



October 5, 2017

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*VIA FEDERAL EXPRESS*

Gwen R. Pinson  
Executive Director  
Public Service Commission  
211 Sower Boulevard, P.O. Box 615  
Frankfort, Kentucky 40602-0615

RECEIVED

OCT 6 2017

PUBLIC SERVICE  
COMMISSION

Re: *In the Matter of: an Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Big Rivers Electric Corporation for the Six-Month Billing Period Ending January 31, 2017, for the Two-Year Billing Period ending January 31, 2017 and the Pass Through Mechanism of its Three Member Distribution Cooperatives, PSC Case No. 2017-00345*

Dear Ms. Pinson:

Enclosed for filing in the above-referenced matter are an original and seven copies of: (i) Big Rivers Electric Corporation's responses to the Public Service Commission Staff's first request for information, and (ii) the Direct Testimony of Nicholas R. Castlen on behalf of Big Rivers Electric Corporation, Jackson Purchase Energy Corporation, Kenergy Corp., and Meade County Rural Cooperative Corporation. I certify that on this date, a copy of this letter and all attachments were served on all parties of record by first class mail.

Sincerely,

Tyson Kamuf

TAK/abg

Enclosures

cc: DeAnna Speed  
Dennis Cannon  
Jeffrey Hohn  
Marty Littrel

# ORIGINAL

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY

In the Matter of:

AN EXAMINATION  
BY THE PUBLIC SERVICE COMMISSION )  
OF THE ENVIRONMENTAL SURCHARGE )  
MECHANISM OF BIG RIVERS ELECTRIC )  
CORPORATION FOR THE )  
SIX-MONTH BILLING PERIOD ENDING )  
JANUARY 31, 2017, FOR THE TWO-YEAR )  
BILLING PERIOD ENDING JULY 31, 2017, )  
AND THE PASS THROUGH MECHANISM )  
FOR ITS THREE MEMBER DISTRIBUTION )  
COOPERATIVES )

Case No.  
2017-00345

RECEIVED

OCT 6 2017

PUBLIC SERVICE  
COMMISSION

DIRECT TESTIMONY

OF

NICHOLAS R. (NICK) CASTLEN

ON BEHALF OF

BIG RIVERS ELECTRIC CORPORATION,  
JACKSON PURCHASE ENERGY CORPORATION,  
KENERGY CORP., AND  
MEADE COUNTY RURAL ELECTRIC COOPERATIVE CORPORATION

FILED: October 6, 2017

Case No. 2017-00345  
Witness: Nicholas R. Castlen  
Page 1 of 10

1  
2  
3  
4

**DIRECT TESTIMONY  
OF  
NICHOLAS R. CASTLEN**

5 **Q. Please state your name, business address, and position.**

6 A. My name is Nicholas R. Castlen, and my business address is Big Rivers  
7 Electric Corporation (“Big Rivers”), 201 Third Street, Henderson, Kentucky,  
8 42420. I am the Manager of Finance at Big Rivers.

9 **Q. Please summarize your education and professional experience.**

10 A. I received a Bachelor of Science in Accounting from the University of  
11 Kentucky in 2006, graduating Magna Cum Laude with Departmental Honors  
12 in Accounting, and a Master of Science in Accounting from the University of  
13 Kentucky in 2007. I became a Certified Public Accountant (CPA) in the state  
14 of Kentucky in 2007.

15 Before assuming my current position as Manager of Finance in July  
16 2013, I was a Staff Accountant at Big Rivers primarily responsible for the  
17 accounting and administration of the Company’s long- and short-term debt  
18 obligations and various rate mechanisms. Prior to joining Big Rivers, I was  
19 a Revenue Accounting Analyst at LG&E and KU Energy LLC from December  
20 2009 to April 2012, where I was responsible for various financial accounting,  
21 reporting, and analysis roles for retail and wholesale, electric and gas utility  
22 revenues. From January 2006 to December 2009, I was employed by  
23 PricewaterhouseCoopers LLP as an Audit and Assurance Associate.

24

1 **Q. Please summarize your duties at Big Rivers.**

2 A. As the Manager of Finance, my primary responsibilities involve providing  
3 direction and oversight to corporate accounting and finance activities related  
4 to the Company's financial reporting requirements, debt administration,  
5 financial forecasting, cash management, taxes (income, property, sales, and  
6 use), and fixed assets. Additionally, I am responsible for Big Rivers' Fuel  
7 Adjustment Clause (FAC) and Environmental Surcharge (ES) rate  
8 mechanisms and the related filings with the Kentucky Public Service  
9 Commission (the "Commission").

10 **Q. Have you previously testified before the Commission?**

11 A. Yes. I have provided testimony and responses to data requests in Case Nos.  
12 2012-00534, 2013-00139, 2013-00347, 2014-00097, 2014-00323, 2015-00124,  
13 2015-00320, 2016-00124, and 2016-00368 (reviews of Big Rivers' ES  
14 mechanism). I have also served as a witness, providing testimony and/or  
15 responses to data requests, in Case Nos. 2012-00555, 2013-00266, 2013-  
16 00449, 2014-00230, 2014-00455, 2015-00237, 2016-00006, 2016-00235, 2017-  
17 00006, and 2017-00287 (reviews of Big Rivers' FAC mechanism).

18 **Q. On whose behalf are you filing this testimony?**

19 A. I am filing this testimony on behalf of Big Rivers and its three member  
20 distribution cooperatives, which are Jackson Purchase Energy Corporation  
21 ("JPEC"), Kenergy Corp. ("Kenergy"), and Meade County Rural Electric  
22 Cooperative Corporation ("Meade County") (collectively, the "Members").



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

2 A. The purpose of my testimony is to describe the application of Big Rivers' ES  
3 mechanism as billed from August 1, 2015, through July 31, 2017, (which  
4 corresponds to Big Rivers' expense months of June 2015 through May 2017).  
5 Additionally, I have coordinated with Big Rivers' Members in the preparation  
6 of this testimony and prepared responses to the Commission Staff's First  
7 Request for Information in this case, dated September 15, 2017, ("Staff's First  
8 Requests") which accompany this testimony.

9 This testimony also includes information the Members have provided  
10 me in support of their pass-through mechanisms which are also under review  
11 in this proceeding, and that the Members use to pass through, to their retail  
12 members, the costs Big Rivers charges to them under Big Rivers' ES  
13 mechanism. The review periods for the Members' pass-through mechanisms,  
14 which correspond to the August 2015 through July 2017 billing months for  
15 Big Rivers' ES mechanism, are the billing months of September 2015 through  
16 August 2017 for non-dedicated delivery point customers (*i.e.*, there is a one-  
17 month lag for non-dedicated delivery point customers) and August 2015  
18 through July 2017 for dedicated delivery point customers (*i.e.*, there is no  
19 billing lag for dedicated delivery point customers).

20 **Q. Please provide a brief overview of Big Rivers' ES mechanism.**

21 A. Big Rivers' ES mechanism was approved by Order of the Commission dated  
22 June 25, 2008, in Case No. 2007-00460, which was part of the transaction

1 that unwound Big Rivers' 1998 lease with E.ON U.S. LLC and its affiliates  
2 (the "Unwind Transaction") that was approved by Order of the Commission  
3 dated March 6, 2009, in Case No. 2007-00455. Big Rivers' ES went into effect  
4 immediately following the July 16, 2009, closing of the Unwind Transaction  
5 for service commencing July 17, 2009.

6 Big Rivers' environmental compliance plan, approved by the  
7 Commission in Case No. 2007-00460 (the "2007 Plan"), consists of programs  
8 and the related costs for controlling sulfur dioxide ("SO<sub>2</sub>"), nitrogen oxide  
9 ("NO<sub>x</sub>"), and sulfur trioxide ("SO<sub>3</sub>"). The environmental compliance costs,  
10 which Big Rivers may recover under KRS 278.183 and its 2007 Plan, include  
11 the costs of reagents, sludge and ash disposal, and emission allowances.

12 For the SO<sub>2</sub> program, Big Rivers recovers through its ES mechanism  
13 the costs of reagents, the costs for the disposal of coal combustion byproducts  
14 (fly ash, bottom ash, and scrubber sludge), and the costs of purchasing SO<sub>2</sub>  
15 emission allowances. For the NO<sub>x</sub> program, Big Rivers recovers the costs of  
16 reagents and the costs of purchasing additional NO<sub>x</sub> emission allowances as  
17 needed. For the SO<sub>3</sub> program, Big Rivers recovers reagent costs. Due to  
18 generating unit design differences and Big Rivers' compliance plan, each of  
19 Big Rivers' generating units utilizes a different combination of reagents.  
20 Depending on the unit facilities, various reagents are used to treat the flue  
21 gas, thereby removing the three targeted emissions. The reagents used to  
22 control SO<sub>2</sub> include emulsified sulfur, lime, fixation lime, limestone, dibasic

1 acid, and sodium bisulfite. The reagents used to control NO<sub>x</sub> include  
2 anhydrous ammonia and emulsified sulfur. The reagent used to control SO<sub>3</sub>  
3 is hydrated lime. Note that the 2007 Plan included only variable operations  
4 and maintenance (“O&M”) costs.

5 In its Order dated October 1, 2012, in Case No. 2012-00063, the  
6 Commission approved certain additions to Big Rivers’ 2007 Plan relating to  
7 the Mercury and Air Toxics Standards (MATS) rule. The additions (the “2012  
8 Plan”) included installing activated carbon injection and dry sorbent injection  
9 systems and emission control monitors at Big Rivers’ Coleman, Wilson, and  
10 Green generating stations; and installing emission control monitors at  
11 Henderson Municipal Power & Light’s Station Two generation station, which  
12 Big Rivers operates and has contractual rights to a portion of the station’s  
13 generation capacity. The 2012 Plan includes both capital and O&M costs  
14 associated with the projects, as well as recovery of Big Rivers’ actual costs  
15 incurred in Case No. 2012-00063 (amortized over three years).

16 Due to the terminations of retail power contracts with two aluminum  
17 smelters, Big Rivers idled its Coleman generation station in May 2014. As a  
18 result, Big Rivers does not plan to proceed with the MATS projects for the  
19 Coleman station at this time. However, if Big Rivers decides to return the  
20 Coleman station to service, it will be required to complete the MATS projects  
21 before doing so.

22 Big Rivers’ ES mechanism allows Big Rivers to recover costs related to

1 its 2007 Plan (which includes only variable O&M costs) and its 2012 Plan  
2 (which includes both O&M and capital costs, as well as a rate of return on  
3 the unrecovered portion of its capital costs), less proceeds from by-product  
4 and emission allowance sales, plus or minus an ongoing cumulative under-  
5 or over-recovery adjustment.

6 **Q. Please provide a brief overview of the Members' pass-through**  
7 **mechanisms.**

8 A. The Members' pass-through mechanisms allow each Member to bill its retail  
9 customers for the portion of Big Rivers' environmental surcharge that it was  
10 billed. JPEC's pass-through mechanism was approved by the Commission in  
11 Case No. 2008-00010; Kenergy's pass-through mechanism was approved by  
12 the Commission in Case No. 2008-00009; and Meade County's pass-through  
13 mechanism was approved by the Commission in Case No. 2007-00470.

14 **Q. Have there been any changes to Big Rivers' ES mechanism since the**  
15 **prior review?**

16 A. No.

17 **Q. Has Big Rivers' ES mechanism been accurately compiled, and is it**  
18 **operating as intended?**

19 A. Yes.

20 **Q. Did Big Rivers sell any SO<sub>2</sub> or NO<sub>x</sub> allowances during the expense**  
21 **months corresponding to the billing periods under review in this**  
22 **case?**

1 A. Yes.

2 In June 2015, Big Rivers sold 1,000 CSAPR Seasonal NOx Emission  
3 Allowances, vintage 1/1/2015 – 12/31/2015, and 1,000 CSAPR Annual NOx  
4 Emission Allowances, vintage 1/1/2015 – 12/31/2015, to Houston Galveston  
5 Brazoria Energy Ventures LLC for \$140,000 and \$135,000, respectively.  
6 After accounting for broker fees of \$10,000, Big Rivers' net proceeds from  
7 these sales were \$265,000, which Big Rivers included in its ES filing for the  
8 June 2015 expense month as proceeds from "Allowance Sales" on ES Form  
9 2.00.

10 In April 2016, Big Rivers received \$62.15 from the U.S. Environmental  
11 Protection Agency (EPA) for its allocated share of proceeds from the EPA's  
12 2016 allowance auctions. Big Rivers included \$91.00 in its ES filing for the  
13 April 2016 expense month as proceeds from "Allowance Sales" on ES Form  
14 2.00, which consisted of the \$62.15 received from the EPA in April 2016 for  
15 the 2016 allowance auctions plus a prior period adjustment of \$29.00.

16 In April 2017, Big Rivers received \$53.78 from the EPA for its allocated  
17 share of proceeds from the EPA's 2017 allowance auctions. Big Rivers  
18 included the \$53.78 (rounded up to \$54.00) in its ES filing for the April 2017  
19 expense month as proceeds from "Allowance Sales" on ES Form 2.00.

20 **Q. Did Big Rivers recover any capital costs through its ES mechanism**  
21 **during the period under review?**

22 A. Yes. Pursuant to the Commission's October 1, 2012 Order, in Case No. 2012-



1 00063, Big Rivers recovered capital costs through the monthly depreciation  
2 of its 2012 Plan projects included in the calculation of Total E(m) in its  
3 monthly ES filings during the period under review.

4 **Q. Did Big Rivers earn a rate of return on any capital expenditures**  
5 **through its ES mechanism during the period under review?**

6 A. Yes. Pursuant to the Commission's October 1, 2012 Order, in Case No. 2012-  
7 00063, Big Rivers' earned a rate of return on its Environmental Compliance  
8 Rate Base (calculated on Form 2.00 of its monthly ES filing) equal to its  
9 monthly weighted average cost of debt plus the application of a Times  
10 Interest Earned Ratio (TIER) of 1.24. Detailed calculations of Big Rivers'  
11 monthly Rates of Return on Environmental Compliance Rate Base, for the  
12 six-month review period and the last six expense months in the two-year  
13 review period, are provided in Big Rivers' response to Item 4 of Staff's First  
14 Request.

