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**PUBLIC SERVICE
COMMISSION**

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY

In the Matter of:

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

**Case No.
2012-00063**

**Response to the Sierra Club's
Third Request for Information
Dated June 27, 2012**

FILED: July 6, 2012

ORIGINAL

ald M. Sullivan

esse T. Mountjoy

Frank Stainback

James M. Miller

Michael A. Fiorella

Allen W. Holbrook

R. Michael Sullivan

Bryan R. Reynolds

Tyson A. Kamuf

Mark W. Starnes

C. Ellsworth Mountjoy

Susan Montalvo-Gesser

Mary L. Moorhouse

July 6, 2012

Via Federal Express

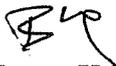
Jeff DeRouen
Executive Director
Public Service Commission
211 Sower Boulevard, P.O. Box 615
Frankfort, Kentucky 40602-0615

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

Dear Mr. DeRouen:

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

Sincerely yours,



Tyson Kamuf

TAK/ej
Enclosures

cc: Mark A. Bailey
Albert Yockey

Telephone (270) 926-4000

Facsimile (270) 683-6694

100 St. Ann Building
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42302-0727

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PSC Case No. 2012-00063

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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

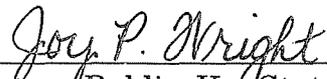
VERIFICATION

I, 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)

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


Notary Public, Ky State at Large
My Commission Expires _____

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

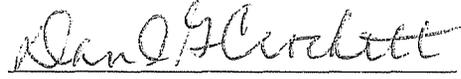
BIG RIVERS ELECTRIC CORPORATION

**THE APPLICATION OF BIG RIVERS ELECTRIC CORPORATION FOR
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AUTHORITY TO ESTABLISH A REGULATORY ACCOUNT**

CASE NO. 2012-00063

VERIFICATION

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


David G. Crockett

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

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


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

BIG RIVERS ELECTRIC CORPORATION

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

VERIFICATION

I, 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 3rd
day of July, 2012.


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

BIG RIVERS ELECTRIC CORPORATION

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

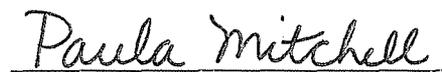
VERIFICATION

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


Thomas L. Shaw

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

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


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

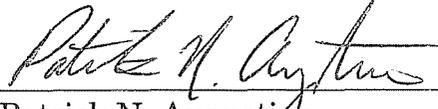
BIG RIVERS ELECTRIC CORPORATION

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

VERIFICATION

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


Patrick N. Augustine

COMMONWEALTH OF VIRGINIA)
COUNTY OF FAIRFAX)

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


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

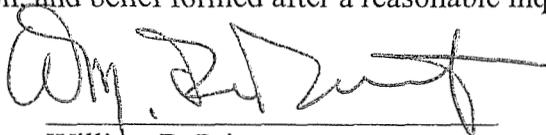
BIG RIVERS ELECTRIC CORPORATION

**THE APPLICATION OF BIG RIVERS ELECTRIC CORPORATION FOR APPROVAL
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VERIFICATION

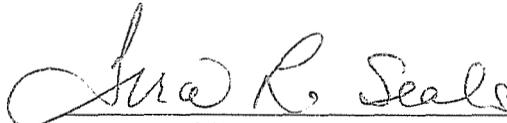
I, William DePriest, verify, state, and affirm that I prepared or supervised the preparation of the data responses filed with this Verification, and that those data responses are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.



William DePriest

STATE OF ILLINOIS)
COUNTY OF COOK)

June ⁽⁷⁵⁾ SUBSCRIBED AND SWORN TO before me by William DePriest on this the 28th day of ~~July~~, 2012.



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

BIG RIVERS ELECTRIC CORPORATION

**THE APPLICATION OF BIG RIVERS ELECTRIC CORPORATION FOR
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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 3rd
day of July, 2012.

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

BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
FOR APPROVAL OF ITS 2012 ENVIRONMENTAL COMPLIANCE PLAN,
FOR APPROVAL OF ITS AMENDED ENVIRONMENTAL COST
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**Response to the Sierra Club's
Third Request for Information
Dated June 27, 2012**

July 6, 2012

1 **Item 1)** *Refer to the "ACES Power Marketing Files" folder sent on the*
2 *June 14 zip drive. For all Excel workbooks containing "Gen Assumptions*
3 *as part of the file name (Ex: "List of Gen Assumptions - monthly C-1 budget*
4 *2012-26 (1-31-12) CAIR RevSO2Fuel.xls"), the first tab in the workbook is*
5 *the "BREC Hedged Fuel Price".*

6

7 **a.** *Please confirm that Big Rivers has in fact hedged their*
8 *fuel prices and signed contracts for delivered fuel through*
9 *2026.*

10 **b.** *Are these fuel prices in essence "locked in" through the*
11 *duration of the study period?*

12 **c.** *If BREC has not hedged their fuel prices and signed*
13 *contracts for delivered fuel through 2026, explain why the*
14 *first tab in the workbook presents the hedged fuel price.*

15

16 **Response)**

17 **a.** Big Rivers has not hedged its fuels prices through 2026.

18 **b.** No. The fuel prices in the study were the fuel price forecast
19 provided by Pace Global ("Pace").

20 **c.** The file "List of Gen Assumptions - monthly C-1 budget 2012-26
21 (1-31-12) CAIR RevSO2Fuel.xls" is a template input file format
22 for the Planning and Risk model that has been filled in with

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1 Coleman Unit 1 data and assumptions. The title of that tab
2 ("hedged fuel") was not changed for the runs ACES Power
3 Marketing ("APM") performed for Big Rivers.
4
5

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

BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
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1 **Item 2)** *Refer to the "ACES Power Marketing Files" folder sent on the*
2 *June 14 zip drive. The "Demand Energy Budget 2013 thru 2026.xls" Excel*
3 *workbook provided folder gives only the total of non-coincident peak*
4 *values for the commercial/industrial customers. Please also provide the*
5 *coincident peak values in both the "2013" and "2014 To 2026" tabs.*

6
7 **Response)** Big Rivers does not explicitly forecast coincident peak values for
8 individual industrial customers. Coincident peak values for Big Rivers' native
9 load can be found in the Excel file "BRECMISOMonthlyLoadForecast2012-
10 01.xlsm" provided in Big Rivers' response to Item 27 of the Sierra Club's Second
11 Request for Information.

