

SULLIVAN, MOUNTJOY, STAINBACK & MILLER PSC
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Mary L. Moorhouse

June 1, 2012

Via Federal Express

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

RECEIVED

JUN 01 2012

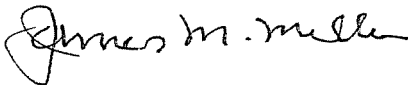
PUBLIC SERVICE
COMMISSION

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 Kentucky Industrial Utility Customers, Inc.'s initial data requests, (ii) response to Attorney General's initial data requests, (iii) response to Public Service Commission's first request for information, (iv) response to Sierra Club's first requests for information, (v) a Petition for Confidential Treatment for certain documents being filed with the responses, and (vi) a motion to deviate from the requirement that all documents filed in response to data requests 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,



James M. Miller

JMM/ej
Enclosures

cc: Mark A. Bailey
Albert Yockey

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

100 St. Ann Building
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Owensboro, Kentucky
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Service List
PSC Case No. 2012-00063

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Sierra Club
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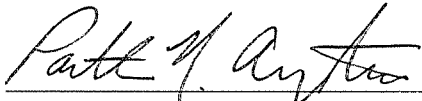
BIG RIVERS ELECTRIC CORPORATION

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, 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 30 day of May, 2012.


Notary Public, Commonwealth of Virginia
My Commission Expires Jun 30, 2013

7251149

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
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AUTHORITY TO ESTABLISH A REGULATORY ACCOUNT**

CASE NO. 2012-00063

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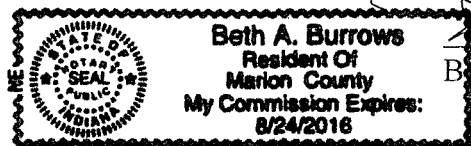
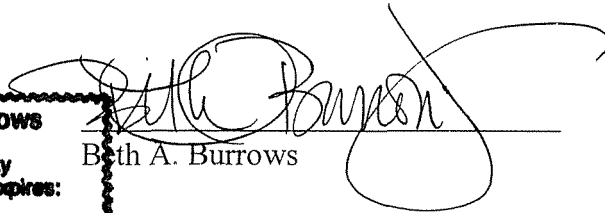
I, Brian J. Azman, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.



Brian J. Azman

STATE OF INDIANA)
)
COUNTY OF HAMILTON)

SUBSCRIBED AND SWORN TO before me by Brian J. Azman on this
the 29th day of May, 2012.

Beth A. Burrows

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

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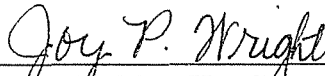
I, Robert W. Berry, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.



Robert W. Berry

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

SUBSCRIBED AND SWORN TO before me by Robert W. Berry on this the
31 day of May, 2012.



Notary Public, Ky. State at Large
My Commission Expires 7-3-14

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

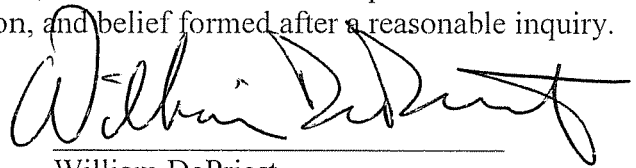
BIG RIVERS ELECTRIC CORPORATION

**THE APPLICATION OF BIG RIVERS ELECTRIC CORPORATION FOR APPROVAL
OF ITS 2012 ENVIRONMENTAL COMPLIANCE PLAN AND REVISIONS TO ITS
ENVIRONMENTAL SURCHARGE TARIFF, FOR CERTIFICATES OF PUBLIC
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CASE NO. 2012-00063

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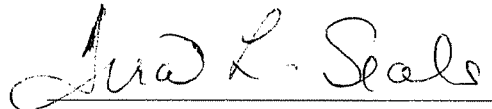
I, William DePriest, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.



William DePriest

STATE OF ILLINOIS)
COUNTY OF COOK)

SUBSCRIBED AND SWORN TO before me by William DePriest on this the 30 day of May, 2012.



Notary Public,
State of Illinois

My Commission Expires May 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
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CASE NO. 2012-00063

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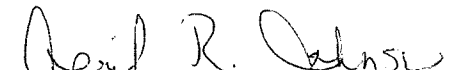
I, David G. Crockett, verify, state, and affirm that I prepared or supervised the preparation of my data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.



David G. Crockett

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

SUBSCRIBED AND SWORN TO before me by David G. Crockett on this the 31st day of May, 2012.



Notary Public, Ky. State at Large

My Commission Expires 8-9-2014

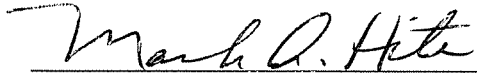
BIG RIVERS ELECTRIC CORPORATION

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

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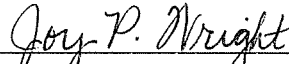
I, Mark A. Hite, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.



Mark A. Hite

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

SUBSCRIBED AND SWORN TO before me by Mark A. Hite on this the 31
day of May, 2012.



Notary Public, Ky. State at Large
My Commission Expires 7-3-14

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

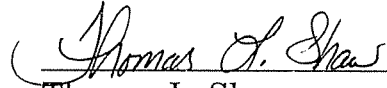
BIG RIVERS ELECTRIC CORPORATION

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

CASE NO. 2012-00063

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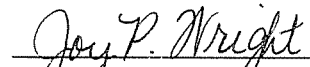
I, Thomas L. Shaw, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.



Thomas L. Shaw

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

SUBSCRIBED AND SWORN TO before me by Thomas L. Shaw on this the
31st day of May, 2012.



Notary Public, Ky. State at Large
My Commission Expires 7-3-14

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

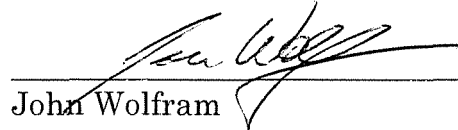
BIG RIVERS ELECTRIC CORPORATION

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

CASE NO. 2012-00063

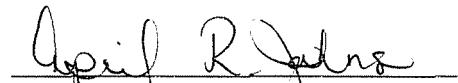
VERIFICATION

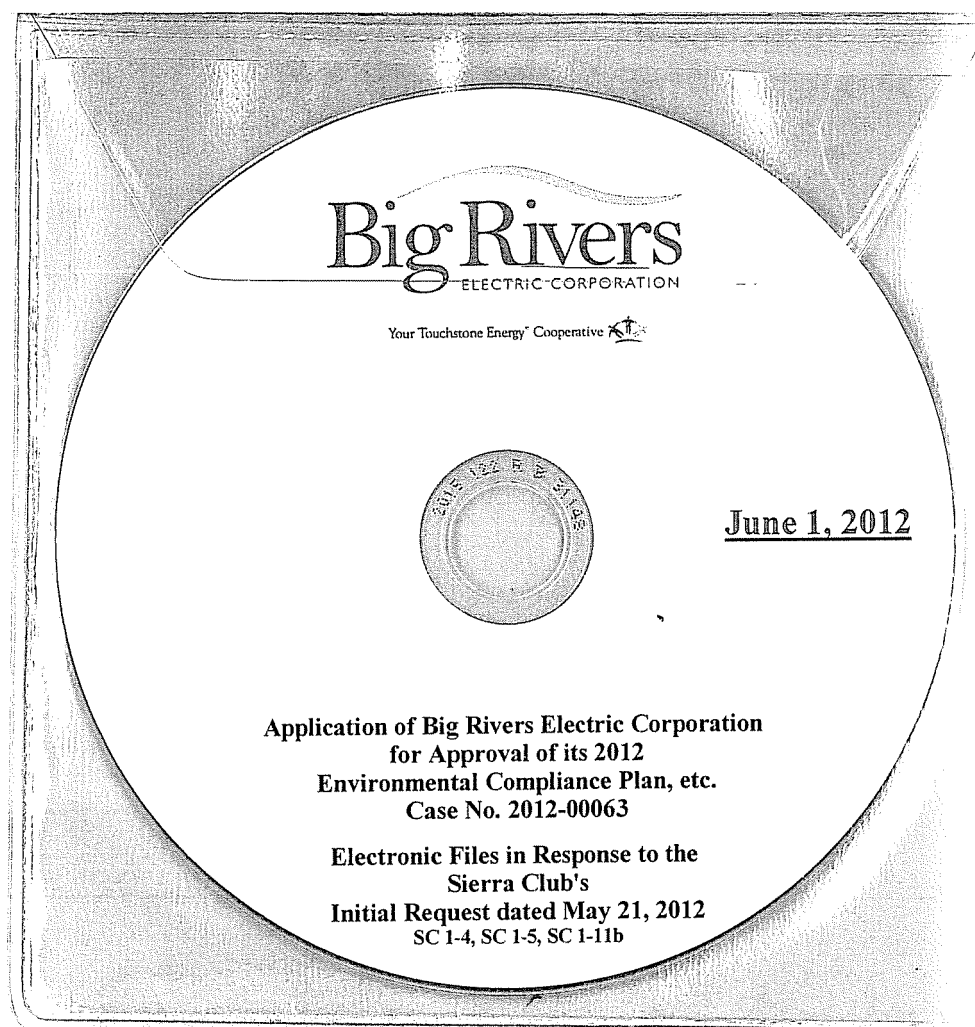
I, John Wolfram, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.


John Wolfram

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

SUBSCRIBED AND SWORN TO before me by John Wolfram on this the 31st
day of May, 2012.


Notary Public, Ky, State at Large
My Commission Expires 8-9-2014



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 Sierra Club's
Initial Request for Information dated May 21, 2012**


June 1, 2012

Information filed on CD accompanying responses

| | |
|--|--|
| SC 1-4 – Big Rivers 2005 and 2010 IRPs | |
| SC 1-5 - Big Rivers Multi-Pollutant Study and Environmental Compliance Plan 2002-09-10 | |
| SC 1-5 - Burns and McDonnell CCR Master Planning Study | |
| SC 1-11b - Green KPDES Permit Renewal - 2009 | |
| SC 1-11b - Wilson Permit Renewal | |
| | |
| | |
| | |

ORIGINAL



Your Touchstone Energy® Cooperative 

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 the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

FILED: June 1, 2012

ORIGINAL

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 Item 1) *For each of the Wilson, Green, Coleman, Reid, or HMP&L*
2 *generating units:*
3
4 *a. Identify the expected retirement date*
5 *b. Produce the most recent depreciation study*
6 *c. Produce the most recent condition or performance*
7 *assessment*
8 *d. Produce the most recent retirement, continued unit*
9 *operation, or life extension study or analysis*
10 *e. Produce any analysis or assessment of the economics of*
11 *continued operation of such unit*
12 *f. Produce any analysis or assessment of the impact that*
13 *retirement of each unit would have on capacity adequacy,*
14 *transmission grid stability, transmission grid support,*
15 *voltage support, or transmission system reliability*
16 *g. Identify any transmission grid upgrades or changes that*
17 *would be needed to permit the retirement of any of the*
18 *units*
19 *h. Produce any analysis or assessment of the need for the*
20 *continued operation of each unit.*
21
22

Case No. 2012-00063

Response to SC 1-1

Witnesses: Robert W. Berry (a-e) and David G. Crockett (f-h)

Page 1 of 3

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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ESTABLISH A REGULATORY ACCOUNT
CASE NO. 2012-00063**

**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Response)**

2 a. Per Big Rivers 2010 Depreciation Study conducted by Burns &
3 McDonnell Engineering, the expected retirement dates for Big
4 Rivers generating assets without life extension upgrades are as
5 follows:

6 Green Units 1 & 2 2042

7 HMP&L Units 1 & 2 2035

8 Reid Unit 1 2050

9 Wilson Unit 1 2044

10 Coleman Units 1, 2 & 3 2035

11 b. Please see Big Rivers' response to Item 10 of the Commission
12 Staff's First Request for Information.

13 c. Please see Part II of the Depreciation Study, provided in Big
14 Rivers' response to Item 10 of the Commission Staff's First
15 Request for Information, for Burns & McDonnell's engineering
16 assessment of Big Rivers' generating units.

17 d. Big Rivers has not performed life extension studies on any of its
18 units.

19 e. Please see the CD Big Rivers filed with its April 26, 2012,
20 response to KIUC's Motion to Dismiss, and the CD Big Rivers

Case No. 2012-00063

Response to SC 1-1

Witnesses: Robert W. Berry (a-e) and David G. Crockett (f-h)

Page 2 of 3

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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CASE NO. 2012-00063**

**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 filed May 29, 2012, in response to the May 11, 2012, letter from
2 KIUC's counsel to Big Rivers' counsel.
3 f.-h. Big Rivers has performed no analyses regarding the impact on
4 its transmission system of a retirement of any Big Rivers unit.
5

6 **Witnesses)** a-e. Robert W. Berry
7 f-h. David G. Crockett
8

BIG RIVERS ELECTRIC CORPORATION

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

**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 **Item 2) *For each of the Wilson, Green, Coleman, Reid, or HMP&L***
2 ***generating units, identify and produce any analysis of the net present***
3 ***value revenue requirement, cost, or feasibility of retiring the unit and***
4 ***replacing the energy or capacity produced by that unit with any of the***
5 ***following resources:***
6
7 ***a. Energy efficiency***
8 ***b. Demand side management***
9 ***c. Demand response***
10 ***d. Combined heat and power***
11 ***e. Wind energy***
12 ***f. Solar***
13 ***g. Hydroelectric***
14 ***h. Construction of a new natural gas combined cycle facility***
15 ***i. Purchase of power from an existing natural gas combined***
16 ***cycle facility***
17 ***j. Purchase of an existing natural gas combined cycle***
18 ***facility***
19 ***k. Natural gas combustion turbines***
20 ***l. Power purchase agreements***
21 ***m. A combination of any or all of the resources identified in***
22 ***subsections a through l above***

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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CASE NO. 2012-00063**

**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Response)** Big Rivers performed a net present value of revenue requirements
2 (“NPVRR”) analysis of a case in which no CSAPR compliance technologies are
3 implemented and MATS compliance technologies are implemented, with the
4 resultant reduction in generation from Big Rivers’ plants being offset by energy
5 purchases from the market (i.e. the “Buy Case”). The type of resource that
6 provides this market energy is not specified in the analysis; the only
7 characteristics specified for the “market” resource in the Buy Case in that analysis
8 is the energy price.

9 Some of the options listed are not capable of providing replacement
10 energy of the scale and scope necessary to meet Big Rivers’ load obligations.
11 These include options a, b, c, d, and possibly e, f, and g listed in the question.

12 The options that require construction or otherwise include a capital
13 investment include options e, f, g, h, j, and possibly k as listed in the question. It
14 is not necessary to study these options because the cost of these options would be
15 significantly more than the 2012 Plan. Please see the response to Item 1.26 of
16 KIUC’s First Set of Data Requests.

17 The remaining options for purchasing some form of energy could be
18 construed as equivalent to what was included in the Buy Case, so long as the
19 purchase price and availability of the resource(s) listed match the wholesale
20 market characteristics included in the Buy Case simulation.

21
22 **Witness)** Robert W. Berry

BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
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CASE NO. 2012-00063**

**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 3)** *For each of the Wilson, Green, Coleman, Reid, or HMP&L*
2 *generating units, identify:*

3

4 *a. The annual non-environmental capital expenditures*
5 *expected or projected to be made for each year from 2012*
6 *through 2031.*

7 *b. The annual fixed O&M costs for each year from 2012*
8 *through 2031.*

9 *c. The annual variable O&M costs for each year from 2012*
10 *through 2031.*

11

12 **Response)**

13 *a. Big Rivers prepares detailed budgets four years in advance.*
14 *Budgeted non-environmental capital for our generating units for*
15 *years 2012 – 2015 are shown on the table on the following page.*

16

17

18

19

20

21

22

BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
FOR APPROVAL OF ITS 2012 ENVIRONMENTAL COMPLIANCE PLAN,
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**Response to the Sierra Club's
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Dated May 21, 2012**

June 1, 2012

1

| Big Rivers Electric Corporation Budgeted Non-Environmental Capital by Generating Unit (\$) | | | | |
|---|--------------|-------------|-------------|-------------|
| Unit | Years | | | |
| | 2012 | 2013 | 2014 | 2015 |
| Coleman Units 1, 2, and 3 | 18.9 M | 16.5 M | 15.6 M | 15.5 M |
| Green Unit 1 and 2 | 14.1 M | 16.8 M | 12.2 M | 13.2 M |
| HMP&L Units 1 and 2 | 4.7 M | 8.6 M | 8.7 M | 5.9 M |
| Reid Unit 1 | 20 K | 162 K | 27 K | 30 K |
| Wilson Unit 1 | 14.9 M | 8.7 M | 14.0 M | 6.7 M |

2

3

- b. Big Rivers prepares detailed budgets four years in advance.
Budgeted fixed O&M cost for our generating units for years
2012 – 2015 are as follows:

4

5

6

| Big Rivers Electric Corporation Budgeted Fixed O&M Costs by Generating Unit (\$) | | | | |
|---|--------------|-------------|-------------|-------------|
| Unit | Years | | | |
| | 2012 | 2013 | 2014 | 2015 |
| Coleman Units 1, 2, and 3 | | | | |
| Green Unit 1 and 2 | | | | |
| Reid Unit and HMP&L Units 1 and 2 | | | | |
| Wilson Unit 1 | | | | |

7

8

BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
FOR APPROVAL OF ITS 2012 ENVIRONMENTAL COMPLIANCE PLAN,
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**Response to the Sierra Club's
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Dated May 21, 2012**

June 1, 2012

- 1 c. Big Rivers prepares detailed budgets four years in advance.
2 Budgeted variable O&M including fuel for our generating units
3 for years 2012 – 2015 are as follows:
4

| Big Rivers Electric Corporation Budgeted Variable O&M Costs (Including Fuel) by Generating Unit (\$) | | | | |
|---|--------------|-------------|-------------|-------------|
| Unit | Years | | | |
| | 2012 | 2013 | 2014 | 2015 |
| Coleman Units 1, 2, and 3 | | | | |
| Green Unit 1 and 2 | | | | |
| Reid Unit and HMP&L Units 1 and 2 | | | | |
| Wilson Unit 1 | | | | |

5
6
7 **Witness)** Robert W. Berry
8

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 4)** *Produce a non-redacted, full color or original digital copy of*
2 *any Integrated Resource Plans ("IRPs") created and/or filed by Big Rivers*
3 *or its agents since 2004.*

4

5 **Response)** Please see the CD accompanying these responses for Big Rivers' 2005
6 and 2010 IRP. Portions of the IRPs that are confidential are being provided under
7 a petition for confidential treatment and on a CONFIDENTIAL CD.

8

9

10 **Witness)** Robert W. Berry

BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
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RECOVERY SURCHARGE TARIFF, FOR CERTIFICATES OF PUBLIC
CONVENIENCE AND NECESSITY, AND FOR AUTHORITY TO
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CASE NO. 2012-00063**

**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 5)** *Produce any strategic or technical documents generated since*
2 *2004 by Big Rivers or its agents regarding mechanisms by which the*
3 *company could or should comply with environmental regulations,*
4 *including air quality compliance planning, water quality planning, and*
5 *solid waste compliance planning.*

6

7 **Response)** Please see the file provided on the CD accompanying these responses.
8 Please also see Big Rivers' responses to Item 41 of the Kentucky Industrial Utility
9 Customers Inc.'s First Set of Data Requests and Item 46 of the Attorney General's
10 Initial Data Requests.

11

12

13 **Witness)** Thomas L. Shaw

14

BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
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RECOVERY SURCHARGE TARIFF, FOR CERTIFICATES OF PUBLIC
CONVENIENCE AND NECESSITY, AND FOR AUTHORITY TO
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CASE NO. 2012-00063**

**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 6)** *Identify any CO₂ prices assumed in Big River's Environmental*
2 *Compliance Plan by either Big Rivers or its Agents for each year of 2012*
3 *through 2035, and explain how any such CO₂ prices were factored into Big*
4 *River's Environmental Compliance Plan Analysis.*

5

6 **Response)** Please see Big Rivers' responses to Item 39 of the Commission Staff's
7 First Request for Information, Item 58 of the Attorney General's Initial Data
8 Requests, and Item 10 of these responses.

9

10

11 **Witnesses)** Robert W. Berry and Patrick N. Augustine

12

BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
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FOR APPROVAL OF ITS AMENDED ENVIRONMENTAL COST
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CASE NO. 2012-00063**

**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 7)** *Produce a copy of any forecast or projection of future CO₂*
2 *costs, taxes, or emissions allowances prices that has been prepared by or*
3 *for Big Rivers.*

4

5 **Response)** Please see the CD Big Rivers filed on May 29, 2012, in response to
6 the May 11, 2012, letter from KIUC's counsel to Big Rivers' counsel.

7

8

9 **Witness)** Patrick N. Augustine

10

BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
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CONVENIENCE AND NECESSITY, AND FOR AUTHORITY TO
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**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 8)** *Produce a copy of any plan for reducing CO₂ emissions that*
2 *has been prepared by or for Big Rivers.*

3

4 **Response)** Big Rivers has not prepared any plans for reducing CO₂ emissions for
5 any of its generating units.

6

7

8 **Witness)** Robert W. Berry

9

BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
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CASE NO. 2012-00063**

**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 9)** *With respect to EPA's GHG Tailoring Rule:*

2

3 *a. Does the Company anticipate that any of its units would*
4 *be subject to EPA's GHG Tailoring Rule? If so, when? If*
5 *not, why not?*

6 *b. What impact does the Company anticipate the Tailoring*
7 *Rule having on either the costs of operations of any of its*
8 *units?*

9 *c. Please provide any work papers or modeling analysis that*
10 *considers the cost impacts associated with the Tailoring*
11 *Rule.*

12

13 **Response)**

14 a. The rule only applies to the extent that modifications trigger
15 Prevention of Significant Deterioration ("PSD") for greenhouse
16 gases ("GHGs"). Other than including GHGs emissions in Title V
17 applications nothing more would need to be done. Big Rivers is
18 not currently planning any projects that will be subject to PSD
19 permitting.

20 b. None.

21 c. No cost impacts have been analyzed with respect to the Tailoring
22 rule because the Company does not anticipate that any of its

BIG RIVERS ELECTRIC CORPORATION

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**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 generating units will be subject to the rule that EPA has
2 promulgated. Since no rule has been promulgated for existing
3 generation resources, any cost impact analyzed would be
4 speculative.

5
6
7
8

Witness) Thomas L. Shaw

BIG RIVERS ELECTRIC CORPORATION

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**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 10)** *EPA recently issued a proposed New Source Performance*
2 *Standard that would regulate greenhouse gas emissions from electric*
3 *generating units. In this proposed rule, EPA stated that it soon plans to*
4 *issue regulations for existing electric generating units. With respect to*
5 *EPA's forthcoming rule regulating greenhouse gas emissions for existing*
6 *electric generating units ("EGUs"):*

- 7
- 8 *a. Does the Company anticipate that the forthcoming*
9 *existing EGU greenhouse gas rule could impact any of its*
10 *units? If so, what would be the expected cost of this*
11 *rulemaking? If not, why not?*
- 12 *b. Has a cost for the he forthcoming existing EGU*
13 *greenhouse gas rule been taken into account in the*
14 *modeling done by the Company in support of its*
15 *application for CPCN? If not, how would such a cost*
16 *impact its analysis?*
- 17 *c. Please provide any work papers or modeling analysis that*
18 *considers the cost impacts associated with the*
19 *forthcoming existing EGU greenhouse gas rule.*

20
21 **Response)**

BIG RIVERS ELECTRIC CORPORATION

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Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 a-c. Since EPA has not yet proposed a rule regarding greenhouse gas
2 emissions from existing electric generating units and it is not
3 clear whether such a rule would have sufficient support to be
4 successfully adopted, Big Rivers did not speculate on the
5 potential impacts that a rule that has not yet been proposed
6 might have on any of its generating units.

7

8 **Witness)** Thomas L. Shaw

9

BIG RIVERS ELECTRIC CORPORATION

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CONVENIENCE AND NECESSITY, AND FOR AUTHORITY TO
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**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 11)** *With respect to new pollution control installations and CWA*
2 *NPDES permits:*

3

4 *a. Does the Company expect that new pollution control*
5 *installations would have any effect on current CWA*
6 *NPDES permits at any of its units?*

7 *b. If applicable, please provide any of the Company's recent*
8 *applications for changes or modifications to any of its*
9 *NPDES permits.*

10 *c. Does the Company anticipate that the pending Effluent*
11 *Limitation guidelines rule could impact any of its units?*
12 *If so, what would be the expected cost of this rulemaking?*
13 *If not, why not?*

14 *d. Has a cost for the pending Effluent Limitation guidelines*
15 *been taken into account in the modeling done by the*
16 *Company in support of its application for CPCN? If not,*
17 *how would such a cost impact its analysis?*

18

19 **Response)**

20 *a. Current KPDES permits require that Big Rivers begin*
21 *monitoring for ammonia when SCR controls are constructed and*
22 *operated. Big Rivers plans to install SCRs at Green station as*

BIG RIVERS ELECTRIC CORPORATION

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CASE NO. 2012-00063**

**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

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part of its Environmental Compliance Plan.

- b. Copies of all Big Rivers pending KPDES permit application are either attached hereto or provided on the CD accompanying these responses.
- c -d. There is no pending rule at this time, and Big Rivers does not speculate as to how the provisions of a rule that EPA may propose in the future may impact Big Rivers.

Witness) Thomas L. Shaw

Coleman Permit Renewal Application

Certified # 7002 2030 0004 6563 1759



September 15, 2004

Western Kentucky Energy Corp.
145 N. Main Street
P. O. Box 1518
Henderson, KY 42419-1518
270-844-6000
270-844-6048 FAX

Courtney Seitz
Inventory and Data Management Section
KPDES Branch
Division of Water
Frankfort Office Park
14 Reilly Road
Frankfort, KY 40601

RE: KPDES No. KY0001937

Dear Mr. Seitz:

Please find enclosed a permit renewal application and fee for Western Kentucky Energy's Kenneth C. Coleman Station Power Plant. The application is complete except for Section V. The samples have been collected and delivered to Test America Laboratories. Will complete Part V upon receipt of the analysis from Test America Laboratories and forward the form to your attention.

If you have any questions, please feel free to call me at (270)844-6031 or e-mail to tom.shaw@lgeenergy.com.

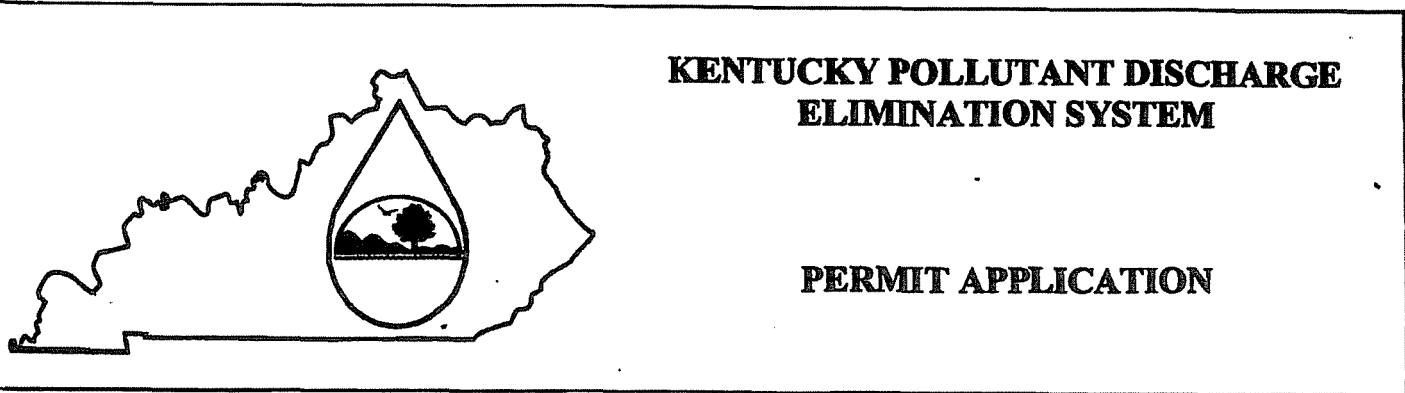
Sincerely,

A handwritten signature in cursive script that reads "Thomas L. Shaw". The signature is written in black ink and is positioned to the left of the typed name.

Thomas L. Shaw
Senior Environmental Scientist

Is
Enclosure

KPDES FORM 1



This is an application to: (check one)

- Apply for a new permit.
- Apply for reissuance of expiring permit.
- Apply for a construction permit.
- Modify an existing permit.

Give reason for modification under Item II.A.

A complete application consists of this form and one of the following:

Form A, Form B, Form C, Form F, or Short Form C

For additional information contact:

KPDES Branch (502) 564-3410

| | | | | | | | | | |
|---|-------------------|--|--|--|--|--|--|--|--|
| I. FACILITY LOCATION AND CONTACT INFORMATION | AGENCY USE | | | | | | | | |
|---|-------------------|--|--|--|--|--|--|--|--|

| | |
|---|---|
| A. Name of business, municipality, company, etc. requesting permit Western Kentucky Energy P.O. Box 1518 Henderson, KY 42419-1518 (operator) | |
| B. Facility Name and Location Facility Location Name: Kenneth C. Coleman Station | C. Facility Owner/Mailing Address Owner Name: Big Rivers Electric Corp. |
| Facility Location Address (i.e. street, road, etc.): 4982 River Road | Mailing Street: P.O. Box 24 |
| Facility Location City, State, Zip Code: Hawesville, KY 42348 | Mailing City, State, Zip Code: Henderson, KY 42420 |
| | Telephone Number: (270) 827-2561 |

PLEASE SEND
CORRESPONDENCE
to:
WESTERN Kentucky
ENERGY
P.O. Box 1518
HENDERSON KY
42419-1518
Attn: Tom Shaw

| |
|---------------------------------|
| II. FACILITY DESCRIPTION |
|---------------------------------|

| |
|---|
| A. Provide a brief description of activities, products, etc: Coal-fired steam electric generation. |
|---|

| | |
|---|--------------------------------------|
| B. Standard Industrial Classification (SIC) Code and Description | |
| Principal SIC Code & Description: 4911 | Coal-fired steam electric generation |
| Other SIC Codes: | |

| |
|-------------------------------|
| III. FACILITY LOCATION |
|-------------------------------|

| | |
|---|--|
| A. Attach a U.S. Geological Survey 7 1/2 minute quadrangle map for the site. (See instructions) | |
| B. County where facility is located: Hancock | City where facility is located (if applicable): near Hawesville |
| C. Body of water receiving discharge: Ohio | |
| D. Facility Site Latitude (degrees, minutes, seconds): N 37°57'45" | Facility Site Longitude (degrees, minutes, seconds): N86°47'27" |
| E. Method used to obtain latitude & longitude (see instructions): Topo | |
| F. Facility Dun and Bradstreet Number (DUNS #) (if applicable): 031 072 619 | |

IV. OWNER/OPERATOR INFORMATION**A. Type of Ownership:**
 Publicly Owned
 Privately Owned
 State Owned
 Both Public and Private Owned
 Federally owned
B. Operator Contact Information (See instructions)

| | |
|--|--|
| Name of Treatment Plant Operator: Tom Mattingly | Telephone Number: 270-844-6989 |
| Operator Mailing Address (Street): 1874 Morgantown Road | |
| Operator Mailing Address (City, State, Zip Code): Whitesville, KY 42378 | |
| Is the operator also the owner? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Is the operator certified? If yes, list certification class and number below. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| Certification Class: | Certification Number: 05099 |

V. EXISTING ENVIRONMENTAL PERMITS

| | | |
|------------------------------------|---|--|
| Current NPDES Number: KY0001937 | Issue Date of Current Permit: October 1995 | Expiration Date of Current Permit: October 2000 |
| Number of Times Permit Reissued: | Date of Original Permit Issuance: | Sludge Disposal Permit Number: |
| Kentucky DOW Operational Permit #: | Kentucky DSMRE Permit Number(s): | |

C. Which of the following additional environmental permit/registration categories will also apply to this facility?

| CATEGORY | EXISTING PERMIT WITH NO. | PERMIT NEEDED WITH PLANNED APPLICATION DATE |
|--|--------------------------|---|
| Air Emission Source | 0-80-295 | |
| Solid or Special Waste | NA | |
| Hazardous Waste - Registration or Permit | KYD-000-622-928 | |

VI. DISCHARGE MONITORING REPORTS (DMRs)

KPDES permit holders are required to submit DMRs to the Division of Water on a regular schedule (as defined by the KPDES permit). The information in this section serves to specifically identify the department, office or individual you designate as responsible for submitting DMR forms to the Division of Water.

| | |
|---|---|
| A. Name of department, office or official submitting DMRs: | Greg Black |
| B. Address where DMR forms are to be sent. (Complete only if address is different from mailing address in Section I.) | |
| DMR Mailing Name: | Western Kentucky Energy Coleman Station |
| DMR Mailing Street: | P.O. Box 1518 |
| DMR Mailing City, State, Zip Code: | Henderson, KY 42419-1518 |
| DMR Official Telephone Number: | 270-844-6022 |

VII. APPLICATION FILING FEE

KPDES regulations require that a permit applicant pay an application filing fee equal to twenty percent of the permit base fee. Please examine the base and filing fees listed below and in the Form 1 instructions and enclose a check payable to "Kentucky State Treasurer" for the appropriate amount. Descriptions of the base fee amounts are given in the "General Instructions."

Facility Fee Category:

Filing Fee Enclosed:

VIII. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

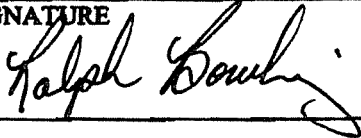
NAME AND OFFICIAL TITLE (type or print):

D. Ralph Bowling
VP Power Operations

TELEPHONE NUMBER (area code and number):

270-844-6041

SIGNATURE



DATE:

9/15/04

KPDES FORM 1 – INSTRUCTIONS

Listed below are explanations of select Form 1 questions. If further information is needed concerning any question, please contact Division of Water, KPDES Branch at (502) 564-3410.

I. Facility Location and Contact Information

- A. Use the official or legal name of the business, company, municipality, etc. requesting permit.
- B. The facility name should be the name by which the facility is commonly known and/or uniquely identified. The information given as the facility name and location address should be the actual location of the facility (i.e. road name, highway number, not the P O Box address).
- C. The facility owner/contact address should be the legal permittee of record and is the address where correspondence regarding the application, permit, etc. for the facility will be sent unless otherwise indicated.

II. Facility Description

- A. Briefly describe the nature of the business and the activities being conducted that require a KPDES permit.
- B. The SIC codes are numbers and descriptions of activities classified by the Executive Office of the President, Office of Management and Budget. These are found in the 1987 Edition of the Standard Industrial Classification (SIC) Manual. List the SIC codes(s) that best describe the products or services provided by the facility in descending order of importance. If an SIC code book is not available, please describe in detail the nature of the business and activities conducted so that an appropriate code can be assigned.

III. Facility Location

- A. Attach a U.S. Geological Survey (USGS), 7 1/2 minute topographic quadrangle map(s) extending at least one mile beyond the property boundary of the discharge source. Depict or mark the facility and each of its intake and discharge structures. Also mark the locations of those wells, springs, surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant within one-quarter mile of the facility property boundary. USGS maps may be obtained from the University of Kentucky, Mines and Minerals Bldg. Room 106, Lexington, Kentucky 40506. Phone: (859) 257-3896.
- B. List the county and, if applicable, city where facility is located.
- C. List the body of water receiving discharge.
- D. List the latitude and longitude for the facility site. The latitude/longitude reading for the site should be taken at the influent to the wastewater treatment plant, if applicable.
- E. List the method used to obtain the latitude and longitude (i.e. topo map coordinates, GPS reading, etc.)
- F. List the facility's Dun and Bradstreet Number if applicable.

IV. Owner/Operator Information

- A. Place a check in the applicable type ownership as listed.
- B. These sections must be completed by all municipal and sanitary wastewater applicants and other facilities as applicable.

List the name and address of the person who operates the sewage treatment plant.

Indicate if the operator is also the owner.

The operator must be currently certified with the Division of Water. For information concerning those requirements, contact: Division of Water, Certification Section, at (502) 564-3410.

List the Operator's Certification Class and Certification Number.

- V. List any existing environmental permits which the facility has or will be applying for.

- VI. List the address where Discharge Monitoring Report (DMR) forms are to be mailed.

VII. Application Filing Fee

The payment of a filing fee as listed below must accompany the application for a KPDES Permit. (Your check must be made payable to "Kentucky State Treasurer.") This fee will be applied toward the final discharge permit fee. The filing fee is not refundable if the application is withdrawn or the permit is denied. Listed below are the facility categories, associated base fees, and application filing fees. (See the "General Instructions" for definitions of facility categories.)

| Facility Category | Base Fee | Application Filing Fee |
|--------------------------|----------|------------------------|
| Major Industry | \$3,200 | \$640 |
| Minor Industry | \$2,100 | \$420 |
| Non-Process Industry | \$1,000 | \$200 |
| Large Non-POTW | \$1,700 | \$340 |
| Intermediate Non-POTW | \$1,500 | \$300 |
| Small Non-POTW | \$1,000 | \$200 |
| Agriculture | \$1,200 | \$240 |
| Surface Mining Operation | \$1,200 | \$240 |
| 501(c)(3) | \$100 | \$20 |

If this application is for a new project, see the General Instructions for the applicable Construction Permit fee.

A permit application cannot be processed unless the application filing fee and (if applicable) construction permit fee is enclosed.

Make your check payable to "Kentucky State Treasurer."

VIII. Certification

The permit application must be signed as follows:

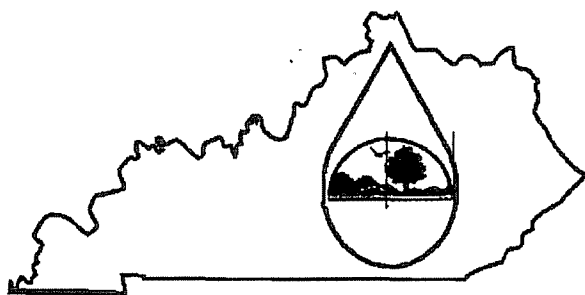
Corporation: by a principal executive officer of at least the level of vice president.

Partnership or sole proprietorship: by a general partner or the proprietor respectively.

Municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official.

KPDES FORM C

KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM



PERMIT APPLICATION

A complete application consists of this form and Form 1.
For additional information, contact KPDES Branch, (502) 564-3410.

| | | | | | | | |
|--|--|--|--|-----------------|--|--|--|
| Name of Facility: Kenneth C. Coleman Station | | | | County: Hancock | | | |
| I. OUTFALL LOCATION | | | | AGENCY DSE | | | |

For each outfall list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

| Outfall No. (list) | LATITUDE | | | LONGITUDE | | | RECEIVING WATER (name) |
|-----------------------|----------|------------|---------|-----------|---------|---------|------------------------|
| | Degrees | Minutes | Seconds | Degrees | Minutes | Seconds | |
| 005 | N37 | 57 | 52 | W86 | 47 | 26 | Ohio |
| 006 | N37 | 57 | 50 | W86 | 47 | 26 | Ohio |
| 007 (new) | To be | determined | | | | | Ohio |
| | | | | | | | |

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

- A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfall. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.
- B. For each outfall, provide a description of: (1) all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) the average flow contributed by each operation; and (3) the treatment received by the wastewater. Continue on additional sheets if necessary.

| OUTFALL NO. (list) | OPERATION(S) CONTRIBUTING FLOW | | TREATMENT | |
|-----------------------|--------------------------------|-----------------------------|---|----------|
| | Operation (list) | Avg/Design Flow (MGD/units) | | |
| 005 | Metal cleaning/boiler cleaning | Batch | Canstic Soda to precipitate | 2-C |
| | | | Iron & Copper Normal discharge to 002 | |
| 006 | Plant Intake | 248 MGD | Cooling water and make up water to ash sluicing | |
| | | | and process water | |
| 007 (new) | Ash pond discharge | 6.48 MGD | Receives flyash, bottom ash | 1U 2K 4A |
| | | | Normal Operation | |

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES (Continued)

C. Except for storm water runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

- Yes (Complete the following table.) No (Go to Section III.)

| OUTFALL NUMBER (Date) | OPERATIONS CONTRIBUTING EFFLUENT (Date) | FREQUENCY | | | | FLOW | |
|--------------------------|--|-----------|-----------|---------|--------|-------------------|--------------------|
| | | Yearly | Quarterly | Monthly | Weekly | Long Term Average | Intermittent Daily |
| | | | | | | | |

III. MAXIMUM PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

- Yes (Complete Item III-B) List effluent guideline category:
 No (Go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measures of operation)?

- Yes (Complete Item III-C) No (Go to Section IV)

C. If you answered "Yes" to Item III-B, list the quantity which represents the actual measurement of your maximum level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

| Quantity Per Day | Units of Measure | MAXIMUM QUANTITY | | Affected Outfalls (Number and Name) |
|------------------|------------------|------------------|-------------------------------------|--|
| | | Operation | Production/Special Use (Specify) | |
| | | | | |

IV. IMPROVEMENTS

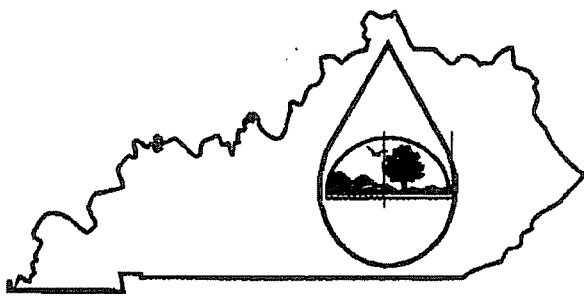
A. Are you now required by any federal, state or local authority to meet any implementation schedule for the construction, upgrading, or operation of wastewater equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders and grant or loan conditions.

- Yes (Complete the following table) No (Go to Item IV-B)

| IDENTIFICATION OF CONDITION AGREEMENT, ETC. | AFFECTED OUTFALLS | | BRIEF DESCRIPTION OF PROJECT | FINAL COMPLIANCE DATE | |
|--|-------------------|------------------|------------------------------|-----------------------|---------|
| | No. | Name & Discharge | | Required | Planned |
| | | | | | |

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

KPDES FORM C



KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT APPLICATION

A complete application consists of this form and Form 1.
For additional information, contact KPDES Branch, (502) 564-3410.

| | |
|--|-----------------|
| Name of Facility: Kenneth C. Coleman Station | County: Hancock |
| I. OUTFALL LOCATION | AGENCY USE |

For each outfall list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

| Outfall No. (list) | LATITUDE | | | LONGITUDE | | | RECEIVING WATER (name) |
|-----------------------|----------|---------|---------|-----------|---------|---------|------------------------|
| | Degrees | Minutes | Seconds | Degrees | Minutes | Seconds | |
| 001 | N37 | 57 | 50 | W86 | 47 | 26 | Ohio River |
| 002 | N37 | 57 | 53 | W86 | 47 | 33 | Ohio River |
| 003 | N37 | 58 | 03 | W86 | 47 | 29 | Ohio River |
| 004 | N37 | 57 | 51 | W86 | 47 | 26 | Ohio River |

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

- A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfall. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.
- B. For each outfall, provide a description of: (1) all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) the average flow contributed by each operation; and (3) the treatment received by the wastewater. Continue on additional sheets if necessary.

| OUTFALL NO. (list) | OPERATION(S) CONTRIBUTING FLOW | | TREATMENT | |
|-----------------------|---|----------------------------|---|----------------------------|
| | Operation (line) | Flow (MGD) (include units) | | Flow (MGD) (include units) |
| 001 | Once through cooling water units 1,2,&3 | 248 MGD | River water is circulated through condensers heat exchangers and returned to river. Chlorine maybe added for clam control. A molluscicide maybe added to control zebra mussels. | 4-A 2-F |
| | | | | |
| | | | | |
| | | | | |

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES (Continued)

C. Except for storm water runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

- Yes (Complete the following table.) No (Go to Section III.)

| OUTFALL NUMBER | OPERATIONS CONTRIBUTING EFFLUENT | FREQ. FREQUENCY | | SOURCE | | FLOW | | TREATMENT |
|----------------|----------------------------------|-----------------|----------------|-----------|-----------|---------|---------------|-----------|
| | | Days per Week | Weeks per Year | Flow Rate | Flow Type | Average | Maximum Daily | |
| | | | | | | | | |

III. MAXIMUM PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

- Yes (Complete Item III-B) List effluent guideline category: Steam Electric Power Plants
 No (Go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measures of operation)?

- Yes (Complete Item III-C) No (Go to Section IV)

C. If you answered "Yes" to Item III-B, list the quantity which represents the actual measurement of your maximum level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

| Quantity Per Day | MAXIMUM QUANTITY | | Affected Outfalls |
|------------------|------------------|--|-------------------|
| | Units of Measure | Operation, Expense, Material, Etc. (Specify) | |
| | | | |

IV. IMPROVEMENTS

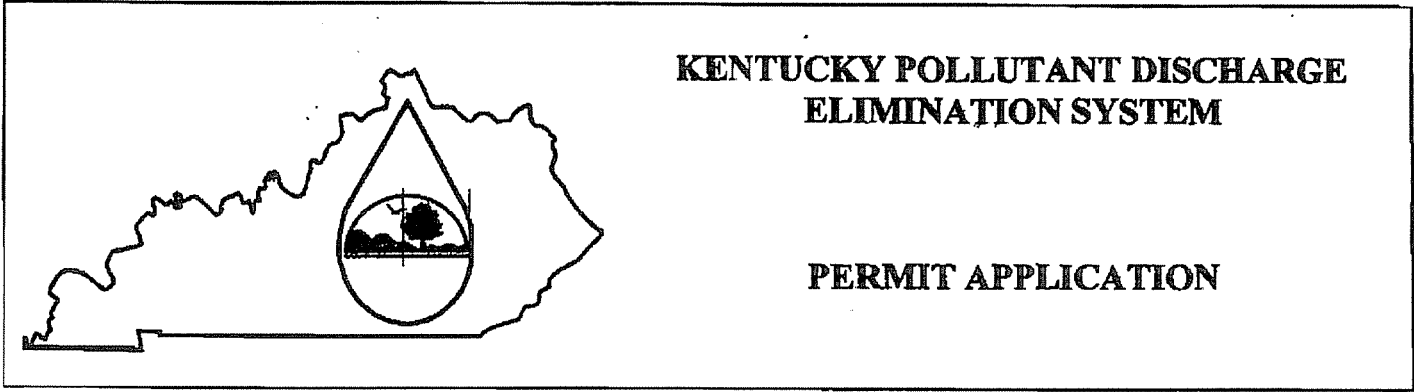
A. Are you now required by any federal, state or local authority to meet any implementation schedule for the construction, upgrading, or operation of wastewater equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders and grant or loan conditions.

