Big Rivers anticipated receiving if the Company had continued to serve the Aluminum Smelters' load, as filed in the Rate Hearing (the Monthly Margin Payments).
- g. WKEC was responsible for the operating costs of the generation facilities; however, Big Rivers was partially responsible for ordinary capital expenditures (Nonincremental Capital Costs) for the generation facilities over the term of the Lease Agreement, generally up to predetermined annual amounts. At the end of the lease term, Big Rivers was obligated to fund a "Residual Value Payment" to LG&E and KU for such capital additions during the lease (see note 1). Adjustments to the Residual Value Payment were made based upon actual capital expenditures. Additionally, WKEC made required capital improvements to the facilities to comply with new laws or changes to existing laws (Incremental Capital Costs) over the lease life (the Company was partially responsible for such costs—20% prior to termination of the lease) and the Company was required to submit another Residual Value Payment to LG&E and KU for the undepreciated value of WKEC's 80% share of these costs, at the end of the lease. The Company had title to these assets during the lease and upon lease termination.
- h. Big Rivers entered into a note payable with LEM for \$19,676 (the LEM Settlement Note) to be repaid over the term of the Lease Agreement, with an interest rate at 8% per annum, in consideration for LEM's assumption of the risk related to unforeseen costs with respect to power to be supplied to the Aluminum Smelters and the increased responsibility for financing capital improvements. The Company recorded this obligation as a component of deferred charges with the related payable recorded as long-term debt in the accompanying balance sheets. This deferred charge was amortized on a straight-line basis up to the Effective Date of the Unwind Transaction.
- i. On the Effective Date, Big Rivers paid a nonrefundable marketing payment of \$5,933 to LEM, which was recorded as a component of deferred charges. This amount was amortized on a straight-line basis up to the Effective Date of the Unwind Transaction.
- j. During the lease term, Big Rivers was entitled to certain "billing credits" against amounts the Company owed LEM under the power purchase agreement. Each month during the first 55 months of the lease term, Big Rivers received a credit of \$89. For the year 2011, Big Rivers was to receive a credit of \$2,611 and for the years 2012 through 2023, the Company was to receive a credit of \$4,111 annually.

4 DEBT AND OTHER LONG-TERM OBLIGATIONS

A detail of long-term debt at December 31, 2011 and 2010 is as follows:

	2011	2010
RUS Series A Promissory Note, stated amount of \$523,192, stated interest rate of 5.75%, with an imputed interest rate of 5.84% maturing July 2021	\$521,250	\$558,731
RUS Series B Promissory Note, stated amount of \$245,530, no stated interest rate, with interest imputed at 5.80%, maturing December 2023	123,049	116,165
County of Ohio, Kentucky, promissory note, fixed interest rate of 6.00%, maturing in July 2031	83,300	83,300
County of Ohio, Kentucky, promissory note, variable interest rate (average interest rate of 3.30% and 3.27% in 2011 and 2010, respectively), maturing in June 2013	<u>58,800</u>	<u>58,800</u>
Total long-term debt	786,399	816,996
Current maturities	<u>72,145</u>	<u>7,373</u>
Total long-term debt — net of current maturities	<u>\$714,254</u>	<u>\$809,623</u>

The following are scheduled maturities of long-term debt at December 31:

Year	Amount
2012	\$ 72,145
2013	79,260
2014	21,661
2015	22,955
2016	231,882
Thereafter	<u>358,496</u>
Total	<u>\$786,399</u>

- (a) *RUS Notes* — On July 15, 1998, Big Rivers recorded the New RUS Promissory Note and the RUS ARVP Note at fair value using the applicable market rate of 5.82%. On the Unwind Closing Date, the New RUS Note and the ARVP Note were replaced with the RUS 2009 Promissory Note Series A and the RUS 2009 Promissory Note Series B, respectively. After an Unwind Closing Date payment of \$140,181, the RUS 2009 Promissory Note Series A is recorded at an interest rate of 5.84%. The RUS 2009 Series B Note is recorded at an imputed interest rate of 5.80%. The RUS Notes are collateralized by substantially all assets of the Company and secured by the Indenture dated July 1, 2009 between the Company and U.S. Bank National Association.



## 5. RATE MATTERS

The rates charged to Big Rivers' members consist of a demand charge per kilowatt (kW) and an energy charge per kilowatt hour (kWh) consumed as approved by the KPSC. The rates include specific demand and energy charges for its members' two classes of customers, the large industrial customers and the rural customers under its jurisdiction. For the large industrial customers, the demand charge is generally based on each customer's maximum demand during the current month. Effective September 1, 2011, the Company received approval from the KPSC to base the member rural demand charge on its Maximum Adjusted Net Local Load (as defined in Big Rivers tariff).

Prior to the Unwind Transaction the demand and energy charges were not subject to adjustments for increases or decreases in fuel or environmental costs. In conjunction with the Unwind Transaction, the KPSC approved the implementation of certain tariff riders; including a fuel adjustment clause and an environmental surcharge, offset by an unwind surcredit (a refund to tariff members of certain charges collected from the Aluminum Smelters in accordance with the contract terms). The net effect of these tariffs is recognized as revenue on a monthly basis with an offset to the regulatory liability – member rate mitigation described below.

The net impact of the tariff riders to members rates is currently mitigated by a Member Rate Stability Mechanism (MRSM) that was funded by certain cash amounts received from the E.ON Entities in connection with the Unwind Transaction (the Economic and Rural Economic Reserves) and held by Big Rivers as restricted investments. An offsetting regulatory liability – member rate mitigation was established with the funding of these accounts.

In its order approving the Unwind Transaction, the KPSC stipulated that Big Rivers file a rate case within three years of the Unwind Closing Date or by July 2012. On March 1, 2011, the company filed an application with the KPSC requesting, among other things, authority to adjust its rates for wholesale electric service. The KPSC entered an order on November 17, 2011, granting Big Rivers an annual revenue increase of \$26,745. One of the intervenors in the case has filed an appeal seeking, among other things, an approximate \$6,200 reduction in the revenue relief granted in the order, and will presumably ask that any relief obtained be retroactive to the effective date of the rates approved in the order (September 1, 2011). Big Rivers has also sought rehearing on certain matters raised in the order that could increase Big Rivers' annual revenue by \$2,735.

The wholesale rates established for the members nonsmelter large direct-served industrial customers (the Large Industrial Rate) provide the basis for pricing the energy consumed by the Aluminum Smelters. The primary component of the pricing used for the Aluminum Smelters is an energy charge in dollars per megawatt hour (MWh) determined by applying the Large Industrial Rate to a load with a 98% load factor, and adding an additional charge of \$0.25 per MWh. The other components reflected in the pricing of the Aluminum Smelters' energy usage are certain charges and credits as provided for under the terms of the Aluminum Smelters' wholesale electric service agreements between Big Rivers and Kenergy Corp. (Kenergy Corp. is the retail provider for the Aluminum Smelters load).

The Company files a federal income tax return, as well as certain state income tax returns. The years currently open for federal tax examination are 2007 through 2011 and 1996 through 1997, due to unused net operating loss carryforwards. The major state tax jurisdiction currently open for tax examination is Kentucky for years 2004 through 2011 and years 2001 through 2003, also due to unused net operating loss carryforwards. The Company has not recorded any unrecognized tax benefits or liabilities related to federal or state income taxes.

The Company classifies interest and penalties as an operating expense on the income statement and accrued expense in the balance sheet. No material interest or penalties have been recorded during 2011, 2010, or 2009.

## 7. POWER PURCHASED

Prior to the Unwind Transaction and in accordance with the Lease Agreement, Big Rivers supplied all of the members' requirements for power to serve their customers, other than the Aluminum Smelters. Contract limits were established in the Lease Agreement and included minimum and maximum hourly and annual power purchase amounts. Big Rivers could not reduce the contract limits by more than 12 MW in any year or by more than a total of 72 MW over the lease term. In the event Big Rivers failed to take the minimum requirement during any hour or year, Big Rivers was liable to LEM for a certain percentage of the difference between the amount of power actually taken and the applicable minimum requirement.

Although Big Rivers was required by the Lease Agreement to purchase minimum hourly and annual amounts of power from LEM, the lease did not prevent Big Rivers from paying the associated penalty in certain hours to purchase lower cost power, if available, in the open market or reselling a portion of its purchased power to a third party. The power purchases made under this agreement for the year ended December 31, 2009, was \$51,592 and is included in power purchased and interchanged on the statement of operations.

## 8. PENSION PLANS

- (a) *Defined Benefit Plans*— Big Rivers has noncontributory defined benefit pension plans covering substantially all employees who meet minimum age and service requirements and who were employed by the Company prior to the plans closure dates cited below. The plans provide benefits based on the participants' years of service and the five highest consecutive years' compensation during the last ten years of employment. Big Rivers' policy is to fund such plans in accordance with the requirements of the Employee Retirement Income Security Act of 1974.

The salaried employees defined benefit plan was closed to new entrants effective January 1, 2008, and the bargaining employees defined benefit plan was closed to new hires effective November 1, 2008. The Company simultaneously established base contribution accounts in the defined contribution thrift and 401(k) savings plans, which were renamed as the retirement savings plans. The base contribution account for an eligible employee, which is one who meets the minimum age and service requirements, but for whom membership in the defined benefit plan is closed, is funded by employer contributions based on graduated percentages of the employee's pay, depending on his or her age.

The Company has adopted FASB ASC 715, *Compensation – Retirement Benefits*, including the requirement to recognize the funded status of its pension plans and other postretirement plans (see note 11 – Postretirement Benefits Other Than Pensions). FASB ASC 715 defines the funded status of a defined benefit pension plan as the fair value of its assets less its projected benefit obligation, which includes projected salary increases, and defines the funded status of any other postretirement plan as the fair value of its assets less its accumulated postretirement benefit obligation.

FASB ASC 715 also requires an employer to measure the funded status of a plan as of the date of its year-end balance sheet and requires disclosure in the notes to the financial statements certain additional information related to net periodic benefit costs for the next fiscal year. The Company's pension and other postretirement benefit plans are measured as of December 31, 2011 and 2010.

Components of net periodic pension costs for the years ended December 31, 2011, 2010, and 2009, were as follows:

	2011	2010	2009
Service cost	\$1,279	\$1,289	\$1,241
Interest cost	1,296	1,368	1,466
Expected return on plan assets	(1,737)	(1,533)	(1,332)
Amortization of prior service cost	14	19	19
Amortization of actuarial loss	461	584	834
Settlement loss	--	--	1,690
Net periodic benefit cost	<u>\$1,313</u>	<u>\$1,727</u>	<u>\$3,918</u>

A reconciliation of the pension plan amounts in accumulated other comprehensive income at December 31, 2011 and 2010, follows:

	2011	2010
Prior service cost	\$ (26)	\$ (40)
Unamortized actuarial (loss)	<u>(11,151)</u>	<u>(9,354)</u>
Accumulated other comprehensive income	<u>\$ (11,177)</u>	<u>\$ (9,394)</u>

In 2012, \$14 of prior service cost and \$696 of actuarial loss is expected to be amortized to periodic benefit cost

The recognized adjustments to other comprehensive income (loss) at December 31, 2011 and 2010, follows:

	2011	2010
Prior service cost	\$ 14	\$ 19
Unamortized actuarial (loss)	<u>(1,797)</u>	<u>297</u>
Other comprehensive income	<u>\$ (1,783)</u>	<u>\$ 316</u>

At December 31, 2011 and 2010, amounts recognized in the balance sheets were as follows:

	2011	2010
Deferred credits and other	<u>\$ (3,743)</u>	<u>\$ (3,537)</u>

	Level 1	Level 2	December 31, 2010
Cash and money market	\$ 1,517	\$ -	\$ 1,517
Equity Securities:			
U.S. large-cap stocks	9,731	-	9,731
U.S. mid-cap stock mutual funds	2,926	-	2,926
U.S. small-cap stock mutual funds	1,448	-	1,448
International stock mutual funds	2,194	-	2,194
Preferred stock	490	-	490
Fixed:			
TIPS bond fund	161	-	161
U.S. Government Agency Bonds	-	1,843	1,843
Taxable U.S. Municipal Bonds	-	2,635	2,635
U.S. Corporate Bonds	-	2,322	2,322
	<u>\$18,467</u>	<u>\$ 6,800</u>	<u>\$25,267</u>

Expected retiree pension benefit payments projected to be required during the years following 2011 are as follows:

Years Ending December 31	Amount
2012	\$ 2,330
2013	4,386
2014	1,799
2015	3,196
2016	3,265
2017 - 2020	<u>10,986</u>
Total	<u>\$25,962</u>

In 2012, the Company expects to contribute \$970 to its pension plan trusts.

- (b) *Defined Contribution Plans* — Big Rivers has two defined contribution retirement plans covering substantially all employees who meet minimum age and service requirements. Each plan has a thrift and 401(k) savings section allowing employees to contribute up to 75% of pay on a pre-tax and/or after-tax basis, with employer matching contributions equal to 60% of the first 6% contributed by the employee on a pre-tax basis.

A base contribution retirement section was added and the plan name changed from thrift and 401(k) savings to retirement savings, effective January 1, 2008, for the salaried plan and November 1, 2008, for the bargaining plan. The base contribution account is funded by employer contributions based on graduated percentages of pay, depending on the employee's age.

The Company's expense under these plans was \$4,464 and \$4,389 for the years ended December 31, 2011 and 2010, respectively.

Debt securities at December 31, 2011 and 2010 mature, according to their contractual terms, as follows (actual maturities may differ due to call or prepayment rights):

	2011		2010	
	Amortized Costs	Fair Values	Amortized Costs	Fair Values
In one year or less	\$ 43,021	\$ 43,092	\$ 71,111	\$ 71,193
After one year through five years	120,141	122,074	146,451	148,123
Total	<u>\$163,162</u>	<u>\$165,166</u>	<u>\$217,562</u>	<u>\$219,316</u>

Gross unrealized losses on investments and the fair values of the related securities, aggregated by investment category and length of time that individual securities have been in a continuous unrealized loss position at December 31, 2011 and 2010, were:

	2011		2010	
	Less Than 12 Months		Less Than 12 Months	
	Losses	Fair Values	Losses	Fair Values
Debt securities:				
U.S. Treasuries	\$ -	\$ -	\$ -	\$ -
U.S. Government Agency	-	-	217	15,783
Total	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 217</u>	<u>\$ 15,783</u>

The unrealized loss positions were primarily caused by interest rate fluctuations. The number of investments in an unrealized loss position as of December 31, 2011 and 2010 was zero and one, respectively. Since the company does not intend to sell and will more likely than not maintain each debt security until its anticipated recovery, and no significant credit risk is deemed to exist, these investments are not considered other-than-temporarily impaired.

#### 10. FAIR VALUE OF OTHER FINANCIAL INSTRUMENTS

FASB ASC 820 defines fair value, establishes a framework for measuring fair value and expands disclosures about fair value measures. It applies under other accounting standards that require or permit fair value measurements and does not require any new fair value measurements.

The carrying value of accounts receivable, and accounts payable approximate fair value due to their short maturity. At December 31, the Company's cash and cash equivalents included short-term investments in an institutional money market government portfolio account classified as trading securities under ASC 320, *Investments – Debt and Equity Securities*, that were recorded at fair value which were determined using quoted market prices for identical assets without regard to valuation adjustment or block discount (a Level 1 measure), as follows:

A one-percentage-point change in assumed health care cost trend rates would have the following effects:

	2011	2010
One-percentage-point decrease:		
Effect on total service and interest cost components	\$ (211)	\$ (201)
Effect on year end benefit obligation	(1,056)	(1,131)
One-percentage-point increase:		
Effect on total service and interest cost components	254	236
Effect on year end benefit obligation	1,226	1,306

A reconciliation of the Company's benefit obligations of its postretirement plan at December 31, 2011 and 2010, follows:

	2011	2010
Benefit obligation — beginning of period	\$ 15,864	\$ 13,864
Service cost — benefits earned during the period	1,253	1,313
Interest cost on projected benefit obligation	754	743
Participant contributions	160	85
Benefits paid	(611)	(313)
Actuarial loss	620	172
	<u>18,040</u>	<u>15,864</u>
Benefit obligation — end of period	\$ 18,040	\$ 15,864

A reconciliation of the Company's postretirement plan assets at December 31, 2011 and 2010, follows:

	2011	2010
Fair value of plan assets — beginning of period	\$ —	\$ —
Employer contributions	451	228
Participant contributions	160	85
Benefits paid	(611)	(313)
	<u>—</u>	<u>—</u>
Fair value of plan assets — end of period	\$ —	\$ —

The funded status of the Company's postretirement plan at December 31, 2011 and 2010, follows:

	2011	2010
Benefit obligation — end of period	\$(18,040)	\$(15,864)
Fair value of plan assets — end of period	<u>—</u>	<u>—</u>
Funded status	<u>\$(18,040)</u>	<u>\$(15,864)</u>

Expected retiree benefit payments projected to be required during the years following 2011 are as follows:

Year	Amount
2012	\$ 761
2013	963
2014	1,148
2015	1,277
2016	1,383
2017-2021	<u>8,754</u>
Total	<u>\$14,286</u>

In addition to the postretirement plan discussed above, in 1992 Big Rivers began a postretirement benefit plan, which vests a portion of accrued sick leave benefits to salaried employees upon retirement or death. To the extent an employee's sick leave hour balance exceeds 480 hours such excess hours are paid at 20% of the employee's base hourly rate at the time of retirement or death. The accumulated obligation recorded for the postretirement sick leave benefit is \$579 and \$391 at December 31, 2011 and 2010, respectively. The postretirement expense recorded was \$191, \$21, and \$45 for 2011, 2010, and 2009, respectively, and the benefits paid were \$3, \$5, and \$78 for 2011, 2010, and 2009, respectively.

## 12. RELATED PARTIES

For the years ended December 31, 2011, 2010, and 2009, Big Rivers had tariff sales to its members of \$151,472, \$151,001, and \$125,826, respectively. In addition, for the years ended December 31, 2011, 2010, and 2009, Big Rivers had certain sales to Kenergy for the Aluminum Smelters and Domtar Paper loads of \$306,420, \$281,473 and \$167,885, respectively.

At December 31, 2011 and 2010, Big Rivers had accounts receivable from its members of \$40,314 and \$36,636, respectively.

## 13. COMMITMENTS AND CONTINGENCIES

Big Rivers is involved in litigation arising in the normal course of business. While the results of such litigation cannot be predicted with certainty, management, based upon advice of counsel, believes that the final outcome will not have a material adverse effect on the financial statements.

Big Rivers plans to seek KPSC approval for its 2012 environmental compliance plan (ECP) in an April 2012 filing. This ECP will consist of \$283,490 of capital projects, primarily for a new scrubber at the D.B. Wilson station and a new selective catalytic reduction facility at the R.D. Green station, and certain additional operations and maintenance costs. The purpose of the ECP is to allow Big Rivers to comply, in the most cost-effective manner, with the U.S. Environmental Protection Agency Cross-State Air Pollution Rule, and Mercury and Other Air Toxics Standards. Among other things, the ECP filing will seek to recover the costs of the ECP through an amendment to Big Rivers' existing environmental surcharge tariff rider, an automatic cost-recovery mechanism that is similar in function to the fuel adjustment clause. The regulatory process is expected to last six months after the filing date.

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# FIVE-YEAR REVIEW

Years Ended December 31 — (Dollars in thousands)

SUMMARY OF OPERATIONS	2011	2010	2009	2008	2007
Operating Revenue:					
Power Contracts Revenue	\$561,989	\$527,324	\$341,333	\$214,758	\$271,605
Lease Revenue	—	—	32,027	58,423	58,265
Total Operating Revenue	<u>561,989</u>	<u>527,324</u>	<u>373,360</u>	<u>273,181</u>	<u>329,870</u>
Operating Expenses:					
Fuel for Electric Generation	226,229	207,749	80,655	—	—
Power Purchased	112,262	99,421	116,883	114,643	169,768
Operations (Excluding Fuel), Maintenance, Other	137,213	134,660	87,645	32,858	31,436
Depreciation	<u>35,407</u>	<u>34,242</u>	<u>32,485</u>	<u>31,041</u>	<u>30,632</u>
Total Operating Expenses	511,111	476,072	317,668	178,542	231,836
Interest Expense and Other:					
Interest	45,226	46,570	59,898	72,710	70,851
Other – net	<u>320</u>	<u>425</u>	<u>3,309</u>	<u>6,868</u>	<u>103</u>
Total Interest Expense & Other	45,546	46,995	63,207	79,578	70,954
Operating Margin	5,332	4,257	(7,515)	15,061	27,080
Non-Operating Margin	268	2,734	538,845	12,755	20,097
<b>NET MARGIN</b>	<u><b>\$5,600</b></u>	<u><b>\$6,991</b></u>	<u><b>\$531,330</b></u>	<u><b>\$27,816</b></u>	<u><b>\$47,177</b></u>
SUMMARY OF BALANCE SHEET					
Total Utility Plant	\$2,028,418	\$2,001,067	\$1,986,373	\$1,791,772	\$1,764,924
Accumulated Depreciation	<u>936,355</u>	<u>909,501</u>	<u>908,099</u>	<u>879,073</u>	<u>853,290</u>
Net Utility Plant	1,092,063	1,091,566	1,078,274	912,699	911,634
Cash and Cash Equivalents	44,849	44,780	60,290	38,903	148,914
Reserve Account Investments <sup>1</sup>	164,399	218,955	244,641	—	—
Other Assets	<u>116,611</u>	<u>116,884</u>	<u>122,278</u>	<u>122,834</u>	<u>253,610</u>
<b>TOTAL ASSETS</b>	<u><b>\$1,417,922</b></u>	<u><b>\$1,472,185</b></u>	<u><b>\$1,505,483</b></u>	<u><b>\$1,074,436</b></u>	<u><b>\$1,314,158</b></u>
Equities (deficit)	\$389,820	\$386,575	\$379,392	\$ (154,602)	\$ (174,137)
Long-term Debt <sup>2</sup>	786,399	816,996	848,552	987,349	1,022,345
Regulatory Liability – Member Rate Mitigation	169,001	185,893	207,348	—	—
Other Liabilities and Deferred Credits	<u>72,702</u>	<u>82,721</u>	<u>70,191</u>	<u>241,689</u>	<u>465,950</u>
<b>TOTAL LIABILITIES AND EQUITY</b>	<u><b>\$1,417,922</b></u>	<u><b>\$1,472,185</b></u>	<u><b>\$1,505,483</b></u>	<u><b>\$1,074,436</b></u>	<u><b>\$1,314,158</b></u>
ENERGY SALES (MWh)					
Member Rural	2,371,106	2,481,390	2,239,445	2,386,916	2,406,446
Member Large Industrial	973,093	930,168	919,587	925,793	921,359
Smelter Contracts	6,854,820	6,348,431	2,885,491	—	—
Other	<u>3,056,106</u>	<u>2,209,431</u>	<u>1,746,438</u>	<u>1,844,677</u>	<u>2,835,789</u>
Total Energy Sales	<u>13,255,125</u>	<u>11,969,420</u>	<u>7,790,961</u>	<u>5,157,386</u>	<u>6,163,594</u>
SOURCES OF ENERGY (MWh)					
Generated	10,284,350	9,895,512	3,715,544	—	—
Purchased	2,998,361	2,220,994	4,166,916	5,211,789	6,213,682
Losses and Net Interchange	<u>(27,586)</u>	<u>(147,086)</u>	<u>(91,499)</u>	<u>(54,403)</u>	<u>(50,088)</u>
Total Energy Available	<u>13,255,125</u>	<u>11,969,420</u>	<u>7,790,961</u>	<u>5,157,386</u>	<u>6,163,594</u>
NET CAPACITY (MW)					
Net Generating Capacity Owned	1,444	1,444	1,444	1,459	1,459
Rights to HMP&L Station Two	202	207	212	217	217
Other Net Capacity Available	178	178	178	178	178

<sup>1</sup>Includes investment income receivable

<sup>2</sup>Includes current maturities of long-term obligations





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1 **Item 6)** *Please reference the Direct Testimony of Mark Hite, page 7,*  
2 *lines 20-22, which states that Big Rivers acquired forward pricing data*  
3 *(hourly energy prices, monthly coal prices, monthly natural gas prices and*  
4 *monthly allowance prices) from PACE Global which data were used by*  
5 *ACES in running the production cost model. Please also reference Big*  
6 *Rivers' Response to Item 32 of KIUC's Initial Request for information*  
7 *which states that Big Rivers relied on ACES and PACE Global for input*  
8 *assumptions surrounding commodity prices including emission*  
9 *allowances, fuel and wholesale energy market pricing. Please provide in*  
10 *narrative form and without reference to previously filed data disks an*  
11 *explanation whether the ACES production cost model used only PACE*  
12 *Global assumptions or a combination of PACE Global and other*  
13 *projections with respect to the following forward pricing:*

14

- 15 *a. wholesale energy prices;*  
16 *b. fuel prices;*  
17 *c. emission allowances;*  
18 *d. natural gas prices.*

19

20 *In your response, please provide by month, day or hour, the specific ACES*  
21 *data or data from any other non-PACE Global source actually used in the*

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1 *production cost model in a manner than can be compared with the PACE*  
2 *global data not used.*

3

4 **Response)** ACES Power Marketing's ("APM") planning models were run with  
5 the following combination of price sources:

6

- 7 • Pace Global ("Pace") power/coal/natural gas/emissions, APM  
8 heating oil prices;
- 9 • Pace coal/natural gas/emissions, APM power and heating oil  
10 prices;
- 11 • Pace coal/natural gas/emissions, APM power (including the  
12 impact of loss of smelter load) and heating oil prices. (Note  
13 heating oil is used as a start fuel and has minimal impact on the  
14 modeling)

15

16 The cases run exclusively with Pace power prices are listed in the table of  
17 attached hereto. The cases run with APM power prices are provided in a separate  
18 table attached hereto. The comparison of APM and Pace price sets is provided on  
19 the CONFIDENTIAL USB drive accompanying these responses and is submitted  
20 with a Petition for Confidential Treatment.

21

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1 **Witnesses) Patrick N. Augustine and**  
2 **Brian J. Azman**  
3

**Big Rivers Electric Corporation**  
**Case No. 2012-00063**  
**Cases Run Exclusively with APM Power Prices**

1. Big Rivers 2012-2026 (CSAPR-MATS by equip) sens 2 exhibits determin Rev.1 no smltrs APM enrgy(2-27-12)
2. Big Rivers 2012-2026 (CSAPR-MATS by equip) sens 2 exhibits determin Rev.1 no smltrs APM enrgy AttachY-WC(3-19-12)
3. Big Rivers 2012-2026 (CSAPR-MATS by equip) sens 2 exhibits determin Rev.1 no smltrs APM enrgy AttachY-WC(4-4-12) rev
4. Big Rivers 2012-2026 (CSAPR-MATS by gen) sens 1 v-limits exhibits determin no smltrs APM energy AttachY-WC(4-14-12)
5. Big Rivers 2012-2026 (CSAPR-MATS by equip) sens 2 exhibits determin Rev.1 no Alcan APM enrgy AttachY-W(4-5-12)
6. Big Rivers 2012-2026 (CSAPR-MATS by equip) sens 2 exhibits determin Rev.1 no CNTRY APM enrgy AttachY-C(3-19-12)
7. Big Rivers 2012-2026 (CSAPR-MATS by equip) sens 2 exhibits determin Rev.1 no CNTRY APM enrgy AttachY-C(4-4-12) rev
8. Big Rivers 2012-2026 (CSAPR-MATS by gen) sens 1 exhibits determin no CNTRY APM energy AttachY-C (5-4-12)
9. Big Rivers 2012-2026 (CSAPR-MATS by gen) sens 1 v-limits exhibits determin no CNTRY APM energy AttachY-W (5-4-12)
10. Big Rivers 2012-2026 (CSAPR-MATS by gen) sens 1 v-limits exhibits determin no CNTRY APM energy AttachY-C (5-14-12)
11. Big Rivers 2012-2026 (CSAPR-MATS by equip) sens 2 exhibits determin Rev.1 APM energy (5-8-12)

**Big Rivers Electric Corporation**  
**Case No. 2012-00063**  
**Cases Run Exclusively with Pace Global Power Prices**

1. Big Rivers 2012-2026 (CAIR) Base Case exhibits determin (2-2-12)
2. Big Rivers 2012-2026 (CSAPR-MATS by equip) sens 2 exhibits determin(2-10-12)
3. Big Rivers 2012-2026 (CSAPR-MATS by equip) sens 2 exhibits determin Rev 1 (2-12-12)
4. Big Rivers 2012-2026 (CSAPR-MATS by equip) no SCR (2-18-12)
5. Big Rivers 2012-2026 (CSAPR-MATS by gen) sens 1 exhibits determin(2-8-12)
6. Big Rivers 2012-2026 (CSAPR-MATS by gen) sens 1 v-limits exhibits determin (2-22-12)
7. Big Rivers 2012-2026 (CSAPR-MATS by gen) sens 1 v-limits (2) exhibits determin (2-23-12)
8. Big Rivers 2012-2026 (CSAPR-MATS by equip) sens 2 exhibits determin Rev 1 no smltrs (2-14-12)
9. Big Rivers 2012-2026 (CSAPR-MATS by gen) sens 1 exhibits determin no smltrs (2-15-12)
10. Big Rivers 2012-2026 (CSAPR-MATS by gen) sens 1 v-limits exhibits determin no smltrs (2-23-12)



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1 **Item 7)** *Refer to the Company's response to KIUC 1-2(d). Please*  
2 *provide an electronic version of the exhibit attached to the response with*  
3 *cell formulas intact.*

4  
5 **Response)** Please see the Excel file provided on the USB drive accompanying  
6 these responses. That Excel file, file name "KIUC 2-7 - EV of KIUC 1-2d - PV of  
7 BR Mbr Rev Stream," has cell formulas intact.