12

13

14 **Witness)** Robert W. Berry

15

BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
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1 Item 3) *Refer to the "April 26 CD Information filed in Rsp to Motion to*
2 *Dismiss" folder sent on the June 14 zip drive. In the "Capex & Depr" tabs*
3 *of the Excel workbooks containing "Financial Forecast" as part of the file*
4 *name (Ex: Financial Forecast (2012-2026) Build 03-08-2012.xlsx), HMP&L*
5 *and Reid are the only plants with values for forward depreciation.*

6

7 a. *Why do none of the other plants have values for forward*
8 *going depreciation?*

9 b. *Identify the values for forward depreciation for each of*
10 *BREC's other generation units.*

11

12 **Response)**

13 a. While Big Rivers' financial model was originally designed to
14 detail depreciation expense by generating station, it no longer
15 does so. The depreciation expense shown for Reid now
16 represents all of Big Rivers' generation depreciation expense.
17 Because Big Rivers operates under a life of the unit lease for
18 HMP&L's Station Two, the associated amortization expense is
19 shown separately.

20 b. Please see the response to a. above.

21

22 **Witness)** Mark A. Hite

BIG RIVERS ELECTRIC CORPORATION

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

**Response to the Sierra Club's
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July 6, 2012

1 **Item 4)** *With respect to natural gas and market electricity prices:*

2

3 *a. Does BREC expect that future gas prices and market*
4 *electricity prices are or will be correlated?*

5 *i. If so, identify the expected correlation, the basis for that*
6 *correlation, and any documents supporting such*
7 *correlation. Produce any documents supporting such*
8 *correlation.*

9 *b. Has BREC taken a correlation between these two variables*
10 *into account when determining the prices for each one?*

11 *i. If so, identify the expected correlation, the basis for that*
12 *correlation, and any documents supporting such*
13 *correlation. Produce any documents supporting such*
14 *correlation.*

15

16 **Response)**

17 a. and b.

18 The APM Planning and Risk model runs used APM's projected power
19 prices for certain runs and Pace's projected power prices for the other
20 runs. Pace's projected natural gas prices were used for all runs.

Case No. 2012-00063

Response to SC 3-4

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

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BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
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SURCHARGE TARIFF, FOR CERTIFICATES OF PUBLIC CONVENIENCE
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1 APM's process for developing prices curves is described in Big
2 Rivers' response to Item 29 of the Kentucky Industrial Utility
3 Customers' Second Request for Information.

4 Pace's power market projections are based on a fundamental
5 dispatch assessment of the integrated, competitive power market.
6 Variable costs of the marginal generator in the system are the major
7 driver of market electricity prices, and natural gas-fired plants are
8 expected to be marginal for many peak periods in the future. (See
9 Big Rivers' response to Item 28b of the Kentucky Industrial Utility
10 Customers' Second Request for Information for additional details on
11 Pace's stochastic power analysis methodology and how the input
12 distributions developed for natural gas prices are integrated into a
13 fundamental power market dispatch analysis driven by the variable
14 costs of marginal plants in the system.)

15 Pace has provided Input and Output files for all natural gas
16 prices and the corresponding electricity prices that were developed
17 for this analysis and expects future gas and electricity prices to be
18 positively correlated. The estimated correlation coefficient is 78.45%
19 on average across 200 iterations of gas and electricity price paths.
20 The correlation is 79.30% for on-peak prices only and 57.54% for off-
21 peak prices only. These correlation coefficients are calculated by

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Response to SC 3-4

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

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BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
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1 taking the natural log of year-on-year returns in annual gas and
2 electricity prices and calculating the correlation over these returns
3 for each iteration. These steps are carried out separately using on-
4 peak, off-peak and all-hours power prices. The expected correlation
5 is 78.45% for all hours.

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10

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

BIG RIVERS ELECTRIC CORPORATION

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**Response to the Sierra Club's
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July 6, 2012

- 1 **Item 5)** *With respect to coal and market electricity prices:*
2
3 *a. Does BREC expect that future coal prices and market*
4 *electricity prices are or will be correlated?*
5 *i. If so, identify the expected correlation, the basis for*
6 *that correlation, and any documents supporting such*
7 *correlation. Produce any documents supporting such*
8 *correlation.*
9 *b. Has BREC taken a correlation between these two*
10 *variables into account when determining the prices for*
11 *each one?*
12 *i. If so, identify the expected correlation, the basis for*
13 *that correlation, and any documents supporting such*
14 *correlation. Produce any documents supporting such*
15 *correlation.*

16
17 **Response)**

- 18 a. and b.
19 APM's Planning and Risk model runs used APM's projected
20 power prices for certain runs and Pace's projected power prices

BIG RIVERS ELECTRIC CORPORATION

**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION
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July 6, 2012

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for the other runs. Pace's projected coal prices were used for all runs.

APM's process for developing prices curves is described in Big Rivers' response to Item 29 of the Kentucky Industrial Utility Customers' Second Request for Information.

Pace has provided Input and Output files for all coal prices and the corresponding electricity prices that were developed for this analysis. Future all hours electricity and Illinois Basin coal prices are not expected to be strongly correlated. The estimated correlation coefficient is 3.09% on average across 200 iterations of coal and electricity price paths. However, off-peak electricity and coal prices are expected to be somewhat positively correlated; the estimated correlation coefficient is 9.50%. This correlation coefficient is calculated by taking the natural log of year-on-year returns in annual coal and power prices and calculating the correlation over these returns for each iteration. These steps are carried out separately using on-peak, off-peak and all-hours power prices. The expected correlation is 3.09% for all hours with Illinois Basin coal. Please also see Big Rivers' response to Item 4 of these responses.