- Yes (Complete the following table) No (Go to Item IV-B)

| IDENTIFICATION OF CONDITION, AGREEMENT, ETC. | AFFECTED OUTFALLS | | BRIEF DESCRIPTION OF PROGRAM | FINAL COMPLIANCE PLAN | |
|--|-------------------|----------------------|------------------------------|-----------------------|---------|
| | NO. | Source and Discharge | | Equipment | Program |
| | | | | | |

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

KPDES FORM C



KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT APPLICATION

A complete application consists of this form and Form 1.
For additional information, contact KPDES Branch, (502) 564-3410.

| | | | | | | | |
|--|--|--|--|-----------------|--|--|--|
| Name of Facility: Kenneth C. Coleman Station | | | | County: Hancock | | | |
| I. OUTFALL LOCATION | | | | AGENCY USE | | | |

For each outfall list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

| Outfall No. (list) | LATITUDE | | | LONGITUDE | | | RECEIVING WATER (name) |
|-----------------------|----------|---------|---------|-----------|---------|---------|------------------------|
| | Degrees | Minutes | Seconds | Degrees | Minutes | Seconds | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

- A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfall. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.
- B. For each outfall, provide a description of: (1) all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) the average flow contributed by each operation; and (3) the treatment received by the wastewater. Continue on additional sheets if necessary.

| OUTFALL NO. (list) | OPERATION(S) CONTRIBUTING FLOW | | TREATMENT | |
|-----------------------|--------------------------------|-------------------------------|--|-------|
| | Operation (list) | Flow (MGD) (include units) | Description | Unit |
| 002 | Ashpond North | 7.533 MGD | Receives flyash, bottom | 1U 2K |
| | Intermittent | | ash floor and roof drains, regeneration waste area runoff, coalpile runoff (003) and metal cleaning (005) after treatment. | 4A |
| | | | Normal operation is to recirculate. | |

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES (Continued)

C. Except for storm water runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

- Yes (Complete the following table.) No (Go to Section III.)

| OUTFALL NUMBER (100) | OPERATION CONTRIBUTING FLOW | FREQUENCY | | SOURCE | | FLOW | | REMARKS |
|-------------------------|-----------------------------|-----------|------|-----------|-----------|-----------|-----------|---------|
| | | Day | Week | Flow Type | Flow Rate | Flow Type | Flow Rate | |
| | | | | | | | | |

III. MAXIMUM PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

- Yes (Complete Item III-B) List effluent guideline category:
 No (Go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measures of operation)?

- Yes (Complete Item III-C) No (Go to Section IV)

C. If you answered "Yes" to Item III-B, list the quantity which represents the actual measurement of your maximum level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

| Quantity Per Day | MAXIMUM QUANTITY | | Affected Outfall (Indicate in Item II) |
|------------------|------------------|---|--|
| | Units of Measure | Operation Expense, Material, Etc. (Specify) | |
| | | | |

IV. IMPROVEMENTS

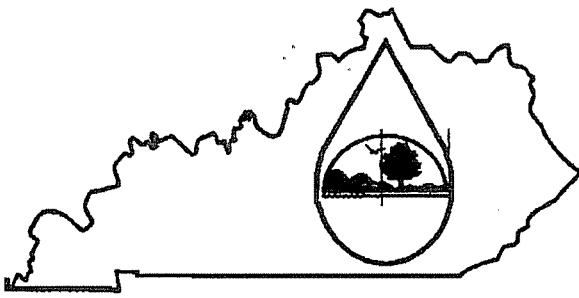
A. Are you now required by any federal, state or local authority to meet any implementation schedule for the construction, upgrading, or operation of wastewater equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders and grant or loan conditions.

- Yes (Complete the following table) No (Go to Item IV-B)

| IDENTIFICATION OF CONDITION (AGREEMENT, ETC) | AFFECTED OUTFALL | | BRIEF DESCRIPTION OF PROJECT | PERMIT COMPLIANCE REQUIRED | |
|--|------------------|---------------------|------------------------------|----------------------------|--------------|
| | No. | Source of Discharge | | Required | Project Cost |
| | | | | | |

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

KPDES FORM C



KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT APPLICATION

A complete application consists of this form and Form 1.
For additional information, contact KPDES Branch, (502) 564-3410.

| | |
|--|-----------------|
| Name of Facility: Kenneth C. Coleman Station | County: Hancock |
| I. OUTFALL LOCATION | |
| AGENCY USE | |

For each outfall list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

| Outfall No. (list) | LATITUDE | | | LONGITUDE | | | RECEIVING WATER (name) |
|-----------------------|----------|---------|---------|-----------|---------|---------|------------------------|
| | Degrees | Minutes | Seconds | Degrees | Minutes | Seconds | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

II. FLOWS, SOURCES OF COLLECTION, AND TREATMENT TECHNOLOGIES

- A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfall. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.
- B. For each outfall, provide a description of: (1) all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) the average flow contributed by each operation; and (3) the treatment received by the wastewater. Continue on additional sheets if necessary.

| OUTFALL NO. (list) | OPERATION(S) CONTRIBUTING FLOW | | TREATMENT | |
|-----------------------|---------------------------------|-----------------------------------|--|-------------------|
| | Description (operation name) | Flow/Design (MGD/intermittent) | Description | Code/Description |
| 003 | Coal pile runoff pond | 0.012 MGD | Treat 10yr/24hr rainfall event. PH treatment prior to discharge. | 1-U 2-C 2-K |
| | | Intermittent | Normal discharge is to the ashpond (002). | 4A |
| | | | | |
| | | | | |
| | | | | |

II. FLOWS, SOURCES, OF POLLUTION, AND TREATMENT TECHNOLOGIES (Continued)

C. Except for storm water runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

- Yes (Complete the following table.) No (Go to Section III.)

| OUTFALL NUMBER | OPERATIONS CONTINUOUS/INTERMITTENT/SEASONAL | FREQUENCY | | DURATION | | FLOW | | OTHER INFORMATION |
|----------------|---|-----------|-----------|----------|-----------|---------|------|-------------------|
| | | PER YEAR | PER MONTH | PER YEAR | PER MONTH | AVERAGE | PEAK | |
| | | | | | | | | |

III. MAXIMUM PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

- Yes (Complete Item III-B) List effluent guideline category:
 No (Go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measures of operation)?

- Yes (Complete Item III-C) No (Go to Section IV)

C. If you answered "Yes" to Item III-B, list the quantity which represents the actual measurement of your maximum level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

| Quantity Per Day | MAXIMUM QUANTITY | | Affected Outfall III-C |
|------------------|------------------|--|---------------------------|
| | Term of Year | Operation, Equipment, Material, Etc. (Specify) | |
| | | | |

IV. IMPROVEMENTS

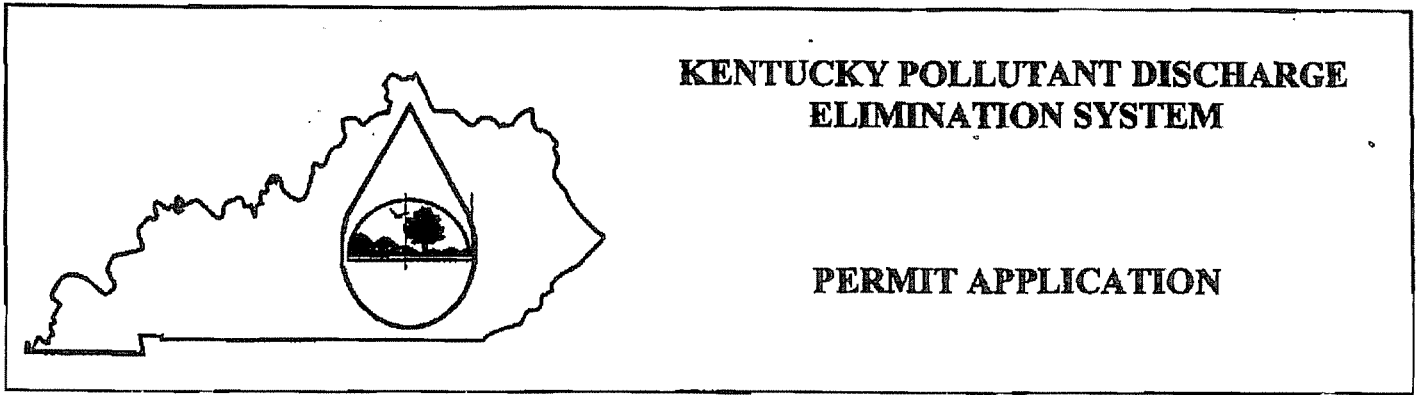
A. Are you now required by any federal, state or local authority to meet any implementation schedule for the construction, upgrading, or operation of wastewater equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders and grant or loan conditions.

- Yes (Complete the following table) No (Go to Item IV-B)

| IDENTIFICATION OF FUNDING SOURCE, AGREEMENT, ETC. | AFFECTED OUTFALLS | | BRIEF DESCRIPTION OF IMPROVEMENT | FINAL COMPLIANCE DATE | |
|---|-------------------|--------|----------------------------------|-----------------------|---------|
| | No. | Source | | Actual | Planned |
| | | | | | |

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

KPDES FORM C



KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT APPLICATION

A complete application consists of this form and Form 1.
For additional information, contact KPDES Branch, (502) 564-3410.

| | | | | | |
|--|--|-----------------|--|--|--|
| Name of Facility: Kenneth C. Coleman Station | | County: Hancock | | | |
| OUTFALL LOCATION | | AGENCY USE | | | |

For each outfall list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

| Outfall No. (list) | LATITUDE | | | LONGITUDE | | | RECEIVING WATER (name) |
|-----------------------|----------|---------|---------|-----------|---------|---------|------------------------|
| | Degrees | Minutes | Seconds | Degrees | Minutes | Seconds | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

- Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfall. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.
- For each outfall, provide a description of: (1) all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) the average flow contributed by each operation; and (3) the treatment received by the wastewater. Continue on additional sheets if necessary.

| OUTFALL NO. (list) | OPERATION(S) CONTRIBUTING FLOW | | TREATMENT | |
|-----------------------|--------------------------------|------------|---|-------------------|
| | Operation (list) | Flow (MGD) | Treatment | Code |
| 004 | Sewage Treatment Plant | 0.005 MGD | Waste from sanitary facilities and showers | 1-L 1-U |
| | | | Chlorine tablets are feed into effluent chamber prior to discharge. | 2-F 3-A 4-A |
| | | | | |
| | | | | |

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES (Continued)

C. Except for storm water runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

- Yes (Complete the following table.) No (Go to Section III.)

| DISCHARGE NUMBER | OPERATION | FREQUENCY | | | FLOW | |
|------------------|-----------|-----------|-------|---------|------|--------|
| | | Days | Hours | Minutes | Rate | Volume |
| | | | | | | |

III. MAXIMUM PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

- Yes (Complete Item III-B) List effluent guideline category:
 No (Go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measures of operation)?

- Yes (Complete Item III-C) No (Go to Section IV)

C. If you answered "Yes" to Item III-B, list the quantity which represents the actual measurement of your maximum level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

| MAXIMUM QUANTITY | | | |
|------------------|-------|---------|-------|
| Quantity | Units | Outfall | Other |
| | | | |

IV. IMPROVEMENTS

A. Are you now required by any federal, state or local authority to meet any implementation schedule for the construction, upgrading, or operation of wastewater equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders and grant or loan conditions.

- Yes (Complete the following table) No (Go to Item IV-B)

| IMPLEMENTATION OF CONDITION | SCHEDULE | | TOTAL COST |
|-----------------------------|----------|--------|------------|
| | Start | Finish | |
| | | | |

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding – Complete one set of tables for each outfall – Annotate the outfall number in the space provided.
 NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered 5-18.

D. Use the space below to list any of the pollutants (refer to SARA Title III, Section 313) listed in Table C-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

| POLLUTANT | SOURCE | POLLUTANT | SOURCE |
|--------------|--|-----------|--|
| PCB < 50 ppm | Transformer fluid NOT normally present in discharge. | Asbestos | Plant Area Pipe insulation & gaskets |

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

A. Is any pollutant listed in Item V-C a substance or a component of a substance which you use or produce, or expect to use or produce over the next 5 years as an immediate or final product or byproduct?

- Yes (List all such pollutants below) No (Go to Item VI-B)

B. Are your operations such that your raw materials, processes, or products can reasonably be expected to vary so that your discharge of pollutants may during the next 5 years exceed two times the maximum values reported in Item V?

- Yes (Complete Item VI-C) No (Go to Item VII)

C. If you answered "Yes" to Item VI-B, explain below and describe in detail to the best of your ability at this time the sources and expected levels of such pollutants which you anticipate will be discharged from each outfall over the next 5 years. Continue on additional sheets if you need more space.

BIOLOGICAL TOXICITY TESTING

Do you have any knowledge of or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

- Yes (Identify the test(s) and describe their purposes below) No (Go to Section VIII)

CONTRACT ANALYSIS INFORMATION

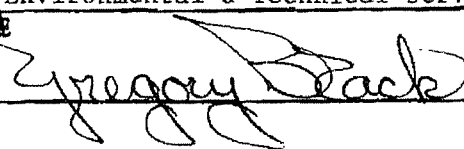
Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

- Yes (list the name, address, and telephone number of, and pollutants analyzed by each such laboratory or firm below) No (Go to Section IX)

| NAME | ADDRESS | TELEPHONE (Area code and number) | POLLUTANTS ANALYZED |
|--------------|---|-------------------------------------|------------------------|
| Test America | 2960 Foster-Creighton Nashville, TN 37204 | 615-726-0177 | Form C |

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

| | |
|--|--|
| NAME AND OFFICIAL TITLE (type or print): Gregory Black Manager, Environmental & Technical Services | TELEPHONE NUMBER (area code and number): 270-844-6022 |
| SIGNATURE  | DATE 9/15/2004 |

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 12)** *Produce a copy of any assessment of future natural gas prices*
2 *and supplies that has been prepared by or for Big Rivers.*

3

4 **Response)** Please see Item 53 of these responses for natural gas forward price
5 assumptions.

6

7

8 **Witnesses)** Patrick N. Augustine and Brian J. Azman

9

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 13)** *Produce a copy of any assessments of future coal prices and*
2 *supplies that has been prepared by or for Big Rivers.*

3

4 **Response)** Please see Item 53 of these responses for coal forward price
5 assumptions.

6

7

8 **Witnesses)** Patrick N. Augustine and Brian J. Azman

9

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 **Item 14)** *Refer to p. 6, lines 10-11 of the Application:*
2
3 *a. Identify the status of the engineering and design for each*
4 *of the projects for which Big Rivers is seeking a CPCN*
5 *b. State when the engineering and design for each project is*
6 *expected to be completed*
7 *c. State how much money has been spent to date on*
8 *engineering and design*
9 *d. Identify the estimated total cost for engineering and*
10 *design for each project.*
11
12 **Response)**
13 a. Big Rivers has received proposals to develop a RFP for Project 4,
14 the Wilson FGD. A vendor has not been selected at this time.
15 Big Rivers has not received proposals for any of the other ECP
16 projects.
17 b. It is anticipated the development of this RFP will be completed
18 by September, at which time it will be bid. Detailed design and
19 engineering by the FGD vendor should occur in the first half of
20 2013.

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 15)** *Refer to p. 13, lines 17-20 of the testimony of Robert Berry. For*
2 *each of Big Rivers' customer classes, identify the date and size in percent*
3 *of each rate increase that Big Rivers has implemented since 2003.*

4
5 **Response)** Big Rivers' only general rate adjustment (base rate increase) during
6 the referenced period became effective September 1, 2011, in Case No. 2011-
7 00036. The Rural base rate increase was 9.1%, Large Industrial 5.0% and
8 Smelters 5.2%.

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

12

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 16)** *Refer to p. 16, lines 6-9 of the testimony of Robert Berry.*

2

3 *a. Identify the capacity factor at which the Big Rivers fleet*
4 *could operate to comply with CSAPR without “significant*
5 *capital investments in additional emissions reduction*
6 *equipment”*

7 *b. Identify the capacity factor at which the Big Rivers fleet*
8 *could operate to comply with MATS without “significant*
9 *capital investments in additional emissions reduction*
10 *equipment”*

11

12 **Response)**

13 a. In order to comply with CSAPR phase 2 allocations without
14 “significant capital investments in additional emissions
15 reduction equipment,” the Big Rivers’ coal fleet would need to
16 operate at less than a 62% net capacity factor.

17 b. MATS is a unit specific emission rate; therefore, lowering the
18 capacity factor will not significantly change the MATS emissions
19 rates. The testing performed by Big Rivers demonstrated that
20 the two HMP&L units are the only coal units that are in
21 compliance with MATS. However, as detailed in the 2012 Plan,
22 even the HMP&L units will require some capital investment to

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 install monitoring equipment to report emissions for MATS;
2 please see Project 11 in Exhibit Berry-2.

3

4

5 **Witness)** Robert W. Berry

6

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 Item 17) *Refer to p. 18 of the testimony of Robert Berry and p. 3-4 of Ex.*
2 *2 to the testimony of William DePriest (the Sargent & Lundy*
3 *Environmental Compliance Study). With regards to the new flue gas*
4 *desulfurization system ("FGD") for Wilson Unit 1 referenced therein:*

5

6

a. *Identify the type of FGD that would be installed*

7

b. *Identify the basis for contending that the new FGD would*
8 *achieve 99% removal of sulfur dioxide emissions from*
9 *Wilson Unit 1*

8

9

10

c. *Produce any documents supporting the contention that*
11 *the new FGD would achieve 99% removal of sulfur dioxide*
12 *emissions from Wilson Unit 1.*

11

12

13

14 **Response)**

15

a. The FGD that would be installed is a limestone based, vertical
16 wet FGD system with forced oxidation.

16

17

b. Wet FGD suppliers have, in the last several years, guaranteed
18 99% SO₂ removal for systems burning bituminous coals similar
19 to those fired at Wilson Unit 1.

18

19

20

c. Commercial wet FGD suppliers state design features including
21 99% SO₂ removal on their web sites. These include Babcock &
22 Wilcox and Hitachi Power. See the following websites:

21

22

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 http://www.babcock.com/products/environmental_equipment/wet_fgd.html

2

3 [http://www.hitachipowersystems.us/products/environmental_products/fgd/
4 index.html](http://www.hitachipowersystems.us/products/environmental_products/fgd/index.html)

5

6

7 **Witness)** William DePriest

8

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 Item 18) *Refer to p. 25, lines 8-13 of the testimony of Robert Berry. State*
2 *whether the parasitic load related to each of the projects for which a*
3 *CPCN is being sought in this filing would impact the cost of producing*
4 *energy from any of the Big Rivers units. If so, identify the approximate*
5 *impact. If not, explain why not.*

6
7 **Response)** As stated in Mr. Berry's testimony, the S&L study did not include
8 calculating actual auxiliary power consumption for the recommended compliance
9 strategies. Detailed engineering for each project will have to be completed before
10 power consumption estimates can be determined, but Big Rivers believes it will be
11 insignificant. However, the S&L study did include estimated auxiliary power cost
12 in their future additional O&M projections for the NPV calculation of each project.
13 Based on the S&L estimates, the impact on the cost of producing energy from the
14 Big Rivers units by project is listed in the table below:

15

| Big Rivers Electric Corporation | | |
|--|---------------------|--|
| Cost of Producing Energy from Generating Units by Project | | |
| Project No. and Name | | Energy and Costs |
| No. 4 | Wilson FGD | 1.3 MW at an annual cost of \$392,500 |
| No. 5 | Green SCR | 1.8 MW at an annual cost of \$545,000 |
| No. 6 | Reid Gas Conversion | 0 MW at an annual cost of \$0 |
| No. 7 | Add Pumps @ HMP&L | 0.40 MW at an annual cost of \$115,600 |
| No. 8 | Coleman ACI | 0.28 MW at an annual cost of \$84,000 |
| No. 9 | Wilson ACI | 0.19 MW at an annual cost of \$56,100 |
| No. 10 | Green ACI | 0.30 MW at an annual cost of \$86,700 |

**Case No. 2012-00063
Response to SC 1-18
Witness: Robert W. Berry
Page 1 of 2**

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Witness)** Robert W. Berry

2

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 19)** *Refer to p. 27 line 18 to p. 28 line 3 of the testimony of Robert*
2 *Berry and p. 20, lines 9-16 of the testimony of William DePriest. With*
3 *regards to the advanced low NOx burner systems for the Coleman Units:*

- 4
- 5 *a. Identify the capital cost of such system for each unit*
- 6 *b. Identify the O&M cost of such system for each unit*
- 7 *c. Identify the amount change to the NPVRR of the Build*
8 *Case for the Coleman Units if the advanced low NOx*
9 *burner systems were included*
- 10 *d. Produce any evaluation of the economics of installing*
11 *advanced low NOx burner systems on the Coleman Units*
- 12

13 **Response)**

- 14 a. The capital cost for installing advanced third generation low
15 NOx burners in the Coleman units is \$5.94 million per unit
16 (\$17.82 million total)
- 17 b. The additional O&M cost was estimated at \$0.
- 18 c. An abbreviated financial model run using some assumptions
19 determined that with the Coleman burners included the Build
20 Case NPVRR suffered a negative \$3.68M impact. See the
21 attachment provided on the CONFIDENTIAL CD accompanying
22 these responses, and provided under a petition for confidential

**Case No. 2012-00063
Response to SC 1-19
Witness: Robert W. Berry
Page 1 of 2**

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

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treatment, for assumptions and calculations.

- d. Advanced Low NOx burners were not included in Big Rivers 2012 Plan as they were not needed to meet the fleet NOx compliance strategy that was chosen, and thus were not included in the production cost model or financial model runs. An abbreviated financial analysis indicated a negative NPVRR for this project. See attachment for Item 19c above for assumptions and calculations.

Witness) Robert W. Berry

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 20)** *Refer to p. 27 line 18 to p. 28 line 3 of the testimony of Robert*
2 *Berry. With regards to the SCR for Green Unit 1:*

3

4 *a. Identify the capital cost of the SCR*

5 *b. Identify the annual O&M cost of the SCR*

6 *c. Identify the amount change to the NPVRR of the Build*
7 *Case for Green Unit 1 if the SCR were included*

8 *d. Produce any evaluation of the economics of installing an*
9 *SCR on Green Unit 1*

10

11 **Response)**

12 a. The capital cost for installing an 85% NOx removal SCR on
13 Green Unit 1 is \$81M in 2011 dollars.

14 b. The additional O&M cost was estimated at \$1.47 million per
15 year adjusted annually for inflation and commodity price
16 fluctuations.

17 c. An abbreviated financial model run using some basic
18 assumptions determined that with the Green Unit 1 SCR
19 included the Build Case NPVRR suffered a negative \$36.28M
20 impact. See the attachment provided on the CONFIDENTIAL
21 CD accompanying these responses, and, provided under a
22 petition for confidential treatment, for assumptions and

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

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calculations.

- d. An SCR for Green Unit 1 was not included in Big Rivers' 2012 Plan as it was not needed to meet the fleet NOx compliance strategy that was chosen, and thus was not included in the production cost model or financial model runs. An abbreviated financial analysis indicated a negative NPVRR for this project. See the attachment for part c above for assumptions and calculations.

Witness) Robert W. Berry

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 21)** *Refer to page 27, lines 18-22 and page 28, lines 1-3 of the*
2 *testimony of Robert Berry. Has Big Rivers done any analysis of the*
3 *potential effects of the NAAQS reductions for any of its units? Please*
4 *provide the work papers showing the results of this analysis.*

5

6 **Response)** Potential effects of NAAQS were estimated by reducing allocations
7 an additional 20% beyond the 2014 CSAPR levels. This was accounted for on a
8 fleet wide basis. Please see the CD Big Rivers filed May 30, 2012, in response to
9 the May 11, 2012, letter from KIUC's counsel to Big Rivers' counsel.

10

11

12 **Witness)** William DePriest

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 22)** *Refer to p. 28, lines 16-18 of the testimony of Robert Berry.*
2 *State whether the "additional precipitator testing" referenced therein has*
3 *occurred. If so, describe and produce the results of such testing. If not,*
4 *explain why not.*

5

6 **Response)** Big Rivers has not yet performed additional precipitator testing to
7 date. Big Rivers has not contracted with any activated carbon or dry sorbent
8 injection firms to run demonstration tests. Until such demonstration tests are
9 performed, Big Rivers will not perform the additional precipitator testing
10 referenced.

11

12

13 **Witness)** Robert W. Berry

14

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 Item 23) *Refer to p. 29, lines 13-17 of the testimony of Robert Berry.*
2
3 a. *Identify the “magnitude of potential savings from DSM*
4 *and energy efficiency” referenced therein.*
5 b. *Identify and produce any evaluation of the ability of Big*
6 *Rivers to achieve energy savings through the use of DSM*
7 c. *Identify the magnitude of savings from DSM and energy*
8 *efficiency would be needed to “materially assist Big Rivers*
9 *in complying with CSAPR and MATS.”*
10 d. *Identify and produce any evaluation of the role that DSM*
11 *could play in replacing the need for any of the projects for*
12 *which a CPCN is sought in this proceeding*
13 e. *Describe the DSM and energy efficiency programs*
14 *currently offered by Big Rivers, including demand-*
15 *response, interruptible load, and efficiency programs.*
16 f. *Identify any additional DSM and energy efficiency*
17 *programs Big Rivers intends to offer in the future.*
18 g. *For the DSM and energy efficiency programs currently*
19 *offered by Big Rivers, identify the:*
20 i. *Cost*
21 ii. *Annual MW or MWh reductions achieved through*
22 *such programs since their inception,*

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 *iii. Annual MW or MWh reductions projected to be*
2 *achieved through such programs for each year*
3 *through 2026,*
4 *iv. Expected life of the programs.*
5 *v. Penetration of these programs.*
6 *h. Produce any DSM potential studies performed by or for*
7 *Big Rivers in the last five years, including attendant*
8 *workbooks or calculations. Describe if or how the results*
9 *of such studies are incorporated into the current case. If*
10 *they are not, explain why not.*

11
12 **Response)**

- 13 a.-b. Please see Appendix B of the Big Rivers 2010 Integrated
14 Resource Plan provided in Item 4 of these responses.
15 c. Please see Item 16 of these responses. Big Rivers' would have to
16 achieve sufficient load reduction from DSM and energy
17 efficiency so that its coal fleet could operate at less than a 62%
18 net capacity factor.
19 d. Please see response to parts a. and c. above.
20 e. Please see the Big Rivers Electric Corporation Demand Side
21 Management (DSM) Report attached hereto.
22

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 f. Additional DSM programs will continue to be evaluated for cost
2 effectiveness; however, there are no plans to implement
3 additional DSM programs at this time.
- 4 g.
- 5 i. and ii.
- 6 Please see Big Rivers Electric Corporation Demand Side
7 Management (DSM) Report, attached hereto.
- 8 iii. Please see Appendix 2 of Appendix B of the Big Rivers
9 2010 Integrated Resource Plan, which is provided in Item
10 4 of these responses. The projections extend to 2020
- 11 iv. It is difficult to accurately predict the expected life of the
12 programs, which will be developed, implemented,
13 adjusted and eliminated, based on technological evolution
14 and associated to cost analytics.
- 15 a. DSM programs currently being offered began in October
16 2011 and have not been evaluated for penetration rates in
17 the Member distribution cooperatives' service territories.
18 Appendix 2 of Appendix B of the Big Rivers 2010
19 Integrated Resource Plan assumes a maximum
20 penetration of 30% for all measures.
- 21

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 h. Please see Appendix B of the Big Rivers 2010 Integrated
2 Resource Plan provided in Item 4 of these responses.

3


4

5 **Witness)** Robert W. Berry

6

**Big Rivers DSM Final Report to Kentucky Public Service
Commission – January 27, 2012**



Your Touchstone Energy® Cooperative 

**Big Rivers Electric Corporation
Demand Side Management
(DSM) Report
January 27, 2012**

**Provided to the Kentucky Public Service Commission
Pursuant to Ordering Paragraph No. 9
of
The Commission's Order dated November 17, 2011
in
Case No. 2011-00036**

Table of Contents

| | |
|---|-----------|
| DSM Program Summary | 1 |
| 2010 Budget | 4 |
| Appendix A: DSM Pilot Program Plans | 5 |
| Pilot Program Impact Summary | 6 |
| Residential Energy Star (ES) Appliances Pilot | |
| Refrigerator | 7 |
| Clothes Washer | 9 |
| Energy Efficient Outdoor Lighting Pilot | 10 |
| ES New Home Pilot | 11 |
| Residential Weatherization Pilot | 13 |
| HVAC & Refrigeration Tune-Up Pilot | 15 |
| Commercial / Industrial Efficient Lighting Pilot | 17 |
| Appendix B: DSM Program Plans | 18 |
| Plan Impact Summary | 19 |
| Residential Lighting Program (CFL Distribution) | 20 |
| Residential Energy Star (ES) Appliances | |
| Refrigerator | 21 |
| Clothes Washer | 22 |
| ES Heating, Ventilation and Air Conditioning | |
| (HVAC) Program | 23 |
| Residential Weatherization Program | 25 |
| Touchstone Energy New Home Program | 27 |
| HVAC Tune-Up Program | 28 |
| Commercial / Industrial Efficient Lighting Program | 29 |
| Commercial / Industrial General Efficiency Program | 31 |

Demand Side Management (DSM) Report Big Rivers Electric Corp

Program Summary

Big Rivers Electric Corporation has taken a proactive approach to advance the goal of Strategy 1 of the 2008 Governor’s Intelligent Energy Choices plan “to improve the efficiency of Kentucky’s homes, buildings, industries and transportation fleet by establishing a goal of offsetting at least 18 percent of Kentucky’s projected 2025 energy demand.”

The purpose of this DSM report is to provide descriptions and data about DSM programs currently being offered or in development and the DSM pilot programs used to design and implement the DSM programs. The pilot program plans listed below provided insight into administrative requirements, retail member response to incentive levels, trade ally availability, and promotion media. Where appropriate, a short survey was part of some pilots to gather information about program or media impact. Program plans and results are provided in Appendix A of this report.

DSM Pilot Programs

1. Energy Star Refrigerator Replacement Pilot
2. Energy Star Clothes Washer Replacement Pilot
3. Energy Efficient Outdoor Lighting Pilot
4. Energy Star New Home Pilot
5. Weatherization Pilot (residential and manufactured home weatherization)
6. HVAC and Refrigeration Tune-up Pilot
7. Commercial/Industrial Energy Efficient Lighting Pilot
8. Poultry Facility Pilot

Pilot Program Results

| Pilot Programs | Result | Incentive | Promotion |
|--|-----------|--------------|------------|
| Energy Star Refrigerator Replacement Pilot | 29 units | \$2,900.00 | \$0.00 |
| Energy Star Clothes Washer Replacement Pilot | 71 units | 7,100.00 | 597.00 |
| Energy Efficient Outdoor Lighting Pilot | N/A | 2,241.19 | 0.00 |
| Energy Star New Home Construction Pilot | 49 homes | 49,000.00 | 1,411.91 |
| HVAC and Refrigeration Tune-up Pilot | 418 units | 12,325.00 | 564.42 |
| Weatherization Pilot | 5 homes | 22,701.49 | 0.00 |
| Commercial Efficiency Lighting Pilot | 9.49 Kw | 3,318.00 | 689.30 |
| Poultry Facility Pilot | 25 houses | 15,000.00 | 0.00 |
| Total | | \$114,585.68 | \$3,262.63 |

The quantitative impact on summer and winter demand and annual kWh and water savings for the pilot programs and the pilot program plans can be found in Appendix A of this report. The following are qualitative results from the pilot programs.

The Energy Star Refrigerator Replacement Pilot combined two measures to increase the benefit to the retail member by influencing them to purchase an Energy Star rated refrigerator and recycle their existing refrigerator. Survey results show more than 85% of the participants recycled an operable refrigerator. This pilot demonstrated the incentive was adequate to motivate retail members to replace and recycle older model refrigerators. The incentive will be continued in 2012.

The Energy Star Clothes Washer Replacement Pilot saves energy, water and time for the participant. The clothes washer consumes less hot water and significantly reduces drying time. More than 95% of the recipients of the incentive use electricity to heat their water. This pilot demonstrated the incentive was adequate to motivate retail members to replace inefficient washing machines with the energy and water saving Energy Star models. The incentive will be continued in 2012.

The Energy Efficient Outdoor Lighting Pilot evaluation of the lamps in outdoor applications is ongoing. Each of the Member Cooperatives has installed induction and/or LED lamps to gauge durability, light quality and customer satisfaction. Each of the Member Cooperatives will determine the applicability of the technology for their use.

The Energy Star New Home Construction Pilot evaluated the incentive level necessary to influence home builder's and owner's willingness to invest in an energy efficient home. Recent changes in the Energy Star new home requirements were not found to be cost effective by the participating home builders, so the decision was made to move forward with the Touchstone Energy Home, which maintains the 2011 Energy Star standard, requiring a Home Energy Rating (HERS) of 85 or lower to qualify. The incentives in the program going forward were adjusted to more accurately reflect the benefit anticipated for the retail member and the cooperatives.

The Weatherization Pilot for existing homes was primarily a test of administrative process with Sherlock Homes of Bloomington Indiana. Sherlock Homes had demonstrated their ability to provide cost effective weatherization of both site-built and eleven homes were initially evaluated for inclusion in the pilot. Six homes were selected for weatherization and 5 were ultimately weatherized in a two day period. Sherlock Homes is uniquely qualified and certified to perform whole house weatherization and documentation. The weatherization program is currently still in the design phase and will likely be introduced in the second quarter of 2012. The Kentucky Home Performance ("KHP") program will be integrated into the program when the future of the KHP program is determined by the Kentucky Housing Corp.

The HVAC Tune-up Pilot evaluated retail member participation at the incentive level offered for this high impact program that improves the performance of central cooling and refrigeration units resulting in reduced summer peak demand and kWh reduction. The incentive was found to be effective and will continue into 2012.

The Commercial Efficiency Lighting Pilot explored effective incentive levels and provided opportunities to explore trade allies in the commercial lighting industry. These projects have significant lead time and the program participation was limited during the pilot project. Continual monitoring and adjustment of the incentive may be necessary as economic conditions change.

Customer interest in the program continues to build and the incentive level of \$350 per kW will be offered in the 2012 program.

The Poultry Facility Pilot is a subset of the commercial lighting pilot, which provided an opportunity to quantify the impact of LED technology on the poultry industry. The pilot involved monitoring the lighting load of two identical chicken barns through complete grow-out cycles to determine the change in electric load resulting in the lighting change. Based on the load profile data, the incentive was determined to be \$600 per poultry grow-out facility. A significant number of poultry growers have expressed interest in the LED technology and it is expected participation in the lighting project will be high as the technology proves itself.

Results of the pilot projects were used to design a portfolio of programs promoting a wide array of energy efficiency measures for residential and commercial retail members taking service under the Big Rivers Rural Delivery Service (“RDS”) tariff. The following is a list of programs currently being offered, or in the case of residential weatherization, still in development. Program plans are contained in Appendix B of this report.

DSM Programs

1. Residential Lighting Program (CFL distribution)
2. Residential Energy Star (ES) Appliances
3. ES Heating, Ventilation and Air Conditioning (HVAC) Program
4. Residential Weatherization Program (development still underway)
5. Residential Touchstone Energy New Construction Program
6. HVAC Tune-Up Program
7. Commercial/Industrial Efficient Lighting Program
8. Commercial/Industrial Efficient Equipment Program

2011 DSM Program Results

| DSM Program | Total Meas. | Total Spend |
|--|--------------------|---------------------|
| Residential Lighting Program (CFL distribution) | 19,743 | \$30,947.75 |
| Residential Energy Star (ES) Appliances | | |
| Energy Star Clothes Washer | 233 | 23,300.00 |
| Energy Star Refrigerator | 79 | 7,900.00 |
| ES Heating, Ventilation and Air Conditioning (HVAC) Program | 57 | 30,500.00 |
| Residential Weatherization Program (Pilot evaluation still underway) | 0 | 0.00 |
| Residential Touchstone Energy New Construction Program | 0 | 0.00 |
| HVAC Tune-Up Program | 0 | 0.00 |
| Commercial/Industrial Efficient Lighting Program | 48.6 kW | 15,906.50 |
| Commercial/Industrial Efficient Equipment Program | 0 | 0.00 |
| Promotional Expense | | 76,953.99 |
| Total | | \$185,508.24 |

The 2011 DSM programs were offered to the Member Cooperatives beginning in October 2011 with the exception of the weatherization program still under development. The Energy Star new home pilot incentive levels were continued through December 2011 to maintain consistency for home

builders. The HVAC Tune-up program is designed to be offered in the spring, so the program has yet to be publicly offered. Additional DSM programs will continue to be evaluated and introduced as they are proven to be cost effective and accepted by Big Rivers and its members.

2012 Budget

| | Annual kWh Savings | Winter kW Savings | Summer kW Savings | Water Savings(gal.) | Measure Cost | Incentive | Tax Credits | TRC Ratio |
|----------------------------------|--------------------|-------------------|-------------------|---------------------|--------------------|------------------|-------------|-------------|
| Residential Lighting Program | 1,752,000.0 | 400 | 171 | | \$100,000 | \$100,000 | | 7.30 |
| Residential Efficient Appliances | 523,200.0 | 33.2 | 46 | 2,600,000 | \$155,200 | \$80,000 | | 1.96 |
| HVAC Program | 332,900.0 | 552.975 | 22.05 | | \$370,000 | \$57,500 | \$105,000 | 1.40 |
| Weatherization Program | 700,000.0 | 495 | 89 | 250,000 | \$400,000 | \$200,000 | | 2.28 |
| New Construction | 367,800.0 | 124 | 73 | | \$500,000 | \$100,000 | | 1.13 |
| Tune-Up | 1,066,880.0 | 0 | 500.1 | | \$266,720 | \$50,010 | | 1.48 |
| C&I Lighting | 1,981,429.0 | 540 | 400 | | \$383,400 | \$190,000 | | 3.54 |
| C&I Products | 234,643.0 | 64 | 64 | | \$85,714 | \$30,000 | | 2.57 |
| Totals | 6,958,852.0 | 2,209.18 | 1,365.15 | 2,850,000.00 | \$2,261,034 | \$807,510 | | 2.03 |

The 2012 budget for energy efficiency programs totals \$1,000,000. The program incentives listed in the above table total approximately \$800,000. The additional \$200,000 is budgeted for promotion of the programs through websites, radio, print media and standard communication tools such as Kentucky Living or Member Cooperative newsletters. Depending on the retail member response to the programs, the promotional funds may be rolled back into the incentive programs to increase the impact of the most popular programs.

Program budgets will remain flexible and react to retail member response to each program. Member Cooperatives will be able to adjust or shift budgets to successful programs. Program requirements specified in individual program plans are minimum standards; Member Cooperatives may establish more stringent requirements at their discretion.

Member Cooperatives will collect required documentation and submit an invoice, with a summary spreadsheet for each program, to Big Rivers for reimbursement monthly. The invoice will contain the following information for each incentive paid:

1. Date
2. Account Number
3. Name
4. Service Address
5. City
6. Zip Code
7. Incentive Description Details
8. Incentive Amount

Each program will have a separate summary spreadsheet. Multiple program summary spreadsheets may be combined on the same invoice. Promotional reimbursement requires a copy of the advertisement used in printed media. Radio advertising should be submitted with a script.

Appendix A: DSM Pilot Results

Big Rivers Electric Corporation DSM Pilot Program Impact Summary

| | Per Unit | | Per Unit | | Unit Quantity | Total Annual | | Total Winter | | Total Spend | |
|--|--------------------|----------------------------|----------------------------|--------------------|---------------|------------------|------------------|------------------|---------------------|-------------|------|
| | Annual kWh Savings | Per Unit Winter kW Savings | Per Unit Summer kW Savings | Summer kWh Savings | | kWh Savings | kW Savings | Oct. - Dec. 2011 | Summer kWh Savings | kW Savings | 2011 |
| Residential Programs | | | | | | | | | | | |
| Residential Efficient Appliances | | | | | | | | | | | |
| Clothes Washer Rebate | 224 | 0.007 | 0.026 | 71 | 15,904 | 0.5 | 1.8 | \$7,100.00 | | | |
| Energy Star Refrigerator + Recycling | 1,084 | 0.076 | 0.089 | 29 | 31,436 | 2.2 | 2.6 | \$2,900.00 | | | |
| Weatherization Program | | | | | | | | | | | |
| Stick-Built Home | 6,980 | 4.950 | 0.890 | 4 | 27,920 | 19.8 | 3.6 | \$19,667.74 | | | |
| Manufactured Home | 4,680 | 2.200 | 0.300 | 1 | 4,680 | 2.2 | 0.3 | \$3,033.75 | | | |
| New Construction | | | | | | | | | | | |
| Gas Heat | 2,435 | 0.260 | 0.580 | 45 | 109,575 | 11.7 | 26.1 | \$45,000.00 | | | |
| Air Source Heat Pump | 4,922 | 2.700 | 0.580 | 0 | 0 | 0.0 | 0.0 ^F | \$0.00 | | | |
| Dual Fuel Heat Pump (w/ Gas) | 8,370 | 9.766 | 0.580 | 0 | 0 | 0.0 | 0.0 ^F | \$0.00 | | | |
| Geothermal Heat Pump | 8,580 | 7.150 | 0.799 | 4 | 34,318 | 28.6 | 3.2 | \$4,000.00 | | | |
| Tune-Up | | | | | | | | | | | |
| HVAC Tune-Up | 636 | 0.000 | 0.304 | 343 | 218,148 | 0.0 | 104.2 | \$8,575.00 | | | |
| Commercial/Industrial Programs | | | | | | | | | | | |
| C&I Lighting | | | | | | | | | | | |
| Lighting Projects (Includes Poultry House Pilot) | 12 | 0.0029 | 0.0027 | 52.4 | 214,007 | 52.4 | 48.9 | \$18,318.00 | | | |
| Tune-Up | | | | | | | | | | | |
| HVAC Tune-Up | 5,268 | 0.000 | 1.200 | 126 | 663,768 | 0.0 | 151.2 | \$3,750.00 | | | |
| <i>* Assumed 6 tons/unit</i> | | | | | | | | | | | |
| Total DSM Program Savings: | | | | | | 1,349,756 | 117.4 | 341.9 | \$112,344.49 | | |

Energy STAR Refrigerator Replacement Pilot

Purpose

The net present benefit of replacing an existing refrigerator with a new energy star refrigerator is \$56 and the benefit of hauling away an operable second refrigerator is about \$220. The combined benefit results in an average peak demand reduction of .1 kW per unit and an annual energy savings of 950 kWh.

The purpose of the pilot is to test communication of the incentive to the members and the effectiveness of the incentive amount. The member will be required to provide proof of both purchase and haul-away and recycling of the old unit. The member will also be required to fill out a survey to determine the condition of the old refrigerator and where the member heard of the program.

The pilot will begin on October 1, 2010 and conclude on December 31, 2010. It will be promoted through the member newsletter, direct mail to local appliance dealers and the member Web site.

Objective

1. Test methods of communicating program to members using available media.
2. Test the level of response to the cash incentive offered.
3. Through a questionnaire, determine the condition of the old refrigerator.

Budget

The total project cost will not exceed \$18,000 and not to exceed \$3,000 direct marketing expenditures.

Planning

1. The Member Cooperative will present one \$50 gift card to the first 150 participants who provide the refrigerator's proof of purchase (detailed invoice from the dealer), the UPC code from the carton, and the Energy Guide showing Energy Star certification. Removal of the old refrigerator by the dealer shall be noted on the invoice. Dorm-size refrigerators do not qualify for incentive.
2. The dealer shall receive \$50 for removing and recycling the old refrigerator.

Each of the incentive payments will require a signed receipt from a licensed HVAC contractor and the retail member will be required to fill out a survey including the following questions.

1. Where did you hear about this program?
2. Was the old refrigerator operable?

Deliverables

This project will gauge effective methods of communicating the program to members and the condition of the old unit. This information will be used to design a program for full implementation.

Energy STAR Clothes Washer Replacement Pilot

Purpose

The net present benefit of replacing an existing clothes washer with a new energy star clothes washer is \$405 including electricity and water savings. The estimated combined benefit results in an annual energy savings of 224 kWh and water savings of 6500 gallons.

The purpose of the pilot is to test promotional mediums for the incentive to members and the effectiveness of the incentive amount (\$100). The member will be required to provide proof of purchase and installation at the service address. The member will also be required to fill out a survey to determine the energy source for the dryer and where the member heard about the program.