8  
9  
10 **Witness)** Mark A. Hite  
11





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1 **Item 8)** *Refer to the Company's response to AG 1-47(a) and the*  
2 *statement that "The financial analysis was performed by Big Rivers with*  
3 *input from ACES Power marketing and PACE Global."*

4

5 *a. Please describe each step of the financial analysis and the*  
6 *role and activities performed by ACES, PACE, and Big*  
7 *Rivers, respectively.*

8 *b. Please identify each person, the person's employer, and*  
9 *the specific responsibilities of each person in each step of*  
10 *the financial analysis described in response to part (a) of*  
11 *this question.*

12

13 **Response)**

14 a. The financial analysis (which is also referred to as the Big Rivers  
15 financial model or the cost effectiveness evaluation described in  
16 the direct testimony of Mark Hite) is a spreadsheet-based model  
17 of the Net Present Value of Revenue Requirements ("NPVRR") for  
18 the different alternatives considered by Big Rivers in this  
19 Application. Inputs to the financial analysis include (i) certain

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**Witnesses: Mark A. Hite (a. and b. [*Big Rivers only*]),  
Patrick N. Augustine (b. [*PACE Global only*]),  
Brian J. Azman (b. [*APM only*]), and  
William DePriest (b. [*Sargent & Lundy only*])**

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1 inputs and assumptions that were developed by Big Rivers, (ii)  
2 cost estimates developed by Sargent & Lundy, (iii) and the output  
3 of the production cost modeling performed by APM. APM used  
4 the Planning and Risk ("PaR") model. All of the inputs to the PaR  
5 model came from Big Rivers, with the exception of price  
6 projections for emission allowances, fuel, and wholesale market  
7 energy. The projections for emission allowance and fuel prices  
8 that were used as inputs to the PaR model were outputs from the  
9 Pace model. For some of the PaR model runs, the projected  
10 wholesale market energy prices that were used as inputs to the  
11 PaR model were outputs of the Pace model. For the remaining  
12 PaR model runs, APM provided the projected wholesale market  
13 energy prices. More specifically, the steps and roles of the  
14 financial analyses were as follows:

- 15 1. Unit-specific and load-specific model inputs were  
16 provided by Big Rivers to APM;
- 17 2. Fuel, energy and allowance pricing forecasts were  
18 provided by Pace via Big Rivers to APM for certain of  
19 the APM planning model runs;

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- 1 i. APM provided an energy price forecast for the other  
2 planning model runs;  
3 3. Planning and Risk model, model expertise, modeling,  
4 and model outputs/exhibits were provided by APM to  
5 Big Rivers;  
6 4. Planning and Risk model outputs/exhibits, Sargent &  
7 Lundy cost estimates, and Big Rivers' own other data  
8 were input into the Big Rivers financial model by Big  
9 Rivers.  
10 b. Regarding (a) above:  
11 1. Big Rivers inputs to the APM PaR model were provided  
12 by Mike Thompson (Big Rivers Manager of Resource  
13 Planning & Fuels Support) and Michael J. Mattox (Big  
14 Rivers Director of Resources and Forecasting), both of  
15 whom ultimately report to Robert W. Berry.  
16 2. Pace price forecasts were the responsibility of the  
17 following:

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- 1                                   i. Patrick N. Augustine at Pace, who directs the  
2                                   fulfillment of power market analysis activities  
3                                   throughout the company;  
4                                   ii. Christian Whitaker at Pace, who was the account  
5                                   director responsible for work execution and  
6                                   overseeing the power market analysis performed for  
7                                   Big Rivers;  
8                                   iii. Michael Korschek, Girish Mangtani, and Karthik  
9                                   Viswanathan, who are Senior Consultants at Pace  
10                                  who performed the statistical input development  
11                                  analysis and power market dispatch analysis used in  
12                                  the development of the price forecasts.
- 13                                3.    APM energy price forecasts were provided by Scott  
14                                  Martello at APM.
- 15                                4.    APM modeling was performed by Brian Azman, Jim  
16                                  Schmelzer, and Jason Painter at APM.
- 17                                5.    Big Rivers financial modeling was performed by Mark  
18                                  A. Hite and by Travis Siewert, CPA, CMA, who reports  
19                                  to Mark A. Hite.

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**Witnesses: Mark A. Hite (a. and b. [*Big Rivers only*]),  
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1                                   6.     Sargent & Lundy cost estimates were provided by  
2    William DePriest.

3

4 **Witnesses)** Mark A. Hite (a. and b. [*Big Rivers only*]),  
5                                   Patrick N. Augustine (b. [*Pace only*]),  
6                                   Brian J. Azman (b. [*APM only*]), and  
7                                   William DePriest (b. [*Sargent & Lundy only*])

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1 **Item 9)** *Refer to the Company's response to AG 1-47(c) and the*  
2 *statement that "ACES Power Marketing provided the planning models for*  
3 *these [sensitivity] scenarios" used to assess the "economic impact of two*  
4 *compliance options with regard to a loss in Smelter load" described by Mr.*  
5 *Berry in his Direct Testimony at 15.*

6

7

a. *Please identify the "planning models" provided to Big  
Rivers by ACES for this purpose.*

8

9

b. *Please distinguish between the "planning models"  
provided to Big Rivers by ACES for this purpose and the  
Big Rivers model that was used for this purpose and  
described by Mr. Hite in his Direct Testimony at 7 as  
follow: "Big Rivers developed a financial model to  
determine the net present value of revenue requirements  
("NPVRR") over the 2012 - 2026 (15-year) study period."*

10

11

12

13

14

15

16

17 **Response)**

18

a. and b.

19

The APM "planning model" is the Ventyx PaR model, which is  
also referred to as a production cost model. The planning model  
runs that APM provided to Big Rivers are contained on the flash

20

21

**Case No. 2012-00063**

**Response to KIUC 2-9**

**Witnesses: Mark A. Hite (a. and b. [Big Rivers only]) and  
Brian J. Azman ([APM-related information only])**

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1 drives Big Rivers filed June 14, 2012, and June 21, 2012. Big  
2 Rivers used production cost outputs from the PaR model as  
3 inputs in its own financial model (the Big Rivers model, which is  
4 in-house developed spreadsheet). The Big Rivers financial  
5 model runs were also provided on the flash drives, and were  
6 used to determine net present value of revenue requirements.

7  
8  
9  
10  
11

**Witnesses)** Mark A. Hite (a. and b. [*Big Rivers* only]) and  
Brian J. Azman ([*APM-related information only*])



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1 **Item 10) *Does Mr. Hite personally possess the expertise and knowledge***  
2 ***to run the Ventyx PAR model used by ACES Power Marketing?***

3  
4 **a. *If so, then:***

5 **i. *describe his expertise and knowledge,***

6 **ii. *specifically describe his experience in production***  
7 ***cost modeling in general and the PAR model in***  
8 ***particular, and***

9 **iii. *his personal involvement in running the Ventyx PAR***  
10 ***model to quantify the production costs and any***  
11 ***other amounts used in the “financial analysis”***  
12 ***and/or in the “financial model” to assess the***  
13 ***scenarios and sensitivity studies in this proceeding.***

14 **b. *If not, then please identify the witness supporting the***  
15 ***production cost modeling and the quantification of the***  
16 ***production costs used in the “financial analysis” and/or***  
17 ***in the “financial model” to assess the scenarios and***  
18 ***sensitivity studies in this proceeding. If there is no such***  
19 ***witness, then please so state.***

20  
21 **Response) No.**  
22

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- 1           a.    Not applicable.  
2           b.    Brian J. Azman of ACES Power Marketing. (Note: The relevant  
3                    PaR output is simply input into the Big Rivers Financial Model.)  
4  
5

6 **Witness)**   Mark A. Hite  
7



**BIG RIVERS ELECTRIC CORPORATION**

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION  
FOR APPROVAL OF ITS 2012 ENVIRONMENTAL COMPLIANCE PLAN,  
FOR APPROVAL OF ITS AMENDED ENVIRONMENTAL COST  
RECOVERY SURCHARGE TARIFF, FOR CERTIFICATES OF PUBLIC  
CONVENIENCE AND NECESSITY, AND FOR AUTHORITY TO  
ESTABLISH A REGULATORY ACCOUNT  
CASE NO. 2012-00063**

**Response to the Kentucky Industrial Utility Customers'  
Second Request for Information  
Dated June 22, 2012**

**July 6, 2012**

- 1 Item 11) *Refer to the Company's response to PSC 1-1.*  
2  
3 a. *Please provide the support for the estimates for each*  
4 *vendor, including, but not limited to, all workpapers,*  
5 *engagement letters, purchase orders, and correspondence*  
6 *(internal and external) and describe how the Company*  
7 *developed the estimates from these source documents. In*  
8 *addition, please identify the person(s) who developed*  
9 *these estimates and provide their name(s), company*  
10 *affiliation, and position (title).*  
11 b. *Please provide a copy of the service agreement with APM*  
12 *and any special agreements related specifically to the*  
13 *Company's ECR application in this proceeding.*  
14 c. *Does the service agreement with APM allow APM to bill*  
15 *Big Rivers for work that it performs for Big Rivers?*  
16  
17 **Response)**  
18 a. Please see the supporting documents which are provided in two  
19 sets. The first set is attached hereto. The second set is  
20 CONFIDENTIAL and is provided with a Petition for  
21 Confidential Treatment. Regarding the instant filing, Big

**BIG RIVERS ELECTRIC CORPORATION**

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1 Rivers' experience has been that most original vendor cost  
2 estimates do not anticipate the several hundred data requests,  
3 the associated need for more frequent discussions of the case,  
4 filing and responding to various motions, *etc.* attendant to Big  
5 Rivers' filings. For example, the actual costs for Big Rivers'  
6 recent general rate case, Case No. 2011-00036, were more than  
7 twice the original estimate. Accordingly, Big Rivers'  
8 management utilized its judgment to derive the \$900,000 case  
9 cost estimate for the instant case, as provided in Big Rivers'  
10 response to Item 1 of the Commission Staff's Initial Request for  
11 Information.

12 b. The agreements with APM, which are provided under a Petition  
13 for Confidential Treatment, outline the services provided by  
14 APM to Big Rivers that are applicable to this case.

15 c. Yes.

16

17

18 **Witnesses)** Mark A. Hite (a.) and

19 Robert W. Berry (a., b., and c.)

20

**Mark Hite**

---

**From:** Jim Miller <jmiller@smsmlaw.com>  
**Sent:** Thursday, March 08, 2012 12:46 PM  
**To:** Bob Berry  
**Cc:** Tyson Kamuf  
**Subject:** RE: Estimated Cost for ECP filing

Bob,

The estimate for our firm is necessarily little more than a guess because we do not know what to expect in the proceeding before the Commission. But our best guess at this time is \$150,000.

Jim

James M. Miller  
Sullivan, Mountjoy, Stainback & Miller, P.S.C.  
100 St. Ann Street  
P.O. Box 727  
Owensboro, KY 42302-0727  
Telephone (270) 926-4000  
Direct Dial (270) 691-1640  
Fax (270) 683-6694

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---

**From:** Bob Berry [mailto:Bob.Berry@bigrivers.com]  
**Sent:** Thursday, March 08, 2012 12:13 PM  
**To:** Jim Miller; John Wolfram (jwolfram@insightbb.com); Albert Yockey  
**Cc:** Travis Siewert; Mark Hite  
**Subject:** Estimated Cost for ECP filing

All,

Per our discussion in a recent ECP meeting, we need to get an estimate of your expected cost associated with the ECP filing. Travis is putting together a presentation for the Board and we need to include the expected cost for this filing and hearing. Could you please send your estimated cost to Travis and copy Mark Hite and I by the close of business today? Al, if you intend to use David Spainhoward then we need an estimate for his expenses as well. Thanks in advance for your cooperation.

Bob

---

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**Mark Hite**

---

**From:** John Wolfram <jwolfram@insightbb.com>  
**Sent:** Friday, March 09, 2012 10:11 AM  
**To:** Miller James; Mark Hite; Travis Siewert; Bob Berry  
**Subject:** Re: Estimated Cost for ECP filing

Bob,  
Sorry for the delay. I estimate the total costs related to ECP for The Prime Group to be \$150,000. Obviously this could vary up or down with the amount of data requests, etc., but it is reasonable for a conservative placeholder.  
JW

**From:** Bob Berry  
**Sent:** Thursday, March 08, 2012 1:12 PM  
**To:** Jim Miller ; mailto:jwolfram@insightbb.com ; Albert Yockey  
**Cc:** Travis Siewert ; Mark Hite  
**Subject:** Estimated Cost for ECP filing

All,  
Per our discussion in a recent ECP meeting, we need to get an estimate of your expected cost associated with the ECP filing. Travis is putting together a presentation for the Board and we need to include the expected cost for this filing and hearing. Could you please send your estimated cost to Travis and copy Mark Hite and I by the close of business today? Al, if you intend to use David Spainhoward then we need an estimate for his expenses as well. Thanks in advance for your cooperation.

Bob

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## Mark Hite

---

**From:** Jim Miller <jmiller@smsmlaw.com>  
**Sent:** Tuesday, May 08, 2012 3:42 PM  
**To:** Mark Bailey; Albert Yockey  
**Cc:** Mark Hite; Tyson Kamuf; John Wolfram  
**Subject:** FW: 2012-00063 Big Rivers Electric Corp. 2012 Environmental Compliance Plan  
**Attachments:** LETTER OF AGREEMENT Big Rivers Vantage.doc; VANTAGE PROPOSAL - Read Only 1.docx

Mark and Al:

The message below from staff counsel is self-explanatory. I have reviewed the Letter of Agreement and the Vantage proposal, and have no comments. You will note that the initial project cost is \$62,000. You will also note that Chuck Buechel is part of the team. I would appreciate your review of these documents and, if you have no comments, release as soon as possible for me to tell Quang that he may proceed. We will work up a confidentiality agreement.

Jim

James M. Miller  
Sullivan, Mountjoy, Stainback & Miller, P.S.C.  
100 St. Ann Street  
P.O. Box 727  
Owensboro, KY 42302-0727  
Telephone (270) 926-4000  
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---

**From:** Nguyen, Quang D (PSC) [mailto:QuangD.Nguyen@ky.gov]  
**Sent:** Tuesday, May 08, 2012 3:28 PM  
**To:** Jim Miller; Tyson Kamuf  
**Subject:** 2012-00063 Big Rivers Electric Corp. 2012 Environmental Compliance Plan

Jim & Tyson –

As you all are aware, the Commission has decided to retain Vantage Energy Consulting, LLC to assist Commission Staff in reviewing the above referenced matter. Attached is a draft letter of agreement for your review. I have also included Vantage's proposal to the original RFP, which was issued in the LG&E/KU environmental compliance plan cases, 2011-00161 & 2011-00162. Please advise at your earliest convenience if you are agreeable to the language of the letter agreement. If so, I will mail the final version for your signatures.

Also, to address Vantage's access to confidential documents, let me know if you would like for me to draft a non-disclosure agreement or if you would like to draft one for Vantage to sign.

Quang D. Nguyen  
Staff Attorney  
Kentucky Public Service Commission  
211 Sower Blvd.  
Frankfort, KY 40602-0615

Office: (502) 564-3940, ext. 256  
Fax: (502) 564-7279  
Email: [QuangD.Nguyen@ky.gov](mailto:QuangD.Nguyen@ky.gov)  
Website: <http://psc.ky.gov>



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## **DRAFT LETTER OF AGREEMENT**

This Letter of Agreement ("Agreement") is entered into and effective this \_\_\_\_ day of May 2012 by and between the Public Service Commission, Commonwealth of Kentucky ("Commission"), Big Rivers Electric Corporation ("Company"), and Vantage Energy Consulting, LLC ("Vantage") (collectively, the "Parties").

WHEREAS, the Commission has determined that hiring a consultant will be useful and beneficial; and

WHEREAS, the Commission issued a Request for Proposal ("RFP") on June 8, 2011 for a focused review of the environmental compliance plans of Kentucky Utilities Company and Louisville Gas and Electric Company in Case Nos. 2011-00161 and 2011-00162, respectively; and

WHEREAS the RFP specifically reserved the Commission's right to award future environmental compliance plan review contracts to the successful bidder of the specific review of Case Nos. 2011-00161 and 2011-00162; and

WHEREAS, the Commission accepted the proposal submitted by Vantage for a focus review of the environmental compliance plans considered in Case Nos. 2011-00161 and 2011-00162; and

WHEREAS, the Commission has determined that Vantage should also be retained to assist Commission Staff in the performance of a focused review of the application and supporting materials of the Company's 2012 environmental compliance plan.

NOW, THEREFORE, the Parties hereto (Commission, Company, and Vantage) agree as follows:

1. This agreement fully incorporates the provisions and requirements of the Commission's RFP under letter of June 8, 2011.

2. Vantage will perform a focused review of the Company's environmental compliance plan in accordance with the provisions of the RFP and Vantage's June 17, 2011 Proposal ("Proposal").

3. Prior to the submission of the final workplan, Vantage will meet with the Commission to discuss the work plan and any concerns regarding the allocation of hours devoted to any of the Task Areas as outlined in Vantage's Proposal. Vantage will make any changes in the allocation of hours devoted to specific Task Areas as deemed appropriate. Requests for any other deviation from the Proposal in terms of approach to the project or schedule for completing the project must be approved in advance in writing by the Commission or its designated Staff Project Officer.

4. Time is of the essence in the performance and completion of this assignment. Vantage shall begin the assignment on or about April 2, 2012 and will complete the project tasks as directed by the Commission or the Staff Project Officer and in accordance with the procedural schedule as set forth by Order in Case No. 2012-00063. The project itself shall be completed no later than October 2, 2012 unless otherwise directed by the Commission or the Staff Project Officer.

5. The total authorized reimbursable cost of the audit, including all fees, travel expenses, and any and all other reasonable costs will be paid by the Company,

pursuant to KRS 278.183(4) and shall be included in the surcharge approved by the Commission until the total project cost has been recovered.

6. Once Vantage has reached the proposed project cost of \$62,000, Vantage shall be required to receive the authorization of the Commission or the Staff Project Officer to expend additional funds.

7. Vantage shall submit itemized monthly invoices to the Commission, for services performed, not later than the 10<sup>th</sup> of each month. The invoice will be promptly evaluated and reviewed by the Commission and, once approved, forwarded to the Company for payment. The Company shall make payment to Vantage within 20 days of receipt of the statement from the Commission.

8. Testimony, if required, under the terms of this agreement shall be provided in accordance with the RFP at the hourly compensation rates included in Vantage's proposal.

9. The terms of this Agreement shall be construed in accordance with Kentucky law.

AGREED TO BY:

KENTUCKY PUBLIC SERVICE COMMISSION  
211 Sower Blvd.  
Post Office Box 615  
Frankfort, Kentucky, 40601

\_\_\_\_\_  
(SIGNATURE)

\_\_\_\_\_  
(DATE)

\_\_\_\_\_  
(TITLE)

VANTAGE ENERGY CONSULTING, LLC  
21460 Overseas Highway  
Cudjoe Key, FL 33042

\_\_\_\_\_  
(SIGNATURE)

\_\_\_\_\_  
(DATE)

\_\_\_\_\_  
(TITLE)

BIG RIVERS ELECTRIC CORPORATION  
201 Third Street  
Henderson, KY 42420

\_\_\_\_\_  
(SIGNATURE)

\_\_\_\_\_  
(DATE)

\_\_\_\_\_  
(TITLE)

**Proposal**  
**To**  
**Kentucky Public Service Commission**  
**Of**  
**Kentucky Utilities Company and**  
**Louisville Gas and Electric Companies**  
**For**  
**Review of Applications for CPCNs and**  
**Environmental Compliance Proposal**

**June 17th, 2011**



**Vantage Energy Consulting, LLC**

**Management Consulting and Energy Services**



Proposal to Kentucky Public Service Commission to serve as Independent Consultant for Review  
of Applications for "CPCN" and Environmental Compliance

---

June 17, 2011

Mr. John A. Rogness III  
Kentucky Public Service Commission  
P.O. Box 615  
211 Sower Boulevard  
Frankfort, Kentucky 40602

Dear Mr. Rogness,

Vantage Energy Consulting LLC., (Vantage) is pleased to respond to the Request for Proposal to provide services as an Independent Consultant for Review of Applications for "CPCN" and Environmental Compliance. We are providing this proposal to the Kentucky Public Service Commission.

In preparing our Proposal and Project Approach, we wish to emphasize our willingness to work with the Kentucky Public Service Commission and its Staff to reach the required results in an efficient, cost effective and non-intrusive manner. Our firm is staffed by professional consultants who are currently conducting similar assignments with great success.

The following specifically required provisions are provided in this Transmittal Letter.

- This transmittal letter binds Vantage Energy Consulting LLC's offer to provide the audit services as stated in the audit proposal at the prices stated in the price proposal.
- Our work space requirements will include a conference room or offices suitable for three consultants and access to internet services.
- Vantage Energy Consulting LLC agrees to be bound by the prices quoted in our price proposal for a period of no less than 90 days from the date of the notice of intent to award any contract that may result from the RFP.
- Vantage professes a willingness to work with the Staff Project Officer throughout the project as required.
- Walter P. Drabinski, President of Vantage Energy Consulting LLC is the individual authorized to legally bind this proposal, all contracts and this transmittal letter. He is the only point of contact for this assignment.



**Vantage Energy Consulting, LLC**

**Management Consulting and Energy Services**

Case No. 2012-00063  
Attachment for Response to KIUC 2-11a  
Witness: Robert W. Berry  
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Proposal to Kentucky Public Service Commission to serve as Independent Consultant for Review  
of Applications for "CPCN" and Environmental Compliance

---

- Our contact information is:

Vantage Energy Consulting LLC  
21460 Overseas Hwy.  
Cudjoe Key, FL 33042  
Phone: 305-744-3440  
Fax: 305-744-3450  
Cell: 305-394-0784

Contact Person: Walter P. Drabinski, President  
E-mail: [wdrabinski@vantageenergyconsulting.com](mailto:wdrabinski@vantageenergyconsulting.com)  
Web Site: [www.vantageenergyconsulting.com](http://www.vantageenergyconsulting.com)

Vantage Energy Consulting LLC will stand behind our findings, conclusions, and recommendations, and will comply with all applicable local and state ordinances. Vantage does not take exception to any parts of the RFP or the proposed contract. As evidenced by my signature below, I certify that all of the information in this proposal is accurate.

Sincerely,

*Walter P. Drabinski*

Walter P. Drabinski, President



**Vantage Energy Consulting, LLC**

**Management Consulting and Energy Services**

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**Vantage Energy Consulting, LLC**

**Management Consulting and Energy Services**

**Proposal to Kentucky Public Service Commission to serve as Independent  
Consultant for Review of Applications for "CPCN" and Environmental  
Compliance**

---

**A. STATEMENT OF PROJECT**

The Kentucky PSC is facing circumstances that many states now face as utilities strive to provide sources of electricity that are environmentally compliant, cost effective, provide reliable service and fit within the strategic portfolio of the utility. In states such as Kentucky, that are blessed with low cost coal, modification of existing facilities to meet clean air regulations and construction of new facilities that upgrade the overall fleet compliance are complicated, time-consuming and fraught with risk as the Federal Government and its regulators often appears to provide a moving target. Even the largest Public Utility Commissions may not have the technical staff with the requisite skills to adequately address all aspects of this technical analysis.

We understand that our work objective will be to ensure that the Companies' ultimate proposed plans represent the optimal choice in terms of environmental compliance, cost and reliability consistent with industry best practices for ratepayers. Vantage proposes to appropriately assist the Commission Staff in reviewing and analyzing all documentation and materials supporting the applications in order to ascertain whether the Companies' proposed actions and the associated costs are reasonable and cost effective. Vantage consultants possess the required skill sets to provide professional advice and assistance to the PSC and its staff. Their skills include the following:

- an in-depth understanding of electric generation industry;
- a detailed understanding of environmental compliance issues facing it;
- experience with the various engineering and financial models used by electric generation utilities;
- environmental compliance issues confronting it;
- environmental compliance implementation;

In addition, the Vantage consultants possess;

- a demonstrated ability to work with commission staffs in an integrated manner;
- a willingness to teach the staff how to conduct the analysis independently and to leave behind the models and analytics used in conducting the project; and finally
- a willingness to commit the required effort to assure that the project is successfully completed regardless of changes that may occur in the project scope and difficulty.

The specifics of this assignments are related to LG&E and KU's (the companies) June 1, 2011 filing of applications for Certificates of Convenience and Necessity ("CPCN") to construct pollution control facilities at various electric generating stations pursuant to KRS 278.020(1), KRS 278.183, and 807 KAR 5:001, Sections 8 and 9. Also, in accordance with statutes specific

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to Kentucky, the Companies' also filed amendments to existing environmental compliance plans for the purpose of recovering the costs of the new pollution control facilities via an environmental surcharge. These filings, in part, were submitted in order to comply with sections of;

- Federal Clean Air Act Rules;
- the proposed Clean Air Transport Rule ("CATR");
- the proposed National Emission Standards for Hazardous Air Pollutants ("HAPS") Rule;
- the Resource Conservation and Recovery Act;
- other environmental requirements that apply to the Companies' facilities.

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Compliance**

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## **B. MANAGEMENT SUMMARY**

Vantage Energy Consulting LLC, (Vantage) appreciates the opportunity to offer our services as an Independent Consultant for Review of Applications for "CPCN" and Environmental Compliance.

The material that follows provides details on our planned approach to this project as well as further details on our firm and consultants. Vantage commits to fully comply with all requirements in the Request for Proposal.

### **I. PROJECT TEAM**

We are proposing a small team, five consultants, led by Walter P. Drabinski, as Project Director. As President of Vantage, he has been involved in almost every project Vantage has undertaken. His education, BS Electrical Engineering from SUNY Buffalo and MBA from The Wharton School, along with 39 years in the utility industry give him sound credentials. Mr. Michael Boismenu has worked as a Management Consultant with Vantage for four years on a diverse number of technical assignments. He has extensive coal power plant operating experience. For this assignment, we will call upon his past experience as a plant and regional manager of coal-fired power plants with Niagara Mohawk Power Corporation and NRG. Mr. Mark Fowler has been an Associate Consultant with Vantage since 1998. He has worked on over 100 consulting assignments in the electric, gas, water and wastewater and telecommunications industries. His work has included investor owned utilities, municipals, cooperatives and regulators at the state and federal level. Mr. Chuck Buechel has over 32 years working as a regulator with the Kentucky PSC and as a Management Consultant. His education as an Economist lends itself to much of the IRP and economic analysis on this project. Mr. John Tooley offers a broad based skill set with a versatile education to further assist with the project. His expertise in due diligence, new technology assessment and application is unparalleled.

### **II. PROJECT ADMINISTRATION**

Vantage has developed project administration skills that are ideal for this assignment. We highlight some of these skills below. Vantage uses several proven project management techniques that will enable us to manage this project while enhancing communications among the project team members, Commission Staff and Company management while ensuring confidentiality of key data. This is extremely important on an assignment of this scope, number of project team members, and client representatives. This can only be accomplished through the efforts of strong project management, effective controls, and the coordinated efforts of senior personnel.

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June 17, 2011

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**Vantage Energy Consulting, LLC**  
Management Consulting and Energy Services

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The Project Director is responsible for ensuring that the project work is progressing on schedule and within the planned budget. In addition, the Project Director is responsible for ensuring that work across all task areas appears uniform, coordinated, and integrated. Each team member is responsible for meeting schedules and providing interim deliverables.

**QUALITY REVIEW**

A quality work product is a team effort. The process begins with the consultants (*i.e.*, the individuals performing the day-to-day work). They must clearly understand the requirements of their assignments, have a well-considered plan of attack, and execute their assignments effectively. While it is the Project Director's responsibility to impart initial direction and focus, direct responsibility resides with the consultant for meeting detailed objectives and deadlines.

The Project Director will be responsible for day-to-day monitoring of work, reviewing work products for compliance with project goals and objectives, coordinating information requests, and for anticipating and responding to problems or concerns. He will be responsible for "fine-tuning" the process by: ensuring that the consultants are adequately supported; enforcing administrative controls; ensuring consistency among approaches and methods; and scheduling work to ensure that the consultants are efficient in their efforts. He will periodically review the work in progress including such quality control activities as attending interview sessions, processes used in analysis, testing conclusions, and checking the understandability and completeness of all written materials.

**CONFIDENTIALITY**

Vantage recognizes that all information collected from the work processed under this contract must be treated with care to preserve any issues of confidentiality. Vantage and all employees involved on this assignment will sign the Non-Disclosure and Use of Information Agreement upon award of the project. Further, Vantage will utilize its internal controls to ensure all materials are handled in a manner that prevents inappropriate dissemination. Internal controls consist of:

- Vantage's PC-based network database system is secured through a series of passwords for each project. Only selected project consultants have the ability to access the information in the database system;
- all data stored at the Vantage office is kept in locked file drawers;
- all information used by consultants is collected at the end of the project and stored with other working papers, notes and drafts in a secure room;
- the Vantage network can be accessed through direct dial-up using a modem and passwords. The consultant or client is permitted access to limited areas of the network infrastructure, depending on security provisions. Using a



**Proposal to Kentucky Public Service Commission to serve as Independent  
Consultant for Review of Applications for "CPCN" and Environmental  
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password, the individual can upload or download files from prescribed sub-directories. The advantage of this system is that an individual can access any files needed without having them sent;

- Vantage also can use encryption software to ensure that the transmittal of files across the internet is secure. This method allows an individual to send or receive files that are encrypted. Only individuals with the same software and codes can then decode the files.

### **INFORMATION REQUEST MANAGEMENT SYSTEM**

Throughout the course of the review, the team may submit a number of information requests. Efficiently managing outstanding information requests and those documents received are crucial to the success of the project. We use a PC-based system designed to increase the efficiency of handling of all information requests.

### **AUDITING SAMPLING**

Should data sampling be required, Vantage utilizes Section 350 of the Generally Accepted Auditing Standards. We refer to Wiley, 2010 Practitioner's Guide, pages 311-333, for details on both statistical and non-statistical sampling methods as applied to a performance audit of the type required for this assignment.

### **AUDITING STANDARDS**

Vantage utilizes all auditing standards that are appropriate on each assignment we address. This includes the following:

- We consider this assignment to be a Performance Audit in accordance with the Generally Accepted Government Auditing Standards (GAGAS) (also known as the Yellow Book).
- Vantage also utilizes the American Institute of Certified Public Accountants' (AICPA) Code of Professional Conduct when needed.
- The National Association of Regulatory Commissioners' Consultant Standards and Ethics for the Performance of Management Analysis

### **REPORT DOCUMENTATION**

We have extensive procedures and PC-based software systems that permit us to:

- footnote, annotate, and cross-reference the task, draft, and final testimony to our working papers and the detailed work plan, resulting in a complete documentation trail;

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**Vantage Energy Consulting, LLC**  
Management Consulting and Energy Services

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- schedule and track interviews through a PC-based database system;
- track the request and receipt of information requests through a PC-based database. Numerous summary and detailed reports permit project management and allow the client to assess company response rates.

Footnotes serve as the basis for annotating our reports, which we use to identify the source of information that supports a statement of fact, finding, conclusion, or recommendation. As policy, we require that every fact, quote, result of analysis, or other statement that can be challenged be footnoted.

### **III. TESTIMONY**

Details of Mr. Drabinski's experience in providing similar testimony are included in his resume.

### **IV. END PRODUCTS**

Vantage will maintain close communications throughout the project, with both regular and ad hoc reports as needed. Specifically, formal reporting will include:

- Monthly Written Status Reports, if required and as defined by the Commission, will follow the schedule of the RFP.

---

June 17, 2011

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**Vantage Energy Consulting, LLC**

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## **C. WORK PLAN**

We are providing a very brief work plan at this point. Once we meet with the Commission Staff, we will develop a more detailed work plan that meets the specific needs of this project. We also recognize that this selection may be for more than one assignment; therefore the work scope is likely to change.

For the sake of budgeting perspective, we are breaking the work into four distinct tasks.

### **TASK 1 – EVALUATION OF PROPOSED ACTIONS**

In this task we will review the comprehensive plans submitted by KU and LG&E in this case or other utilities at a later time. Here we will develop an outline of the proposed plan that is in the submittal and provide discussion on all major aspects of it. A separate analysis of each proposed action planned will be developed that addresses the cost, schedule, impact to environmental footprint fit into overall objectives. We will also assess any potential risks that arise from the technologies selected or schedule proposed. In general, our overall objective will be to provide the Commission and its Staff with adequate detail to understand the complexities of the plan.

### **TASK 2 – EVALUATION OF TECHNOLOGIES NOT SELECTED**

In this task, we will provide an assessment of each technology not selected. This will consist of a description of the pros and cons of each alternate technology, cost and performance considerations. The analysis will re-test the assumptions made that resulted in not selecting this technology or approach. When possible, we will indicate what external parameters would need to change to make the rejected technology more appropriate.

### **TASK 3 – DETERMINATION OF ALTERNATE TECHNOLOGY OPTIONS**

Here we will provide our expertise to assess alternate viable options. Our in-depth experience regarding generation and environmental control technologies will come into play in this task. Reviews of Company modeling runs will be performed as needed to verify the inputs and adequacy of the methodology or software selected.

### **TASK 4 – OVERALL ASSESSMENT AND RECOMMENDATIONS**

Here we will provide a determination of whether the Companies' selected actions collectively represent a reasonable long term plan in terms of environmental compliance, cost and reliability. Working with the Staff, we will develop appropriate recommendations to the Commission regarding the overall plan and its specific components.

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## **D. PRIOR EXPERIENCE**

### **VANTAGE DESCRIPTION AND BACKGROUND**

This section describes Vantage Energy Consulting, LLC., the firm, the proposed project organization, and the experience and qualifications of the team proposed to assist the Kentucky Public Service Commission on this assignment.