BIG RIVERS ELECTRIC CORPORATION

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July 6, 2012

1

2 **Witnesses) Patrick N. Augustine (*Pace*) and**

3 **Brian J. Azman (*APM*)**

Case No. 2012-00063

Response to SC 3-5

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

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BIG RIVERS ELECTRIC CORPORATION

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July 6, 2012

1 **Item 6)** *With respect to coal and natural gas prices:*

2

3 *b. Does BREC expect that future coal prices and natural gas*
4 *prices are or will be correlated?*

5 *i. If so, identify the expected correlation, the basis for*
6 *that correlation, and any documents supporting such*
7 *correlation. Produce any documents supporting such*
8 *correlation.*

9 *c. Has BREC taken a correlation between these two*
10 *variables into account when determining the prices for*
11 *each one?*

12 *i. If so, identify the expected correlation, the basis for*
13 *that correlation, and any documents supporting such*
14 *correlation. Produce any documents supporting such*
15 *correlation.*

16

17 **Response)**

18 a. The APM Planning and Risk model runs used Pace's projected
19 coal and natural gas prices for all runs. Historically, coal and
20 natural gas prices have shown a modestly positive correlation.
21 Pace Global calculated the historical correlation using weekly

Case No. 2012-00063

Response to SC 3-6

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

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1 data for coal and gas. The process involves calculating the
2 natural log of week-on-week returns in gas and coal prices, and
3 calculating the correlation over these returns. These steps are
4 carried out separately using the prices from four coal basins.
5 The results are shown in the table below.
6

CAPP Coal Vs. Gas	NAPP Coal Vs. Gas	ILB Coal Vs. Gas	PRB Coal Vs. Gas
20.44%	21.81%	25.52%	13.26%

7
8 CAPP = Central Appalachia
9 NAPP = Northern Appalachia
10 ILB = Illinois Basin
11 PRB = Power River Basin
12

13 In the future, Pace does not expect the correlation to
14 continue over the long term. Evolving regulatory policies on
15 emissions in the power sector are expected to reduce the
16 correlation over the next twenty years. In the future, Pace
17 explicitly accounts for expected gas and coal demand feedbacks
18 when analyzing correlations between the two fuels, as they are

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1 expected to be substitutes in the power generation sector. For
2 example, in iterations where expected emission compliance costs
3 are high, natural gas demand is expected to increase, while coal
4 demand is expected to decline. This increase in demand is likely
5 to increase the price of natural gas and decrease the price of
6 coal. (See See Big Rivers' response to Item 28b of the Kentucky
7 Industrial Utility Customers' Second Request for Information for
8 a detailed description of Pace's stochastic input development
9 methodology and the price feedbacks that drive correlations). As
10 a result of this expectation, the correlations between gas and
11 coal prices are expected to move towards zero over the long
12 term.

13 b. Pace has provided all inputs for coal and natural gas prices
14 across 200 iterations and its reference case as part of its Inputs
15 file. The expected correlation between natural gas and Illinois
16 Basin coal is -3.63% with the basis for that correlation
17 documented in part a. of this question. The expected correlation
18 between natural gas and CAPP coal is 1.75%, the expected
19 correlation between natural gas and NAPP coal is 2.6%, and the
20 expected correlation between natural gas and PRB coal is 0.54%.

21

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1

2 **Witnesses) Patrick N. Augustine (*Pace*) and**

3 **Brian J. Azman (*APM*)**

4

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1 **Item 7)** *Refer to the "April 26 CD Information filed in Rsp to Motion to*
2 *Dismiss" folder sent on the June 14 zip drive. In the "Debt" tabs of the*
3 *Excel workbooks containing "Financial Forecast" as part of the file name*
4 *(Ex: Financial Forecast (2012-2026) Build 03-08-2012.xlsx) the principal*
5 *payments are hard-coded values.*

6

7 **a.** *Please provide the work papers showing the derivation of*
8 *these values.*

9

10 **b.** *Please provide the work papers that demonstrate how*
11 *these principal payments align with the construction*
12 *schedule for the projects in Big River's 2012*
13 *Environmental Compliance Plan.*

14

15 **c.** *In cell AR6 of the "Debt" tab of the "Financial Forecast"*
16 *workbooks, why was 28 years chosen to calculate the debt*
17 *service payment?*

18

19 **Response)**

20

21 **a.** There is no other work paper showing the derivation of the
22 principal payments/ (borrowings) for the environmental
compliance plan debt. The borrowings were assumed to occur
quarterly and were designed to approximate the CSAPR and
MATS capital cash flow schedules on the ECP tab. The funds

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- 1 are borrowed during the years 2013 through 2016. The total
2 borrowing is \$283.5 million.
3 b. Please see the response to a. above.
4 c. A term of 28 years for the permanent financing, from 2016
5 through 2043, was chosen to coincide with the expiration of Big
6 Rivers' all-requirements contracts with its Members, December
7 31, 2043.

8
9

10 **Witness)** Mark A. Hite

11

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1 **Item 8)** *Refer to the "April 26 CD Information filed in Rsp to Motion to*
2 *Dismiss" folder sent on the June 14 zip drive. In the "ECP" tabs of the*
3 *Excel workbooks containing "Financial Forecast" as part of the file name*
4 *(Ex: Financial Forecast (2012-2026) Build 03-08-2012.xlsx), please provide*
5 *calculations and/or reasoning behind the 2.28% depreciation rate seen in*
6 *cell F53.*

7

8 **Response)** The 2.28% depreciation rate (cell F53 of the ECP tab) is Big Rivers'
9 current depreciation rate for environmental compliance assets in accounts 312 A-
10 K, per Big Rivers' approved 2010 Depreciation Study.