15 **Q. What Base Environmental Surcharge Factor (BESF) cost did Big**  
16 **Rivers use during the review period?**

17 A. Big Rivers had no environmental surcharge related costs included in its base  
18 rates during the review period (i.e. Big Rivers BESF during the review period  
19 was 0.000000%).

20 **Q. Have the Members' pass-through mechanisms been accurately**  
21 **compiled, and are they operating as intended?**

22 A. The Members believe their pass-through mechanisms have been accurately

1 compiled and are operating as intended.

2 **Q. Were the amounts charged under Big Rivers' ES mechanism during**  
3 **the review period just and reasonable?**

4 A. Yes.

5 **Q. Were the amounts charged under the Members' pass-through**  
6 **mechanisms during the review period just and reasonable?**

7 A. The Members believe the amounts charged under their pass-through  
8 mechanisms are just and reasonable.

9 **Q. Do Big Rivers and its Members have additional over- or under-**  
10 **recovery amounts they believe need to be recognized?**

11 A. No. Big Rivers and its Members are not requesting any additional over- or  
12 under-recovery amounts. The normal over-/under-recovery carry-forward  
13 element of Big Rivers' ES mechanism is operating as intended.

14 **Q. Is Big Rivers proposing to incorporate an environmental surcharge**  
15 **amount into its existing base rates at this time?**

16 A. No, Big Rivers is not proposing to incorporate an environmental surcharge  
17 amount into its existing base rates at this time.

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

19 A. Yes, it does.

**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM  
OF BIG RIVERS ELECTRIC CORPORATION  
FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
FOR THE TWO-YEAR BILLING PERIOD ENDING JULY 31, 2017  
AND THE PASS THROUGH MECHANISM  
OF ITS THREE MEMBER DISTRIBUTION COOPERATIVES  
CASE NO. 2017-00345**

**VERIFICATION**

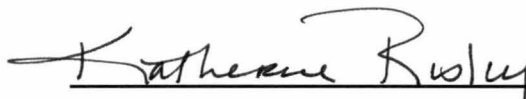
I, Nicholas R. (Nick) Castlen, verify, state, and affirm that I prepared or supervised the preparation of the Direct Testimony filed with this Verification, and that Direct Testimony is true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.



\_\_\_\_\_  
Nicholas R. (Nick) Castlen

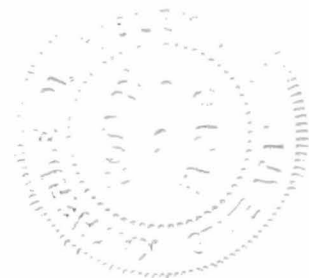
COMMONWEALTH OF KENTUCKY )  
COUNTY OF HENDERSON )

SUBSCRIBED AND SWORN TO before me by Nicholas R. (Nick) Castlen on this the 2nd day of October, 2017.



\_\_\_\_\_  
Notary Public, Kentucky State at Large

My Commission Expires 10-31-2020



**ORIGINAL**



Your Touchstone Energy® Cooperative 

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY**

**In the Matter of:**

**AN EXAMINATION  
BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE  
MECHANISM OF BIG RIVERS ELECTRIC  
CORPORATION FOR THE  
SIX-MONTH BILLING PERIOD ENDING  
JANUARY 31, 2017, FOR THE TWO-YEAR  
BILLING PERIOD ENDING JULY 31, 2017  
AND THE PASS THROUGH MECHANISM  
OF ITS THREE MEMBER DISTRIBUTION  
COOPERATIVES**

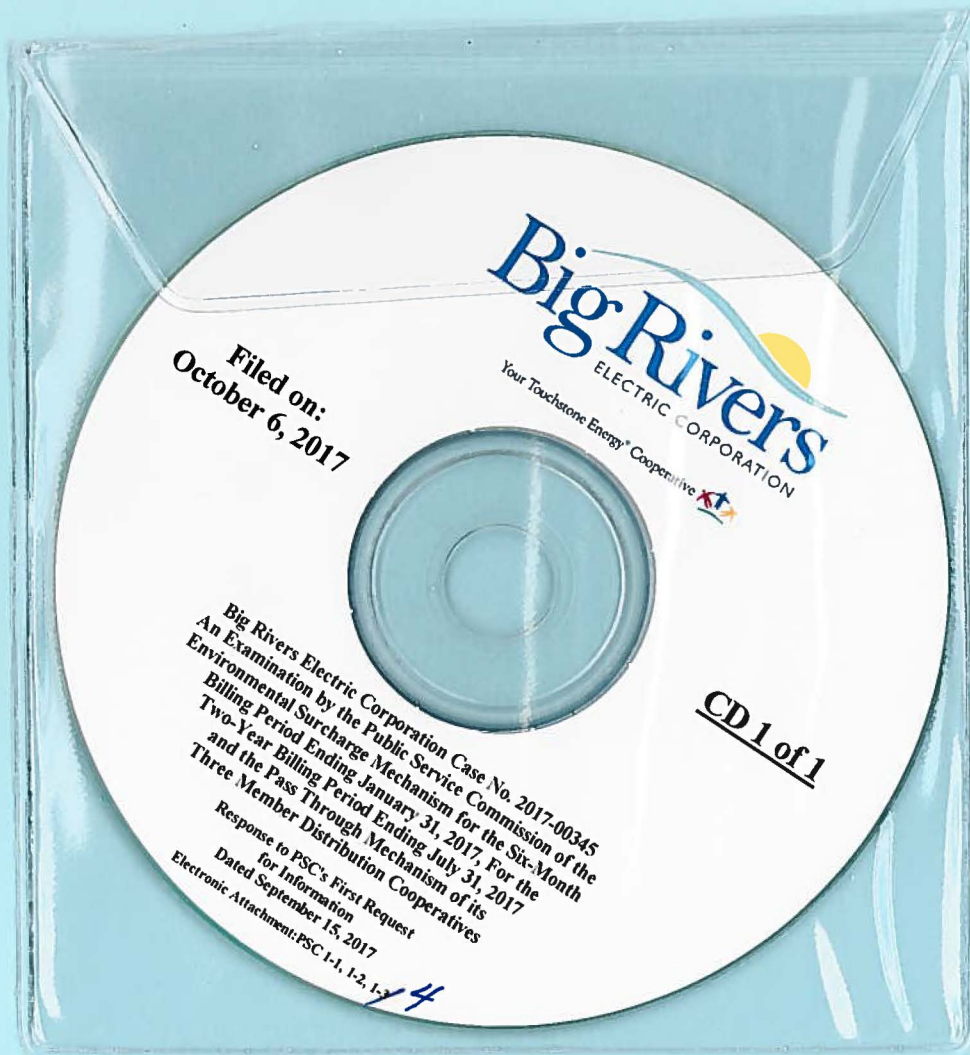
**Case No.  
2017-00345**

**Responses to Commission Staff's  
First Request for Information  
dated September 15, 2017**

**FILED:      October 6, 2017**

**ORIGINAL**





**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM OF BIG RIVERS  
ELECTRIC CORPORATION FOR THE SIX-MONTH BILLING PERIOD ENDING  
JANUARY 31, 2017, FOR THE TWO-YEAR BILLING PERIOD ENDING  
JULY 31, 2017 AND THE PASS THROUGH MECHANISM  
OF ITS THREE MEMBER DISTRIBUTION COOPERATIVES  
CASE NO. 2017-00345**

**Responses to Commission Staff's  
First Request for Information dated  
September 15, 2017**

**October 6, 2017**

**Information filed on CDs accompanying responses**

PSC 1-1 – Calc. of Billing Factors - CN 2017-00345

PSC 1-2 – Member Pass-Thru Schedules - CN 2017-00345

PSC 1-4 – Monthly ROR Calc. – CN 2017-00345



**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM  
OF BIG RIVERS ELECTRIC CORPORATION  
FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
FOR THE TWO-YEAR BILLING PERIOD ENDING JULY 31, 2017  
AND THE PASS THROUGH MECHANISM  
OF ITS THREE MEMBER DISTRIBUTION COOPERATIVES  
CASE NO. 2017-00345**

**VERIFICATION**

I, Roger D. Hickman, verify, state, and affirm that the data request responses filed with this verification for which I am listed as a witness are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.



\_\_\_\_\_  
Roger D. Hickman

COMMONWEALTH OF KENTUCKY )  
COUNTY OF HENDERSON )

SUBSCRIBED AND SWORN TO before me by Roger D. Hickman on this the  
2nd day of October, 2017.



\_\_\_\_\_  
Notary Public, Kentucky State at Large

My Commission Expires 10-31-2020



**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM  
OF BIG RIVERS ELECTRIC CORPORATION  
FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
FOR THE TWO-YEAR BILLING PERIOD ENDING JULY 31, 2017  
AND THE PASS THROUGH MECHANISM  
OF ITS THREE MEMBER DISTRIBUTION COOPERATIVES  
CASE NO. 2017-00345**

**VERIFICATION**

I, Nicholas R. (Nick) Castlen, verify, state, and affirm that the data request responses filed with this verification for which I am listed as a witness are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.



\_\_\_\_\_  
Nicholas R. (Nick) Castlen

COMMONWEALTH OF KENTUCKY )  
COUNTY OF HENDERSON )

SUBSCRIBED AND SWORN TO before me by Nicholas R. (Nick) Castlen on this the 2nd day of October, 2017.



\_\_\_\_\_  
Notary Public, Kentucky State at Large

My Commission Expires 10-31-2020

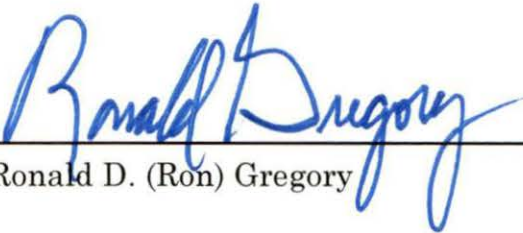


**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM  
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FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
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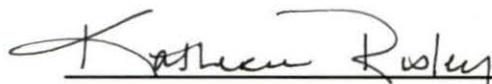
**VERIFICATION**

I, Ronald D. (Ron) Gregory, verify, state, and affirm that the data request responses filed with this verification for which I am listed as a witness are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

  
\_\_\_\_\_  
Ronald D. (Ron) Gregory

COMMONWEALTH OF KENTUCKY )  
COUNTY OF HENDERSON )

SUBSCRIBED AND SWORN TO before me by Ronald D. (Ron) Gregory on this the 2nd day of October, 2017.

  
\_\_\_\_\_  
Notary Public, Kentucky State at Large  
My Commission Expires 10-31-2020



**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM  
OF BIG RIVERS ELECTRIC CORPORATION  
FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
FOR THE TWO-YEAR BILLING PERIOD ENDING JULY 31, 2017  
AND THE PASS THROUGH MECHANISM  
OF ITS THREE MEMBER DISTRIBUTION COOPERATIVES  
CASE NO. 2017-00345**

**Response to Commission Staff's  
First Request for Information  
dated September 15, 2017**

**October 6, 2017**

1 **Item 1)** *Prepare a summary schedule showing the calculation of E(m)*  
2 *and the surcharge factor for the expense months covered by the billing*  
3 *periods under review. Form 1.1 can be used as a model for this summary.*  
4 *Include the expense months for the two expense months subsequent to the*  
5 *billing period in order to show the over- and under-recovery adjustments*  
6 *for the months included for the billing periods. Include a calculation of*  
7 *any additional over- or under-recovery amount Big Rivers believes needs to*  
8 *be recognized for the six-month and two-year reviews. Provide all*  
9 *supporting calculations and documentation in Excel spreadsheet format*  
10 *with formulas intact and unprotected and all rows and columns fully*  
11 *accessible.*

12

13 **Response)** Please see the attached schedule, in the format of Form 1.10, covering  
14 each of the expense months from June 2015 through July 2017 (*i.e.*, the expense  
15 months covered by the billing periods under review plus the two expense months  
16 subsequent to the billing periods).

**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
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FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
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CASE NO. 2017-00345**

**Response to Commission Staff's  
First Request for Information  
dated September 15, 2017**

**October 6, 2017**

1           All supporting calculations and documentation are also provided in  
2 Excel spreadsheet format with formulas intact and unprotected and all rows and  
3 columns fully accessible, on the CD accompanying these responses.

4           No additional over- or under-recovery is being requested by Big Rivers  
5 for the billing periods under review.