#### **VANTAGE ENERGY CONSULTING LLC, (VANTAGE)**

21460 Overseas Hwy.

Cudjoe Key, FL 33042

Tel. (305) 744-3440/Fax (305) 744-3450

Web Site: [WWW.VANTAGEENERGYCONSULTING.COM](http://WWW.VANTAGEENERGYCONSULTING.COM)

E-MAIL: [WDRABINSKI@VANTAGEENERGYCONSULTING.COM](mailto:WDRABINSKI@VANTAGEENERGYCONSULTING.COM)

Federal Tax ID #: 27-2585037

Vantage Energy Consulting LLC, (Vantage) is a management consulting firm headquartered in Cudjoe Key, Florida, with clients throughout North America. Vantage consultants possess a broad background in all business aspects of electric, gas, and water utilities, but retain particular expertise in utility operating functions. Vantage Energy Consulting LLC and its predecessor company, Vantage Consulting Inc., has been in existence for over 19 years. During that time, the firm has focused on conducting utility related management consulting assignments. As the details on specific assignments described below attests, Vantage has been one of the most successful companies in this venue.

The Vantage team consists of highly experienced, trained consultants, covering virtually all functional work areas within the utility industry. Vantage is staffed by a total of 20 full-time and contract consultants and administrative staff. Consultants have a diverse set of backgrounds, including engineering, accounting, economics, finance, and psychology.

Vantage provides a broad range of consulting services to investor-owned utilities, independent power producers, regulatory agencies, state planning and environmental agencies, and law firms. While the majority of our assignments are tailored to the specific needs of the client, there are specific products and services which we offer. The functional service areas in which we work, and the consulting topics to which we provide expertise, are listed below.

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**GENERATION PLANNING RELATED CONSULTING PROJECTS**

Vantage has worked on a large number of utility related projects. Below we provide a brief description of projects related to this endeavor. This description is followed by a table that lists all of our teams consulting projects. Vantage has become very involved in energy/capacity procurement activities. Some specific examples are listed below.

- Duquesne Light Company (DLC) – Vantage has conducted the solicitation for DLC since 2008. Vantage owns a proprietary bid processing web site and evaluation data base into which all bids are submitted. Vantage then processes submittals and announces the winners to the Company and Pennsylvania Public Utility Commission. Vantage also developed and moderated a Webinar for prospective bidders, attracting over two dozen participating companies. Vantage has conducted this process six times successfully.
- Vantage was retained by Allegheny Energy in 2007 and 2008 as Independent Monitor of their SOS solicitation for Virginia customer requirements.
- Mr.'s Buechel and Drabinski have previously performed an independent evaluation role for East Kentucky Power Cooperative (EKPC). EKPC had determined the need for additional generating capacity based on its integrated resource plan. The analysis by EKPC demonstrated that the most economical and efficient way for it to meet this need was the construction of a combustion turbine peaking unit. In order to confirm its analysis, EKPC solicited competing bids and rated those bids relative to the cost per megawatt of the combustion turbine. Our role was to oversee the solicitation process to assure all competing bids were evaluated in an unbiased and reasonable manner. At the conclusion of the solicitation process, we presented our recommendation to the Board of EKPC for the best means to fulfill the need for capacity.
- Vantage completed a comprehensive analysis of hedging strategies for all four gas distribution utilities in New Jersey in 2009. A revised and expanded program has been designed and is under consideration for future use.
- Vantage participated in a long-term assignment with Public Service Electric & Gas in which it assisted with long-term generation planning and environmental commitment modeling. Over a four year period, Vantage helped transform the PSE&G fleet into a much more efficient and environmentally compliant group of generation assets.
- Vantage testified in a lawsuit between an independent power producer and a large energy marketer in PJM over energy, capacity and collateral requirements associated with a new power plant.
- Vantage conducted a study of credit and collateral requirements associated with power procurement for the three major California utilities (PG&E, SCE and



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SDG&E) for the California PUC. This assignment analyzed credit and collateral on an industry-wide basis.

- Conducted an assignment for FERC in which the California ISO was audited during the 2000-2001 energy crises. Vantage consultants assessed the operational effectiveness of CAISO during the stress of the Enron collapse and takeover of contracts by the State. Walter Drabinski testified before Congress on the issues and made recommendations to the State of California, FERC, Congress and the CAISO.
- North West Energy - Mill Creek power plant construction - Vantage has monitored the construction of a new, three unit, power plant in Montana that is designed to provide regulation support in the region. This unit went into service in January 2011.

**HISTORICAL VANTAGE ASSIGNMENTS**

The following table summarizes all the projects Vantage and its core employees have worked on.

Company	Project
Alberta Power	Power plant efficiency review
Allegheny Power Systems	Fuel Procurement Review
Alltel of Pennsylvania	Comprehensive Operations Review
Alstom Development	Cogeneration Development
Ameritech	Review of merger savings
Ameren Illinois	Emergency response planning and development
American Water-New Jersey	Operations Audit
Aqualectra	Management Audit
Belize Electric Limited	Process Improvement
Bell Atlantic - District of Columbia	Comprehensive Operations Review
Bell Atlantic - New Jersey	Developed a cost activity analysis
BellSouth Services	Reviewed marketing opportunities for technical services
BellSouth	Review of customer service and financial systems
Bonneville Power	Maintenance Practices
Central Hudson Electric and Gas	Management Audit
Central Hudson Electric and Gas	Construction Program Review
Choptank Electric Cooperative	Organizational Review
City of Colorado Springs Utilities	Operations Improvement Project
City of Columbus Georgia	Consolidation
City of Corpus Christi	Process Reengineering
Cleveland Electric Illuminating	Fuel Procurement Review
Columbia Gas of Maryland	Fuel Procurement Review
Columbia Gas of Ohio	Credit and Collections Review
Columbus Southern Company	Fuel Procurement Review
Commonwealth Edison	Outage and Reliability
Consolidated Edison	Audit of emergency response



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Contel California (Verizon)	Attestation Examination
Contel Service Corporation	Mgmt. and financial information systems rollouts.
Curoil	Management Audit
Dayton Power & Light Company	Fuel Procurement Review
Dominion East Ohio	Credit and Collections Audit
Duke Energy Ohio	Credit and Collections Review
Duquesne Light Company	Comprehensive Operations Review
Entergy Corporation	Fuel Procurement Audit
Edmonton Power	Power plant work management system implementation
Entergy Corporation	Affiliate Transactions Review
East Kentucky Power Cooperative	Fuel Procurement Review
El Paso Natural Gas Company	Business Unit Reorganization, Reengineering
FERC	California Energy Crisis
General Waterworks Company	Comprehensive Operations Review
GTE of California	Attestation Examination
Guam Power	Operational Audit
Hampton Roads, Va. Planning Com.	Emissions Credits Banking Strategy
Houston Light and Power	Nuclear Prudence Review
Indianapolis Power & Light	Review of storm response
Illinois Bell Telephone	Affiliate Transactions Review
Kansas City Power and Light	Construction Review and Prudency Testimony
Kentucky American Water Company	Comprehensive Operations Review
Kentucky Utilities Company	Merger Regulatory Support
Kentucky Utilities Company	Governmental Affairs Benchmarking
Kentucky Utilities Company	Comprehensive Operations Review
Louisville Gas & Electric Company	Merger Regulatory Support
Louisville Gas & Electric Company	Comprehensive Operations Review
Montana Power	Power Plant Outage Process Improvement
National Grid	Outage Response
National Grid	Construction Program Audit
New Hampshire Electric Cooperative	Emergency Response
NorthWestern Energy	Construction Review and Prudency Testimony
NYTEL	Affiliate Transactions Review
NRG Big Cajun 2 Coal Fired Power Plant	Operational Assessment
NRG Dunkirk Coal fired Power Plant	Plant Management
NRG Huntley Coal Fired Power Plant	Plant Management
NRG Indian River Coal Fire Power Plant	Organizational Design Assessment and Analysis
NRG Oswego Oil Fired Power Plant	Plant Management
NRG Texas Purchase	Purchase and Integration of Assets into the NRG System
PacifiCorp	Power Plant Maintenance
PacBell	Attestation
Pacific Gas & Electric Company	DSM Analysis
PECO Energy	Nuclear Prudence Review
Pennsylvania Power & Light Company	Staffing Review
PEPCO	Power plant fuel procurement and management
Philadelphia Gas Works	Operations Review, Capital Project Analysis
Philadelphia Suburban Water Company	Comprehensive Operations Review

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Philadelphia Suburban Water Company	Reengineering of Operating Departments
PowerSouth	Organizational Design Assessment and Analysis
Plains Electric Generation and Transmission	Power Plant Construction
Public Service Co. - New Hampshire	Power Plant Outage Management
Public Service Co. - New Hampshire	Management audit of T&D operations
Public Service Co. - New Hampshire	Review of Emergency Response
Public Service Electric & Gas Company	Restructuring Plan Review
Public Service Electric & Gas Company	Nuclear Prudence Review
Public Service Electric & Gas Company	Generation and Environmental Planning
Public Service Electric & Gas Company	Fossil Generation Rate Case
Public Service Electric & Gas Company	Clean Air Act Compliance
San Diego Gas & Electric Company	Performance Based Ratemaking
San Diego Gas & Electric Company	DSM Analysis
Scranton Steam Heat	Plant Management
Seattle City Light	Comprehensive Operations Review
SEMPRA	Affiliate Transactions
Southern California Edison	DSM Analysis
Southern California Gas Company	DSM Analysis
Southern California Gas Company	Management audit of gas operations
Southern California Gas Company	Affiliate Transactions Audit
Southern Connecticut Gas	Management Audit
South Jersey Gas	Process Reengineering
Southern New England Telephone	Technical re. long-run cost modeling docket
Southwestern Bell Telephone	Call Center Work Management
St. Vincent	Management Audit
Toledo Edison Company	Fuel Procurement Review
Unitil	Emergency Response
Union Light Heat & Power	Operations Review
United Telephone of Pennsylvania	Comprehensive Operations Review
United Telephone of Texas	Comprehensive Operations Review
Vectren Energy	Credit and Collections Audit
Washington Gas Light	Fuel Procurement Review
West Ohio Gas Company	Gas Procurement Analysis
West Texas Utilities	Comprehensive Operations Review
Western Kentucky Gas	Comprehensive Operations Review
Yankee Gas	Management Audit

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## E. PERSONNEL

Attached are the resumes of:

- Walter P. Drabinski
- Michael Boismenu
- Mark Fowler
- Chuck Buechel
- John Tooley

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## RESUME OF MR. WALTER P. DRABINSKI

### AREAS OF SPECIALIZATION

Mr. Drabinski is President of *Vantage Consulting, Inc.* He has more than 38 years of experience in the utility industry as both a utility company manager and a management consultant. His functional expertise includes all aspects of utility strategy, organization, executive and financial management, operations practices, productivity improvement, operations and maintenance, and engineering, environmental and construction management. As a utility manager, Mr. Drabinski held the positions of System Training Director, Fossil Generation; Supervisor, Electrical Maintenance; and Operations Project Engineer for Niagara Mohawk Power Corporation. As a management consulting principal, he has worked for national firms and has been President of Vantage for over 19 years. During that time he has managed more than 150 consulting engagements. He has testified in formal regulatory hearings over 100 times.

### SELECTED CONSULTING EXPERIENCE

*Consolidated Edison Company* - Performed an audit of emergency restoration and outage planning capabilities for the New York PSC. Audit followed a number of large and highly public outages. Major recommendations were made to develop new strategies and programs for addressing reliability and outage response.

*Commonwealth Edison Company* - Retained by the Illinois Commerce Commission to investigate outages suffered in downtown Chicago during the summer of 1999. The assessment provided a comprehensive analysis of eight separate outages, with details of causes and recommendations for improvement.

*FERC* - Interfaced with Commission and its staff on issues such as Transco structures, restructuring, and ISOs. Prepared a white-paper that addressed a Transmission PBR as a mechanism for incenting utilities.

*California Independent System Operator* - Project Director on an Independent Operational Audit of the CAISO for the period of 10/01 to 10/02. This assignment was performed at the request of the FERC and led to a series of five global recommendations. Shortly after the completion of the audit, Mr. Drabinski testified before the House of Representatives, Subcommittee on Subcommittee on Energy Policy, Natural Resources & Regulatory Affairs.

*Maryland Public Service Commission* - Provided technical support in hearings and development of a final order relative to developing a formal procedure for addressing Standard Offer Service (SOS) supplies for its four electric utilities.

*Massachusetts Municipal Wholesale Electric Utility* - Performed analysis on options for equipment upgrades at major facility and performed limited life extension analysis.



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**Resume of Mr. Walter P. Drabinski**

***Seattle City Light*** - Conducted a controversial audit of Seattle City Light's financial, risk management and governance structure. Serious issues regarding debt, O&M and Capital expenditures were raised. Major recommendations on risk management were developed.

***New Hampshire Public Service Commission*** - Provide technical and strategic assistance under a long-term contract on transmissions and distribution issues. These have included ISO strategies, local distribution reliability, asset decisions and general regional concerns.

***Entergy Corporation*** - Project Manager for a review of affiliated transactions between Entergy Corporation, Entergy Services, Inc., and a myriad of regulated and non-regulated subsidiaries. This engagement, performed for five regulatory agencies, is in response to the 1991 Settlement Agreement with the SEC, at which time the holding company was formed. The results of this audit included reallocation of almost \$5 million and a reconfiguration of reporting requirements.

***Sempra Energy (SDG&E and SoCalGas)*** - Project Director for affiliated audit for 1998 and 1999 calendar years to verify compliance with California PUC restructuring requirements. Assignment included assessment of company plan and audit of affiliate transactions. Acted as the lead consultant on areas that addressed Nondiscrimination Standards, Disclosure and Information Standards, and Competitive Services. Recommendations from these reports addressed means of improving compliance.

***PSE&G*** - Project Manager and Lead Witness for an audit of the Company's Unbundling, Stranded Cost, and Restructuring plans and testimony. On this assignment, under the auspices of the New Jersey Board of Public Utilities, Vantage was the lead firm for a consortium of five consulting firms that addressed numerous critical and cutting edge issues. These included areas such as reconciliation of the regulatory and FERC books, development of cost of service studies, assessment of capital additions proposed for stranded cost recovery, calculation of market prices for energy and capacity, calculation of stranded costs associated with nuclear, fossil and non-utility generation, assessment of securitization as a mitigation option, and development of a comprehensive model that determined the possible rate reduction that could be achieved.

***PJM Power Plant Arbitration*** - Provided testimony and technical assistance on arbitration for an independent power plant built in the PJM region. Issues involved interpretation of PJM rules and contractual issues such as commercial operation date and performance guarantees.

***St. Vincent Energy Services Ltd.*** - At the request of the Board of Directors and Prime Minister, Vantage conducted a review of system reliability and fuel procurement. Significant findings resulted in a new strategic plan, a reorganization of management and a legal investigation into procurement practices.



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**Resume of Mr. Walter P. Drabinski**

***Pacific Gas & Electric Co.***- Project Director for affiliated audit for 2001,2002, 2003, 2004 and 2005 calendar years to verify compliance with California PUC restructuring requirements. Assignment included assessment of company plan and audit of affiliate transactions. Acted as the lead consultant on areas that addressed Nondiscrimination Standards, Disclosure and Information Standards, and Competitive Services. Recommendations from these reports addressed means of improving compliance.

***Louisville Gas and Electric/Kentucky Utilities Merger*** - Assisted with broad range of issues including regulatory strategy, synergy quantification, testimony development, witness preparation, interrogatory development and responses. System reliability and monitoring was a key element of this complex project.

***Public Service Electric & Gas Company*** - Retained by the New Jersey Board of Public Utilities to assess compliance with all Affiliate Compliance and Code of Conduct Rules enacted as a result of restructuring.

***San Diego Gas & Electric*** - Project Manager on an assignment for the California PUC and SDG&E to review the implementation of Performance Based Ratemaking. This assignment included an assessment of financial, operational, performance and culture changes that were impacted by the two-year experimental program. While involved in this project, Mr. Drabinski developed an understanding of the SDG&E holding company formation and its interaction with the proposed industry restructuring.

***New Jersey Board of Public Utilities*** - Director on major project to review hedging practices of the four gas distribution utilities in New Jersey. Working with Pace Energy as a sub-contractor, alternate hedging strategies were developed and proposed using more advanced techniques, including options.

***Louisville Gas & Electric*** - Project Manager for a comprehensive management and operations review for the Kentucky Public Service Commission. A key element of this audit was the analysis of the Energy Services Company of LG&E Energy, a holding company which was the organizational entity responsible for all regulated generation and non-regulated generation, power marketing, and natural gas transmission activities. This included a special review of affiliated transactions. Acted as Lead Consultant in the areas of power production, fuel procurement, Affiliated Review, Clean Air Act compliance, Energy Policy Act response, and T&D engineering and construction. Assisted in review of strategic planning and power marketing activities. In conjunction with this audit, Mr. Drabinski met with the Commissioners a number of times to discuss issues of industry restructuring and the role the Commission should play.

***Maryland Public Service Commission*** - Monitored all RFP solicitations for 2007 and 2008 bid years. This amounted to nine solicitations for all four utilities in Maryland. Provided

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**Resume of Mr. Walter P. Drabinski**

oversight on bid day, reviewed applications, provided confidential analysis and briefings to the Commissioners and testified on results.

***Cumberland Valley Electric Cooperative*** – Performed a focused management audit of this small, rural cooperative. Worked with management to develop transition to new management team.

***Alleghany Power Virginia*** – Monitored RFP solicitations for 2007 and 2008 bid years. Provided oversight on bid day, reviewed applications, provided a final report on results for the Virginia regulatory agencies.

***Delaware Public Service Commission*** – Monitored all RFP solicitations for 2006 bid year. Provided oversight on bid day, reviewed applications, provided confidential analysis and briefings to the Commissioners and testified on results.

***California Public Utilities Commission Telco Division (Attestation Exams)*** – Mr. Drabinski was the Project Director on seven separate assignments for the CPUC during the period of 2000 to 2002. These included:

- examinations of surcharge collections of "high cost fund" and "teleconnect fund" amounts for AT&T, Verizon, Sprint, and PacBell. In each project significant accounting, interpretational and transmittal errors were discovered, leading to the recovery of amounts well in excess of project costs;
- examinations of claims requests of "high cost fund" and "teleconnect fund" for Verizon, PacBell, and Roseville.

***Indiana Power & Light*** – Vantage acted as the evaluator, at the request of the Indiana Utility Regulatory Commission, for a three-year program in which customer service and distribution system reliability are being monitored with penalties for missing targets. A major element of this program was enhanced vegetation control.

***Maryland Public Service Commission*** – Provided analysis and related testimony on restructuring-related cases in 2007 and 2008. Testimony involved wholesale market issues, portfolio options and rebuttal relative to utility witnesses.

***Arizona Corporation Commission*** – Provided assistance to the Commission Staff and Commissioners on all restructuring issues under consideration. This includes development of an ISO. The reorganization of cooperatives and G&Ts for deregulation. Development of solutions regarding high costs resulting from California related issues. Reassessment of deregulation orders based on appellate decisions.

***Public Service Electric & Gas*** – Engagement Manager during a long-term engagement with PSE&G. Specific assignments he directed are listed below.

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**Resume of Mr. Walter P. Drabinski**

- Developed a 30-year environmental plan, addressing power generation and environmental strategy.
- Assisted in development of innovative rate strategy for Bergen combined cycle unit.
- Worked on a team of utility employees, lobbyists, legislative staff members and the DOE to develop a program for voluntary reduction of CO<sub>2</sub> and global warming initiatives.
- Reviewed gas procurement strategy for 1300 MW of combine cycle generation.
- Conducted a tactical and strategic alternatives study of the Company's fleet of 158 combustion turbine generation plants.
- Developed a plan for complying with the 1990 Clean Air Act Amendments.
- Assisted in a study of the 1992 Energy Policy Act and prepared a report that illustrated how it would impact company operations.
- Wrote and supported testimony in the area of fossil generation on behalf of the Company in a major rate case.
- Developed protocols for NO<sub>x</sub> emission trading within NESCAUM.

***Kentucky Utilities Company*** – Project Manager for a comprehensive management and operations review for the Kentucky Public Service Commission. Acted as Lead Consultant in the areas of power production, fuel procurement, transmission operations, and engineering and construction. Provided numerous recommendations to improve competitiveness of this already low-cost utility. Met with the leadership of the State House of Representatives and Senate to discuss utility competition and industry restructuring.

***BellSouth Telecommunications, Inc.*** – Project Manager on a review of BellSouth performance under an alternative regulation plan for the state of Kentucky. This is the first of nine states in which the Price Regulation Plan was up for renewal and, as such, was of great interest to the Company and regulators.

***GTE of California and Contel of California (now Verizon)*** – Audited collection procedures and practices for various surcharge activities. Provided a CPA Opinion Letter, (through a subcontractor.)

***US West*** – Provided assistance with quality control and final reviews of work product while an officer with the lead firm. This project reviewed affiliate transactions between parent and its subsidiaries. Assisted in development of model for cost allocation analysis.

***Pennsylvania Governor Task Force*** – Provided input to Governor's office, legislature and PUC on restructuring issues in the State. Issues included handling of stranded costs, securitization, the development of competition, and the education of consumers.

***Clean Air Action Corporation*** – Assisted in development of strategy regarding purchase and sale of emission credits throughout the Ozone Transport Region.

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**Resume of Mr. Walter P. Drabinski**

***Honeywell/Allied Signal*** – Provided strategic assistance and research in development of commercial fuel cell. Conducted market research and facilitated meetings with utilities interested in commercial development.

***Colonial Chemical Company*** – Assisted Company in identifying candidates for Selective Non-Catalytic Reduction systems to reduce nitrous oxide emissions from power plants.

***Public Service Electric & Gas Company*** – Retained by the New Jersey Board of Public Utilities to assess compliance with all Affiliate Compliance and Code of Conduct Rules enacted as a result of restructuring.

***Duquesne Light Company*** – Project Manager for a comprehensive management and operations review for the Pennsylvania Public Utility Commission. Mr. Drabinski was also the Lead Consultant in the review of executive management, strategic planning, affiliated relations, and financial management.

***Choptank Electric Cooperative*** – Lead Consultant on a management and operations review for this REA in the State of Maryland. Reviewed all aspects of operations including executive management, organization, construction management, electric operations, system planning, materials handling, purchasing, and customer service.

***SDG&E, PG&E, SCE, and SCG*** – Project Manager on an audit of DSM administrative costs. Conducted for the CPUC CACD, this assignment took place during the period where working groups were assessing issues such as access to utility information and the future of DSM. Vantage provided feedback to a number of working groups on the needs of energy service companies.

***East Kentucky Power Cooperative*** – Performed a comprehensive review of all fuel procurement and fuel utilization activities for the Board of Directors. Visited all power plants, coal tipples, and a sampling of mines. Recommendations addressed a broad range of strategic and operational issues.

***Dayton Power & Light*** – Performed a comprehensive review of all fuel procurement and fuel utilization activities for the PUCO. Visited power plants, coal lab, and other fuel and operations related departments. Recommendations addressed a broad range of strategic and operational issues.

***Pennsylvania Power & Light*** – Lead Consultant for a comprehensive management and operations review for the Pennsylvania Public Utility Commission. Reviewed all aspects of customer service activities, including CIS and office operations. Also, reviewed system power & engineering, including fuel supply, T&D engineering, environmental, power plant staffing, and plant operations. Reviewed EMF issues and Clean Air Act Amendments compliance planning.



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***Centerior Companies (Cleveland Electric Illuminating Company and Toledo Edison) -*** Project Manager on audit of electric fuel procurement practices and procedures for the Public Utilities Commission of Ohio in 1991. Responsibilities included the review of fuel procurement planning, long-term contracts, and spot procurement. Made recommendations regarding coal contracts, interstate wheeling arrangements, and coal transportation costs. Testified twice regarding results of audit report.

***Monongahela Power (Allegheny Power Systems) -*** Performed a comprehensive review of all fuel procurement and fuel utilization activities for the PUCO. Visited power plants, coal lab, and other fuel and operations related departments. Recommendations addressed a broad range of strategic and operational issues.

***American Electric Power Company -*** Project Manager on audit of electric fuel procurement practices and procedures of two AEP subsidiary companies, Ohio Power Company and Columbus Southern Power Company in 1989 and 1990 for the Public Utilities Commission of Ohio. Responsibilities included the review of affiliated mines (surface and deep mines) and fuel procurement planning, long-term contracts, and spot procurement. Made recommendations on strategic planning, purchasing policies, contract analysis, and marketing programs. Testified on four occasions regarding results of audits.

***Union Light, Heat and Power -*** Lead Consultant on a management and operations review for the Kentucky Public Service Commission. Responsibilities included all aspects of customer service and electric operations including: CIS; customer accounting; transmission & distribution; system planning; engineering; and construction. Also assisted in the review of the financial reporting relationship of the company to its parent, Cincinnati Gas & Electric, with an emphasis on allocation of costs.

***West Texas Utilities -*** Project Manager for a comprehensive management and operations review for the Texas Public Service Commission. Acted as a Lead Consultant in the areas of power production, fuel procurement, and customer services.

***Philadelphia Gas Works -*** Project Manager for a management and operations audit for the Philadelphia Gas Commission. Lead consultant for the review of corporate organization and staffing, customer services, operations, and support functions. Addressed major gas supply planning issues. Managed a series of three follow-up reviews including development of Management Audit Actions Plans, an Audit Compliance Review, and a Review of the 1993 O&M Budget. Testified at numerous Commission hearings on capital budget planning, automatic meter reading, office aggregation, and theft of service.

***Maryland Public Service Commission -*** Consultant for an assignment to review long-term gas purchasing practices of Columbia Gas of Maryland, Baltimore Gas & Electric, and Washington Gas Light. Responsibilities included review of the 1988 plans,



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**Resume of Mr. Walter P. Drabinski**

recommendations on requirements for future plans, and the training of commission staff personnel relative to conducting similar reviews of future plans.

***Kentucky-American Water Company*** - Project Manager and Lead Consultant for a management and operations review for the Kentucky Public Service Commission. A key element of this audit was the holding company relationship with the many subsidiaries of American Water Works. Investigated the areas of customer service and marketing and engineering/construction.

***El Paso Natural Gas Company*** - Lead Consultant on a productivity improvement project. Performed an in-depth review of all positions in operating divisions and reorganized operating divisions into profit centers. Developed procedures for in-house vs. outside construction decisions, construction scheduling, and cost data collection. Developed a manpower planning model for restructuring responsibilities and staffing levels. Implemented a workforce management program at gas processing plants, compressor stations, and throughout the gathering system.

***Western Kentucky Gas Company*** - Lead Consultant for a management and operations audit of the customer services function for the Kentucky Public Service Commission. Developed plan for consolidating offices, resulting in significant changes in providing customer service.

***National Gas and Oil Company of Ohio*** - Lead Consultant on audit of fuel procurement practices for the Ohio PUC in 1986. Reviewed purchasing practices, storage activities, sales practices and policies and procedures. Made recommendations on strategic planning, purchasing policies, and marketing programs.

***Pennsylvania Power Company*** - Lead Consultant on a management and operations review for the Pennsylvania Public Utility Commission. Responsibilities included review of customer services with a specific review of collection practices and policies, staffing, T&D, engineering, and system planning. Reviewed organization and staffing for the power production department.

***Philadelphia Suburban Water Company*** - Lead Consultant/Project Manager on a comprehensive management audit for the Pennsylvania Public Utility Commission. Reviewed all aspects of field operations and water production.

***East Kentucky Power Cooperative, Inc.*** - Performed as a subcontractor on a review of the bidding process for a series of combustion turbines. Analysis included reviews of individual proposals and the bidding process.

***General Waterworks Company - Pennsylvania Operations*** - Lead Consultant in a management and operations review. Reviewed compensation, benefits and staffing, executive management, organizational structure, and corporate policies and procedures.

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**Resume of Mr. Walter P. Drabinski**

**General Waterworks Company - Pine Bluff Arkansas Operations** - Project Manager on a management and operations review. Reviewed finance and accounting, staffing, system operations, organizational structure, and corporate policies and procedures.

**General Electric Field Engineering group** - Lead Consultant for the implementation of a Job Management Program that included seminars, teaching concepts on work breakdown structures, budgeting, performance measurement, and critical path scheduling techniques. Overall program was aimed at improving construction management skills of field personnel.

**Ohio Electric Co./Ohio PUC** - Lead Consultant on a prudence review of the Beaver Valley Power Station. Areas reviewed included CAPCO organization and financing, construction management, project accounting, compatibility of prudence standards, and compliance with Yellow Book standards.

**Philadelphia Electric Company** - Lead Consultant on a retrospective investigation of the Limerick Nuclear Power Plant. Analyzed the Company's financial condition during the construction program and reviewed construction management practices on the project. Prepared testimony for prudence hearings on construction management and financial performance.

**Public Service Electric & Gas Co.** - Project Manager for a retrospective investigation of the Hope Creek Nuclear Plant. Prepared cost reconciliation that identified reasons for cost overruns. Reviewed construction control tools, productivity results, and analyzed productivity programs for effectiveness. Wrote testimony, answered interrogatories, and assisted in cross-examination of witnesses. Made recommendations on cost tracking systems for future construction projects.

**Houston Light & Power** - Consultant on South Texas Nuclear Project retrospective analysis. Reviewed construction management procedures and developed testimony for rate case.

**Public Service Electric & Gas Co.** - Project Manager for a review of the Engineering & Construction Department budgeting and approval process for capital projects at PSE&G. Developed flowcharts and improved methods for processing capital budgeting requests.

**OTHER BUSINESS AND PROFESSIONAL EXPERIENCE**

**System Training Director** for Niagara Mohawk Power Corporation. Managed a staff of eleven supervisors and instructors, as well as numerous contractors and part-time training personnel. Developed and implemented a productivity program to improve operating and employee productivity at all fossil power plants. Developed a performance-based progression program for craft personnel and assisted in negotiating contract changes with the International Brotherhood of Electrical Workers. Member of Electric Power Research Institute committee on power plant staffing and training. Chaired Electric Utility Technical



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**Resume of Mr. Walter P. Drabinski**

Education Council. Developed and taught a seminar on power plant efficiency improvement to operating, management, and regulatory personnel.

*Electrical Maintenance Supervisor* for Niagara Mohawk Power Corporation. Managed two supervisors and thirty electricians performing electrical construction, maintenance, and repair. Developed and implemented a preventive maintenance program for a six-unit/2000 megawatt power plant. Managed roving maintenance crew, providing personnel, equipment, and expertise to nuclear power plants during outages. Responsibilities included all plant, fuel handling, and pollution control electrical equipment, switchyards, 345 kV overhead and 115 kV underground transmission lines, relay systems, telemetering, and telecommunication systems.

*Operation Project Engineer* for Niagara Mohawk Power Corporation. Participated in conceptual system design, construction management, and plant start-up of power plants, transmission lines, switchyards and plant electrical equipment. Represented utility during acceptance testing, start-up, and turnover of all electrical power systems, auxiliary equipment, and turbine and boiler instrumentation and control systems.

**TESTIMONY**

Testimony was provided in the following cases.