11

12

13 **Witness)** Mark A. Hite

14

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1 **Item 9)** *Refer to the "April 26 CD Information filed in Rsp to Motion to*
2 *Dismiss" folder sent on the June 14 zip drive. In the "PCM" tabs of the*
3 *Excel workbooks containing "Financial Forecast" as part of the file name,*
4 *lines B120 to B134 contain line items for ash disposal at the BREC units,*
5 *which contain values of \$0.*

6

7 **a.** *Does BREC currently incur any ash disposal costs at any*
8 *of its units?*

9 **i.** *If so, why are they not included in the modeling?*

10 **ii.** *If not, why not?*

11 **b.** *Does BREC expect any future ash disposal costs at any of*
12 *its units?*

13 **i.** *If so, why are they not included in the modeling?*

14 **ii.** *If not, why not?*

15 **c.** *Please provide estimates of the ash disposal costs, by year*
16 *and by unit, for each year of 2012 through 2026.*

17

18 **Response)**

19 **a.** Yes. Big Rivers incurs ash disposal costs at its generating units.
20 The production cost model output prepared for these financial
21 model scenarios contained only one line for total non-fuel
22 variable operations cost at each generating unit. Ash disposal

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1 cost is contained therein. Please see Big Rivers' response to
2 Item 9 of the Attorney General's Second Request for Information
3 for more detail on all non-fuel variable cost components. The
4 amount shown for each generating station on lines 120 through
5 134 of the PCM tab in the Build Case financial model is the total
6 non-fuel variable operations cost for that respective plant,
7 including ash disposal.

- 8 b. Please see Big Rivers' response to part a. above.
9 c. Please see Big Rivers' response to part a. above.

10

11

12 **Witness)** Mark A. Hite

13

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1 **Item 10)** *Refer to the "PACE Global Files" folder sent on the June 14 zip*
2 *drive. In the "PACE_Big Rivers Data Request Inputs_120524.xlsx" Excel*
3 *workbook, please clarify if the "Reference Case" iteration of each of the*
4 *five forecast tabs (Input Henry Hub Nat Gas, Input Coal Prices, Input*
5 *Load Forecast, Input CO2 Prices and Input Capital Costs) were the*
6 *iterations used in the calculation of the PCM tab results seen in the*
7 *"Financial Forecast" Excel workbooks.*

8

9 **Response)** Yes.

10

11

12 **Witness)** Brian J. Azman

13

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1 **Item 11)** *Refer to the "Sargent & Lundy Production to Big Rivers" folder*
2 *sent on the June 14 zip drive. Some of the workbooks provided by Sargent*
3 *& Lundy refer to a 7.93% discount rate while others refer to a 7% discount*
4 *rate.*

5

6 **a.** *Is there a reason two different discount rates were used in*
7 *this analysis? If so, what is it? If not, which discount rate*
8 *is correct?*

9 **b.** *Additionally, please provide calculations for the cost of*
10 *capital used in the analyses.*

11

12 **Response)**

13 **a.** The 7% discount rate was not used in determining any costs
14 associated with the Sargent & Lundy Environmental
15 Compliance Study. A discount rate of 7.93% was used for all
16 economic analysis reported by Sargent and Lundy.

17 **b.** Please see the attached schedule for the calculation of Big
18 Rivers' 2010 cost of capital

19

20

21 **Witnesses)** William DePriest (a.) and

22 Mark A. Hite (b.)

**Big Rivers Electric Corporation
Case No. 2012-00063
2010 Cost of Capital**

Cost of Debt	(a)		5.73%
Calculated as follows:			
Interest expense on long-term debt			\$47,064,226
13-month average principal balance			\$822,035,299
Depreciation & Amortization	(b)		1.88%
Calculated as follows:			
Depreciation & Amortization			\$36,264,224
13-month average gross plant in service			\$1,929,448,326
Property Taxes	(c)		0.16%
Calculated as follows:			
Property Taxes			\$3,101,088
13-month average gross plant in service			\$1,929,448,326
Property Insurance	(d)		0.16%
Calculated as follows:			
13-month average gross plant in service			\$1,929,448,326
Cost of Capital		= (a) + (b) + (c) + (d)	7.93%

Big Rivers Electric Corporation
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2010 Cost of Capital

DATA SOURCE

Form 12a

B22

			47,064,226
			822,035,299
			5,061,776
			272,886
			28,493,976
			0
			1,883,792
			138,240
			413,554

			36,264,224
			2,037,648
			857,614
			205,826

			3,101,088
			2,649,200
			230,120
			205,970

			3,085,290
			1,680,682,084
			230,271,557
			18,494,685

			1,929,448,326

Interest Expense on Long-Term Debt

Average Principal Balance

Depreciation & Amortization:

Depreciation & Amortization--Transmission

Depreciation & Amortization -- General

Depreciation & Amortization -- Generation

Depreciation & Amortization -- Leased Assets

Depreciation & Amortization -- Station Two Assets

Vehicles

Amortization Expense

403.50000

403.70000

403.11000 - 403.40000

555.15001 & 555.15002

184.200 - 184.900

404.11000 - 404.11100

403.510 & 403.520

403.700

403.110-403.400

413.300 & 413.400

555.150 & 555.152

408.110 -- 408.149

& 408.180 -- 408.199

408.150 & 408.160

408.170

924.110-

924.150 & 924.160

924.170, 925.170

926.170 & 930.210

Property Taxes:

Property Taxes -- Generation

Property Taxes -- Transmission

Property Taxes -- General

408.11000 - 408.11100

Property & Liability Insurance:

Property & Liability Insurance -- Generation

Property & Liability Insurance -- Transmission

Property & Liability Insurance -- General

924.11000 - 924.11100

Average Gross Plant-In-Service

Generation

Transmission

General

Total

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1 **Item 12)** *Refer to Big River's response to KIUC's Item 45 and the lines*
2 *142 and 143 of the "Financial Forecast (2012-2026) Build 03-08-2012.xls"*
3 *Excel workbook, please confirm that these are the same balances for the*
4 *Economic Reserve Fund and Rural Economic Reserve Fund between the*
5 *tables given in response to KIUC Item 45 and the Excel workbook.*

6
7 **Response)** The response to Item 45 of the Kentucky Industrial Utility
8 Customers' Initial Request for Information details the projected monthly balances
9 for the Economic Reserve and the Rural Economic Reserve beginning with the
10 actual April 30, 2012, balances. The corresponding projected balances per lines
11 142 and 143 of the 'Stmts RUS' tab of the Build Case financial model begin with
12 actual December 31, 2011. The post-April 2012 monthly draw projections of Item
13 45 and the Build Case financial model are the same until the respective fund is
14 fully depleted.