6

7

8 **Witness)**   Nicholas R. Castlen

9



# Big Rivers Electric Corporation

## Case No. 2017-00345

### Calculation of Total E(m) and Calculation of Jurisdictional Environmental Surcharge Billing Factor

**For the Expense Months: June 2015 to July 2017**

1	<b>Calculation of Total E(m)</b>			
2	E(m) = OE - BAS + RORB, where			
3	OE	=	Pollution Control Operating Expenses	
4	BAS	=	Total Proceeds from By-Product and Allowance Sales	
5	RORB	=	[ (RB/12) x (RORORB) ]	
6			<b>June 2015</b>	<b>July 2015</b>
7	OE	= \$	1,898,121	= \$ 2,131,101
8	BAS	= \$	265,000	= \$ -
9	RORB	= \$	96,799	= \$ 98,117
10	E(m)	= \$	1,729,920	= \$ 2,229,218
11				
12	<b>Calculation of Jurisdictional Environmental Surcharge Billing Factor</b>			
13	Member System Allocation Ratio for the Month (Form 3.00)	=	51.987137%	= 52.744468%
14	Subtotal E(m) = Subtotal E(m) x Member System Allocation Ratio	= \$	899,336	= \$ 1,175,789
15	Adjustment for (Over)/Under Recovery, as applicable (Form 2.00)	= \$	87,097	= \$ 8,885
16	Prior Period Adjustment	= \$	-	= \$ -
17	E(m) = Subtotal E(m) plus (Over)/Under Recovery plus Prior Period Adjustment	= \$	986,433	= \$ 1,184,674
18	R(m) = Average Monthly Member System Revenue for the 12 Months Ending with the Current Expense Month (Form 3.00)	= \$	17,368,364	= \$ 17,411,186
19	CESF: E(m) / R(m); as a % of Revenue	=	5.679481%	= 6.804097%
20				
21	<b>Calculation of Total E(m)</b>			
22	E(m) = OE - BAS + RORB, where			
23	OE	=	Pollution Control Operating Expenses	
24	BAS	=	Total Proceeds from By-Product and Allowance Sales	
25	RORB	=	[ (RB/12) x (RORORB) ]	
26			<b>August 2015</b>	<b>September 2015</b>
27	OE	= \$	1,719,110	= \$ 1,581,768
28	BAS	= \$	-	= \$ -
29	RORB	= \$	103,520	= \$ 107,666
30	E(m)	= \$	1,822,630	= \$ 1,689,434
31				
32	<b>Calculation of Jurisdictional Environmental Surcharge Billing Factor</b>			
33	Member System Allocation Ratio for the Month (Form 3.00)	=	57.180977%	= 56.910382%
34	Subtotal E(m) = Subtotal E(m) x Member System Allocation Ratio	= \$	1,042,198	= \$ 961,463
35	Adjustment for (Over)/Under Recovery, as applicable (Form 2.00)	= \$	(94,975)	= \$ (42,678)
36	Prior Period Adjustment	= \$	-	= \$ -
37	E(m) = Subtotal E(m) plus (Over)/Under Recovery plus Prior Period Adjustment	= \$	947,223	= \$ 918,785
38	R(m) = Average Monthly Member System Revenue for the 12 Months Ending with the Current Expense Month (Form 3.00)	= \$	17,345,862	= \$ 17,389,421
39	CESF: E(m) / R(m); as a % of Revenue	=	5.460801%	= 5.283586%

# Big Rivers Electric Corporation

## Case No. 2017-00345

### Calculation of Total E(m) and Calculation of Jurisdictional Environmental Surcharge Billing Factor

**For the Expense Months: June 2015 to July 2017**

1	<b>Calculation of Total E(m)</b>			
2	E(m) = OE - BAS + RORB, where			
3	OE	=	Pollution Control Operating Expenses	
4	BAS	=	Total Proceeds from By-Product and Allowance Sales	
5	RORB	=	[ (RB/12) x (RORORB) ]	
6			<b>October 2015</b>	<b>November 2015</b>
7	OE	= \$	1,229,631	= \$ 1,702,136
8	BAS	= \$	-	= \$ -
9	RORB	= \$	111,867	= \$ 126,055
10	E(m)	= \$	1,341,498	= \$ 1,828,191
11				
12	<b>Calculation of Jurisdictional Environmental Surcharge Billing Factor</b>			
13	Member System Allocation Ratio for the Month (Form 3.00)	=	55.141710%	= 53.992825%
14	Subtotal E(m) = Subtotal E(m) x Member System Allocation Ratio	= \$	739,725	= \$ 987,092
15	Adjustment for (Over)/Under Recovery, as applicable (Form 2.00)	= \$	20,112	= \$ 113,981
16	Prior Period Adjustment	= \$	-	= \$ -
17	E(m) = Subtotal E(m) plus (Over)/Under Recovery plus Prior Period Adjustment	= \$	759,837	= \$ 1,101,073
18	R(m) = Average Monthly Member System Revenue for the 12 Months Ending with the Current Expense Month (Form 3.00)	= \$	17,475,377	= \$ 17,322,617
19	CESF: E(m) / R(m); as a % of Revenue	=	4.348044%	= 6.356274%
20				
21	<b>Calculation of Total E(m)</b>			
22	E(m) = OE - BAS + RORB, where			
23	OE	=	Pollution Control Operating Expenses	
24	BAS	=	Total Proceeds from By-Product and Allowance Sales	
25	RORB	=	[ (RB/12) x (RORORB) ]	
26			<b>December 2015</b>	<b>January 2016</b>
27	OE	= \$	1,872,922	= \$ 1,849,337
28	BAS	= \$	-	= \$ -
29	RORB	= \$	133,327	= \$ 136,469
30	E(m)	= \$	2,006,249	= \$ 1,985,806
31				
32	<b>Calculation of Jurisdictional Environmental Surcharge Billing Factor</b>			
33	Member System Allocation Ratio for the Month (Form 3.00)	=	56.541927%	= 55.996848%
34	Subtotal E(m) = Subtotal E(m) x Member System Allocation Ratio	= \$	1,134,372	= \$ 1,111,989
35	Adjustment for (Over)/Under Recovery, as applicable (Form 2.00)	= \$	81,322	= \$ 27,742
36	Prior Period Adjustment	= \$	-	= \$ -
37	E(m) = Subtotal E(m) plus (Over)/Under Recovery plus Prior Period Adjustment	= \$	1,215,694	= \$ 1,139,731
38	R(m) = Average Monthly Member System Revenue for the 12 Months Ending with the Current Expense Month (Form 3.00)	= \$	17,246,273	= \$ 17,268,784
39	CESF: E(m) / R(m); as a % of Revenue	=	7.049024%	= 6.599949%

# Big Rivers Electric Corporation

## Case No. 2017-00345

### Calculation of Total E(m) and Calculation of Jurisdictional Environmental Surcharge Billing Factor

**For the Expense Months: June 2015 to July 2017**

1	<b>Calculation of Total E(m)</b>			
2	E(m) = OE - BAS + RORB, where			
3	OE	=	Pollution Control Operating Expenses	
4	BAS	=	Total Proceeds from By-Product and Allowance Sales	
5	RORB	=	[ (RB/12) x (RORORB) ]	
6			<b>February 2016</b>	<b>March 2016</b>
7	OE	= \$	2,249,027	= \$ 2,307,761
8	BAS	= \$	-	= \$ -
9	RORB	= \$	140,988	= \$ 145,515
10	E(m)	= \$	2,390,015	= \$ 2,453,276
11				
12	<b>Calculation of Jurisdictional Environmental Surcharge Billing Factor</b>			
13	Member System Allocation Ratio for the Month (Form 3.00)	=	51.800691%	= 52.377123%
14	Subtotal E(m) = Subtotal E(m) x Member System Allocation Ratio	= \$	1,238,044	= \$ 1,284,955
15	Adjustment for (Over)/Under Recovery, as applicable (Form 2.00)	= \$	(263,421)	= \$ (76,323)
16	Prior Period Adjustment	= \$	-	= \$ -
17	E(m) = Subtotal E(m) plus (Over)/Under Recovery plus Prior Period Adjustment	= \$	974,623	= \$ 1,208,632
18	R(m) = Average Monthly Member System Revenue for the 12 Months Ending with the Current Expense Month (Form 3.00)	= \$	17,090,025	= \$ 16,866,302
19	CESF: E(m) / R(m); as a % of Revenue	=	5.702876%	= 7.165957%
20				
21	<b>Calculation of Total E(m)</b>			
22	E(m) = OE - BAS + RORB, where			
23	OE	=	Pollution Control Operating Expenses	
24	BAS	=	Total Proceeds from By-Product and Allowance Sales	
25	RORB	=	[ (RB/12) x (RORORB) ]	
26			<b>April 2016</b>	<b>May 2016</b>
27	OE	= \$	2,551,737	= \$ 2,392,474
28	BAS	= \$	91	= \$ -
29	RORB	= \$	150,733	= \$ 151,647
30	E(m)	= \$	2,702,379	= \$ 2,544,121
31				
32	<b>Calculation of Jurisdictional Environmental Surcharge Billing Factor</b>			
33	Member System Allocation Ratio for the Month (Form 3.00)	=	48.671082%	= 47.519361%
34	Subtotal E(m) = Subtotal E(m) x Member System Allocation Ratio	= \$	1,315,277	= \$ 1,208,950
35	Adjustment for (Over)/Under Recovery, as applicable (Form 2.00)	= \$	86,801	= \$ 187,590
36	Prior Period Adjustment	= \$	-	= \$ -
37	E(m) = Subtotal E(m) plus (Over)/Under Recovery plus Prior Period Adjustment	= \$	1,402,078	= \$ 1,396,540
38	R(m) = Average Monthly Member System Revenue for the 12 Months Ending with the Current Expense Month (Form 3.00)	= \$	16,953,598	= \$ 16,963,212
39	CESF: E(m) / R(m); as a % of Revenue	=	8.270091%	= 8.232757%

# Big Rivers Electric Corporation

## Case No. 2017-00345

### Calculation of Total E(m) and Calculation of Jurisdictional Environmental Surcharge Billing Factor

**For the Expense Months: June 2015 to July 2017**

1	<b>Calculation of Total E(m)</b>			
2	E(m) = OE · BAS + RORB, where			
3	OE	=	Pollution Control Operating Expenses	
4	BAS	=	Total Proceeds from By-Product and Allowance Sales	
5	RORB	=	[ (RB/12) x (RORORB) ]	
6			<b>June 2016</b>	<b>July 2016</b>
7	OE	= \$	2,469,374	= \$ 2,989,315
8	BAS	= \$	-	= \$ -
9	RORB	= \$	152,733	= \$ 153,253
10	E(m)	= \$	2,622,107	= \$ 3,142,568
11				
12	<b>Calculation of Jurisdictional Environmental Surcharge Billing Factor</b>			
13	Member System Allocation Ratio for the Month (Form 3.00)	=	62.839495%	= 50.995850%
14	Subtotal E(m) = Subtotal E(m) x Member System Allocation Ratio	= \$	1,647,719	= \$ 1,602,579
15	Adjustment for (Over)/Under Recovery, as applicable (Form 2.00)	= \$	138,891	= \$ (170,306)
16	Prior Period Adjustment	= \$	-	= \$ -
17	E(m) = Subtotal E(m) plus (Over)/Under Recovery plus Prior Period Adjustment	= \$	1,786,610	= \$ 1,432,273
18	R(m) = Average Monthly Member System Revenue for the 12 Months Ending with the Current Expense Month (Form 3.00)	= \$	17,109,244	= \$ 17,191,379
19	CESF: E(m) / R(m); as a % of Revenue	=	10.442367%	= 8.331344%
20				
21	<b>Calculation of Total E(m)</b>			
22	E(m) = OE · BAS + RORB, where			
23	OE	=	Pollution Control Operating Expenses	
24	BAS	=	Total Proceeds from By-Product and Allowance Sales	
25	RORB	=	[ (RB/12) x (RORORB) ]	
26			<b>August 2016</b>	<b>September 2016</b>
27	OE	= \$	2,971,188	= \$ 2,398,951
28	BAS	= \$	-	= \$ -
29	RORB	= \$	153,755	= \$ 154,804
30	E(m)	= \$	3,124,943	= \$ 2,553,755
31				
32	<b>Calculation of Jurisdictional Environmental Surcharge Billing Factor</b>			
33	Member System Allocation Ratio for the Month (Form 3.00)	=	51.409583%	= 55.333397%
34	Subtotal E(m) = Subtotal E(m) x Member System Allocation Ratio	= \$	1,606,520	= \$ 1,413,079
35	Adjustment for (Over)/Under Recovery, as applicable (Form 2.00)	= \$	(304,602)	= \$ (244,224)
36	Prior Period Adjustment	= \$	-	= \$ -
37	E(m) = Subtotal E(m) plus (Over)/Under Recovery plus Prior Period Adjustment	= \$	1,301,918	= \$ 1,168,855
38	R(m) = Average Monthly Member System Revenue for the 12 Months Ending with the Current Expense Month (Form 3.00)	= \$	17,365,075	= \$ 17,627,328
39	CESF: E(m) / R(m); as a % of Revenue	=	7.497336%	= 6.630926%

# Big Rivers Electric Corporation

## Case No. 2017-00345

### Calculation of Total E(m) and Calculation of Jurisdictional Environmental Surcharge Billing Factor

**For the Expense Months: June 2015 to July 2017**

1	<b>Calculation of Total E(m)</b>			
2	E(m) = OE - BAS + RORB, where			
3	OE	=	Pollution Control Operating Expenses	
4	BAS	=	Total Proceeds from By-Product and Allowance Sales	
5	RORB	=	[ (RB/12) x (RORORB) ]	
6			<b>October 2016</b>	<b>November 2016</b>
7	OE	= \$	2,350,822	= \$ 2,797,488
8	BAS	= \$	-	= \$ -
9	RORB	= \$	153,979	= \$ 152,699
10	E(m)	= \$	2,504,801	= \$ 2,950,187
11				
12	<b>Calculation of Jurisdictional Environmental Surcharge Billing Factor</b>			
13	Member System Allocation Ratio for the Month (Form 3.00)	=	64.862768%	= 64.169567%
14	Subtotal E(m) = Subtotal E(m) x Member System Allocation Ratio	= \$	1,624,683	= \$ 1,893,122
15	Adjustment for (Over)/Under Recovery, as applicable (Form 2.00)	= \$	(206,892)	= \$ 99,610
16	Prior Period Adjustment	= \$	-	= \$ -
17	E(m) = Subtotal E(m) plus (Over)/Under Recovery plus Prior Period Adjustment	= \$	1,417,791	= \$ 1,992,732
18	R(m) = Average Monthly Member System Revenue for the 12 Months Ending with the Current Expense Month (Form 3.00)	= \$	17,701,743	= \$ 17,855,946
19	CESF: E(m) / R(m); as a % of Revenue	=	8.009330%	= 11.160047%
20				
21	<b>Calculation of Total E(m)</b>			
22	E(m) = OE - BAS + RORB, where			
23	OE	=	Pollution Control Operating Expenses	
24	BAS	=	Total Proceeds from By-Product and Allowance Sales	
25	RORB	=	[ (RB/12) x (RORORB) ]	
26			<b>December 2016</b>	<b>January 2017</b>
27	OE	= \$	2,938,274	= \$ 2,839,057
28	BAS	= \$	-	= \$ -
29	RORB	= \$	152,124	= \$ 152,150
30	E(m)	= \$	3,090,398	= \$ 2,991,207
31				
32	<b>Calculation of Jurisdictional Environmental Surcharge Billing Factor</b>			
33	Member System Allocation Ratio for the Month (Form 3.00)	=	61.100409%	= 63.371926%
34	Subtotal E(m) = Subtotal E(m) x Member System Allocation Ratio	= \$	1,888,246	= \$ 1,895,585
35	Adjustment for (Over)/Under Recovery, as applicable (Form 2.00)	= \$	19,723	= \$ (386,121)
36	Prior Period Adjustment	= \$	-	= \$ -
37	E(m) = Subtotal E(m) plus (Over)/Under Recovery plus Prior Period Adjustment	= \$	1,907,969	= \$ 1,509,464
38	R(m) = Average Monthly Member System Revenue for the 12 Months Ending with the Current Expense Month (Form 3.00)	= \$	18,225,081	= \$ 18,250,846
39	CESF: E(m) / R(m); as a % of Revenue	=	10.468919%	= 8.270652%