- Case 99-434 Bell South of Kentucky. Audit and modification of Price Regulation Plan.
- Iatan Unit 1 - Testified on prudence of construction and cost control before the Kentucky PSC.
- Northwester Energy - Mill Creek Power Plant - Testified on prudence of construction and cost control before the Montana PSC.
- Various CPUC Telco cases - Testified on eight occasions regarding results of attestation exams of Verizon, PacBell, Sprint, AT&T, and Roseville.
- Various energy solicitation projects - Testified after acting as independent monitor during energy solicitations in Delaware (2 occasions)
- Commonwealth Edison - Testified before Illinois PSC on outages of 1999.
- PSE&G Restructuring hearing. Lead witness on all aspects of unbundling, restructuring, stranded costs, and deregulation issues. Testified for eight days.
- Case No. 97-105-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Dayton Light Company for the PUC of Ohio.
- Case No. 95-106-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Monongahela Power Company for the PUC of Ohio.
- Case No. 96-106-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Monongahela Power Company for the PUC of Ohio.
- Case 93-02-041 Financial Audit of the Demand-Side Management Pilot Bidding Program Administrative Services of Pacific Gas & Electric Company, San Diego Gas



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**Resume of Mr. Walter P. Drabinski**

- & Electric Company, Southern California Edison Company, and Southern California Gas Company for the California PUC.
- Case D94-08-023 Mid-Point Evaluation of SDG&E's Base Rates Performance Based Ratemaking Mechanism for the California PUC.
  - Case No. 94-219-GA-GCR Management Performance Audit of West Ohio Gas Company for the PUC of Ohio.
  - Case No. 91-103-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Toledo Edison for the PUC of Ohio.
  - Case No. 91-104-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Cleveland Electric Illuminating Company for the PUC of Ohio.
  - Case No. 89-100-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Ohio Power Company for the PUC of Ohio.
  - Case No. 89-101-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Columbus Southern Company for the PUC of Ohio.
  - Case No. 90-100-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Ohio Power Company for the PUC of Ohio.
  - Case No. 90-101-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Columbus Southern Company for the PUC of Ohio.

**PUBLICATIONS**

Primary contributing author of five textbooks developed for the Electric Power Research Institute (EPRI) and the Center for Occupational Research and Development (CORD).

- Introduction to Instrumentation and Control.
- Electronic and Pneumatic Control Devices.
- Control Systems I.
- Control Systems II.
- Power Plant Control System Applications.

**EDUCATION**

MBA, The Wharton School, University of Pennsylvania, (Finance/Management).  
BSEE, State University of New York at Buffalo, (Systems Engineering/Power Technology).  
Lectured as a visiting executive at Clarkson College on management in a utility company.

**PROFESSIONAL AFFILIATIONS**

Institute of Electrical and Electronic Engineers.  
Project Management Institute.  
American Water Works Association.

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## RESUME OF MICHAEL C. BOISMENU PE

### Summary

Through the past 42 years I have been actively involved with all phases of the electric power industry. I have successfully completed major design engineering projects, managed multi-disciplined construction projects, managed a large coal fired power plant, managed regional generation assets, and most recently provided consulting services to a variety of power industry clients. My specific power industry related experience includes the following and is further detailed below.

- Power Plant Design Engineering
- Project Management
- Plant Management and Operation
- Asset Management
- Organizational Design and Business Consultant

### Power Plant Design Engineering:

- Provided the detailed design to support the initial construction and maintenance engineering of the Nine Mile Point Unit 1 Nuclear Plant.
- Provided detailed design to support the fuel conversion of 2 coal fired power plants to oil fired.
- Provided detailed design review of 2 large oil fired power plants to address major design flaws.
- Provided the electrical design of the New York Power Pool electric distribution system.
- Provided design review services to support the construction issues associated with the Nine mile Point Unit 2 nuclear Power Plant.
- Provide detailed engineering and design to support the TMI modification for the Nine Mile Point Nuclear Unit 1 Plant.
- Provided detailed design support for a variety of municipal project on Central New York.

### Project Management:

- Provided conceptual engineering, project management and detailed design for a variety of complex nuclear, fossil, hydro and electric station projects.
- Developed, managed and implemented the combustion control upgrade projects for the Niagara Mohawk Fossil Fleet.
- Successfully managed and completed on budget and schedule a variety of complex power plant engineering projects. Assembled all the project management, engineering and construction resources to support the successful completion of these projects.



**Resume of Mr. Michael Boismenu**

**Plant Management and Operations:**

- Provided total asset management and leadership for the Station in the evolving electric supply business.
- Instrumental in the successful negotiation and settlement of the long-standing real estate tax litigation case with the City of Dunkirk. Resulted in savings of \$80 million through the term of the agreement.
- Improved the overall image of the Company through participation in Chautauqua County Reengineering Initiative and the associated Implementation Steering Committee. The initiative resulted in a significant reduction in the size of the County government's Executive Staff.
- Provided the leadership to successfully transition the workforce of the power plant from the regulated electric generation business to a non-regulated electric generation environment.
- Through targeted attrition and position abolishment's reduced the staffing level of the power plant from 208 to 125 employees. This coupled with innovative partnering agreements with vendors resulted in a reduction of the Station's Operation and Maintenance budget by 45% from the previous year's level.
- Provided the organizational design to complete the safe and effective complete of the NRG Dunkirk Power Plant from eastern coal to PRB coal.

**Asset Management:**

- Provided an assessment of the NRG Big Cajun II operation and maintenance process. Resulted in a significant improvement in availability and a more functional and responsive organization design.
- As the Regional Director of Operations in the NRG Mid-Atlantic Region. Completed an assessment of the operation and maintenance practices and made recommendation and implemented a combination of Station physical, organizational and employee development and improvement programs all of which contributed to the significant reduction in the NRG Indian River Station's forced outage rate.
- As the Regional Director of Operations for the NRG New York Region, developed the Regional plan for emergence from bankruptcy, redirected the Region to assure appropriate input from each generating facility.

**Organizational Design and Business Consultant:**

- Established an electrical contractor in Florida as a certified Florida Power and Light contractor.
- As an independent consultant, leveraged my broad utility experience coupled with my extensive network in the electric utility industry in support of new business development initiatives in Florida, Delaware, Massachusetts and New York.



**Resume of Mr. Michael Boismenu**

- Developed Operator Training Systems for the electric power generation industry to meet the needs of the client's manpower initiative, as associated with an aging workforce situation.
- As an independent consultant implemented a staffing, organizational design and operational and maintenance assessment of 2 large power generating facilities in Alabama.
- As an independent consultant conducted a process and operational assessment of a large northeast city's emergency planning and response system.
- Provided detailed support of the cost allocation assessment of a major Southwest power cooperative.
- Providing a assessment of the on-going construction of a large gas turbine facility in the Northwest.



## RESUME OF MR. MARK D. FOWLER

### SUMMARY OF QUALIFICATIONS

Mr. Fowler has over 25 years experience in the electric, gas and telephone industry as both a management consultant and employee. His functional expertise in the electric industry includes reliability, emergency restoration, customer service and support services. He has recently worked with a large Midwestern investor-owned electric utility to develop an Emergency Response Plan and Organization. Mr. Fowler was formerly a senior consultant for the utility consulting practices of RCG/Hagler, Bailey, Inc., and Impell Pacific, Inc. He has performed numerous consulting assignments in the utility industry related to reliability, emergency response, operational improvements as well as other topics in the electric industry. He has a B.S. and an MBA from the University of Tulsa with emphasis in Operations Research. /

### Emergency Restoration Consulting Experience

**New Hampshire electric utilities** - Lead consultant on a review of the response of four New Hampshire electric utilities and two telephone utilities to the ice storms of 2009. This extensive review included the emergency response organizations, emergency response preparations, procedures and processes, communications, actions and actual response. It involved not only utilities but state and local government officials.

**Midwestern utility** - Lead Consultant on an assignment to develop an Emergency Response Organization and Emergency Response Plan at a large Midwestern utility. This two year multi phase assignment included initially assisting the company in responding to audit interrogatories and then helping the company to establish a new emergency response plan and organize a new emergency response organization. This project involved extensive communication and data gathering with other utilities as to their emergency operations.

**Commonwealth Edison** - Lead Consultant on an audit of the Emergency Response of Commonwealth Edison to the storms of 2006. Mr. Fowler reviewed the OMS and SCADA systems and usage, the organization, community communication and customer service responses.

**Consolidated Edison** - Lead Consultant on a review of a series of major outages which impacted Consolidated Edison in substations, underground cables and transformers. These outages were ultimately found to be specifically unrelated but pointed to systemic issues in repair and replacement.

**Indianapolis Power and Light** - Lead consultant on a three year review of the emergency response performance of Indianapolis Power and Light(IP&L). Initiated as an audit of IP&L response to a series of tornados, the project continued to monitor the performance of IP&L as well as their implementation of audit recommendations over a three year period.



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**Resume of Mr. Mark Fowler**

**Emergency Response** - Reviewed emergency response as a part of broader audits and projects including Central Hudson (underway 2010), Belize Electric Limited, Guam Power, Aqualectra (Curacao owned electric utility)

**Selected Utility Management Audit Experience**

**Niagara Mohawk** - Lead consultant for work management on the management audit of Niagara Mohawk for the New York PSC. (2009)

**Ohio PUC** - Lead consultant for the state-wide review of the credit and collection practices of the four Ohio gas utilities for the Ohio PUC. (2009)

**Southern Connecticut Gas** - Lead consultant in a review of Southern Connecticut Gas for the Connecticut DPUC. Responsible for review of the non-regulated charges to the operating company and for the review of the support-services and operations functions including work planning, materials, purchasing, MIS, and facilities.

**Potomac Edison** - Consultant for a management and operations audit of the manpower planning, productivity, and staffing functions of Potomac Edison for the Maryland PSC. Focused on all areas, including contractors, distribution and plant fuel procurement.

**Belize Electric** - Lead Consultant in an 18-month process reengineering and organizational review of Belize Electric. The review addressed organizational realignment and process improvements in new service installation, emergency preparation, materials management, distribution, and computer systems.

**South Jersey Gas** - Conducted an operational improvement project for South Jersey Gas which examined all aspects of the field operations and dispatch.

**Yankee Gas Services** - Consultant in a management review of Yankee Gas Services for the Connecticut DPUC. Areas included construction, maintenance and support services.

**Central Hudson Gas & Electric Corporation** - Consultant on management audit of Central Hudson Gas & Electric Corporation for the New York PSC. Areas of review included corporate budgeting and the management of contractors. (1990s)

**Southern Connecticut Gas** - Lead consultant for support services on the management audit of Southern Connecticut Gas for the Connecticut DPUC. (2009)

**Southern California Gas** - Consultant on two management reviews of Southern California Gas performed for the California PUC. Areas of review included affiliate transactions and relationships, gas transmission and distribution, engineering, and construction.

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**Resume of Mr. Mark Fowler**

**Connecticut Natural Gas** - Lead consultant for support services for Connecticut Natural Gas in a comprehensive management review for the Connecticut DPUC. Review included charges from the parent company to subsidiary operations.

**California ISO** - Lead Consultant on a FERC mandated audit of the California ISO following the California Energy Crisis.

**Pacific Gas & Electric** - Directed a review of the affiliate transaction compliance of Pacific Gas & Electric.

**SEMPRA** - Conducted two affiliate reviews of SEMPRA in which the focus was on the gas trading, purchasing, storage, transmission and storage operations of Southern California Gas, San Diego Gas & Electric and their affiliates.

**Potomac Electric Power Company** - Consultant on a management audit of the fuel procurement activities of Potomac Electric Power Company for the Maryland PSC. Areas of review included fuel inventory management, gas and oil procurement, transportation, and storage.

**OTHER UTILITY CONSULTING EXPERIENCE**

**Pacific Gas & Electric** - Reviewed the gas operations of Pacific Gas & Electric. This review included intrastate pipeline operations, scheduling, systems used for scheduling gas shipments, trades and storage arrangements.

**Colorado Springs Utilities** - Lead consultant for analyzing the operations of materials management groups in the electric T&D, generation, water and gas departments of Colorado Springs Utilities.

**WORK EXPERIENCE**

NorthStar Consulting Group (2008 to present)

Independent Consultant (1990-2000,2001-2008)

Director Business Development-North America-Hansen Industries, Melbourne, Australia (2000-2001)

Senior Consultant RCG/Hagler Bailly (1989-1990)

Senior Consultant Impell Pacific(1986-1989)

Senior Financial Manager- Plains Electric Generation and Transmission(1985-1986)

Director Gas Trading and Distribution- Western US- Buckeye Gas Products (1979-1985)

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Resume of Mr. Mark Fowler

**OTHER RELEVANT EXPERIENCE**

Formally trained in Incident Command as part of Wildland Firefighter Training

Wilderness First Responder (WFR)

**EDUCATION**

MBA, The University of Tulsa

BS, The University of Tulsa

Mr. Fowler is a member of the International Society of Arborist and is currently working towards becoming certified via the ISA.

Mr. Fowler has been formally trained in the Incident Command System (ICS) as part of Wildland Firefighter training.



## RESUME OF MR. CHUCK BUECHEL

### AREAS OF SPECIALIZATION

Mr. Buechel has worked on numerous consulting assignments for electric, gas, water, and telephone utilities. The primary focus of many of these assignments has been regulatory matters, however, he has consulted on other matters, including corporate and strategic planning, incentive regulation, least-cost planning, workforce management, and competitive bidding.

Prior to consulting, Mr. Buechel spent over nine years on the Staff of the Kentucky Public Service Commission. During his tenure at the Commission, he was public utility economist, Director of Research Division, and Deputy Executive Director. His assignments at the Commission included: the preparation of an integrated resource planning regulation; coordinating a statewide load management committee to investigate time-of-day rates and other load management issues; directing staff in rate cases and special investigations; writing orders as directed by the Commission; establishing a management audit program; and testifying in selected cases.

### SELECTED CONSULTING EXPERIENCE

*Duke Energy Ohio* - Senior Consultant on an audit of compliance with corporate separate rules, focusing on code of conduct and structural separation issues.

*Consolidated Edison Company* - Senior Consultant on an audit of emergency restoration and outage planning capabilities for the New York PSC. Audit followed a number of large and highly public outages. Major recommendations were made to develop new strategies and programs for addressing reliability and outage response.

*Maryland Public Service Commission* - Monitored all RFP solicitations for 2007 and 2008 bid years. This amounted to nine solicitations for all four utilities in Maryland. Provided oversight on bid day, reviewed applications, provided confidential analysis and briefings to the Commissioners and testified on results.

*Pacific Gas & Electric Co.* - Senior Consultant for affiliated audit for 2001 and 2002 calendar years to verify compliance with California PUC restructuring requirements. Assignment included assessment of company plan and audit of affiliate transactions. Acted as the Lead Consultant on areas that addressed Nondiscrimination Standards, Disclosure and Information Standards, and Competitive Services. Recommendations from these reports addressed means of improving compliance.

*Public Service Electric & Gas Company* - Retained by the New Jersey Board of Public Utilities to assess compliance with all Affiliate Compliance and Code of Conduct Rules enacted as a result of restructuring.



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**Delaware Public Service Commission** – Monitored all RFP solicitations for 2006 bid year. Provided oversight on bid day, reviewed applications, provided confidential analysis and briefings to the Commissioners and testified on results.

**Seattle City Light** – Retained by the City Council to perform an audit of the municipally-owned Seattle City Light electric utility. Assigned issue was governance of the municipal utility. The audit yielded recommendations for training the council members to better understand the issues and to add additional resources for oversight of the utility.

**Federal Energy Regulatory Commission** – Senior Consultant for an operational audit of the California Independent System Operator. The audit was performed for FERC. Assigned issues of primary focus were market design, the relationships among the parties and governance of the ISO.

**Arizona Corporation Commission** – Senior Consultant to provide advice and assistance to the Commission regarding the on-going implementation of its industry restructuring initiative.

**Louisville Electric & Gas and Kentucky Utilities** – Actively participated in the development of a comprehensive performance-based regulation mechanism and provided support for development of tariff, preparation of testimony, and witness preparation and worked with attorneys to prepare briefs.

**Public Service Electric & Gas** – Senior Consultant in the evaluation of cost of service studies and unbundling plan for the Restructuring Plan submitted to the New Jersey Board of Public Utilities.

**Entergy** – Consultant in this financial audit of affiliated transactions between Entergy Corporation, Entergy Services, Inc., and subsidiaries responsible for the review of affiliated transactions, allocation, accounting procedures and control, improper disclosure, and insulation and segregation of regulated and non-regulated affiliates.

**California Public Utilities Commission** – Regulatory Lead Consultant for an assignment to assist with the evaluation of a two-year experiment to implement performance-based ratemaking for San Diego Electric and Gas Company's gas procurement and generation and dispatch functions.

**San Diego Gas & Electric Company** – Consultant responsible for this mid-term evaluation of the Company's Base Rates Performance-Based Ratemaking mechanism which included analysis and assessment in the areas of price and corporate performance.

**Big Rivers Electric Corporation** – Provided support and assisted with the preparation of the Company's regulatory filings before the Kentucky PSC for approval to implement a proposed lease of its generating assets to a subsidiary of LG&E Energy.



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**Delta Natural Gas** - Assisted with the preparation of an application to increase rates and modify rate design. Testified on rate design changes for larger commercial and industrial customers as well as other specific charges.

**East Kentucky Power Cooperative, Inc.** - Senior Consultant for a project to audit the fuel procurement function at East Kentucky Power Cooperative. The assignment is being performed for the Fuel and Environmental Committee of the Board of Directors.

**Louisville Gas and Electric Company/Kentucky Utilities Company** - Provided strategic, regulatory and operational advice regarding merger between these two utilities. Assisted with preparation of merger application and provided regulatory strategy regarding synergy savings.

**Kentucky Public Service Commission** - Engagement Director for a project to prepare a joint response for a consortium of four utilities in Kentucky. The response is to the Kentucky Public Service Commission Administrative Case No. 341, An Investigation into the Feasibility of Implementing Demand-Side Management Cost Recovery and Incentive Mechanisms. The response discusses the advantages and disadvantages of various regulatory incentives with regard to DSM and conservation.

**Louisville Gas and Electric Company** - Lead Consultant in the preparation of its application to establish a holding company. The application included proposed guidelines to be used in financial dealings between the subsidiary companies, as well as the allocation of costs between the companies.

**New England Telephone Company** - Consultant for the management audit of its affiliated interests. The audit was performed for the Department of Public Utilities of Massachusetts. Primary responsibilities included providing regulatory advice and consultation to the audit team.

**Kentucky Utilities Company** - Engagement Director for a project to provide advice and consultation with regard to the preparation of an application for a certificate of convenience and necessity to construct additional peaking capacity. The filing was prepared to comply with a comprehensive regulation on integrated resource plan adopted by the Kentucky Public Service Commission. Areas of responsibility included preparing the responses for the sections of the IRP regulation, which were concerned with demand-side management.

**Columbia Gas of Ohio, Inc.** - Consultant for its management and operations audit. The audit was for the Public Utility Commission of Ohio. Areas of responsibility include requirements forecasting and flexible transportation program.

**Pennsylvania Gas & Water Company** - Consultant for a comprehensive management audit. The audit is being performed for the Pennsylvania Public Utilities Commission. Areas of responsibility include requirements forecasting, rates and regulatory relations, and financial management and planning.

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**West Texas Utilities Company** - Consultant for a management and operations audit. The audit was performed for the Public Utility Commission of Texas. Areas of responsibility included financial planning, economic analysis, and system planning.

**East Kentucky Power Cooperative, Inc.** - Engagement Director for the performance of an audit of evaluation of competitive bids it received for providing generating capacity to meet its needs. The purpose of the audit was to provide assurance to EKPC's management that each of the proposals is provided fair and consistent treatment. The audit was needed because the company had also provided a bid.

**Big Rivers Electric Corporation** - Engagement Director for an assignment to implement a comprehensive planning process. The process is centered on an annual planning cycle, which incorporates the corporate and strategic plans with the divisional plans and budgets.

**Kentucky Public Service Commission** - Witness testifying on behalf of GTE Products Corporation in Kentucky Public Service Commission Case No. 10498, a request by Columbia Gas of Kentucky, Inc. to raise its rates. The testimony supported the continuation of a flexible rate for the transportation of natural gas to industrial customers with alternative fuel capability.

**Henderson County Water District** - Lead Consultant for a comprehensive operations review. The study was sponsored by the district's Board of Directors. Areas of responsibilities included operations planning, organization and staffing, system management, and customer service.

**Lexington Fayette Urban County Government** - Principal Investigator for a report regarding the feasibility of regulating landfill operations at the Kentucky Public Service Commission.

**Kentucky-American Water Company** - Lead Consultant for a project to review and comment on drafts of testimony and a consultant's report on the need to expand its water treatment capacity. The testimony and report was the subject of a mock hearing.

**Kentucky Public Service Commission** - Witness testifying on behalf of AT&T Communications in Kentucky Public Service Commission Administrative Case No. 323, an investigation into permitting intraLATA toll competition. The testimony related to the validity of a customer survey submitted by AT&T in the proceeding.

**East Kentucky Power Cooperative, Inc.** - Engagement Director for a project which reviewed its load research program, made conclusions regarding the statistical validity of its previous efforts, and provided recommendations for future studies.

## **OTHER BUSINESS AND PROFESSIONAL EXPERIENCE**

*President, Utility and Economic Consulting, Inc.*, February 1989-Present. The company provides utility, regulatory, management, and economic consulting services. The consulting engagements described above were performed since the formation of UEC.

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*Deputy Executive Director* for the Public Service Commission of Kentucky, 1986-January 1989.  
Primary responsibilities include the following.

- Managing staff, through their directors, to ensure that cases were processed according to operating procedures and in a timely fashion.
- Working directly with the staff to develop regulatory policy positions for presentation to the Commissioners. One of the key policies developed involved a revised regulatory scheme to promote a more competitive environment for the delivery of natural gas.
- Preparation of a proposed comprehensive planning regulation for the Commission. The regulation, which is applicable to the state's electric utilities, specified filing requirements for the reporting of load forecasts and resource information including demand-side management and supply-side options.

*Director*, Division of Research, for the Public Service Commission of Kentucky, 1983-1986.  
Primary responsibilities include the following.

- Managing and providing direction for the economic research staff. The staff provided economic advice to the Commission concerning regulatory issues arising in the electric, telephone, gas, and water industries. This included making case assignments, reviewing the economists' work, preparing budgets, as well as other administrative duties.
- Participating in cases before the Commission. This involved working with other staff personnel, reviewing utility filings, preparing data requests and cross-examination of witnesses, advising the Commission, and preparing orders as instructed by the Commission.
- Load Management Coordinator. This position required coordinating, leading discussions, and making presentations to two statewide load management committees - a steering and a technical committee. The committees were composed of Commission staff, utility executives, and consumer representatives. The committees met quarterly to discuss and review the implementation of time-of-day rates for large commercial and industrial customers. Various other load management techniques were also reviewed and considered.
- Project Coordinator, Case No. 8666 - An Investigation Into Alternative Load Forecasting Methods and Planning Considerations for the Efficient Provision of Electric Generation and Transmission Facilities. In this docket, the Commission hired the services of a consultant to perform the following tasks: review the forecasting methods of the state's electric utilities; provide alternative forecasts; examine the potential benefits of conservation; evaluate alternative construction scenarios assuming the formation of a statewide power pool; and estimate the financial impact of the alternative scenarios. Primary duties were to be the intermediary between the consultants, Commission, the utilities, and other parties; to conduct review sessions on the consultant's work; and to evaluate the draft and final reports produced by the consultant.



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- Project Officer for comprehensive management audits of Kentucky Utilities Company and South Central Bell Telephone Company. The Commission instituted a management audit program, which involved hiring consultants to review the management practices of all the State's major utility companies. The role of the project officer was to ensure satisfactory and timely performance of the proposed work; to attend selected interviews; and to critically review and evaluate analytical results.

*Public Utility Economist* for the Public Service Commission of Kentucky, 1979-1983. Primary responsibilities included:

- assisting the Commission in implementing procedures and policies to meet the federal mandates of the Public Utility Regulatory Policies Act (PURPA). This involved performing cost-of-service studies, developing alternative rate design proposals, and testifying on the ratemaking standards in Section 111 of PURPA;
- developing the Commission's regulations pertaining to cogeneration.

*Assistant Professor*, Department of Economics, for Morehead State University, 1976-1979. Primary teaching responsibilities were investments, introduction to economics, and intermediate macroeconomics. Other teaching responsibilities included managerial economics and computer programming in BASIC. Committee work included membership on the Southern Association Self-Study and the Committee on Student Life.

## EDUCATION

B.S. in Economics with Honors, University of Kentucky.

M.A. in Economics, University of Kentucky.

Ph.D. Candidate, University of Kentucky.





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**RÉSUMÉ OF MR. JOHN G. TOOLEY, P.E.**

**AREAS OF SPECIALIZATION**

Mr. Tooley is able to utilize his broad base of power generation experience (Operations, Engineering, Plant/Asset/Project Management) and versatile education (Engineer/MBA) to provide consulting services in the power generation industry. Areas of expertise and interest include, due diligence, plant assessment/improvement (including organizational analysis), benchmarking, new technology assessment and application, and project management.

**SUMMARY OF CONSULTING AND WORK EXPERIENCE**

**Power Generation, Construction Management, and Engineering**

- Led technical due diligence for NRG's successful \$8 billion, eight plant acquisition of Texas Genco (11,000 MW coal and gas assets formerly owned by Houston Power and Light)
- Transition team member for NRG's \$1.5 billion, four plant First Energy acquisition. Led thorough organizational analysis as part of that effort including benchmarking and organizational redesign
- Developed multiple creative repowering schemes for one of NRG's large underutilized oil plants
- Managed dramatic operational changes resulting from conversion of two eastern coal plants from Bituminous to Powder River Basin coal
- Leading role in obtaining the first PILOT agreement ever negotiated for an EXISTING power plant in New York State. Reduced plant taxes over 80%
- Reduced 'idle plant' power consumption at large peaker plant by 65% (3.2 MW) via unique technology applications
- Leading role at NRG in anticipating the impact of the 'aging workforce.' Initiated the concept of 'transition employees' and was the first to obtain approval for them based on detailed organizational studies performed during my tenure as Regional Plant Manager-NY
- Negotiated first of a kind work practice changes with IBEW which resulted in an operations staff reduction of 15% at a large (1700MW) plant
- Managed and participated in the successful sale of the 34 MW Cadillac wood burning plant
- Project Manager - Four unit gas conversion
- Implemented automated, continuous water/steam purity performance measurement system across NRG's Northeast fleet
- Developed specific equipment based reliability improvement plans for NRG's Northeast fleet



## Utility Experience

### NRG ENERGY, INC.

- **Chief Engineer, Northeast Region** 02/08 - 2010  
Manage Northeast Engineering Department focusing heavily on operations and maintenance improvement programs at a 15 plant, 7100 MW coal, oil, gas, and waste fueled fleet.
- **Regional Plant Manager - New York Assets** 04/04 - 02/08  
Managed NRG's 7 New York Region plants including coal, oil, gas, and wood fired steam units and simple cycle gas turbines totaling 4000 MW. Also, Performed Plant Manager role at 1700 MW Oswego plant during this period.
- **Plant Manager, Oswego Generating Plant** 10/99 - 02/08  
Overall responsibility for the safe, reliable operation of a 1700 MW Oil/Gas fired plant

### NIAGARA MOHAWK POWER CORPORATION.

Plant Manager, Oswego Generating Plant 11/94 - 10/99

- **Manager, Fossil/Hydro Engineering** 05/88 - 11/94  
Managed a 100 + person multi-discipline (electrical, mechanical, civil/structural, instrumentation & control) Engineering Department charged with performing capital improvement projects and studies at Niagara Mohawk's Fossil/Hydro Generating Plants
- **Fossil Engineering Department** 03/78 - 05/88  
Various supervisory and project management positions directing up to 25 engineers, designers, and drafting technicians. Responsible for conceptual and design engineering projects up to several million dollars in scope.

### COMBUSTION DESIGNS, INC.

- **Engineer** 08/76 - 03/78  
Design, sales, and field service of industrial fuel handling, burner, and burner control systems



**ALLIED CHEMICAL CORPORATION**

11/74 – 08/76

- **Operations Engineer - Power Section**  
Plant-engineering function at a large industrial coal-fired power plant. Duties included testing, data analysis, improvement projects and equipment start-up

**CARRIER CORPORATION**

06/73 – 11/74

- **Applications Engineer**  
Selection/application of centrifugal water and brine chiller systems for commercial/industrial plants

**BABCOCK AND WILCOX CORPORATION**

06/71 – 06/73

- **Field Service Engineer**  
Start-up and trouble shooting of industrial/utility steam production facilities in the Northeast and Mid-Atlantic states

**EDUCATION AND AFFILIATIONS:**

- **BSME** Clarkson University, 1971
- **MBA** Syracuse University, 1976
- Licensed Professional Engineer State of New York
- Chairman/Member - New York Utilities Power Generating Committee
- Member - EEI Prime Movers Committee
- Member - EPRI Power Plant Task Force
- Member - EPRI Fluidized Bed Combustion Program Committee



## **F. STATEMENT ON POTENTIAL CONFLICTS**

We do not believe Vantage has any conflicts of interest as a firm. While we have performed work for KU and LG&E in the past, it has been well over five years. Mr. Chuck Buechel may have a conflict based on recent work he did for LG&E. We will discuss this with the Commission and withhold him from the project if appropriate.



## **G. BUDGET ESTIMATES**

### **HOURS, FEES AND EXPENSES**

The following is a cost estimate of our work for project. The rates provided below are standard hourly rates, based on an eight-hour day and include all personnel expenses for travel and incidentals. The following table provides a summary of our fees.

### **INVOICING**

Invoices will be submitted monthly and are due as stated in the RFP and contract. Invoice backup will include:

- a breakdown of charges by consultant and expense category;
- time reports for each consultant and staff person;

### **INSURANCE COVERAGE**

Vantage carries extensive insurance coverage for assignments of this type. While we currently carry the levels shown below, we have the ability to increase our coverage to the required level and will commit to do so prior to starting work. A certificate of Insurance demonstrating coverage will be submitted upon award of the contract.

- Personal and General Liability coverage of \$1,000,000 per occurrence and \$2,000,000 per year.
- Automobile coverage of \$1,000,000 per occurrence with \$2,000,000 aggregate.
- Appropriate workers' compensation and disability insurance for all employees.



Proposal to Kentucky Public Service Commission to serve as Independent Consultant for  
Review of Applications for "CPCN" and Environmental Compliance

<b>Kentucky CPCN Review</b>					
<b>Hour and Fee Estimate</b>					
	Project	Lead			
	Director	Consultant	Total	Total	
	\$260	\$240			
Task 1	32	32	64	\$16,000	
Task 2	40	40	80	\$20,000	
Task 3	48	48	96	\$24,000	
Task 4	64	64	128	\$32,000	
<b>Total Project Hours</b>			224		
<b>Total Project Fees</b>	\$0	\$0		\$56,000	
<b>Estimated Travel Expenses</b>					
Onsite Percentage	30%				
Hours per trip	24				
Hotel cost per trip	\$250				
Airfare per trip	\$450				
Ground Trans. per trip	\$150				
Meals per trip	\$150				
Cost per trip	\$1,000				
Number of consultant trips	6				
<b>Travel Expenses</b>	<b>\$6,000</b>				
Professional Fees	\$56,000				
<b>Total Project Cost</b>	<b>\$62,000</b>				



**Proposal to Kentucky Public Service Commission to serve as Independent Consultant for Review of Applications for "CPCN" and Environmental Compliance**

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## **H. TIME**

A detailed schedule will be developed once we see the final procedural schedule of the case. However, given the June 17, 2011 filing and six month decision timeframe, we would expect to commit resources very early. Some key dates we would expect to achieve include:

- Sign contract by early July.
- Meet with staff within one week to review responsibilities.
- Complete Task 1 within four weeks.
- Complete Task 2 three weeks later
- Complete Task 3 approximately four weeks later.
- Task 4 will be completed in a manner that provides adequate time to submit recommendations to appropriate parties and for the commission to conduct hearings.

The most important aspect of the schedule is Vantage's commitment to complete the project in a manner that meets all regulatory requirements.