15
16
17 **Witness)** Mark A. Hite
18

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1 **Item 13)** *Refer to the "Sargent & Lundy Production to Big Rivers" folder*
2 *sent on the June 14 zip drive. A 2.5% escalation rate is used in the*
3 *"Capital & O&M.xls" Excel workbook used in the Sargent & Lundy study.*
4 *Is this the same escalation rate that was used for capital and O&M costs*
5 *in the analyses performed by ACES Power Marketing? If not, why not?*

6
7 **Response)** None of the APM modeling took into consideration capital or fixed
8 O&M costs. Therefore, no escalation rate was used or needed.

9
10

11 **Witness)** Brian J. Azman

12

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1 **Item 14)** *Refer to BREC's Response to the Attorney General 1-7:*

2

3 *a. Do any of the modeling spreadsheets already provided*
4 *quantify the cost impact (undepreciated balances, cost of*
5 *dismantling the FGD, etc.) of the \$49.185 M retirement of*
6 *the Wilson scrubber?*

7 *b. Does the retirement of the Wilson scrubber vary depending*
8 *on the modeling scenario?*

9

10 **Response)**

11 a. Please see Big Rivers' responses to Item 22 of the Kentucky
12 Industrial Utility Customers' Second Request for Information,
13 and Item 4 of the Office of the Attorney General's Second
14 Request for Information for more detail regarding the partial
15 retirement of the existing Wilson scrubber.

16 b. Yes. Whether or not the partial retirement of the existing
17 Wilson scrubber occurs is dependent on the modeling scenario.
18 The Build Case, Partial Build Case, and Build/No Smelter Case
19 all involve a new scrubber at Wilson and a partial retirement of
20 the existing Wilson scrubber. Because the Buy Case and
21 Buy/No Smelter Case involve complying with MATS with control
22 equipment and complying with CSAPR by reducing generation,

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1 there is no partial retirement of the existing Wilson scrubber in
2 these scenarios.

3

4

5 **Witness)** Mark A. Hite

6

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1 **Item 15)** *Refer to BREC's Response to the Attorney General 1-77:*

2

3 *a. Is the modeling of the rolling 12-month average of*
4 *adjusted revenue present in any of the modeling*
5 *spreadsheets already provided?*

6 *i. If so, where?*

7 *ii. If not, produce such modeling in machine-readable*
8 *format.*

9

10 **Response)**

11 a. No. Modeling of the 12-month rolling average of total adjusted
12 revenue is not present in any of Big Rivers' financial models.
13 Big Rivers' financial model is generally designed to
14 accommodate monthly data for the first 2 years and annual data
15 thereafter. The intent behind using a 12-month rolling average
16 of total adjusted revenue on an actual basis, for purposes of
17 environmental surcharge cost allocation, is to smooth out
18 seasonal differences in energy and demand usage. Since Big
19 Rivers' financial model is calculating results on an annual basis,
20 seasonal smoothing is inherent in the results, and therefore
21 there is no need to calculate a 12-month rolling average of total

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1 adjusted revenue. In other words, for long-term financial
2 modeling purposes, doing so is unnecessary.

3

4

5 **Witness)** Mark A. Hite

6

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1 Item 16) *Refer to the "Sargent & Lundy Production to Big Rivers" folder*
2 *and the "BREC Fuel Cost.xls" workbook, to the "PACE Global Files" folder*
3 *and the "PACE_Big Rivers Data Request Inputs_120524.xlsx" workbook,*
4 *and the "ACES Power Marketing Files" folder and the "2012-26 IL Basin*
5 *price forecast for PCM (1-18-12) nominal.xlsx" workbook sent on the June*
6 *14 zip drive.*

7

8 a. *Why do the coal prices differ among the forecasts shown*
9 *in the files listed above?*

10 b. *Which forecast does BREC believe is a most likely forecast*
11 *of future coal prices?*

12

13 **Response)**

14 a. All the APM model runs used the coal prices that Pace
15 developed as part of the generation parameters. Differences
16 between the fuel prices mentioned above would have been due to
17 when they were created and the methodology used by Sargent &
18 Lundy or Pace. Please also see Big Rivers' response to Item 29
19 of Kentucky Industrial Utility Customers' Second Request for
20 Information.

21 b. Big Rivers considers the Pace fuel price forecast more likely of
22 the two since it is the more recent information.

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1 **Witness)** Robert W. Berry

2

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1 **Item 17) Refer to the Carbon Dioxide (“CO₂”) prices used or embedded**
2 **in Hite Financial Models.**

- 3
- 4 **a. See Exhibit Hite-4, row labeled “Build” and value in**
5 **column “Present Value”. Please confirm that the value**
6 **\$3,210.38 is derived from cell Q20 in the “NPV” tab of**
7 **“Financial Forecast (2012-2026) Build 03-08-2012.xlsx.” If**
8 **this is not the case, please provide a corrected statement**
9 **and citation to the correct file, and new files as required.**
- 10 **b. See Exhibit Hite-4, row labeled “Buy” and value in column**
11 **“Present Value”. Please confirm that the value \$3,920.80**
12 **is derived from cell Q20 in the “NPV” tab of “Financial**
13 **Forecast (2012-2026) Buy 03-08-2012.xlsx.” If this is not the**
14 **case, please provide a corrected statement and citation to**
15 **the correct file, and new files as required.**
- 16 **c. Please confirm that there is no CO₂ price used explicitly in**
17 **the “Financial Forecast” models underlying Exhibit Hite-4**
18 **in the variable costs of thermal generation. If there is a**
19 **CO₂ price used or embedded in the variable cost of**

Case No. 2012-00063

Response to SC 3-17

Witnesses: Mark A. Hite (a., b., and c.),
Brian J. Azman (d., e., f., and j.),
Patrick N. Augustine (g., h., i., and j.), and
Robert W. Berry (k.)