# Big Rivers Electric Corporation

## Case No. 2017-00345

### Calculation of Total E(m) and Calculation of Jurisdictional Environmental Surcharge Billing Factor

**For the Expense Months: June 2015 to July 2017**

1	<b>Calculation of Total E(m)</b>			
2	E(m) = OE - BAS + RORB, where			
3	OE	=	Pollution Control Operating Expenses	
4	BAS	=	Total Proceeds from By-Product and Allowance Sales	
5	RORB	=	[ (RB/12) x (RORORB) ]	
6			<b>February 2017</b>	<b>March 2017</b>
7	OE	= \$	1,584,736	= \$ 1,698,587
8	BAS	= \$	-	= \$ -
9	RORB	= \$	155,077	= \$ 148,730
10	E(m)	= \$	1,739,813	= \$ 1,847,317
11				
12	<b>Calculation of Jurisdictional Environmental Surcharge Billing Factor</b>			
13	Member System Allocation Ratio for the Month (Form 3.00)	=	73.961758%	= 69.694296%
14	Subtotal E(m) = Subtotal E(m) x Member System Allocation Ratio	= \$	1,286,796	= \$ 1,287,475
15	Adjustment for (Over)/Under Recovery, as applicable (Form 2.00)	= \$	(321,119)	= \$ 45,765
16	Prior Period Adjustment	= \$	121,249	= \$ -
17	E(m) = Subtotal E(m) plus (Over)/Under Recovery plus Prior Period Adjustment	= \$	1,086,926	= \$ 1,333,240
18	R(m) = Average Monthly Member System Revenue for the 12 Months Ending with the Current Expense Month (Form 3.00)	= \$	18,190,204	= \$ 18,439,474
19	CESF: E(m) / R(m); as a % of Revenue	=	5.975337%	= 7.230358%
20				
21	<b>Calculation of Total E(m)</b>			
22	E(m) = OE - BAS + RORB, where			
23	OE	=	Pollution Control Operating Expenses	
24	BAS	=	Total Proceeds from By-Product and Allowance Sales	
25	RORB	=	[ (RB/12) x (RORORB) ]	
26			<b>April 2017</b>	<b>May 2017</b>
27	OE	= \$	2,128,823	= \$ 2,484,131
28	BAS	= \$	54	= \$ -
29	RORB	= \$	149,717	= \$ 148,734
30	E(m)	= \$	2,278,486	= \$ 2,632,865
31				
32	<b>Calculation of Jurisdictional Environmental Surcharge Billing Factor</b>			
33	Member System Allocation Ratio for the Month (Form 3.00)	=	63.264739%	= 62.753042%
34	Subtotal E(m) = Subtotal E(m) x Member System Allocation Ratio	= \$	1,441,478	= \$ 1,652,203
35	Adjustment for (Over)/Under Recovery, as applicable (Form 2.00)	= \$	(22,049)	= \$ 218,910
36	Prior Period Adjustment	= \$	-	= \$ -
37	E(m) = Subtotal E(m) plus (Over)/Under Recovery plus Prior Period Adjustment	= \$	1,419,429	= \$ 1,871,113
38	R(m) = Average Monthly Member System Revenue for the 12 Months Ending with the Current Expense Month (Form 3.00)	= \$	18,536,417	= \$ 18,694,346
39	CESF: E(m) / R(m); as a % of Revenue	=	7.657515%	= 10.008978%

**Big Rivers Electric Corporation**  
**Case No. 2017-00345**

**Calculation of Total E(m) and**  
**Calculation of Jurisdictional Environmental Surcharge Billing Factor**

**For the Expense Months: June 2015 to July 2017**

1	<b>Calculation of Total E(m)</b>			
2	E(m) = OE - BAS + RORB, where			
3	OE	=	Pollution Control Operating Expenses	
4	BAS	=	Total Proceeds from By-Product and Allowance Sales	
5	RORB	=	[ (RB/12) x (RORORB) ]	
6			<b>June 2017</b>	<b>July 2017</b>
7	OE	= \$	2,497,522	= \$ 2,387,138
8	BAS	= \$	-	= \$ -
9	RORB	= \$	149,049	= \$ 147,908
10	E(m)	= \$	2,646,571	= \$ 2,535,046
11				
12	<b>Calculation of Jurisdictional Environmental Surcharge Billing Factor</b>			
13	Member System Allocation Ratio for the Month (Form 3.00)	=	73.130293%	= 68.791702%
14	Subtotal E(m) = Subtotal E(m) x Member System Allocation Ratio	= \$	1,935,445	= \$ 1,743,901
15	Adjustment for (Over)/Under Recovery, as applicable (Form 2.00)	= \$	104,686	= \$ (112,231)
16	Prior Period Adjustment	= \$	-	= \$ -
17	E(m) = Subtotal E(m) plus (Over)/Under Recovery plus Prior Period Adjustment	= \$	2,040,131	= \$ 1,631,670
18	R(m) = Average Monthly Member System Revenue for the 12 Months Ending with the Current Expense Month (Form 3.00)	= \$	18,759,664	= \$ 18,970,063
19	CESF: E(m) / R(m); as a % of Revenue	=	10.875093%	= 8.601289%

**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM  
OF BIG RIVERS ELECTRIC CORPORATION  
FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
FOR THE TWO-YEAR BILLING PERIOD ENDING JULY 31, 2017  
AND THE PASS THROUGH MECHANISM  
OF ITS THREE MEMBER DISTRIBUTION COOPERATIVES  
CASE NO. 2017-00345**

**Response to Commission Staff's  
First Request for Information  
dated September 15, 2017**

**October 6, 2017**

1 **Item 2)** *For each of the three Member Cooperatives, prepare a summary*  
2 *schedule showing the Member Cooperative's pass-through revenue*  
3 *requirement for the months corresponding with the six-month and two-year*  
4 *reviews. Include the two months subsequent to the billing periods included*  
5 *in the review periods. Include a calculation of any additional over- or*  
6 *under-recovery amount the Member Cooperative believes needs to be*  
7 *recognized for the six-month and two-year reviews. Provide all supporting*  
8 *calculations and documentation in Excel spreadsheet format with*  
9 *formulas intact and unprotected and all rows and columns fully accessible.*

10

11 **Response)** The following five sets of schedules listed below, and attached to this  
12 response, reflect the Member Cooperatives' environmental surcharge pass-through  
13 revenue requirements for the months corresponding to Big Rivers' expense months  
14 of June 2015 through July 2017, applied to Big Rivers' Members' invoices for the  
15 service months of July 2015 through August 2017, which Big Rivers billed to its  
16 Members during the months of August 2015 through September 2017 (*i.e.*, the  
17 months corresponding with the six-month and two-year reviews plus the two  
18 subsequent months).

19

**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM  
OF BIG RIVERS ELECTRIC CORPORATION  
FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
FOR THE TWO-YEAR BILLING PERIOD ENDING JULY 31, 2017  
AND THE PASS THROUGH MECHANISM  
OF ITS THREE MEMBER DISTRIBUTION COOPERATIVES  
CASE NO. 2017-00345**

**Response to Commission Staff's  
First Request for Information  
dated September 15, 2017**

**October 6, 2017**

- 1       • Attachment 1 – Jackson Purchase Energy Corporation Non-Dedicated  
2       Delivery Point Customers;
- 3       • Attachment 2 – Kenergy Corp. Non-Dedicated Delivery Point Customers;
- 4       • Attachment 3 – Meade County Rural Electric Cooperative Corporation Non-  
5       Dedicated Delivery Point Customers;
- 6       • Attachment 4 – Jackson Purchase Energy Corporation Dedicated Delivery  
7       Point Customers; and
- 8       • Attachment 5 – Kenergy Corp. Dedicated Delivery Point Customers.
- 9

10      Note: Meade County Rural Electric Cooperative Corporation has no dedicated  
11      delivery point customers.

12                As illustrated in the attached schedules, there is a one-month billing  
13      lag for the Members' non-dedicated delivery point customers and no billing lag for  
14      the Members' dedicated delivery point customers.

15                The information in the attached schedules was obtained from the  
16      Members' monthly Environmental Surcharge Schedules provided by Big Rivers'  
17      Members. Other than the on-going cumulative over-/under-recovery mechanism,  
18      no additional over-/under-recovery amounts are being requested by the Members  
19      for the billing periods under review.

**BIG RIVERS ELECTRIC CORPORATION**  
**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION**  
**OF THE ENVIRONMENTAL SURCHARGE MECHANISM**  
**OF BIG RIVERS ELECTRIC CORPORATION**  
**FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,**  
**FOR THE TWO-YEAR BILLING PERIOD ENDING JULY 31, 2017**  
**AND THE PASS THROUGH MECHANISM**  
**OF ITS THREE MEMBER DISTRIBUTION COOPERATIVES**  
**CASE NO. 2017-00345**

**Response to Commission Staff's**  
**First Request for Information**  
**dated September 15, 2017**

**October 6, 2017**

1                   All supporting calculations and documentation are provided in Excel  
2 spreadsheet format, with formulas intact and unprotected and all rows and columns  
3 fully accessible, on the CD accompanying these responses.

4

5

6 **Witness)**   Nicholas R. Castlen

7

**Big Rivers Electric Corporation**  
**Case No. 2017-00345**  
**Six-Month and Two-Year Environmental Surcharge Review**

JACKSON PURCHASE ENERGY CORPORATION (JPEC)										
NON-DEDICATED DELIVERY POINT CUSTOMERS										
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	
Big Rivers' Expense Month	Big Rivers' ES Factor Based on Expense Month	Big Rivers' Service Month	Month Billed by Big Rivers	Big Rivers' Invoice ES Amount for the Service Month	Month Billed by JPEC	ES Amount Billed to JPEC's Customers (Line 11 per Filing)	JPEC's (Over)/Under Recovery [from (j)]	JPEC's Total Recoverable [(e) + (h)]	JPEC's (Over)/Under Recovery [(i) for 3rd preceding month less (g) for current month]	
8	Jun-15	5.679481%	Jul-15	Aug-15	\$ 255,350.29	Sep-15	\$ 142,458.25	\$ (33,710.35)	\$ 221,639.94	\$ (33,710.35)
9	Jul-15	6.804097%	Aug-15	Sep-15	\$ 281,154.81	Oct-15	\$ 287,168.90	\$ (89,824.44)	\$ 191,330.37	\$ (89,824.44)
10	Aug-15	5.460801%	Sep-15	Oct-15	\$ 204,337.66	Nov-15	\$ 420,541.13	\$ (40,423.48)	\$ 163,914.18	\$ (40,423.48)
11	Sep-15	5.283586%	Oct-15	Nov-15	\$ 154,649.41	Dec-15	\$ 181,038.28	\$ 40,601.66	\$ 195,251.07	\$ 40,601.66
12	Oct-15	4.348044%	Nov-15	Dec-15	\$ 135,153.66	Jan-16	\$ 143,464.37	\$ 47,866.00	\$ 183,019.66	\$ 47,866.00
13	Nov-15	6.356274%	Dec-15	Jan-16	\$ 221,202.40	Feb-16	\$ 125,495.09	\$ 38,419.09	\$ 259,621.49	\$ 38,419.09
14	Dec-15	7.049024%	Jan-16	Feb-16	\$ 313,020.82	Mar-16	\$ 219,834.32	\$ (24,583.25)	\$ 288,437.57	\$ (24,583.25)
15	Jan-16	6.599949%	Feb-16	Mar-16	\$ 253,821.12	Apr-16	\$ 245,088.32	\$ (62,068.66)	\$ 191,752.46	\$ (62,068.66)
16	Feb-16	5.702876%	Mar-16	Apr-16	\$ 173,511.73	May-16	\$ 304,780.38	\$ (45,158.89)	\$ 128,352.84	\$ (45,158.89)
17	Mar-16	7.165957%	Apr-16	May-16	\$ 205,494.40	Jun-16	\$ 225,393.42	\$ 63,044.15	\$ 268,538.55	\$ 63,044.15
18	Apr-16	8.270091%	May-16	Jun-16	\$ 264,612.27	Jul-16	\$ 147,147.38	\$ 44,605.08	\$ 309,217.35	\$ 44,605.08
19	May-16	8.232757%	Jun-16	Jul-16	\$ 363,164.24	Aug-16	\$ 115,931.92	\$ 12,420.92	\$ 375,585.16	\$ 12,420.92
20	Jun-16	10.442367%	Jul-16	Aug-16	\$ 487,297.93	Sep-16	\$ 336,615.14	\$ (68,076.59)	\$ 419,221.34	\$ (68,076.59)
21	Jul-16	8.331344%	Aug-16	Sep-16	\$ 373,881.68	Oct-16	\$ 452,973.38	\$ (143,756.03)	\$ 230,125.65	\$ (143,756.03)
22	Aug-16	7.497336%	Sep-16	Oct-16	\$ 339,482.93	Nov-16	\$ 430,773.13	\$ (55,187.97)	\$ 284,294.96	\$ (55,187.97)
23	Sep-16	6.630926%	Oct-16	Nov-16	\$ 223,899.93	Dec-16	\$ 399,102.61	\$ 20,118.73	\$ 244,018.66	\$ 20,118.73
24	Oct-16	8.009330%	Nov-16	Dec-16	\$ 280,120.12	Jan-17	\$ 165,135.49	\$ 64,990.16	\$ 345,110.28	\$ 64,990.16
25	Nov-16	11.160047%	Dec-16	Jan-17	\$ 516,885.13	Feb-17	\$ 200,357.08	\$ 83,937.88	\$ 600,823.01	\$ 83,937.88
26	Dec-16	10.468919%	Jan-17	Feb-17	\$ 478,999.19	Mar-17	\$ 287,377.30	\$ (43,358.64)	\$ 435,640.55	\$ (43,358.64)
27	Jan-17	8.270652%	Feb-17	Mar-17	\$ 299,988.32	Apr-17	\$ 492,614.86	\$ (147,504.58)	\$ 152,483.74	\$ (147,504.58)
28	Feb-17	5.975337%	Mar-17	Apr-17	\$ 224,095.57	May-17	\$ 560,959.46	\$ 39,863.55	\$ 263,959.12	\$ 39,863.55
29	Mar-17	7.230358%	Apr-17	May-17	\$ 231,131.59	Jun-17	\$ 334,448.18	\$ 101,192.37	\$ 332,323.96	\$ 101,192.37
30	Apr-17	7.657515%	May-17	Jun-17	\$ 284,515.27	Jul-17	\$ 137,484.81	\$ 14,998.93	\$ 299,514.20	\$ 14,998.93
31	May-17	10.008978%	Jun-17	Jul-17	\$ 445,835.68	Aug-17	\$ 254,790.40	\$ 9,168.72	\$ 455,004.40	\$ 9,168.72
32	Jun-17	10.875093%	Jul-17	Aug-17	\$ 579,585.24	Sep-17	\$ 414,021.18	\$ (81,697.22)	\$ 497,888.02	\$ (81,697.22)
33	Jul-17	8.601289%	Aug-17	Sep-17	\$ 401,720.58	Oct-17	\$ 404,567.69	\$ (105,053.49)	\$ 296,667.09	\$ (105,053.49)