**BIG RIVERS ELECTRIC CORPORATION**

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1 **Item 12)** *Refer to the Company's response to PSC 1-7. Please update*  
2 *this response for the current status of the Station 2 review being*  
3 *conducted by HMP&L. Identify the approvals, if any, that HMP&L needs*  
4 *to provide in order for Big Rivers to proceed and describe the status and*  
5 *future timing of each such approval.*

6

7 **Response)** With HMP&L's concurrence, Big Rivers issued a Request For  
8 Proposals ("RFP") for engineering services to study the fan issues associated with  
9 running the second recycle pump full time. Bids were received and evaluated by  
10 Big Rivers. A recommendation was sent to HMP&L for its consideration on June  
11 12, 2012.

12 HMP&L approved this recommendation at its June 25, 2012, board  
13 meeting. Big Rivers will engage the recommended vendor immediately to begin  
14 the study. Big Rivers anticipates that the study will take 10 weeks after receipt of  
15 order, at which time the recommendations will be reviewed with HMP&L.

16 Should HMP&L concur with the recommendations of the study, Big  
17 Rivers will have the engineering firm develop the necessary scopes of work to  
18 implement the recommended program at HMP&L.

19

20

21 **Witness)** Robert W. Berry

22



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1 **Item 13)** *Refer to the Company's response to PSC 1-9 and the potential*  
2 *effects of compliance with the EPA regulation on coal combustion*  
3 *residuals and EPA rules relating to impingement mortality and*  
4 *entrainment.*

5  
6 *a. Please address whether, and if so, the manner in which,*  
7 *the Company could comply with these rules through*  
8 *constrained operation of its generating units. Please*  
9 *provide a copy of and a narrative description of all*  
10 *analyses that the Company or outside advisors on behalf*  
11 *of the Company have performed.*

12 *b. If constrained operation is a viable compliance option,*  
13 *then please provide a sensitivity study against the base*  
14 *case and against the Partial Build scenario to quantify*  
15 *the effects of this option.*

16  
17 **Response)**

18 a. The proposed coal combustion residuals rule applies to the landfill  
19 and ash ponds utilized on-site to manage scrubber and ash waste.  
20 The rule addresses the management of the wastes, not the volume  
21 generated by the operation of the unit; therefore, reducing the

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1 operation of the unit will not affect the requirement to manage  
2 the wastes in accordance with a final rule.

3 The comment period for the proposed 316(b) regulation is  
4 set to close on July 12, 2012. According to the United States  
5 Environmental Protection Agency ("EPA") question and answers  
6 page, "*When the final rule is effective, technologies to meet the*  
7 *impingement requirements or the rule would have to be*  
8 *implemented as soon as possible but within 8 years at the latest.*"

9 Big Rivers has reviewed the common control technologies that  
10 might be applicable to a final rule, but has not investigated in  
11 detail all of the possible control technologies, including  
12 constraining operations, due to the uncertain date of a final rule  
13 and the time available to meet compliance after a final rule is  
14 published.

15 b. No studies have been conducted.

16  
17  
18 **Witness)** Thomas L. Shaw  
19



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1 **Item 14)** *Refer to the Company's response to PSC 1-22 and the*  
2 *conclusion that "It is believed that EPA will likely overcome challenges to*  
3 *the rule and will ultimately prevail."*

- 4
- 5 *a. Please provide a copy of all analyses and all supporting*  
6 *documents relied on for this conclusion.*
- 7 *b. What is the likely effective compliance date if EPA*  
8 *overcomes the challenges? Please provide a copy of all*  
9 *analyses and all supporting documents relied on for your*  
10 *response.*

11

12 **Response)**

- 13 a. There are no supporting analyses or documentation. Big Rivers  
14 has not performed an analysis of the likelihood of success of the  
15 challenges to the Cross State Air Pollution Rule ("CSAPR"),  
16 although Big Rivers believes that a rule based on CAIR and  
17 CSAPR will ultimately be upheld in a form close to the current  
18 form of CSAPR, because the challenges were procedural rather  
19 than substantive. Given the scope and immediacy of the actions  
20 necessary to comply with CSAPR, Big Rivers believes it is  
21 necessary to take actions.

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1           b.    Given the uncertainty created by the legal challenges, Big  
2                   Rivers believes that compliance dates will be extended  
3                   somewhat upon resolution of the claims. This is based on  
4                   professional judgment; there is no supporting documentation or  
5                   analysis. For financial forecasting purposes, Big Rivers is now  
6                   assuming that CSAPR Phase 2 will commence in 2015.

7

8

9   **Witness)**   Thomas L. Shaw

10





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1 **Item 15)** *Refer to the Company's response to PSC 1-24 and the*  
2 *conclusion that "Big Rivers found it unnecessary to make assumptions*  
3 *about Smelter rates well beyond the 2023 time horizon because longer*  
4 *periods of time would only serve to improve the "Build Case."*

5

6 **a.** *Please describe in more detail why the Company believes*  
7 *that this conclusion is correct. In your response, address*  
8 *the fact that the NPV of the revenue requirements*  
9 *associated with the Build Case after the 15 years would*  
10 *increase the cost of the Build Case, not reduce it.*

11 **b.** *Please provide a copy of all quantitative analyses that*  
12 *supports this conclusion.*

13

14 **Response)**

15 **a.** While it is true that each additional year beyond the 15 year  
16 analysis period would increase the NPV of the revenue  
17 requirement for the "Build Case", each additional year beyond  
18 the 15 year analysis period would increase the NPV of the  
19 revenue requirement for the "Partial Build Case" and the "Buy  
20 Case" by a larger amount. The "Build Case" has a lower  
21 revenue requirement than the "Buy Case" in each and every  
22 year of the analysis period. The "Build Case" also has a lower

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1 revenue requirement than the "Partial Build Case" in every  
2 year, beyond 2013, of the analysis period. It should also be  
3 noted that the off-system price of power and the price of  
4 allowances are generally increasing each year while the ECP net  
5 plant in service and the resulting Return on Rate Base are  
6 decreasing each year due to annual depreciation expense.  
7 b. Please see Exhibit Hite-3, which shows the present value of the  
8 revenue requirement for each case by year. Please see the ECP  
9 sheet of each of the financial model scenarios, which shows the  
10 decreasing ECP net plant in service (once all ECP assets are in  
11 service) and the resulting Return on Rate Base. Finally, please  
12 see the off-system price of power and allowance prices provided  
13 by Pace.  
14  
15  
16 **Witnesses)** Mark A. Hite  
17



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1 **Item 16)** *Refer to the Company's response to PSC 1-26 and the statement*  
2 *that the sensitivity where the Company loses the load of one smelter, "the*  
3 *remaining smelter is assumed in the model to shoulder its proportionate*  
4 *share of the cost increase associated with the departure of the other*  
5 *smelter."*

6  
7 *a. Please explain the basis for this assumption and provide a*  
8 *copy of all documents relied for the assumption or used to*  
9 *test the validity of this assumption.*

10 *b. Please confirm that in base rate proceedings, the*  
11 *Commission uses the off-system sales margins as a*  
12 *reduction to the revenue requirement. If the Company*  
13 *cannot confirm this statement, then please describe how*  
14 *the Company believes that the Commission uses the off-*  
15 *system sales margins in the revenue requirement. Please*  
16 *cite to and provide copies of all source documents relied*  
17 *on for your response.*

18 *c. Please identify where this assumption is reflected in the*  
19 *sensitivity where the Company loses the load of one*  
20 *smelter.*

21

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**Response)**

- a. If one smelter ceases operation, Big Rivers expects that it will file for a base rate increase to recover the lost revenue associated with the smelter departure. Big Rivers will likely request that the revenue requirements be proportionately shared by the remaining customers.
- b. Confirmed.
- c. Please reference the "Stmts RUS" sheet of the financial models titled "Financial Forecast (2012-2026) Build Century Leave 04-18-2012.xlsx", "Financial Forecast (2012-2026) Build Alcan Leave 04-18-2012", and "Financial Forecast (2012-2026) No CSAPR, Cent, or Clmn 05-18-2012" provided in response to PSC 1-26(b). In each of these financial model sensitivities, one of the smelters is assumed to leave January 1, 2014, and the resulting required rate increase is assumed to be the same for Rural and Large Industrial consumers. Because the remaining smelter's base rate is assumed to continue to be based upon the Large Industrial rate at a 98% load factor, the remaining smelter is modeled to participate fully in the required rate increase.

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1 **Witnesses)**            Robert W. Berry and  
2                                Mark A. Hite  
3



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1 **Item 17)** *Refer to the Company's response to AG 1-21. Please update this*  
2 *response with the current status of the engineering and design process. Be*  
3 *specific.*

4  
5 **Response)** On June 15, 2012, Big Rivers provided verbal authorization to Burns  
6 and McDonnell Engineering to begin work on developing the specification for the  
7 replacement of the Wilson FGD. The Purchase Order was issued to Burns and  
8 McDonnell on June 26, 2012. A kickoff meeting should be held during the second  
9 week of July 2012 at the Wilson plant.

10 Big Rivers submitted a recommendation on June 12, 2012 for  
11 engineering services regarding the HMP&L Station Two FGD upgrades to  
12 HMP&L for their review and approval. This recommendation was approved by  
13 HMP&L on June 25, 2012. Big Rivers is in process of issuing a purchase order to  
14 Burns and McDonnell to provide engineering services for the HMP&L FGD  
15 upgrade.

16

17

18 **Witness)** Robert W. Berry

19





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1 **Item 18)** *Please describe in detail how the Company's accounting for its*  
2 *fuel and purchased power costs changed after it joined MISO to reflect the*  
3 *fact that the Company bids all of its resources and load into MISO, if at all.*  
4 *In addition, please describe in detail the related effects on the costs*  
5 *included in its revenue requirement, including clause recoveries.*

6  
7 **Response)** Big Rivers' accounting for its fuel (for generation) and purchased  
8 power (required to meet load not covered by generation) costs did not change after  
9 joining the Midwest Independent System Operator, Inc. ("MISO"). Fuel for  
10 generation continues to be charged to Account 151 Fuel Stock (inventory) as  
11 purchases are delivered. As fuel is used in the generation process, costs are  
12 charged to Account 501 Fuel (expense) and credited to Account 151 Fuel Stock  
13 using an average cost of inventory method. Power purchased from third parties  
14 (SEPA, MISO, etc.) to meet load requirements not covered by generation is  
15 charged to Account 555 Purchased Power as costs are incurred.

16 On November 17, 2011, the Commission issued its Order in Case No.  
17 2011-00036 approving an increase in base rates that included pro forma charges  
18 assessed under the MISO Tariff Schedules 10, 16, and 17 in the amount of  
19 \$5,353,444. These charges are the only MISO-related costs being recovered by Big  
20 Rivers in the approved revenue requirement. Power purchased from MISO to  
21 meet load not covered by Big Rivers' generation is treated the same as other third  
22 party power purchases, and is reflected in the Fuel Adjustment Clause ("FAC")

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1 and Non-FAC Purchase Power Adjustment (Non-FAC PPA) factor calculations (as  
2 described in Big Rivers' tariffs) based on MISO pricing. In addition, the FAC  
3 factor calculation reflects Make Whole Payment credits received from MISO as an  
4 offset to Start-Up costs incurred in connection with operating Big Rivers owned  
5 and leased generating facilities.

6

7

8 **Witness)** Mark A. Hite

9



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1 **Item 19)** *Please refer to the market prices shown on line 8 on the Risk*  
2 *spreadsheet in the Excel workbooks provided in response to KIUC's Motion*  
3 *to Dismiss for each of the scenarios.*

- 4
- 5 **a.** *Provide the source(s) of these market prices and all*  
6 *analyses used to develop these prices, including all input*  
7 *sources, adjustments, assumptions, and electronic*  
8 *spreadsheets with formulas intact, including, but not*  
9 *limited to, the conversion of hourly or other data into the*  
10 *average annual rates reflected in this spreadsheet.*  
11 *Describe each step in the analytical process that led to the*  
12 *use of these specific market prices and make sure that*  
13 *each step is documented with all input, computations,*  
14 *and output files.*
- 15 **b.** *Please provide a narrative description of these market*  
16 *prices, i.e., what do they represent, e.g., MISO energy*  
17 *prices averaged across all hours.*
- 18 **c.** *Please confirm that the market prices include capacity*  
19 *costs. Describe how the changes in the MISO capacity*  
20 *auction process have been reflected in the market prices,*  
21 *if at all. If the changes have not been reflected in the*

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1                    *market prices, then please provide a description of how*  
2                    *these changes will be reflected in future market prices.*

3  
4 **Response)**

- 5                    a. For a description of Pace's modeling methodologies, please refer  
6                    to Big Rivers' responses to part b., below, and to Item 28b of  
7                    these responses.
- 8                    b. Pace develops fundamental market projections of power prices  
9                    based on an hourly chronological dispatch model simulation.  
10                   Pace deployed the AURORAxmp dispatch model with a set of  
11                   proprietary enhancements to develop a fundamental set of 200  
12                   iterations of market price projections as well as a single  
13                   reference case projection with hourly price detail that falls close  
14                   to the mean of the entire distribution. The Aurora model is  
15                   designed to find the least cost dispatch solution for a power  
16                   market system, recognizing variable costs on a plant-by-plant  
17                   level, unit operational constraints, hourly demand, and  
18                   transmission constraints at a highly zonal level. In Pace's  
19                   stochastic model, PJM and MISO power prices are projected at a  
20                   zonal level, including in the relevant region surrounding Big  
21                   Rivers' service area. Therefore, the model's projections are zonal

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1 in nature and not intended to project specific locational margin  
2 price ("LMP") points.  
3 c. Pace's market price projections are energy-only and do not  
4 include capacity costs. MISO has recently received conditional  
5 approval from the Federal Energy Regulatory Commission  
6 ("FERC") to initiate a central capacity market with a single  
7 round auction and a vertical demand curve set by required  
8 planning reserve margin targets. However, given the  
9 preponderance of vertically integrated electric utilities  
10 throughout the MISO market that can opt out of this capacity  
11 construct, the future level of capacity market participation is  
12 highly uncertain. Pace's capacity addition analysis incorporates  
13 implicit capacity value for new entrants (driven in part by the  
14 local reserve margin requirements established for load serving  
15 entities), including expected additions of replacement natural  
16 gas-fired capacity by utilities when coal resources retire.  
17 The Pace analysis contains a broad range of potential  
18 capacity additions, retirements, and reserve margins, reflecting  
19 the uncertainty in how market drivers and regulatory  
20 developments may impact the composition of the power system  
21 over the next several years. Pace expects the energy price  
22 mechanism to continue to be based on the variable costs of the

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1                   marginal generating units in the MISO system. Therefore, to  
2                   the extent that market composition changes, energy prices can  
3                   be affected. Pace does not expect capacity value to be embedded  
4                   in energy market prices.

5  
6  
7  
8

**Witness)**   Patrick N. Augustine





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1 **Item 20)** *Refer to the Company's response to KIUC 1-17, which included*  
2 *a confidential chart labeled Forward Power Price Comparison. The chart*  
3 *compared the forward power prices obtained from Pace, APM, and IHS.*  
4

5 *a. Please describe how this comparison was used and by*  
6 *whom to develop the market prices shown on line 8 on the*  
7 *Risk spreadsheet in the Excel workbooks provided in*  
8 *response to KIUC's Motion to Dismiss for each of the*  
9 *scenarios, if at all.*

10 *b. Please provide the data reflected on this chart in an*  
11 *electronic spreadsheet and provide all source documents*  
12 *used to obtain the data shown on this chart, including,*  
13 *but not limited to, all spreadsheets used to average*  
14 *projected hourly prices.*

15 *c. Please provide another version of this chart that includes*  
16 *the market prices that were used for each of the*  
17 *Company's scenarios.*  
18

19 **Response)**

20 a. The comparison provided in response to KIUC 1-17 was used by  
21 Big Rivers' staff to ascertain the differences in the three forward  
22 price curves it had obtained. This chart was not used to develop

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- 1                   the market prices shown on line 8 of the Risk spreadsheet  
2                   referenced above.
- 3           b.   Please see the file entitled "PACE vs APM vs IHS energy - Mar-  
4                   12" provided, under Petition for Confidential Treatment, on the  
5                   CONFIDENTIAL USB drive accompanying these responses.
- 6           c.   Please see the file entitled "Fwd Power Price Comparisons"  
7                   provided, under Petition for Confidential Treatment, on the  
8                   CONFIDENTIAL USB drive accompanying these responses. As  
9                   noted on the chart, there were four price curves used in the  
10                  scenarios provided: Pace; Pace-No Smelter Scenario; APM; and  
11                  APM-No Smelter Scenario.

12  
13  
14  
15

**Witness)**   Robert W. Berry



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1 **Item 21)** *Refer to the Company's response to AG 1-46 and the attached*  
2 *copy of the January 19, 2012 and February 21, 2012 presentations to the*  
3 *Board.*

4  
5 **a.** *Please confirm that the January presentation indicated*  
6 *that capital expenditures to comply with CSAPR and*  
7 *MATS would total \$213.5 million and the February*  
8 *presentation increased the expenditures to \$283.5 million.*

9 **b.** *Please provide a detailed explanation why the capital*  
10 *expenditures reflected in the February BOD presentation,*  
11 *and the Application in this proceeding, are significantly*  
12 *more than the January 19, 2012 estimate presented to the*  
13 *Board. Provide a copy of all quantitative comparisons,*  
14 *electronically, that explain the significant increase in*  
15 *capital expenditures during the 4 week period between the*  
16 *January and February BOD meetings.*

17  
18 **Response)**

19 **a.** Confirmed.

20 **b.** The capital estimates in the January 2012 board presentation  
21 represented high level order of magnitude estimates developed  
22 by Big Rivers personnel to indicate the level of capital

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1 expenditures facing Big Rivers in complying with CSAPR and  
2 MATS. The capital estimates in the February 2012 board  
3 presentation represent the results of the S&L study.

4 The differences are described in the table that follows.

5

<b>Project</b>	<b>Jan (\$M)</b>	<b>Feb (\$M)</b>	<b>Comment on February Estimate</b>
Wilson FGD	100.00	139.00	Included fan and control upgrades and further analysis of SESS budgetary pricing
Green SCR	75.00	81.00	Refined cost from S&L
HMPL FGD	8.00	3.85	Net of HMPL share
Reid Conversion	2.00	1.20	Refined cost from S&L
Coleman MATS	13.50	28.44	Added DSI systems
Wilson MATS	5.00	11.24	Added DSI systems
Green MATS	9.00	18.48	Added DSI systems
HMPL MATS	1.00	0.28	Net of HMPL share

6

7

8 **Witness)** Robert W. Berry

9



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1 **Item 22) *Refer to the Company's response to AG 1-67.***

2

3

**a. *Please describe how the Company will reflect the  
retirement of the Wilson scrubber in the ECR. Address  
each of the following components:***

4

5

**i. *gross plant,***

6

7

**ii. *accumulated depreciation,***

8

**iii. *net salvage, and***

9

**iv. *changes in operating costs.***

10

**b. *Does the Company's estimate of capital expenditures for  
the Wilson scrubber include any costs to remove the  
existing scrubber? If not, then where are the removal  
costs reflected in the Company's financial models used to  
evaluate the various scenarios?***

11

12

13

14

**c. *Please provide the Company's estimate of costs to remove  
the existing scrubber.***

15

16

**d. *Please describe how the Company plans to track the costs  
to remove the existing scrubber to ensure that the costs are  
not included in the ECR?***

17

18

19

**e. *Please describe how the Company plans to recover the net  
book value and the costs to remove the existing scrubber.***

20

21

22



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1 **Response)**

2 a. The Company will reflect the retirement of the Wilson scrubber  
3 in the ECR as follows:

4 i. Only to the extent that the partial retirement of the  
5 existing Wilson scrubber causes the (gross) plant-in-  
6 service balance for non-ECP long-life environmental  
7 assets (Accounts 312 A-K) to fall below the October 31,  
8 2010 (test-year-end for PSC Case No. 2011-00036) level,  
9 then gross plant will reduce depreciation expense  
10 recovered under the ECR. Depreciation expense  
11 recovered through the ECR will be decreased by a  
12 depreciation adjustment calculated by applying the  
13 "Accounts 312 A-K" depreciation rate to the lower of: (x)  
14 the reduction in non-ECP plant-in-service below the  
15 October 31, 2010 level (resulting from the partial  
16 retirement of the existing Wilson scrubber); or (y) the  
17 gross plant balance of the existing Wilson scrubber assets  
18 being retired included in the October 31, 2010 plant-in-  
19 service balance. This approach ensures that the amount  
20 of depreciation expense recovered from ratepayers  
21 through base rates does not exceed the Commission-  
22 approved amount.

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- 1                   ii.    Accumulated depreciation reoved upon partial retirement  
2                   of the existing Wilson scrubber will have no effect on the  
3                   ECR.
- 4                   iii.   Net salvage upon partial retirement of the existing  
5                   Wilson scrubber will have no effect on the ECR.
- 6                   iv.    The ECR will only include actual variable operating costs  
7                   associated with the new scrubber.
- 8                   b.    The estimated capital expenditures included in the financial  
9                   model do not include removal costs or salvage value. The  
10                  assumption for modeling purposes is that any cost of removal  
11                  would be offset by salvage value. In addition, the design of the  
12                  new Wilson scrubber included in the ECP will allow the partial  
13                  retirement of the existing Wilson scrubber to occur without  
14                  requiring removal. Other than cash flow, including removal  
15                  costs or salvage value would have no other effect on the financial  
16                  model because these expenditures would simply be included in  
17                  the loss on retirement and recorded in the accumulated  
18                  depreciation reserve account.
- 19                  c.    Big Rivers does not have an estimate of removal costs or salvage  
20                  value for the partial retirement of the existing Wilson scrubber.
- 21                  d.    In the event that the partial retirement of the existing Wilson  
22                  scrubber is removed along with the installation of the new

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1 Wilson scrubber, Big Rivers would track removal cost and  
2 salvage value for that portion of the construction project under  
3 separate tasks (subaccounts). If a capital asset is removed when  
4 retired, then amounts accumulated under the removal task and  
5 the salvage value task are included in the calculation of gain or  
6 loss on retirement of the asset and ultimately recorded in the  
7 accumulated depreciation reserve account. Accordingly, net  
8 salvage, whether positive or negative, will not affect the ECR.  
9 e. Big Rivers continues to retire assets that are not fully  
10 depreciated, and the partial retirement of the existing Wilson  
11 scrubber will be no exception. The loss from these retirements  
12 builds in the accumulated depreciation reserve account and in  
13 theory will affect Big Rivers' depreciation rates in its next  
14 depreciation study. Higher depreciation rates due to a history of  
15 retiring capital assets at a loss will be the means by which Big  
16 Rivers eventually recovers the cost of the partial retirement of  
17 the existing Wilson scrubber.

18  
19

20 **Witness)** Mark A. Hite



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1 **Item 23)** *Refer to the Company's response to AG 1-70. Please confirm*  
2 *that the Company's capital expenditure estimate in this proceeding is net*  
3 *of HMP&L's share of the costs to retrofit HMP&L Units 1 & 2. Please*  
4 *describe where the Company has reflected this reduction in the Excel*  
5 *financial models of each of the scenarios.*

6

7 **Response)** Confirmed. Big Rivers' capital expenditures of \$283.49 are net of  
8 HMP&L's share of the costs to retrofit HMP&L Units 1 & 2. Capital expenditures  
9 were entered on the ECP tab of the financial model files net of HMP&L's share.

10

11

12 **Witness)** Mark A. Hite

13



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1 **Item 24) Refer to the last paragraph of the Company's response to KIUC**  
2 **1-33, which states that "it was obvious that there were some significant**  
3 **differences between the two projections."**

4  
5 **b. Please provide a detailed description of the concern and**  
6 **why the Big Rivers believed it was necessary to acquire a**  
7 **third set of forward power prices from IHS Global.**

8 **c. Please describe each of the steps taken by Big Rivers**  
9 **and/or its advisors to address the "significant differences"**  
10 **between the two projections.**

11 **d. Please describe the resolution of this review and how this**  
12 **was reflected in the scenarios presented in this**  
13 **proceeding.**

14 **e. Please identify, describe, and provide a copy of each**  
15 **sensitivity study using the APM or HIS forward price**  
16 **curves. Provide all supporting input files and output**  
17 **reports as well as the CFM workbooks. In addition, please**  
18 **describe what attempts were made to ensure that the**  
19 **forward power prices and natural gas prices used in each**  
20 **sensitivity were consistent and provide a copy of all**  
21 **documentation that addresses the consistency of these**  
22 **assumptions.**

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1 **Response)**

- 2 a. Big Rivers was not concerned about the forward price curves.  
3 Big Rivers obtained a third set of forward price curves in an  
4 attempt to be as accurate and thorough as possible.
- 5 b. Big Rivers utilized both the Pace pricing (highest forecast) and  
6 the APM pricing (lowest forecast) to evaluate the lowest cost  
7 option and in both cases installing the control equipment had  
8 the least impact to member rates.
- 9 c. Please see the response to part b, above.
- 10 d. Copies of all sensitivity runs inputs and output files and any  
11 emailed instructions have been provided previously. Specifically  
12 the APM production cost model output files that utilized the  
13 APM energy price forecasts were:
- 14 i. Big Rivers.15Year.CSAPR By  
15 Equip.NoSmelters.CurrentPrices
- 16 ii. Big Rivers.15Year.CSAPR By  
17 Equip.NoWilsonColemanSmelters.CurrentPrices
- 18 iii. Big Rivers.15Year.CSAPR By  
19 Equip.NoWilsonColemanSmelters.CurrentPrices.2014start
- 20 iv. Big Rivers.15Year.CSAPR By  
21 Gen.NoWilsonColemanSmelters.CurrentPrices.2014start



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- 1                   v.    Big Rivers.15Year.CSAPR By
- 2                               Equip.NoWilson.NoAlcan.CurrentPrices
- 3                   vi.    Big Rivers.15Year.CSAPR By
- 4                               Equip.NoColeman.NoCentury.CurrentPrices
- 5                   vii.   Big Rivers.15Year.CSAPR By
- 6                               Equip.NoColeman.NoCentury.CurrentPrices.2014start
- 7                   viii.   Big Rivers.15Year.CSAPR By
- 8                               Gen.NoColemanCentury.CurrentPrices.2014start
- 9                   ix.    Big Rivers.15Year.CSAPR By
- 10                              Gen.NoWilsonCentury.CurrentPrices.2014start
- 11                   x.    Big Rivers.15Year.CSAPR By
- 12                              Gen.NoColemanCentury.CurrentPrices.2014start.VarLimit
- 13                   xi.    Big Rivers.15Year.CSAPR By
- 14                              Equip.LowerGreenNOx.CurrentPrices
- 15                   xii.   Big Rivers.15Year.CSAPR by Gen.VarLimit.CurrentPrices

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19

**Witness)   Robert W. Berry**



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1 **Item 25)** *With regard to Big Rivers' response to AG 1-46, please provide*  
2 *all analyses, including electronic spreadsheets with formulas intact and*  
3 *supporting workpapers, included in the February 21, 2012 "Big Rivers*  
4 *Environmental Surcharge (ES) Rate Formula" presentation to the Big*  
5 *Rivers' Board and the "Environmental Surcharge (ES) Update – Rate*  
6 *Formula" presentation of March 16, 2012.*

7

8 **Response)** Please see the attached file "CSAPR & MATS Rate Impact rev (02-  
9 14-12) ES Allocation Scenarios.xlsx", which is the supporting Excel file for the  
10 February 21, 2012, "Big Rivers Environmental Surcharge (ES) Rate Formula"  
11 presentation made to Big Rivers' Board, and the attached file "Rate Comparison  
12 2016.xlsx", which is the supporting Excel file for the "Environmental Surcharge  
13 (ES) Update – Rate Formula" presentation of March 16, 2012.

14

15

16 **Witness)** Mark A. Hite and  
17 John Wolfram

18



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1 **Item 26) *Regarding data found in the file - PACE\_Big Rivers Data***  
2 ***Request Inputs\_120524.xlsx***

3

4 ***a. Is it correct, that this is one of just two files that PACE***  
5 ***developed and was produced based on a KIUC request (the***  
6 ***other being PACE\_Big Rivers Data Request***  
7 ***Outputs\_120524.xlsx)?***

8 ***b. The file contains natural gas prices, coal prices, load***  
9 ***forecast, CO2 costs, and Capital Cost Recovery Target***  
10 ***Inputs for New Regional Expansion units. For all of these***  
11 ***categories of data, PACE supplied 200 sets of data (200***  
12 ***iterations). Please provide a detailed explanation of the***  
13 ***process, methodology, and assumptions used by PACE in***  
14 ***creating the 200 iterations worth of data for each of these***  
15 ***categories of data. Be sure to explain what was done to***  
16 ***create this large number of iterations.***

17 ***c. How has the 200 iterations of data factored into any***  
18 ***analyses that were discussed in any of Big Rivers'***  
19 ***witnesses testimony?***

20 ***d. Please provide the revenue requirements model that led to***  
21 ***the calculation of the Capital Cost Recovery Target Inputs***

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1                    *for New Regional Expansion for each resource CC, CT and*  
2                    *Wind.*

3                    e.   *Why did PACE supply coal prices for only the Illinois*  
4                    *Basin region, when its market price analysis clearly must*  
5                    *have included a forecast of coal prices in other regions?*

6

7   **Response)**

8

a.   Yes.

9

b.   Please see the attachment entitled Pace Global Processes  
10                    Methods and Assumptions which is being submitted with a  
11                    Petition for Confidential Treatment.

12

c.   Pace used the 200 iterations to calibrate its hourly reference  
13                    case prices. The Pace reference case was used as input to some  
14                    of the production cost models run by ACES and financial model  
15                    runs performed by Big Rivers.