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- 1 *thermal generation, please explain how this price is*
2 *included and demonstrate a citation in the spreadsheet*
3 *models.*
- 4 *d. See file "Big Rivers 2012-2026 (CSAPR-MATS by equip)*
5 *sens 2 exhibits determin Rev 1 (2-2-12).xlsx." Please*
6 *confirm that the annual derived sales and purchase*
7 *prices (\$/MWh) are in nominal dollars.*
- 8 *e. Is there an embedded CO₂ price within the annual derived*
9 *market (sales and purchase) prices referenced here? If so,*
10 *please provide the embedded CO₂ price trajectory. Also, if*
11 *so, please reconcile the embedded CO₂ price in these sales*
12 *and purchase prices with the Company's response to AG 1-*
13 *58 and SC 1-10a-c.*
- 14 *f. Please identify the source of the values in columns B-E in*
15 *tab "Monthly Net Market Positions" of "Big Rivers 2012-*
16 *2026 (CSAPR-MATS by equip) sens 2 exhibits determin Rev*
17 *1 (2-2-12).xlsx." If the source of this data is in spreadsheet*
18 *form, please provide the spreadsheet in machine readable*
19 *format and other relevant source data as available.*

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Witnesses: Mark A. Hite (a., b., and c.),
Brian J. Azman (d., e., f., and j.),
Patrick N. Augustine (g., h., i., and j.), and
Robert W. Berry (k.)
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- 1 g. *Please confirm that the data in "PACE_Big Rivers Data*
2 *Request Inputs_120524.xlsx" was used to derive the data in*
3 *"PACE_Big Rivers Data Request Outputs_120524.xlsx." If*
4 *not, please explain in detail.*
- 5 h. *Please confirm that there is a CO₂ price embedded in*
6 *energy prices as shown in "PACE_Big Rivers Data Request*
7 *Outputs_120524.xlsx" tab "Output Hourly Energy Prices."*
8 *If not, please explain in detail the use of the CO₂ price in*
9 *the "Inputs" file.*
- 10 i. *See file "PACE_Big Rivers Data Request*
11 *Outputs_120524.xlsx" tab "Output Hourly Energy Prices."*
12 *Please confirm that annual average energy price, in real*
13 *2010\$, is within approximately 2% of the annual purchase*
14 *prices in file "Big Rivers 2012-2026 (CSAPR-MATS by*
15 *equip) sens 2 exhibits determin Rev 1 (2-2- 12).xlsx" for*
16 *years 2013 through 2021, and within 7% for years 2022-*
17 *2026.*
- 18 j. *If the market prices in file "Big Rivers 2012-2026 (CSAPR-*
19 *MATS by equip) sens 2 exhibits determin Rev 1 (2-2-*

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1 *12).xlsx” do not include an embedded CO₂ price, please*
2 *explain why the market prices are nearly identical*
3 *(within 2%) to the PACE derived market prices that do*
4 *include an embedded CO₂ price.*

5 *k. Is it reasonable to assume that a CO₂ price that would*
6 *impact market prices would not also impact the*
7 *generation cost of the BREC generating fleet?*
8 *i. If so, explain why.*
9 *ii. If not, identify the estimated impact and explain the*
10 *basis for that estimate.*

11
12 **Response)**

13 a. Confirmed.
14 b. Confirmed.
15 c. Confirmed.
16 d. Correct, these are in nominal dollars.
17 e. Pace had carbon costs in some of its iterations, so carbon had
18 some impact on those power prices. Wood Mackenzie did not
19 have a carbon cost in its long-term forecast.

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- 1 f. The source of this data is a temporary calculation spreadsheet
2 that is reused and not saved. However, a version of this file is
3 the 42MB file referenced in Item 7 above.
- 4 g. Confirmed.
- 5 h. Confirmed.
- 6 i. “PACE_Big Rivers Data Request Outputs_120524.xlsx”, “Output
7 Hourly Energy Prices” is in real 2010 dollars. Note that the
8 PACE data provided by Big Rivers to APM was provided in
9 nominal dollars. See the file “PCM (1-18-12) nominal.xlsx” and
10 Big Rivers’ response to Item 34 of Kentucky Industrial Utility
11 Customers’ Second Request for Information. Therefore, the two
12 files referenced in the question will not come within 2% because
13 it would be comparing real 2010 dollars to nominal.
- 14 j. The market prices in file “Big Rivers 2012-2026 (CSAPR-MATS
15 by equip) sens 2 exhibits determin Rev 1 (2-2-12).xlsx” are the
16 Pace nominal price forecast and therefore do include embedded
17 CO₂ price.
- 18 k. Big Rivers does not have adequate information to project
19 potential unit costs that may be caused by CO₂ if proposed

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1 legislation is enacted; however, because the Build Scenario was
2 more cost effective than the Buy scenario using APM prices,
3 which do not include CO2 impacts, Big Rivers would expect the
4 CO2 impact to market prices and our generation cost to offset
5 each other.

6
7
8 **Witnesses)** Mark A. Hite (a., b., and c.),
9 Brian J. Azman (d., e., f., and j.),
10 Patrick N. Augustine (g., h., i., and j.), and
11 Robert W. Berry (k.)
12

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1 **Item 18) *Refer to the Natural Gas Price Forecasts used in the modeling***
2 ***completed as part of this application:***

- 3
- 4 ***a. Please explain how the Natural Gas Price Forecast data***
5 ***in "2012-26 henry hub price forecast for PCM (1-18-12)***
6 ***nominal.xlsx" were used in the Hite financial model (e.g.***
7 ***"Financial Forecast (2012-2026) Buy 03-08-2012.xlsx") and***
8 ***in the PACE models, if at all.***
- 9 ***b. Please provide the date on which the natural gas price***
10 ***forecast in "2012-26 henry hub price forecast for PCM (1-***
11 ***18-12) nominal.xlsx" was derived.***
- 12 ***c. Please provide the work papers, documents, or analyses***
13 ***sources for the natural gas price forecast in "2012-26***
14 ***henry hub price forecast for PCM (1-18-12) nominal.xlsx."***
- 15 ***d. Please explain how the Natural Gas Price Forecasts, runs***
16 ***1-200, in the PACE input file ("PACE_Big Rivers Data***
17 ***Request Inputs_120524") were used in the PACE model.***
- 18 ***e. Please provide the date on which the natural gas price***
19 ***forecasts in the PACE input file were derived.***

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Response to SC 3-18

Witnesses: Brian J. Azman (a.),
Patrick N. Augustine (a., b., c., d., e., and f.), and
Robert W. Berry (g.)