Case No. 2017-00345

Attachment 1 of 5 for Response to Staff Item 2

Witness: Nicholas R. Castlen



**Big Rivers Electric Corporation**  
**Case No. 2017-00345**  
**Six-Month and Two-Year Environmental Surcharge Review**

KENERGY CORP.										
NON-DEDICATED DELIVERY POINT CUSTOMERS										
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	
Big Rivers' Expense Month	Big Rivers' ES Factor Based on Expense Month	Big Rivers' Service Month	Month Billed by Big Rivers	Big Rivers' Invoice ES Amount for the Service Month	Month Billed by Kenergy	ES Amount Billed to Kenergy's Customers (Line 11 per Filing)	Kenergy's (Over)/Under Recovery [from (j)]	Kenergy's Total Recoverable [(e) + (h)]	Kenergy's (Over)/Under Recovery [(i) for 2nd preceding month less (g) for current month]	
8	Jun-15	5.679481%	Jul-15	Aug-15	\$ 437,555.91	Sep-15	\$ 309,964.65	\$ (38,965.49)	\$ 398,590.42	\$ (38,965.49)
9	Jul-15	6.804097%	Aug-15	Sep-15	\$ 488,735.02	Oct-15	\$ 590,273.87	\$ (29,875.40)	\$ 458,859.62	\$ (29,875.40)
10	Aug-15	5.460801%	Sep-15	Oct-15	\$ 369,160.00	Nov-15	\$ 371,284.01	\$ 27,306.41	\$ 396,466.41	\$ 27,306.41
11	Sep-15	5.283586%	Oct-15	Nov-15	\$ 288,917.18	Dec-15	\$ 445,808.89	\$ 13,050.73	\$ 301,967.91	\$ 13,050.73
12	Oct-15	4.348044%	Nov-15	Dec-15	\$ 247,234.19	Jan-16	\$ 349,567.48	\$ 46,898.93	\$ 294,133.12	\$ 46,898.93
13	Nov-15	6.356274%	Dec-15	Jan-16	\$ 399,366.28	Feb-16	\$ 318,818.58	\$ (16,850.67)	\$ 382,515.61	\$ (16,850.67)
14	Dec-15	7.049024%	Jan-16	Feb-16	\$ 576,129.63	Mar-16	\$ 317,951.57	\$ (23,818.45)	\$ 552,311.18	\$ (23,818.45)
15	Jan-16	6.599949%	Feb-16	Mar-16	\$ 467,310.47	Apr-16	\$ 436,864.88	\$ (54,349.27)	\$ 412,961.20	\$ (54,349.27)
16	Feb-16	5.702876%	Mar-16	Apr-16	\$ 322,169.29	May-16	\$ 492,415.85	\$ 59,895.33	\$ 382,064.62	\$ 59,895.33
17	Mar-16	7.165957%	Apr-16	May-16	\$ 360,999.50	Jun-16	\$ 354,698.14	\$ 58,263.06	\$ 419,262.56	\$ 58,263.06
18	Apr-16	8.270091%	May-16	Jun-16	\$ 470,408.12	Jul-16	\$ 362,483.92	\$ 19,580.70	\$ 489,988.82	\$ 19,580.70
19	May-16	8.232757%	Jun-16	Jul-16	\$ 623,690.37	Aug-16	\$ 434,672.44	\$ (15,409.88)	\$ 608,280.49	\$ (15,409.88)
20	Jun-16	10.442367%	Jul-16	Aug-16	\$ 834,216.13	Sep-16	\$ 614,552.45	\$ (124,563.63)	\$ 709,652.50	\$ (124,563.63)
21	Jul-16	8.331344%	Aug-16	Sep-16	\$ 678,631.33	Oct-16	\$ 612,032.85	\$ (3,752.36)	\$ 674,878.97	\$ (3,752.36)
22	Aug-16	7.497336%	Sep-16	Oct-16	\$ 616,226.62	Nov-16	\$ 698,167.80	\$ 11,484.70	\$ 627,711.32	\$ 11,484.70
23	Sep-16	6.630926%	Oct-16	Nov-16	\$ 404,786.74	Dec-16	\$ 619,301.49	\$ 55,577.48	\$ 460,364.22	\$ 55,577.48
24	Oct-16	8.009330%	Nov-16	Dec-16	\$ 518,593.88	Jan-17	\$ 526,334.62	\$ 101,376.70	\$ 619,970.58	\$ 101,376.70
25	Nov-16	11.160047%	Dec-16	Jan-17	\$ 940,800.97	Feb-17	\$ 468,626.33	\$ (8,262.11)	\$ 932,538.86	\$ (8,262.11)
26	Dec-16	10.468919%	Jan-17	Feb-17	\$ 869,175.74	Mar-17	\$ 839,656.92	\$ (219,686.34)	\$ 649,489.40	\$ (219,686.34)
27	Jan-17	8.270652%	Feb-17	Mar-17	\$ 550,426.63	Apr-17	\$ 948,073.65	\$ (15,534.79)	\$ 534,891.84	\$ (15,534.79)
28	Feb-17	5.975337%	Mar-17	Apr-17	\$ 415,254.12	May-17	\$ 593,445.86	\$ 56,043.54	\$ 471,297.66	\$ 56,043.54
29	Mar-17	7.230358%	Apr-17	May-17	\$ 404,443.35	Jun-17	\$ 559,928.40	\$ (25,036.56)	\$ 379,406.79	\$ (25,036.56)
30	Apr-17	7.657515%	May-17	Jun-17	\$ 494,546.93	Jul-17	\$ 435,152.68	\$ 36,144.98	\$ 530,691.91	\$ 36,144.98
31	May-17	10.008978%	Jun-17	Jul-17	\$ 800,892.11	Aug-17	\$ 460,899.56	\$ (81,492.77)	\$ 719,399.34	\$ (81,492.77)
32	Jun-17	10.875093%	Jul-17	Aug-17	\$ 1,014,987.58	Sep-17	\$ 680,618.94	\$ (149,927.03)	\$ 865,060.55	\$ (149,927.03)
33	Jul-17	8.601289%	Aug-17	Sep-17	\$ 714,573.60	Oct-17	\$ 846,075.29	\$ (126,675.95)	\$ 587,897.65	\$ (126,675.95)

Case No. 2017-00345

Attachment 2 of 5 for Response to Staff Item 2

Witness: Nicholas R. Castlen

Page 2 of 5

**Big Rivers Electric Corporation**  
**Case No. 2017-00345**  
**Six-Month and Two-Year Environmental Surcharge Review**

MEADE COUNTY RURAL ELECTRIC COOPERATIVE CORPORATION (MCRECC)									
NON-DEDICATED DELIVERY POINT CUSTOMERS									
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Big Rivers' Expense Month	Big Rivers' ES Factor Based on Expense Month	Big Rivers' Service Month	Month Billed by Big Rivers	Big Rivers' Invoice ES Amount for the Service Month	Month Billed by MCRECC	ES Amount Billed to MCRECC's Customers (Line 11 per Filing)	MCRECC's (Over)/Under Recovery [from (j)]	MCRECC's Total Recoverable [(e) + (h)]	MCRECC's (Over)/Under Recovery [(i) for 1st preceding month less (g) for current month]
8	Jun-15	5.679481%	Jul-15	Aug-15	Sep-15	\$ 210,312.63	\$ (19,348.52)	\$ 139,079.71	\$ (19,348.52)
9	Jul-15	6.804097%	Aug-15	Sep-15	Oct-15	\$ 82,888.96	\$ 56,190.75	\$ 230,274.39	\$ 56,190.75
10	Aug-15	5.460801%	Sep-15	Oct-15	Nov-15	\$ 208,580.79	\$ 21,693.60	\$ 152,333.30	\$ 21,693.60
11	Sep-15	5.283586%	Oct-15	Nov-15	Dec-15	\$ 176,824.37	\$ (24,491.07)	\$ 79,801.08	\$ (24,491.07)
12	Oct-15	4.348044%	Nov-15	Dec-15	Jan-16	\$ 90,662.42	\$ (10,861.34)	\$ 93,011.41	\$ (10,861.34)
13	Nov-15	6.356274%	Dec-15	Jan-16	Feb-16	\$ 104,171.39	\$ (11,159.98)	\$ 158,189.36	\$ (11,159.98)
14	Dec-15	7.049024%	Jan-16	Feb-16	Mar-16	\$ 210,644.46	\$ (52,455.10)	\$ 208,935.69	\$ (52,455.10)
15	Jan-16	6.599949%	Feb-16	Mar-16	Apr-16	\$ 199,292.59	\$ 27,282.67	\$ 226,575.26	\$ 27,282.67
16	Feb-16	5.702876%	Mar-16	Apr-16	May-16	\$ 131,376.82	\$ 55,409.67	\$ 186,786.49	\$ 55,409.67
17	Mar-16	7.165957%	Apr-16	May-16	Jun-16	\$ 137,205.23	\$ 18,559.22	\$ 155,764.45	\$ 18,559.22
18	Apr-16	8.270091%	May-16	Jun-16	Jul-16	\$ 171,691.28	\$ 2,922.62	\$ 174,613.90	\$ 2,922.62
19	May-16	8.232757%	Jun-16	Jul-16	Aug-16	\$ 221,938.05	\$ (50,593.38)	\$ 171,344.67	\$ (50,593.38)
20	Jun-16	10.442367%	Jul-16	Aug-16	Sep-16	\$ 299,202.24	\$ (12,207.87)	\$ 286,994.37	\$ (12,207.87)
21	Jul-16	8.331344%	Aug-16	Sep-16	Oct-16	\$ 242,802.51	\$ (504.14)	\$ 242,298.37	\$ (504.14)
22	Aug-16	7.497336%	Sep-16	Oct-16	Nov-16	\$ 218,382.09	\$ 26,744.40	\$ 245,126.49	\$ 26,744.40
23	Sep-16	6.630926%	Oct-16	Nov-16	Dec-16	\$ 148,221.75	\$ 44,391.81	\$ 192,613.56	\$ 44,391.81
24	Oct-16	8.009330%	Nov-16	Dec-16	Jan-17	\$ 226,477.62	\$ (28,905.59)	\$ 197,572.03	\$ (28,905.59)
25	Nov-16	11.160047%	Dec-16	Jan-17	Feb-17	\$ 424,977.47	\$ (79,369.24)	\$ 345,608.23	\$ (79,369.24)
26	Dec-16	10.468919%	Jan-17	Feb-17	Mar-17	\$ 381,401.58	\$ 24,866.91	\$ 406,268.49	\$ 24,866.91
27	Jan-17	8.270652%	Feb-17	Mar-17	Apr-17	\$ 242,966.79	\$ 70,836.90	\$ 313,803.69	\$ 70,836.90
28	Feb-17	5.975337%	Mar-17	Apr-17	May-17	\$ 185,275.41	\$ 2,629.67	\$ 187,905.08	\$ 2,629.67
29	Mar-17	7.230358%	Apr-17	May-17	Jun-17	\$ 152,489.50	\$ 40,075.79	\$ 192,565.29	\$ 40,075.79
30	Apr-17	7.657515%	May-17	Jun-17	Jul-17	\$ 181,050.93	\$ (16,964.89)	\$ 164,086.04	\$ (16,964.89)
31	May-17	10.008978%	Jun-17	Jul-17	Aug-17	\$ 285,414.89	\$ (26,432.93)	\$ 258,981.96	\$ (26,432.93)
32	Jun-17	10.875093%	Jul-17	Aug-17	Sep-17	\$ 371,196.10	\$ (40,486.44)	\$ 330,709.66	\$ (40,486.44)
33	Jul-17	8.601289%	Aug-17	Sep-17	Oct-17	\$ 260,586.21	\$ 33,538.55	\$ 294,124.76	\$ 33,538.55