16

d.   Pace first develops capital cost inputs on a dollar per kW basis  
17                    by technology based on its review of actual project developments  
18                    and data in the public domain, including expert input from its  
19                    engineering staff. These estimates are developed into  
20                    uncertainty bands as discussed in sub-part b. above. Pace then  
21                    deploys a proprietary financial pro forma model to convert these

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**Response to KIUC 2-26**

**Witnesses: Patrick N. Augustine (a., b., d., and e.) and  
Robert W. Berry (c.)**

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1 capital costs to the cost recovery target inputs provided. This  
2 model assumes a 20-year recovery time period, a 50:50 debt to  
3 equity ratio, with a 15 percent required return on equity and an  
4 8.25 percent interest rate on debt over the long term. Wind  
5 technology costs are evaluated in the context of appropriate tax  
6 depreciation schedule benefits and other incentives like the  
7 federal production tax credit.  
8 e. Pace provided detailed Illinois Basin coal price inputs as this  
9 coal price is most relevant to the region of interest. Pace's  
10 supplemental data request file includes basin level input  
11 distributions for Central Appalachian ("CAPP"), Northern  
12 Appalachian ("NAPP"), and Powder River Basin ("PRB") coals,  
13 which are also used in the wider market dispatch analysis.  
14 Please see the attachment entitled Coal Price Projections which  
15 is being submitted with a Petition for Confidential Treatment  
16  
17

18 **Witnesses)** Patrick N. Augustine (a., b., d., and e.) and  
19 Robert W. Berry (c.)  
20





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1 **Item 27) *Regarding the Reference data found in the file - PACE\_Big***  
2 ***Rivers Data Request Inputs\_120524.xlsx***

- 3
- 4 **a. *Please provide documentation describing the process,***  
5 ***methodology and assumptions used by PACE in***  
6 ***developing the Reference natural gas price inputs that***  
7 ***were then used by ACES in its modeling that led to the***  
8 ***results filed in any Big Rivers witness' testimony.***
- 9 **b. *Provide the same information for the Reference Illinois***  
10 ***Basin coal prices.***
- 11 **c. *Provide the same information for the Reference Capital***  
12 ***Cost Recovery Target inputs.***
- 13 **d. *Provide the same information for the Reference CO2***  
14 ***prices. Also, please confirm that these CO2 inputs were***  
15 ***not used in any analysis that ACES performed to develop***  
16 ***results that were included in its modeling that led to the***  
17 ***results filed in any Big Rivers witness' testimony.***

18

19 **Response)**

20 

21 

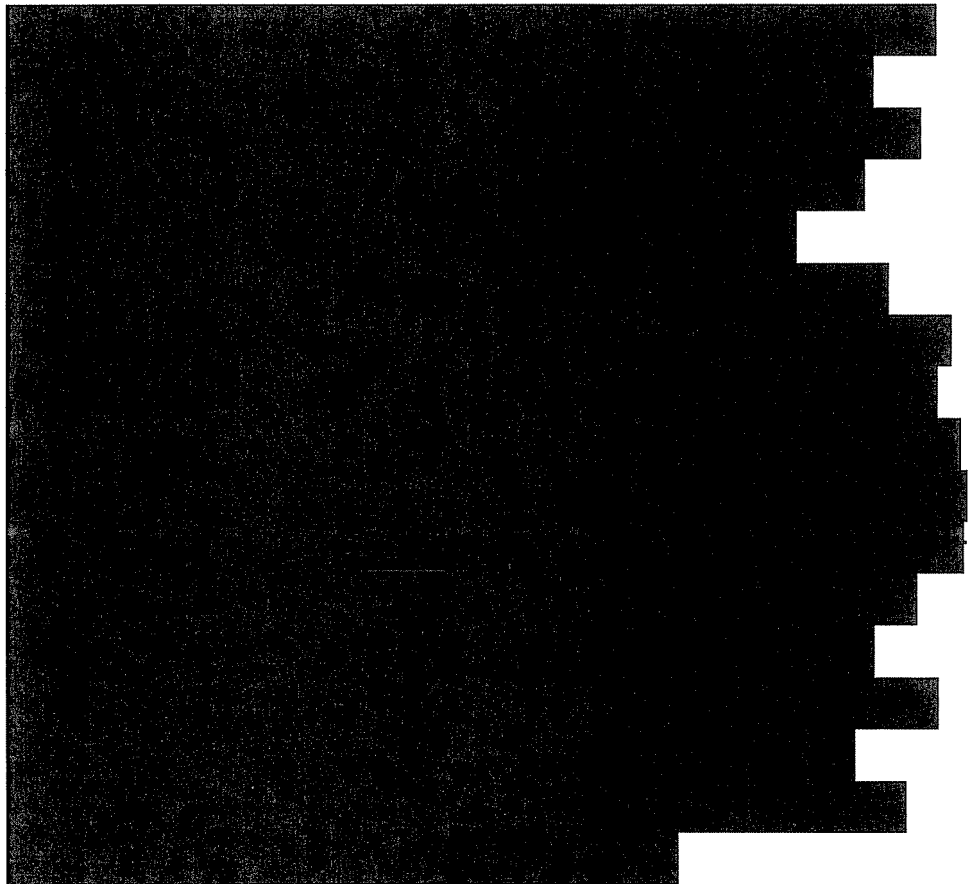
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b. Pace forecasts coal commodity prices for the major coal supply regions in the United States. The Illinois Basin (“ILB”) covers much of Illinois, western Indiana and western Kentucky. Coal from this region is bituminous with high heat content and

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1 generally high sulfur content as well. Pace forecasts a  
2 representative ILB coal commodity with a heat content of 11,300  
3 Btu/lb and a sulfur content of 5 lbSO<sub>2</sub>/MMBtu. Pace  
4 methodology to forecast coal prices leverages market forwards in  
5 the near term and our proprietary mine costing model to project  
6 the cost to mine from representative regions longer term. In the  
7 ILB, mining costs are expected to remain relatively flat,  
8 increasing only slightly in real terms over the forecast period.  
9 Productivity gains are expected to offset higher mining costs  
10 associated with deeper seams. Demand for ILB coal is expected  
11 to increase slightly from both domestic and export markets.  
12 Domestic demand is expected to come from plants retrofitted  
13 with pollution control equipment that can use the higher sulfur  
14 coals and remain within emission tolerance limitations and  
15 Asian demand has and is expected to continue to drive demand  
16 for these coals exported out of the Gulf region. In November  
17 2011, the market forward prices for ILB coals with these specs  
18 were reported slightly under the \$50/ton level.  
19 c. In evaluating potential capacity additions for meeting future  
20 demand requirements, Pace assessed several generation  
21 technologies' maturity levels and operating histories. Based on

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1 Pace's review of available generation technologies and review of  
2 other public sources for capital cost data, estimates for new  
3 technology costs were developed.

4 Pace's estimates have taken recent trends in commodity  
5 price inputs into account. Pace has projected trends in  
6 technology, materials, and labor costs in order to value capital  
7 costs for new entry over time.

8 In assessing the economics of new technology additions over  
9 the course of the study period, Pace considers revenues from the  
10 power markets against levelized recovery targets for new unit  
11 construction. The levelized recovery targets for each unit type  
12 are derived from capital cost estimates over time, fixed  
13 operating and maintenance costs, and financing assumptions.  
14 Pace assumes a 50:50 debt to equity ratio, with a 15 percent  
15 required return on equity and an 8.25 percent interest rate on  
16 debt. Renewable technologies are evaluated in the context of  
17 appropriate tax depreciation schedule benefits and other  
18 incentives like the federal production tax credit and investment  
19 tax credit.

20 d. Pace's CO<sub>2</sub> price projections are based on years of detailed  
21 tracking of all major climate change bills, the structure of

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1 regional cap & trade initiatives, and existing market based  
2 pollution control schemes established by EPA. Pace projects a  
3 national carbon price to become effective by 2018. At which  
4 point, Pace expects emissions from large power generators and  
5 the emissions from petroleum products, at minimum, to be  
6 regulated. Pace expects the use of market-based mechanisms to  
7 ensure emissions reductions via cap & trade and / or some form  
8 of a carbon fee or tax. Similar to existing international CO<sub>2</sub>  
9 programs (*e.g.*, European Emissions Trading System) and U.S.  
10 regional programs (California AB 32 and the Northeast's  
11 Regional Greenhouse Gas Initiative), Pace expects a federal U.S.  
12 program to have a declining cap (lower supply of allowances),  
13 which will place upward pressure on allowance prices as the  
14 program evolves. APM did not include CO<sub>2</sub> in its analysis,  
15 except to the extent it incorporated Pace's power price  
16 projections into certain of the PaR model runs.

17  
18  
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21

**Witnesses)** Patrick N. Augustine (*Pace*) and  
Brian J. Azman (*APM*)



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1 **Item 28) *Regarding data found in the file - PACE\_Big Rivers Data***  
2 ***Request Outputs\_120524.xlsx.***

3  
4 ***a. What are the hours included in the on-peak and off-peak***  
5 ***periods for each month?***

6 ***b. In the worktab Output Stochastic Energy Prices, there are***  
7 ***200 iterations worth of annual average on-peak, off-peak***  
8 ***and all hours market price data for each year between***  
9 ***2012 and 2030. Please provide a detailed explanation of***  
10 ***the process, methodology, and assumptions used by PACE***  
11 ***in creating the 200 iterations worth of data. Be sure to***  
12 ***explain what was done to create this large number of***  
13 ***iterations.***

14 ***c. How has the 200 iterations of market price data factored***  
15 ***into any analyses that were discussed in any of Big Rivers'***  
16 ***witnesses testimony?***

17 ***d. In that same worktab there is no reference case market***  
18 ***price data. Is that because the data found in the Output***  
19 ***Hourly Energy Prices worktab is the reference case?***  
20 ***Please explain.***

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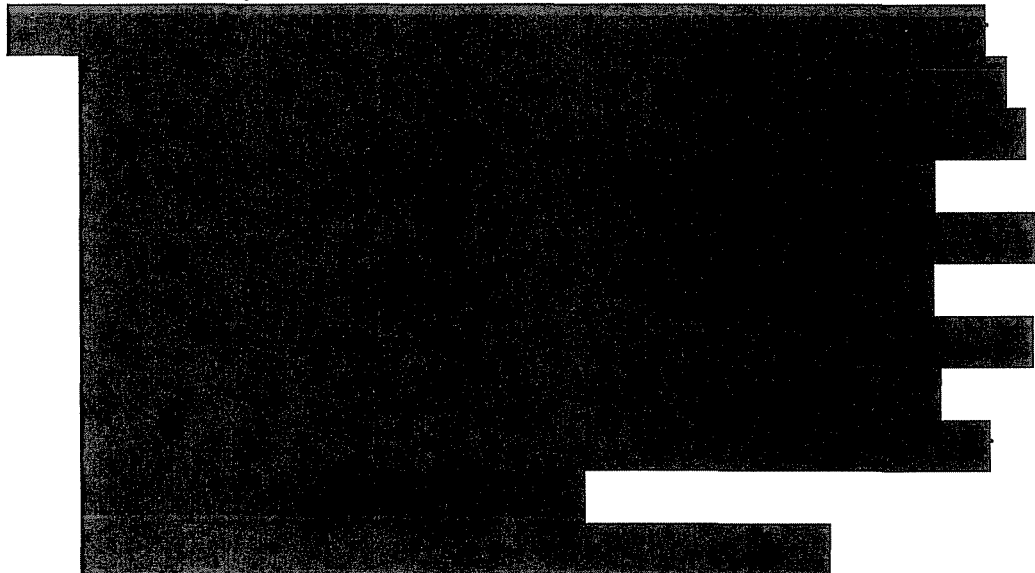
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1           e.   *Why weren't emissions allowance prices included in the*  
2                *files that PACE supplied?*

3   **Response)**

4           a.   Pace uses a standard 5 by 16 definition of on-peak hours in  
5                eastern US power markets as follows:

- 6                •   On-Peak: time between 0700 hours through 2300 hours
- 7                Monday through Friday
- 8                •   Off-peak: all other hours
- 9                •   Pace Global's definitions do not include exceptions for
- 10              holidays.



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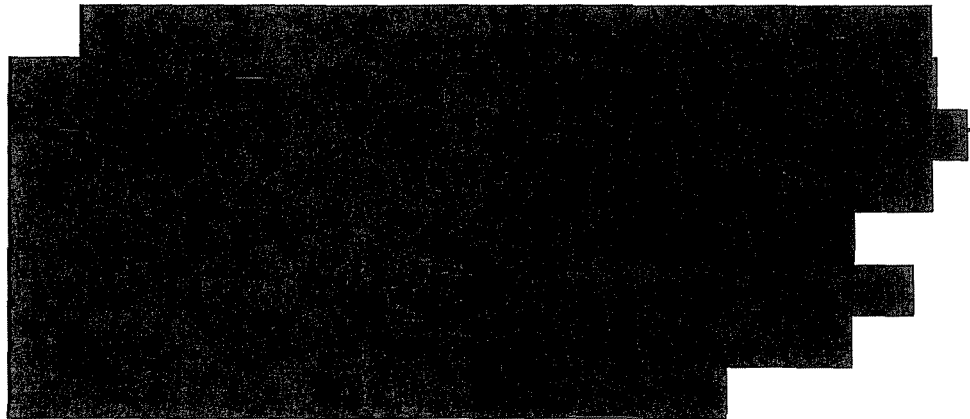
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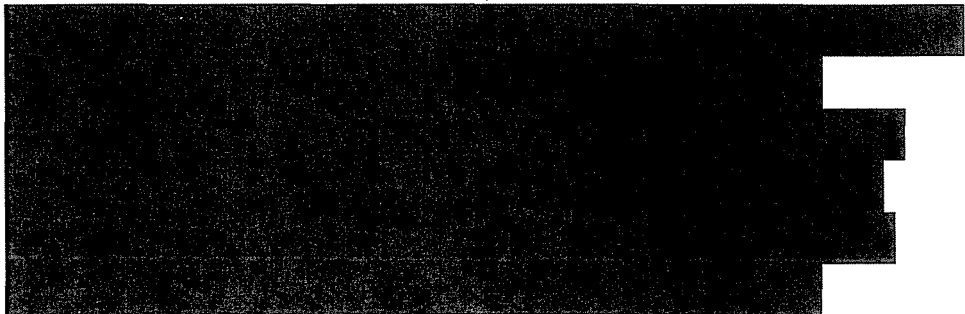
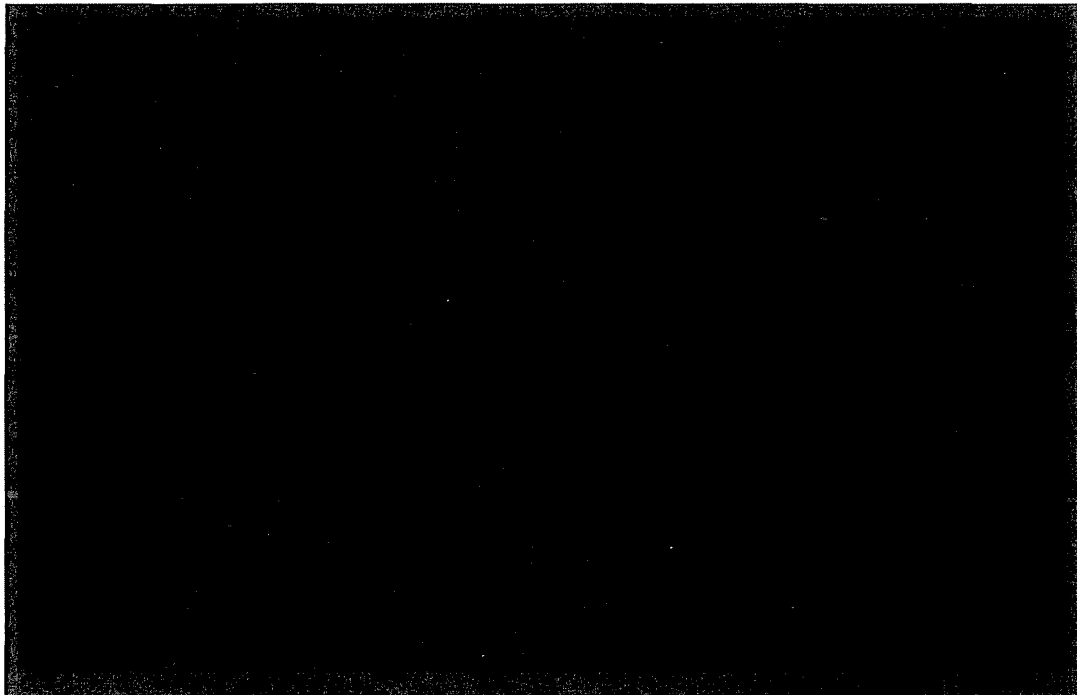
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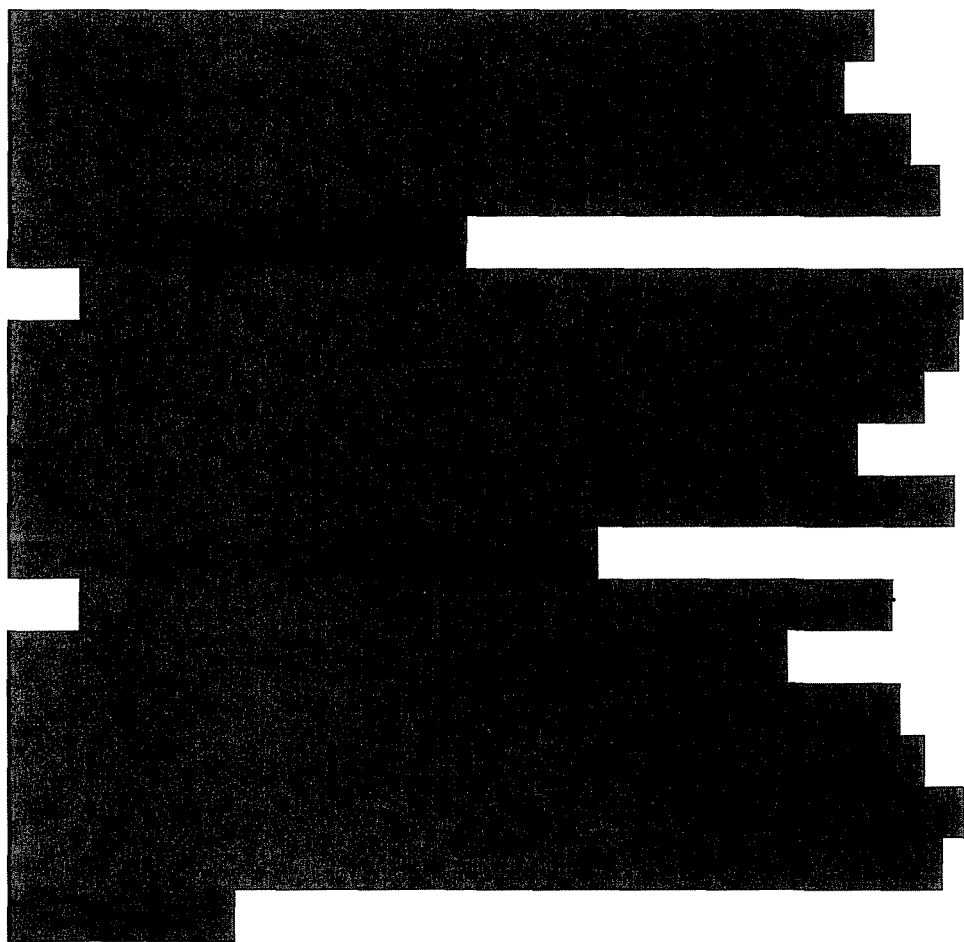
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c. Pace used the 200 iterations to calibrate its hourly reference case prices. The Pace reference case was used as input to some

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- 1 of the production cost models ran by APM and financial model  
2 runs performed by Big Rivers.
- 3 d. Yes. The reference case is provided in hourly detail in the  
4 “Output Hourly Energy Prices” tab. This case is additive to the  
5 200 iterations, but designed specifically to fit in the middle of  
6 the distribution of outputs developed with the stochastic  
7 methodology. Taking the average of each individual hourly  
8 price across 200 iterations would remove a significant amount of  
9 price volatility that is evident in the market, which is an  
10 undesirable outcome for further granular production cost  
11 modeling. Therefore, while incorporating a wide range of  
12 market uncertainties through the use of 200 iterations of data,  
13 Pace developed an hourly reference price profile to adapt as  
14 representative of the mean outcome of its distribution. This  
15 involves regular analyst interpretation and expert judgment and  
16 is a normal part of Pace’s process.
- 17 e. The 200 iterations of CO<sub>2</sub> prices were included by Pace in its  
18 “Inputs” file. Other input allowance prices were not treated  
19 stochastically, so the reference case projections were used across  
20 the analysis.  
21

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1 **Witnesses)** Patrick N. Augustine [ *Pace* (all)] and  
2 Robert W. Berry (c.)  
3



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1 **Item 29)** *Please provide documentation describing the process,*  
2 *methodology and assumptions and all worksheets developed in*  
3 *constructing the data assumptions (e.g. natural gas price forecasts,*  
4 *environmental cost assumptions, etc.) used by ACES in developing any*  
5 *sensitivity cases that it performed. In doing, please describe all sensitivity*  
6 *cases performed by ACES.*

7

8 **Response)** All generation inputs, including coal costs, were provided by Big  
9 Rivers. All emissions prices were provided by Pace.

10 For the planning model runs that used APM power market prices,  
11 APM uses a process that uses market prices for period that are liquidly traded  
12 (typically 2-5 years), a price forecast for the longer-term prices that is purchased  
13 from a third party, and a 24-month blending period between the 2 price sets.  
14 Market prices come from a collection of broker quotes (for power) and NYMEX (for  
15 natural gas). The source for the longer term price forecast is the Wood Mackenzie  
16 North America Power Service, updated November, 2011.

17 As part of its long-term price forecast, Wood Mackenzie goes through  
18 an analytical process of evaluating all coal generation versus upcoming  
19 environmental regulations. If a coal generator cannot currently meet the  
20 environmental regulations, an assessment is made on capital costs required to  
21 bring the facility into compliance. Generation costs (including capital cost  
22 recovery) are modeled versus future loads and fuel prices in an iterative process.

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1 During this process, generators now found to be uneconomic in meeting the future  
2 load forecasts are deemed retired.

3

4

5 **Witness)** Brian J. Azman

6

7





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1 **Item 30)** *In the 20 scenarios that ACES supplied, only 5 included an*  
2 *Assumptions folder. Please explain why 15 scenarios did not contain that*  
3 *folder, and if this was an oversight, please provide the missing folders.*

4

5 **Response)** The five sets of assumptions were repeated throughout the remaining  
6 15 scenarios. A mapping of the Assumptions and scenarios is provided in the  
7 attached table. Also note that APM supplied 23 scenarios (20 folders but 23  
8 scenarios).

9

10

11 **Witness)** Brian J. Azman

12

**Big Rivers Electric Corporation**  
**Case No. 2012-00063**  
**ACES Power Marketing Mapping of Assumptions and Scenarios**

Assumptions from these scenarios:	Also go with these scenarios:
Big Rivers.15Year.CAIR Base Case	None
Big Rivers.15Year.CSAPR By Equip New [2/18/12]	Big Rivers.15Year.CSAPR By Equip.NoSmelters.CurrentPrices [2/26/12] Big Rivers.15Year.CSAPR By Equip.NoWilsonColemanSmelters.CurrentPrices [3/19/12] Big Rivers.15Year.CSAPR By Equip.NoWilsonColemanSmelters.CurrentPrices.2014start [4/4/12] Big Rivers.15Year.CSAPR By Equip.NoWilson.NoAlcan.CurrentPrices [4/5/12] Big Rivers.15Year.CSAPR By Equip.NoColeman.NoCentury.CurrentPrices [3/19/12] Big Rivers.15Year.CSAPR By Equip.NoColeman.NoCentury.CurrentPrices.2014start [4/4/12] Big Rivers.15Year.CSAPR By Equip.LowerGreenNOx.CurrentPrices [5/8/12]
Big Rivers.15Year.CSAPR By Equip.LowerGreenNOx [2/10/12]	Big Rivers.15Year.CSAPR By Equip [2/9/12] Big Rivers.15Year.CSAPR By Equip.NoSmelters [2/14/12]
Big Rivers.15Year.CSAPR by Gen.Colemanout [2/8/12]	Big Rivers.15Year.CSAPR by Gen.VarLimit [2/22/12] Big Rivers.15Year.CSAPR By Gen.VarLimits Big Rivers.15Year.CSAPR By Gen.NoSmelters [2/15/12] Big Rivers.15Year.CSAPR By Gen.VarLimits NoSmelters Big Rivers.15Year.CSAPR By Gen.NoWilsonColemanSmelters.CurrentPrices.2014start [4/14/12] Big Rivers.15Year.CSAPR By Gen.NoColemanCentury.CurrentPrices.2014start [5/4/12] Big Rivers.15Year.CSAPR By Gen.NoWilsonCentury.CurrentPrices.2014start [5/4/12] Big Rivers.15Year.CSAPR By Gen.NoColemanCentury.CurrentPrices.2014start.VarLimit [5/14/12]

**Big Rivers Electric Corporation**  
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**ACES Power Marketing Mapping of Assumptions and Scenarios**

<b>The following assumption file contains APM power prices:</b>	<b>and is applied to these scenarios:</b>
Big Rivers.15Year.CSAPR By Gen.VarLimits NoSmelters	Big Rivers.15Year.CSAPR By Equip.NoSmelters.CurrentPrices [2/26/12] Big Rivers.15Year.CSAPR By Equip.NoWilsonColemanSmelters.CurrentPrices [3/19/12] Big Rivers.15Year.CSAPR By Equip.NoWilsonColemanSmelters.CurrentPrices.2014start [4/4/12] Big Rivers.15Year.CSAPR By Gen.NoWilsonColemanSmelters.CurrentPrices.2014start [4/14/12] Big Rivers.15Year.CSAPR By Equip.NoWilson.NoAlcan.CurrentPrices [4/5/12] Big Rivers.15Year.CSAPR By Equip.NoColeman.NoCentury.CurrentPrices [3/19/12] Big Rivers.15Year.CSAPR By Equip.NoColeman.NoCentury.CurrentPrices.2014start [4/4/12] Big Rivers.15Year.CSAPR By Gen.NoColemanCentury.CurrentPrices.2014start [5/4/12] Big Rivers.15Year.CSAPR By Gen.NoWilsonCentury.CurrentPrices.2014start [5/4/12] Big Rivers.15Year.CSAPR By Gen.NoColemanCentury.CurrentPrices.2014start.VarLimit [5/14/12] Big Rivers.15Year.CSAPR By Equip.LowerGreenNOx.CurrentPrices [5/8/12]



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1 **Item 31)** *Was it the case that Big Rivers did not develop financial*  
2 *analyses/NPV analyses of all of the 20 cases that ACES performed? If not,*  
3 *why not, and if so please explain why Big Rivers has not supplied that*  
4 *information. If corporate financial analyses were developed for the*  
5 *sensitivity cases, please supply those, electronically, and in the same*  
6 *format as has been provided for the other financial models that the*  
7 *Company has supplied.*

8

9 **Response)** Yes. Big Rivers did not develop NPVRR models for all of the cases  
10 because the purpose of many of the cases prepared by ACES was to compare  
11 production cost outputs of various scenarios, not to compare the NPVRR of  
12 environmental compliance options for those scenarios. Additionally, some of the  
13 production cost modeling was somewhat iterative in nature; Big Rivers chose not  
14 to run production cost models through the financial model until it was satisfied  
15 that it had captured all needed assumptions and inputs in the model runs. Often  
16 when running production cost models, slight updates, modifications, and/or error  
17 corrections are made to the assumptions and/or inputs after the outputs are  
18 reviewed. This refining process is common when running models of this sort. All  
19 iterations of similar models were provided by APM.

20

21

22 **Witness)** Robert W. Berry



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1 **Item 32)** *If any additional cases have been performed by*  
2 *PACE/ACES/Big Rivers to date, that have not already been provided,*  
3 *please provide:*

- 4
- 5 *a. A narrative description of the case.*
  - 6 *b. Explain why the Company or its consultant has decided to*  
7 *continue developing new cases.*
  - 8 *c. Provide all spreadsheets, workpapers, analyses,*  
9 *production cost model input databases in native database*  
10 *format (fully populated database), output results, etc, to*  
11 *the same extent that the Company has supplied for*  
12 *previous cases it has provided.*

13

14 **Response)** No additional cases have been performed.

15

16

17 **Witness)** Robert W. Berry

18





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1 **Item 33)** *In the base case folder that ACES supplied containing*  
2 *Assumptions, there is a file containing what appears to be generic*  
3 *assumptions, List.xls. Please explain the purpose of the data included in*  
4 *the file. For example, that data includes startup data, forced outages,*  
5 *scheduled outages, etc, but no indication of any unit that the data applies*  
6 *to.*

7

8 **Response)** This file is a template file for generation inputs. This file was not the  
9 input source for any of the 23 cases.

10

11

12 **Witness)** Brian J. Azman

13



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1 **Item 34)** *Two files were supplied in the ACES folder related to the Base*  
2 *Case Assumptions, MidOffice Emission Curve 1-30-2012.xlsx and PCM (1-*  
3 *18-12) nominal.xlsx. Please explain in detail what was the information*  
4 *found in each of the files was used for in ACES analyses.*

5

6 **Response)** The file named "MidOffice..." is a copy of APM's forward emissions  
7 curves as of Jan-30-2012. As only Pace emissions curves were used in the  
8 production cost model runs, this data was not used. The Pace price curves were  
9 the modeling reference case.

10 The file(s) named "...PCM (1-18-12) nominal.xlsx" (there are 3 such  
11 files in this folder) contain Pace price data for emissions, power and fuels for real  
12 as well as nominal dollars. Only the nominal dollars curves were used for the  
13 APM and Big Rivers modeling.

14

15

16 **Witness)** Brian J. Azman

17



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1 **Item 35)** *Regarding the files, Load Shape Data.xlsx and Price Shape*  
2 *Data.xlsx, please explain how they were created and what they were used*  
3 *for. If they were used in the analysis that ACES performed, please supply*  
4 *any other workpapers, electronically, used in the creation of the files.*

5

6 **Response)** The referenced files are copies of Planning and Risk input data,  
7 extracted when APM expected that the Intervenors were going to create their own  
8 model inputs. Since that time, APM has worked with Ventyx/ABB to provide a  
9 complete copy of the Big Rivers' Planning and Risk database. The Big Rivers'  
10 Planning and Risk database includes the data in the referenced files. This data  
11 was used to shape monthly price and load forecasts into hourly prices/loads. They  
12 were created using historic price and load information which is provided on the  
13 CONFIDENTIAL USB accompanying these responses.

14

Regarding the attachments on the CONFIDENTIAL USB drive:

15

16

1. "BREC LoadAnalysis.xls" contains four years of load history for Big Rivers ("HourlyLoadData" tab). This history is "de-trended" to take out the effects of load growth, then converted to a "historical % of expected" load. These values are included in Planning and Risk and support the load shape calculations within the model. Again, all of this has been included in the extracted Big Rivers database provided to the KIUC.

17

18

19

20

21

22

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- 1                   2.   “PriceShaper.xls” takes historic CinHub (now referred to as  
2                                   “Indiana Hub”) information and calculates the price shape used  
3                                   in Planning and Risk, based on OnPeak / Off Peak time periods  
4                                   and hour of the day.

5  
6  
7  
8

**Witness)   Brian J. Azman**





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1 **Item 36)** *Refer to the response to KIUC-1-14. Please supply all*  
2 *workpapers that contains S&L's derivation of upgrade costs used in this*  
3 *study. Mr. DePriest indicates that costs were derived from other sources,*  
4 *and this request is that the input assumptions and calculations be*  
5 *provided electronically with all formulas included. If the workpapers*  
6 *have been supplied, please provide a map between where the upgrade costs*  
7 *have been developed and have been input into corporate financial model*  
8 *net present value analysis.*

9

10 **Response)** For the Wilson FGD, a detailed line-item cost estimate that  
11 originated from a similar template for a 670 MW bituminous coal-fired unit was  
12 modified for Wilson. Engineering judgment was used to replace costs shown in  
13 the original estimate so that the numbers were specific to the Wilson FGD. This  
14 estimate was provided electronically in an Excel file titled "Wilson FGD  
15 Estimate.xls". For the other cost estimates provided, past information was  
16 gathered from a similar project or study and escalated to 2011\$ according to the  
17 capital cost escalation rate shown in Table 1-1 of DePriest Exhibit-2, adjusted for  
18 unit size, averaged and adjusted based on engineering judgment to address  
19 retrofit complexity. Tables of the reference project input data in 2011\$ are  
20 attached.