The pilot will begin on March 1, 2011 and conclude on May 15, 2011. It will be promoted through the Member Cooperative Web site, newsletter and selected media.

Objective

1. Test methods of communicating program to members using different promotional media.
2. Test the level of response to the cash incentive offered.
3. Through a questionnaire, determine the energy source for the dryer and where the customer heard about the program.

Budget

The total project cost will not exceed \$15,000 including not exceeding \$3,000 direct marketing expenditures.

Planning

The incentive for this pilot will be \$100 to the member using either a prepaid debit card or gift card.

Each of the incentive payments will require proof of purchase and installation from a legitimate retail appliance outlet and the member will fill out a survey including the following questions.

1. Where did you hear about this program?
2. What is the source of energy for your dryer (electric or gas)?

Deliverables

This project will determine effective methods of reaching members and derive statistics on the source of energy for the dryer. This information will be used to design a program for full implementation.

Energy Efficient Outdoor Lighting Pilot

Purpose

The elimination of the Mercury Vapor (MV) lamp for use in the outdoor lighting has serious implications for the member cooperatives, which have relied on the long life of the MV lamps to provide outdoor lighting. The members migrated to the Metal Halide (MH) as a replacement lamp, but these lamps have substantially shorter lives and may have significantly higher operating and maintenance cost in comparison to the lifetime costs of the MV.

The purpose of this pilot is to test the light quality and quantity, energy consumption and product durability of both Light Emitting Diode (LED) and Induction lamps as potential replacements of the MV lamp. Both LED and Induction lamps have an estimated life of 90,000 to 100,000 hours. This may allow significantly fewer service calls to the each service over the life of the lamps compared to the MH lamp.

The cost of both LED and Induction lamps is expected to be significantly higher than the MH lamp.

Objective

1. Test the light quality and quantity of each lamp and evaluate customer satisfaction.
2. Provide energy efficiency benefit analysis.
3. Determine the overall cost/benefit ratio for the lifetime of each lamp.
4. Determine potential vendors for both LED and Induction lamps.

Budget

The product analysis will be limited to \$5,000 for all three member cooperatives for limited testing and cost benefit analysis.

Planning

The first installation occurred in October 2010 to provide an opportunity for engineers and customer service departments to determine the satisfaction with each light source. Each of the members will be provided lamps for the two year evaluation.

Deliverables

1. LED and Induction light quality and customer satisfaction report.
2. Lifetime cost benefit analysis for each lamp
3. Viewing opportunities for member cooperatives.

Energy Star New Home Pilot

Purpose

The Energy Star new-home construction standard is an objective, reliable and verifiable energy efficiency program that ensures the member will see substantial savings from his or her new home.

Objective

This program will educate and promote the Energy STAR home construction standard and determine if a \$1,000 incentive will be effective in convincing builders and homeowners to build Energy Star certified homes.

Budget

The budget for this pilot project is \$50,000.

Planning

The building or homeowner will be required to provide a copy of the Energy Star certificate for the residence at the service address.

Energy Star Certification

The New Home Energy Star certified contractor will complete a whole-house analysis ensuring quality work and energy efficiency criteria are met. This rater works closely with the builder to determine the needed energy-saving equipment, construction techniques and administration of required on-site diagnostic testing/inspections are documented in order to assure the home is eligible to earn the Energy STAR certification. The home must meet the guidelines, making it 15-30% more efficient than standard homes.

Step 1: Builder chooses to partner with ENERGY STAR.

Through the partnership-agreement process, the builder selects a Home Energy Rater to work with to qualify his or her homes.

Step 2: Builder and rater select appropriate energy-efficient home features.

The builder submits the architectural plans to the Home Energy rater for review and analysis.

Step 3: Builder constructs home and rater verifies features and performance.

With the energy-efficient features selected, the builder then proceeds with construction of the home. Throughout the construction process, the rater performs a series of inspections and diagnostics to verify that proper installation of the selected energy-efficient features and overall energy performance of the home.

Step 4: Rater qualifies the home and issues an Energy STAR Label.

Once the rater completes the final inspection and determines that all requirements have been met, the rater will provide the builder with an ENERGY STAR label, which is placed on the home's circuit breaker box.

Step 5: Home owner qualifies for an incentive.

The first 20 homeowners that construct and present an original Energy Star Home certificate to the Member Cooperative will receive an incentive of \$1,000. The pilot began on October 1, 2010 and conclude on December 31st, 2011.

To earn the Energy STAR certification, a home must meet one of the following specifications:

- Achieve a HERS Index of 85 or below by using the Performance HERS Rating (See definition below.)
- Install prescriptive measures outlined in a Prescriptive-Builder Option Path (**BOP**). This option allows the builder to follow a prescribed checklist to achieve the required efficiency.

****HERS Rating definition:**

A home-energy rating (HERS) is an analysis of a home's projected energy efficiency in comparison to a 'reference home' based on the 2006 International Energy Conservation Code. A home-energy rating involves both an analysis of a home's construction plans, as well as onsite inspections and testing by a certified Home Energy Rater.

The lower a home's HERS Index, the more energy efficient it is. A home built to code scores an HERS Index of 100, while a net zero energy home scores an HERS Index of 0. Each 1-point decrease in the HERS Index corresponds to a 1% reduction in energy consumption compared to the HERS Reference Home. Thus, a home with an HERS Index of 85 is 15% more energy efficient than the reference home and a home with an HERS Index of 80 is 20% more energy efficient.

Residential Weatherization Pilot

Purpose

The purpose of this program is to provide procedures and financial support to residential retail members who implement weatherization measures. This program is available to any retail residential member of the Member Cooperative. Priority will be given to all electric homes to maximize the benefit to the Member Cooperative.

The modeled benefit associated with this program for an average site-built home is a reduction in summer demand of .89 kW, a winter demand reduction of 4.95 kW and an annual kWh savings of 6,980. In addition the measures will reduce water consumption by nearly 2,500 gallons.

The modeled benefit associated with this program for an average manufactured home is a reduction in summer demand of .30 kW, a winter demand reduction of 2.2 kW and an annual kWh savings of 4,680. In addition the measures will reduce water consumption by nearly 3,000 gallons.

Sherlock Homes is a weatherization contractor headquartered in Bloomington Indiana has been performing weatherization projects for Hoosier Energy for the last two years with tremendous success. To date Sherlock Homes has weatherized nearly 2,000 site-built and manufactured homes.

Kentucky Home Performance is a weatherization subsidy through the Kentucky Housing Corporation. The program offers a low-interest loan up to \$20,000 for ten years or 20% grant for weatherization measures. This program combines the capability of Sherlock Homes and funding from the KY Home Performance to provide comprehensive weatherization for owners of manufactured homes of the Member Cooperatives.

Objectives

- Determine the process and administration involved in working with Sherlock Homes and KY Home Performance to achieve cost effective weatherization of retail residential members.
- Determine the impact of the weatherization process on peak demand and energy consumption.
- Allow Member Cooperatives to evaluate the process and procedures to determine their role.

Budget

The budget for this pilot program is \$40,000

Planning

The pilot project will determine the process and the ability of vendors to affect a substantial

reduction in infiltration, while adding R-value and thermal mass to the structure. The impact will be estimated using models to determine the savings of retail members.

The cost of the home modifications will be paid for by Big Rivers, however the homeowner should be aware that participation in this program will be intrusive since evaluation, testing and modifications may include up to 5 visits to the home; all of which will require entry to the living space.

These homes should have the following characteristics:

- Owned by the resident.
- Over a crawlspace that is dry, accessible and free of clutter.
- Forced air HVAC with duct work in the crawlspace.
- Accessible open attic with no cathedral or unconventional construction.
- The roof will be leak free and serviceable.

Upon the selection of an appropriate residence for the study, the following will occur.

1. Sherlock Homes will contact the retail member from the names provided and schedule the initial assessment visit.
2. Sherlock Homes will manage the weatherization process with the following steps:
 - The initial assessment is provided at a cost of \$125 to the retail member and may be reimbursed by KY Home Performance. The Member Cooperative may choose to provide reimbursement to the homeowner through the program.
 - During the initial assessment, a Building Performance Institute (BPI) certified representative of Sherlock Homes visits the home to determine cost effective energy efficiency measures and if the residence has any health or safety problems that would cause deferral. (A residence placed on the deferral list continues to be eligible for the program when the health or safety issues are addressed)
 - A work plan is developed for each house listing the measures that are cost effective. The scope of work is presented to the home owner, the Member Cooperative and the KY Home Performance Program for approval.
 - Upon approval from all parties involved in paying for the project, the work is scheduled.
 - Sherlock Homes documents the completed work on-line with the KY Home Performance Program, which makes the home owner eligible for a 20% reimbursement.
 - Sherlock Homes provides on-line documentation to the Member Cooperative, making the project eligible for the Big Rivers weatherization program.
 - Big Rivers will pay Sherlock Homes directly for completed weatherization.

HVAC & Refrigeration Tune-Up Pilot

Purpose

The net present benefit of the average service call for maintenance of an air conditioner, heat pump, commercial refrigeration unit is estimated to be \$200. This benefit results from an average peak demand reduction of .3 kW per unit and an annual energy savings of 640 kWh for residential units and an average of 1.2 kW peak demand per unit and an annual energy savings of 5,268 kWh for commercial units.

The purpose of this pilot is to test the effectiveness of cash incentive payments to motivate members to instigate annual maintenance for their air conditioning equipment. The pilot will also measure the average length of time since the previous maintenance call for each unit.

Objective

1. Test methods of communicating program to members.
2. Test the level of response to the cash incentive offered.
3. Determine if participating member schedule maintenance on a regular basis.

Budget

The total project cost will not exceed \$18,000 including \$3,000 direct marketing expenditures.

Planning

Between May 1 and June 30, Kenergy Corp. will offer incentives to homeowners and businesses that have their heating and cooling systems professionally cleaned and serviced. Well-maintained heating, cooling and refrigeration units operate more efficiently and use less energy.

Homeowners will receive a \$25 gift card for each unit that is cleaned and serviced, up to a maximum of \$100 per member. The residential program will continue until 280 residential units have been serviced or June 30, whichever comes first.

Commercial members will receive a \$50 gift card for each unit that is cleaned and serviced, up to a maximum of \$250 per member. Businesses that maintain large refrigeration units qualify for this rebate as well.

The commercial program will continue until 160 units have been serviced or June 30, whichever comes first.

To qualify, service invoices must be dated between May 1 and June 30. In addition, invoices for service must be submitted to Kenergy no later than July 29.

The following are incentive rates for each customer class:

Residential HVAC

- \$25 Wal-Mart gift card per unit, per year

Commercial HVAC and Refrigeration

- \$50 cash per unit, per year

Each of the incentive payments will require a signed receipt from a licensed HVAC contractor to be provided to Kenergy and the recipient will fill out a survey including the following questions.

1. Where did you hear about this program?
2. If the member services the unit on a regular basis?

Deliverables

This project will determine effective methods of reaching members and if the participating member schedules maintenance on a regular basis. This information will be used to design a program for full implementation.

Commercial/Industrial Energy Efficient Lighting Pilot

Purpose

The purpose of the pilot is to test methods of promoting energy efficiency to retail commercial members. An incentive of \$350 per kW will be offered to commercial and industrial for equipment upgrades that result in a reduction of demand likely to be on peak. A process of verification will be established during this pilot.

The pilot will begin on January 1, 2011 and conclude when the objectives are met. It will be promoted through the Member Cooperative staff directly to commercial customers.

Objective

1. Test methods of communicating program to commercial retail members
2. Test the level of response to the cash incentive offered.

Budget

The total project cost will not exceed \$15,000.

Planning

The pilot project will run from January 1, 2011 and conclude when the objectives are met

Each of the incentive payments will require the upgrade/changes be verified by cooperative personnel or third party. A worksheet will be provided to determine the change in demand. For this pilot, the retail member will also be required to provide the project costs for planning purposes.

Deliverables

This project will determine effective methods of reaching members and the appropriate level of incentive required. This information will be used to design a program for full implementation.

Appendix B: DSM Program Plans

**Big Rivers Electric Corporation
DSM Program Plan Impact Summary**

| Residential Programs | Per Unit | | Per Unit | | Total Annual kWh Savings | Total Winter kWh Savings | Total Summer kWh Savings | Total Annual kWh Savings | Total Winter kWh Savings | Total Summer kWh Savings | Total Spend Oct - Dec. 2011 |
|---|--------------------|--------------------|--------------------|---------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------------------|
| | Annual kWh Savings | Winter kWh Savings | Summer kWh Savings | Unit Quantity | | | | | | | |
| Residential Lighting Program | | | | | | | | | | | |
| CFL bulbs | 31 | 0.007 | 0.003 | 19743 | 605,320 | 141.0 | 61.9 | | | \$30,947.75 | |
| Residential Efficient Appliances | | | | | | | | | | | |
| Clothes Washer Rebate | 224 | 0.007 | 0.026 | 233 | 52,192 | 1.6 | 6.1 | | | \$23,300.00 | |
| Energy Star Refrigerator + Recycling | 1,084 | 0.076 | 0.089 | 79 | 85,636 | 6.0 | 7.0 | | | \$7,900.00 | |
| HVAC Program | | | | | | | | | | | |
| Dual Fuel | 3,448 | 7.066 | 0.146 | 31 | 106,888 | 219.1 | 4.5 | | | \$15,500.00 | |
| Air Source Heat Pump | 692 | 0.000 | 0.146 | 25 | 17,300 | 0.0 | 3.7 | | | \$5,000.00 | |
| Geothermal | 3,658 | 4.453 | 0.365 | 11 | 40,238 | 49.0 | 4.0 | | | \$10,000.00 | |
| Weatherization Program | | | | | | | | | | | |
| Stick-Built Home | 6,980 | 4.950 | 0.890 | 0 | 0 | 0.0 | 0.0 | | | \$0.00 | |
| Manufactured Home | 4,680 | 2.200 | 0.300 | 0 | 0 | 0.0 | 0.0 | | | \$0.00 | |
| New Construction | | | | | | | | | | | |
| Gas Heat | 2,435 | 0.260 | 0.580 | 0 | 0 | 0.0 | 0.0 | | | \$0.00 | |
| Air Source Heat Pump | 4,922 | 2.700 | 0.580 | 0 | 0 | 0.0 | 0.0 | | | \$0.00 | |
| Dual Fuel Heat Pump (w/ Gas) | 8,370 | 9.766 | 0.580 | 0 | 0 | 0.0 | 0.0 | | | \$0.00 | |
| Geothermal Heat Pump | 8,580 | 7.150 | 0.799 | 0 | 0 | 0.0 | 0.0 | | | \$0.00 | |
| Tune-Up | | | | | | | | | | | |
| HVAC Tune-Up | 636 | 0.000 | 0.304 | 0 | 0 | 0.0 | 0.0 | | | \$0.00 | |
| Commercial/Industrial Programs | | | | | | | | | | | |
| C&I Lighting | | | | | | | | | | | |
| Lighting Projects | 12 | 0.0031 | 0.0029 | 48.6 | 198,677 | 48.6 | 45.4 | | | \$15,906.50 | |
| C&I Products | | | | | | | | | | | |
| Misc. Efficient Projects | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0.0 | | | \$0.00 | |
| Tune-Up | | | | | | | | | | | |
| HVAC Tune-Up* | 5,268 | 0.000 | 1.200 | 0 | 0 | 0.0 | 0.0 | | | \$0.00 | |
| * Assumed 6 tons/unit | | | | | | | | | | | |
| Total DSM Program Savings: | | | | | | | | | | | \$108,554.25 |

Program: Residential High Efficiency Lighting Replacement Program

Overview

This program promotes an increased use of ENERGY STAR® rated Compact Fluorescent Light ("CFL") lamps among the retail members of Big Rivers' member cooperatives by providing reimbursement to member cooperatives for CFL lamps distributed to their retail members.

Target Participants

Target participants of this program for Big Rivers include its three member cooperatives. The target end users are the retail members of the member cooperatives taking service under the Big Rivers Rural Delivery Service ("RDS") tariff.

Member Incentives

Big Rivers will reimburse the member cooperatives for the purchase of CFL lamps that the member cooperative buys and distributes to its retail members for use in the member cooperative's service area. Member cooperatives must submit invoices to Big Rivers and must include proper documentation of the purchase from the CFL supplier and of the distribution to retail members. Big Rivers will also reimburse a Member's reasonable costs of promoting this program, if the promotional program and its costs are pre-approved by Big Rivers.

Annual Budget

The 2012 budget for this program is \$100,000. Budget levels for future years may vary based upon the experience gained after program implementation.

Evaluation, Measurement and Verification ("EM&V")

Big Rivers will initiate a process of Evaluation, Measurement and Verification for the program. The EM&V process will ensure the quality and effectiveness of the program and optimal use of resources.

Program: ENERGY STAR® Clothes Washer Replacement Incentive Program

Overview

This program promotes an increased use of ENERGY STAR® rated clothes washing machines.

Target Participants

Target participants of this program for Big Rivers include its three member cooperatives. The target end users are the retail members of the member cooperatives taking service under the Big Rivers Rural Delivery Service (“RDS”) tariff.

Member Incentives

Big Rivers will provide an incentive payment of \$100 for each ENERGY STAR® rated clothes washer that is purchased and installed in the member cooperative’s system. Member cooperatives must submit invoices to Big Rivers and must include proper documentation of the purchase and installation from a legitimate retail appliance supplier. Big Rivers will also reimburse a Member’s reasonable costs of promoting this program, if the promotional program and its costs are pre-approved by Big Rivers.

Annual Budget

The 2012 budget for this program is \$40,000. Budget levels for future years may vary based upon the experience gained after program implementation.

Evaluation, Measurement and Verification ("EM&V")

Big Rivers will initiate a process of Evaluation, Measurement and Verification for the program. The EM&V process will ensure the quality and effectiveness of the program and optimal use of resources.

Program: ENERGY STAR® Refrigerator Replacement Incentive Program

Overview

This program promotes an increased use of ENERGY STAR® rated refrigerators and the removal from operation of existing older, low-efficiency refrigerators.

Target Participants

Target participants of this program for Big Rivers include its three member cooperatives. The target end users are the retail members of the member cooperatives taking service under the Big Rivers Rural Delivery Service (“RDS”) tariff.

Member Incentives

Big Rivers will provide an incentive payment of \$100 for each ENERGY STAR® rated refrigerator that is purchased and installed in the member cooperative’s system. Member cooperatives must submit invoices to Big Rivers and must include proper documentation of the purchase and installation of the new appliance, and the removal of the old appliance from legitimate retail appliance suppliers. Big Rivers will also reimburse a Member’s reasonable costs of promoting this program, if the promotional program and its costs are pre-approved by Big Rivers.

Annual Budget

The 2012 budget for this program is \$40,000. Budget levels for future years may vary based upon the experience gained after program implementation.

Evaluation, Measurement and Verification ("EM&V")

Big Rivers will initiate a process of Evaluation, Measurement and Verification for the program. The EM&V process will ensure the quality and effectiveness of the program and optimal use of resources.

Program: Residential High Efficiency Heating, Ventilation and Air Conditioning ("HVAC") Program

Overview

This program promotes an increased use of high efficiency HVAC systems among the retail members of the member cooperatives by providing reimbursement to member cooperative members for upgrading their HVAC systems beyond contractor grade minimums to one of three ENERGY STAR® rated HVAC systems.

Target Participants

Target participants of this program for Big Rivers include its three member cooperatives. The target end users are the retail members of the member cooperatives taking service under the Big Rivers Rural Delivery Service ("RDS") tariff.

Member Incentives

Big Rivers will reimburse the member cooperatives for the HVAC efficiency upgrades by a retail member on the member cooperative's system. Member cooperatives must submit invoices to Big Rivers and must include proper documentation. Big Rivers will also reimburse a Member's reasonable costs of promoting this program, if the promotional program and its costs are pre-approved by Big Rivers.

The following is the program administrative process:

1. The retail consumer will provide a receipt of installation and purchase of equipment from a licensed contractor dated within the eligibility timeframe of the program selected by the member cooperative.
2. The member cooperative will be responsible for verification of installation.
3. The initial incentives shall be the following per replacement unit installed:
 - Geothermal \$750
 - Dual Fuel \$500
 - Air Source \$200

Annual Budget

The 2012 budget for this program is \$50,000. Budget levels for future years may vary based upon the experience gained after program implementation.

Evaluation, Measurement and Verification ("EM&V")

Big Rivers will initiate a process of Evaluation, Measurement and Verification for the program. The EM&V process will ensure the quality and effectiveness of the program and optimal use of resources.

Program: Residential Weatherization Program

Overview

This program promotes the implementation of weatherization measures among the retail members of the member cooperatives by providing reimbursement to member cooperatives for undertaking weatherization improvements at their homes.

Target Participants

Target participants of this program for Big Rivers include its three member cooperatives. The target end users are the retail members of the member cooperatives. This program is available to any retail residential member of the member cooperative taking service under the Big Rivers Rural Delivery Service ("RDS") tariff, with an all-electric home to maximize the benefit of the program.

Member Incentives

Sherlock Homes is a weatherization contractor headquartered in Bloomington Indiana, which has been performing weatherization projects for Hoosier Energy for the last two years with tremendous success. To date Sherlock Homes has weatherized nearly 2,000 site-built and manufactured homes.

Kentucky Home Performance is a weatherization subsidy through the Kentucky Housing Corporation. The program offers a low-interest loan up to \$20,000 for ten years or a 20% grant for weatherization measures. This program combines the capability of Sherlock Homes and funding from the Kentucky Home Performance to provide comprehensive weatherization for retail member-owners of site-built and manufactured homes. The initial assessment is provided at a cost of \$125 to the retail member, which may be eligible for reimbursement by Kentucky Home Performance.

Big Rivers will provide 50% of the cost of the weatherization in 2012, up to a maximum of the program annual budget. Kentucky Home Performance currently provides 20% of the cost, and the retail member will be responsible for the remainder of the cost. Big Rivers will also reimburse a Member's reasonable costs of promoting this program, if the promotional program and its costs are pre-approved by Big Rivers.

Annual Budget

The 2012 budget for this program is \$200,000. Budget levels for future years may vary based upon the experience gained after program implementation.

Evaluation, Measurement and Verification ("EM&V")

Big Rivers will initiate a process of Evaluation, Measurement and Verification for the program. The EM&V process will ensure the quality and effectiveness of the program and optimal use of resources.

Program: Touchstone Energy® New Home Program

Overview

This program provides incentives to home owners and builders to use energy efficient building standards as outlined in the Touchstone Energy® certification program, which requires a Home Energy Rating System (“HERS”) rating of 85 or lower.

Target Participants

Target participants of this program for Big Rivers include its three member cooperatives. The target end users are the retail members of the member cooperatives taking service under the Big Rivers Rural Delivery Service (“RDS”) tariff.

Member Incentives

The incentive is based on the HVAC system installed in the retail member’s Touchstone Energy® Certified Home. The following incentives apply:

- | | |
|--|---------|
| 1. Geothermal Heat Pump (ground coupled heat pump) | \$2,000 |
| 2. Air Source Heat Pump | \$1,000 |
| 3. Dual Fuel Heat Pump (ASHP w/ Gas back-up) | \$1,200 |
| 4. Gas Heat | \$750 |

The member cooperative will provide a copy of the original certification document and the analysis form used to determine the HERS score and a copy of the receipt from a licensed HVAC contractor specifying the HVAC system installed in the home of the retail member. Big Rivers will also reimburse a Member’s reasonable costs of promoting this program, if the promotional program and its costs are pre-approved by Big Rivers.

Annual Budget

The 2012 budget for this program is \$100,000. Budget levels for future years may vary based upon the experience gained after program implementation.

Evaluation, Measurement and Verification (“EM&V”)

Big Rivers will initiate a process of Evaluation, Measurement and Verification for the program. The EM&V process will ensure the quality and effectiveness of the program and optimal use of resources.

Program: Residential and Commercial HVAC & Refrigeration Tune-Up Program

Overview

This program promotes the initiation of annual maintenance on heating and air conditioning equipment among the retail members of the member cooperatives by providing reimbursement to member cooperative retail members that have their heating and cooling systems professionally cleaned and serviced.

Target Participants

Target participants of this program for Big Rivers include its three member cooperatives. The target end users are the residential and commercial retail members of the member cooperatives taking service under the Big Rivers Rural Delivery Service ("RDS") tariff.

Member Incentives

Big Rivers will offer incentives to member cooperatives for retail member homeowners and commercial businesses that have their heating and cooling systems professionally cleaned and serviced.

Member cooperatives will receive a \$25 incentive for each residential unit and \$50 for each commercial unit that is cleaned and serviced.

For retail members with multiple units, each incentive paid will require an individual receipt from a licensed HVAC contractor.

Member cooperatives must submit invoices to Big Rivers and must include proper documentation. Big Rivers will also reimburse a Member's reasonable costs of promoting this program, if the promotional program and its costs are pre-approved by Big Rivers.

Annual Budget

The 2012 budget for this program is \$50,000. Budget levels for future years may vary based upon the experience gained after program implementation.

Evaluation, Measurement and Verification ("EM&V")

Big Rivers will initiate a process of Evaluation, Measurement and Verification for the program. The EM&V process will ensure the quality and effectiveness of the program and optimal use of resources.

Program: Commercial / Industrial High Efficiency Lighting Replacement Incentive Program

Overview

This program provides an incentive to commercial and industrial retail member consumers for whom service is taken under Big Rivers' RDS tariff to upgrade poorly designed and low efficiency lighting systems.

Target Participants

Target participants of this program for Big Rivers include its three member cooperatives. The target end users are the commercial and industrial retail members of the member cooperatives taking service under the Big Rivers Rural Delivery Service ("RDS") tariff.

Member Incentives

The following are the project steps:

1. The lighting contractor, supplier, electrical contractor or electrician will provide to the retail member the documented changes made to the facility lighting system. The retail member will also be required to provide an invoice for materials and installation services associated with the project.
2. The member cooperative will verify the installation of the new lighting system and collect a copy of the specification of the lighting system conversion impact, signed by the retail member, with the following information:
 - Lamp and ballast (or fixture) specifications prior to conversion including total wattage
 - New fixture specifications including total wattage
 - Estimated hours of operation
 - Estimated kWh saved per year
 - Total kW demand reduction
3. The member cooperative shall submit an invoice to Big Rivers with copies of individual lighting project specification documents with the following information:
 - Member Name
 - Account Number
 - Service Address
 - kW Reduction Total
 - Annual Hours of Operation Incentive Amount
4. The initial incentive shall be set at \$350 per kW reduction with a maximum incentive of \$10,000 per project unless approved by Big Rivers on an individual basis. This amount

will be evaluated continuously and adjusted depending on reaction by retail members qualifying under this program.

Each of the incentive payments will require the fixture/lamp change be verified by the member cooperative personnel or third party. A worksheet is provided to determine the change in demand of the lighting system. The retail member will also be required to provide the project costs for planning purposes. Big Rivers will also reimburse a Member's reasonable costs of promoting this program, if the promotional program and its costs are pre-approved by Big Rivers.

Annual Budget

The 2012 budget for this program is \$190,000. Budget levels for future years may vary based upon the experience gained after program implementation.

Evaluation, Measurement and Verification ("EM&V")

Big Rivers will initiate a process of Evaluation, Measurement and Verification for the program. The EM&V process will ensure the quality and effectiveness of the program and optimal use of resources.

Program: Commercial / Industrial General Energy Efficiency Program

Overview

This program provides an incentive to retail commercial and industrial retail member-consumers served under the Big Rivers RDS tariff to upgrade all aspects of cost effective energy efficiency achievable in individual facilities.

Target Participants

Target participants of this program for Big Rivers include its three member cooperatives. The target end users are the commercial and industrial retail members of the member cooperatives taking service under the Big Rivers Rural Delivery Service (“RDS”) tariff.

Member Incentives

The requirements of the program are:

1. The retail member, contractor, supplier, electrical contractor or electrician will provide to the retail member the documented changes made to the facility equipment resulting in the demand reduction. The retail member will also be required to provide an invoice for materials and installation services associated with the project.
2. The member cooperative will verify the installation of the new equipment and collect a copy of the specification of the equipment conversion impact, signed by the retail member, with the following information:
 - Equipment specifications of existing equipment, including total wattage
 - Replacement equipment specifications, including total wattage
 - Estimated hours of operation
 - Estimated kWh saved per year
 - Total kW demand reduction
3. The member cooperative shall submit an invoice to Big Rivers with copies of individual project specification documents and a printed summary excel spreadsheet with the following information:
 - Member Name
 - Account Number
 - Service Address
 - kW Reduction Total
 - Annual Hours of Operation Incentive Amount
4. The initial incentive shall be set at \$350 per kW reduction with a maximum incentive of \$10,000 per project unless approved by Big Rivers on an individual basis. This amount will

be assessed continuously and adjusted depending on reaction by retail commercial members qualifying under this program.

Each of the incentive payments will require that equipment changes be verified by cooperative personnel or third party. A worksheet is provided to determine the change in demand resulting in equipment upgrades. The retail member will also be required to provide the project costs for planning purposes. Big Rivers will also reimburse a Member's reasonable costs of promoting this program, if the promotional program and its costs are pre-approved by Big Rivers.

Annual Budget

The 2012 budget for this program is \$30,000. Budget levels for future years may vary based upon the experience gained after program implementation.

Evaluation, Measurement and Verification ("EM&V")

Big Rivers will initiate a process of Evaluation, Measurement and Verification for the program. The EM&V process will ensure the quality and effectiveness of the program and optimal use of resources.

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 24)** *Refer to Exhibit 4 of the testimony of Robert Berry. With*
2 *regards to the capital cost estimates for the proposed WFGD for the Wilson*
3 *plant:*

- 4 a. *Identify what "SESS" stands for*
5 b. *Produce the "SESS budget proposal number 4296"*
6 c. *Describe how the WFGD capital cost estimate was derived*
7 *from the SESS budget proposal number 4296*
8 d. *Produce any document supporting or regarding the WFGD*
9 *capital cost estimate that was derived from or included in*
10 *the SESS budget proposal number 4296*

11

12 **Response)**

- 13 a. SESS is an acronym for Siemens Environmental Systems
14 Services.
15 b-d. Please see the CD Big Rivers filed May 30, 2012, in response to
16 the May 11, 2012, letter from KIUC's counsel to Big Rivers'
17 counsel.

18

19

20 **Witness)** William DePriest

21

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 25)** *Refer to p. 8, lines 20-23 of the testimony of William DePriest.*

2

3 *a. Identify any "engineering services" that Sargent & Lundy*
4 *is contracted to perform "to help implement" the projects*
5 *for which Big Rivers is seeking CPCNs in this proceeding.*

6 *b. If Big Rivers has not presently contracted with Sargent &*
7 *Lundy for any such engineering services, state whether*
8 *Big Rivers is considering having Sargent & Lundy*
9 *perform such engineering services for any of the projects.*

10

11 **Response)**

12 a. Big Rivers has not contracted with Sargent & Lundy for any
13 consulting services to help implement any project in this filing
14 with the exception of the compliance study already performed.

15 b. Big Rivers is evaluating proposals from Sargent & Lundy and
16 other engineering firms for assistance on the projects listed in
17 the Environmental Compliance Plan filing.

18

19

20 **Witness)** Robert W. Berry

21

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 Item 26) *Refer to p. 13, lines 15-24 of the testimony of William DePriest.*
2
3 a. *Please identify which financial model Big Rivers used,*
4 *who is the vendor of the model, and whether the model is a*
5 *proprietary model that requires a license in order to gain*
6 *access to the files.*
7 b. *Produce, in machine-readable format, all of the models*
8 *(including input and output files) and worksheets used to*
9 *generate the capital costs, O&M costs, and NPV for each*
10 *of the technologies evaluated as part of the compliance*
11 *study.*
12 c. *Please identify any changes to the input files that may be*
13 *required to reproduce the modeling.*
14 d. *If changes are required, please specify why such changes*
15 *were done.*
16 e. *Please identify the assumptions, including any supporting*
17 *documentation, Big Rivers or its agents used in each base*
18 *case and sensitivity scenario that you modeled*
19 f. *If a license is required to obtain access to any information*
20 *in this request, please explain who Sierra Club should*
21 *contact to either obtain that license or present*

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 *information that Sierra Club or its experts already have a*
2 *license for that model.*

3

4

5 **Response)**

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- a. Assuming that the question is referring to the S&L financial model, an in-house NPV calculation spreadsheet was used. Please see the CD Big Rivers filed May 30, 2012, in response to the May 11, 2012, letter from KIUC's counsel to Big Rivers' counsel.
- b. Please see the response to part a. above.
- c. None.
- d. Not applicable.
- e. Baseline assumptions were provided in Table 1-1 of Exhibit DePriest-2. Iterations in addition to use of Excel's Goal Seek function were used to develop a sensitivity analysis.
- f. A license is not required.

Witness) William DePriest

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 27)** *According to page 20, lines 11-16 of the testimony of William*
2 *DePriest, Big Rivers plans to meet CSAPR regulations in part with the*
3 *purchase of NOx allowances.*

4

5 **a.** *Has Big Rivers done any analysis of the future market for*
6 *NOx allowances in Kentucky? If so, please provide any*
7 *work papers associated with that analysis.*

8

9 **b.** *Is the Company certain that enough allowances will be*
10 *available for purchase such that the Company can meet*
11 *its allowance obligation?*

11

12 **Response)**

13

14 **a.** No. Big Rivers has not performed any analysis of the future
15 market for NO_x allowances specifically in Kentucky.

16

17 **b.** The current Federal court case regarding CSAPR allowances has
18 introduced a high degree of uncertainty regarding the future of
19 CSAPR regulations and the availability of allowances in the
20 market. However, at this time Big Rivers believes there will be
21 sufficient allowances available for purchase to meet its
22 anticipated obligation. Additionally, in 2011 Big Rivers entered
into agreements for the cashless exchange of CSAPR allowances
to help assure it can meet its allowance obligations as

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

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summarized below:

[REDACTED]

Witness) Thomas L. Shaw

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 28)** *According to page 20, lines 19-24 of the testimony of William*
2 *DePriest, the potential impacts of the proposed EPA rule for Section 316(b)*
3 *of the Clean Water Act were considered by S&L.*

4

5 **a.** *Does the Company anticipate that this pending regulation*
6 *would impact any of its units? If so, what would be the*
7 *expected cost of this rulemaking? If not, why not?*

8 **b.** *Has a cost for the pending 316(b) rule been taken into*
9 *account in the modeling done by the Company in support*
10 *of its application for CPCN? If not, how would such a cost*
11 *impact its analysis?*

12 **c.** *Please provide any work papers or modeling analysis that*
13 *considers the cost impacts associated with the 316(b) rule.*

14

15 **Response)**

16 **a.** The pending regulation is expected to affect Coleman Station
17 and the Reid Coal-Fired Unit. Costs of compliance are shown in
18 Table 6.6 of Exhibit DePriest-2.

19 **b.** Except as provided in Table 6.6 of Exhibit DePriest-2, costs of
20 the pending 316(b) rule have not been taken into account in
21 connection with the CPCN. The cost of compliance with the
22 316(b) rule would increase Big Rivers' cost in the CPCN, but due

Case No. 2012-00063

Response to SC 1-28

Witnesses: Thomas L. Shaw and William DePriest

Page 1 of 2

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 to uncertainty associated with the final rulemaking, it is
2 difficult to predict the impact and would be speculative to do so.
3 c. Please see the CD Big Rivers filed on May 30, 2012, in response
4 to the May 11, 2012, letter from KIUC's counsel to Big Rivers'
5 counsel.

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Witnesses) Thomas L. Shaw and William DePriest

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 29)** *According to page 20, lines 19-24 of the testimony of William*
2 *DePriest, the potential impacts of the proposed EPA rule for Coal*
3 *Combustion Residuals (CCR) were considered by S&L.*

4

5 *a. Does the Company anticipate that this pending regulation*
6 *would impact any of its units? If so, what would be the*
7 *expected cost of this rulemaking? If not, why not?*

8 *b. Has a cost for the pending Coal Combustion Residuals*
9 *rule been taken into account in the modeling done by the*
10 *Company in support of its application for CPCN? If not,*
11 *how would such a cost impact its analysis?*

12 *c. Please provide any work papers or modeling analysis that*
13 *considers the cost impacts associated with the CCR rule.*

14

15 **Response)**

16 *a. Since the regulation applies to Coal Combustion Residuals, it*
17 *would almost certainly impact the Big Rivers facilities. Cost*
18 *analyses are set forth on pages 6-8 through 6-9 of Exhibit*
19 *DePriest-2.*

20 *b. The CCR rule is not part of the CPCN because of the substantial*
21 *uncertainty in what any final regulation will require and thus*

Case No. 2012-00063

Response to SC 1-29

Witnesses: William DePriest and Thomas L. Shaw

Page 1 of 2

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 would be speculative. Estimated costs of this rulemaking are
2 provided in Table 6.7 of Exhibit DePriest-2.
3 c. Please see the CD Big Rivers filed on May 30, 2012, in response
4 to the May 11, 2012, letter from KIUC's counsel to Big Rivers'
5 counsel.

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Witnesses) William DePriest and Thomas L. Shaw

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 30)** *Refer to p. ES-9 of Exhibit 2 to the testimony of William*
2 *DePriest.*

3

4 *a. Explain why no technology was selected for compliance*
5 *with potential Coal Combustion Residue regulations for*
6 *the Wilson and Reid plants.*

7 *b. Identify the amount change to the NPVRR of the Build*
8 *Case for the Coleman, Green, and HMP&L units if Coal*
9 *Combustion Residue compliance were included*

10

11 **Response)** a. Wilson already utilizes dry bottom technology. Reid was not
12 considered to run as a coal plant and will be converted to fire
13 natural gas during Phase 2 of CSAPR, thus no CCR technology
14 would be required on this plant.
15 b. Big Rivers has not performed an evaluation of the NPVRR
16 impact for Coal Combustion Residue compliance at this time due
17 to uncertainty as to the actual requirements.

18

19

20 **Witness)** Thomas L. Shaw

21

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 31)** *Refer to p. 1-3 of Exhibit 2 to the testimony of William DePriest*
2 *(the Sargent & Lundy Environmental Compliance Study).*

- 3
- 4 *a. For each cost identified in Table 1-1, identify for what*
5 *year the value that is listed is for.*
- 6 *b. For each cost identified in Table 1-1, identify what the*
7 *value was assumed to be in each year through 2033 for*
8 *purposes of the environmental compliance study*
- 9 *c. For each of the following costs, identify the basis for the*
10 *value used in the environmental compliance study, and*
11 *produce any documents supporting such values*
- 12 *i. Coal*
- 13 *ii. Natural gas*
- 14 *iii. SO₂ allowances*
- 15 *iv. NO_x allowances*
- 16 *v. Sorbent - Hydrated Lime*
- 17 *vi. Activated Carbon*

18

19 **Response)**

- 20 *a. Values are in 2011 dollars.*
- 21

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 b. Variable O&M costs were escalated by a rate of 2.5% as stated
2 in Table 1-1 of Exhibit DePriest - 2. Please see the CD Big
3 Rivers filed May 30, 2012, in response to the May 11, 2012,
4 letter from KIUC's counsel to Big Rivers' counsel.
5 c. i,ii
6 Coal and natural gas pricing were based on available US Energy
7 Information Administration pricing at the time of the study.
8 c. iii – vi.
9 Please see Big Rivers' response to Item 16 of the Commission
10 Staff's First Request for Information.
11
12
13 **Witness)** William DePriest

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 32)** *Identify Big Rivers' actual electric energy sales in MWh and*
2 *actual peak loads in MW for each year since 2004.*

3

4 **Response)** Please note that the Unwind Transaction closed July 17, 2009 which
5 led to Big Rivers serving the aluminum smelter load of roughly 850MW peak at
6 98% load factor. Accordingly, the years pre-2010 are not comparable. The electric
7 energy sales (MWh) and peak loads (MW) for the years 2004 to 2011 are as
8 follows:

| Year | Total Sales (MWh) | Peak Load (MW) |
|-------------|------------------------------|---------------------------|
| 2004 | 4,998,660 | 585 |
| 2005 | 5,255,306 | 604 |
| 2006 | 5,250,342 | 618 |
| 2007 | 6,163,594 | 631 |
| 2008 | 5,157,386 | 653 |
| 2009 | 7,790,961 | 1,304 |
| 2010 | 11,969,420 | 1,393 |
| 2011 | 13,255,125 | 1,441 |

9

10 Note that Total Sales (MWh) includes off-system sales.

11

12 **Witness)** Mark A. Hite

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 33)** *Identify Big Rivers' projected electric energy sales in MWh and*
2 *projected peak demand in MW for each year of 2012 through 2033.*

3

4 **Response)** The current native load forecast is only available through 2026.
5 Please see the attached table. Only native load is being provided.

6

7

8 **Witness)** Mark A. Hite

9

Big Rivers Electric Corporation
Case No. 2012-00063
Projected Energy Sales and Demand

| Year | Energy Sales (MWhs) | Demand (MWs) |
|------|------------------------|-----------------|
| | 33. | |
| 2012 | 10,656,576 | 1,536 |
| 2013 | 10,668,456 | 1,544 |
| 2014 | 10,707,421 | 1,551 |
| 2015 | 10,738,283 | 1,557 |
| 2016 | 10,798,054 | 1,566 |
| 2017 | 10,815,161 | 1,573 |
| 2018 | 10,842,642 | 1,579 |
| 2019 | 10,870,029 | 1,585 |
| 2020 | 10,924,223 | 1,592 |
| 2021 | 10,939,391 | 1,599 |
| 2022 | 10,975,693 | 1,606 |
| 2023 | 11,012,761 | 1,614 |
| 2024 | 11,070,792 | 1,622 |
| 2025 | 11,088,526 | 1,630 |
| 2026 | 11,126,972 | 1,638 |

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 34)** *Identify Big Rivers' projected electric energy sales in MWh and*
2 *projected peak demand in MW for each year of 2012 through 2033 if:*

3

4 *a. the Century Aluminum of Kentucky General Partnership*
5 *aluminum smelter stops purchasing power from Big*
6 *Rivers*

7 *b. the Alcan Primary Products Corporation aluminum*
8 *smelter stops purchasing power from Big Rivers*

9 *c. if both the Century and Alcan aluminum smelters stop*
10 *purchasing power from Big Rivers.*

11

12 **Response)** The current native load forecast is only available through 2026.

13 Please see the attach table. Only native load is being provided.

14

15

16 **Witness)** Mark A. Hite

17

Big Rivers Electric Corporation
Case No. 2012-00063
Project Energy Sales and Peak Demand - 2012 through 2026

| Year | Century Aluminum of Kentucky General Partnership stops Purchase from Big Rivers | | Alcan Primary Products Corporation stops Purchase from Big Rivers | | Both Century and Alcan stop Purchase from Big Rivers | |
|------|---|--------------|---|--------------|---|--------------|
| | Energy Sales (MWhs) | Demand (MWs) | Energy Sales (MWhs) | Demand (MWs) | Energy Sales (MWhs) | Demand (MWs) |
| | 34a. | | 34b. | | 34c. | |
| 2012 | 6,507,366 | 1,054 | 7,488,714 | 1,168 | 3,339,504 | 686 |
| 2013 | 6,530,582 | 1,062 | 7,509,250 | 1,176 | 3,371,376 | 694 |
| 2014 | 6,569,547 | 1,069 | 7,548,215 | 1,183 | 3,410,341 | 701 |
| 2015 | 6,600,409 | 1,075 | 7,579,076 | 1,189 | 3,441,203 | 707 |
| 2016 | 6,648,844 | 1,084 | 7,630,192 | 1,198 | 3,480,982 | 716 |
| 2017 | 6,677,287 | 1,091 | 7,655,955 | 1,205 | 3,518,081 | 723 |
| 2018 | 6,704,768 | 1,097 | 7,683,435 | 1,211 | 3,545,562 | 729 |
| 2019 | 6,732,155 | 1,103 | 7,710,822 | 1,217 | 3,572,949 | 735 |
| 2020 | 6,775,013 | 1,110 | 7,756,361 | 1,224 | 3,607,151 | 742 |
| 2021 | 6,801,518 | 1,117 | 7,780,185 | 1,231 | 3,642,311 | 749 |
| 2022 | 6,837,819 | 1,124 | 7,816,487 | 1,238 | 3,678,613 | 756 |
| 2023 | 6,874,888 | 1,132 | 7,853,555 | 1,246 | 3,715,681 | 764 |
| 2024 | 6,921,582 | 1,140 | 7,902,931 | 1,254 | 3,753,720 | 772 |
| 2025 | 6,950,652 | 1,148 | 7,929,319 | 1,262 | 3,791,446 | 780 |
| 2026 | 6,989,099 | 1,156 | 7,967,766 | 1,270 | 3,829,892 | 788 |

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 35)** *Refer to p. 1-8 of Ex. 2 to the testimony of William DePriest (the*
2 *Sargent & Lundy Environmental Compliance Study). With regards to the*
3 *low-NO_x burner upgrades at Wilson and HMP&L units 1 and 2 identified*
4 *therein:*

5

6 *a. Explain what is meant that Big Rivers has “committed” to*
7 *such upgrades*

8 *b. Identify the status of those upgrades and, if they have not*
9 *yet commenced, when Big Rivers expects to commence*
10 *them*

11 *c. Identify the capital cost of such upgrade for each unit*

12 *d. Identify by how much per year such upgrades are*
13 *estimated to reduce O&M costs for each unit*

14

15 **Response)**

16 *a. Before the Sargent & Lundy study was commissioned, Big*
17 *Rivers had already committed funding in its capital budget to*
18 *replace the burners in both HMP&L Units and the Wilson Unit.*

19 *b. The burners have already been replaced on HMP&L Unit 1; the*
20 *HMP&L Unit 2 burners are budgeted to be replaced in 2013;*
21 *and Wilson will be completed in 2015.*

22 *c. The capital cost budgeted for the HMP&L Unit burners is \$2.2M*

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 per unit. The budgeted cost for the Wilson burners is \$5.5M.
2 d. The business case for the HMP&L Units 1 & 2 estimated O&M
3 savings of approximately [REDACTED] per unit per year due to a
4 reduction in fuel consumption. The Wilson business case is not
5 yet completed but similar O&M savings is expected.