Case No. 2017-00345

Attachment 3 of 5 for Response to Staff Item 2

Witness: Nicholas R. Castlen

Page 3 of 5

**Big Rivers Electric Corporation**  
**Case No. 2017-00345**  
**Six-Month and Two-Year Environmental Surcharge Review**

JACKSON PURCHASE ENERGY CORPORATION (JPEC)							
DEDICATED DELIVERY POINT CUSTOMERS							
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Big Rivers' Expense Month	Big Rivers' ES Factor Based on Expense Month	Big Rivers' Service Month	Month Billed by Big Rivers	Big Rivers' Invoice ES Amount for the Service Month	Month Billed by JPEC	ES Amount Billed to JPEC's Customers	JPEC's Monthly (Over)/Under Recovery [column (e) less column (g)]
Jun-15	5.679481%	Jul-15	Aug-15	\$ 2,354.00	Aug-15	\$ 2,354.00	\$ -
Jul-15	6.804097%	Aug-15	Sep-15	\$ 2,454.21	Sep-15	\$ 2,454.21	\$ -
Aug-15	5.460801%	Sep-15	Oct-15	\$ 1,660.96	Oct-15	\$ 1,660.96	\$ -
Sep-15	5.283586%	Oct-15	Nov-15	\$ 1,620.08	Nov-15	\$ 1,620.08	\$ -
Oct-15	4.348044%	Nov-15	Dec-15	\$ 1,681.15	Dec-15	\$ 1,681.15	\$ -
Nov-15	6.356274%	Dec-15	Jan-16	\$ 2,133.99	Jan-16	\$ 2,133.99	\$ -
Dec-15	7.049024%	Jan-16	Feb-16	\$ 2,207.11	Feb-16	\$ 2,207.11	\$ -
Jan-16	6.599949%	Feb-16	Mar-16	\$ 2,271.71	Mar-16	\$ 2,271.71	\$ -
Feb-16	5.702876%	Mar-16	Apr-16	\$ 1,873.70	Apr-16	\$ 1,873.70	\$ -
Mar-16	7.165957%	Apr-16	May-16	\$ 2,638.34	May-16	\$ 2,638.34	\$ -
Apr-16	8.270091%	May-16	Jun-16	\$ 5,104.43	Jun-16	\$ 5,104.43	\$ -
May-16	8.232757%	Jun-16	Jul-16	\$ 3,383.89	Jul-16	\$ 3,383.89	\$ -
Jun-16	10.442367%	Jul-16	Aug-16	\$ 6,822.16	Aug-16	\$ 6,822.16	\$ -
Jul-16	8.331344%	Aug-16	Sep-16	\$ 5,436.70	Sep-16	\$ 5,436.70	\$ -
Aug-16	7.497336%	Sep-16	Oct-16	\$ 2,596.51	Oct-16	\$ 2,596.51	\$ -
Sep-16	6.630926%	Oct-16	Nov-16	\$ 2,666.62	Nov-16	\$ 2,666.62	\$ -
Oct-16	8.009330%	Nov-16	Dec-16	\$ 3,611.91	Dec-16	\$ 3,611.91	\$ -
Nov-16	11.160047%	Dec-16	Jan-17	\$ 8,420.18	Jan-17	\$ 8,420.18	\$ -
Dec-16	10.468919%	Jan-17	Feb-17	\$ 5,854.23	Feb-17	\$ 5,854.23	\$ -
Jan-17	8.270652%	Feb-17	Mar-17	\$ 3,250.26	Mar-17	\$ 3,250.26	\$ -
Feb-17	5.975337%	Mar-17	Apr-17	\$ 2,016.47	Apr-17	\$ 2,016.47	\$ -
Mar-17	7.230358%	Apr-17	May-17	\$ 3,007.93	May-17	\$ 3,007.93	\$ -
Apr-17	7.657515%	May-17	Jun-17	\$ 5,501.27	Jun-17	\$ 5,501.27	\$ -
May-17	10.008978%	Jun-17	Jul-17	\$ 3,809.20	Jul-17	\$ 3,809.20	\$ -
Jun-17	10.875093%	Jul-17	Aug-17	\$ 6,127.43	Aug-17	\$ 6,127.43	\$ -
Jul-17	8.601289%	Aug-17	Sep-17	\$ 3,166.12	Sep-17	\$ 3,166.12	\$ -

Case No. 2017-00345

Attachment (4 of 5) for Response to Staff's First Request Item 2

Witness: Nicholas R. Castlen

Page 4 of 5

**Big Rivers Electric Corporation**  
**Case No. 2017-00345**  
**Six-Month and Two-Year Environmental Surcharge Review**

KENERGY CORP.								
DEDICATED DELIVERY POINT CUSTOMERS								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
Big Rivers' Expense Month	Big Rivers' ES Factor Based on Expense Month	Big Rivers' Service Month	Month Billed by Big Rivers	Big Rivers' Invoice ES Amount for the Service Month	Month Billed by Kenergy	ES Amount Billed to Kenergy's Customers	Kenergy's Monthly (Over)/Under Recovery [column (e) less column (g)]	
7	Jun-15	5.679481%	Jul-15	Aug-15	\$ 227,719.26	Aug-15	\$ 227,719.26	\$ -
8	Jul-15	6.804097%	Aug-15	Sep-15	\$ 280,924.26	Sep-15	\$ 280,924.26	\$ -
9	Aug-15	5.460801%	Sep-15	Oct-15	\$ 221,312.77	Oct-15	\$ 221,312.77	\$ -
10	Sep-15	5.283586%	Oct-15	Nov-15	\$ 255,325.14	Nov-15	\$ 255,325.14	\$ -
11	Oct-15	4.348044%	Nov-15	Dec-15	\$ 190,572.94	Dec-15	\$ 190,572.94	\$ -
12	Nov-15	6.356274%	Dec-15	Jan-16	\$ 281,279.40	Jan-16	\$ 281,279.40	\$ -
13	Dec-15	7.049024%	Jan-16	Feb-16	\$ 326,366.40	Feb-16	\$ 326,366.40	\$ -
14	Jan-16	6.599949%	Feb-16	Mar-16	\$ 293,358.47	Mar-16	\$ 293,358.47	\$ -
15	Feb-16	5.702876%	Mar-16	Apr-16	\$ 258,890.38	Apr-16	\$ 258,890.38	\$ -
16	Mar-16	7.165957%	Apr-16	May-16	\$ 314,704.05	May-16	\$ 314,704.05	\$ -
17	Apr-16	8.270091%	May-16	Jun-16	\$ 351,371.11	Jun-16	\$ 351,371.11	\$ -
18	May-16	8.232757%	Jun-16	Jul-16	\$ 354,669.33	Jul-16	\$ 354,669.33	\$ -
19	Jun-16	10.442367%	Jul-16	Aug-16	\$ 463,673.76	Aug-16	\$ 463,673.76	\$ -
20	Jul-16	8.331344%	Aug-16	Sep-16	\$ 375,745.12	Sep-16	\$ 375,745.12	\$ -
21	Aug-16	7.497336%	Sep-16	Oct-16	\$ 332,121.49	Oct-16	\$ 332,121.49	\$ -
22	Sep-16	6.630926%	Oct-16	Nov-16	\$ 289,670.13	Nov-16	\$ 289,670.13	\$ -
23	Oct-16	8.009330%	Nov-16	Dec-16	\$ 369,264.38	Dec-16	\$ 369,264.38	\$ -
24	Nov-16	11.160047%	Dec-16	Jan-17	\$ 487,769.33	Jan-17	\$ 487,769.33	\$ -
25	Dec-16	10.468919%	Jan-17	Feb-17	\$ 493,657.45	Feb-17	\$ 493,657.45	\$ -
26	Jan-17	8.270652%	Feb-17	Mar-17	\$ 367,067.00	Mar-17	\$ 367,067.00	\$ -
27	Feb-17	5.975337%	Mar-17	Apr-17	\$ 282,333.22	Apr-17	\$ 282,333.22	\$ -
28	Mar-17	7.230358%	Apr-17	May-17	\$ 323,257.68	May-17	\$ 323,257.68	\$ -
29	Apr-17	7.657515%	May-17	Jun-17	\$ 349,128.48	Jun-17	\$ 349,128.48	\$ -
30	May-17	10.008978%	Jun-17	Jul-17	\$ 447,392.52	Jul-17	\$ 447,392.52	\$ -
31	Jun-17	10.875093%	Jul-17	Aug-17	\$ 480,548.29	Aug-17	\$ 480,548.29	\$ -
32	Jul-17	8.601289%	Aug-17	Sep-17	\$ 398,519.51	Sep-17	\$ 398,519.51	\$ -

BIG RIVERS ELECTRIC CORPORATION

AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM  
OF BIG RIVERS ELECTRIC CORPORATION  
FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
FOR THE TWO-YEAR BILLING PERIOD ENDING JULY 31, 2017  
AND THE PASS THROUGH MECHANISM  
OF ITS THREE MEMBER DISTRIBUTION COOPERATIVES  
CASE NO. 2017-00345

Response to Commission Staff's  
First Request for Information  
dated September 15, 2017

October 6, 2017

1 Item 3) *Refer to Form 2.5, Operating and Maintenance Expenses, for the*  
2 *six-month review period and the last six expense months in the two-year*  
3 *review period. For each of the expense line items listed on this schedule,*  
4 *explain the reason(s) for any change in the expense levels from month to*  
5 *month if that change is greater than plus or minus 10 percent.*

6

7 **Response)** Please see the attached schedules, Attachment A and Attachment  
8 B, for the monthly Operating and Maintenance ("O&M") expenses from Form 2.50  
9 and the requested variance explanations for the six-month review period and the  
10 last six expense months in the two-year review period, respectively.

11

12

13 **Witnesses)** Nicholas R. Castlen (*Schedules of O&M Expenses*) and  
14 Ronald D. Gregory (*Reason(s) for Changes in Expense Levels*)

15

**Big Rivers Electric Corporation**  
**Case No. 2017-00345**  
**Form 2.50 - Operating and Maintenance Expense Analysis**  
**Costs Incurred June 1, 2016 through November 30, 2016**

NOx Plan:

Expense Month	May-16	Jun-16	Jun-16 vs. May-16 % Change	Jul-16	Jul-16 vs. Jun-16 % Change	Aug-16	Aug-16 vs. Jul-16 % Change	Sep-16	Sep-16 vs. Aug-16 % Change	Oct-16	Oct-16 vs. Sep-16 % Change	Nov-16	Nov-16 vs. Oct-16 % Change
<b>NOx Plan</b>													
Anhydrous Ammonia	\$ 108,949	\$ 70,378	-35%	\$ 64,881	-8%	\$ 95,584	47%	\$ 63,395	-34%	\$ 58,057	-8%	\$ 100,508	73%
Emulsified Sulfur for NOx	-	-	Note 1	-	Note 1	-	Note 1	-	Note 1	-	Note 1	-	Note 1
Total NOx Plan O&M Expenses	\$ 108,949	\$ 70,378	-35%	\$ 64,881	-8%	\$ 95,584	47%	\$ 63,395	-34%	\$ 58,057	-8%	\$ 100,508	73%

SO2 Plan:

Expense Month	May-16	Jun-16	Jun-16 vs. May-16 % Change	Jul-16	Jul-16 vs. Jun-16 % Change	Aug-16	Aug-16 vs. Jul-16 % Change	Sep-16	Sep-16 vs. Aug-16 % Change	Oct-16	Oct-16 vs. Sep-16 % Change	Nov-16	Nov-16 vs. Oct-16 % Change
<b>SO2 Plan Expenses:</b>													
Disposal-Flyash/Bottom Ash/Sludge (Note 2)	\$ 533,749	\$ 522,333	-2%	\$ 529,185	1%	\$ 544,174	3%	\$ 364,182	-33%	\$ 605,030	66%	\$ 747,499	24%
Fixation Lime	108,361	90,088	-17%	214,640	138%	243,353	13%	205,402	-16%	99,549	-52%	135,888	37%
Reagent-Limestone	163,644	177,125	8%	176,943	0%	194,289	10%	149,902	-23%	181,152	21%	185,618	2%
Reagent-Lime	778,840	820,919	5%	1,076,758	31%	1,054,441	-2%	921,003	-13%	778,165	-16%	901,589	16%
Emulsified Sulfur for SO2	17,931	18,754	5%	18,323	-2%	18,732	2%	12,422	-34%	12,239	-1%	18,544	52%
Reagent-DiBasic Acid	106,699	106,998	0%	124,470	16%	91,023	-27%	100,229	10%	99,961	0%	86,304	-14%
Reagent-Sodium BiSulfite for SO2	27,318	31,070	14%	25,767	-17%	34,378	33%	20,407	-41%	25,796	26%	30,365	18%
Total SO2 Plan O&M Expenses	\$ 1,736,542	\$ 1,767,287	2%	\$ 2,166,086	23%	\$ 2,180,390	1%	\$ 1,773,547	-19%	\$ 1,801,892	2%	\$ 2,105,807	17%

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SO3 Plan:

Expense Month	May-16	Jun-16	Jun-16 vs. May-16 % Change	Jul-16	Jul-16 vs. Jun-16 % Change	Aug-16	Aug-16 vs. Jul-16 % Change	Sep-16	Sep-16 vs. Aug-16 % Change	Oct-16	Oct-16 vs. Sep-16 % Change	Nov-16	Nov-16 vs. Oct-16 % Change
SO3 Plan Expenses:													
Hydrated Lime - SO3	\$ (2,390)	\$ -	-100%	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1
Total SO3 Plan O&M Expenses	\$ (2,390)	\$ -	-100%	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1

2012 Plan:

Expense Month	May-16	Jun-16	Jun-16 vs. May-16 % Change	Jul-16	Jul-16 vs. Jun-16 % Change	Aug-16	Aug-16 vs. Jul-16 % Change	Sep-16	Sep-16 vs. Aug-16 % Change	Oct-16	Oct-16 vs. Sep-16 % Change	Nov-16	Nov-16 vs. Oct-16 % Change
2012 Plan Expenses:													
Project 9 - Wilson Hg	\$ 80,963	\$ 104,154	29%	\$ 54,354	-48%	\$ 111,537	105%	\$ 84,411	-24%	\$ 81,516	-3%	\$ 116,145	42%
Project 10 - Green Hg	401,206	442,211	10%	622,318	41%	509,307	-18%	406,271	-20%	333,600	-18%	401,169	20%
Project 11 - HMP&L Hg	6,359	4,195	-34%	16,937	304%	6,689	-61%	4,670	-30%	8,805	89%	7,430	-16%
Total 2012 Plan	\$ 488,528	\$ 550,560	13%	\$ 693,609	26%	\$ 627,533	-10%	\$ 495,352	-21%	\$ 423,921	-14%	\$ 524,744	24%
<b>Total</b>	<b>\$ 2,331,629</b>	<b>\$ 2,388,225</b>		<b>\$ 2,924,576</b>		<b>\$ 2,903,507</b>		<b>\$ 2,332,294</b>		<b>\$ 2,283,870</b>		<b>\$ 2,731,059</b>	

Note 1: Percentage change not calculated because the cost incurred during the prior expense month was \$0.