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1 market understanding with market models incorporating the
2 latest market data to generate expected future energy price
3 scenarios. At the time of the analysis, Pace expected natural
4 gas prices to be in the \$4-5/MMBtu range in the 2012-2013 time
5 frame in line with market forwards. Beyond 2014 or 2015,
6 prices are expected to be closer to \$6/MMBtu, which is in line
7 with Pace's estimates of the all-in marginal cost of natural gas
8 production at the time. Longer-term, Pace expects natural gas
9 price increases as a result of increasing natural gas demand
10 from the power sector. The additional natural gas demand in
11 the power sector is expected to pressure the supply coming from
12 shale plays and result in higher marginal costs of production.
13 d. As mentioned in the response to part a. above, Pace's market
14 analysis relies on a fundamentals-based dispatch simulation.
15 Natural gas prices are a key component of the variable costs for
16 natural gas-fired generating units in the market and hence
17 impact the clearing price of energy when such units are
18 marginal. Pace's analysis incorporated 200 individual
19 fundamental market simulations, which varied natural gas
20 prices (among other market variables) as per Pace's input files.

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**Witnesses: Brian J. Azman (a.),
Patrick N. Augustine (a., b., c., d., e., and f.), and
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- 1 This analysis guided the reference case development, which is
2 representative of the mean outcome of our distribution.
- 3 e. Pace used input assumptions developed as part of its fourth
4 quarter 2011 datasets for this analysis. These were developed
5 in November 2011.
- 6 f. Pace's process for developing natural gas stochastic inputs
7 involves the following approach:
- 8 i. Identify three fundamental forward price curves using our
9 expert opinion on future market conditions based on the
10 market forwards at the time of an analysis (weighted at
11 70% probability) and plausible high and low scenarios
12 (weighted at 15% probability each).
- 13 ii. Deploy proprietary statistical Monte Carlo-based
14 algorithms developed in MATLAB to simulate long-term
15 price path outcomes around each of the three fundamental
16 forward price curves referenced in the step above.
- 17 iii. The final distribution is developed by drawing
18 appropriately weighted random samples from each of the
19 three distributions developed in the step above.
20

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1 The statistical approach that Pace has deployed is a mean-
2 reverting process, driven by a stochastic simulation that
3 introduces randomness to the fundamental price paths based on
4 observed historical volatility. Key elements of this process
5 include:
6 i. Volatility and mean reversion rates based on daily
7 historical price data;
8 ii. A mean reversion rate decay factor based on empirical data
9 and market knowledge and judgment;
10 iii. Long run equilibrium price levels equal to the forwards-
11 driven reference case projection, as well as high and low
12 states driven by larger quantum market events that may
13 deviate from the fundamental outlook as discussed above;
14 iv. Monte Carlo simulations of daily price;
15 v. Monthly spot prices are the average of all daily prices for
16 each simulation.
17 g. Big Rivers has not obtained a more recent natural gas price
18 forecast from Pace.
19
20

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1 **Witnesses)** Brian J. Azman (a.),
2 Patrick N. Augustine (a., b., c., d., e., and f.), and
3 Robert W. Berry (g.)
4

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- 1 Item 19) *Refer to the Operations and Maintenance (O&M) Costs in Hite*
2 *Financial Models. See files "Financial Forecast (2012-2026) Build 03-08-*
3 *2012.xlsx" ("Hite Financial Model") and "Big Rivers 2012-2026 (CSAPR-*
4 *MATS by equip) sens 2 exhibits determin Rev 1 (2- 12-12).xlsx" ("Financial*
5 *Inputs File")*
6
7 a. *Please confirm that in tab "PCM" of the Hite Financial*
8 *Model, O&M is accounted for in lines 119 through 135. If*
9 *other O&M costs are embedded in this model, please*
10 *indicate a citation to where these costs can be located.*
11 b. *Please confirm that these O&M costs are for*
12 *environmental compliance equipment. If not, please*
13 *describe which O&M costs are embedded in these values*
14 *and where the O&M costs for environmental compliance*
15 *equipment are accounted for.*
16 c. *Do these costs include any fixed O&M costs (i.e. O&M costs*
17 *incurred regardless of the unit runrate)?*
18 d. *Do these costs include the variable O&M cost of operating*
19 *non-environmental equipment at the Company's*
20 *generating units?*

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- 1 e. *Are any O&M costs (fixed or variable) of any of BRECs*
2 *units excluded from lines 120-134? If so, which O&M costs*
3 *are excluded and why?*
- 4 f. *Please explain why there are only costs in lines 121, 125,*
5 *128, 131, and 133, but there are VOM descriptions in all*
6 *other lines from 120-134.*
- 7 g. *Please provide a table of annual expected fixed and*
8 *variable O&M costs (separately) by unit from 2012 to 2026*
9 *under the "build" and "buy" scenarios.*

10

11 **Response)**

- 12 a. Lines 120 through 134 of the PCM tab contain the variable
13 environmental operations costs obtained from the associated
14 production cost model. Other variable O&M expenses include:
15 purchased power (lines 61 through 66 PCM tab), allowances
16 (lines 70 through 72 PCM tab), fuel purchased including start-
17 up (lines 20 through 59 PCM tab). Please note that fuel expense
18 is calculated using the weighted-average inventory cost
19 calculated per the Fuel tab.
- 20 b. As stated in Big Rivers' response to a. above, the O&M costs on
21 lines 120 through 134 of the PCM tab are variable
22 environmental operations costs.