6
7
8
9

Witness) Robert W. Berry

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 36)** *Refer to p. 2-4 of Ex. 2 to the testimony of William DePriest (the*
2 *Sargent & Lundy Environmental Compliance Study). With regards to the*
3 *baseline mercury, HCl, and SO₂ emissions for each unit identified in*
4 *Tables 2-3 and 2-4 therein:*

5

- 6 **a.** *Identify and produce each stack test upon which the*
7 *baseline emissions figures are based*
- 8 **b.** *State whether such stack tests are reflective of the*
9 *emissions that would be measured through the use of a*
10 *continuous emission monitor including during times of*
11 *startup and shutdown. If so, how? If not, why not?*
- 12 **c.** *State whether the environmental compliance cost would*
13 *increase if the reductions in mercury, HCl, or SO₂ needed*
14 *to bring the Big Rivers units into compliance with the*
15 *MATS rule were higher than the "required reduction"*
16 *identified in Tables 2-3 and 2-4.*
- 17 **d.** *State whether the control technologies selected would*
18 *change if the reductions in mercury, HCl, or SO₂ needed to*
19 *bring the Big Rivers units into compliance with the MATS*
20 *rule were higher than the "required reduction" identified*
21 *in Tables 2-3 and 2-4.*
- 22

Case No. 2012-00063

Response to SC 1-36

Witness: William DePriest and Thomas L. Shaw

Page 1 of 2

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Response)**

- 2 a. Please see Big Rivers' response to Item 1.7 of KIUC's First Set
3 of Data Requests.
4 b. The stack tests were performed at operational loads with
5 pollution control equipment in service. Pollution control
6 equipment may not be fully operational during periods of
7 startup and shutdown.
8 c. Should the reductions in Hg, HCl, or SO₂ be higher than shown
9 in Table 2-3 and 2-4 of Exhibit DePriest-2, one would expect the
10 annual O&M costs to increase. It is difficult to predict how
11 much these costs would increase at this time.
12 d. No.

13

14

15 **Witnesses) William DePriest and Thomas L. Shaw**

16

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 37)** *Refer to p. 2-4 of Ex. 2 to the testimony of William DePriest (the*
2 *Sargent & Lundy Environmental Compliance Study). State whether the*
3 *“additional stack test data . . . needed to more accurately predict HCl*
4 *emissions from each unit” has been collected. If not, why not? If so,*
5 *produce such data.*

6

7 **Response)** Big Rivers has not collected additional stack testing data for HCl
8 emissions. Big Rivers believes that estimated emission rates accurately
9 characterize HCl emissions.

10

11

12 **Witness)** Thomas L. Shaw

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 38)** *Refer to p. 3-4 of Ex. 2 to the testimony of William DePriest (the*
2 *Sargent & Lundy Environmental Compliance Study). Identify the number*
3 *of excess SO₂ credits per year that are estimated to result if the FGD*
4 *proposed for the Wilson plant removes 99% of SO₂ emissions. State whether*
5 *such excess credits are assumed to be sold or used at other Big Rivers*
6 *units.*

7
8 **Response)** Refer to Table 4-2 of Exhibit DePriest-2. Excess credits are assumed
9 to be used at other Big Rivers' units.

10

11

12 **Witness)** William DePriest

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 39)** *Refer to p. 3-5 of Ex. 2 to the testimony of William DePriest (the*
2 *Sargent & Lundy Environmental Compliance Study). Identify which*
3 *“currently available FGD technology has been proven to achieve removal*
4 *efficiency of > 99%” for SO₂ emissions, and whether such greater than 99%*
5 *removal efficiency is on a continuous basis.*

6

7 **Response)** Limestone based, vertical wet FGD systems with forced oxidation
8 have been proven to achieve SO₂ removal efficiencies of 99%. The continuous
9 performance of an FGD system for SO₂ removal is subject to changes based on
10 operational factors such as limestone and water quality, normal wear and tear on
11 equipment and the resultant schedule of routine maintenance, and typical
12 variations in other process parameters.

13

14

15 **Witness)** William DePriest

16

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 40)** *Refer to p. 3-6 of Ex. 2 to the testimony of William DePriest (the*
2 *Sargent & Lundy Environmental Compliance Study). With regards to the*
3 *statement that “the effect of sorbent injection on ESP performance should*
4 *be tested before implementation”:*

5

6 **a.** *State whether such testing has occurred.*

7 **i.** *If not, why not?*

8 **ii.** *If so, produce the results of such testing.*

9 **b.** *Produce any evaluation of the adequacy of the existing*
10 *ESPs at the Wilson, Green, and Coleman units to ensure*
11 *compliance with applicable particulate matter emission*
12 *limits after the addition of dry sorbent injection and*
13 *activated carbon injection.*

14 **c.** *If the existing ESPs are inadequate to ensure compliance*
15 *at any of the Wilson, Green, or Coleman units:*

16 **i.** *Identify the capital and annual O&M costs for each*
17 *unit for upgrading the ESP*

18 **ii.** *Identify the capital and annual O&M costs for each*
19 *unit for installing a polishing baghouse*

20 **iii.** *Identify the capital and annual O&M costs for each*
21 *unit for installing a full baghouse*

22

Case No. 2012-00063

Response to SC 1-40

Witnesses: Robert W. Berry and William DePriest

Page 1 of 2

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1

2 **Response)**

3

a. Big Rivers has not yet tested the effect of sorbent injection on
ESP performance. See also Item 22 of these responses.

4

5

b. See the response to part a. above.

6

c. i. See Table 5-1 of Exhibit DePriest-2.

7

cii. Big Rivers has not evaluated this technology at this time.

8

ciii. See Table 5-2 of Exhibit DePriest-2 This table only includes

9

capital cost estimate and does not include O&M costs. As stated

10

in the study, a more detailed study would be required to develop

11

O&M costs. At this time it is not anticipated these O&M costs

12

would vary significantly from current O&M costs associated

13

with existing ESPs.

14

15

16 **Witnesses) Robert W. Berry and William DePriest**

17

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 41)** *Refer to p. 5-2 of Ex. 2 to the testimony of William DePriest (the*
2 *Sargent & Lundy Environmental Compliance Study). With regards to the*
3 *conversion of Green Units 1 and 2 referenced in Table 5-1, identify the cost*
4 *of natural gas for each year that was used in estimating the \$47.2 million*
5 *O&M cost.*

6

7 **Response)** Natural gas pricing and escalation rates are provided in Table 1-1 of
8 Exhibit DePriest-2.

9

10

11 **Witness)** William DePriest

12

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 42)** *Refer to p. 5-11 of Ex. 2 to the testimony of William DePriest*
2 *(the Sargent & Lundy Environmental Compliance Study). Identify the*
3 *basis for the conclusion that the "break even" gas pricing for converting*
4 *Green Units 1 and 2 to natural gas is \$2.23/mmBtu. Produce any modeling*
5 *and worksheets, in machine-readable format, upon which that conclusion*
6 *is based.*

7

8 **Response)** Please see the CD Big Rivers filed May 30, 2012, in response to the
9 May 11, 2012, letter from KIUC's counsel to Big Rivers' counsel.

10

11

12 **Witness)** William DePriest

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 43)** *Refer to p. 1 of Ex. 3 to the testimony of William DePriest.*
2 *Identify and produce the stack test results upon which the data in Table 1*
3 *on that page is based.*

4

5 **Response)** Please see Item 36a. of these responses.

6

7

8 **Witness)** Thomas L. Shaw

9

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 44)** *Refer to p. 2 of Ex. 3 to the testimony of William DePriest. State*
2 *whether Big Rivers has had Sargent & Lundy develop the computer-based*
3 *model of ESPs described therein. If so, produce the results of such*
4 *modeling. If not, explain why not.*

5

6 **Response)** Big Rivers has not hired Sargent & Lundy to develop computer based
7 modeling of the ESPs. Big Rivers is evaluating engineering firms to assist with
8 development of carbon and sorbent injection systems. As part of this work, Big
9 Rivers will consider modeling of projected ESP performance.

10

11

12 **Witness)** Robert W. Berry

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 Item 45) *Refer to Ex. 4 to the testimony of William DePriest:*

2

3 a. *Identify the average and maximum sulfur content, in*
4 *lbs/mmBtu, of the coal burned in each of the Big Rivers*
5 *generating units for each of the past five years*

6 b. *Identify the assumed sulfur content, in lbs/mmBtu, of the*
7 *PRB coal evaluated in the fuel switching analysis set*
8 *forth in Ex. 4.*

9 c. *State whether you analyzed using other types of coal,*
10 *such as lower-sulfur bituminous coal, to achieve*
11 *compliance with CSAPR. If so, produce any documents*
12 *regarding such analysis. If not, explain why not.*

13 d. *Identify the sulfur content, in lbs/mmBtu, that would*
14 *need to be burned in the Big Rivers generating units to*
15 *achieve compliance with CSAPR.*

16

17 **Response)**

18 a. The average and maximum sulfur content in lbs SO₂ / MMBTU
19 of the as-fired coal by unit for the last five years (2007 – 2011) is
20 shown in the attached table.

21 b. The analysis did not identify a specific PRB fuel with a specific
22 sulfur content.

Case No. 2012-00063

Response to SC 1-45

Witnesses: William DePriest (a, b, d) and Robert W. Berry (c)

Page 1 of 4

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 c. Big Rivers did not consider lower sulfur Central Appalachian
2 (CAPP) coal for the following reasons:

3 The Big Rivers coal-fired fleet was designed to burn
4 surrounding Illinois Basin coal. CAPP coal has differing coal
5 chemical characteristics (e.g., higher fusion temperatures and it
6 being a hard coal in comparison to ILB) requiring modifications
7 to units and potentially increasing O&M expenditures.

8 Illinois Basin coal reserves remain in large supply.
9 Conversely, CAPP reserves are depleting, leaving only thinner,
10 higher priced reserves to be mined. Further, such mining often
11 involves mountain-top removal and valley-fill issues which
12 exacerbate environmental concerns. Export markets have been
13 and continue to seek the higher quality (near metallurgical
14 grade) coal in CAPP, creating pricing volatility and demand not
15 seen in the Illinois Basin coal market.

16 Finally, CAPP coal is 30% to 35% more expensive than
17 Illinois Basin coal; although, price spikes have been experienced
18 to more than double due to export demand. CAPP coal requires
19 100% barge delivery, further increasing the price differential
20 versus more regional fuel and its lower priced (trucking)
21 logistics.

**Case No. 2012-00063
Response to SC 1-45**

**Witnesses: William DePriest (a, b, d) and Robert W. Berry (c)
Page 2 of 4**

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 d. Table 3-10 in Appendix 4 of Exhibit DePriest - 2 shows the
2 equivalent emission rates in lb SO₂ / mmBtu that would be
3 required for each unit for annual SO₂ emissions to be lower than
4 the CSAPR 2014 annual SO₂ allocations. The Green units
5 already emit less than the CSAPR 2014 annual SO₂
6 requirements; therefore, fuel sulfur levels at Green station
7 would not need to be reduced. Since Reid Unit 1 is the only unit
8 without an existing FGD system, the fuel sulfur level required to
9 comply with CSAPR 2014 annual SO₂ allowances is equivalent
10 to the emission rates listed in Table 3-10; therefore, Reid Unit 1
11 would require a 0.195 lb SO₂ / mmBtu fuel. The remaining
12 units have existing wet FGD systems that would be assumed to
13 achieve the same % SO₂ removal for the lower fuel sulfur levels
14 as compared to current operation. Therefore, the fuel sulfur
15 levels for each of the remaining units would need to be reduced
16 such that the amount of SO₂ removed would result in the
17 equivalent emission rate listed in Table 3-10. Table 3-1 of
18 Exhibit DePriest-2 summarizes the removal efficiencies that are
19 achieved in the existing FGD systems in the remaining units.
20 The three Coleman units have recently demonstrated 93.5%
21 SO₂ removal; therefore, fuels with 3.0 lb SO₂ / mmBtu fuel or
22 lower would be required to comply based on CSAPR 2014 annual

**Case No. 2012-00063
Response to SC 1-45**

Witnesses: William DePriest (a, b, d) and Robert W. Berry (c)

Page 3 of 4

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 SO2 allowances. The Wilson units are operating at 91% SO2
2 removal; therefore, fuels with 2.17 lb SO2 / mmBtu fuel or lower
3 would be required to comply based on CSAPR 2014 annual SO2
4 allowances. HMP&L Units 1 and 2 achieve 93% and 90% SO2
5 removal, respectively; therefore, fuels with 2.79 and 1.95 lb
6 SO2 / mmBtu fuel or lower would be required, respectively, to
7 comply based on CSAPR 2014 annual SO2 allowances.

8
9

10 **Witnesses)** William DePriest (parts a, b, d)
11 Robert W. Berry (part c)

Big Rivers Electric Corporation
Case No. 2012-00063

| Big Rivers As Fired Coal by Unit | | | | | | | | | | |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sulfur Content, lbs SO₂ / MMBtu | | | | | | | | | | |
| Unit | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | |
| | Average | Maximum | Average | Maximum | Average | Maximum | Average | Maximum | Average | Maximum |
| Coleman 1 | 4.62 | 4.74 | 4.52 | 4.93 | 4.64 | 4.82 | 4.94 | 5.36 | 4.95 | 5.20 |
| Coleman 2 | 4.64 | 4.76 | 4.58 | 4.93 | 4.66 | 4.81 | 4.95 | 5.27 | 4.95 | 5.22 |
| Coleman 3 | 4.63 | 4.75 | 4.57 | 4.93 | 4.63 | 4.82 | 4.94 | 5.27 | 4.92 | 5.20 |
| Green 1 | 6.38 | 6.97 | 6.86 | 7.14 | 6.13 | 6.76 | 5.80 | 6.11 | 5.47 | 5.98 |
| Green 2 | 6.45 | 7.03 | 6.89 | 7.13 | 6.13 | 6.73 | 5.84 | 6.13 | 5.67 | 6.02 |
| Henderson 1 | 5.03 | 5.53 | 5.35 | 5.56 | 5.44 | 6.04 | 5.36 | 5.74 | 5.36 | 5.50 |
| Henderson 2 | 5.11 | 5.83 | 5.25 | 5.50 | 5.44 | 5.96 | 5.30 | 5.42 | 5.38 | 5.57 |
| Reid 1 | 4.59 | 4.72 | 4.76 | 5.27 | 4.66 | 4.73 | 4.77 | 5.01 | 5.00 | 5.28 |
| Wilson 1 | 6.45 | 6.60 | 6.92 | 7.33 | 6.24 | 6.91 | 6.05 | 6.60 | 6.21 | 6.60 |

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 46)** *Refer to p. 5 of Ex. 4 to the testimony of William DePriest.*

2

3 *a. Identify the basis for the assumption that Big Rivers'*
4 *bituminous coal costs \$2.00/mmBtu.*

5 *b. Identify the basis for the assumption that "PRB fuels are*
6 *likely to cost closer to \$3.00/mmBtu"*

7 *c. Produce any documents supporting the assumed*
8 *bituminous and PRB coal costs.*

9

10 **Response)**

11 a. The \$2.00/mmBtu for bituminous coal is derived from the
12 \$48/ton coal cost shown in Table 1-1 of DePriest Exhibit 2. This
13 price was based on available US Energy Information
14 Administration pricing at the time of the study.

15 b. Information in the public domain shows when Northern Indiana
16 Public Service Company ("NIPSCO") added PRB coal supply to
17 their contract position, it was able to obtain PRB fuel, before
18 transportation costs were applied, for \$13.75/ton. Its final
19 delivered costs for a combination of bituminous and PRB fuels
20 was reported to be \$51.43/ton and \$2.58/mmBtu. For this
21 example, the blended fuel heating value can be calculated to be
22 approximately 10,000 Btu/ lb. Adjusting the \$/mmBtu price

Case No. 2012-00063

Response to SC 1-46

Witnesses: Robert W. Berry (a) and William DePriest (b-c)

Page 1 of 2

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 based on a typical PRB heating value of 8,500 Btu/pound results
2 in an estimated PRB fuel cost of just over \$3/mmBtu. This
3 translates to approximately \$40/ton in transportation costs for
4 PRB fuel, which is in line with what we would expect for rail
5 costs to ship the coal to Big Rivers' facilities.

6 c. The information can be found at the following internet location:

7

8

9

10

11

12 **Witnesses)** Robert W. Berry (part a)

13

William DePriest (parts b, c)

14

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 47)** *Refer to p. 5 of Ex. 4 to the testimony of William DePriest.*

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10 **Response)**

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Witness) William DePriest

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 48)** *Refer to p. 60 of the Environmental Regulatory Review*
2 *prepared by Sargent & Lundy, which is attached to William DePriest's*
3 *Testimony as App. 4. Did Big Rivers or its agents ever consider the*
4 *material probability that the Kentucky General Assembly will pass clean*
5 *energy legislation, such as the Clean Energy Opportunity Act (HB 167),*
6 *between 2012 and 2035?*

7

- 8 *a. If yes, please explain the basis for Big River's position.*
9 *b. If no, please explain why the Big Rivers or its Agents did*
10 *not include this possibility in its sensitivity analyses?*
11 *c. Is it Big Rivers' position that there is no material*
12 *probability that U.S. Congress or the state of Kentucky*
13 *will pass legislation between 2012 and 2035 requiring*
14 *specific quantities of retail electric energy requirements to*
15 *be met from renewable sources of energy and/or energy*
16 *efficiency?*
17 *d. If yes, please explain the basis for Big Rivers' position.*
18 *e. If no, please explain why Big Rivers did not include this*
19 *possibility in its sensitivity analyses?*

20

21 **Response)** Big Rivers is not aware there is a "material probability" that the
22 Kentucky General Assembly will pass clean energy legislation, such as 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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 previously-proposed Clean Energy Opportunity Act, between 2012 and 2035. Big
2 Rivers is aware there is some support within the Commonwealth for efforts to
3 advance the cause of clean energy legislation. Given this support, there is some
4 possibility that such legislation may pass prior to 2035.

5
6 a. Not Applicable.

7 b. Big Rivers does not know, and cannot know, when such
8 legislation might be adopted, the scope of its applicability, and
9 the requirements that would be imposed. For this reason,
10 there is no sound basis on which to make assumptions to
11 perform a sensitivity analysis, or on which to base decisions in
12 connection with Big Rivers' proposed 2012 Compliance Plan.

13 c. Big Rivers' position on the likelihood of adoption of state
14 legislation on these subjects is stated above. Big Rivers
15 believes it is more likely, though not materially probable, that
16 such legislation will be adopted on the federal level.

17 d. Big Rivers' opinions are formed based upon its evaluation of
18 the general information available to Big Rivers from a variety
19 of public and private sources.

20 e. See response to subparagraph b. above.

21
22 **Witness)** Robert W. Berry

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 49)** *Refer to p. 6 of the testimony of Mark Hite, lines 13-17. For the*
2 *“Buy Case,” did Big Rivers evaluate locking in supplies and prices under*
3 *long-term purchase power agreements for a portion of its requirements*
4 *under the Buy Case?*

5

6 *a. If not please explain why not.*

7 *b. If yes, please provide that analysis.*

8

9 **Response)** No.

10 *a. Please see Item 50 of these responses.*

11 *b. Not applicable.*

12

13

14 **Witness)** Robert W. Berry

15

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 50)** *Refer to Mark Hite's testimony, lines 1-17, regarding the*
2 *discussion of alternatives considered*

3

4 *a. Explain whether a RFQ solicitation for capacity and*
5 *energy was issued as an additional alternative to reliance*
6 *on the market capacity and energy and pricing.*

7 *b. Explain the rationale for only considering market*
8 *participation as an alternative.*

9 *c. If a RFQ solicitation was issued, provide the analysis of*
10 *the bids, including the terms of the bids and why each bid*
11 *received was not acceptable.*

12 *d. If a RFQ solicitation was not issued seeking capacity and*
13 *energy, explain the rationale for not seeking such a*
14 *solicitation.*

15

16 **Response)**

17 a. A RFQ (Request for Quote) was not issued.

18 b. Big Rivers is a transmission-owning member of the Midwest
19 Independent Transmission System Operator Inc. ("MISO").
20 MISO operates a very liquid and transparent wholesale energy
21 market. Big Rivers considered market participation as the "buy"
22 alternative primarily because of the scale and depth of 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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 MISO market. Also, please see the response to Item 1.26 of the
2 KIUC's First Set of Data Requests.
- 3 c. Not applicable.
- 4 d. Issuing a RFQ for price discovery without a definitive intention
5 of acting on it in a timely manner would harm Big Rivers, would
6 be unfair to respondents, and would impair Big Rivers' future
7 ability to receive competitive bids when a RFQ was truly needed
8 for obtaining, energy, capacity, allowances or fuel. Also, a
9 considerable amount of time and cost would have been expended
10 by Big Rivers and any companies responding to a RFQ. Such an
11 effort would likely have resulted in limited information that
12 would not have changed the analysis.

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16

Witness) Robert W. Berry

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 51)** *Refer to p. 6 of the testimony of Mark Hite, lines 1-17. Please*
2 *confirm that Big Rivers or its agents did not model a natural gas*
3 *alternative in the cost-effectiveness modeling.*

4

5 **Response)** Big Rivers did not analyze a natural gas alternative in its financial
6 modeling described on page 6 of Hite's testimony.

7

8 Sargent and Lundy did investigate conversion of the Reid and Green
9 units to natural gas as part of their study. Their conclusion was that this was not
10 a cost effective approach for NOx reduction. Please see sections 3.3.2, 4.6.1, 5.1.3
11 and 5.2 of Exhibit DePriest-2 for details of this analysis.

12

13

14 **Witness)** Mark A. Hite

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 **Item 52)** *Refer to p. 6 line 19 through p. 7 line 17 of the testimony of*
2 *Mark Hite.*
- 3 *a. Please identify which financial model Big Rivers used,*
4 *who is the vendor of the model, and whether the model is a*
5 *proprietary model that requires a license in order to gain*
6 *access to the files.*
- 7 *b. Please produce, in machine readable format, all of the*
8 *financial modeling (including input and output files) and*
9 *workpapers used to determine the NPVRR for each*
10 *scenario evaluated by Big Rivers or its agents.*
- 11 *c. Please identify any changes to the input files that may be*
12 *required to reproduce the modeling.*
- 13 *d. If changes were made, please explain why such changes*
14 *were made.*
- 15 *e. Please identify the assumptions, including any supporting*
16 *documentation, Big Rivers or its agents used in each base*
17 *case and sensitivity scenario that you modeled*
- 18 *f. If a license is required to obtain access to any information*
19 *in this request, please explain who Sierra Club should*
20 *contact to either obtain that license or present*
21 *information that Sierra Club or its experts already have a*
22 *license for that model.*

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

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Response)

- a. Big Rivers utilized Microsoft Excel to develop its in-house financial model. A license to use Microsoft Excel is required to access and use this non-proprietary model.
- b. Please reference the Base Case, Build Case, Partial Build Case, Buy Case, Build No Smelter Load, and Buy No Smelter Load financial model Excel files Big Rivers provided in electronic format in response to KIUC's motion to dismiss. For supporting files and documentation please reference the Excel files Big Rivers provided to KIUC on May 29, 2012 in response to the May 11, 2012, letter from KIUC's counsel to Big Rivers' counsel.
- c. None.
- d. Not Applicable.
- e. Please see Exhibit Hite-3 for a summary of the financial model evaluation assumptions.
- f. The only requirement to use the non-proprietary financial model is a license to use Microsoft Excel.

Witness) Mark A. Hite

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 Item 53) *Refer to p. 7 line 20 to p. 8 line 5 of the testimony of Mark Hite.*
2 *Identify and produce:*
3
4 a. *All forward pricing data received from PACE Global for*
5 *the production cost modeling.*
6 b. *All Big Rivers plant specific data that was supplied to*
7 *ACES Power Marketing.*
8 c. *Please identify which financial model ACES Power*
9 *Marketing used, who is the vendor of the model, and*
10 *whether the model is a proprietary model that requires a*
11 *license in order to gain access to the files.*
12 d. *Please produce, in machine readable format, all of the*
13 *production cost modeling (including input and output*
14 *files) and workpapers used to determine the NPVRR for*
15 *each scenario generated by ACES Power Marketing*
16 e. *Please identify any changes to the input files that may be*
17 *required to reproduce the modeling.*
18 f. *If changes are required, please explain why such changes*
19 *were made.*

Case No. 2012-00063
Response to SC 1-53

Witnesses: Patrick N. Augustine and Brian J. Azman
Page 1 of 3

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 *g. Please identify the assumptions, including any supporting*
2 *documentation, Big Rivers or its agents used in each base*
3 *case and sensitivity scenario that you modeled*
4 *h. If a license is required to obtain access to any information*
5 *in this request, please explain how Sierra Club could*
6 *obtain that license or, if they already have a license, who*
7 *they should provide information to regarding the license*
8 *to obtain the files.*

9
10 **Response)**

- 11 a. Please see Big Rivers' response to Item 1.18 of KIUC's First Set
12 of Data Requests
13 b. Please see Big Rivers' response to Item 1.21 of KIUC's First Set
14 of Data Requests.
15 c. Please see Big Rivers' responses to Items 1.23 and 1.24 of
16 KIUC's First Set of Data Requests.
17 d. Please see the CDs Big Rivers filed on May 24, 2012, and May
18 29, 2012, in response to the May 11, 2012, letter from KIUC's
19 counsel to Big Rivers' counsel.
20 e. None known.
21 f. Not applicable.

**Case No. 2012-00063
Response to SC 1-53**

**Witnesses: Patrick N. Augustine and Brian J. Azman
Page 2 of 3**

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 g. Please see Big Rivers' response to Item 1.5 of KIUC's First Set of
2 Data Requests.
3 h. Please see Big Rivers' responses to Items 1.24 and 1.28 of
4 KIUC's First Set of Data Requests.

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Witnesses) Patrick N. Augustine and Brian J. Azman

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 54)** *Refer to p. 10, lines 10-12 of the testimony of Mark Hite. State*
2 *whether any other sensitivity analyses, besides the No Smelter Case, were*
3 *performed by Big Rivers or its agents. If so, produce the results of all*
4 *such analyses, including any supporting modeling and workpapers in*
5 *machine readable format. If not, explain why not.*

6

7 **Response)** Please see Big Rivers' response to Item 26 of the Commission Staff's
8 First Request for Information.

9

10

11 **Witness)** Robert W. Berry

12

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Item 55)** *Refer to p.4 of the testimony of Mark Hite. State whether Big*
2 *Rivers or its agents performed any analyses comparing the NPVRR of the*
3 *Build Case for any of the Wilson, Green, Coleman, Reid, or HMP&L*
4 *generating units to the NPVRR of retiring and replacing the energy or*
5 *capacity produced by each such unit. If so, produce any documents*
6 *regarding those analyses, including any modeling (including input and*
7 *output files) and workpapers in machine readable format.*

8

9 **Response)** No. Please also see Big Rivers' response to Item 1.26 of KIUC's First
10 Set of Data Requests.

11

12

13 **Witness)** Mark A. Hite

14

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 **Item 56)** *Refer to p. 15 of the testimony of Mark Hite.*
2
3 *a. Produce all reports, memoranda, presentations, or other*
4 *documents provided to the Rural Utilities Service*
5 *("RUS"), CoBank, or the National Rural Utilities*
6 *Cooperative Finance Corporation ("CFC") by either Big*
7 *Rivers or Touchstone Energy since 2004 regarding:*
8 *i. the environmental compliance status of the Wilson,*
9 *Green, Coleman, Reid, or HMP&L generating units,*
10 *ii. past, present or future environmental compliance of*
11 *the Wilson, Green, Coleman, Reid, or HMP&L*
12 *generating units,*
13 *b. Please provide any application(s) for a loan or loan*
14 *guarantee submitted to the RUS, CoBank, or CFC,*
15 *including any supporting documentation for the loan or*
16 *loan guarantee request, for the retrofits requested in these*
17 *CPCNs for the Wilson, Green, Coleman, Reid, or HMP&L*
18 *generating units;*
19 *c. Please provide any response from RUS, Co-Bank, or CFC*
20 *regarding a request for a loan or loan guarantee for*
21 *retrofits proposed in this application of the Wilson, Green,*
22 *Coleman, Reid, or HMP&L generating units.*

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 *d. If RUS, CoBank, or CFC has agreed to provide a loan or*
2 *loan guarantee, please provide any loan or loan*
3 *guarantee paperwork between RUS/CoBank/CFC and Big*
4 *Rivers regarding the retrofit of the Wilson, Green,*
5 *Coleman, Reid, or HMP&L generating units.*
6 *e. Please provide any environmental assessment or*
7 *environmental impact statement, including any drafts,*
8 *prepared to support a loan or loan guarantee from RUS,*
9 *CoBank, or CFC for the retrofits of the Wilson, Green,*
10 *Coleman, Reid, or HMP&L generating units*
11 *f. If no environmental assessment or environmental impact*
12 *statement was prepared for the retrofits proposed in this*
13 *application because one or more of these projects fall*
14 *under a categorical exclusion, please provide any*
15 *correspondence or documents from RUS that discuss*
16 *application of the categorical exclusion.*
17 *g. Please continue to provide any such documentation as*
18 *listed in (a)-(f) above as generated on a regular basis.*
19
20
21
22

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 **Response)**

- 2 a. Please refer to Exhibit DePriest-2, which is the S&L report
3 which Big Rivers provided to RUS. In addition, attached is a
4 presentation made by Big Rivers to RUS on March 20, 2012; a
5 presentation made by Big Rivers to CoBank on February 28,
6 2012; and the annual (2010, 2011, and 2012) letters from Big
7 Rivers to RUS certifying Big Rivers has fulfilled all its
8 obligations under its Loan Documents in all material respects,
9 which include compliance with environmental laws.
- 10 b. None.
- 11 c. See attached (CFC Engagement Letter, Revolving Credit
12 Facility, and Transaction Calendar).
- 13 d. None.
- 14 e. None.
- 15 f. None.
- 16 g. Big Rivers will update this response during the course of this
17 proceeding.

18


19

20 **Witness)** Mark A. Hite

21

**Presentation to CoBank
Big Rivers Electric Corporation**

Big Rivers
ELECTRIC CORPORATION

Your Touchstone Energy Cooperative 

February-2012

Big Rivers Electric Corporation

Mark Hite *Vice President Accounting & Interim CFO*

Robert W. Berry *Vice President Production*

Eric Robeson *Vice President Environmental Services and Construction*

Jim Miller *Corporate Counsel*

Table of Contents

- I. Overview of Big Rivers Electric Corporation
 - II. Overview of Members & Customer Base
 - III. Operations
 - IV. Indenture/Financial Goals
 - V. Financials
 - VI. Appendix – Management Information
-

I. Overview of Big Rivers Electric Corporation

Overview of Big Rivers Electric Corporation

- Big Rivers Electric Corporation (“Big Rivers”) was formed in 1961 and is based in Henderson, Kentucky
- Big Rivers supplies wholesale electric generation and transmission service to three electric distribution cooperatives (“Members”):
 - Jackson Purchase Energy Corporation
 - Kenergy Corp. (“Kenergy”)
 - Meade County Rural Electric Cooperative Corporation
- Members are local customer-owned cooperatives providing service to approximately 112,500 retail customers on a not-for-profit basis
 - Members serve residential, commercial and industrial customers located in portions of 22 western Kentucky counties
- Big Rivers and its Members are generally regulated by the Kentucky Public Service Commission

- Big Rivers provides capacity and energy to its members through a combination of 5 owned generation stations, one leased generation station and purchased power
 - Net capacity of owned generation – 1,444 MW
 - Net capacity of leased generation from Henderson Municipal Power & Light Station II (HMPL) – 202 MW
 - Power purchased from SEPA – 178 MW
 - 1,266 miles of transmission lines and 22 substations
 - Midwest ISO membership implementation – Dec. 2010

| Key 2011 Statistics |
|---|
| Energy Sales - 13,255 GWh |
| Operating Revenues - \$562mm |
| Total Assets - \$1,418mm |
| Non-Smelter Member Rate (Excluding MRSM Credit) \$45.29/MWh |
| Non-Smelter Member Rate Stability Mechanism (\$6.22/MWh) |
| Non-Smelter Member Wholesale Rate \$39.07/MWh |
| Smelter Effective Rate \$44.48/MWh |

Rate Case

- On March 1, 2011, Big Rivers filed an application for a general rate adjustment with the Kentucky Public Service Commission (“KPSC”)
 - Case number 2011-00036
 - New Rates were effective September 1, pending approval from the KPSC.
 - Formal approval by the KPSC was granted in November 2011 for a rate increase of \$26.7mm
 - \$10.6 million was assigned to the rural class
 - \$ 1.9 million to the large industrial class
 - \$14.2 million to the smelters
 - A rehearing has been granted by the KPSC wherein Big Rivers has requested an additional \$2.7 mm to be reconsidered
 - Kentucky Industrial Utility Customers have appealed the \$26.7 mm rate increase granted by the KPSC
-

Power Supply - ACES Power Marketing & NRCO

ACES Power Marketing

Big Rivers has been a member/owner of ACES Power Marketing, one of the nation's largest electricity traders, since January 2003. ACES operates as an energy risk management and hedge manager. Member/owners like Big Rivers actively participate by utilizing the ACES infrastructure and resources to assess their risks and execute specific, customized portfolio strategies.

National Renewables Cooperative Organization

In the tradition of working together, cooperatives across the country have formed the National Renewables Cooperative Organization (NRCO) to promote and facilitate the development of renewable energy resources. Membership in the NRCO is open to generation and transmission cooperatives (G&Ts) and distribution cooperatives with the legal ability to buy power in the wholesale market. Big Rivers was one of 24 founding members of the organization, which formed in November 2008.

Big Rivers' Strategic Plan

NORTH STAR

- North Star will be the cost per kWh of the total Member load, including distribution members and smelters.
- Big Rivers will manage the cost per kWh within the board-approved risk tolerance, always striving to keep costs as low as possible while still meeting the Members' service requirements.

MISSION

Big Rivers' Mission is to safely deliver low cost, reliable, wholesale power and cost-effective shared services desired by our members.

VISION

Big Rivers' Vision is to be viewed as one of the top G&T's in the country and will provide services the members desire in meeting future challenges.

VALUES

- Safety
- Integrity
- Excellence
- Member and Community Service
- Respect for the Employee
- Teamwork
- Environmentally Conscious

Big Rivers' Management

Big Rivers is led by an experienced management team and is governed by a six-member board of directors. The board is comprised of two representatives from each distribution cooperative.

Senior Management Team:

Mark Bailey, President & CEO

Robert Berry, V.P. Production

David Crockett, V.P. System Operations

James Haner, V.P. Administrative Services

Mark Hite, V.P. Accounting & Interim CFO

Eric Robeson, V.P. Environmental Services and Construction

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

Big Rivers' Financing

Big Rivers currently has two \$50 million lines of credit available to it, one with CoBank, ACB, expiring July 16, 2012, and the other with National Rural Utilities Cooperative Finance Corporation ("CFC") that expires July 16, 2014.

Long Term Debt Schedule (\$mm) - as of December 31, 2011

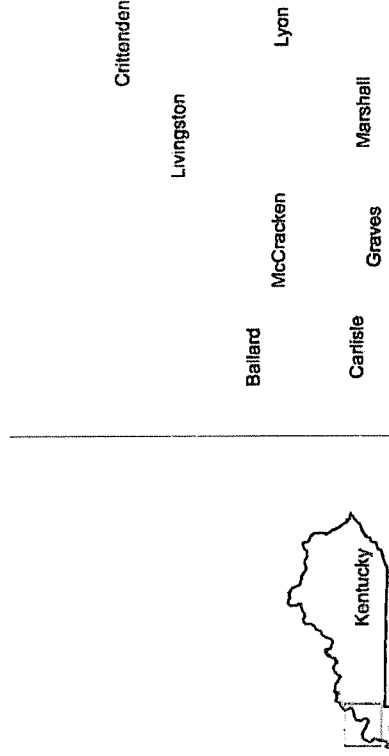
| Debt | Maturity Date | Stated Value | Principal | Notes: |
|---|---------------|-----------------|-----------------|---|
| RUS Series A Note, stated interest rate of 5.75%, with an imputed interest rate of 5.84% | July 2021 | \$ 523.2 | \$ 521.3 | A portion hereof to be refinanced by CoBank and CFC |
| RUS Series B Note, no stated interest rate, with an imputed interest rate of 5.80% | December 2023 | \$ 245.5 | \$ 123.0 | |
| Pollution Control Bonds Series 1983 - County of Ohio, Kentucky with a 3.25% interest rate in 2011 | June 2013 | \$ 58.8 | \$ 58.8 | Plan to refinance in 2013 |
| Pollution Control Bonds Series 2010 , County of Ohio, Kentucky with a 6.0% fixed interest rate | July 2031 | \$ 83.3 | \$ 83.3 | |
| TOTAL | | \$ 910.8 | \$ 786.4 | |

II. Overview of the Members & Customer Base

Overview of Jackson Purchase Energy Corporation

Overview Service Territory

- Established in 1937
- Serves approximately 29,000 accounts in portions of 6 counties in Western Kentucky
- Managed by 8 member/consumer elected board serving four-year staggered terms
- Primarily residential & small commercial customer mix
- Most recent residential retail rate increase: July 2008, 9.5%



Summary Financial Information (\$mm)

| | Fiscal Year Ended December 31 | | |
|-----------------------------------|-------------------------------|--------|--------|
| Income Statement | 2011 | 2010 | 2009 |
| Operating Revenues | \$45.1 | \$46.5 | \$41.9 |
| Operating Expenses | 38.0 | 36.1 | 34.4 |
| Net Operating Income ¹ | 7.1 | 10.4 | 7.5 |
| Cash Flow | | | |
| Debt Service | 5.1 | 4.9 | 4.9 |
| Debt Service Coverage Ratio | 1.50 x | 2.32 x | 1.62 x |
| TIER | 1.04 x | 2.51 x | 1.26 x |
| Balance Sheet | | | |
| Net Utility Plant | \$92.4 | \$91.5 | \$87.3 |
| Equities/Capitalization | 39.4% | 43.6% | 39.8% |

Source: RUS Form 7-Before Depreciation, Taxes & Interest

Customer Profile

| | FY 2011 | | |
|-----------------------------|----------------|---------------------|-----------------|
| Customer Type | MWh | Number of Consumers | Revenue (\$000) |
| Residential | 411,231 | 26,054 | 29,070 |
| Comm. And Ind. (< 1,000 kW) | 190,024 | 3,126 | 11,916 |
| Comm. And Ind. (> 1,000 kW) | 49,396 | 9 | 2,909 |
| Public Lighting/Irrigation | 888 | 10 | 101 |
| Total | 651,539 | 29,199 | 43,996 |

Overview of Kenergy Corp.

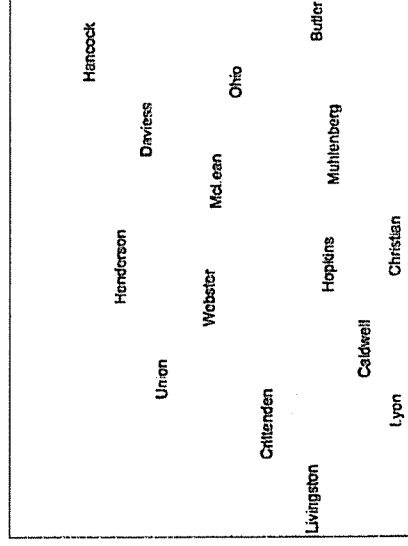
Overview Service Territory

- Established in July 1999 through the consolidation of – Henderson Union Electric Coop (established 1936), and – Green River Electric Corporation (established 1937)
- Serves approximately 55,000 customers in 14 western Kentucky counties along more than 7,000 miles of line
- Fourth largest electric cooperative in Kentucky (based on customers)
- Managed by 11 member customer-elected board
- Most recent residential retail rate increase: Sept. 2011, 7.49%
- Responsible for supplying Hawesville and Sebree smelters

Summary Financial Information (\$mm)

| | Fiscal Year Ended December 31 | | |
|-----------------------------------|-------------------------------|---------|---------|
| | 2011 | 2010 | 2009 |
| Income Statement | | | |
| Operating Revenues | \$425.6 | \$401.0 | \$349.8 |
| Operating Expenses | 407.5 | 381.3 | 332.9 |
| Net Operating Income ¹ | 18.1 | 19.7 | 16.9 |
| Cash Flow | | | |
| Debt Service | 11.5 | 11.6 | 11.1 |
| Debt Service Coverage Ratio | 1.62 x | 1.79 x | 1.58x |
| TIER | 1.66 x | 1.95 x | 1.48 x |
| Balance Sheet | | | |
| Net Utility Plant | \$182.9 | \$179.2 | \$177.5 |
| Equities/Capitalization | 36.3% | 33.2% | 30.3% |

Source: RUS Form 7-Before Depreciation, Taxes & Interest



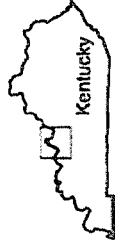
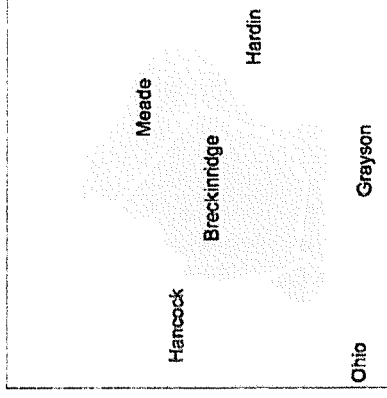
Customer Profile

| | FY 2011 | | |
|-----------------------------|------------------|---------------------|-----------------|
| Customer Type | MWth | Number of Consumers | Revenue (\$000) |
| Residential | 754,124 | 45,294 | 56,284 |
| Comm. And Ind. (< 1,000 kW) | 314,861 | 9,803 | 22,563 |
| Comm. And Ind. (> 1,000 kW) | 8,326,066 | 35 | 344,888 |
| Public Lighting | 1,733 | 78 | 282 |
| Total | 9,396,784 | 55,210 | 424,017 |

Overview of Meade County Rural Electric Cooperative

Overview Service Territory

- Established in 1937
- Serves approximately 28,000 customers in portions of 6 Kentucky counties along approximately 2,900 miles of line
- Managed by 7 member customer-elected board
- Primarily residential customer mix
- Most recent residential retail rate increase: Feb. 2011, 3.92%



Customer Profile

| FY 2011 | | | |
|-----------------------------|----------------|---------------------|-----------------|
| Customer Type | MWh | Number of Consumers | Revenue (\$000) |
| Residential | 364,735 | 26,402 | 27,480 |
| Comm. And Ind. (< 1,000 kW) | 94,657 | 2,070 | 7,131 |
| Public Lighting | 1,057 | 6 | 75 |
| Total | 460,449 | 28,478 | 34,686 |

Summary Financial Information (\$mm)

| | Fiscal Year Ended December 31 | | |
|-----------------------------------|-------------------------------|--------|--------|
| | 2011 | 2010 | 2009 |
| Income Statement | | | |
| Operating Revenues | \$35.8 | \$34.6 | \$31.1 |
| Operating Expenses | 28.3 | 27.5 | 24.7 |
| Net Operating Income ¹ | 7.5 | 7.1 | 6.4 |
| Cash Flow | | | |
| Debt Service | 4.8 | 4.9 | 4.8 |
| Debt Service Coverage Ratio | 1.58 x | 1.55 x | 1.37 x |
| TIER | 2.09 x | 2.05 x | 1.57 x |
| Balance Sheet | | | |
| Net Utility Plant | \$72.2 | \$69.9 | \$66.6 |
| Equities/Capitalization | 33.9% | 33.5% | 32.3% |

Source: RUS Form 7: Before Depreciation, Taxes & Interest

Long-Term Smelter Contracts

- Big Rivers and Kenergy (the Member serving the Smelters) entered into the Smelter Wholesale Power Contracts in which Big Rivers supplies energy to Kenergy for resale to the Smelters through the end of 2023 on a take-or-pay basis, subject to a one-year termination notice from the Smelter(s)
- The two aluminum smelters, owned by Alcan and Century, have a base demand of 850 MW and typically use 98% of the energy
- Energy made available to the Smelters will consist of three types
 - **Base Monthly Energy:** 368 MW hourly for Alcan and 482 MW hourly for Century
 - **Supplemental Energy:** 10 MW hourly of interruptible energy to each Smelter
 - **Back-up Energy:** Imbalance energy for Kenergy made available to the Smelters
- Charges to the Smelters will also include the following adjustments:
 - Base Rate always 25 cents per MWh over Large Industrial
 - Fuel Adjustment Clause ("FAC") – Adjusts monthly for incremental changes in fuel costs
 - Environmental Surcharge ("ES") – Adjusts monthly for incremental changes in non-fuel variable production expenses (emission allowances, reagents and waste disposal)
 - Purchased Power Adjustment ("PPA") – Adjusts monthly for incremental changes in purchased power costs (non-FAC PPA regulatory account for non-smelter members)
 - TIER Adjustment (described on page 29)
 - Surcharges – Mitigate impact of FAC and ES on Non-Smelter Members

Overview of Smelters

- **Sebree, Kentucky Smelter (Alcan Primary Products Corporation)**
 - Alcan is owned by Rio Tinto, an international mining group, and is Rio Tinto's only U.S. aluminum smelter
 - Commenced operation in 1973
 - Produces 186,000 metric tons of primary aluminum annually from its 3 potlines
 - 600 employees
 - Base contract demand: 368 MW and Projected annual energy consumption: 3.1 TWh
 - Recently completed \$37mm bake furnace project
 - **Hawesville, Kentucky Smelter (Century Aluminum of Kentucky General Partnership)**
 - Century is a public company and through its various subsidiaries owns and operates aluminum smelters in Kentucky, South Carolina, West Virginia and Iceland
 - Commenced operation in 1970
 - Produces 244,000 metric tons of primary aluminum annually from its 5 potlines
 - 775 employees
 - Base contract demand: 482 MW and Projected annual energy consumption: 4.2 TWh
-

Big Rivers' Members Provide Some of the Lowest Cost Residential Electricity in the Nation

Average Residential Rate – Kentucky
December 2011¹

Average Residential Rate – National
November 2011²

| Kentucky Utility | Cents / kWh | National Region | Cents / kWh |
|--|-------------|----------------------------|--------------|
| East Kentucky Power Cooperative | 11.66 | Pacific Noncontiguous | 27.94 |
| AEP Kentucky Power | 9.72 | New England | 15.90 |
| Duke Energy Kentucky | 8.65 | Middle Atlantic | 15.80 |
| Louisville Gas and Electric Company | 8.57 | Pacific Contiguous | 12.71 |
| Kentucky Utilities Company | 7.82 | East North Central | 12.02 |
| | | South Atlantic | 11.21 |
| | | West South Central | 10.60 |
| Big Rivers Rate (including credits) | 7.82 | East South Central | 10.46 |
| Big Rivers Rate (excluding credits) | 9.11 | Mountain | 10.12 |
| | | West North Central | 9.83 |
| | | Kentucky | 9.30 |
| | | United States Total | 11.88 |

¹ Source: Kentucky Public Service Commission Orders and Filings

² Source: Energy Information Administration Table 5.6.A

Big Rivers' Members Provide Some of the Lowest Cost Commercial and Industrial Electricity in the Nation

Average Commercial & Industrial Rate – National 2011

| National Region | Cents/kWh |
|------------------------------|-----------|
| Pacific Noncontiguous | 24.67 |
| New England | 13.51 |
| Middle Atlantic | 10.99 |
| Pacific Contiguous | 10.13 |
| East North Central | 8.05 |
| South Atlantic | 8.14 |
| East South Central | 7.96 |
| Meade County | 7.53 |
| Mountain | 7.52 |
| West South Central | 7.39 |
| West North Central | 7.21 |
| Kenergy - excluding Smelters | 7.17 |
| Kentucky | 6.86 |
| Jackson Purchase | 6.19 |
| Kenergy - Smelters | 4.40 |

Source: RUS Form 7 and Energy Information Administration

III. Operations

Big Rivers' Available Generation Resources

| Owned Generation | Fuel Type | Net Capacity (MW) | Commercial Operation |
|---|------------|-------------------|----------------------|
| Kenneth C. Coleman Plant | | | |
| Unit 1 | Coal | 150 | 1969 |
| Unit 2 | Coal | 138 | 1970 |
| Unit 3 | Coal | 155 | 1972 |
| Robert D. Green Plant | | | |
| Unit 1 | Coal | 231 | 1979 |
| Unit 2 | Coal | 223 | 1981 |
| Robert A. Reid Plant | | | |
| Unit 1 | Coal / Gas | 65 | 1966 |
| Combustion Turbine | Oil / Gas | 65 | 1979 |
| D.B. Wilson Unit 1 | Coal | 417 | 1986 |
| Owned Subtotal | | 1,444 | |
| Leased Generation | | | |
| HMP&L Station Two | | | |
| Unit 1 | Coal | 153 | 1973 |
| Unit 2 | Coal | 159 | 1974 |
| City's Current Capacity Allocation ¹ | | (110) | |
| Leased Subtotal | | 202 | |
| Total Owned / Leased Generation | | 1,646 | |
| Purchased Power | | | |
| Member's SEPA Allocation | Hydro | 178 | |
| Total Capacity | | 1,824 | |

¹Big Rivers operates Station Two, which is owned by the City of Henderson, and is entitled to all capacity and energy not taken by the City under the terms of a power purchase agreement.