Note 2: The monthly totals for Disposal Bottom Ash, Disposal Flyash and Disposal Flyash/Bottom Ash/Sludge have been consolidated due to similarity to better facilitate comparability.



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**Variance Explanations:**

Anhydrous Ammonia:

Jun-16 vs. May-16	-35%	The decrease was due to low load operation at HMP&L that reduces ammonia requirement and timing of product delivery and invoicing at Wilson.
Aug-16 vs. Jul-16	47%	The increase was due to timing of product delivery and invoicing at Wilson.
Sep-16 vs. Aug-16	-34%	The decrease was due to timing of product delivery and invoicing at Wilson, along with 113 maintenance outage hours at Wilson in September.
Nov-16 vs. Oct-16	73%	The increase was due to timing of product delivery and invoicing at HMP&L, along with a 37% increase of generation at HMP&L in November.

Disposal-Flyash/Bottom Ash/ Sludge:

Sep-16 vs. Aug-16	-33%	The decrease was due to a \$175K true-up at HMP&L in September, which ended up with a negative balance for the month.
Oct-16 vs. Sep-16	66%	The increase was due to landfill cover costs paid to the landfill contractor at Wilson in October.
Nov-16 vs. Oct-16	24%	The increase was due to increased generation and fuel burn, along with soil adjustment charges to landfill wall project and landfill capping charges at Green and HMP&L.

Fixation Lime:

Jun-16 vs. May-16	-17%	The decrease was due to variability in quantity of fixation lime added at Green and a change in HMP&L allocation.
Jul-16 vs. Jun-16	138%	The increase was due to variability in quantity of fixation lime added at Green associated with increased fuel burn for the month and a change in HMP&L allocation.
Aug-16 vs. Jul-16	13%	The increase was due to variability in quantity of fixation lime added at Green associated with increased fuel burn for the month and at Wilson for operational needs to provide product suitable to satisfy landfill construction requirements. More fixation lime is required when the outer wall areas of the landfill.
Sep-16 vs. Aug-16	-16%	The decrease was due to variability in quantity of fixation lime added at Green and Wilson, associated with decreased fuel burn for the month and at Wilson for operational needs to provide product suitable to satisfy landfill construction requirements. More fixation lime is required when the outer wall areas of the landfill.
Oct-16 vs. Sep-16	-52%	The decrease was due to variability in quantity of fixation lime added at Green associated with decreased fuel burn for the month and at Wilson for operational needs to provide product suitable to satisfy landfill construction requirements. Less fixation lime is required when filling in interior areas of the landfill, away from the outer walls.
Nov-16 vs. Oct-16	37%	The increase was due to variability in quantity of fixation lime added at Green associated with increased fuel burn for Green and HMP&L for the month.

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**Attachment A for Response to Staff Item 3**

**Witnesses: Nicholas R. Castlen and Ronald D. Gregory**

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**Variance Explanations (continued):**

Reagent-Limestone:

Sep-16 vs. Aug-16	-23%	The decrease was due to 113 maintenance outage hours at Wilson in September.
Oct-16 vs. Sep-16	21%	The increase was due to 113 maintenance outage hours at Wilson in September.

Reagent-Lime:

Jul-16 vs. Jun-16	31%	The increase was due to a combination of increase generation and fuel burn and BREC's portion of the prior month being low, due to a change in HMP&L share calculation.
Sep-16 vs. Aug-16	-13%	The decrease was due to decrease in generation and fuel burn at Green.
Oct-16 vs. Sep-16	-16%	The decrease was due to decrease in generation and fuel burn at Green and HMP&L.
Nov-16 vs. Oct-16	16%	The increase was due to increase in generation and fuel burn at Green and HMP&L.

Emulsified Sulfur for SO<sub>2</sub>:

Sep-16 vs. Aug-16	-34%	Emulsified sulfur is ordered on an as needed basis and added in batch based on scrubber chemistry. The decrease was due to timing of product delivery and invoicing at HMP&L.
Nov-16 vs. Oct-16	52%	Emulsified sulfur is ordered on an as needed basis and added in batch based on scrubber chemistry. The increase was due to timing of product delivery and invoicing at HMP&L.

Reagent-Dibasic Acid:

Jul-16 vs. Jun-16	16%	The increase was due to timing of product delivery and invoicing at Wilson, along with 52 outage hours in June.
Aug-16 vs. Jul-16	-27%	The decrease was due to timing of product delivery and invoicing at Wilson.
Nov-16 vs. Oct-16	-14%	The decrease was due to timing of product delivery and invoicing at Wilson, along with 59 outage hours in November.

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**Variance Explanations (continued) :**

Reagent-Sodium BiSulfite for SO<sub>2</sub>:

Jun-16 vs. May-16	14%	Sodium BiSulfite is ordered on an as needed basis and added in batch based on scrubber chemistry. The increase was due to timing of product delivery and invoicing at Wilson.
Jul-16 vs. Jun-16	-17%	Sodium BiSulfite is ordered on an as needed basis and added in batch based on scrubber chemistry. The decrease was due to timing of product delivery and invoicing at Wilson.
Aug-16 vs. Jul-16	33%	Sodium BiSulfite is ordered on an as needed basis and added in batch based on scrubber chemistry. The increase was due to timing of product delivery and invoicing at Wilson.
Sep-16 vs. Aug-16	-41%	Sodium BiSulfite is ordered on an as needed basis and added in batch based on scrubber chemistry. The decrease was due to timing of product delivery and invoicing at Wilson.
Oct-16 vs. Sep-16	26%	Sodium BiSulfite is ordered on an as needed basis and added in batch based on scrubber chemistry. The increase was due to timing of product delivery and invoicing at Wilson.
Nov-16 vs. Oct-16	18%	Sodium BiSulfite is ordered on an as needed basis and added in batch based on scrubber chemistry. The increase was due to timing of product delivery and invoicing at Wilson.

Hydrated Lime - SO<sub>3</sub>:

Jun-16 vs. May-16	-100%	The decrease was due to the Hydrated Lime injection no longer being charged as SO <sub>3</sub> , since a new injection system was installed and in use for MATS compliance and provides SO <sub>3</sub> reduction.
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Project 9 - Wilson Hg

Jun-16 vs. May-16	29%	The increase was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime with operational conditions.
Jul-16 vs. Jun-16	-48%	The decrease was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime with operational conditions.
Aug-16 vs. Jul-16	105%	The increase was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime with operational conditions.
Sep-16 vs. Aug-16	-24%	The decrease was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime with operational conditions.
Nov-16 vs. Oct-16	42%	The increase was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime with operational conditions.

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**Variance Explanations (continued):**

Project 10 - Green Hg

Jul-16 vs. Jun-16	41%	The increase was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime and Pulverized Activated Carbon with operational conditions.
Aug-16 vs. Jul-16	-18%	The decrease was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime and Pulverized Activated Carbon with operational conditions.
Sep-16 vs. Aug-16	-20%	The decrease was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime and Pulverized Activated Carbon with operational conditions.
Oct-16 vs. Sep-16	-18%	The decrease was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime and Pulverized Activated Carbon with operational conditions.
Nov-16 vs. Oct-16	20%	The increase was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime and Pulverized Activated Carbon with operational conditions.

Project 11 - HMP&L Hg

Jun-16 vs. May-16	-34%	The decrease was due to variability in costs for trap analysis or stack testing, which are incurred on as needed basis for compliance monitoring.
Jul-16 vs. Jun-16	304%	The increase was due to variability in costs for trap analysis or stack testing, which are incurred on as needed basis for compliance monitoring.
Aug-16 vs. Jul-16	-61%	The decrease was due to variability in costs for trap analysis or stack testing, which are incurred on as needed basis for compliance monitoring.
Sep-16 vs. Aug-16	-30%	The decrease was due to variability in costs for trap analysis or stack testing, which are incurred on as needed basis for compliance monitoring.
Oct-16 vs. Sep-16	89%	The increase was due to variability in costs for trap analysis or stack testing, which are incurred on as needed basis for compliance monitoring.
Nov-16 vs. Oct-16	-16%	The decrease was due to variability in costs for trap analysis or stack testing, which are incurred on as needed basis for compliance monitoring.

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NOx Plan:

Expense Month	Nov-16	Dec-16	Dec-16 vs. Nov-16 % Change	Jan-17	Jan-17 vs. Dec-16 % Change	Feb-17	Feb-17 vs. Jan-17 % Change	Mar-17	Mar-17 vs. Feb-17 % Change	Apr-17	Apr-17 vs. Mar-17 % Change	May-17	May-17 vs. Apr-17 % Change
<b>NOx Plan</b>													
Anhydrous Ammonia	\$ 100,508	\$ 84,801	-16%	\$ 54,828	-35%	\$ 43,262	-21%	\$ 90,962	110%	\$ 79,441	-13%	\$ 74,871	-6%
Emulsified Sulfur for NOx	-	-	Note 1	-	Note 1	-	Note 1	-	Note 1	-	Note 1	-	Note 1
Total NOx Plan O&M Expenses	\$ 100,508	\$ 84,801	-16%	\$ 54,828	-35%	\$ 43,262	-21%	\$ 90,962	110%	\$ 79,441	-13%	\$ 74,871	-6%

SO2 Plan:

Expense Month	Nov-16	Dec-16	Dec-16 vs. Nov-16 % Change	Jan-17	Jan-17 vs. Dec-16 % Change	Feb-17	Feb-17 vs. Jan-17 % Change	Mar-17	Mar-17 vs. Feb-17 % Change	Apr-17	Apr-17 vs. Mar-17 % Change	May-17	May-17 vs. Apr-17 % Change
<b>SO2 Plan Expenses:</b>													
Disposal-Flyash/Bottom Ash/Sludge (Note 2)	\$ 747,499	\$ 811,158	9%	\$ 539,804	-33%	\$ 286,661	-47%	\$ 348,214	21%	\$ 503,533	45%	\$ 561,983	12%
Fixation Lime	135,888	133,368	-2%	142,618	7%	82,108	-42%	85,193	4%	85,621	1%	112,145	31%
Reagent-Limestone	185,618	172,492	-7%	209,513	21%	111,156	-47%	138,861	25%	115,192	-17%	159,505	38%
Reagent-Lime	901,589	1,139,225	26%	1,096,184	-4%	444,548	-59%	539,367	21%	715,045	33%	878,776	23%
Emulsified Sulfur for SO2	18,544	18,560	0%	12,332	-34%	15,682	27%	6,031	-62%	18,838	212%	6,276	-67%
Reagent-DiBasic Acid	86,304	119,833	39%	101,231	-16%	70,992	-30%	86,800	22%	58,029	-33%	88,518	53%
Reagent-Sodium Bisulfite for SO2	30,365	30,807	1%	25,560	-17%	15,232	-40%	35,631	134%	26,218	-26%	30,444	16%
Total SO2 Plan O&M Expenses	\$ 2,105,807	\$ 2,425,443	15%	\$ 2,127,242	-12%	\$ 1,026,379	-52%	\$ 1,240,097	21%	\$ 1,522,476	23%	\$ 1,837,647	21%

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SO3 Plan:

Expense Month	Nov-16	Dec-16	Dec-16 vs. Nov-16 % Change	Jan-17	Jan-17 vs. Dec-16 % Change	Feb-17	Feb-17 vs. Jan-17 % Change	Mar-17	Mar-17 vs. Feb-17 % Change	Apr-17	Apr-17 vs. Mar-17 % Change	May-17	May-17 vs. Apr-17 % Change
<b>SO3 Plan Expenses:</b>													
Hydrated Lime - SO3	\$ -	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1
Total SO3 Plan O&M Expenses	\$ -	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1	\$ -	Note 1

2012 Plan:

Expense Month	Nov-16	Dec-16	Dec-16 vs. Nov-16 % Change	Jan-17	Jan-17 vs. Dec-16 % Change	Feb-17	Feb-17 vs. Jan-17 % Change	Mar-17	Mar-17 vs. Feb-17 % Change	Apr-17	Apr-17 vs. Mar-17 % Change	May-17	May-17 vs. Apr-17 % Change
<b>2012 Plan Expenses:</b>													
Project 9 - Wilson Hg	\$ 116,145	\$ 71,790	-38%	\$ 104,659	46%	\$ 54,371	-48%	\$ 71,555	32%	\$ 82,847	16%	\$ 87,458	6%
Project 10 - Green Hg	401,169	490,719	22%	477,825	-3%	364,805	-24%	215,775	-41%	358,220	66%	418,500	17%
Project 11 - HMP&L Hg	7,430	4,695	-37%	9,581	104%	31,299	227%	30,188	-4%	22,463	-26%	2,253	-90%
Total 2012 Plan	\$ 524,744	\$ 567,204	8%	\$ 592,065	4%	\$ 450,475	-24%	\$ 317,518	-30%	\$ 463,530	46%	\$ 508,211	10%
<b>Total</b>	<b>\$ 2,731,059</b>	<b>\$ 3,077,448</b>		<b>\$ 2,774,135</b>		<b>\$ 1,520,116</b>		<b>\$ 1,648,577</b>		<b>\$ 2,065,447</b>		<b>\$ 2,420,729</b>	

Note 1: Percentage change not calculated because the cost incurred during the prior expense month was \$0.