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- 1 c. No.
- 2 d. No.
- 3 e. Lines 120-134 include only variable environmental costs from
- 4 the production cost model. They do not include fixed costs.
- 5 f. When Big Rivers prepares its detailed budget and financial plan
- 6 (comprising a 4-year calendar period) all lines 120-134 are
- 7 populated. Generally, production cost models prepared for
- 8 financial modeling purposes, such as the 15 year projections Big
- 9 Rivers filed in the instant proceeding, only the one line for total
- 10 non-fuel variable operations per station per the production cost
- 11 model is utilized.
- 12 g. Big Rivers generally does not account for fixed costs by
- 13 generating unit or by generating station for long-term financial
- 14 modeling purposes. Variable costs of generation by unit can be
- 15 found on the Annual Resource Report tab of the file titled "Big
- 16 Rivers 2012-2026 (CSAPR-MATS by equip) sens 2 exhibits
- 17 determin Rev 1 (2-12-12)" for the Build Case and the file titled
- 18 "Big Rivers 2012-2026 (CSAPR-MATS by gen) sens 1 v-limits (2)
- 19 exhibits determin (2-23-12)" for the Buy Case. All such files have
- 20 been previously provided in this case.
- 21
- 22 **Witness)** Mark A. Hite

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1 **Item 20)** *Does BREC have a mechanism or tariff for sharing costs or*
2 *revenues from off-system sales ("OSS")?*

3

4 *a. If so, please provide a copy of the tariff or mechanism.*

5

6 *b. Was the sharing of costs or revenues from OSS*
7 *incorporated into the Hite financial model or other BREC*

8

9 *i. If so, please explain how such costs or revenue were*
10 *incorporated for each model.*

11

12 *ii. For each model that such costs or revenues were not*
13 *incorporated into, explain why not.*

14

15 **Response)**

16

17 *a. Big Rivers has no tariff rider for sharing off-system sales net*
18 *sales margin (off-system sales revenue minus off-system sales*
19 *variable cost). Big Rivers' Fuel Adjustment Clause ("FAC"),*
20 *Non-FAC PPA, and Environmental Surcharge tariff riders do*
21 *allocate costs between Big Rivers' member sales and off-system*
22 *sales.*

23

24 *b. Please see Big Rivers' response to a. above.*

25

26 **Witness)** Mark A. Hite

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1 **Item 21) *Differences in Net Purchases in Financial Inputs Files. See***
2 ***tabs "Monthly Net Market Positions" in "Big Rivers 2012-2026 (CSAPR-***
3 ***MATS by equip) sens 2 exhibits determin Rev 1 (2-12-12).xlsx" (Build Case)***
4 ***and "Big Rivers 2012-2026 (CSAPR-MATS by gen) sens 1 v-limits (2)***
5 ***exhibits determin (2-23-12).xlsx" (Buy Case).***

6
7 **a. *Please explain the discrepancy between the sum of total***
8 ***purchases (MWh) (column D) between the Build and Buy***
9 ***Cases in the year 2012.***

10 **b. *Please explain the discrepancy between the sum of total***
11 ***purchases (MWh) (column D) between the Build and Buy***
12 ***Cases in the year 2013.***

13 **c. *Please explain the discrepancy between the sum of total***
14 ***purchases (MWh) (column D) between the Build and Buy***
15 ***Cases in the year 2014.***

16 **d. *Please explain the discrepancy between the sum of total***
17 ***purchases (MWh) (column D) between the Build and Buy***
18 ***Cases in the year 2015.***

19 **e. *Please explain the discrepancy between the sum of total***
20 ***purchases (MWh) (column D) between the Build and Buy***
21 ***Cases in the year 2016.***

22

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1 **Response)** "Total Purchases" is the sum of the "hourly net purchases" for the
2 month. "Hourly net purchases" are calculated by comparing Hourly Load and
3 Hourly Total Generation. Since all load is purchased from MISO and all
4 generation is sold to MISO, if the load is greater than the total generation, there is
5 a net PURCHASE that hour. If generation is greater than load, there is a net
6 SALE that hour. Each hour's net Purchase or Sale is calculated, then summarized
7 on this tab by month.

8 Each case has different assumptions for unit parameters, for
9 example, whether EPA regulations are met through control equipment or by
10 simply running the generators fewer hours. Each set of unit parameters yielded a
11 different total hourly generation, hence differences between the cases.

12

13

14 **Witness)** Brian J. Azman

15

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1 **Item 22)** *Refer to the "April 26 CD Information filed in Rsp to Motion to*
2 *Dismiss" folder sent on the June 14 zip drive. In the "Debt" tabs of the*
3 *Excel workbooks containing "Financial Forecast" as part of the file name*
4 *(Ex: Financial Forecast (2012-2026) Build 03-08-2012.xlsx).*

5

6 **a.** *Please define the term "Debt Issuance Costs" shown in cell*
7 *B118.*

8 **b.** *Please provide the work papers that show the derivation*
9 *of the value of Debt Issuance Costs of 3.69 shown in cell*
10 *AC118. Why was the value in cell AR8 multiplied by 1.3%?*

11

12 **Response)**

13 **a.** "Debt Issuance Costs" are the costs associated with the issuance
14 or assumption of debt securities. In accordance with Rural
15 Utilities Service ("RUS") guidelines, these costs are to be placed
16 in account 181-Unamortized Debt Expense and amortized over
17 the life of the associated debt.

18 **b.** There is no separate work paper showing the derivation of the
19 \$3.69 million in debt issuance costs. The value in cell AR8 (the
20 total amount borrowed for environmental compliance, \$283.49
21 million) is multiplied by 1.3%, to derive the estimated \$3.69
22 million debt issuance costs associated with a capital market

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1 financing. 1.3% represents an estimate of the capital market
2 financing costs for Big Rivers, based on experience, that would
3 be deferred and amortized over the life of the associated debt.
4 Should Big Rivers be successful in its current pursuit of a CFC
5 syndicated revolver for the interim financing and an RUS
6 guaranteed Federal Financing Bank loan for the permanent
7 financing, the refinancing cost Big Rivers would incur would
8 be significantly lower.

9
10
11
12

Witness) Mark A. Hite