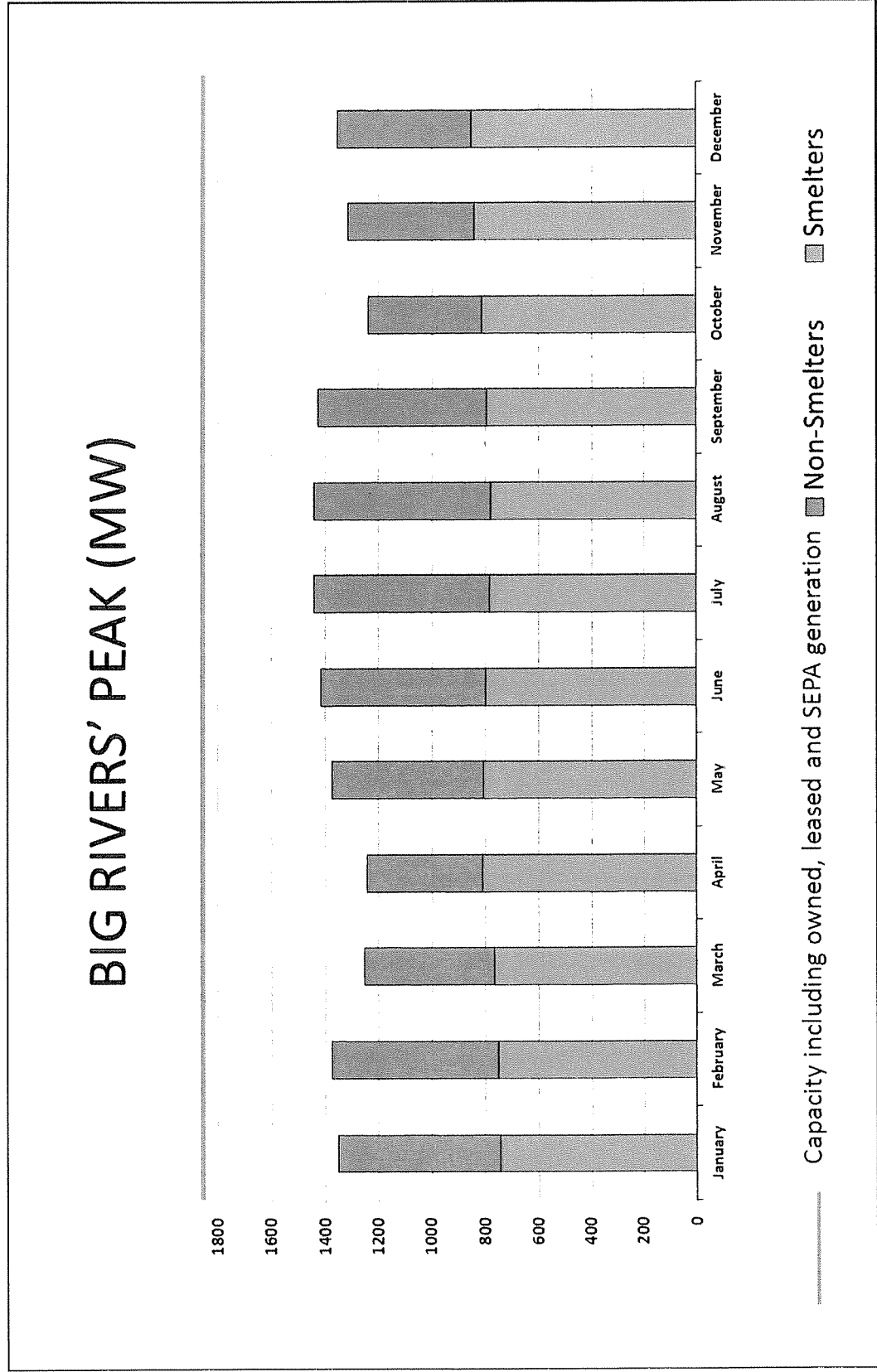
Big Rivers' Coal-Fired Power Plants System Performance

- Eight of the nine coal generating units are equipped with Flue Gas Desulphurization systems (FGDs) to control SO₂ emissions
- Wilson 1, HMP&L 1 and HMP&L 2 are equipped with Selective Catalytic Reduction systems (SCRs) to control NO_x emissions
- System performance is actively benchmarked against the industry utilizing GKS Navigant services. In the most recent benchmarking survey (2007 to 2011 Q3), Big Rivers displayed the following results when comparing O&M costs including fuel:
 - System capacity weighted O&M cost including fuel was \$2.38/MWh less than the median cost (\$32.08/MWh vs. \$34.46/MWh).

Key Performance Indicators per IEEE Standards (6 Year Averages 2006 thru 2011)

| Unit | Net Generation (MWHrs) | Net Heat Rate (BTU/kWH) | Gross Capacity Factor (%) | Gross Capacity Output (%) | Equivalent Availability Factor (%) | Equivalent Forced Outage Rate (%) |
|---------------|------------------------|-------------------------|---------------------------|---------------------------|------------------------------------|-----------------------------------|
| Coleman 1 | 981,391 | 10,762 | 75.2 | 84.5 | 89.1 | 4.9 |
| Coleman 2 | 904,899 | 11,561 | 74.8 | 81.9 | 90.9 | 3.1 |
| Coleman 3 | 1,014,199 | 10,654 | 75.5 | 83.4 | 88.9 | 6.8 |
| Green 1 | 1,768,041 | 11,132 | 88.7 | 95.5 | 92.1 | 2.5 |
| Green 2 | 1,725,642 | 11,265 | 89.5 | 95.1 | 94.1 | 1.8 |
| Henderson 1 | 1,098,054 | 10,911 | 83.1 | 93.2 | 88.4 | 8.3 |
| Henderson 2 | 1,093,491 | 11,182 | 79.3 | 88.0 | 88.8 | 5.2 |
| Wilson 1 | 3,143,151 | 11,201 | 86.4 | 96.8 | 88.1 | 4.8 |
| SYSTEM | 11,728,868 | 11,109 | 83.0 | 91.5 | 90.0 | 4.5 |

Big Rivers' Peak 2011 (MW)



Big Rivers' Coal-Fired Power Plants Variable Cost 2011 – by unit

BREC Variable Costs*
 Period Ending December 31, 2011
 Year - to - Date

| Unit | Total Fuel | (Reagent) Scrubber | SOx Allowances | NOx Allowances | Total Variable \$ | Net Generation | \$/MWH |
|-----------|------------|--------------------|----------------|----------------|-------------------|----------------|--------|
| Green 1 | | | | | | | |
| Green 2 | | | | | | | |
| HMP&L 1 | | | | | | | |
| HMP&L 2 | | | | | | | |
| Coleman 1 | | | | | | | |
| Coleman 2 | | | | | | | |
| Coleman 3 | | | | | | | |
| Wilson 1 | | | | | | | |
| Totals | | | | | | | |

*Does not include Reid 1 and Reid CT which are used for peaking purposes

Big Rivers' Environmental Compliance Plan (ECP) for CSAPR & MATS

Cross-State Air Pollution Rule (CSAPR) and the Mercury and Air Toxics Standards (MATS) were both finalized in 2011. Both rules will impact Big Rivers' ECP. Big Rivers plans to pass through these costs under the Environmental Surcharge, and will be presenting this information to the Kentucky Public Service Commission in 2012. Compliance costs are as follows:

| | CSAPR | MATS | Total |
|------------------------------------|--------------------|-------------------|--------------------|
| <u>Capital</u> | | | |
| Wilson | 139,000,000 | 11,240,000 | 150,240,000 |
| HMPL (Net of City) | 3,850,000 | 280,000 | 4,130,000 |
| Reid | 1,200,000 | | 1,200,000 |
| Green | 81,000,000 | 18,480,000 | 99,480,000 |
| Coleman | | 28,440,000 | 28,440,000 |
| | <u>225,050,000</u> | <u>58,440,000</u> | <u>283,490,000</u> |
| Cost of Capital | 9.42% | 9.42% | 9.42% |
| Capital Cost | 21,199,710 | 5,505,048 | 26,704,758 |
| O&M Cost | 3,220,000 | 10,010,000 | 13,230,000 |
| Total Annual 2012 ECP Cost in 2016 | <u>24,419,710</u> | <u>15,515,048</u> | <u>39,934,758</u> |

IV. Indenture/Financial Goals

Big Rivers' Financial Covenants

Big Rivers is in compliance with all debt covenants associated with both long-term and short-term debt.

- The Company's Indenture and its line of credit with CFC require that Margins for Interest Ratio (MFIR) of at least 1.10 be maintained each fiscal year.
- The CoBank line of credit agreement requires that at the end of each fiscal year the Company have a Debt Service Coverage Ratio (DSCR) of not less than 1.20.
- CoBank and CFC also require an Equity to Assets ratio of 15% or greater at the end of each fiscal year.

Historical Performance against covenants

| Ratio | Agreement | Loan Covenant | 2011 | 2010 | 2009 |
|-------------------------------------|------------------|---------------|------|------|------|
| MFIR | Indenture/NRUCFC | 1.10 | 1.12 | 1.15 | 9.87 |
| Debt Service Coverage Ratio* | CoBank | 1.20 | 1.47 | 1.47 | 2.44 |
| Equity to Assets | CoBank | 15% | 27% | 26% | 25% |
| Equity to Assets | NRUCFC | 12% | 27% | 26% | 25% |
| TIER | | n/a | 1.12 | 1.15 | 9.85 |
| Debt to Total Capitalization | | n/a | 67% | 68% | 69% |

* **DSCR not included in the proposed CoBank Revolver**

V. Financials

Statement of Operations

Big Rivers

| Statement of Operations (\$mm) | Actual | | | Projected | | | |
|------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Electric Energy Revenues | 514.5 | 558.4 | | | | | |
| Other Operating Revenue and Income | 12.8 | 3.6 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Total Operating Revenues | 527.3 | 562.0 | | | | | |
| Operating Expense - Excluding Fuel | 187.2 | 201.8 | | | | | |
| Operating Expense Fuel | 207.7 | 226.2 | | | | | |
| Maintenance Expense | 46.9 | 47.7 | | | | | |
| Depreciation and Amortization | 34.2 | 35.4 | 41.9 | 43.3 | 44.7 | 48.1 | 52.3 |
| Interest Expense | 47.1 | 45.7 | 43.4 | 49.0 | 54.0 | 59.7 | 61.9 |
| Other - Net | (2.8) | (0.4) | (1.4) | (6.0) | (11.2) | (14.5) | (5.8) |
| Total Expenses | 520.3 | 556.4 | 580.8 | 604.5 | 637.5 | 656.3 | 702.7 |
| Net Margins | 7.0 | 5.6 | | | | | |

Balance Sheet

| Balance Sheet (\$mm) | Actual | | Projected | | | | |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Assets | | | | | | | |
| Net Utility Plant | \$ 1,092 | \$ 1,092 | \$ 1,120 | \$ 1,189 | \$ 1,339 | \$ 1,436 | \$ 1,427 |
| Cash & Investments | 45 | 45 | 35 | 241 | 101 | 32 | 32 |
| Transition Reserve | 35 | 0 | 35 | 35 | 36 | 36 | 36 |
| Economic Reserve | 121 | 100 | 72 | 38 | 8 | 0 | 0 |
| Rural Economic Reserve | 62 | 63 | 64 | 65 | 66 | 52 | 23 |
| Receivables, Inventories, & Other | 117 | 118 | 133 | 141 | 139 | 142 | 149 |
| Total | \$ 1,472 | \$ 1,418 | \$ 1,459 | \$ 1,709 | \$ 1,689 | \$ 1,698 | \$ 1,667 |
| Equities & Liabilities | | | | | | | |
| Equities | \$ 387 | \$ 390 | \$ 395 | \$ 404 | \$ 418 | \$ 433 | \$ 447 |
| Debt | 817 | 786 | 859 | 1,133 | 1,124 | 1,114 | 1,104 |
| Deferred Revenue - Economic Reserves | 181 | 162 | 136 | 103 | 74 | 52 | 23 |
| Line of Credit Advances | 10 | 0 | 0 | 0 | 0 | 25 | 15 |
| Payables & Other | 77 | 80 | 69 | 69 | 73 | 74 | 78 |
| Total | \$ 1,472 | \$ 1,418 | \$ 1,459 | \$ 1,709 | \$ 1,689 | \$ 1,698 | \$ 1,667 |
| Equities / Total Capitalization | 32% | 33% | 31% | 26% | 27% | 28% | 29% |

Debt Service Coverage

| | Actual | | Projected | | | | |
|-------------------------------------|-------------|-------------|------------|------------|------------|------------|---------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Debt Service Coverage (\$mm) | | | | | | | |
| Margins | \$ 7.0 \$ | 5.6 | | | | | |
| Interest Expense | 47.1 | 45.7 | 43.4 | 49.0 | 54.0 | 59.7 | 61.9 |
| Depreciation & Amortization | 36.3 | 37.5 | 44.5 | 46.0 | 47.5 | 51.0 | 55.5 |
| Numerator for DSCR | \$ 90.4 \$ | 88.8 | | | | | |
| Interest Expense | 47.1 | 45.7 | 43.4 | 49.0 | 54.0 | 59.7 | 61.9 |
| Principal Due on Long-Term Debt | 14.2 | 14.9 | 16.1 | 19.4 | 20.1 | 20.9 | 26.1 |
| Denominator for DSCR | \$ 61.3 \$ | 60.6 \$ | \$ 59.5 \$ | \$ 68.4 \$ | \$ 74.1 \$ | \$ 80.6 \$ | \$ 88.0 |
| Debt Service Coverage Ratio | 1.47 | 1.47 | | | | | |

Non-Smelter Member Rates

| Rate Derivation (\$/MWh) | Actual | | | Projected | | | |
|---------------------------------|--------------|--------------|--------|-----------|--------|--------|--------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Non-Smelter Members | | | | | | | |
| Base Rate | 35.33 | 42.45 | | | | | |
| Regulatory Account Amortization | 0.00 | (0.32) | (1.23) | (1.23) | (0.38) | 0.17 | 0.28 |
| FAC | 9.98 | 4.49 | 5.09 | 5.47 | 5.95 | 6.36 | 6.80 |
| Environmental Surcharge | 2.25 | 2.16 | 2.51 | 3.27 | 3.78 | 4.75 | 7.37 |
| Surcredits | (3.30) | (3.49) | (4.10) | (4.05) | (4.00) | (3.97) | (3.93) |
| Rebate (Accrual) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rate Stabilization | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Economic Reserve | (7.91) | (6.22) | (8.69) | (8.39) | (7.93) | (5.07) | 0.00 |
| Rural Economic Reserve | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | (2.49) | (8.47) |
| Blended Rate | 36.35 | 39.07 | | | | | |

Smelter Rates

| Rate Derivation (\$/MWh) | Actual | | Projected | | | | |
|-----------------------------|--------------|--------------|-----------|--------|--------|------|------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Smelters | | | | | | | |
| Large Industrial Rate @ 98% | 29.07 | 34.70 | | | | | |
| Additional Smelter Charge | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| Base Rate | 29.32 | 34.95 | | | | | |
| Tier Adjustment | 1.95 | 1.95 | 2.95 | 2.95 | 2.95 | 2.67 | 2.59 |
| Non-FAC PPA | (1.18) | (0.70) | (0.40) | (0.21) | (0.04) | 0.28 | 0.38 |
| FAC | 10.13 | 4.53 | 5.11 | 5.48 | 5.95 | 6.36 | 6.80 |
| Environmental Surcharge | 2.26 | 2.18 | 2.48 | 2.66 | 3.14 | 3.94 | 6.11 |
| Surcharge | 1.57 | 1.57 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 |
| Rebate (accrued) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Effective Rate | 44.05 | 44.48 | | | | | |

Big Rivers' Credit Rating

Big Rivers had its credit rating evaluated by three credit rating agencies.

Moody's Investor Service – Moody's has assigned a 'Baa1' senior secured rating for the Series 2010A County of Ohio, Kentucky, Pollution Control Bonds.

Standard & Poor's (S&P) – S&P has assigned a 'BBB-' issuer credit rating to Big Rivers and has assigned a "BBB-" long-term rating for its Series 2010A County of Ohio, Kentucky, Pollution Control Bonds.

Fitch Ratings Ltd. – In August, 2011, Fitch has assigned a 'BBB-' rating on the Series 2010A County of Ohio, Kentucky, Pollution Control Bonds.

VI. Appendix – Management Information

Big Rivers' Management

Senior Management Biographies

Mark A. Bailey, President and Chief Executive Officer, received a Bachelor of Science in Electrical Engineering from Ohio Northern University in 1974, and a Master of Science in Management from the Massachusetts Institute of Technology in 1988. He was employed by American Electric Power Company ("AEP") for nearly 30 years, beginning as an Electrical Engineer in 1974. Mr. Bailey was employed as Vice President of AEP subsidiary Indiana Michigan Power Company until AEP's reorganization in 1996, when he became Director-Regions with American Electric Power Service Corporation ("AEPSC"), also a subsidiary of AEP. He was employed as Vice President of Transmission Asset Management for AEPSC from June 2000 until his employment as President and Chief Executive Officer ("CEO") with Kenergy Corp. in 2004. Mr. Bailey was employed as Executive Vice President and Chief Operating Officer beginning in June 2007 until being elected by the Board of Directors to his current position in October 2008.

Robert W. Berry, Vice President of Production, graduated from the University of Kentucky Community College system with an Associate degree in Mechanical Engineering Technology and Mid-Continent University with a Bachelor of Science in Business Management. He was employed by Big Rivers from 1981 to 1998 and served in various maintenance positions such as Superintendent of Maintenance and Maintenance Manager. In 1998 he was employed by Western Kentucky Energy and served in various positions such as Maintenance Manager, Plant Manager and General Manager until the Unwind transaction closed in July 2009, at which time he assumed his current position.

David G. Crockett, Vice President of System Operations, graduated from the University of Kentucky with a Bachelor of Science in Electrical Engineering in 1972. He has been employed with Big Rivers since 1972. He served in various engineering positions before assuming the responsibility of Manager of Energy Control in 1998. Mr. Crockett assumed his current position as Vice President System Operations in 2006.

James V. Haner, Vice President of Administrative Services, graduated from the University of Kentucky with a Bachelor of Science in Accounting in 1970. He has been employed with Big Rivers since 1972. He served in various accounting and finance capacities prior to transferring to administrative services in 1991. He assumed duties as Manager Human Resources in 1998. Mr. Haner assumed his current position of Vice President Administrative Services in 2005.

Big Rivers' Management

Senior Management Biographies - continued

Mark A. Hite, Vice President of Accounting and Interim Chief Financial Officer, graduated from the University of Evansville with a Bachelor of Science in Accounting in 1980 and a Master of Business Administration in 1985. He is a licensed CPA. Mr. Hite has been employed with Big Rivers since 1983, and has served in various accounting and finance capacities prior to assuming his current position.

Eric Robeson, Vice President of Environmental Services and Construction, graduated from Rose Hulman Institute of Technology in 1977 with a Bachelor of Science in Mechanical Engineering and Ball State University in 1988 with a Masters of Business Administration. He is a registered Professional Engineer in the state of Indiana. Mr. Robeson worked at Vectren (and its predecessor company Sigeco) from 1980 to 2011. He served in a variety of engineering and managerial positions including Plant Manager, Director of Generation Planning, and Director of Infrastructure Services. He joined Big Rivers in 2011 as Vice President of Construction overseeing environmental compliance efforts and assumed his current position in February , 2012

Albert M. Yockey, Vice President of Governmental Relations & Enterprise Risk Management, graduated from the University of Pittsburgh with a Bachelor of Science in Electrical Engineering in 1972, a Master of Science from Lehigh University in 1979, and a Juris Doctor from Capital University Law School in 1994. He is a registered Professional Engineer in Pennsylvania and a licensed attorney in Ohio. Mr. Yockey was employed in operation and planning positions with Pennsylvania Power and Light Co. from 1972 through 1985. He was employed in planning, regulatory, and compliance positions with American Electric Power Company from 1985 until February 2008. Mr. Yockey joined Big Rivers as Vice President of Enterprise Risk Management and Strategic Planning in 2008 and assumed his current position in July 2009.



201 Third Street
P.O. Box 24
Henderson, KY 42419-0024
270-827-2561
www.bigrivers.com

March 28, 2012

Mr. Jonathan Aldelstein
Administrator
USDA/RUS *File: RMS*
Stop T510, Room 5135-S
1400 Independence Avenue, SW
Washington, DC 20250-1500

Dear Mr. Aldelstein:

In accordance with Article IV, Section 4.3 of the Amended and Consolidated Loan Contract dated July 16, 2009, between Big Rivers Electric Corporation and the United States of America, I certify that, to my knowledge, during 2011, Big Rivers Electric Corporation has fulfilled all of its obligations under the Loan Documents in all material respects.

Sincerely,

BIG RIVERS ELECTRIC CORPORATION

Mark A. Bailey
Mark A. Bailey
President & CEO

cc: Mr. Victor Vu, Stop 1568, Room 0270
Mr. John Sanders, Stop 1568, Room 0270
James Miller, Esq.
Mr. Mark A. Hite
Mr. Albert Yockey
Mr. Ralph A. Ashworth

Case No. 2012-00063
Attachment for Response to Item SC 1-56
Witness: Mark A. Hite
Page 1 of 3

March 29, 2010

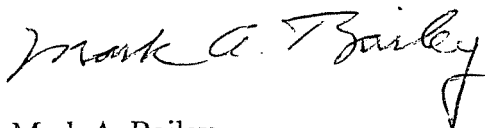
Mr. Jonathan Adelstein *file*
Administrator
USDA/RUS
Stop 1510, Room 5135-S
1400 Independence Avenue, SW
Washington, DC 20250-1500

Dear Mr. Adelstein:

In accordance with Article IV, Section 4.3 of the Amended and Consolidated Loan Contract dated July 16, 2009, I certify that, to my knowledge, during 2009, Big Rivers Electric Corporation has fulfilled all of its obligations under the Loan Documents in all material respects.

Sincerely yours,

BIG RIVERS ELECTRIC CORPORATION



Mark A. Bailey
President and CEO

C: Mr. Victor Vu, Stop 1568, Room 0270
James Miller, Esq.
Mr. C. William Blackburn
Mr. Mark A. Hite
Mr. Albert Yockey
Mr. Ralph Ashworth



**National Rural Utilities
Cooperative Finance Corporation**

SERVICE • INTEGRITY • EXCELLENCE

CONFIDENTIAL

April 20, 2012

Mark A. Bailey
President and CEO
Big Rivers Electric Corporation
201 Third Street
Henderson, KY 42419

Re: Engagement Letter for an up to \$300 million Five-Year Senior Unsecured Revolving Credit Facility

Dear Mr. Bailey:

This letter agreement (this “**Engagement Letter**”) confirms the terms on which Big Rivers Electric Corporation (the “**Company**”) has engaged National Rural Utilities Cooperative Finance Corporation (“**CFC**” or the “**Lead Arranger**”) in connection with arranging for an up to \$300 million five-year senior unsecured revolving credit facility (the “**Credit Facility**”). CFC will act as Administrative Agent for the Facility (in such capacity, the “**Administrative Agent**”). A draft summary of terms and conditions (the “**Term Sheet**”) of the Credit Facility is attached with this Engagement Letter. Capitalized terms used herein without definition have the meanings given to them in the Term Sheet. The Company agrees to pay the non-refundable fees set forth below in accordance with the terms of this Engagement Letter:

| | |
|----------------------------|---|
| Arranger Fee: | A one-time fee equal to \$40,000 payable to CFC at the Closing. |
| Upfront Fee: | A one-time fee equal to 0.30% of the amount of each Lender’s allocated commitment upon the execution of a definitive credit agreement and the closing of the Credit Facility, payable to the Lenders at the Closing. |
| Administrative Agency Fee: | \$20,000 per annum, payable annually in advance to CFC on the date of the execution of a definitive credit agreement and closing of the loan and on each annual anniversary date thereof through the Maturity Date. This fee is nonrefundable and shall not be pro-rated in the event the Credit Facility is prepaid. |

Expenses: The Company agrees to pay all reasonable out-of-pocket expenses of the Lead Arranger associated with the Facility, including but not limited to reasonable legal fees and expenses of the Lead Arranger/Administrative Agent/Lenders and syndication expenses, regardless of the closing of the Facility.

Payment of the foregoing fees will not be subject to offset counterclaim or set-off for, or be otherwise affected by, any claim or dispute relating to any other matter.

By accepting delivery of this Engagement Letter, each party agrees that this Engagement Letter is for the party's confidential use only and that neither its existence nor the terms hereof will be disclosed by the party to any person other than the party's officers, directors, affiliates employees, accountants, attorneys and other advisors, agents and representatives, and then shall be disclosed only on a confidential and "need to know" basis in connection with the transactions contemplated by the Term Sheet; provided, however, that a party may disclose the existence and terms hereof to the extent required, (a) when such disclosure is required by law, under order of a court of competent jurisdiction, or at the request of a government or regulatory agency, so long as, to the extent permitted by law, the disclosing party provides the other party with prior written notice of any required disclosure pursuant to such law, order, request or requirement, so that the other party can seek a protective order against such disclosure and/or (b) at the request of a party's rating agencies, lenders, investment bankers, bankers and others with which the disclosing party has a confidential relationship. Each party's obligations under this paragraph shall survive the termination of this Engagement Letter for a period of one year.

The Lead Arranger's engagement hereunder will be terminated upon the earliest to occur of (i) the closing, (ii) the date which is eight months after the date hereof, or (iii) the date elected by either the Lead Arranger or the Company, subject in the case of this clause (iii) to the delivery of 10 days' prior written notice by the Lead Arranger or the Company to the other party. During the period of engagement hereunder, the Company will not, and will cause its affiliates to not, discuss the Credit Facility with any third parties other than its officers, directors, affiliates employees, accountants, attorneys and other advisors, agents and representatives (except through the Lead Arranger) and it will promptly notify the Lead Arranger if it receives any inquiry concerning the Credit Facility. The Company represents and agrees that no financing of the same or a similar class as the Credit Facility will be made by the Company or on its behalf during the period of the engagement hereunder.

This Engagement Letter shall be governed by, and construed in accordance with, the laws of the State of New York. Each party hereto irrevocably waives all right to trial by jury in any action, proceeding or counterclaim (whether based on contract, tort or otherwise) arising out of or relating to this Engagement Letter or the transactions contemplated hereby or the actions of the parties hereto in the negotiation, performance or enforcement hereof

Please indicate the Company's acceptance of the provisions hereof by signing the enclosed copy of this Engagement Letter and returning two (2) of these originals to J. Andrew Don, Senior Vice President and Treasurer, National Rural Utilities Cooperative Finance Corporation, Dulles, Virginia 20166 (fax: (703) 467-5681) at or before 5:00 p.m. ET on May 15, 2012. If the Company elects to deliver this Engagement Letter by telecopier, please arrange for the executed original to follow by next-day courier.

[Signature Pages Follow]

Very truly yours,

National Rural Utilities Cooperative Finance Corporation

By _____

Name: J. Andrew Don

Title: Senior Vice President and Treasurer

ACCEPTED AND AGREED
on _____, 2012:

Big Rivers Electric Corporation

By _____
Name: Mark A. Bailey
Title: President and CEO

**BIG RIVERS ELECTRIC CORPORATION
SUMMARY OF TERMS AND CONDITIONS
UP TO \$300 MILLION SENIOR UNSECURED REVOLVING CREDIT FACILITY**

FOR DISCUSSION PURPOSES ONLY – NOT A COMMITMENT TO LEND

- BORROWER:** Big Rivers Electric Corporation (“**Big Rivers**” or the “**Borrower**”).
- FACILITY:** Up to \$300 million senior unsecured revolving credit facility.
- PURPOSE:** The Facility shall be used for general corporate purposes and for the issuance of letters of credit (“**LCs**”).
- LEAD ARRANGER:** National Rural Utilities Cooperative Finance Corporation (“**CFC**”).
- ADMINISTRATIVE AGENT:** CFC.
- LENDERS:** A syndicate of financial institutions arranged by the Lead Arranger and acceptable to the Borrower and the Lead Arranger (collectively, the “**Lenders**”).
- CLOSING:** December 6, 2012 or, if earlier, as soon as practicable following the effective date of approval of the Facility by the Kentucky Public Service Commission (“**KPSC**”).
- INTEREST RATES:** As set forth in Addendum I.
- MATURITY:** Up to five years from the Closing (the “**Maturity Date**”).
- AVAILABILITY:** Provided that (i) the aggregate sum of all outstanding amounts together with the LC Exposure then outstanding does not exceed the Lenders’ aggregate commitments under the Facility, and (ii) the “Conditions Precedent to all Loans” (set forth below) are satisfied, advances under the Facility shall be available on and after the Closing until, but not including, the Maturity Date. The borrowing amount for any advance shall be not less than \$5 million and in an aggregate amount that is an integral multiple of \$1 million. The Borrower may, subject to the terms of the Facility, borrow, repay and re-borrow advances.
- SWINGLINE AVAILABILITY:** Provided that (i) the aggregate sum of all outstanding amounts together with the LC Exposure then outstanding

does not exceed the Lenders' aggregate commitments under the Facility, and (ii) the "Conditions Precedent to Each Advance" (set forth below) are satisfied, the Borrower shall have the ability to request advances from the Swingline Lender ("**Swingline Loans**") in an aggregate amount of up to \$25 million. The borrowing amount for any Swingline Loan shall be not less than \$1 million and in an aggregate amount that is an integral multiple of \$500,000. Each Swingline Loan must be repaid within five (5) business days of the date of borrowing.

- SWINGLINE LENDER:** CFC.
- LETTERS OF CREDIT:** Provided that (i) the aggregate sum of all outstanding amounts together with the LC Exposure then outstanding does not exceed the Lenders' aggregate commitments under the Facility, and (ii) the "Conditions Precedent to Each Advance" (set forth below) are satisfied, the Borrower may request the issuance of standby LCs under the Facility in the amount up to \$50 million in the aggregate (the "**LC Sublimit**"). Each Lender shall participate in the LC Sublimit on a pro rata basis.
- LC ISSUER:** CFC or any Lender chosen by the Borrower, subject to the agreement of such Lender, in its sole discretion, to issue a given LC.
- LC PARTICIPATION FEE:** The Borrower will pay each Lender a participation fee with respect to its pro rata participation in LCs, which shall accrue at a rate equal to the LIBOR Applicable Margin (as set forth in Addendum I) on the average daily amount of the LC Exposure. The LC Participation Fee shall be payable on a quarterly basis.
- LC FRONTING FEE:** The Borrower will pay the LC Issuer a fronting fee that shall accrue at the rate of 15 bps per annum on the average daily amount of the LC Exposure. The LC Fronting Fee shall be payable on a quarterly basis.
- LC EXPOSURE:** LC Exposure shall mean at any time, the sum of (a) the aggregated undrawn amount of all outstanding LC at any time plus (b) the aggregate amount of all LC disbursements that have not yet been reimbursed by or on behalf of the Borrower at such time.

REPAYMENT: The Borrower will repay each advance no later than the Maturity Date and as described in “Mandatory Prepayment” below. The Borrower will repay each Swingline Loan to the Swingline Lender when due and payable.

MANDATORY PREPAYMENT: Usual and customary for transactions of this type, to include without limitation: (i) amounts advanced in excess of the Facility amount and (ii) change of control.

OPTIONAL PREPAYMENTS AND COMMITMENT REDUCTIONS: The Borrower may prepay the Facility in whole or in part at any time without penalty, subject to reimbursement of the Lenders’ breakage and redeployment costs in the case of prepayment of LIBOR borrowings. The Borrower may, on one business day’s prior written notice, permanently terminate or cancel any unused portion of the Facility, provided that each partial reduction must be in minimum increments of \$10 million or any whole multiple of \$5 million in excess thereof.

LOAN DOCUMENTATION: The Borrower shall have executed and delivered definitive loan documentation with respect to the Facility on terms described in this term sheet and such other terms as may be agreed to between the Borrower and the Lead Arranger.

CONDITIONS PRECEDENT TO CLOSING AND THE INITIAL FUNDING: The Closing and the initial funding of the Facility will be subject to satisfaction of the following conditions precedent:

- (i) The negotiation, execution and delivery of definitive documentation (including, without limitation, satisfactory legal opinions, corporate formation and authority documents and other customary closing documents) for the Facility satisfactory to the Lead Arranger and the Lenders.
- (ii) There shall not have occurred a material adverse change since December 31, 2011 in the business, assets, liabilities (actual or contingent), operations, condition (financial or otherwise) of the Borrower and its subsidiaries taken as a whole or in the facts and

information regarding such entities as represented to date.

- (iii) Receipt and satisfactory review by the Lead Arranger and the Lenders of such financial information regarding the Borrower and its subsidiaries as they may reasonably request.
- (iv) Payment of all fees and expenses required to be paid on or before the Closing.
- (v) The absence of material litigation, subject to certain exceptions previously disclosed to the Lenders.
- (vi) The Borrower shall be in compliance with all existing material financial obligations.
- (vii) The Borrower shall make certain representations and warranties regarding itself, its members and the Member Wholesale Power Contracts as agreed to between the Borrower and the Lead Arranger.
- (viii) All governmental and regulatory approvals necessary, including, but not limited to the KPSC approval, for the transaction shall have been obtained.
- (ix) No Event of Default (as defined below), or event which with giving of notice or lapse of time or both would be an Event of Default (together referred to herein as a "Default"), has occurred and is continuing.
- (x) Favorable legal opinion from counsel for the Borrower, satisfactory to the Lead Arranger and the Lenders.
- (xi) The Borrower shall certify that on and as of the Closing, to the best of its knowledge, there is no condition or circumstance that would impair the ability of the parties to the Borrower's Member Wholesale Power Contracts and Direct Serve Contracts to perform thereunder.
- (xii) Termination of unsecured line of credit facilities with CFC and CoBank, ACB.

**CONDITIONS PRECEDENT
TO EACH ADVANCE:**

Usual and customary for transactions of this type, to include without limitation: (i) all representations and warranties are true and correct as of the date of each loan or LC (except those that expressly relate to an earlier date), and (ii) no Default or Event of Default has occurred and is continuing, or would result from such loan.

**REPRESENTATIONS
AND WARRANTIES:**

Usual and customary for transactions of this type, to include without limitation: (i) corporate existence and status; (ii) corporate power and authority/enforceability; (iii) no violation of law, material contracts or organizational documents; (iv) no undisclosed material litigation as of the Closing; (v) correctness of specified financial statements; (vi) receipt of all required governmental or third party approvals; (vii) no Default; (viii) indebtedness and liens as of the Closing; (ix) compliance with laws; (x) solvency; (xi) title to property, insurance and leases; (xii) franchises, licenses and permits; (xiii) corporate structure/subsidiaries as of the Closing; (xiv) use of proceeds/compliance with margin regulations; (xv) status under Public Utility Holding Company Act, Investment Company Act, KPSC and Federal Power Act; (xvi) ERISA matters; (xvii) environmental matters as of the Closing; (xviii) payment of taxes; (xix) accuracy of disclosure; (xx) compliance with the RUS debt obligations and material compliance with RUS regulations applicable to the Borrower; (xxi) labor disputes and natural disaster; (xxii) Patriot Act and anti-terrorism compliance; (xxiii) effectiveness and enforceability against the Borrower of the Borrower's power supply contracts with its members excluding the power supply amendments described in (a) and (b), below ("**Member Wholesale Power Contracts**"), and power supply contracts or power supply contract amendments with a member to provide wholesale service for (a) any smelter to which a member of the Borrower supplies power, and (b) any other customer to which a member of the Borrower supplies power in excess of 25 megawatts (each of the power supply contracts or power supply contract amendments described in (a) and (b), a "Direct Serve Contract").

COVENANTS:

Usual and customary for transactions of this type, to include without limitation: (i) delivery of financial statements, compliance certificates, government reports and notices of

default, material litigation and material governmental and environmental proceedings; (ii) compliance with material laws (including environmental laws and ERISA matters) and material contractual obligations; (iii) payment of taxes; (iv) maintenance of property and insurance; (v) preservation of existence and franchises; (vi) maintenance of books and records/inspection rights; (vii) use of proceeds and LCs; (viii) limitation on liens, negative pledges, mergers (except mergers where the Borrower is the surviving entity), sale of all or substantially all of the Borrower’s assets, sales of physical plant assets, sale leaseback transactions, investments and acquisitions; (ix) limitation on intercompany indebtedness and transactions with affiliates; (x) limitation on changes to nature of business, charter documents, fiscal year and organizational documents; (xi) limitation on other unsecured indebtedness exceeding \$50 million (excluding purchase money and capital lease indebtedness); (xii) providing prompt notice of (x) material changes to Member Wholesale Power Contracts and (y) the (a) permanent shutdown or material curtailment of the operations of any Borrower member retail customer for which wholesale service is provided under a Direct Serve Contract, (b) material modification to a Direct Serve Contract and (c) termination of any Direct Serve Contract; (xiii) limitation on investment; (xiv) notice of material events; (xv) no termination of Member Wholesale Power Contracts representing 20% or more of the Borrower’s revenue base (other than at the end of a contract term or a voluntary termination provided for by the contract terms); and (xvii) limitation on forming subsidiaries.

FINANCIAL COVENANTS:

- (i) Margins for Interest (“MFI”) – the Borrower will maintain a minimum MFI of 1.1:1.0 as of the last day of any fiscal year.
- (ii) Members’ Equities’ Balance (“MEB”): The Borrower will maintain, in accordance with GAAP, a minimum MEB at each fiscal quarter end and as of the last day of each fiscal year, as specified below during the following calendar year periods.

| Period Ending (and the Fiscal Quarters Ending Therein) | Amount |
|--|--|
| December 31, 2012 | \$325,000,000 plus 75% of the positive net margins for the |

| | |
|-------------------|---|
| | Borrower's fiscal year ending 2011 |
| December 31, 2013 | \$325,000,000 plus 75% of the cumulative positive net margins between the Borrower's fiscal year ending 2011 and 2012 |
| December 31, 2014 | \$325,000,000 plus 75% of the cumulative positive net margins between the Borrower's fiscal year ending 2011 and 2013 |
| December 31, 2015 | \$325,000,000 plus 75% of the cumulative positive net margins between the Borrower's fiscal year ending 2011 and 2014 |
| December 31, 2016 | \$325,000,000 plus 75% of the cumulative positive net margins between the Borrower's fiscal year ending 2011 and 2015 |
| December 31, 2017 | \$325,000,000 plus 75% of the cumulative positive net margins between the Borrower's fiscal year ending 2011 and 2016 |

EVENTS OF DEFAULT:

Usual and customary for transactions of this type, to include without limitation: (i) nonpayment of principal, interest, fees or other amounts, (ii) violation of covenants (with cure periods as applicable), (iii) inaccuracy of representations and warranties, (iv) cross-default (applicable for principal and interest payments, subject to applicable cure periods in the case of interest payments) or cross-acceleration (applicable for other defaults) to other indebtedness exceeding \$15 million, (v) bankruptcy and other insolvency events, (vi) judgments in excess of \$15 million, (vii) ERISA matters, (viii) actual or asserted invalidity of any loan documentation or security interests, (ix) (A) any one or more members of the Borrower shall default in the performance of any payment obligations under its or their Member Wholesale Power Contracts where the aggregate principal amount of such default or defaults exceeds \$5 million and such default or defaults have continued for sixty-five (65) days beyond any applicable cure period with respect thereto, if any, or (B) members of the Borrower

representing 20% or more of the Borrower's revenue base shall contest the validity or enforceability of their Member Wholesale Power Contracts by filing any official judicial or regulatory filing seeking as a remedy the declaration of the unenforceability or the material modification of their wholesale power contracts, and such judicial or regulatory body shall have issued a final, non-appealable order (1) in which such members substantially prevail, (2) declaring all or a material portion of such Member Wholesale Power Contract(s) unenforceable, or (3) modifying such Member Wholesale Power Contract(s) in any material manner; (x) termination of Member Wholesale Power Contracts representing 20% or more of the Borrower's revenue base; and (xi) assertion of material environmental claims, excluding the Environmental Protection Agency claims that have been disclosed to the Lenders at Closing, and provided that the prosecution of such claims has not resulted in either a material expansion thereof or the assertion of new claims.

ASSIGNMENTS AND PARTICIPATIONS:

Each Lender will be permitted to make assignments (in minimum amounts of \$3 million) to other financial institutions approved by the Borrower (so long as no Default has occurred and is continuing) and the Administrative Agent, which approval shall not be unreasonably withheld. Lenders will be permitted to sell participations with voting rights limited to significant matters such as changes in amount, rate and maturity date. An assignment fee of \$3,500 shall be payable by the Lender to the Administrative Agent upon the effectiveness of any such assignment (including, but not limited to, an assignment by a Lender to another Lender).

WAIVERS AND AMENDMENTS:

Amendments and waivers of the provisions of the loan agreement and other definitive credit documentation will require the approval of Lenders holding loans, LC's and commitments representing more than 50.0% of the aggregate amount of loans and commitments under the Facility ("**Required Lenders**"), except that the consent of all Lenders shall be required with respect to (i) increases in the commitment of any Lender, (ii) reductions of principal, interest or fees, (iii) extensions of scheduled maturities or times for payment, or the scheduled expiration date of any commitment, (iv) modifications to the pro rata treatment of Lenders, (v) modifications to conditions precedent for

credit extensions under the Facility or (vi) changes in certain assignment provisions or the definition, rights, etc., of "Required Lenders".