21

22

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1 **Witness)** William DePriest

2

**Big Rivers Electric Corporation  
Case No. 2012-00063  
Project Input Data**

**SCR**

**\$/kw SCR Project Costs (2011\$)**

150-250MW SCR Installations 2001-2004			
Project 1	Project 2	Project 3	
\$232	\$309	\$205	

**Natural Gas Conversion**

**\$/kw Natrual Gas Conversion Project  
Costs (2011\$)**

100 & 450MW (nominal) Cost Estimates 2009-2011			
Project 1	Project 2	Project 3	
\$111.4	\$68.2	\$26.9	

**Big Rivers Electric Corporation  
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Project Input Data**

**CCR**

**\$/kw Remote SSC Project Cost Estimates (2011\$)**

1,200 – 300MW (nominal) Sites Cost Estimates 2011										
Project 1 (2 Unit)	Project 2 (2 Unit)	Project 3 (2 Unit)	Project 4 (2 Unit)	Project 5 (2 Unit)	Project 6 (2 Unit)	Project 7 (2 Unit)	Project 8 (2 Unit)	Project 9 (2 Unit)	Project 10 (2 Unit)	Project 11 (2 Unit)
\$23.33	\$46.67	\$50.00	\$46.11	\$47.26	\$21.43	\$51.74	\$28.28	\$18.14	\$32.07	\$41.83

**\$/ks Dewatering Bins Project Cost Estimates (2011\$)**

1,600 – 300MW (nominal) Sites Cost Estimates 2011										
Project 1 (2 Unit)	Project 2 (2 Unit)	Project 3 (2 Unit)	Project 4 (2 Unit)	Project 5 (2 Unit)	Project 6 (2 Unit)	Project 7 (2 Unit)	Project 8 (2 Unit)	Project 9 (2 Unit)	Project 10 (2 Unit)	Project 11 (2 Unit)
\$23.33	\$46.67	\$50.00	\$46.11	\$47.26	\$21.43	\$51.74	\$28.28	\$18.14	\$32.07	\$41.83

**Big Rivers Electric Corporation  
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Project Input Data**

**316b**

**Replacement WIP Screens Project Costs  
(2011\$ Million)**

2009 Cost Estimates for 1000-350MW(nom)			
Project 1	Project 2	Project 3	Project 4
2.50	3.70	3.76	4.89

**Traveling Screen w/ Fish Return Project  
Costs (2011\$ Million)**

2009 Cost Estimates for 1000-350MW(nom)			
Project 1	Project 2	Project 3	Project 4
3.81	5.73	5.62	7.20

**Cylindrical Wedgewire Screens Project  
Costs (2011\$ Million)**

2009 Cost Estimates for 1000-350MW(nom)			
Project 1	Project 2	Project 3	Project 4
5.15	6.57	5.94	9.98

**Big Rivers Electric Corporation  
Case No. 2012-00063  
Project Input Data**

**HMPL FGD Modifications**

**\$/1,000gpm Recycle Pump Costs (2011\$)**

34,000-129,000gpm Pump Cost Estimates 2005-2006			
Project 1	Project 2	Project 3	
\$4,997	\$5,394	\$5,883	

**Fan Tipping with Motor Replacement  
Project Costs (2011\$)**

250MW (nominal) Cost Estimates 2009			
Project 1			
\$111.4			

**Big Rivers Electric Corporation  
Case No. 2012-00063  
Project Input Data**

**Coleman Advanced Low NO<sub>x</sub> Burners**

**\$/kw Low NO<sub>x</sub> Burners Project Costs  
(2011\$)**

550MW (nominal) Cost Estimates 2011			
Project 1			
\$17.27			

**ACI**

**\$/kw ACI Project Costs (2011\$)**

500MW (nominal) Cost Estimates 2009			
Project 1			
\$5.36			





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1 **Item 37)** *Refer to the response to KIUC-1-24. Has the excel spreadsheet*  
2 *referred to in Mr. Miller's May 18, 2012 email been supplied. If so please*  
3 *state the name and where it may be found, if not, please supply the*  
4 *spreadsheet any referenced spreadsheets in excel format, with all*  
5 *formulas active.*

6

7 **Response)** Sargent & Lundy LLC's economic model can be found in the Excel file  
8 named "Capital & O&M.xls" which is contained on the flash drive Big Rivers filed  
9 confidentially on June 14, 2012.

10

11

12 **Witness)** William DePriest

13



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- 1 **Item 38)** *Refer to the response to KIUC-1-25.*  
2  
3 *a. Please explain in additional detail why the ACES model*  
4 *(Planning Model) does a better job reflecting market*  
5 *interaction between dispatching generating units versus*  
6 *buying power from the market?*  
7 *b. What did ACES mean by "creating a least cost solution".*  
8 *Does that mean least cost in the sense of creating an*  
9 *expansion plan, or a least cost dispatch/commitment*  
10 *process which interacts with a market price profile?*  
11 *c. The response indicates that the ACES model has the*  
12 *ability to run to show risks in cost-to-serve. What that*  
13 *capability used in any analyses presented in testimony in*  
14 *this case. If so, please explain how, and if not please*  
15 *explain why not.*

16  
17 **Response)**

- 18 a. Traditional "production cost models" dispatch generating  
19 resources in economic merit order to meet load obligations.  
20 These models often attempt to model energy markets (purchases  
21 and sales) as generating resources for which the production cost  
22 is a market price. This form of traditional production cost

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1 modeling does not take into account market interaction as it  
2 operates within the framework of a wholesale energy market  
3 operated by an RTO or ISO.

4 The ACES Power Marketing ("APM") Planning and Risk  
5 ("PaR") model, on the other hand, is designed to take into  
6 account market interactions as they function within the  
7 framework of a wholesale energy market operated by an RTO or  
8 ISO. In this way, the APM PaR model is superior to a  
9 traditional production cost model for Big Rivers, which sells all  
10 of its generation into the Midwest Independent Transmission  
11 System Operator, Inc. ("MISO") market and purchases energy  
12 from the MISO market to meet all of its load obligations.

13 b. This refers to a least cost dispatch / commitment process which  
14 interacts with a market price profile.

15 c. The primary goal of the modeling was to compare costs over a  
16 15-year period. As such, risk was not included in the  
17 deterministic model runs that APM performed.

18

19

20 **Witness)** Brian J. Azman

21



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1 Item 39) *Refer to the response to KIUC-1-32. Was any analysis*  
2 *performed by Big Rivers or any of its consultants to determine whether the*  
3 *production cost results produced in the current studies were consistent*  
4 *with results developed in the most recent IRP published in 2010? If not,*  
5 *please explain why not, if so, please discuss the findings of that review,*  
6 *and supply any written documentation of that process or consideration of*  
7 *that process.*

8

9 **Response)** No. The Integrated Resource Plan (“IRP”) and the current studies  
10 have different objectives; the purpose of the IRP is to select the mix of existing and  
11 new supply-side resources that most economically positions the utility to meet its  
12 forecasted long-term load plus reserve margin. The current studies incorporate  
13 hourly production cost runs with market interaction for existing generating  
14 resources. Additionally, the assumptions regarding numerous modeling factors –  
15 including maintenance schedules, fuel prices, energy market prices, and emission  
16 requirements – have changed since mid-2010 when the IRP was developed.

17

18

19 **Witness)** Robert W. Berry

20



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1 **Item 40)** *Refer to the response to KIUC-1-33.*

2

3 *a. What did Big Rivers mean when it said "analyses of the*  
4 *same size and scope"?*

5 *b. Is that the explanation why it was reasonable for PACE to*  
6 *have included CO2 costs in its analysis while ACES did*  
7 *not include CO2 costs in its analysis?*

8

9 **Response)**

10 a. The intent of the phrase "analyses of the same size and scope" was  
11 to note that Big Rivers engaged Pace Global ("Pace") to use its  
12 stochastic model to provide forward pricing for coal, natural gas,  
13 energy, and emission allowances while engaging APM to perform  
14 the Production Cost Modeling associated with this filing and to  
15 provide an alternative energy price forecast. Therefore the scope  
16 of each entity was distinct and different.

17 b. No.

18

19

20 **Witness)** Robert W. Berry

21





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- 1   Item 41)    *In the work that PACE performed,*  
2  
3            a.    *Please provide a detailed explanation of how coal*  
4                    *retirements were determined in the MISO market, and*  
5                    *please supply any workpapers or documents of any type*  
6                    *that were developed analyzing the coal retirement issue in*  
7                    *MISO.*  
8            b.    *Please explain how environmental regulations were*  
9                    *incorporated in the analysis PACE performed, and supply*  
10                    *any workpapers or documents of any type that were*  
11                    *developed analyzing the environmental regulations, and*  
12                    *how those regulations should be incorporated in the*  
13                    *modeling that PACE performed.*  
14            c.    *Please discuss the findings of how coal retirements and*  
15                    *environmental regulations factored into the analysis that*  
16                    *PACE conducted, and how those impacted the market*  
17                    *price results that PACE produced.*  
18  
19   Response)  
20            a.    As Pace's analysis included a plant-by-plant dispatch  
21                    simulation, coal retirement projections were explicitly  
22                    considered. Please see the document entitled "Cumulative

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1 MISO Coal Retirements” which is submitted with a Petition for  
2 Confidential Treatment. Pace first incorporates plant  
3 retirement announcements as announced to the public and  
4 through commercial datasets. Pace also incorporates the  
5 dynamic simulation of generic retirements in the market by  
6 assessing the economic performance of classes of coal units  
7 across the MISO and PJM footprints that were modeled in detail  
8 through our AURORAxmp dispatch system. This is done  
9 through proprietary additions to the AURORAxmp system that  
10 track coal plant economic performance in the competitive power  
11 markets as follows:

12 Gross margins for the plant are calculated by subtracting  
13 fuel, variable operations and maintenance costs, and emissions  
14 costs from revenues achieved in the power market.

15 "Going forward" fixed costs include estimates of operations  
16 and maintenance costs and levelized capital recovery costs  
17 associated with high-level estimates of new capital that may be  
18 required according to our classification of plants based on age,  
19 efficiency, and existing emission controls.

20 When gross margins are lower than going forward costs for  
21 three straight years, our modeling system triggers a retirement  
22 along with replacement natural gas-fired capacity builds.

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- 1                   Total coal capacity retirements vary across iterations based  
2                   on fuel prices, emission costs, and other market factors.
- 3           b.     At the time Pace performed this analysis, we assumed that the  
4                   Cross State Air Pollution Rule (“CSAPR”) would be implemented  
5                   in January 2012, and regulate SO<sub>2</sub> and NO<sub>x</sub> emissions from  
6                   power plants located in participating states. For the analysis,  
7                   we assigned our emission forecast price to each generating unit  
8                   for every ton of SO<sub>2</sub> or NO<sub>x</sub> (annual NO<sub>x</sub> and seasonal NO<sub>x</sub>)  
9                   emitted. Our SO<sub>2</sub> and NO<sub>x</sub> forecasts were guided by a number  
10                  of factors including the United States Environmental Protection  
11                  Agency’s (“EPA”) CSAPR supporting technical documents,  
12                  CSAPR allowance caps, experience with other emissions trading  
13                  programs (CAIR specifically) and unit dispatch and emission  
14                  projections from our power model simulations.
- 15           c.     Pace’s power market projections are based on a fundamental  
16                   dispatch assessment of the integrated, competitive power  
17                   market. Variable costs of the marginal generator in the system  
18                   are the major driver of energy prices and explicitly include the  
19                   costs associated with expected emissions prices. The  
20                   AURORAxmp modeling system calculates the dollar per MWh  
21                   impact of emission prices for CO<sub>2</sub>, SO<sub>2</sub>, and NO<sub>x</sub> on plant  
22                   variable costs through accounting for plant-level emission rates,

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1 heat rates, and emission price projections. Higher emission  
2 allowance prices raise power prices. Relative dispatch between  
3 coal and natural gas plants can also be altered depending on the  
4 relative costs of fuel and emission prices in any given iteration.

5 Coal retirements remove capacity from the market and  
6 hence lower the effective reserve margin in the system. Lower  
7 reserve margins generally contribute to higher market power  
8 prices, although the variable costs of replacement capacity and  
9 the marginal units in the dispatch simulation dictate the  
10 clearing price in our fundamental analysis.

11

12 **Witness)** Patrick N. Augustine

13



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- 1 **Item 42)** *In the work that ACES performed developing market price*  
2 *forecasts,*  
3  
4 **a.** *Please provide a detailed explanation of how coal*  
5 *retirements were determined in the MISO market, and*  
6 *please supply any workpapers or documents of any type*  
7 *that were developed analyzing the coal retirement issue in*  
8 *MISO.*  
9 **b.** *As it relates to the market price forecasts that ACES*  
10 *created for any purpose associated with this study, please*  
11 *explain how environmental regulations were incorporated*  
12 *in the analysis, and supply any workpapers or documents*  
13 *of any type that were developed analyzing the*  
14 *environmental regulations, and how those regulations*  
15 *should be incorporated in the modeling that ACES*  
16 *performed.*  
17 **c.** *As it relates to the market price forecasts that ACES*  
18 *created for any purpose associated with this study, please*  
19 *discuss the findings of how coal retirements and*  
20 *environmental regulations factored into the analysis that*  
21 *ACES conducted, and how those impacted the market*  
22 *price results that ACES produced.*

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1  
2  
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8  
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**Response)**

a. through c.

APM did not perform any modeling to develop price forecasts.

Please see Big Rivers' response to Item 29 of these responses.

**Witness) Brian J. Azman**





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1 **Item 43)** *Refer to KIUC-1-34. Was anything other than nominal energy*  
2 *market prices from PACE Global used in the analysis that was presented*  
3 *in Mr. Hite's testimony. If so please explain how it was used, if not why*  
4 *not?*

5

6 **Response)** The only Pace prices that were used were the “nominal” prices. In  
7 addition, APM ran scenarios using the APM forward prices.

8

9

10 **Witnesses)** Mark A. Hite and

11 Brian J. Azman

12



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1 **Item 44) *In its June 1, 2012 filing of confidential material, Big Rivers***  
2 ***filed a draft document entitled "Load Concentration Analysis and***  
3 ***Mitigation Plan" dated May 2012 ("Draft Mitigation Plan"). In connection***  
4 ***with the Draft Mitigation Plan, please respond to the following:***

- 5
- 6 ***a. Who or what group within Big Rivers prepared or***  
7 ***participated in the preparation of the Draft Mitigation***  
8 ***Plan? Please state the names of those persons.***
- 9 ***b. Why is the Draft Mitigation Plan in draft form? Has the***  
10 ***Draft Mitigation Plan been reviewed or approved by the***  
11 ***Big Rivers Board of Directors? When does Big Rivers***  
12 ***expect to finalize the Draft Mitigation Plan?***
- 13 ***c. Please provide all prior drafts of the Draft Mitigation***  
14 ***Plan.***
- 15 ***d. When did work begin on the Draft Mitigation Plan and***  
16 ***when was the current draft completed?***
- 17 ***e. Did Big Rivers engage any consultant(s) to assist in***  
18 ***preparation of the Draft Mitigation Plan?***
- 19 ***f. Have any consultants reviewed the Draft Mitigation Plan***  
20 ***or given input to Big Rivers? If so, please identify all***  
21 ***consultants.***

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- 1           ***g. Please provide all internal emails regarding preparation***  
2           ***of the Draft Mitigation Plan since January 1, 2012.***
- 3           ***h. Please provide all documents and communications***  
4           ***between Big Rivers and third parties regarding***  
5           ***preparation of the Draft Mitigation Plan since January 1,***  
6           ***2012.***
- 7           ***i. To whom or to what third party has the Draft Mitigation***  
8           ***Plan been circulated outside Big Rivers (other than to the***  
9           ***Commission and Intervenors in this docket)?***

10  
11 **Response)**

- 12           **a. The Draft Mitigation Plan was developed internally by a team**  
13           **consisting of Lindsay Barron, Duane Braunecker, Chris Bradley,**  
14           **and Mike Mattox. Lindsay Barron is the current Managing**  
15           **Director of Energy Services, but was the Director of Strategic**  
16           **Planning and Risk Management at the time the plan was**  
17           **drafted. Duane Braunecker is the Manager of Production**  
18           **Services, Chris Bradley is the System Planning and Reliability**  
19           **Compliance Supervisor, and Mike Mattox is the Director**  
20           **Resources and Planning. The plan was reviewed and edited by**  
21           **Big Rivers' Internal Risk Management Committee which**  
22           **consists of Mark Bailey, Bob Berry, David Crockett, James**

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1 Haner, Mark Hite, Marty Littrel, Eric Robeson, and Albert  
2 Yockey.

- 3 b. The Draft Mitigation Plan has been in draft form because the  
4 analysis supporting this document is considered to be part of an  
5 ongoing process for the organization. Big Rivers remains fluid  
6 in its analysis of the implications of the loss of smelter load and  
7 will continue to refine its analysis as additional data and  
8 assumptions arise. The Plan was recently updated and is no  
9 longer considered a “draft”, but the document will be updated in  
10 the future, if needed. A copy of the current Load Concentration  
11 Analysis and Mitigation Plan is provided under a petition for  
12 confidential treatment and attached hereto. The Draft  
13 Mitigation Plan has been reviewed with the Board of Directors.
- 14 c. Please see the emails provided in part g below.
- 15 d. Work began on the Draft Mitigation Plan in August 2011. The  
16 current draft was completed in May 2012.
- 17 e. No.
- 18 f. The Draft Mitigation Plan was reviewed by John Wolfram and  
19 Marty Blake of The Prime Group LLC.
- 20 g. Please see attached documents which are attached hereto. Also,  
21 under a Petition for Confidential Treatment, Big Rivers is

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1 providing additional documents on the CONFIDENTIAL USB  
2 drive accompanying these responses.

3 h. Please see part g., above.

4 i. Big Rivers provided a copy of the Draft Mitigation Plan to  
5 CoBank in May 2012.

6

7

8 **Witness)** Robert W. Berry

9

---

**From:** Mark Hite  
**Sent:** Tuesday, June 26, 2012 10:28 AM  
**To:** Lindsay Barron  
**Subject:** FW: Smelter Mitigation Plan

Mark A. Hite, CPA  
VP Accounting & Interim CFO  
Big Rivers Electric Corporation  
201 Third St.  
Henderson, KY 42420  
270-827-2561 (corporate)  
270-844-6149 (office)  
270-577-6815 (mobile)  
[mhite@bigrivers.com](mailto:mhite@bigrivers.com)

---

**From:** Childs, Jeffrey [mailto:jchilds@cobank.com]  
**Sent:** Tuesday, May 22, 2012 11:36 AM  
**To:** Mark Hite  
**Subject:** Smelter Mitigation Plan

Mark,

Do you have a formal smelter mitigation plan in place (i.e. a document approved by the board that lists the plans Big Rivers would enact if a smelter gives the one year cancellation notice to Big Rivers)? If so, can I have a copy? At this point, unless you authorize me to do so, I don't plan to share this with others, but this would be very helpful in comforting your lenders.

Thanks,  
Jeff

**Jeffrey E. Childs | CoBank, ACB**  
Tel: (303) 740-4005 | Cell (303) 520-9351 | Fax (303) 224-2706

*Unless specifically stated, (i) this email does not create a legal relationship between CoBank, ACB, including its subsidiaries and affiliates (collectively "CoBank") and the recipient, and (ii) CoBank disclaims any liability for the content of this email or for the consequences of any actions taken on the basis of the information provided in this email or its attachments. This email is intended solely for the use of the intended recipient(s) and may contain information that is confidential, privileged or otherwise protected from disclosure. If you are not the intended recipient of this email, please notify the sender, and delete it from your system. In communicating via email with CoBank, you consent to the foregoing*



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**From:** Bob Berry  
**Sent:** Friday, May 25, 2012 11:46 AM  
**To:** Lindsay Barron  
**Subject:** Re: Load Concentration Analysis and Mitigation Plan (aka Tactical Smelter Mitigation Plan)

Lindsay I have no additional edits

On May 25, 2012, at 10:08 AM, "Lindsay Barron" <[Lindsay.Barron@bigrivers.com](mailto:Lindsay.Barron@bigrivers.com)> wrote:

> Bob,  
>  
> Can you confirm if you have any additional changes to the document?  
>  
> I have received Wolfram's edits and have incorporated them within. Note, I moved the high-level strategy section in front of the scenarios (as suggested by John).  
>  
> I need to forward this to Mark today.  
>  
> Thanks!!  
>  
> L ☺  
>  
> <Load Concentration Analysis and Mitigation Plan 5-22-2012 Draft.pdf>

---

**From:** Mark Bailey  
**Sent:** Tuesday, May 22, 2012 2:53 PM  
**To:** Lindsay Barron; Bob Berry; 'Jim Miller'  
**Cc:** Mark Hite; Albert Yockey  
**Subject:** RE: Smelter Mitigation Plan

I don't think the product is final yet. I'm not sure you have received feedback from all reviewers of the latest draft and incorporated the suggestions/comments. In addition, we should share the latest product with the Board before we send it out. Thanks, Mark

---

**From:** Lindsay Barron  
**Sent:** Tuesday, May 22, 2012 12:31 PM  
**To:** Mark Bailey; Bob Berry; 'Jim Miller'  
**Cc:** Mark Hite; Albert Yockey  
**Subject:** Smelter Mitigation Plan

Gentlemen,

Mark Hite has received a request from CoBank about our Smelter Mitigation Plan. He indicated that it was still in process. They would like a copy of the latest draft.

What are your thoughts about sharing?

Thanks!!

Lindsay☺

*Lindsay N. Barron, CPA  
Director Risk Management/Strategic Planning  
Big Rivers Electric Corporation  
PO Box 24  
Henderson, KY 42419  
270.844.6194 office  
270.993.1594 mobile*

---

**From:** Steve Thompson <SThompson@kenenergycorp.com>  
**Sent:** Friday, May 11, 2012 10:58 AM  
**To:** Lindsay Barron  
**Subject:** retail vs. wholesale rates

Responding to your voice mail, I will offer the following information.

Just call if you have more questions. 689-6139

Non-dedicated delivery point customers – 2012 budgeted number – difference between retail rate and wholesale rate -

.033196 per kwh sold

Smelters - .000054 per kwh

Other industrials - .001460 per kwh

---

**From:** Mark Bailey  
**Sent:** Tuesday, May 01, 2012 3:54 PM  
**To:** Lindsay Barron  
**Cc:** Duane Edward Braunecker; Michael Mattox; Chris Bradley; Bob Berry; Albert Yockey  
**Subject:** RE: Load Concentration Analysis and Mitigation Plan (Tactical Plan)

Lindsay, This is a very good beginning. I have made suggestions and asked a few questions including whether some additional scenarios should be run. I will give Bob Berry a hard copy of the document with my notes added and request that after he has reviewed it that he pass it on to you with or without anything he may wish to add. Thanks, Mark

---

**From:** Lindsay Barron  
**Sent:** Friday, April 27, 2012 5:33 PM  
**To:** Mark Bailey; Bob Berry  
**Cc:** Duane Edward Braunecker; Michael Mattox; Chris Bradley  
**Subject:** Load Concentration Analysis and Mitigation Plan (Tactical Plan)

Gentlemen,

Attached is the DRAFT Load Concentration Analysis and Mitigation Plan promised for delivery today.

I have laid a color copy on each of your desks.

**Many thanks to Duane, Mike and Chris for their efforts in getting this draft ready for delivery.**

Please let me know if you have any questions.

Thanks!!

*Lindsay N. Barron, CPA  
Director Risk Management/Strategic Planning  
Big Rivers Electric Corporation  
PO Box 24  
Henderson, KY 42419  
270.844.6194 office  
270.993.1594 mobile*

---

**From:** Mark Bailey  
**Sent:** Friday, April 20, 2012 1:18 PM  
**To:** Lindsay Barron  
**Subject:** RE: Smelter Mitigation Plan Presentation to Board - March 2012

Thanks Lindsay.....

---

**From:** Lindsay Barron  
**Sent:** Friday, April 20, 2012 1:17 PM  
**To:** Mark Bailey  
**Subject:** Smelter Mitigation Plan Presentation to Board - March 2012

Mark,

Let me know if you have any questions.

Thanks!!

L☺

*Lindsay N. Barron, CPA  
Director Risk Management/Strategic Planning  
Big Rivers Electric Corporation  
PO Box 24  
Henderson, KY 42419  
270.844.6194 office  
270.993.1594 mobile*

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**From:** Bob Berry  
**Sent:** Monday, February 13, 2012 9:20 PM  
**To:** Lindsay Barron  
**Subject:** RE: Smelter presentation

It looks like you will be giving this presentation. I would like to suggest we run a production cost model using the 2012 budget mean price forecast from ACES to determine a worst case scenario for the Smelter mitigation plan. Have you thought about how you want to present the tactical piece of the Smelter mitigation plan?

Bob

---

**From:** Lindsay Barron  
**Sent:** Thursday, February 09, 2012 2:58 PM  
**To:** Bob Berry  
**Subject:** Smelter presentation

Would you mind to follow up with Bailey to ascertain his preference on the smelter presentation to the board? Thanks!

*Lindsay N. Barron, CPA  
Director Risk Management/Strategic Planning  
Big Rivers Electric Corporation  
PO Box 24  
Henderson, KY 42419  
270.844.6194 office  
270.993.1594 mobile*

---

**From:** Chris Bradley  
**Sent:** Wednesday, February 08, 2012 9:22 AM  
**To:** Lindsay Barron; Michael Mattox  
**Cc:** Duane Edward Braunecker  
**Subject:** RE: Mitigation Plan

Lindsay,

I did not receive the attachment. However, I had no changes prior to Duane's edits.

Chris

---

**From:** Lindsay Barron  
**Sent:** Wednesday, February 08, 2012 8:53 AM  
**To:** Chris Bradley; Michael Mattox  
**Cc:** Duane Edward Braunecker  
**Subject:** Mitigation Plan

I've incorporated all of Duane's suggestions in the attached document. If neither of you have any additional changes, we need to send this out to the IRMC. Please let me know asap. Thanks!!

*Lindsay N. Barron, CPA  
Director Risk Management/Strategic Planning  
Big Rivers Electric Corporation  
PO Box 24  
Henderson, KY 42419  
270.844.6194 office  
270.993.1594 mobile*

---

**From:** Lindsay Barron  
**Sent:** Wednesday, February 08, 2012 8:53 AM  
**To:** Chris Bradley; Michael Mattox  
**Cc:** Duane Edward Braunecker  
**Subject:** Mitigation Plan

I've incorporated all of Duane's suggestions in the attached document. If neither of you have any additional changes, we need to send this out to the IRMC. Please let me know asap. Thanks!!

*Lindsay N. Barron, CPA  
Director Risk Management/Strategic Planning  
Big Rivers Electric Corporation  
PO Box 24  
Henderson, KY 42419  
270.844.6194 office  
270.993.1594 mobile*



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**From:** Lindsay Barron  
**Sent:** Wednesday, February 01, 2012 3:27 PM  
**To:** Barbara Harwood  
**Subject:** FW: Smelter Loss Mitigation Plan Conference Call-In information - THURSDAY 2/2 9AM-10AMCST

---

**From:** Lindsay Barron  
**Sent:** Wednesday, February 01, 2012 8:32 AM  
**To:** Jim Miller (jmiller@smsmlaw.com); cflyon@orrick.com  
**Subject:** Smelter Loss Mitigation Plan Conference Call-In information - THURSDAY 2/2 9AM-10AMCST

Gentlemen,

Below is the call-in information for the Smelter Mitigation Plan Call on Thursday. Thanks!!

Lindsay

---

**From:** Barbara Harwood  
**Sent:** Wednesday, February 01, 2012 8:24 AM  
**To:** Lindsay Barron  
**Subject:** Smelter Plan

Lindsay this is for the participants. Barbara

[barbara.harwood@bigrivers.com](mailto:barbara.harwood@bigrivers.com) has invited you to an Audio-only conference.

Starting Time: Feb 2, 2012 at 9:00 AM America/Chicago  
Duration: 2 hours

To join the conference:

- a. Dial +1-270-844-6250, +1-877-828-6691 or x6250 and enter access code 0164124, or
- b. To have the system call you, click here: <http://brmas.bigrivers.com/call/0164124>

Click either link below to add this meeting to your calendar:

<http://brmas.bigrivers.com/awcuser/cgi-bin/getcalfile.cgi?p=0164124.vcs>

<http://brmas.bigrivers.com/awcuser/cgi-bin/getcalfile.cgi?p=0164124.ics>

---

**From:** Lindsay Barron  
**Sent:** Thursday, January 19, 2012 9:55 AM  
**To:** Duane Edward Braunecker  
**Subject:** RE: smelter mitigation plan

No worries! We'll fill you in!

---

**From:** Duane Edward Braunecker  
**Sent:** Thursday, January 19, 2012 9:55 AM  
**To:** Lindsay Barron  
**Subject:** RE: smelter mitigation plan

Thanks – I really hate I cannot be there. Usually there are no problems with me staying late, but today I have an appointment that if I miss, well, let's just say things will not be very good at home!

---

**From:** Lindsay Barron  
**Sent:** Thursday, January 19, 2012 9:52 AM  
**To:** Duane Edward Braunecker  
**Subject:** RE: smelter mitigation plan

Muchos gracias!! ☺ We'll fill you in on the outcome of the discussion with Bill.

---

**From:** Duane Edward Braunecker  
**Sent:** Thursday, January 19, 2012 9:52 AM  
**To:** Lindsay Barron; Michael Mattox; Chris Bradley  
**Subject:** RE: smelter mitigation plan

Lindsay,

I made some changes/comments on the attached file.

Duane

---

**From:** Lindsay Barron  
**Sent:** Wednesday, January 18, 2012 10:35 PM  
**To:** Michael Mattox; Chris Bradley; Duane Edward Braunecker  
**Subject:** smelter mitigation plan

Here is the current draft.  
I've implemented Chris and Duane's updates, and inserted Mike's and my comments.

ALL COMMENTS ARE WELCOME AND APPRECIATED!!!

Bill plans to review the document from 3.30-4.00, then we'll meet with him at 4.

Thanks guys!

L:)



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1 **Item 45)** *On Page 4, Paragraph 3, the Draft Mitigation Plan states that*  
2 *Big Rivers used both the PACE Global price curve and a more conservative*  
3 *ACES forward price curve in its preparation. Please state whether both*  
4 *the PACE Global price curve and a more conservative ACES forward price*  
5 *curve were also used in the production cost modeling prepared by ACES*  
6 *and later included in the Big Rivers financial model? If the answer is Yes,*  
7 *please explain how this was done and provide which hourly data were*  
8 *used for the period of the modeling study. If the answer is No, please*  
9 *explain why Big Rivers chose to use only one price curve in the modeling*  
10 *and multiple price curves in preparing the Draft Mitigation Plan.*

11

12 **Response)** Each of the scenarios included in the Draft Mitigation Plan were  
13 based on an APM planning model and were modeled through Big Rivers' financial  
14 model. The assumptions used in each scenario are listed in the Plan. Scenarios 1  
15 and 2 from the Plan are the Build-No Smelter and Buy-No Smelter scenarios  
16 which were filed as sensitivities in Big Rivers' Environmental Compliance Plan  
17 ("ECP") filing. These two scenarios were prepared using the PACE Global price  
18 curve minus 7% (please see Item 70 of these responses for explanation of the 7%  
19 reduction). Scenarios 3 through 7, as shown in the Draft Mitigation Plan, were  
20 run as sensitivities using various assumptions on smelter operations, equipment  
21 investments, and generating strategies as documented in the ECP and shared in  
22 the models, data, and assumptions provided by Big Rivers in response to KIUC's

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1 motion to dismiss and in response to the May 11, 2012 letter from KIUC's counsel  
2 to Big Rivers' counsel (which are now also all contained on the flash drives Big  
3 Rivers has filed). Scenarios 3 through 7 were modeled with the APM forward  
4 price curve. Scenario 5 included the APM forward price curve with a 7% reduction  
5 (please see Item 70 of these responses for the explanation of the 7% reduction).  
6 Scenario 8 from the Draft Mitigation Plan was a fictitious case designed to  
7 determine a worst case ceiling of the potential impact the loss of smelter load  
8 could have on Big Rivers' operations and members. Scenario 8 assumed that Big  
9 Rivers was unable to sell power into the wholesale market, thus a forward price  
10 curve was irrelevant to this analysis.

11  
12  
13  
14

**Witness) Robert W. Berry**



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1 **Item 46)** *On Page 8, Paragraph 3, the Draft Mitigation Plan states that*  
2 *benchmarking data indicates Big Rivers' generation costs currently rank*  
3 *better than more than half of similar utilities. Please provide all data*  
4 *and documents supporting and demonstrating that statement. In your*  
5 *answer please include the names of all utilities in this statement,*  
6 *identifying those utilities that are "similar."*

7

8 **Response)** The statement made in the Draft Mitigation Plan should have read,  
9 "Benchmarking data indicates that Big Rivers' generation costs currently rank  
10 better than more than half of similar unit's costs, thus Big Rivers' should be able  
11 to market a significant amount of its excess power." This statement was based on  
12 benchmarking data which Big Rivers purchases from Navigant Consulting.  
13 Please see the chart, filed under a Petition for Confidential Treatment, which  
14 compares Big Rivers' O&M costs to the median cost of similar units.