DEFAULTING LENDERS: The Loan Documents shall contain customary provisions relating to Defaulting Lenders (to be defined on terms reasonably satisfactory to the Agent), including, without limitation, (a) reduction, termination or assignment of commitments or Loans of such Lenders, including the non-pro rata removal or replacement of any Lender that has been deemed insolvent or become subject to a bankruptcy, insolvency, receivership or other similar proceeding, or has otherwise defaulted under other credit agreements to which it is a party, (b) provisions relating to providing cash collateral to support LCs (subject to any limitations in the Borrower's Indenture or the RUS Loan Contract), (c) the suspension of voting rights, and (d) rights to receive certain fees.

INDEMNIFICATION: The Borrower shall indemnify the Lead Arranger and the Lenders and their respective affiliates (the "**Indemnified Parties**") from and against all losses, liabilities, claims, damages or expenses arising out of or relating to the Facility, the Borrower's use of loan proceeds, the LC or the commitments, including, but not limited to, all costs and expenses of counsel, reasonable attorneys' fees and settlement costs, unless and only to the extent that, as to any Indemnified Party, it shall be determined in a final, nonappealable judgment by a court of competent jurisdiction that such losses, liabilities, claims, damages or expenses resulted from the gross negligence or willful misconduct of such Indemnified Party. This indemnification shall survive and continue for the benefit of the indemnitees at all times after the Borrower's acceptance of the Lenders' commitments for the Facility, notwithstanding any failure of the Facility to close.

GOVERNING LAW: New York.

COUNSEL TO LENDERS: Dewey & LeBoeuf LLP.

FEES/EXPENSES: As set forth in Addendum I.

OTHER: This Summary of Terms and Conditions is intended as an outline of certain of the material terms of the Facility and does not purport to summarize all of the conditions, covenants, representations, warranties and other provisions

which would be contained in definitive documentation for the Facility contemplated hereby.

The Lead Arranger shall be entitled, after consultation with the Borrower, to change the pricing, terms, structure or amount of the Facility if the Lead Arranger determine that such changes are advisable to insure a successful syndication of the Facility.

The Summary of Terms is subject to standard underwriters' protection limited to price flex.

Each Party shall waive its right to a trial by jury.

FOR DISCUSSION PURPOSES ONLY – NOT A COMMITMENT TO LEND

This Summary of Terms and Conditions (“Term Sheet”) is not meant to be, nor shall be construed as either a binding commitment or an attempt to define all terms and conditions of the transaction described herein. This Term Sheet represents a proposal which CFC may be willing to recommend for approval to senior management, provided that, among other things, all due diligence deemed necessary is completed to its satisfaction.

**ADDENDUM I
FEES AND EXPENSES**

FACILITY FEE: The Borrower will pay a fee (the “**Facility Fee**”), determined based on the Borrower’s issuer or unsecured credit ratings, as outlined in the table below, on each Lender’s share of the Facility. The Facility Fee shall be payable quarterly in arrears commencing upon the Closing Date.

INTEREST RATE: At the Borrower's option, any loan under the Facility prior to the Maturity Date will bear interest at a rate equal to an incremental borrowing margin of (i) the Adjusted LIBOR plus the LIBOR Margin as determined in the table below (based on the Borrower’s issuer or senior unsecured credit rating), or (ii) the Alternate Base Rate (“**ABR**”) as of the date of determination plus the ABR Margin as determined in the table below (based on the Borrower’s issuer or senior unsecured credit rating). ABR is defined as the highest of (a) the Prime Rate for such day, (b) the sum of 0.5% and the Federal Funds Rate for such day and (c) the Adjusted LIBOR for a one month Interest Period on such day plus 1%.

| Level | S&P | Moody's | Fitch | ABR Margin (bps) | LIBOR Margin (bps) | Facility Fee (bps) | All-in Drawn Margin (L + bps) |
|-------|------|---------|-------|------------------|--------------------|--------------------|-------------------------------|
| 1 | ≥A | ≥A2 | ≥A | 0 | 95 | 10 | 105 |
| 2 | A- | A3 | A- | 0 | 100 | 12.5 | 112.5 |
| 3 | BBB+ | Baa1 | BBB+ | 15 | 115 | 17.5 | 132.5 |
| 4 | BBB | Baa2 | BBB | 27.5 | 127.5 | 22.5 | 150 |
| 5 | BBB- | Baa3 | BBB- | 47.5 | 147.5 | 27.5 | 175 |
| 6 | ≤BB+ | ≤Ba1 | ≤BB+ | 80 | 180 | 35 | 215 |

If the Borrower has a senior secured credit rating, but not an issuer or senior unsecured credit rating from any rating agency, for purposes of the Facility, the senior unsecured credit rating of the Borrower from such rating agency shall be deemed to be one notch below the senior secured credit rating from that rating agency.

If the Borrower has split credit ratings, the Facility Fee, LIBOR Margin and ABR Margin shall be determined by reference to: (a) if two of the credit ratings fall within the same category, that rating shall apply, (b) the midpoint rating between the highest and the lowest ratings if all three ratings fall within different categories, and (c) if the Borrower is rated by only two major rating agencies, the lower of the two ratings shall apply.

The Borrower may select interest periods of 1, 2, 3 or 6 months and 9 and 12 months if available from all Lenders for LIBOR loans, subject to availability. Interest shall be payable at the end of the selected interest period, but no less frequently than quarterly. A default rate shall apply on all unpaid amounts due under the Facility at a rate per annum of 2% above the applicable interest rate.

CALCULATION OF INTEREST AND FEES:

Other than calculations in respect of interest at the ABR described above (which shall be made on the basis of actual number of days elapsed in a 365/366 day year), all calculations of interest and fees shall be made on the basis of actual number of days elapsed in a 360-day year.

COST AND YIELD PROTECTION:

Customary for transactions and facility of this type, including, without limitation, in respect of breakage costs incurred in connection with prepayments, failure to borrow after notice to borrow is given, changes in capital adequacy and capital requirements or their interpretation, illegality, and payments free and clear of withholding or other taxes, subject to each Lender providing the appropriate withholding exemption certificate.

FEES AND EXPENSES:

The Borrower will pay all reasonable fees and expenses of the Lead Arranger associated with the Facility regardless of closing and all reasonable expenses associated with any enforcement of the Lead Arranger or Lenders' rights and remedies in respect of the Facility.

Big Rivers Transaction Calendar

| April | | | | | | | May | | | | | | | June | | | | | | | July | | | | | | | August | | | | | | |
|-------|----|----|----|----|----|----|-----|----|----|----|----|----|----|------|----|----|----|----|----|----|------|----|----|----|----|----|----|--------|----|----|----|----|----|----|
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | | | | | | | 1 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | 1 | 2 | 3 | 4 | |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 29 | 30 | | | | | | 27 | 28 | 29 | 30 | 31 | | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 29 | 30 | 31 | | | | | 26 | 27 | 28 | 29 | 30 | 31 | | |

| September | | | | | | | October | | | | | | | November | | | | | | | December | | | | | | |
|-----------|----|----|----|----|----|----|---------|----|----|----|----|----|----|----------|----|----|----|----|----|----|----------|----|----|----|----|----|----|
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
| | | | | | | 1 | 1 | 2 | 3 | 4 | 5 | 6 | | | | | 1 | 2 | 3 | | | | | | | 1 | |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 28 | 29 | 30 | 31 | | | 25 | 26 | 27 | 28 | 29 | 30 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | | |
| 30 | | | | | | | | | | | | | | | | | | | 30 | 31 | | | | | | | |

| DATE | ACTIVITY |
|-----------------|--|
| April 20 | ▪ Engagement Letter and Term Sheet sent to Big Rivers |
| May 15 | ▪ Big Rivers signs the Engagement Letter |
| July 2 | ▪ Draft Credit Agreement (“CA”) to Big Rivers |
| July 26 | ▪ CFC obtains commitment approval |
| July 27 | ▪ Big Rivers and CFC finalize Draft CA |
| July 30 | ▪ Big Rivers files for financing approval with Kentucky Public Service Commission (“KPSC”) |
| Sep 14 – Sep 28 | ▪ CFC and Big Rivers prepare Confidential Information Memorandum (“CIM”) |
| September 28 | ▪ Draft CIM to Big Rivers |
| October 9 | ▪ Finalize CIM and launch syndication on DebtX |
| October 10 | ▪ Bank Meeting (Location TBD) |
| October 30 | ▪ Lenders’ commitment due by 3:00pm ET |
| November 15 | ▪ Draft CA distributed to Lenders |
| November 30 | ▪ Lenders’ comments on CA due by 3:00pm ET |
| December 3 | ▪ Finalized CA posted to DebtX |
| December 4 | ▪ Lenders’ Signature Page Due by 3:00pm ET |
| December 5 | ▪ Big Rivers receives final approval from KPSC |
| December 6 | ▪ Closing |

Bank Holiday

Syndication Event

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 Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

1 Item 57) *Refer to p. 15 of Mark A. Hite's Testimony, produce all reports,*
2 *memoranda, presentations, or other documents provided to stockholders,*
3 *investors, banks, investment firms, investment brokers or dealers,*
4 *investment analysts, bond rating agencies, by either Big Rivers or*
5 *Touchstone Energy since 2004 regarding:*

6

- 7 a. *the environmental compliance status of the Wilson,*
8 *Green, Coleman, Reid, or HMP&L generating units,*
9 b. *past, present or future environmental compliance of the*
10 *Wilson, Green, Coleman, Reid, or HMP&L generating*
11 *units,*
12 c. *litigation or settlements concerning environmental*
13 *matters at the Wilson, Green, Coleman, Reid, or HMP&L*
14 *generating units the Big Sandy plant, to the extent not*
15 *covered by attorney-client privilege,*
16 d. *past, present or future need for the Wilson, Green,*
17 *Coleman, Reid, or HMP&L generating units, or the need*
18 *for or plans for capital additions to any of those units,*
19 *whether for environmental compliance or otherwise,*
20 e. *any other matter that could affect the costs or output of*
21 *the Wilson, Green, Coleman, Reid, or HMP&L generating*
22 *units.*

BIG RIVERS ELECTRIC CORPORATION

APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
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Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012

June 1, 2012

- 1 *f. To the extent not already provided in response to*
2 *subsections a-e above, please provide any agendas,*
3 *handouts, minutes, documents prepared for or resulting*
4 *from each meeting of Big Rivers and/or Touchstone*
5 *Energy with stockholders, investors, banks, investment*
6 *firms, investment brokers or dealers, investment*
7 *analysts, bond rating agencies or the like at which the*
8 *matters listed above were discussed in any way*
9 *g. Please continue to provide any such documentation as*
10 *listed in (a)-(f) above as generated on a regular basis.*

11
12 **Response)** Please see the response to the Attorney General's Initial Data
13 Request Items 31 and 32. In addition, see response to the KIUC 's Initial Data
14 request 1.43 in this proceeding.

- 15
16 a. See Item 56 of these responses.
17 b. See Item 56 of these responses.
18 c. None.
19 d. None.
20 e. This question is impossibly broad, fails to identify with
21 specificity the information sought, and cannot be answered in
22 its current form.

BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
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CONVENIENCE AND NECESSITY, AND FOR AUTHORITY TO
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**Response to the Sierra Club's
Initial Request for Information
Dated May 21, 2012**

June 1, 2012

- 1 f. Not applicable.
2 g. Big Rivers will update this response during the course of this
3 proceeding.

4
5
6

Witness) Mark A. Hite

**Big Rivers Presentation to Kentucky Public Service Commission –
October 28, 2010**

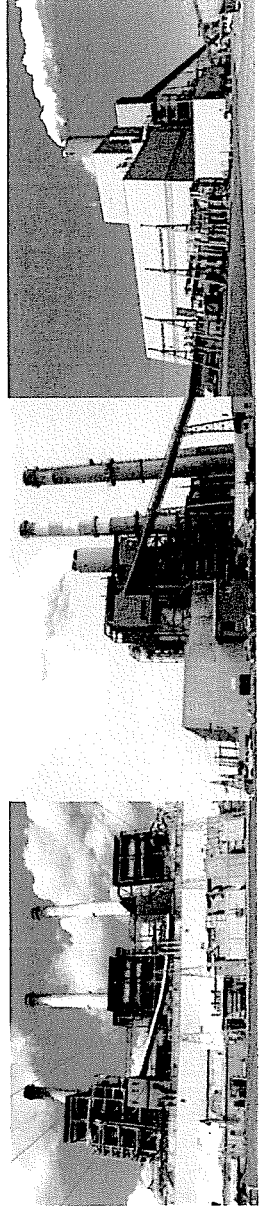
Impact of New Environmental Regulations on Big Rivers

CATR / CCR / HAPs MACT / CO₂ / 316a & 316 b

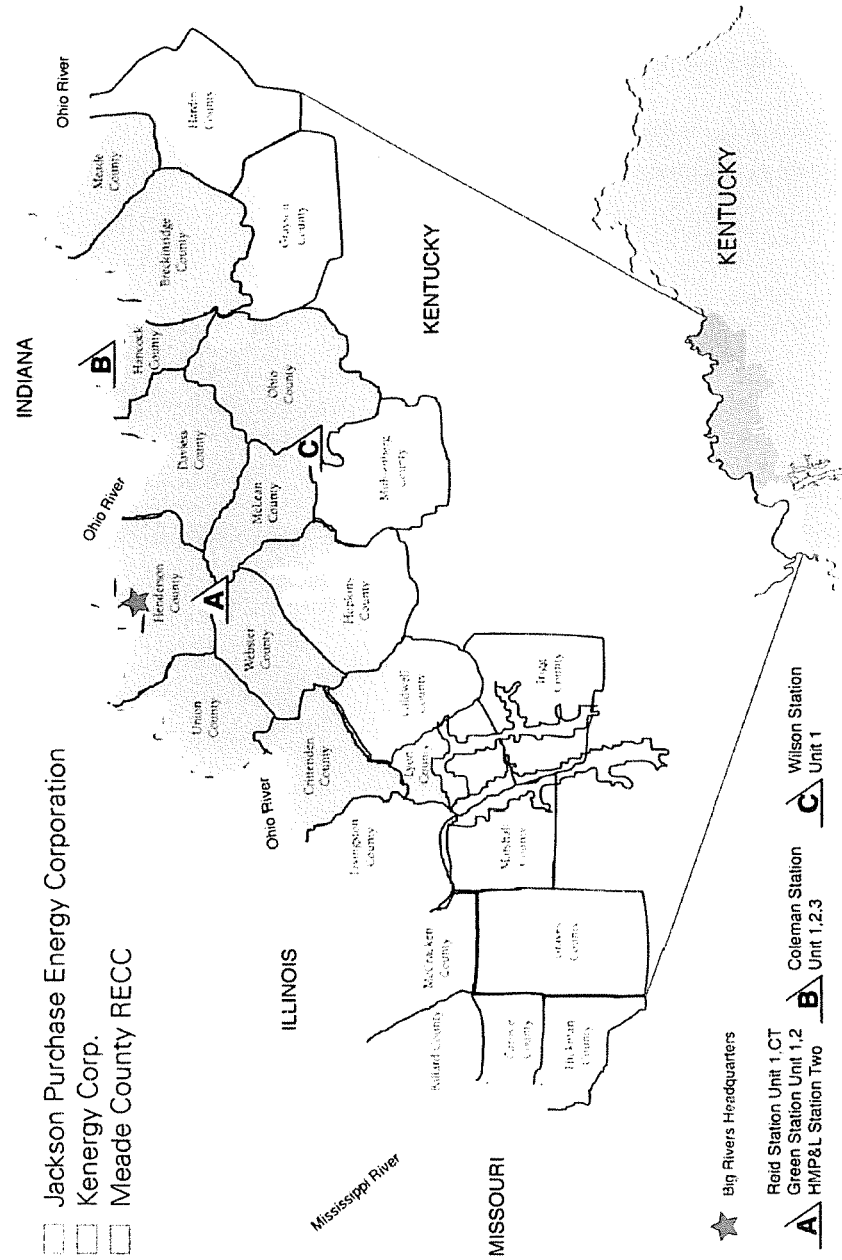
Presented to Kentucky Public
Service Commission

October 28, 2010

Big Rivers
ELECTRIC CORPORATION



Big Rivers Electric Corporation Service Area

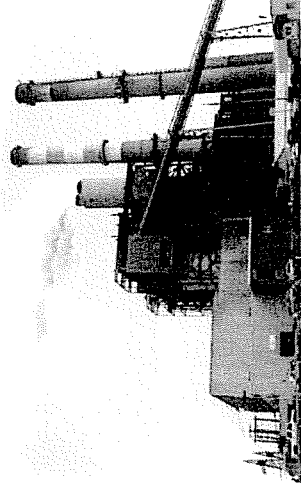


Member Cooperatives' Customers

| | |
|--------------------------|----------------|
| Jackson Purchase | 29,000 |
| Kenergy | 55,000 |
| <u>Meade County RECC</u> | <u>28,000</u> |
| Total Customers | 112,000 |

Environmental Stewardship Remains a Focus for Big Rivers Electric

- Big Rivers has made significant investments to comply with all existing environmental regulations.





- Big Rivers fleet has some of the highest efficiency FGDs available.
- Big Rivers also has one of the few coal re-burn systems installed for NO_x control.

Big Rivers Generation System

| Station | Unit | Commercial Date | Capacity MW net | Particulate Control | SO ₂ Control | NOx Control |
|--------------------------------------|-------------|----------------------|-------------------|---------------------------|---------------------------------------|---|
| Robert Reid | 1 | 1966 | 50 | Mechanical Cyclone ESP | Compliance Coal | Over-fire Air |
| Robert Reid Combustion Turbine | 1 | 1976 | 60 | None | Natural Gas Fired | None |
| Kenneth Coleman | 1 2 3 | 1969 1970 1972 | 146 146 151 | ESP | Wet Limestone Scrubber 95% eff. | Advanced Low NOx Burners Over Fired Air |
| HMP&L Station II | 1 2 | 1973 1974 | 153 159 | ESP | Wet Lime Scrubber 95% eff. | Low NOx Burners SCR |
| R.D. Green | 1 2 | 1979 1981 | 231 223 | ESP | Wet Lime Scrubber 98% eff. | Low NOx Burners Coal Re-Burn |
| D.B. Wilson | 1 | 1986 | 417 | ESP | Wet Limestone Scrubber 90% eff. | Low NOx Burners SCR |

Big Rivers
ELECTRIC CORPORATION

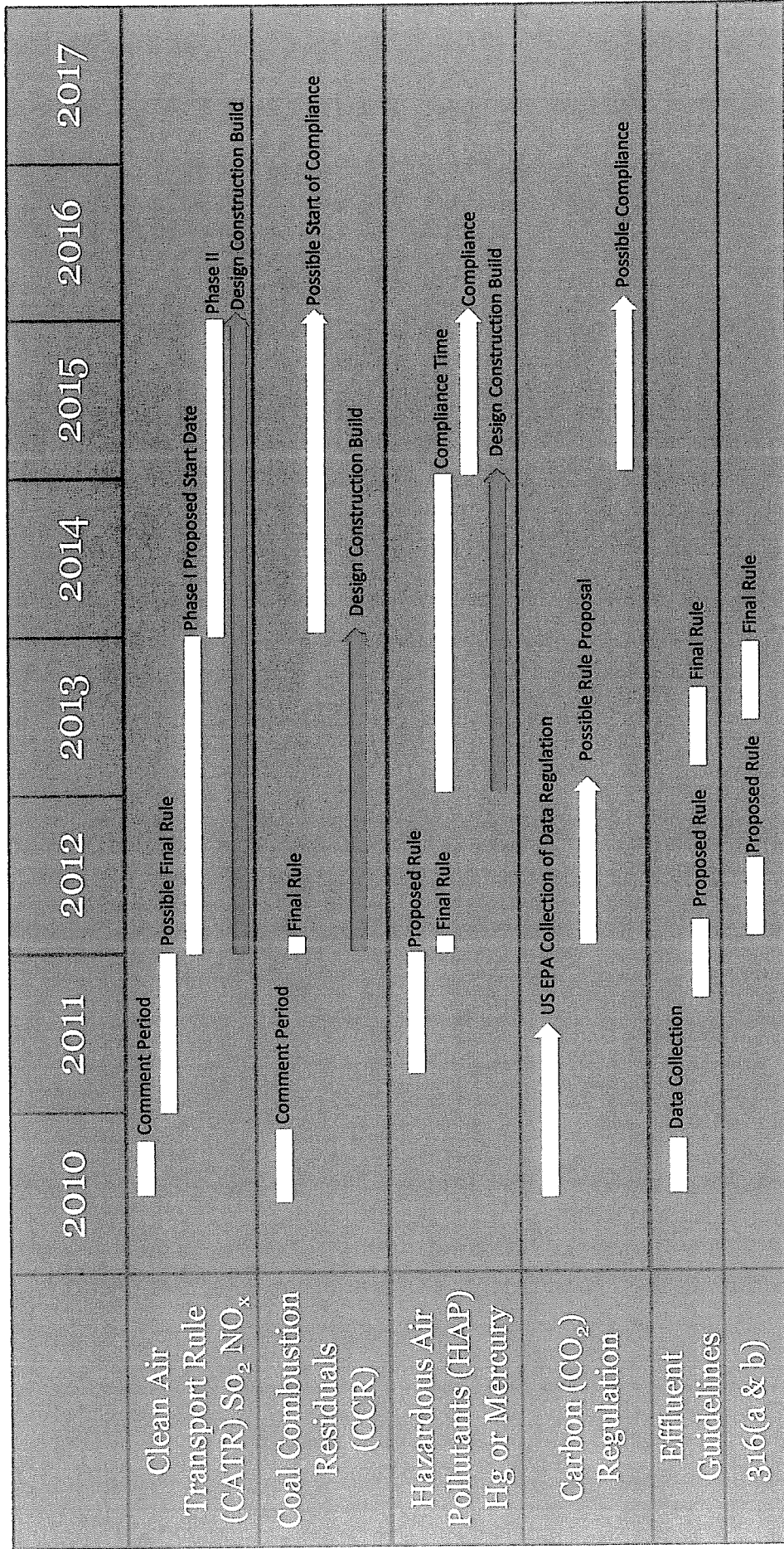
Your Tasteless Energy. Cooperative 



EPA is Proposing an Unprecedented Number of New Regulations

- Clean Air Transport Rule (CATR)
- Hazardous Air Pollutants (HAPs MACT)
- Carbon Dioxide (CO₂)
- Coal Combustion Residuals (CCR)
- Water Quality (316a & 316b)

Environmental Compliance Timeline



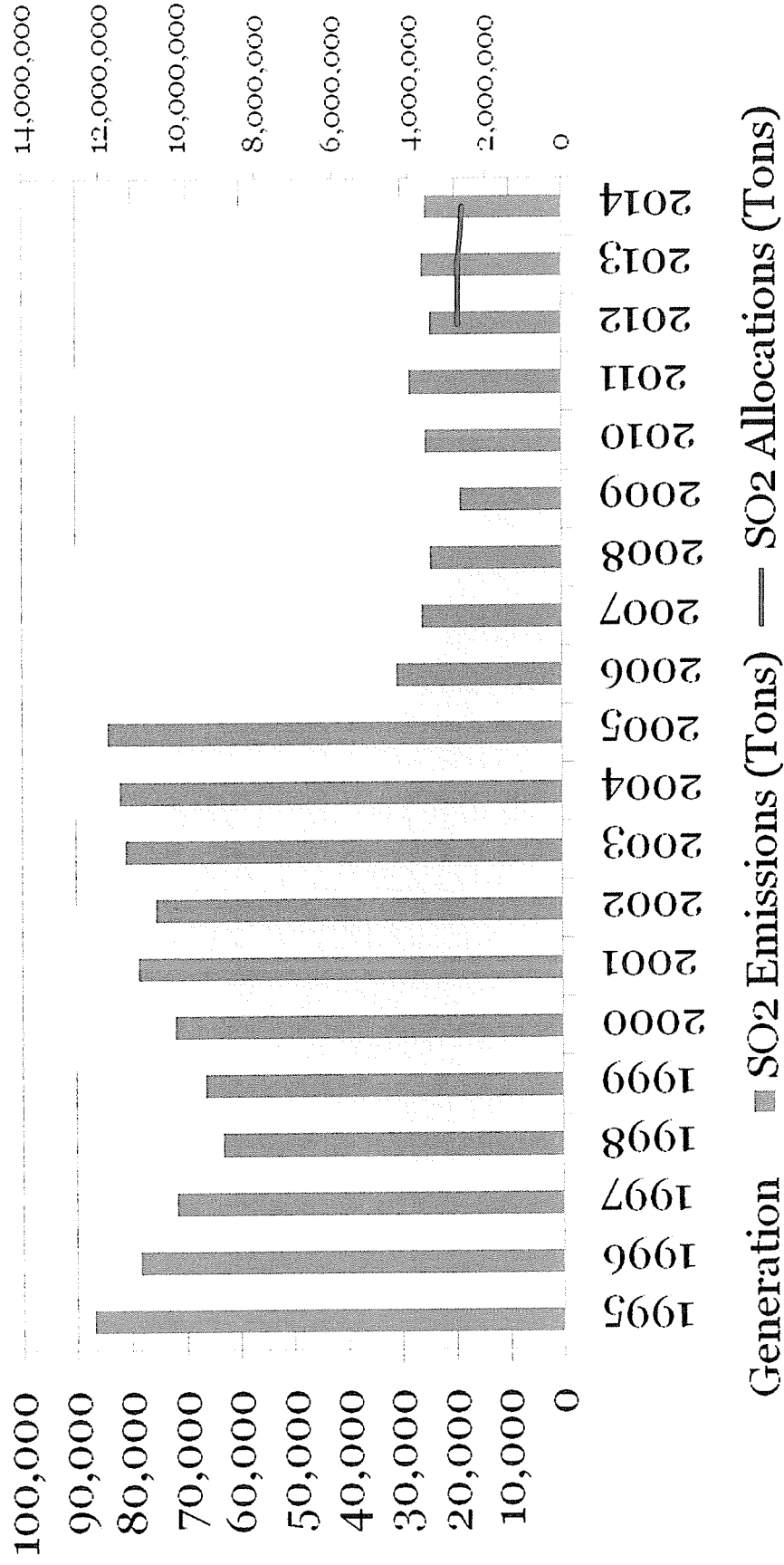
Proposed Clean Air Transport Rule (CATR)

- Replaces, in 2012, the Clean Air Interstate Rule's (CAIR) SO₂ and NO_x emission standards with considerably more restrictive standards.
- Emission allowances accumulated under CAIR are not usable under CATR.
- Allowances allocated under CATR will be insufficient to meet projected generation.
- Beginning 2012, additional allowances may not be available beyond the allocated amount.
 - Majority of utilities will struggle to meet the proposed allocations
 - Utilities will likely hold any surplus allowances for future years compliance

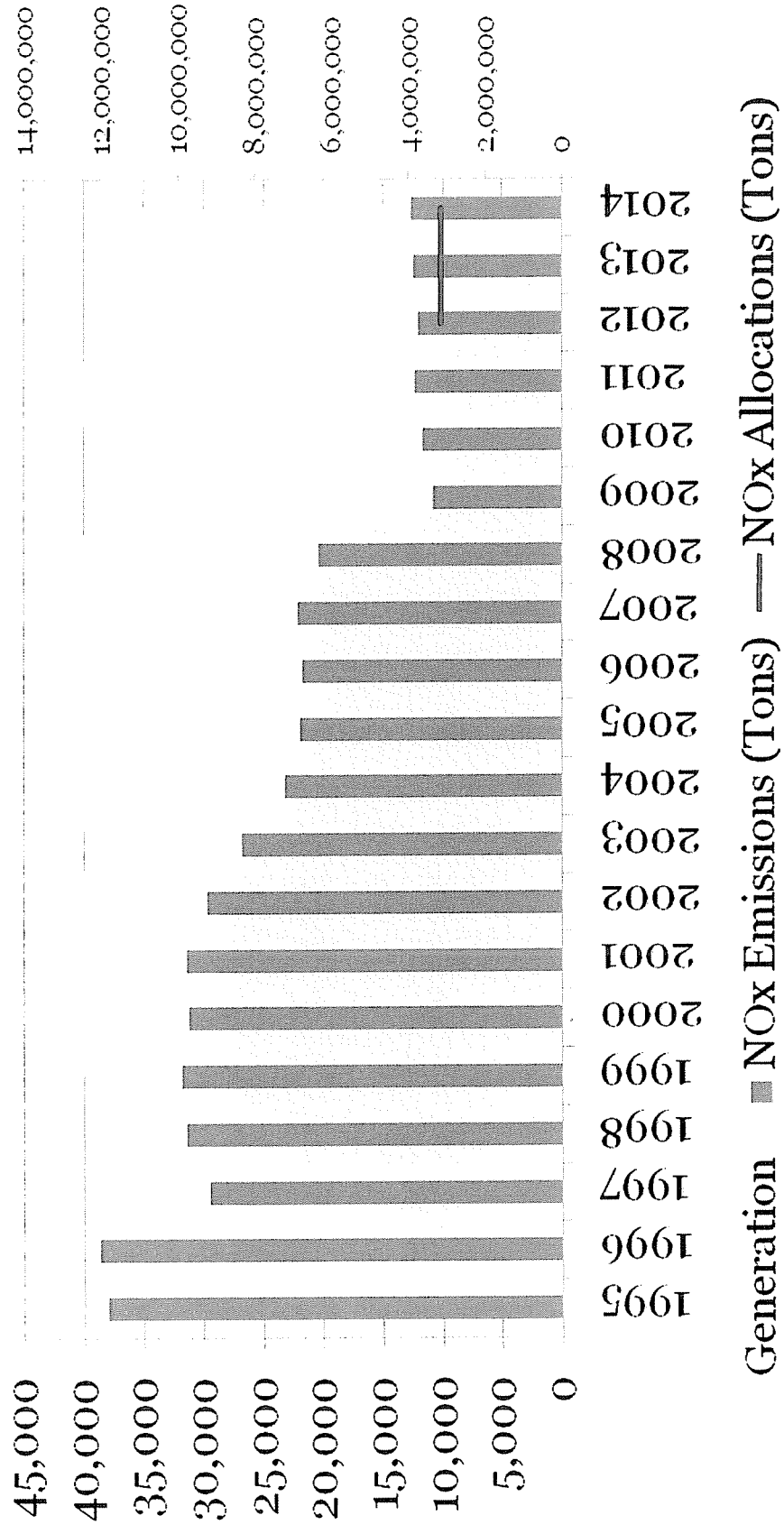
Proposed Clean Air Transport Rule (CATR)

- Existing control equipment for NO_x and SO₂ emissions will be insufficient to meet new standards.
- The design, engineering, permitting, procurement and construction of new control equipment needed to meet 2012 emission standards cannot be completed within the existing timeline.
- Reduction of 2.2 million megawatt-hours (18%) of planned generation will be required to meet the NO_x and SO₂ allowance allocations in 2012.

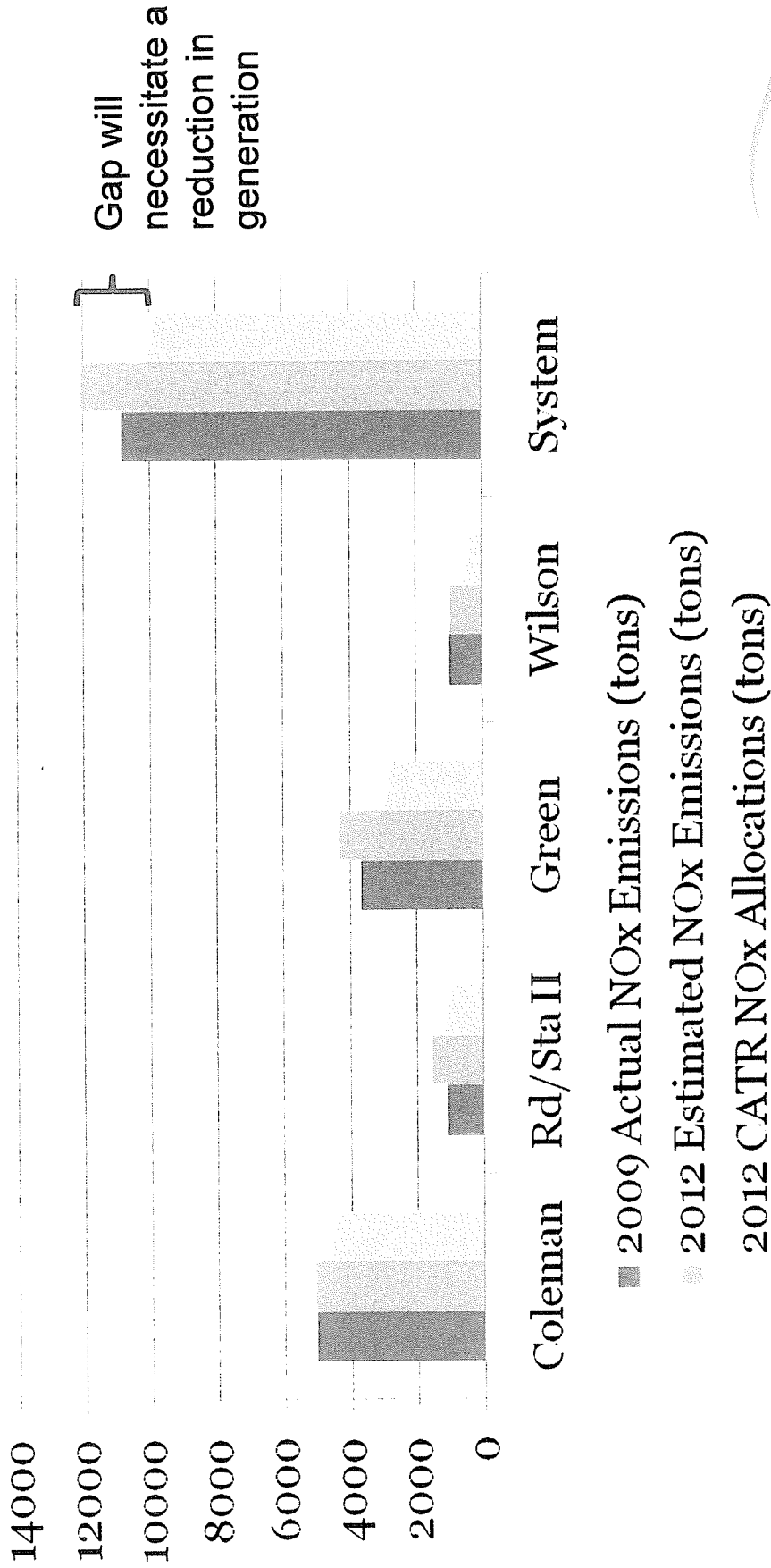
Big Rivers has Made Significant Reductions in SO₂ Emissions



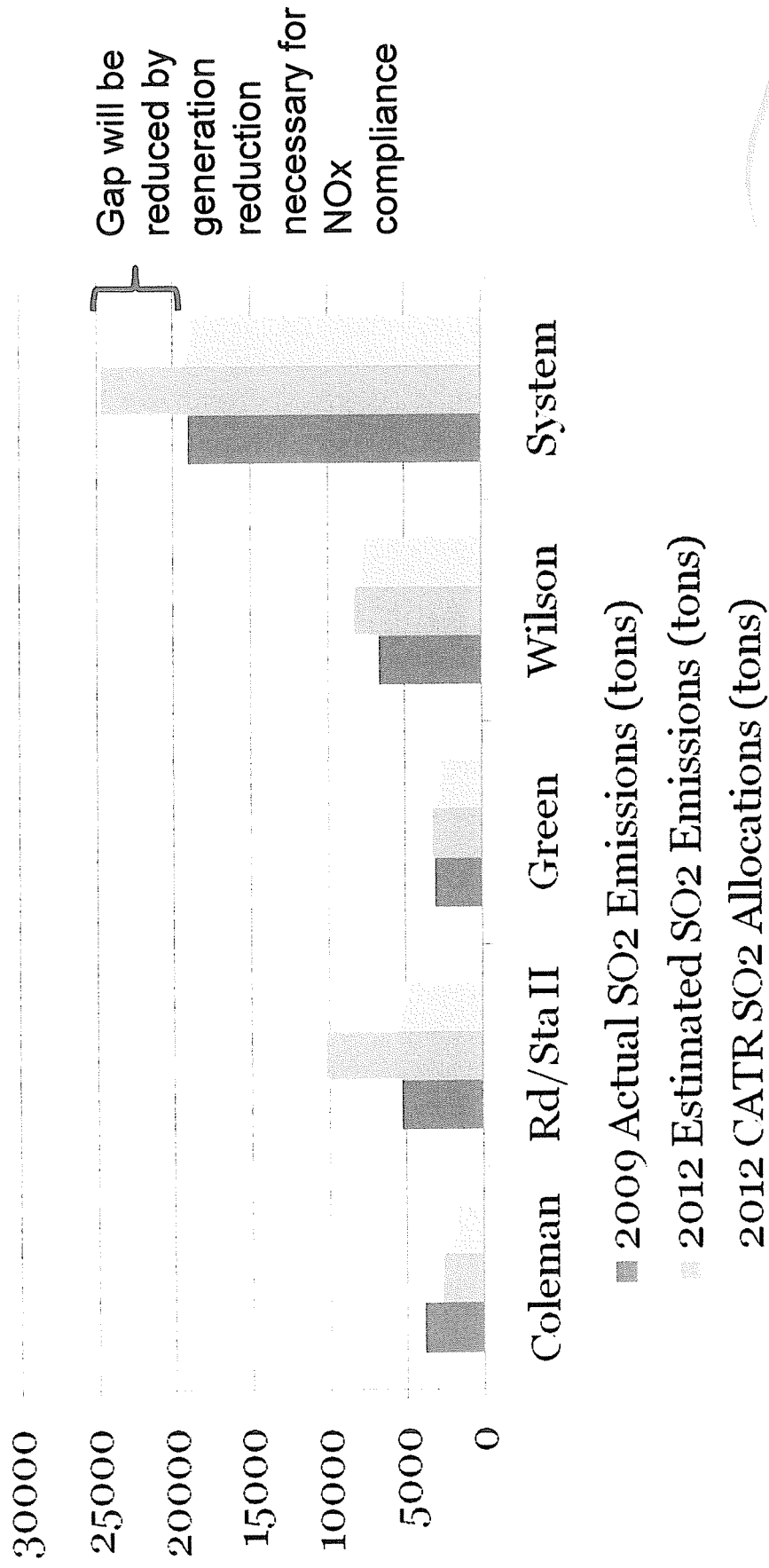
Big Rivers has Made Significant Reductions in NO_x Emissions



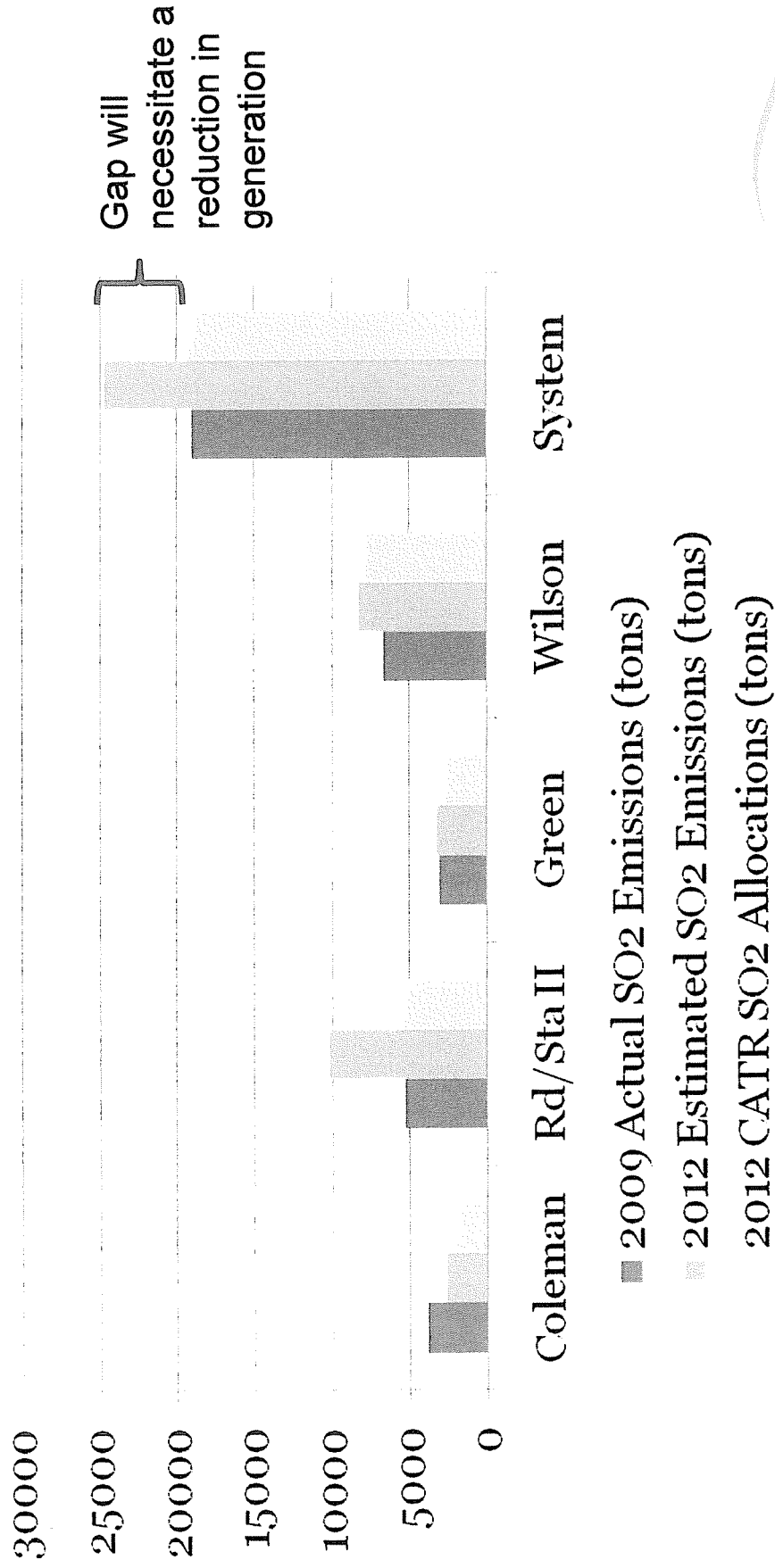
Estimated CATR NO_x Impact on Big Rivers in 2012



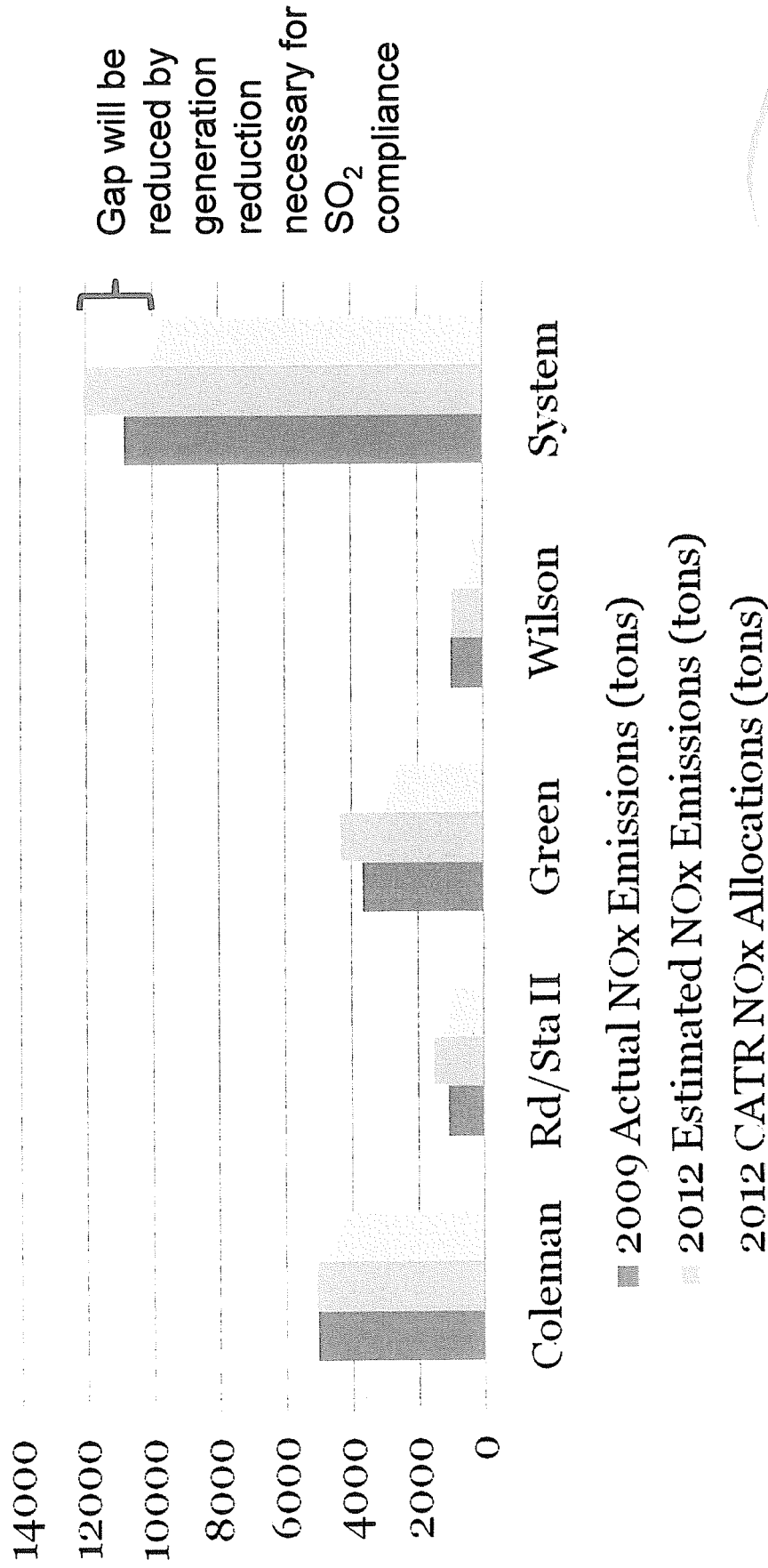
Estimated CATR SO₂ Impact on Big Rivers in 2012



Estimated CATR SO₂ Impact on Big Rivers in 2014



Estimated CATR NO_x Impact on Big Rivers in 2014



CATR Impact* on Big Rivers

| | |
|-------|--|
| 2012 | <ul style="list-style-type: none"> • Generation reduction - 2.2 million MWh (18%) over planned generation • 1,000,000 tons of coal not burned (100% KY) • Estimated rate increase of 8.5% |
| 2013 | <ul style="list-style-type: none"> • Generation reduction - 4.2 million MWh (32%) over planned generation (additional 2M from 2012) • 1,850,000 tons of coal not burned (100% KY) • Estimated rate increase of 5.6% |
| 2014 | <ul style="list-style-type: none"> • Generation reduction - Continued 4.2 million MWh (37%) reduction over planned generation • 1,850,000 tons of coal not burned (100% KY) • Estimated rate increase of - .6% |
| 2015 | <ul style="list-style-type: none"> • Control equipment cost ~\$108,000,000 • Conversion to Natural Gas cost ~\$30,000,000 • Estimated rate increase of 15.7% |
| Total | <ul style="list-style-type: none"> • Capital expense ~\$138,000,000 • Estimated rate increase of 29.2% |

*When estimating the potential impact of Big Rivers' generation reduction, forward electricity pricing information does not reflect the likely effect of proposed environmental regulations.



Hazardous Air Pollutants (HAPs MACT Rule)

- Mercury control is expected to be the main issue.
- Individual unit emission limits are likely.
- Maximum Achievable Control Technology (MACT) determination could require new controls on each BREC coal-fired unit.
- Most likely solution to MACT will be activated carbon with a bag house collection system.

Hazardous Air Pollutants (HAPs MACT Rule)

- Proposed rule expected in Spring 2011, final rule effective in 2012, compliance expected in 2015.
 - Final rule timeframe mandated by Consent Decree
- Compliance by 2015 or shut-down units.
 - Expected 4 yr timeframe to design, engineer, permit, procure, construct
- Estimated Cost to Comply \$338 Million to \$846 Million (~\$200- \$500 per kw)



Carbon Dioxide (CO₂)

- No proven full-scale technology exists to meet the proposed regulations.
- Without viable technology, one compliance option would be to reduce generation to meet proposed regulations.



Coal Combustion Residuals Rule (CCR)

- Regulation of the disposal of bottom ash, fly ash, and flue gas desulphurization materials.
- Ash spill at the TVA Kingston plant was the driving force for the regulations.
- Proposed rule published June 21, 2010.
- Final Rule expected in 2012.

Proposed CCR Rule Options

- Subtitle C (Hazardous Waste)
 - Ash classified as hazardous waste
 - EPA oversees program
 - Ponds will require liners or close
 - Landfills will require liners
 - No ash reuse
- Subtitle D (Non-Hazardous Waste)
 - Same as Subtitle C, except no hazardous waste classification
- Subtitle D prime
 - State run program
 - Standards similar to existing program

CCR Cost Estimate for Subtitles C & D

- Dry Bottom Ash conversion
 - \$11 million per boiler
 - 5 boilers to be converted

\$55,000,000

- Dry Fly Ash conversion
 - \$10 million per boiler
 - 3 Coleman units to be converted

\$30,000,000

- Landfill Development
 - 200 acres \$76 million per station
 - Coleman & Sebree

\$152,000,000

~\$237,000,000

Water Quality (316a & 316b)

- Potential federal EPA water regulations would impose more stringent requirements on water withdrawal and discharges.
- Potential addition of cooling towers at our Coleman Station.
 - \$55M estimated cost



Challenges and Risks related to Proposed Regulations

- **Short time horizon** - some air regulations would require compliance as early as 2012 with the most costly regulations beginning in 2014 and 2015. This allows insufficient time to design facilities, obtain necessary federal and state regulatory approvals, contract with vendors and install equipment.
- **Potential impacts on system reliability and transmission system** - one consequence of the proposed regulations will be the retirement of significant amounts of coal-fired generation across the region.



Challenges and Risks related to Proposed Regulations

- **Rapid cost escalation** - industry rush to achieve compliance will drive up labor and material costs (repeat of 2008) and make it difficult to obtain labor and equipment at any price.
- **CO₂ policy could change** - uncertainty associated with future CO₂ legislation could result in less than optimal long-term investment decisions.
- Absence of a comprehensive and coordinated federal strategy compels implementation on a more costly piecemeal basis.

Big Rivers Electric Current Compliance Plan for CATR/CCR/HAPs-MACT

- Design & Construct control equipment after publication of final regulations.
 - Risk not being able to comply with reduced emissions due to limited time to meet final rule requirements and subsequent unit shutdown.
 - Costs may be higher due to a high demand from other utilities for design firms, fabrication, construction crews, and supply of materials.
 - Potential penalties for non-compliance

Environmental Compliance Impacts - 2012-2015

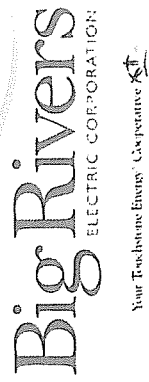
- Estimated generation reduction 2012 - 2014
 - Up to 4.2 million MWh
- Estimated incremental rate increase
 - 2012 – 8.5%
 - 2013 – 5.6%
 - 2014 – 3.0%
 - 2015 – 21.8%
 - Cumulative thru 2015 - 38.8%*
- Estimated cost of constructing control equipment ~\$785,000 + 316a & 316b + CO₂
 - Big Rivers Net Plant ~\$1,083,000,000 as of 6/30/2010
- Unknowns
 - Impact to Smelters
 - Impact to Western Kentucky Economy
 - BREC employment

Overall Impacts of Proposed Regulations on Big Rivers System

| Units | 2012 | 2013 | 2014 | 2015 |
|-------|---|---|---|---|
| C1 | 2.2 Million MWh Reduction in Planned Generation | 4.2 Million MWh Reduction in Planned Generation | 4.2 Million MWh Reduction in Planned Generation | Activated Carbon Injection + Bag House + Dry Fly Ash + Dry Bottom Ash |
| C2 | | | | Activated Carbon Injection + Bag House + Dry Fly Ash + Dry Bottom Ash |
| C3 | | | | Activated Carbon Injection + Bag House + Dry Fly Ash + Dry Bottom Ash |
| G1 | | | | Convert to Natural Gas + SCR |
| G2 | | | | Convert to Natural Gas + SCR |
| H1 | | | | Activated Carbon Injection + Bag House + Dry Bottom Ash |
| H2 | | | | Activated Carbon Injection + Bag House + Dry Bottom Ash |
| R1 | | | | Retire |
| RT | | | | No change required |
| W1 | | | | Activated Carbon Injection + Bag House |

Landfill with liner

Landfill with liner




Conclusion

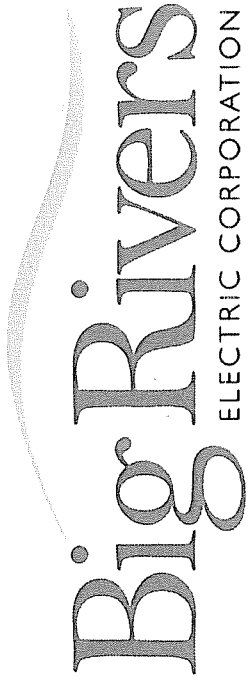
- In the short term, Big Rivers will likely be forced to reduce generation to comply with CATR standards.
- Environmental compliance will result in significant capital expenditures and consequential rate increases.
- Partial or full fuel-switch to natural gas may be required.
- Big Rivers' Executive Management, along with the Strategic Planning and Risk Management group, will continue to carefully evaluate all possible options to optimize our investment and ensure compliance at the least possible cost to our customers.

*Note: Gas-fired units are exempt from HAPs MACT and CCR will not be applicable.

Big Rivers
ELECTRIC CORPORATION

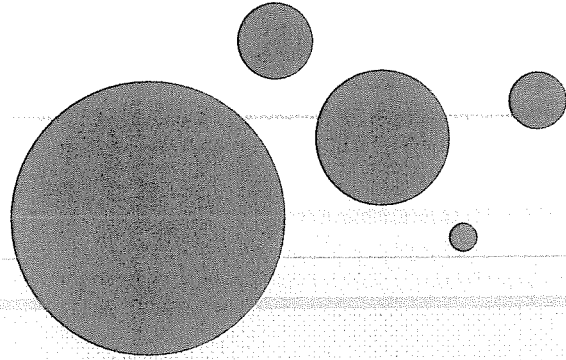
Your Touchstone Energy® Cooperative 

Big Rivers Annual Meeting Presentation – September 2011



ANNUAL MEETING

September 2011



Financial Highlights 2006-2010

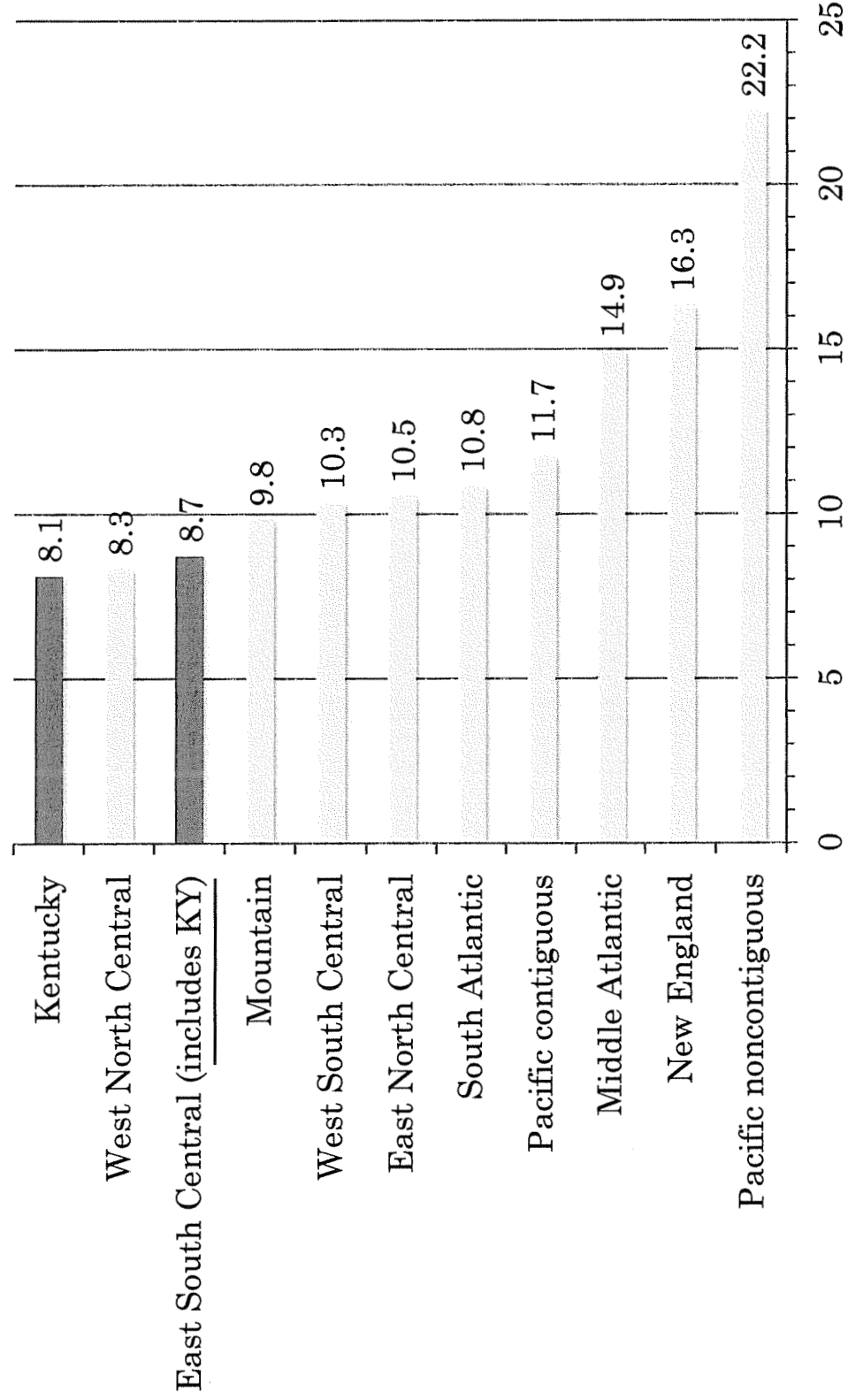
| <i>Dollars in thousands</i> | 2010 | 2009 | 2008 | 2007 | 2006 |
|--|---------------|-----------------|---------------|---------------|---------------|
| Margins | 6,991 | 531,330* | 27,816 | 47,177 | 34,542 |
| Equity | 386,575 | 379,392 | (154,602) | (174,137) | (217,371) |
| Capital Expenditures** | 42,683 | 58,388 | 22,760 | 18,682 | 13,189 |
| Cash & Investment Balance | 44,780 | 60,290 | 38,903 | 148,914 | 96,143 |
| TIER Times Interest Earned Ratio | 1.15 | 9.85 | 1.37 | 1.64 | 1.47 |
| DSCR Debt Service Coverage Ratio | 1.47 | 2.44 | 1.17 | 2.04 | 1.86 |
| Cost of Debt | 5.73% | 6.33% | 6.33% | 5.76% | 5.83% |
| Cost of Capital | 7.93% | 8.39% | 8.33% | 7.75% | 7.82% |

* Includes the Unwind gain of \$537,978

** Big Rivers' share only

National Residential Rates: 2010

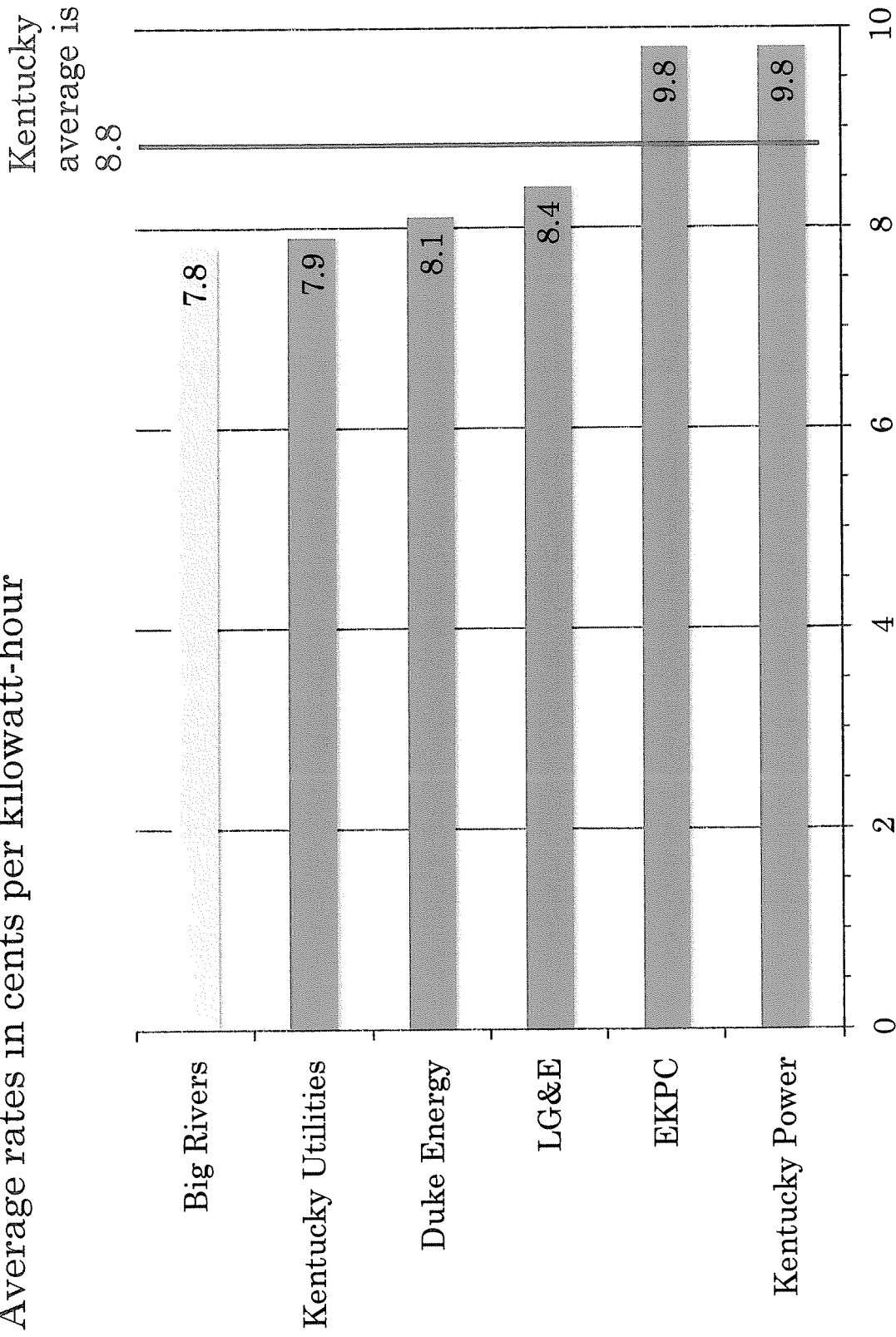
Average rates in cents per kilowatt-hour



Source: U.S. Energy Information Administration

Kentucky Residential Rates: 2010

Average rates in cents per kilowatt-hour



Source: Kentucky Public Service Commission

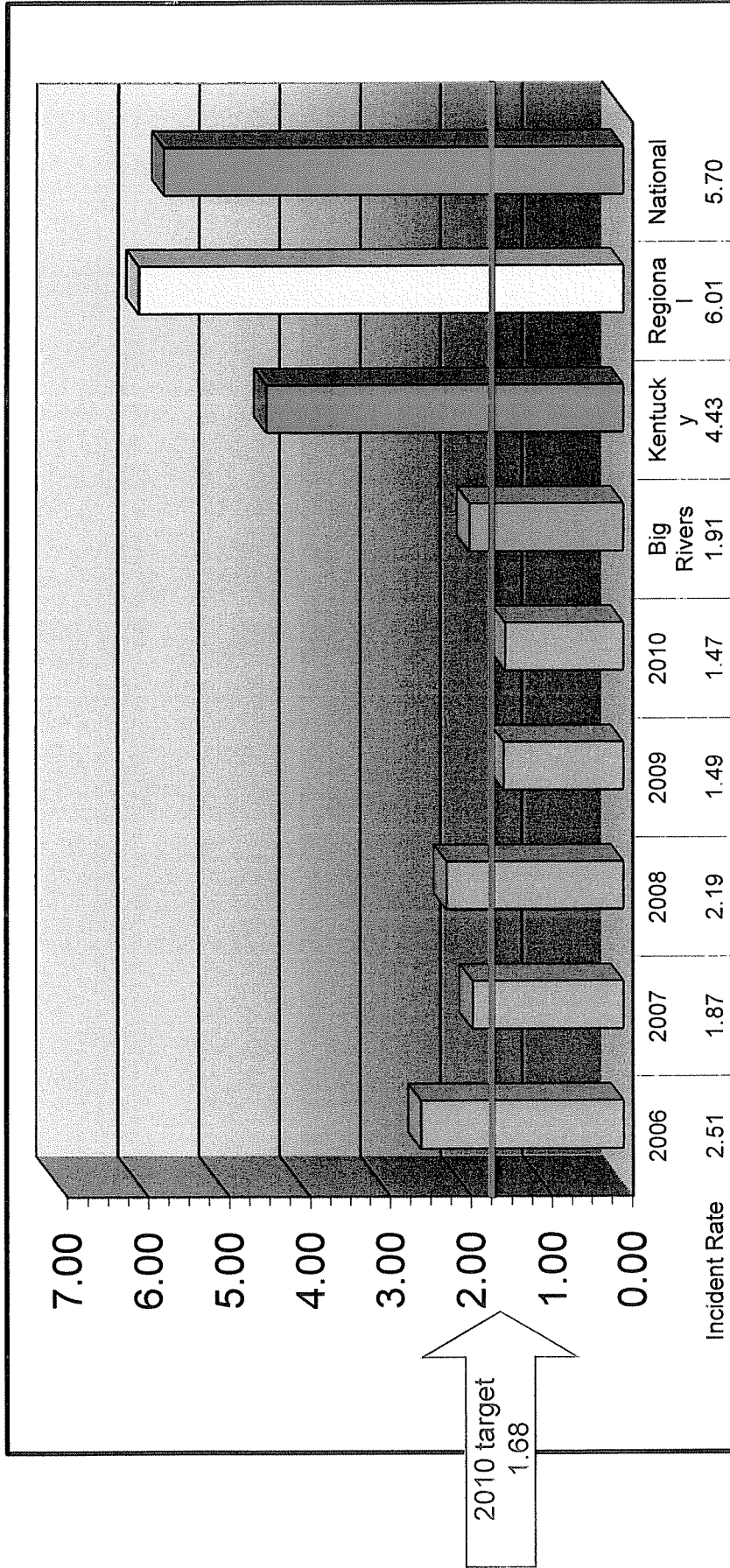
Generation and Transmission Rankings

Big Rivers compared to other G&T electric cooperatives in the U.S. in 2010

| Measure | Result | Rank |
|--|-------------------|--------------|
| Total MWh Sales | (11,969,420) | 14 out of 56 |
| Member MWh Sales | (9,795,261) | 15 out of 54 |
| MWhs Purchased | (2,220,995) | 28 out of 53 |
| Cost per MWh Generated | (\$37.36) | 10 out of 37 |
| Number of Employees | (611) | 6 out of 56 |
| Total Assets | (\$1,472,185,126) | 14 out of 60 |
| Total Operating Revenues | (\$527,324,452) | 18 out of 60 |
| Times Interest Earned Ratio (TIER) | (1.15) | 45 out of 48 |
| Rate of Return on Rate Base | (4.59) | 35 out of 45 |

Safety Performance

OSHA Recordable Incident Rate: 2006-2010

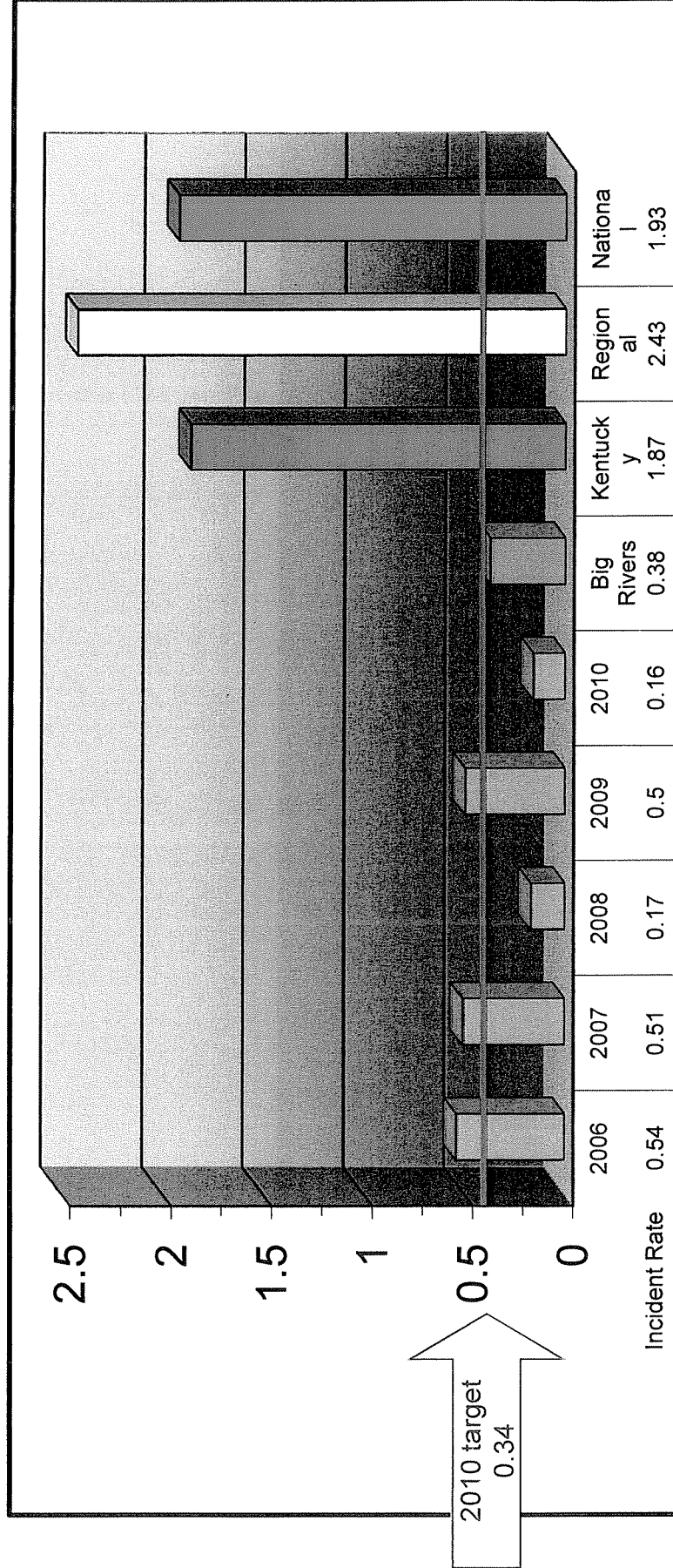


Co-op average recordable incident rates

$$\text{Incident Rate} = (\# \text{ of incidents} \times 200,000) / \# \text{ of hours worked}$$

Safety Performance

Lost-Time Incident Rate: 2006-2010



Co-op average lost-time incident rates

$$\text{Incident Rate} = (\# \text{ of incidents} \times 200,000) / \# \text{ of hours worked}$$

2011 Safety Targets & Milestones

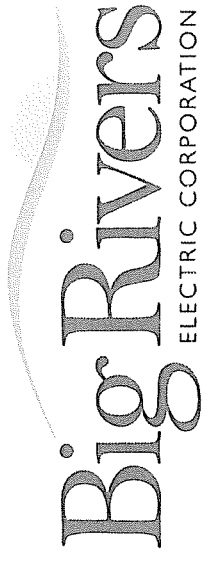
- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Coleman Station employees will complete five years without a lost-time incident at midnight on January 6, 2011. 2. The company will complete one year without a lost-time incident at midnight on January 14, 2011. 3. Transmission employees will complete one year without a lost-time incident at midnight on January 14, 2011. 4. Production employees will complete two years without a lost time incident at midnight on January 19, 2011. 5. Sebree Station employees will complete two years without a lost-time incident at midnight on January 19, 2011. 6. Sebree Station employees will complete 1,000,000 man-hours worked without a lost-time incident in April 2011. 7. Wilson Station employees will complete four years without a lost-time incident at midnight on May 15, 2011. 8. Wilson Station employees will complete 750,000 man-hours worked without a lost-time incident in May 2011. 9. Headquarters employees will complete one year without a recordable incident at midnight on June 22, 2011. | <p>Did not complete:</p> <ol style="list-style-type: none"> 10. Coleman Station employees will complete one year without a recordable incident at midnight on July 4, 2011. 11. Headquarters employees will complete 500,000 man-hours worked without a lost-time incident in August 2011. 12. Headquarters employees will complete two years without a lost-time incident at midnight on September 29, 2011. <p>Still in progress:</p> <ol style="list-style-type: none"> 13. Wilson Station employees will complete one year without a recordable incident at midnight on October 6, 2011. 14. Transmission employees will complete one year without a recordable incident at midnight on November 17, 2011. 15. Sebree Station employees will complete one year without a recordable incident at midnight on November 29, 2011. 16. The company will achieve its 2011 recordable, lost-time and vehicle incident targets. |
|---|---|

Other 2011 Challenges

- 6.85% rate increase (first in 20 years)
 - Placed in effect subject to refund on Sept. 1st
- Successful integration into Midwest ISO
 - Needed to meet NERC-mandated generation reserve requirements
 - 35th transmission owner
 - Access to 57,000 miles of interconnected transmission and 347 market participants
 - Thus far this year, we have been able to sell 92% of our available generation vs. 88% last year
- Development and implementation of demand-side management and energy efficiency programs

Demand-Side Management (DSM) and Energy Efficiency (EE) Budget

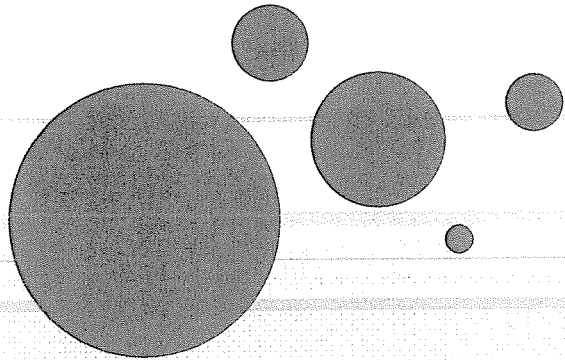
| 2012 DSM & EE Programs | 2012 Budget |
|--|-------------|
| Residential lighting program (CFL distribution) | \$100,000 |
| Residential Energy Star appliances | \$80,000 |
| Energy Star heating, ventilation and air conditioning (HVAC) program | \$50,000 |
| Residential weatherization program (Pilot evaluation still underway) | \$200,000 |
| Residential Energy Star new construction | \$100,000 |
| HVAC tune-up program | \$50,000 |
| Commercial/industrial efficient lighting program | \$190,000 |
| General commercial/industrial efficiency program | \$30,000 |



Your Touchstone Energy Cooperative 

ENVIRONMENTAL COMPLIANCE UPDATE

Eric Robeson
September 15, 2011



EPA: REGS 'R' US

More Acronyms!

CSAPR

HAPS/MACT

NAAQS

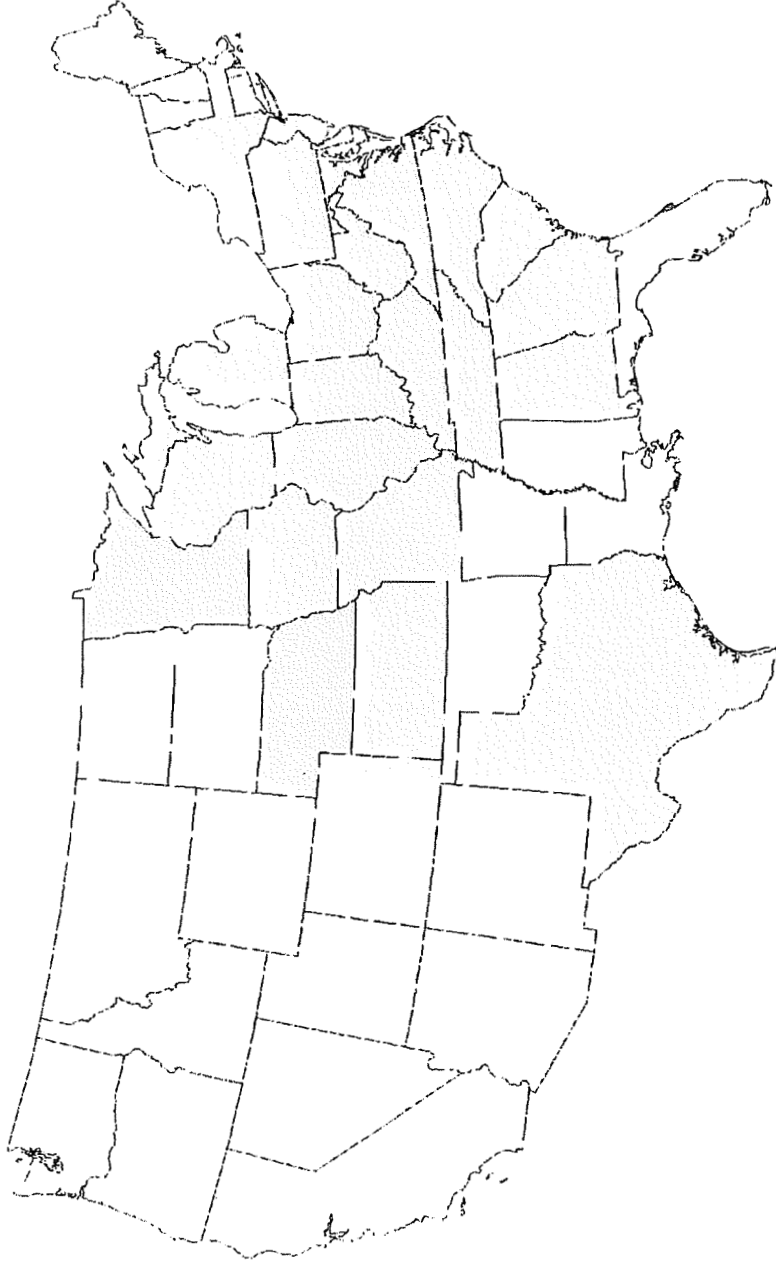
316b

CCR

CSAPR

- Cross State Air Pollution Rule issued July 7, 2011
- Replaces proposed Clean Air Transport Rule
- Compliance starts in 2012, with further reduction in allowances in 2014
- Big Rivers (and all Kentucky utilities) received about 10% less SO₂ allowances and slightly more NOx allowances than projected
- Creates new type of SO₂ and NOx allowances

CSAPR Control Zones



- States controlled for both fine particles (annual SO₂ and NO_x) and ozone (ozone season NO_x) (21 States)
- States controlled for fine particles only (annual SO₂ and NO_x) (2 States)
- States controlled for ozone only (ozone season NO_x) (5 States)
- States not covered by the Cross-State Air Pollution Rule

Big Rivers 2012 Impact

- SO2
 - Minimal Impact
 - 26,478 allowances vs. 2010 emissions of 26,086 tons
- NOx
 - Some Impact: 7% reduction required
 - 11,186 allowances vs. 2010 emissions of 12,074 tons
 - 4,972 seasonal allowances vs. 2010 emissions of 4,995 tons

Big Rivers 2014 Impact

- SO₂
 - Major Impact:
(50% reduction required vs. 2010 emissions)
 - 13,643 allowances
 - Wilson, HMPL and Reid are primary concerns
- NO_x
 - Minor Impact:
(16% reduction required vs. 2010 emissions)
 - 10,142 annual and 4,402 seasonal allowances
 - Green, Coleman, and Reid are primary concerns
- What will the Smelters do?

Potential CSAPR Compliance Options

- 2012
 - Reduce Generation below system requirements and purchase from MISO
 - Reduce Generation from Reid (bank SO₂ allowances for 2014 and beyond)
- 2014
 - Reduce Generation below system requirements and purchase from MISO
 - Improve FGD removal efficiency at HMPL
 - New Scrubber at Wilson
 - Install SCR_s at Green
 - Mothball Reid (can lose allowances if not operated for 2 years)
 - Permit Reid to run on gas (burners already installed)
 - Convert Green units to natural gas
- Sargent & Lundy study will provide detailed compliance options
- Challenge will be to meet 2014 schedule and fund major capital projects like Wilson Scrubber

Current Big Rivers Efforts

- Sargent & Lundy Study
 - Compliance options with capital cost and O&M estimates by early October
 - Technology review and Environmental Regulation summary issued
- Emissions Testing Complete
 - Testing for Mercury, Acid Gases and Non Metallic Gases
- Discussions with technology vendors
- Determine if purchased power available for 2012-2013
- Recommendations to Board in November

Pending Environmental Regulations

- Utility HAPS/MACT
- NAAQS
- Clean Water Act (316a, 316b)
- Coal Combustion Residuals (CCR)

Utility HAPS/MACT

Hazardous Air Pollutants/Maximum Achievable Control Technology

- Expected to be issued by November 15, 2011
 - Mercury (Hg)
 - Acid Gases (Hydrochloric or HCl)
 - Non Hg Metallic Gases or Total Particulate Matter (TPM)
 - In general, FGD systems remove Mercury and Acid Gases and SCRs reduce TPM
- Compliance date 3 years after final rules with potential 1 year extension if requested by utility

NAAQS

National Ambient Air Quality Standards

- Updated every 5 years
- Due out by end of 2011
- Considering lowering ozone standards to 60 ppb vs current 75 ppb standard
- Potential to reduce SO₂ and NO_x allowances by additional 20% by 2018
- Delayed by President Obama September 2nd

Clean Water Act 316B

- Proposed rules issued April 2011
- Final rule expected by July 2012
- Potential Compliance dates in 2016-2020 time frame
- Cooling Tower could be required at Coleman
- Modifications to intake structure for Reid/HMPL may be required

Coal Combustion Residuals

- Proposed Rule published July 2010
- Final Rule expected in 2012
- Not expecting worst case (hazardous waste designation)
- Impact uncertain at this time
- Major political battlefield
- Compliance date in 2016-2018 time frame

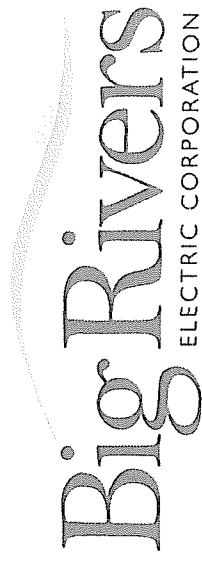
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- CSAPR finalized with 2012 compliance date
- Potential for CSAPR litigation exists
- Utility MACT, NAAQS, 316a, 316b, and CCR regulations under EPA review
- Sargent & Lundy study will provide options
- Scheduling difficulties for major capital projects
- Politics will impact scope and compliance date of all other regulations
- Interesting times ahead for Big Rivers and its Owners!

Questions / Comments / Suggestions ?

Thank you for attending this year's annual meeting. Please have a safe trip home!

**Robeson Environmental Compliance Update –
September 15, 2011**




Your Touchstone Energy Cooperative 

Environmental Compliance Update

Eric Robeson

September 15, 2011

Big Rivers
ELECTRIC CORPORATION

Your Touchstone Energy Cooperative 

EPA: Regs 'R' Us

More Acronyms!

CSAPR

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NAAQS

316b

CCR

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Big Rivers Overview Presentation – May 2, 2012

Overview Presentation

Date Prepared: May 2, 2012

Big Rivers
ELECTRIC CORPORATION


Your Touchstone Energy Cooperative 

Table of Contents

- I. Overview of Big Rivers Electric Corporation**
 - II. Overview of Members & Customer Base**
 - III. Operations**
 - IV. Indenture/Financial Goals**
 - V. Financials**
 - VI. Appendix – Senior Management Brief Biographies**
-

I. Overview of Big Rivers Electric Corporation

Overview of Big Rivers Electric Corporation

- Big Rivers Electric Corporation (Big Rivers) was formed in 1961 and is based in Henderson, Kentucky
- Big Rivers supplies wholesale electric generation and transmission service to three electric distribution cooperatives (Members):
 - Jackson Purchase Energy Corporation
 - Kenergy Corp. (Kenergy)
 - Meade County Rural Electric Cooperative Corporation
- Members are local customer-owned cooperatives providing service to approximately 112,500 retail customers on a not-for-profit basis
 - Members serve residential, commercial and industrial customers located in portions of 22 western Kentucky counties

- Big Rivers and its Members are generally regulated by the Kentucky Public Service Commission (KPSC)
- Big Rivers provides capacity and energy to its members through a combination of 5 owned generation stations, one leased generation station and purchased power
 - Net capacity of owned generation – 1,444 MW
 - Net capacity of leased generation from Henderson Municipal Power & Light Station II (HMPL) – 202 MW
 - Power purchased from SEPA – 178 MW
 - 1,266 miles of transmission lines and 22 substations
 - Midwest ISO membership implementation – Dec. 2010

Key 2011 Statistics

| |
|--|
| Energy Sales - 13,255 GWh |
| Operating Revenues - \$562mm |
| Total Assets - \$1,418mm |
| Non-Smelter Member Rate, gross of the MRSM \$45.29/MWh |
| Non-Smelter Member MRSM (\$6.22)/MWh |
| Non-Smelter Member Rate, net of the MRSM \$39.07/MWh |
| Smelter Rate \$44.48/MWh |

* MRSM – Member Rate Stability Mechanism

2011 Rate Case – General Adjustment in Base Rates

- On March 1, 2011, Big Rivers filed an application for a general adjustment in base rates with the KPSC
 - Case number 2011-00036
 - New Rates were effective September 1, 2011, pending approval from the KPSC
 - On November 17, 2011, the KPSC approved a base rate increase of \$26.7mm (a 6.17% base rate increase)
 - \$10.6 million was assigned to the rural class
 - \$ 1.9 million to the large industrial class
 - \$14.2 million to the smelters
 - The KPSC has granted Big Rivers a rehearing for an additional \$2.7mm. The Kentucky Industrial Utility Customers (KIUC) is also seeking rehearing of the KPSC’s approval of the depreciation study and cost of service.
-

Power Supply - ACES Power Marketing & NRCO

ACES Power Marketing

Big Rivers has been a member/owner of ACES Power Marketing, one of the nation's largest electricity traders, since January 2003. ACES operates as an energy risk management and hedge manager. Member/owners like Big Rivers actively participate by utilizing the ACES infrastructure and resources to assess their risks and execute specific, customized portfolio strategies.

National Renewables Cooperative Organization

In the tradition of working together, cooperatives across the country have formed the National Renewables Cooperative Organization (NRCO) to promote and facilitate the development of renewable energy resources. Membership in the NRCO is open to generation and transmission cooperatives (G&Ts) and distribution cooperatives with the legal ability to buy power in the wholesale market. Big Rivers was one of 24 founding members of the organization, which formed in November 2008.

Big Rivers' Strategic Plan

NORTH STAR

- North Star will be the cost per kWh of the total Member load, including distribution members and smelters.
- Big Rivers will manage the cost per kWh within the board-approved risk tolerance, always striving to keep costs as low as possible while still meeting the Members' service requirements.

MISSION

Big Rivers' Mission is to safely deliver low cost, reliable, wholesale power and cost-effective shared services desired by our members.

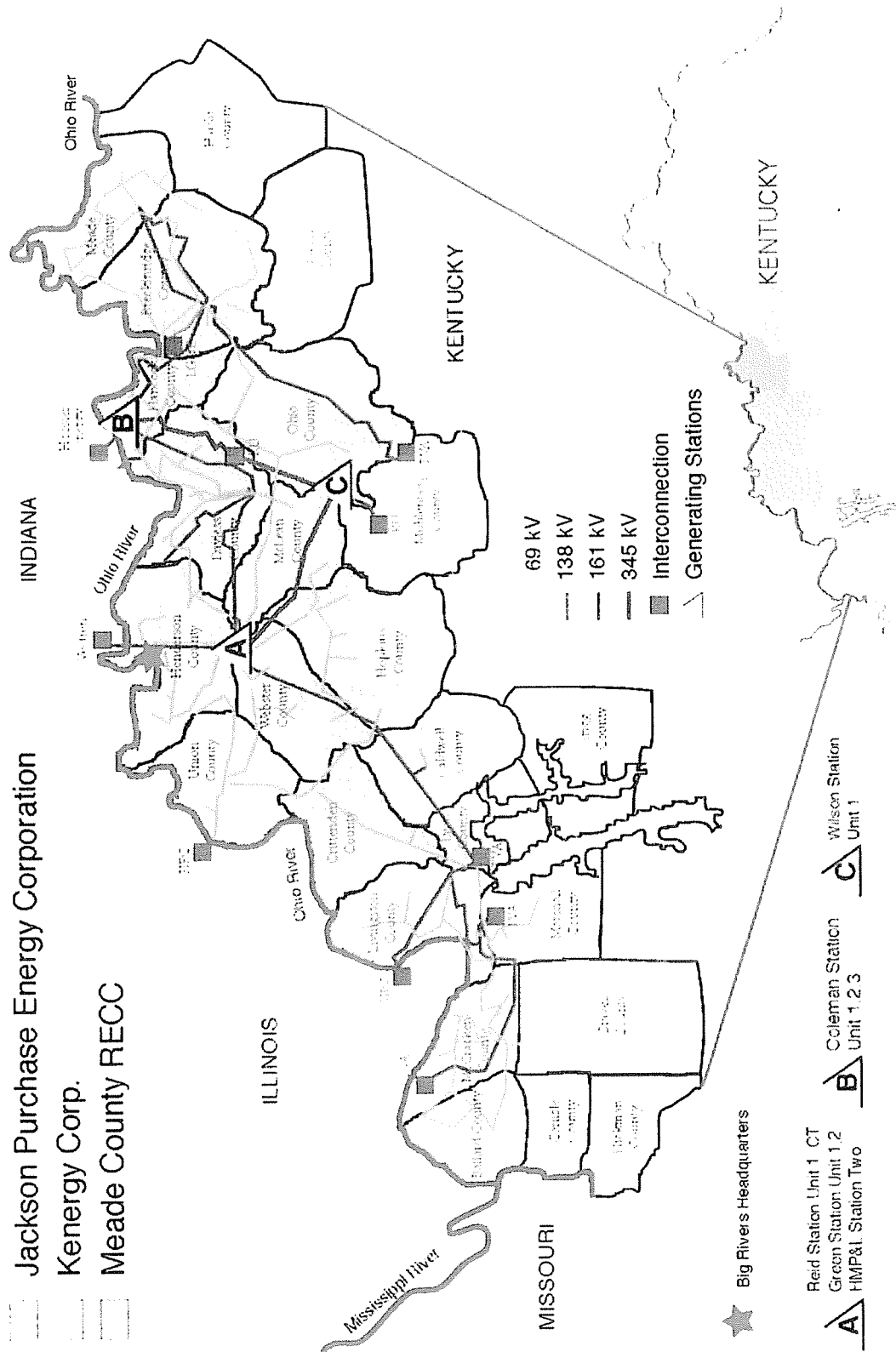
VISION

Big Rivers' Vision is to be viewed as one of the top G&T's in the country and will provide services the members desire in meeting future challenges.