15

16

17 **Witness)** Robert W. Berry

18





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1 **Item 47)** *On Page 8, following Paragraph 3, the Draft Mitigation Plan*  
2 *contains five bullets, the first indicating that to reduce market risks, Big*  
3 *Rivers will evaluate the option of executing forward bilateral sales with*  
4 *counterparties and wholesale sales agreements. Please provide the names*  
5 *of all perspective counterparties which Big Rivers has contacted*  
6 *regarding bilateral sales or wholesale sales agreements and the status of*  
7 *those discussions. Please state whether Big Rivers has entered into a*  
8 *confidentiality agreement with any such perspective counterparties. If so,*  
9 *please identify the counterparty and the status of those discussions.*

10

11 **Response)** Big Rivers' Draft Mitigation Plan was developed to serve as a road  
12 map to assist with decisions that will need to be made if Big Rivers receives notice  
13 from one or both smelters of their pending closure. The document was drafted to  
14 outline options that may be available to Big Rivers to mitigate the loss of smelter  
15 load. Big Rivers has not received notice of closure from either of the smelters, and  
16 thus has not begun contacting prospective counterparties regarding bilateral  
17 sales, long-term wholesale agreements, existing load expansion, or attracting new  
18 members that would be options if one or both smelters ceased operations.

19

20

21 **Witness)** Robert W. Berry



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1 **Item 48)** *On Page 9, first literary paragraph, the Draft Mitigation*  
2 *Report indicates long-term approaches will include executing long-term*  
3 *wholesale agreements.*

4

5 *a. Please state whether Big Rivers has commenced any such*  
6 *investigations and, if so, state the identity of those*  
7 *counterparties.*

8 *b. Please describe all steps taken to date in pursuance of*  
9 *this approach.*

10

11 **Response)** Please see Big Rivers' response to Item 47 of these responses.

12

13

14 **Witness)** Robert W. Berry

15



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1 **Item 49)** *On Page 9, first literary paragraph, the Draft Mitigation*  
2 *Report indicates long-term approaches will include existing load*  
3 *expansion.*

4

5 *a. Please state whether Big Rivers has commenced any such*  
6 *investigations and, if so, state the identity of those parties.*

7 *b. Please describe all steps taken to date in pursuance of*  
8 *this approach.*

9

10 **Response)** Please see Big Rivers' response to Item 47 of these responses.

11

12

13 **Witness)** Robert W. Berry

14



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1 **Item 50)** *On Page 9, first literary paragraph, the draft Mitigation*  
2 *Report indicates long-term approaches will include load expansion by*  
3 *increasing the existing industrial load and by attracting new industries.*

4

5 *a. Please state whether Big Rivers has commenced any such*  
6 *investigations and, if so, state the identity of those parties.*

7 *b. Please describe all steps taken to date in pursuance of*  
8 *this approach.*

9

10 **Response)** Please see Big Rivers' response to Item 47 of these responses.

11

12

13 **Witness)** Robert W. Berry

14





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1 **Item 51)** *On Page 9, first literary paragraph, the draft Mitigation*  
2 *Report indicates long-term approaches will include load expansion by*  
3 *attracting new Members.*

4

5 *a. Please state whether Big Rivers has commenced any such*  
6 *investigations and, if so, state the identity of those parties.*

7 *b. Please describe all steps taken to date in pursuance of*  
8 *this approach.*

9 *c. Please state your understanding of the notice period in*  
10 *the contracts between TVA and the five Kentucky*  
11 *cooperatives in Kentucky being served by TVA.*

12

13 **Response)**

14 a. and b.

15 Please see Big Rivers' response to Item 47 of these responses.

16 c. Big Rivers is not aware of what notice period is specified in the  
17 contracts between the Tennessee Valley Authority ("TVA") and  
18 the five Kentucky cooperatives in Kentucky being served by  
19 TVA.

20

21

22 **Witness)** Robert W. Berry



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1 **Item 52)** *On Page 10, Final Paragraph, the Draft Mitigation Plan*  
2 *discusses the additional option of laying-up individual generating units*  
3 *or entire generating stations. Scenarios 3, 4, 6 and 7 include this option.*  
4

5 *a. Please describe the extent to which Big Rivers has*  
6 *investigated this option.*

7 *b. Please provide copies of all studies and documents*  
8 *prepared in connection with same.*  
9

10 **Response)**

11 a. Big Rivers evaluated the budget reductions and lay up expenses  
12 for idling the Wilson and Coleman plants for each year in 2013 to  
13 2015. For Scenarios 3, 4, 6, and 7, Big Rivers utilized the average  
14 budget reductions for the three year period (2013 thru 2015).

15 b. Please see the Coleman and Wilson Layup Scenario document  
16 which Big Rivers is providing under a Petition for Confidential  
17 Treatment.  
18

19  
20 **Witness)** Robert W. Berry  
21



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1 **Item 53)** *On Page 11, First Paragraph, the Draft Mitigation Plan*  
2 *discusses the additional option of liquidating generating stations.*

3

4 *a. Please describe the extent to which Big Rivers has*  
5 *investigated this option.*

6 *b. Please provide copies of all studies and documents*  
7 *prepared in connection with same.*

8

9 **Response)**

10 a. Big Rivers has not investigated this option at this time. Should  
11 Big Rivers receive notice of closure from one or both of the  
12 aluminum smelters, Big Rivers will investigate this, as well as  
13 other options.

14 b. None.

15

16

17 **Witness)** Robert W. Berry

18



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1 **Item 54) *On Page 10, Final Paragraph, the Draft Mitigation Plan***  
2 ***discusses the additional option of a (i) merger with another G&T***  
3 ***cooperative, (ii) acquisition of Big Rivers by another G&T cooperative or***  
4 ***(iii) acquisition of Big Rivers by an Investor-Owned Utility.***

5

6 ***a. Please describe the extent to which Big Rivers has***  
7 ***investigated this option and provide copies of all studies***  
8 ***and documents prepared in connection with same.***

9 ***b. If Big Rivers would consider the three options listed above***  
10 ***after smelter closure, would Big Rivers consider***  
11 ***investigating either of those options before smelter closure***  
12 ***to determine if such options would prevent smelter closure***  
13 ***and be beneficial to Big Rivers, the smelters and save the***  
14 ***Western Kentucky jobs. If your answer is No, please***  
15 ***explain fully.***

16

17 **Response)**

18 **a. Big Rivers identified these options as elements of the array of**  
19 **options Big Rivers could pursue in the event one or both**  
20 **smelters ceased operations. Big Rivers has not investigated**  
21 **any of these options at this time. Should Big Rivers receive**

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1 notice of closure from one or both of the aluminum smelters,  
2 Big Rivers will investigate these as well as other options.  
3 b. It is Big Rivers' hope that the smelters remain viable for the  
4 mutual benefit of the smelters, our region, Big Rivers'  
5 Members, and Big Rivers. Big Rivers has been and is willing  
6 to consider investigating options that may prevent smelter  
7 closure and that are beneficial to Big Rivers, its Members, and  
8 the smelters. Big Rivers identified the options included in the  
9 Plan as elements of the array of actions Big Rivers could  
10 pursue to manage the generating capacity Big Rivers would  
11 have if one or both smelters ceased operations. Currently  
12 there is very little additional generating capacity within Big  
13 Rivers' fleet to serve additional or new load until it becomes a  
14 certainty that a smelter or other sizable existing load will  
15 cease operation. The Draft Mitigation Plan is intended to be a  
16 road map if one or both smelters cease operations; it was not  
17 developed to investigate a merger or sale of the Company  
18 without any clear indication it would be necessary or in the  
19 best interests of Big Rivers' Members.  
20  
21

22 **Witness)** Robert W. Berry





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1 **Item 55)** *Refer to page 8 of the Load Concentration Analysis and*  
2 *Mitigation Plan, which states, "Benchmarking data indicates Big River's*  
3 *generation costs currently rank better than more than half of similar*  
4 *unit's costs, thus Big Rivers should be able to market a significant amount*  
5 *of its excess power."*

6

7 **a.** *Please supply the benchmarking data and any analysis*  
8 *performed or reports written associated with that data.*

9 **b.** *What parties has Big Rivers entered into discussions with*  
10 *concerning marketing its excess power, and what*  
11 *discussions were held? Please supply any written*  
12 *communication of any form that went back and forth*  
13 *between Big Rivers and that party?*

14

15 **Response)**

16 **a.** Please see Big Rivers' response to Item 46 of these responses.

17 **b.** Please see Big Rivers' response to Item 47 of these responses.

18

19

20 **Witness)** Robert W. Berry

21



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1 **Item 56)** *On page 9 (Load Concentration Analysis), Big Rivers states*  
2 *that many entities were short of generating capacity prior to the economic*  
3 *downturn and will likely return to the same situation when the economy*  
4 *strengthens. Please supply any analysis or support of any kind that the*  
5 *Company possesses that it based that statement on.*

6

7 **Response)** Big Rivers based these statements on its general industry knowledge  
8 (from discussions with other utilities, review of industry journals, awareness of  
9 Request For Proposals for capacity and energy, *etc.*) rather than on any particular  
10 document or analysis.

11

12 **Witness)** Robert W. Berry

13



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1 **Item 57)** *On page 9 (Load Concentration Analysis), Big Rivers also*  
2 *states that it has “a cost competitive advantage over many of its peers*  
3 *because it has a lower cost generating fleet than most which has largely*  
4 *already been retrofitted with pollution controls.”*

5

6 a. *Does this mean that Big Rivers generating fleet is lower in*  
7 *cost because Big Rivers has not already been retrofitted*  
8 *with pollution controls, while the others have? Please*  
9 *explain.*

10

11 **Response)** No. Big Rivers' fleet has already been equipped with significant  
12 pollution control equipment to comply with current environmental regulations.

13

14

15 **Witness)** Robert W. Berry

16



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1 **Item 58)** *Referring to the Load Concentration Analysis. Once the*  
2 *requested environmental upgrades have been made, will Big Rivers'*  
3 *generating fleet still be lower in cost than the others? Please explain.*

4

5 **Response)** Big Rivers believes that its generating fleet will maintain a  
6 competitive advantage over similar units in the future. Big Rivers understands  
7 that many other utilities are making similar investments in environmental control  
8 equipment to comply with new or pending EPA regulations, and as such, Big  
9 Rivers' comparable cost position should remain similar.

10

11

12 **Witness)** Robert W. Berry

13





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1 **Item 59)** *Concerning Scenarios 1 through 8 of the Load Concentration*  
2 *Analysis, did ACES perform the modeling work using the PAR model? If*  
3 *not, who performed the modeling work and what production cost model*  
4 *was used?*

5

6 **Response)** Yes.

7

8

9 **Witness)** Robert W. Berry

10



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- 1 **Item 60)** *Concerning Scenario 1 of the Load Concentration Analysis:*  
2  
3 *a. Was that scenario the same scenario as the Build, No*  
4 *Smelter Scenario in the Company's ECP filing? If not,*  
5 *please explain the differences (process, data assumptions,*  
6 *etc).*  
7 *b. Other than the market price forecast, did PACE Global*  
8 *supply any other data that was used in the analysis. If so,*  
9 *please provide all information, documentation, etc., that*  
10 *PACE supplied for the production cost analysis.*  
11 *c. If this scenario is different than the Build, No Smelter*  
12 *Scenario in the Company's ECP filing, provide a list of all*  
13 *assumptions that differentiated this case from the Build,*  
14 *No Smelters case in the ECP filing. Also, provide a fully*  
15 *populated, input database to the production cost model*  
16 *that was used to conduct the analysis and provide all*  
17 *results electronically from the production cost model used*  
18 *to develop that case. In addition, provide the input*  
19 *assumptions for the production cost model in excel*  
20 *spreadsheet format as the Company did for other cases*  
21 *supplied.*

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- 1            *d. Finally, provide all models, workpapers, analyses, etc.,*  
2            *that were created and used to develop the results that are*  
3            *found on page 13 of the report. These models should be*  
4            *supplied electronically, with all referenced spreadsheets*  
5            *attached, and all formulas active.*  
6            *e. Provide all models, data assumptions, workpapers,*  
7            *analyses, etc. that were created to perform an economic*  
8            *analysis (Net Present Value or similar analysis). These*  
9            *models should be supplied electronically, with all*  
10           *referenced spreadsheets attached, and all formulas*  
11           *active.*

12  
13 **Response)**

- 14           a. Yes.  
15           b. Yes. Pace provided forward pricing for energy, fuel, emission  
16           allowances and natural gas. Please see the models, assumptions  
17           and input data provided by Big Rivers on the flash drives Big  
18           Rivers has filed in this proceeding.  
19           c. Not applicable.  
20           d. Please see the models, assumptions and input data provided by  
21           Big Rivers on the flash drives Big Rivers has filed in this  
22           proceeding. Also, please see the Excel file associated with this

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1 response, and which Big Rivers is providing under a Petition for  
2 Confidential Treatment.

3 e. Please see the models, assumptions and input data provided by  
4 Big Rivers on the flash drives Big Rivers has filed in this  
5 proceeding.

6

7

8 **Witness)** Robert W. Berry

9



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- 1   Item 61)    *Concerning Scenario 2 of the Load Concentration Analysis:*  
2  
3            a.   *Was that scenario the same scenario as the Buy, No*  
4                *Smelter Scenario in the Company's ECP filing? If not,*  
5                *please explain the differences (process, data assumptions,*  
6                *etc).*  
7            b.   *Other than the market price forecast, did PACE Global*  
8                *supply any other data that was used in the analysis. If so,*  
9                *please provide all information, documentation, etc, that*  
10              *PACE supplied for the production cost analysis.*  
11            c.   *If this scenario is different than the Buy, No Smelter*  
12                *Scenario in the Company's ECP filing, provide a list of all*  
13                *assumptions that differentiated this case from the Build,*  
14                *No Smelters case in the ECP filing. Also, provide a fully*  
15                *populated, input database to the production cost model*  
16                *that was used to conduct the analysis and provide all*  
17                *results electronically from the production cost model used*  
18                *to develop that case. In addition, provide the input*  
19                *assumptions for the production cost model in excel*  
20                *spreadsheet format as the Company did for other cases*  
21                *supplied.*



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- 1            *d. Finally, provide all models, workpapers, analyses, etc that*  
2            *were created and used to develop the results that are*  
3            *found on page 14 of the report. These models should be*  
4            *supplied electronically, with all referenced spreadsheets*  
5            *attached, and all formulas active.*  
6            *e. Provide all models, data assumptions, workpapers,*  
7            *analyses, etc. that were created to perform an economic*  
8            *analysis (Net Present Value or similar analysis). These*  
9            *models should be supplied electronically, with all*  
10           *referenced spreadsheets attached, and all formulas*  
11           *active.*

12  
13 **Response)**

- 14           a. Yes.  
15           b. Please see the models, assumptions and input data provided by  
16           Big Rivers on the flash drives Big Rivers has filed in this  
17           proceeding.  
18           c. Not applicable.  
19           d. Please see the models, assumptions and input data provided by  
20           Big Rivers on the flash drives Big Rivers has filed in this  
21           proceeding. Also, please see the Excel file provided in Item 60d.  
22           of these responses.

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1 e. Please see the models, assumptions and input data provided by  
2 Big Rivers on the flash drives Big Rivers has filed in this  
3 proceeding.  
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6 **Witness)** Robert W. Berry

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- 1 **Item 62)** *Concerning Scenario 3 of the Load Concentration Analysis:*  
2  
3 *a. Please provide the ACES market price forecast (referred to*  
4 *as lower market prices), and all models, assumptions,*  
5 *documentation, etc., used or produced in developing the*  
6 *market price forecast. Please supply all models and*  
7 *spreadsheets electronically, with all formulas active.*  
8 *b. Provide a list of all assumptions that differentiated this*  
9 *case from the Buy, No Smelters case in the ECP filing.*  
10 *Also, provide a fully populated, input database to the*  
11 *production cost model that was used to conduct the*  
12 *analysis and provide all results electronically from the*  
13 *production cost model used to develop that case. In*  
14 *addition, provide the input assumptions for the*  
15 *production cost model in excel spreadsheet format as the*  
16 *Company did for other cases supplied.*  
17 *c. Finally, provide all models, workpapers, analyses, etc.,*  
18 *that were created and used to develop the results that are*  
19 *found on page 15 of the report. These models should be*  
20 *supplied electronically, with all referenced spreadsheets*  
21 *attached, and all formulas active.*

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1            *d. Provide all models, data assumptions, workpapers,*  
2            *analyses, etc. that were created to perform an economic*  
3            *analysis (Net Present Value or similar analysis). These*  
4            *models should be supplied electronically, with all*  
5            *referenced spreadsheets attached, and all formulas*  
6            *active.*

7  
8 **Response)**

- 9            a. Please see the models, assumptions and input data provided by  
10            Big Rivers on the flash drives Big Rivers has filed in this  
11            proceeding.
- 12            b. Please see the models, assumptions and input data provided by  
13            Big Rivers on the flash drives Big Rivers has filed in this  
14            proceeding. This scenario corresponds to the financial model  
15            labeled "Financial Forecast (2012-2026) Buy No Smltr APM  
16            LYUP 04-18-12".
- 17            c. Please see the models, assumptions and input data provided by  
18            Big Rivers on the flash drives Big Rivers has filed in this  
19            proceeding. Also, please see the Excel file provided in Item 60d.  
20            of these responses.
- 21            d. Please see the models, assumptions and input data provided by  
22            Big Rivers on the flash drives Big Rivers has filed in this

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1 proceeding.  
2  
3  
4 **Witness)** Robert W. Berry  
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1 **Item 63)** *Concerning Scenario 4 of the Load Concentration Analysis:*

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*a. Provide a list of all assumptions that differentiated this case from Scenario 3 of the Load Concentration Analysis.*

*Also, provide a fully populated, input database to the production cost model that was used to conduct the analysis and provide all results electronically from the production cost model used to develop that case. In addition, provide the input assumptions for the production cost model in excel spreadsheet format as the Company did for other cases supplied.*

*b. Finally, provide all models, workpapers, analyses, etc that were created and used to develop the results that are found on page 16 of the report. These models should be supplied electronically, with all referenced spreadsheets attached, and all formulas active.*

*c. Provide all models, data assumptions, workpapers, analyses, etc. that were created to perform an economic analysis (Net Present Value or similar analysis). These models should be supplied electronically, with all referenced spreadsheets attached, and all formulas active.*



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1 **Response)**

- 2 a. Please see the models, assumptions and input data provided by  
3 Big Rivers on the flash drives Big Rivers has filed in this  
4 proceeding. This scenario corresponds to the financial model  
5 labeled "Financial Forecast (2012-2026) Build No Smelter unit  
6 layup 04-18-2012".
- 7 b. Please see the models, assumptions and input data provided by  
8 Big Rivers on the flash drives Big Rivers has filed in this  
9 proceeding. Also, please see the Excel file provided in Item 60d.  
10 of these responses.
- 11 c. Please see the models, assumptions and input data provided by  
12 Big Rivers on the flash drives Big Rivers has filed in this  
13 proceeding.

14

15

16 **Witness)** Robert W. Berry

17



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- 1 **Item 64)** *Concerning Scenario 5 of the Load Concentration Analysis:*  
2  
3 *a. Provide a list of all assumptions that differentiated this*  
4 *case from Scenario 1 of the Load Concentration Analysis.*  
5 *Also, provide a fully populated, input database to the*  
6 *production cost model that was used to conduct the*  
7 *analysis and provide all results electronically from the*  
8 *production cost model used to develop that case. In*  
9 *addition, provide the input assumptions for the*  
10 *production cost model in excel spreadsheet format as the*  
11 *Company did for other cases supplied.*  
12 *b. Finally, provide all models, workpapers, analyses, etc that*  
13 *were created and used to develop the results that are*  
14 *found on page 17 of the report. These models should be*  
15 *supplied electronically, with all referenced spreadsheets*  
16 *attached, and all formulas active.*  
17 *c. Provide all models, data assumptions, workpapers,*  
18 *analyses, etc. that were created to perform an economic*  
19 *analysis (Net Present Value or similar analysis). These*  
20 *models should be supplied electronically, with all*  
21 *referenced spreadsheets attached, and all formulas*  
22 *active.*

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1 **Response)**

- 2 a. Please see the models, assumptions and input data provided by  
3 Big Rivers on the flash drives Big Rivers has filed in this  
4 proceeding. This scenario corresponds to the financial model  
5 labeled "Financial Forecast (2012-2026) Build No Smelter Load  
6 lower OSS price 03-14-2012".
- 7 b. Please see the models, assumptions and input data provided by  
8 Big Rivers on the flash drives Big Rivers has filed in this  
9 proceeding. Also, please see the Excel file provided in Item 60d.  
10 of these responses.
- 11 c. Please see the models, assumptions and input data provided by  
12 Big Rivers on the flash drives Big Rivers has filed in this  
13 proceeding.

14

15

16 **Witness)** Robert W. Berry

17



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1 **Item 65) *Concerning Scenario 6 of the Load Concentration Analysis:***

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- a. Provide a list of all assumptions that differentiated this case from Scenario 4 of the Load Concentration Analysis. Also, provide a fully populated, input database to the production cost model that was used to conduct the analysis and provide all results electronically from the production cost model used to develop that case. In addition, provide the input assumptions for the production cost model in excel spreadsheet format as the Company did for other cases supplied.*
- b. Finally, provide all models, workpapers, analyses, etc., that were created and used to develop the results that are found on page 18 of the report. These models should be supplied electronically, with all referenced spreadsheets attached, and all formulas active.*
- c. Provide all models, data assumptions, workpapers, analyses, etc. that were created to perform an economic analysis (Net Present Value or similar analysis). These models should be supplied electronically, with all referenced spreadsheets attached, and all formulas active.*

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1 **Response)**

- 2 a. Please see the models, assumptions and input data provided by  
3 Big Rivers on the flash drives Big Rivers has filed in this  
4 proceeding. This scenario corresponds to the financial model  
5 labeled "Financial Forecast (2012-2026) Build Century Leave  
6 04-18-2012".
- 7 b. Please see the models, assumptions and input data provided by  
8 Big Rivers on the flash drives Big Rivers has filed in this  
9 proceeding. Also, please see the Excel file provided in Item 60d.  
10 of these responses.
- 11 c. Please see the models, assumptions and input data provided by  
12 Big Rivers on the flash drives Big Rivers has filed in this  
13 proceeding.

14

15 **Witness)** Robert W. Berry

16





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1 **Item 66)** *Concerning Scenario 7 of the Load Concentration Analysis:*

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- a. Provide a list of all assumptions that differentiated this case from Scenario 6 of the Load Concentration Analysis. Also, provide a fully populated, input database to the production cost model that was used to conduct the analysis and provide all results electronically from the production cost model used to develop that case. In addition, provide the input assumptions for the production cost model in excel spreadsheet format as the Company did for other cases supplied.*
- b. Finally, provide all models, workpapers, analyses, etc., that were created and used to develop the results that are found on page 19 of the report. These models should be supplied electronically, with all referenced spreadsheets attached, and all formulas active.*
- c. Provide all models, data assumptions, workpapers, analyses, etc., that were created to perform an economic analysis (Net Present Value or similar analysis). These models should be supplied electronically, with all referenced spreadsheets attached, and all formulas active.*

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1 **Response)**

2 a. Please see the models, assumptions and input data provided by  
3 Big Rivers on the flash drives Big Rivers has filed in this  
4 proceeding. This scenario corresponds to the financial model  
5 labeled "Financial Forecast (2012-2026) Build Alcan Leave 04-  
6 18-2012".

7 b. Please see the models, assumptions and input data provided by  
8 Big Rivers on the flash drives Big Rivers has filed in this  
9 proceeding. Also, please see the Excel file provided in Item 60d.  
10 of these responses.

11 c. Please see the models, assumptions and input data provided by  
12 Big Rivers on the flash drives Big Rivers has filed in this  
13 proceeding.

14

15

16 **Witness)** Robert W. Berry

17



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1 **Item 67) *Concerning Scenario 8 of the Load Concentration Analysis:***

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- a. Provide a list of all assumptions that differentiated this case from Scenario 1 of the Load Concentration Analysis. Also, provide a fully populated, input database to the production cost model that was used to conduct the analysis and provide all results electronically from the production cost model used to develop that case. In addition, provide the input assumptions for the production cost model in excel spreadsheet format as the Company did for other cases supplied.*
- b. Finally, provide all models, workpapers, analyses, etc that were created and used to develop the results that are found on page 20 of the report. These models should be supplied electronically, with all referenced spreadsheets attached, and all formulas active.*
- c. Provide all models, data assumptions, workpapers, analyses, etc. that were created to perform an economic analysis (Net Present Value or similar analysis). These models should be supplied electronically, with all referenced spreadsheets attached, and all formulas active.*

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1 **Response)**

- 2 a. Please see the models, assumptions and input data provided by  
3 Big Rivers on the flash drives Big Rivers has filed in this  
4 proceeding. This scenario corresponds to the financial model  
5 labeled "Financial Forecast (2012-2026) Base Case (No Env.  
6 Comp. - Smelters Leave - No OSS Margin) 01-23-2012".  
7 b. Please see the models, assumptions and input data provided by  
8 Big Rivers on the flash drives Big Rivers has filed in this  
9 proceeding. Also, please see the Excel file provided in Item 60d.  
10 of these responses.  
11 c. Please see the models, assumptions and input data provided by  
12 Big Rivers on the flash drives Big Rivers has filed in this  
13 proceeding.

14

15

16 **Witness)** Robert W. Berry

17



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1 **Item 68)** *In the ECP filing production cost analyses, ACES used a single*  
2 *reference case fuel forecast, market price forecast, allowance price*  
3 *forecast from PACE Global even though PACE supplied 200 iterations.*

4  
5 *a. In the Load Concentration Study, was the same approach*  
6 *used in which a single reference case forecast for market*  
7 *prices, fuel costs, and allowance prices were used?*

8 *b. If not, please explain why it was appropriate to conduct*  
9 *the studies differently?*

10 *c. If so, please explain why single forecasts were used when*  
11 *PACE created multiple iterations.*

12  
13 **Response)**

14 a. Yes.

15 b. Not applicable.

16 c. Please see Big Rivers' response to Item 19 of these responses.

17  
18  
19 **Witness)** Robert W. Berry

20





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1 **Item 69)** *On page 23 of the Load Concentration Study report, it states*  
2 *that Big Rivers will continue to conduct analyses. What analyses have*  
3 *been conducted since the Draft Report has been produced, or will be*  
4 *conducted? Please provide a detailed description of what have been or*  
5 *will be conducted.*

6  
7 **Response)** No analyses of the Load Concentration Study have been conducted  
8 since the Draft Report was produced. Big Rivers will conduct analyses as needed  
9 if assumptions materially change in the future.

10

11

12 **Witness)** Robert W. Berry

13



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1 **Item 70)** *Concerning the LMP Impact Study – Loss of Smelter Load.*

2

3 *a. Please explain how results of this study factored into any*  
4 *results filed in the Company's ECP filing, or factored into*  
5 *any of the Scenarios 1 – 8 of the Load Concentration*  
6 *Analysis.*

7 *b. Please provide all outputs from the LMP Impact Study*  
8 *that were treated as inputs to any study discussed in part*  
9 *a of this question.*

10 *c. Why wasn't the PROMOD model used to conduct the*  
11 *studies discussed in part a of this question?*

12

13 **Response)**

14 a. A 7% reduction in price was included in the APM planning  
15 model runs for Scenarios 1, 2, and 5 because Big Rivers' control  
16 area saw a decrease in load, without a corresponding decrease in  
17 generation levels. None of the other scenarios included the price  
18 reduction because when load declined, generator(s) were  
19 assumed to be laid up to offset the loss of load.

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**Witnesses: Robert W. Berry (a. and b.) and  
Brian J. Azman (c.)**

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- 1           b.    A 7% price reduction to the applicable price curve was included  
2           in all hours to estimate the potential impact to Big Rivers  
3           control area of losing load without reducing generation  
4           c.    The PROMOD model was not used because Planning and Risk  
5           was the model used for all the APM planning model runs.  
6  
7

8   **Witnesses)** Robert W. Berry (a. and b.) and  
9                Brian J. Azman (c.)  
10



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1 **Item 71) *Regarding the PACE Global MISO Power Price Assessment***  
2 ***dated January 12, 2012.***

3

4 ***a. Are the reference price forecasts the same as what were***  
5 ***used in the ACES analyses for the ECP Filing (Base Case,***  
6 ***Build Case, etc)?***

7 ***b. Please provide an explanation of how the forecasts found***  
8 ***on page 4 relate to the 200 iteration forecasts found in***  
9 ***PACE\_Big Rivers Data Request Outputs\_120524.xlsx.***  
10 ***Explain the difference in the way that the forecasts were***  
11 ***created, and the difference in the way that the forecasts***  
12 ***were used in any studies.***

13 ***c. Please supply all models, input data assumptions,***  
14 ***spreadsheets, and documentation of any type, used in***  
15 ***creating the data found on page 4 (HH Gas Prices), page 5***  
16 ***(coal prices), page 7 (CO<sub>2</sub> prices), page 10 – 12 (market***  
17 ***prices), and results found on pages 13 – 15. Also***  
18 ***spreadsheets and models, should be provided***  
19 ***electronically, with all formulas included. The***

**BIG RIVERS ELECTRIC CORPORATION**

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION  
FOR APPROVAL OF ITS 2012 ENVIRONMENTAL COMPLIANCE PLAN,  
FOR APPROVAL OF ITS AMENDED ENVIRONMENTAL COST  
RECOVERY SURCHARGE TARIFF, FOR CERTIFICATES OF PUBLIC  
CONVENIENCE AND NECESSITY, AND FOR AUTHORITY TO  
ESTABLISH A REGULATORY ACCOUNT  
CASE NO. 2012-00063**

**Response to the Kentucky Industrial Utility Customers'  
Second Request for Information  
Dated June 22, 2012**

**July 6, 2012**

1                   *spreadsheets and models for the data found on these*  
2                   *pages should also be provided.*

3                   d. *Page 17 indicates that PACE Global would supply*  
4                   *detailed data on MISO power price projections. Please*  
5                   *supply the detailed data that PACE Global supplied to Big*  
6                   *Rivers. This should be provided electronically, and all*  
7                   *spreadsheets and models should have all referenced*  
8                   *spreadsheets included and all formulas included.*

9  
10 **Response)**

- 11                   a. Yes. Please see the response to Item 6 of these responses.
- 12                   b. The forecasts are the same as provided in Pace's Inputs and  
13                   Outputs files. The PowerPoint presentation referenced  
14                   summarizes the inputs and outputs in graphical form by  
15                   measuring the confidence intervals of the entire distribution in  
16                   any given year in the forecast time horizon. For instance, the "5  
17                   Percentile" line shows the place in the distribution below which  
18                   five percent of all observations fall.
- 19                   c. See the document entitled "Energy Price Correlations" which is  
20                   provided with a Petition for Confidential Treatment. All inputs

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1                   and outputs have been provided. All graphics referenced  
2                   present the 200 iterations of data provided by Pace. The  
3                   modeling documentation for Pace Global's approach and  
4                   methodology is provided in Big Rivers' responses to Item 26 and  
5                   Item 28 of these responses.

6                   d. Detailed data included distribution summaries and hourly  
7                   reference case data provided by Big Rivers on the USB Drive,  
8                   filed under petition for confidential treatment on June 14, 2012.

9  
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14

**Witnesses)** Robert W. Berry (a. and d.),  
                  Brian J. Azman (a.), and  
                  Patrick N. Augustine (b., c., and d.)