VALUES

- Safety
- Integrity
- Excellence
- Member and Community Service
- Respect for the Employee
- Teamwork
- Environmentally Conscious

Big Rivers Members' Service Territory



Big Rivers' Management

Big Rivers is led by an experienced management team and is governed by a six-member board of directors. The board is comprised of two representatives from each distribution cooperative.

Senior Management Team:

Mark Bailey, President & CEO

Robert Berry, V.P. Production

David Crockett, V.P. System Operations

James Haner, V.P. Administrative Services

Mark Hite, V.P. Accounting & Interim CFO

Eric Robeson, V.P. Environmental Services & Construction

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

Big Rivers' Financing

Big Rivers currently has two \$50 million lines of credit available to it, one with CoBank expiring July 16, 2012, and the other with National Rural Utilities Cooperative Finance Corporation (CFC) that expires July 16, 2014.

Long Term Debt Schedule (\$mm) - as of December 31, 2011

| Debt | Maturity Date | Stated Value | Principal | Notes: |
|---|---------------|-----------------|-----------------|---|
| RUS Series A Note, stated interest rate of 5.75%, with an imputed interest rate of 5.84% | July 2021 | \$ 523.2 | \$ 521.3 | A portion hereof to be refinanced by CoBank and CFC |
| RUS Series B Note, no stated interest rate, with an imputed interest rate of 5.80% | December 2023 | \$ 245.5 | \$ 123.0 | |
| Pollution Control Bonds Series 1983 - County of Ohio, Kentucky with a 3.25% interest rate in 2011 | June 2013 | \$ 58.8 | \$ 58.8 | Plan to refinance in 2013 |
| Pollution Control Bonds Series 2010 , County of Ohio, Kentucky with a 6.0% fixed interest rate | July 2031 | \$ 83.3 | \$ 83.3 | |
| TOTAL | | \$ 910.8 | \$ 786.4 | |

Big Rivers' Financing Application with the KPSC

Big Rivers filed n Financing Application with the KPSC on 3/28/12 (Case No. 2012-00119). Big Rivers has requested the KPSC approve the transaction by 5/25/12, enabling Big Rivers to close on 6/29/12. This application seeks approval from the KPSC to refinance a significant portion of the existing RUS Series A Note. Additionally, Big Rivers will replenish the \$35 million Transition Reserve and fund \$60 million of future capital expenditures.

Big Rivers proposes to borrow \$235 million from CoBank in the form of a secured term loan, and a \$302 million secured term loan from CFC. These financings are expected to be at all-in rates that are below that of the existing 5.75% RUS Series A Note, and will also extend the final maturity of the associated debt.

Big Rivers plans to use the \$537 million proceeds from these borrowings as follows:

- \$442 million will be used to prepay a portion of the 5.75% RUS Series A Note
- \$60 million will be used for capital expenditures
- \$35 million will be used to replenish the Transition Reserve

In connection with the CFC term loan, Big Rivers will also purchase interest bearing Capital Term Certificates (CTCs) from CFC equal to 14.29% of the amount of the CFC secured note, or \$43 million. Big Rivers has elected to finance the purchase of the CTCs with CFC in the form of an equity loan note.

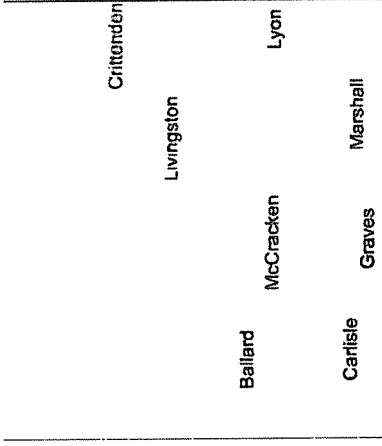
Big Rivers anticipates this transaction will reduce its cost \$1.5 million annually.

II. Overview of the Members & Customer Base

Overview of Jackson Purchase Energy Corporation

Overview Service Territory

- Established in 1937
- Serves approximately 29,000 accounts in portions of 6 counties in Western Kentucky
- Managed by 8 member/consumer elected board serving four-year staggered terms
- Primarily residential & small commercial customer mix
- Most recent residential retail rate increase: July 2008, 9.5%



| | Fiscal Year Ended December 31 | |
|-----------------------------------|-------------------------------|-------------|
| | 2011 | 2010 |
| Income Statement | | 2009 |
| Operating Revenues | \$45.1 | \$46.5 |
| Operating Expenses | 38.0 | 36.1 |
| Net Operating Income ¹ | 7.1 | 10.4 |
| Cash Flow | | |
| Debt Service | 5.1 | 4.9 |
| Debt Service Coverage Ratio | 1.50 x | 2.32 x |
| TIER | 1.04 x | 2.51 x |
| Balance Sheet | | |
| Net Utility Plant | \$92.4 | \$91.5 |
| Equities/Capitalization | 40.4% | 43.6% |
| | | 39.8% |

| | FY 2011 | | |
|-----------------------------|----------------|---------------------|-----------------|
| Customer Type | MWh | Number of Consumers | Revenue (\$000) |
| Residential | 411,231 | 26,054 | 29,070 |
| Comm. And Ind. (< 1,000 kW) | 190,023 | 3,126 | 11,916 |
| Comm. And Ind. (> 1,000 kW) | 49,397 | 9 | 2,909 |
| Public Lighting/Irrigation | 888 | 10 | 101 |
| Total | 651,539 | 29,199 | 43,996 |

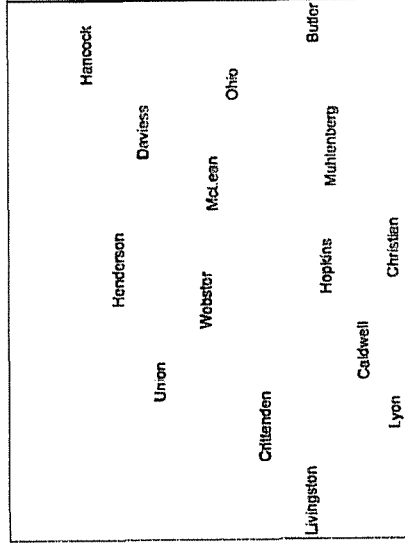
Source: RUS Form 7-Before Depreciation, Taxes & Interest

Overview of Kenergy Corp.

Overview Service Territory

- Established in July 1999 through the consolidation of – Henderson Union Electric Coop (established 1936), and – Green River Electric Corporation (established 1937)
- Serves approximately 55,000 customers in 14 western Kentucky counties along more than 7,000 miles of line
- Fourth largest electric cooperative in Kentucky (based on customers)
- Managed by 11 member customer-elected board
- Most recent residential retail rate increase: Sept. 2011, 7.49%
- Responsible for supplying Hawesville and Sebree smelters

| | | | |
|-----------------------------------|---------|---------|---------|
| Operating Revenues | \$425.6 | \$401.0 | \$349.8 |
| Operating Expenses | 407.5 | 381.3 | 332.9 |
| Net Operating Income ¹ | 18.1 | 19.7 | 16.9 |
| Cash Flow | | | |
| Debt Service | 11.5 | 11.6 | 11.1 |
| Debt Service Coverage Ratio | 1.63 x | 1.79 x | 1.58x |
| TIER | 1.66 x | 1.95 x | 1.48 x |
| Balance Sheet | | | |
| Net Utility Plant | \$182.9 | \$179.2 | \$177.5 |
| Equities/Capitalization | 36.3% | 33.2% | 30.3% |



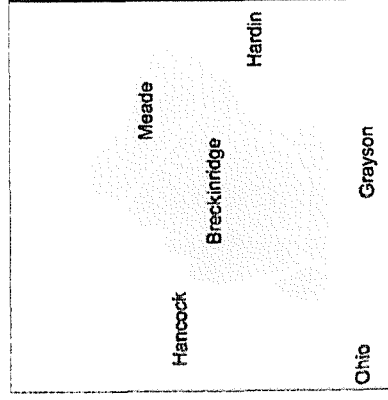
| | | | |
|----------------------------|------------------|---------------|----------------|
| Residential | 754,124 | 45,294 | 56,284 |
| Comm. And Ind. (<1,000 KW) | 314,861 | 9,803 | 22,563 |
| Comm. And Ind. (>1,000 KW) | 8,326,066 | 35 | 344,888 |
| Public Lighting | 1,733 | 78 | 282 |
| Total | 9,396,784 | 55,210 | 424,017 |

Source: RUS Form 7-Before Depreciation, Taxes & Interest

Overview of Meade County Rural Electric Cooperative

Overview Service Territory

- Established in 1937
- Serves approximately 28,000 customers in portions of 6 Kentucky counties along approximately 2,900 miles of line
- Managed by 7 member customer-elected board
- Primarily residential customer mix
- Most recent residential retail rate increase: Feb. 2011, 3.92%



Summary Financial Information (\$mm)

| Income Statement | Fiscal Year Ended December 31 | | |
|-----------------------------------|-------------------------------|--------|--------|
| | 2011 | 2010 | 2009 |
| Operating Revenues | \$35.8 | \$34.6 | \$31.1 |
| Operating Expenses | 28.4 | 27.5 | 24.7 |
| Net Operating Income ¹ | 7.4 | 7.1 | 6.4 |
| Cash Flow | | | |
| Debt Service | 4.8 | 4.9 | 4.8 |
| Debt Service Coverage Ratio | 1.58 x | 1.55 x | 1.37 x |
| TIER | 2.09 x | 2.05 x | 1.57 x |
| Balance Sheet | | | |
| Net Utility Plant | \$72.2 | \$69.9 | \$66.6 |
| Equities/Capitalization | 33.9% | 33.5% | 32.3% |

Source: RUS Form 7 Before Depreciation, Taxes & Interest

Customer Profile

| Customer Type | FY 2011 | | |
|-----------------------------|----------------|---------------------|------------------|
| | MWh | Number of Consumers | Revenue (\$'000) |
| Residential | 364,735 | 26,402 | 27,480 |
| Comm. And Ind. (< 1,000 kW) | 94,657 | 2,070 | 7,131 |
| Public Lighting | 1,057 | 6 | 75 |
| Total | 460,449 | 28,478 | 34,686 |

Long-Term Smelter Contracts

- Big Rivers and Kenergy (the Member serving the Smelters) entered into the Smelter Wholesale Power Contracts in which Big Rivers supplies energy to Kenergy for resale to the Smelters through the end of 2023 on a take-or-pay basis, subject to a one-year termination notice from the Smelter(s)
 - The two aluminum smelters, owned by Alcan and Century, have a base demand of 850 MW and typically use 98% of the energy
 - Energy made available to the Smelters will consist of three types
 - **Base Monthly Energy:** 368 MW hourly for Alcan and 482 MW hourly for Century
 - **Supplemental Energy:** 10 MW hourly of interruptible energy to each Smelter
 - **Back-up Energy:** Imbalance energy for Kenergy made available to the Smelters
 - Charges to the Smelters will also include the following adjustments:
 - Base Rate always 25 cents per MWh over Large Industrial
 - Fuel Adjustment Clause (FAC) – Adjusts monthly for incremental changes in fuel costs
 - Environmental Surcharge (ES) – Adjusts monthly for incremental changes in non-fuel variable production expenses (emission allowances, reagents and waste disposal)
 - Purchased Power Adjustment (PA) – Adjusts monthly for incremental changes in purchased power costs (non-FAC PPA regulatory account for non-smelter members)
 - TIER Adjustment
 - Surcharges – Mitigate impact of FAC and ES on Non-Smelter Members
-

Overview of Smelters

-
- **Sebree, Kentucky Smelter (Alcan Primary Products Corporation)**
 - Alcan is owned by Rio Tinto, an international mining group, and is Rio Tinto's only U.S. aluminum smelter
 - Commenced operation in 1973
 - Produces 186,000 metric tons of primary aluminum annually from its 3 potlines
 - 600 employees
 - Base contract demand: 368 MW and Projected annual energy consumption: 3.1 TWh
 - Recently completed \$37mm bake furnace project
 - **Hawesville, Kentucky Smelter (Century Aluminum of Kentucky General Partnership)**
 - Century is a public company and through its various subsidiaries owns and operates aluminum smelters in Kentucky, South Carolina, West Virginia and Iceland
 - Commenced operation in 1970
 - Produces 244,000 metric tons of primary aluminum annually from its 5 potlines
 - 775 employees
 - Base contract demand: 482 MW and Projected annual energy consumption: 4.2 TWh
-

Big Rivers' Members Provide Some of the Lowest Cost Residential Electricity in the Nation

Average Residential Rate – Kentucky
December 2011¹

Average Residential Rate – National
December 2011²

| Kentucky Utility | Cents / kWh | National Region | Cents / kWh |
|---|-------------|----------------------------|--------------|
| East Kentucky Power Cooperative | 11.66 | Pacific Noncontiguous | 27.50 |
| AEP Kentucky Power | 9.72 | New England | 16.20 |
| Duke Energy Kentucky | 8.65 | Middle Atlantic | 15.30 |
| Louisville Gas and Electric Company | 8.57 | Pacific Contiguous | 12.47 |
| Kentucky Utilities Company | 7.82 | East North Central | 11.46 |
| | | South Atlantic | 10.99 |
| | | East South Central | 10.56 |
| Big Rivers Rate, net of the MRSM | 8.06 | West South Central | 10.13 |
| Big Rivers Rate, gross of the MRSM | 8.66 | Mountain | 9.86 |
| | | West North Central | 9.33 |
| | | Kentucky | 9.12 |
| | | United States Total | 11.52 |

¹ Source: Kentucky Public Service Commission Orders and Filings

² Source: Energy Information Administration Table 5.6.A

Big Rivers' Members Provide Some of the Lowest Cost Commercial and Industrial Electricity in the Nation

Average Commercial & Industrial Rate -- National 2011

| National Region | Cents/kWh |
|------------------------------|-----------|
| Pacific Noncontiguous | 24.99 |
| New England | 13.42 |
| Middle Atlantic | 10.12 |
| Pacific Contiguous | 8.94 |
| East South Central | 8.21 |
| South Atlantic | 8.02 |
| East North Central | 7.66 |
| Meade County | 7.53 |
| Kenergy - excluding Smelters | 7.17 |
| Mountain | 7.04 |
| West South Central | 6.96 |
| West North Central | 6.40 |
| Jackson Purchase | 6.19 |
| Kenergy - Smelters | 4.40 |
| Kentucky | 4.18 |

Source: RUS Form 7 and Energy Information Administration

III. Operations

Big Rivers' Available Generation Resources

| | Fuel Type | Net Capacity (MW) | Commercial Operation |
|---|------------|-------------------|----------------------|
| Owned Generation | | | |
| Kenneth C. Coleman Plant | | | |
| Unit 1 | Coal | 150 | 1969 |
| Unit 2 | Coal | 138 | 1970 |
| Unit 3 | Coal | 155 | 1972 |
| Robert D. Green Plant | | | |
| Unit 1 | Coal | 231 | 1979 |
| Unit 2 | Coal | 223 | 1981 |
| Robert A. Reid Plant | | | |
| Unit 1 | Coal / Gas | 65 | 1966 |
| Combustion Turbine | Oil / Gas | 65 | 1979 |
| D.B. Wilson Unit 1 | Coal | 417 | 1986 |
| Owned Subtotal | | 1,444 | |
| Leased Generation | | | |
| HMP&L Station Two | | | |
| Unit 1 | Coal | 153 | 1973 |
| Unit 2 | Coal | 159 | 1974 |
| City's Current Capacity Allocation ¹ | | (110) | |
| Leased Subtotal | | 202 | |
| Total Owned / Leased Generation | | 1,646 | |
| Purchased Power | | | |
| Member's SEPA Allocation | Hydro | 178 | |
| Total Capacity | | 1,824 | |

¹Big Rivers operates Station Two, which is owned by the City of Henderson, and is entitled to all capacity and energy not taken by the City under the terms of a power purchase agreement.

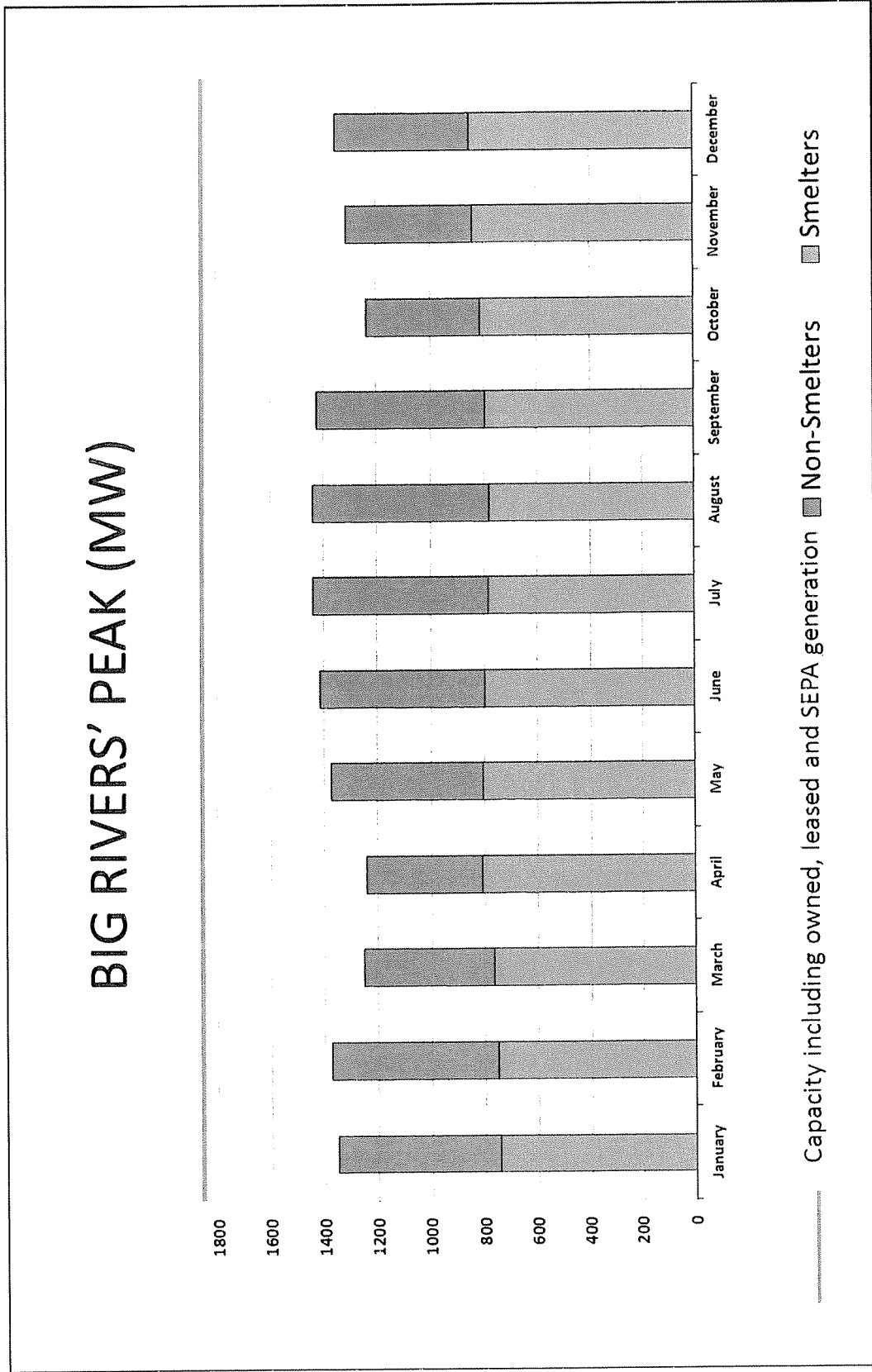
Big Rivers' Coal-Fired Power Plants System Performance

- Eight of the nine coal generating units are equipped with Flue Gas Desulphurization systems (FGDs) to control SO₂ emissions
- Wilson 1, HMP&L 1 and HMP&L 2 are equipped with Selective Catalytic Reduction systems (SCRs) to control NO_x emissions
- System performance is actively benchmarked against the industry utilizing GKS Navigant services. In the most recent benchmarking survey (2007 to 2011 Q3), Big Rivers displayed the following results when comparing O&M costs including fuel:
 - System capacity weighted O&M cost including fuel was \$2.38/MWh less than the median cost (\$32.08/MWh vs. \$34.46/MWh).

Key Performance Indicators per IEEE Standards (6 Year Averages 2006 thru 2011)

| Unit | Net Generation (MWHrs) | Net Heat Rate (BTU/kWH) | Gross Capacity Factor (%) | Gross Capacity Output (%) | Equivalent Availability Factor (%) | Equivalent Forced Outage Rate (%) |
|---------------|------------------------|-------------------------|---------------------------|---------------------------|------------------------------------|-----------------------------------|
| Coleman 1 | 981,391 | 10,762 | 75.2 | 84.5 | 89.1 | 4.9 |
| Coleman 2 | 904,899 | 11,561 | 74.8 | 81.9 | 90.9 | 3.1 |
| Coleman 3 | 1,014,199 | 10,654 | 75.5 | 83.4 | 88.9 | 6.8 |
| Green 1 | 1,768,041 | 11,132 | 88.7 | 95.5 | 92.1 | 2.5 |
| Green 2 | 1,725,642 | 11,265 | 89.5 | 95.1 | 94.1 | 1.8 |
| Henderson 1 | 1,098,054 | 10,911 | 83.1 | 93.2 | 88.4 | 8.3 |
| Henderson 2 | 1,093,491 | 11,182 | 79.3 | 88.0 | 88.8 | 5.2 |
| Wilson 1 | 3,143,151 | 11,201 | 86.4 | 96.8 | 88.1 | 4.8 |
| SYSTEM | 11,728,868 | 11,109 | 83.0 | 91.5 | 90.0 | 4.5 |

Big Rivers' Peak 2011 (MW)



Big Rivers' Coal-Fired Power Plants Variable Cost 2011 – by unit

BREC Variable Costs*
 Period Ending December 31, 2011
 Year - to - Date

| <u>Unit</u> | <u>Total Fuel</u> | <u>(Reagent) Scrubber</u> | <u>SOX Allowances</u> | <u>NOx Allowances</u> | <u>Total Variable \$</u> | <u>Net Generation</u> | <u>\$/MWH</u> |
|---------------|-------------------|---------------------------|-----------------------|-----------------------|--------------------------|-----------------------|---------------|
| Green 1 | | | | | | | |
| Green 2 | | | | | | | |
| HMP&L 1 | | | | | | | |
| HMP&L 2 | | | | | | | |
| Coleman 1 | | | | | | | |
| Coleman 2 | | | | | | | |
| Coleman 3 | | | | | | | |
| Wilson 1 | | | | | | | |
| Totals | | | | | | | |

**Does not include Reid 1 and Reid CT which are used for peaking purposes*

Big Rivers' Environmental Compliance Plan (ECP) for CSAPR & MATS

Cross-State Air Pollution Rule (CSAPR) and the Mercury and Air Toxics Standards (MATS) were both finalized in 2011. Both rules will impact Big Rivers' ECP. Big Rivers has filed an application on April 2, 2012 with the KPSC seeking approval to comply with environmental requirements (Case No. 2012-00063). Additionally, Big Rivers intends to file an associated financing application for these costs by August 2, 2012. Commission approval is anticipated November 5, 2012. Estimated compliance costs, in \$, are as follows:

| | CSAPR | MATS | Total |
|------------------------------------|--------------------|-------------------|--------------------|
| <u>Capital</u> | | | |
| Wilson | 139,000,000 | 11,240,000 | 150,240,000 |
| HMPL (Net of City) | 3,850,000 | 280,000 | 4,130,000 |
| Reid | 1,200,000 | | 1,200,000 |
| Green | 81,000,000 | 18,480,000 | 99,480,000 |
| Coleman | | 28,440,000 | 28,440,000 |
| | <u>225,050,000</u> | <u>58,440,000</u> | <u>283,490,000</u> |
| Cost of Capital | 9.42% | 9.42% | 9.42% |
| Capital Cost | 21,199,710 | 5,505,048 | 26,704,758 |
| O&M Cost | 3,220,000 | 10,010,000 | 13,230,000 |
| Total Annual 2012 ECP Cost in 2016 | <u>24,419,710</u> | <u>15,515,048</u> | <u>39,934,758</u> |

Big Rivers' ECP Revenue and Rate Impact in 2016*

| | Base 2012 <u>1</u> | Base 2016 <u>2</u> | Build 2016 <u>3</u> | (3-2)/1 <u>(3-2)/1</u> |
|----------------------|--------------------------|--------------------------|---------------------------|---------------------------|
| Gross of MRSM | | | | |
| <u>Rate \$/MWh</u> | | | | |
| Rural | 52.64 | 58.89 | 62.98 | 7.8% |
| Large Industrial | 45.46 | 51.64 | 54.80 | 6.1% |
| Smelter Unadjusted | 51.08 | 54.45 | 58.18 | 7.3% |
| Smelter Adjusted** | 48.13 | 53.09 | 55.72 | 5.5% |
| Net of MRSM | | | | |
| <u>Rate \$/MWh</u> | | | | |
| Rural | 44.32 | 51.27 | 51.27 | 0.0% |
| Large Industrial | 37.21 | 51.64 | 54.80 | 8.5% |
| Smelter Unadjusted | 51.08 | 54.45 | 58.18 | 7.3% |
| Smelter Adjusted** | 48.13 | 53.09 | 55.72 | 5.5% |

* Rates shown are based on information from the April 2, 2012 filing with the KPSC
 ** Smelter Adjusted reflects removal of the TIER Adjustment Charge. The Build Case has lower off-system net sales margin in 2016 due to ECP costs, causing the Smelters to move up within the TIER bandwidth.

IV. Indenture/Financial Goals

Big Rivers' Financial Covenants

Big Rivers is in compliance with all debt covenants associated with both long-term and short-term debt.

- The Company's Indenture and its line of credit with CFC require that Margins for Interest Ratio (MFIR) of at least 1.10 be maintained each fiscal year.
- The CoBank line of credit agreement requires that at the end of each fiscal year the Company have a Debt Service Coverage Ratio (DSCR) of not less than 1.20.
- CoBank and CFC also require an Equity to Assets ratio of 15% or greater at the end of each fiscal year.

Historical Performance against covenants

| Ratio | Agreement | Loan Covenant | 2011 | 2010 | 2009 |
|------------------------------|------------------|---------------|------|------|------|
| MFIR | Indenture/NRUCFC | 1.10 | 1.12 | 1.15 | 9.87 |
| Debt Service Coverage Ratio* | CoBank | 1.20 | 1.47 | 1.47 | 2.44 |
| Equity to Assets | CoBank | 15% | 27% | 26% | 25% |
| Equity to Assets | NRUCFC | 12% | 27% | 26% | 25% |
| TIER | | n/a | 1.12 | 1.15 | 9.85 |
| Debt to Total Capitalization | | n/a | 67% | 68% | 69% |

* DSCR not included in the proposed CoBank Revolver

V. Financials

Statement of Operations

Big Rivers

| Statement of Operations (\$mm) | Actual | | | Projected | | | |
|------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Electric Energy Revenues | 514.5 | 558.4 | | | | | |
| Other Operating Revenue and Income | 12.8 | 3.6 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Total Operating Revenues | 527.3 | 562.0 | | | | | |
| Operating Expense - Excluding Fuel | 187.2 | 201.8 | | | | | |
| Operating Expense Fuel | 207.7 | 226.2 | | | | | |
| Maintenance Expense | 46.9 | 47.7 | | | | | |
| Depreciation and Amortization | 34.2 | 35.4 | 41.9 | 43.3 | 44.7 | 48.1 | 52.3 |
| Interest Expense | 47.1 | 45.7 | 43.4 | 49.0 | 54.0 | 59.7 | 61.9 |
| Other - Net | (2.8) | (0.4) | (1.4) | (6.0) | (11.2) | (14.5) | (5.8) |
| Total Expenses | 520.3 | 556.4 | 580.8 | 604.5 | 637.5 | 656.3 | 702.7 |
| Net Margins | 7.0 | 5.6 | | | | | |

Balance Sheet

Big Rivers

| Balance Sheet (\$mm) | Actual | | | Projected | | | |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Assets | | | | | | | |
| Net Utility Plant | \$ 1,092 | \$ 1,092 | \$ 1,120 | \$ 1,189 | \$ 1,339 | \$ 1,436 | \$ 1,428 |
| Cash & Investments | 45 | 45 | 58 | 45 | 35 | 39 | 34 |
| Transition Reserve | 35 | 0 | 35 | 35 | 36 | 36 | 36 |
| Economic Reserve | 121 | 100 | 72 | 44 | 17 | 0 | 0 |
| Rural Economic Reserve | 62 | 63 | 64 | 65 | 66 | 59 | 31 |
| Receivables, Inventories, & Other | 117 | 118 | 176 | 180 | 177 | 178 | 182 |
| Total | \$ 1,472 | \$ 1,418 | \$ 1,525 | \$ 1,558 | \$ 1,670 | \$ 1,748 | \$ 1,711 |
| Equities & Liabilities | | | | | | | |
| Equities | \$ 387 | \$ 390 | \$ 395 | \$ 401 | \$ 413 | \$ 428 | \$ 443 |
| Debt | 817 | 786 | 927 | 982 | 1,098 | 1,175 | 1,158 |
| Deferred Revenue - Economic Reserves | 181 | 162 | 136 | 109 | 84 | 59 | 31 |
| Line of Credit Advances | 10 | 0 | 0 | 0 | 5 | 15 | 5 |
| Payables & Other | 77 | 80 | 67 | 66 | 70 | 71 | 74 |
| Total | \$ 1,472 | \$ 1,418 | \$ 1,525 | \$ 1,558 | \$ 1,670 | \$ 1,748 | \$ 1,711 |
| Equities / Total Capitalization | 32% | 33% | 30% | 29% | 27% | 27% | 28% |

Debt Service Coverage

| | Actual | | | Projected | | | |
|-------------------------------------|-------------|-------------|------------|------------|------------|------------|---------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Debt Service Coverage (\$mm) | | | | | | | |
| Margins | \$ 7.0 \$ | 5.6 | | | | | |
| Interest Expense | 47.1 | 45.7 | 43.4 | 49.0 | 54.0 | 59.7 | 61.9 |
| Depreciation & Amortization | 36.3 | 37.5 | 44.5 | 46.0 | 47.5 | 51.0 | 55.5 |
| Numerator for DSCR | \$ 90.4 \$ | 88.8 | | | | | |
| Interest Expense | 47.1 | 45.7 | 43.4 | 49.0 | 54.0 | 59.7 | 61.9 |
| Principal Due on Long-Term Debt | 14.2 | 14.9 | 16.1 | 19.4 | 20.1 | 20.9 | 26.1 |
| Denominator for DSCR | \$ 61.3 \$ | 60.6 | \$ 59.5 \$ | \$ 68.4 \$ | \$ 74.1 \$ | \$ 80.6 \$ | \$ 88.0 |
| Debt Service Coverage Ratio | 1.47 | 1.47 | | | | | |

Non-Smelter Member Rates

| Rate Derivation (\$/MWh) | Actual | | | Projected | | | |
|---------------------------------|--------------|--------------|--------|-----------|--------|--------|--------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Non-Smelter Members | | | | | | | |
| Base Rate | 35.33 | 42.45 | | | | | |
| Regulatory Account Amortization | 0.00 | (0.32) | (1.23) | (1.23) | (0.38) | 0.17 | 0.28 |
| FAC | 9.98 | 4.49 | 5.09 | 5.47 | 5.95 | 6.36 | 6.80 |
| Environmental Surcharge | 2.25 | 2.16 | 2.51 | 3.27 | 3.78 | 4.75 | 7.37 |
| Surcredits | (3.30) | (3.49) | (4.10) | (4.05) | (4.00) | (3.97) | (3.93) |
| Rebate (Accrual) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rate Stabilization | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Economic Reserve | (7.91) | (6.22) | (8.69) | (8.39) | (7.93) | (5.07) | 0.00 |
| Rural Economic Reserve | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | (2.49) | (8.47) |
| Blended Rate | 36.35 | 39.07 | | | | | |

Smelter Rates

| Rate Derivation (\$/MWh) | Actual | | Projected | | | | |
|-----------------------------|--------------|--------------|-----------|--------|--------|------|------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Smelters | | | | | | | |
| Large Industrial Rate @ 98% | 29.07 | 34.70 | | | | | |
| Additional Smelter Charge | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| Base Rate | 29.32 | 34.95 | | | | | |
| Tier Adjustment | 1.95 | 1.95 | 2.95 | 2.95 | 2.95 | 2.67 | 2.59 |
| Non-FAC PPA | (1.18) | (0.70) | (0.40) | (0.21) | (0.04) | 0.28 | 0.38 |
| FAC | 10.13 | 4.53 | 5.11 | 5.48 | 5.95 | 6.36 | 6.80 |
| Environmental Surcharge | 2.26 | 2.18 | 2.48 | 2.66 | 3.14 | 3.94 | 6.11 |
| Surcharge | 1.57 | 1.57 | 1.87 | 1.87 | 1.87 | 1.87 | 1.87 |
| Rebate (accrued) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Effective Rate | 44.05 | 44.48 | | | | | |

Big Rivers' Credit Rating

Big Rivers had its credit rating evaluated by three credit rating agencies.

Moody's Investor Service – Moody's has assigned a 'Baa1' senior secured rating for the Series 2010A County of Ohio, Kentucky, Pollution Control Bonds.

Standard & Poor's (S&P) – S&P has assigned a 'BBB-' issuer credit rating to Big Rivers and has assigned a "BBB-" long-term rating for its Series 2010A County of Ohio, Kentucky, Pollution Control Bonds.

Fitch Ratings Ltd. – In August, 2011, Fitch has assigned a 'BBB-' rating on the Series 2010A County of Ohio, Kentucky, Pollution Control Bonds.

VI. Appendix – Management Information

Big Rivers' Management

Senior Management Biographies

Mark A. Bailey, President and Chief Executive Officer, received a Bachelor of Science in Electrical Engineering from Ohio Northern University in 1974, and a Master of Science in Management from the Massachusetts Institute of Technology in 1988. He was employed by American Electric Power Company ("AEP") for nearly 30 years, beginning as an Electrical Engineer in 1974. Mr. Bailey was employed as Vice President of AEP subsidiary Indiana Michigan Power Company until AEP's reorganization in 1996, when he became Director-Regions with American Electric Power Service Corporation ("AEPSC"), also a subsidiary of AEP. He was employed as Vice President of Transmission Asset Management for AEPSC from June 2000 until his employment as President and Chief Executive Officer ("CEO") with Kenergy Corp. in 2004. Mr. Bailey was employed as Executive Vice President and Chief Operating Officer beginning in June 2007 until being elected by the Board of Directors to his current position in October 2008.

Robert W. Berry, Vice President of Production, graduated from the University of Kentucky Community College system with an Associate degree in Mechanical Engineering Technology and Mid-Continent University with a Bachelor of Science in Business Management. He was employed by Big Rivers from 1981 to 1998 and served in various maintenance positions such as Superintendent of Maintenance and Maintenance Manager. In 1998 he was employed by Western Kentucky Energy and served in various positions such as Maintenance Manager, Plant Manager and General Manager until the Unwind transaction closed in July 2009, at which time he assumed his current position.

David G. Crockett, Vice President of System Operations, graduated from the University of Kentucky with a Bachelor of Science in Electrical Engineering in 1972. He has been employed with Big Rivers since 1972. He served in various engineering positions before assuming the responsibility of Manager of Energy Control in 1998. Mr. Crockett assumed his current position as Vice President System Operations in 2006.

James V. Haner, Vice President of Administrative Services, graduated from the University of Kentucky with a Bachelor of Science in Accounting in 1970. He has been employed with Big Rivers since 1972. He served in various accounting and finance capacities prior to transferring to administrative services in 1991. He assumed duties as Manager Human Resources in 1998. Mr. Haner assumed his current position of Vice President Administrative Services in 2005.

Big Rivers' Management


Senior Management Biographies - continued


Mark A. Hite, Vice President of Accounting and Interim Chief Financial Officer, graduated from the University of Evansville with a Bachelor of Science in Accounting in 1980 and a Master of Business Administration in 1985. He is a licensed CPA. Mr. Hite has been employed with Big Rivers since 1983, and has served in various accounting and finance capacities prior to assuming his current position.

Eric Robeson, Vice President of Environmental Services and Construction, graduated from Rose Hulman Institute of Technology in 1977 with a Bachelor of Science in Mechanical Engineering and Ball State University in 1988 with a Masters of Business Administration. He is a registered Professional Engineer in the state of Indiana. Mr. Robeson worked at Vectren (and its predecessor company Sigeco) from 1980 to 2011. He served in a variety of engineering and managerial positions including Plant Manager, Director of Generation Planning, and Director of Infrastructure Services. He joined Big Rivers in 2011 as Vice President of Construction overseeing environmental compliance efforts and assumed his current position in February , 2012

Albert M. Yockey, Vice President of Governmental Relations & Enterprise Risk Management, graduated from the University of Pittsburgh with a Bachelor of Science in Electrical Engineering in 1972, a Master of Science from Lehigh University in 1979, and a Juris Doctor from Capital University Law School in 1994. He is a registered Professional Engineer in Pennsylvania and a licensed attorney in Ohio. Mr. Yockey was employed in operation and planning positions with Pennsylvania Power and Light Co. from 1972 through 1985. He was employed in planning, regulatory, and compliance positions with American Electric Power Company from 1985 until February 2008. Mr. Yockey joined Big Rivers as Vice President of Enterprise Risk Management and Strategic Planning in 2008 and assumed his current position in July 2009.

**Big Rivers Environmental Compliance Plan Presentation:
Kenergy Board Meeting – May 8, 2012**

 **Big Rivers**
ELECTRIC CORPORATION

Your Touchstone Energy Cooperative 

Big Rivers Environmental Compliance Plan

Kenergy Board Meeting

May 8, 2012

Agenda

- Recommended Environmental Compliance Plan
- Financial Modeling
- CSAPR and MATS
- Cap Ex Estimates and Rate Impact
- Future Environmental Regulations
- Questions

Summary of Regulations

- CSAPR Cross State Air Pollution Rule
- MATS Mercury and Air Toxics Standard
- NAAQS National Ambient Air Quality Standards
- 316b River Intake
- CCR Coal Combustion Residuals
- GHG Green House Gases (CO2)

Big Rivers

Environmental Compliance Plan

- CSAPR
 - Replace FGD at Wilson
 - Install SCR at one Green unit
 - Upgrade fans at HMPL Station Two and install additional FGD recycle pumps
 - Install low NOx burners at HMPL and Wilson
 - Convert Reid to natural gas
- MATS
 - Install Activated Carbon and Dry Sorbent Injection Systems at all plants except HMPL

Time Line

- April 2012 File Environmental Compliance Plan, CPCN and Revised Environmental Surcharge
- May 2012 Release A/E to develop RFP's
- October 2012 PSC Approval
- Notice to proceed to vendors
- January 2013 Vendor procurement begins
- July 2013 Construction begins
- July 2015 Green SCR in service
- January 2016 Wilson FGD in service

Financial Modeling

- Financial Modeling estimated overall rate impact to members for various scenarios
- Scenarios included
 - Install all CSAPR and MATS projects
 - Install all CSAPR and MATS projects except Green SCR
 - Install MATS projects only, reduce generation, and buy remainder of generation from MISO
- Final recommendation was to install all CSAPR and MATS projects

Inputs to Financial Model

- Cap Ex and O&M estimates for various technologies from Sargent and Lundy study
- Projected wholesale electrical prices
- Projected allowance prices
- Projected internal generation levels
- Projected fuel prices
- CSAPR allowance allocations
- Big Rivers cost of debt
- Outage schedules

CSAPR Update

- Regulates SO₂ and NO_x
- Creates new type of SO₂ and NO_x allowances
- Minimal trading of allowances expected due to market structure
- On December 30, 2011 the DC Court of Appeals issued a stay regarding CSAPR
- Compliance has been suspended pending resolution of this action
- Probable outcome expected to be a one year delay in implementation
- Until this is resolved, all utilities must continue to comply with CAIR regulations in effect prior to CSAPR
- Big Rivers will be in compliance with minimal NO_x allowance purchases for 2012

2014 CSAPR Impact

- SO2
 - Major Impact
 - 50% reduction required from 2010 emissions
 - Wilson, HMPL and Reid are primary concerns
- NOx
 - Minor Impact
 - 16% reduction required from 2010 emissions
 - Green, Coleman, and Reid are primary concerns

MATS Mercury and Air Toxics Standard

- Regulations finalized in February 2012
 - Mercury (Hg)
 - Acid Gases (Hydrochloric or HCl)
 - Non Hg Metallic Gases or Filterable Particulate Matter (FPM)
- Emissions rates limits by unit instead of total emissions (allowances)
- 2015 compliance date with 1 year extension likely
- Activated Carbon Injection and Dry Sorbent Injection Systems required at all plants except HMPL
- Precipitator upgrades possible at all plants
- Subject to litigation as well

CSAPR Cap Ex and Cash Flow

| | 2012 | 2013 | 2014 | 2015 | 2016 | Total |
|--------------|-------------|--------------|---------------|--------------|-------------|---------------|
| Wilson FGD | 1.80 | 27.60 | 55.00 | 47.60 | 7.00 | 139.00 |
| Green SCR | 1.00 | 20.00 | 44.00 | 16.00 | | 81.00 |
| HMPL FGD | 0.30 | 2.20 | 3.10 | 0.70 | | 6.30 |
| Reid Conv | 0.05 | 1.15 | | | | 1.20 |
| Total | 3.15 | 50.95 | 102.10 | 64.30 | 7.00 | 227.50 |

All figures in millions

Big Rivers
ELECTRIC CORPORATION

Your Taste for Energy. CapEx and Cash Flow

MATS Cap Ex and Cash Flow

| | 2012 | 2013 | 2014 | 2015 | 2016 | Total |
|--------------|------|-------------|--------------|--------------|------|--------------|
| Wilson | | 1.20 | 4.80 | 5.24 | | 11.24 |
| Coleman | | 1.20 | 14.40 | 12.84 | | 28.44 |
| Green | | 1.20 | 8.00 | 9.28 | | 18.48 |
| HMPL | | | | 0.48 | | 0.48 |
| Total | | 3.60 | 27.20 | 27.84 | | 58.64 |

All figures in millions

Big Rivers
ELECTRIC CORPORATION

Your Touch on Energy Cooperation

Annual O&M Expenses

| | 2013 | 2014 | 2015 | 2016 |
|-------|------|------|------|-------|
| CSAPR | | 0.76 | 2.23 | 2.92 |
| MATS | | | | 9.07 |
| Total | | 0.76 | 2.23 | 11.99 |

All figures in millions

ECP Revenue and Rate Impact in 2016

| | <u>1</u> | <u>2</u> | <u>3</u> | <u>(3-2) / 2</u> | <u>(3-2) / 1</u> |
|----------------------|--------------|--------------|---------------|------------------|------------------|
| | Base 2012 | Base 2016 | Build 2016 | | |
| Gross of MRSM | | | | | |
| <u>Rate \$/MWh</u> | | | | | |
| Rural | 52.64 | 58.89 | 62.98 | 6.9% | 7.8% |
| Large Industrial | 45.46 | 51.64 | 54.80 | 6.1% | 6.9% |
| Smelter Unadjusted | 51.08 | 54.45 | 58.18 | 6.8% | 7.3% |
| Smelter Adjusted* | 48.13 | 53.09 | 55.72 | 5.0% | 5.5% |
| Net of MRSM | | | | | |
| <u>Rate \$/MWh</u> | | | | | |
| Rural | 44.32 | 51.27 | 51.27 | 0.0% | 0.0% |
| Large Industrial | 37.21 | 51.64 | 54.80 | 6.1% | 8.5% |
| Smelter Unadjusted | 51.08 | 54.45 | 58.18 | 6.8% | 7.3% |
| Smelter Adjusted* | 48.13 | 53.09 | 55.72 | 5.0% | 5.5% |

*Smelter Adjusted reflects removal of the TIER Adjustment Charge. The Build Case has lower off-system net sales margin in 2016 due to ECP costs, causing the Smelters to move up within the TIER bandwidth.

NAAQS

National Ambient Air Quality Standards

- Updated every 5 years
- Has been delayed by President Obama
- Considering lowering ozone standards to 60 ppb v s current 75 ppb standard
- Potential to reduce SO₂ and NO_x allowances by additional 20% by 2018
- Could require 2nd SCR at Green

Clean Water Act

316b

- Final rule expected by July 2012
- Potential Compliance dates in 2016-2020 time frame
- Could require cooling tower at Coleman
- Could require modifications to intake structure for Reid/HMPL

Coal Combustion Residuals

- Final Rule expected in 2012
- Not expecting worst case (hazardous waste designation)
- Impact uncertain at this time
- Major political battlefield
- Compliance date in 2016-2018 time frame

GHG

- EPA recently announced proposed regulations that would effectively outlaw new coal fired power plants
- Reports indicate EPA considered applying them to existing plants
- Concern is that existing plants could be added depending upon presidential election

Questions?

Big Rivers
ELECTRIC CORPORATION

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