Note 2: The monthly totals for Disposal Bottom Ash, Disposal Flyash and Disposal Flyash/Bottom Ash/Sludge have been consolidated due to similarity to better facilitate comparability.



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**Variance Explanations:**

Anhydrous Ammonia:

Dec-16 vs. Nov-16	-16%	The decrease was due to timing of product delivery and invoicing at Wilson.
Jan-17 vs. Dec-16	-35%	The decrease was due to low load operation at HMP&L that reduces ammonia requirement and timing of product delivery and invoicing at Wilson.
Feb-17 vs. Jan-17	-21%	The decrease was due to low load operation at HMP&L that reduces ammonia requirement.
Mar-17 vs. Feb-17	110%	The increase was due to timing of product delivery and invoicing at HMP&L, along with February outage and reserve standby hours at Wilson.
Apr-17 vs. Mar-17	-13%	The decrease was due to low load operation and timing of product delivery and invoicing at HMP&L.

Disposal-Flyash/Bottom Ash/ Sludge:

Jan-17 vs. Dec-16	-33%	The decrease was due to decreased generation and fuel burn at Green and HMP&L.
Feb-17 vs. Jan-17	-47%	The decrease was due to decreased generation and fuel burn at Green and HMP&L.
Mar-17 vs. Feb-17	21%	The increase was due to increased generation and fuel burn at Green and HMP&L.
Apr-17 vs. Mar-17	45%	The increase was due to increased generation and fuel burn at Green and the start of booking/accruing of true-up costs for landfill wall project.
May-17 vs. Apr-17	12%	The increase was due to increased generation and fuel burn at Green and April outage hours at Wilson.

Fixation Lime:

Feb-17 vs. Jan-17	-42%	The decrease was due to decreased generation and fuel burn at Green and HMP&L, along with February outage and reserve standby hours at Wilson.
May-17 vs. Apr-17	31%	The increase was due to increased generation and fuel burn at Green.

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**Variance Explanations (continued):**

Reagent-Limestone:

Jan-17 vs. Dec-16	21%	The increase was due to timing of product delivery and invoicing at Wilson.
Feb-17 vs. Jan-17	-47%	The decrease was due to decreased generation and fuel burn from outage and reserve standby hours at Wilson in February.
Mar-17 vs. Feb-17	25%	The increase was due to increased generation and fuel burn in March after outage and reserve standby hours at Wilson in February.
Apr-17 vs. Mar-17	-17%	The decrease was due to timing of product delivery and invoicing at Wilson.
May-17 vs. Apr-17	38%	The increase was due to increased generation and fuel at Wilson.

Reagent-Lime:

Dec-16 vs. Nov-16	26%	The increase was due to increased generation and fuel burn at Green and HMP&L.
Feb-17 vs. Jan-17	-59%	The decrease was due to decreased generation and fuel burn at Green and HMP&L.
Mar-17 vs. Feb-17	21%	The increase was due to increased generation and fuel burn at Green and HMP&L.
Apr-17 vs. Mar-17	33%	The increase was due to increased generation and fuel burn at Green and HMP&L.
May-17 vs. Apr-17	23%	The increase was due to increased generation and fuel burn at Green.

Emulsified Sulfur for SO<sub>2</sub>:

Jan-17 vs. Dec-16	-34%	Emulsified sulfur is ordered on an as needed basis and added in batch based on scrubber chemistry. The decrease was due to timing of product delivery and invoicing at HMP&L.
Feb-17 vs. Jan-17	27%	Emulsified sulfur is ordered on an as needed basis and added in batch based on scrubber chemistry. The increase was due to timing of product delivery and invoicing at HMP&L.
Mar-17 vs. Feb-17	-62%	Emulsified sulfur is ordered on an as needed basis and added in batch based on scrubber chemistry. The decrease was due to timing of product delivery and invoicing at HMP&L. No product delivered at HMP&L in March.
Apr-17 vs. Mar-17	212%	Emulsified sulfur is ordered on an as needed basis and added in batch based on scrubber chemistry. The increase was due to timing of product delivery and invoicing at HMP&L.
May-17 vs. Apr-17	-67%	Emulsified sulfur is ordered on an as needed basis and added in batch based on scrubber chemistry. The decrease was due to timing of product delivery and invoicing at HMP&L and Wilson.

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**Variance Explanations (continued) :**

Reagent-Dibasic Acid:

Dec-16 vs. Nov-16	39%	The increase was due to timing of product delivery and invoicing at Wilson, along with November outage hours at Wilson.
Jan-17 vs. Dec-16	-16%	The decrease was due to timing of product delivery and invoicing at Wilson.
Feb-17 vs. Jan-17	-30%	The decrease was due to decreased generation and fuel burn from outage and reserve standby hours at Wilson in February.
Mar-17 vs. Feb-17	22%	The increase was due to increased generation and fuel burn in March after outage and reserve standby hours at Wilson in February.
Apr-17 vs. Mar-17	-33%	The decrease was due to timing of product delivery and invoicing at Wilson.
May-17 vs. Apr-17	53%	The increase was due to timing of product delivery and invoicing at Wilson.

Reagent-Sodium BiSulfite for SO<sub>2</sub>:

Jan-17 vs. Dec-16	-17%	Sodium BiSulfite is ordered on an as needed basis and added in batch based on scrubber chemistry. The decrease was due to timing of product delivery and invoicing at Wilson.
Feb-17 vs. Jan-17	-40%	Sodium BiSulfite is ordered on an as needed basis and added in batch based on scrubber chemistry. The decrease was due to decreased generation and fuel burn from outage and reserve standby hours at Wilson in February.
Mar-17 vs. Feb-17	134%	Sodium BiSulfite is ordered on an as needed basis and added in batch based on scrubber chemistry. The increase was due to timing of product delivery and invoicing at Wilson, along with increased generation and fuel burn in March after outage and reserve standby hours at Wilson in February.
Apr-17 vs. Mar-17	-26%	Sodium BiSulfite is ordered on an as needed basis and added in batch based on scrubber chemistry. The decrease was due to timing of product delivery and invoicing at Wilson.
May-17 vs. Apr-17	16%	Sodium BiSulfite is ordered on an as needed basis and added in batch based on scrubber chemistry. The increase was due to timing of product delivery and invoicing at Wilson.

Project 9 - Wilson Hg

Dec-16 vs. Nov-16	-38%	The increase was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime with operational conditions.
Jan-17 vs. Dec-16	46%	The increase was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime with operational conditions.
Feb-17 vs. Jan-17	-48%	The increase was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime with operational conditions.
Mar-17 vs. Feb-17	32%	The increase was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime with operational conditions.
Apr-17 vs. Mar-17	16%	The increase was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime with operational conditions.

**Case No. 2017-00345**

**Attachment B for Response to Staff Item 3**

**Witnesses: Nicholas R. Castlen and Ronald D. Gregory**

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**Big Rivers Electric Corporation**  
**Case No. 2017-00345**  
**Form 2.50 - Operating and Maintenance Expense Analysis**  
**Costs Incurred December 1, 2016 through May 31, 2017**

**Variance Explanations (continued) :**

Project 10 - Green Hg

Dec-16 vs. Nov-16	22%	The increase was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime and Pulverized Activated Carbon with operational conditions.
Feb-17 vs. Jan-17	-24%	The decrease was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime and Pulverized Activated Carbon with operational conditions.
Mar-17 vs. Feb-17	-41%	The decrease was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime and Pulverized Activated Carbon with operational conditions.
Apr-17 vs. Mar-17	66%	The increase was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime and Pulverized Activated Carbon with operational conditions.
May-17 vs. Apr-17	17%	The increase was due to timing of product delivery and invoicing and variability in usage of Hydrated Lime and Pulverized Activated Carbon with operational conditions.

Project 11 - HMP&L Hg

Dec-16 vs. Nov-16	-37%	The decrease was due to variability in costs for trap analysis or stack testing, which are incurred on as needed basis for compliance monitoring.
Jan-17 vs. Dec-16	104%	The increase was due to variability in costs for trap analysis or stack testing, which are incurred on as needed basis for compliance monitoring.
Feb-17 vs. Jan-17	227%	The increase was due to variability in costs for trap analysis or stack testing, which are incurred on as needed basis for compliance monitoring.
Apr-17 vs. Mar-17	-26%	The decrease was due to variability in costs for trap analysis or stack testing, which are incurred on as needed basis for compliance monitoring.
May-17 vs. Apr-17	-90%	The decrease was due to variability in costs for trap analysis or stack testing, which are incurred on as needed basis for compliance monitoring.

**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM  
OF BIG RIVERS ELECTRIC CORPORATION  
FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
FOR THE TWO-YEAR BILLING PERIOD ENDING JULY 31, 2017  
AND THE PASS THROUGH MECHANISM  
OF ITS THREE MEMBER DISTRIBUTION COOPERATIVES  
CASE NO. 2017-00345**

**Response to Commission Staff's  
First Request for Information  
dated September 15, 2017**

**October 6, 2017**

1 **Item 4)** *Refer to Big Rivers' monthly environmental surcharge reports*  
2 *for the six-month review period and the last six expense months in the two-*  
3 *year review period. Provide the calculations and supporting data for the*  
4 *rates of return included in each monthly environmental surcharge filing.*  
5 *Provide all supporting calculations and documentation in Excel*  
6 *spreadsheet format, with formulas intact and unprotected and all rows and*  
7 *columns fully accessible.*

8

9 **Response)** Please see the attachment to this response for the calculations and  
10 supporting data for the rates of return included in each monthly environmental  
11 surcharge filing for the six-month review period and the last six expense months in  
12 the two-year review period. These calculations are also provided in Excel  
13 spreadsheet format, with formulas intact and unprotected and all rows and columns  
14 accessible, on the CD accompanying these responses.

15

16

17 **Witness)** Nicholas R. Castlen

18

**Big Rivers Electric Corporation**  
**Case No. 2017-00345**  
**Calculation of Rate of Return on Environmental Compliance Rate Base**  
**For the Expense Months: June 2016 - May 2017**

**Calculation of Monthly Rate of Return**

Expense Month	<u>Jun-16</u>	<u>Jul-16</u>	<u>Aug-16</u>	<u>Sep-16</u>	<u>Oct-16</u>	<u>Nov-16</u>
<b>Month-to-Date Interest Expense on Long-Term Debt:</b>						
RUS - Series A Note	\$ 383,559.54	\$ 396,408.14	\$ 396,410.24	\$ 383,622.82	\$ 396,472.13	\$ 383,689.12
RUS - Series B Note	\$ 746,911.31	\$ 782,935.81	\$ 782,935.81	\$ 757,679.82	\$ 794,347.74	\$ 768,723.62
CoBank - Series 2012A Notes	\$ 738,263.74	\$ 755,022.37	\$ 755,022.37	\$ 730,666.83	\$ 747,078.99	\$ 722,979.67
CFC - Series 2012B Refinance Note	\$ 923,148.37	\$ 952,896.51	\$ 952,912.49	\$ 915,585.53	\$ 945,334.23	\$ 915,585.54
CFC - Series 2012B Equity Note	\$ 169,547.36	\$ 169,547.36	\$ 169,547.35	\$ 167,855.57	\$ 167,855.57	\$ 167,855.56
Series 2010A P.C. Bonds	\$ 416,500.00	\$ 416,500.00	\$ 416,500.00	\$ 416,500.00	\$ 416,500.00	\$ 416,500.00
<b>(a) Total Monthly Interest Expense on Long-Term Debt</b>	<b>\$ 3,377,930.32</b>	<b>\$ 3,473,310.19</b>	<b>\$ 3,473,328.26</b>	<b>\$ 3,371,910.57</b>	<b>\$ 3,467,588.66</b>	<b>\$ 3,375,333.51</b>
Total Outstanding Long-Term Debt (Beginning of Month)	\$ 822,622,949.58	\$ 822,768,506.56	\$ 822,781,736.47	\$ 819,474,802.89	\$ 819,653,104.33	\$ 819,666,967.63
Total Outstanding Long-Term Debt (End of Month)	\$ 822,768,506.56	\$ 822,781,736.47	\$ 819,474,802.89	\$ 819,653,104.33	\$ 819,666,967.63	\$ 816,330,442.17
<b>(b) Average Outstanding Long-Term Debt during Month</b>	<b>\$ 822,695,728.07</b>	<b>\$ 822,775,121.52</b>	<b>\$ 821,128,269.68</b>	<b>\$ 819,563,953.61</b>	<b>\$ 819,660,035.98</b>	<b>\$ 817,998,704.90</b>
(c) Number of Days During Year	366	366	366	366	366	366
(d) Number of Days During Month	30	31	31	30	31	30
(e) Average Cost of Debt $[(a) \div (b)] \times [(c) \div (d)]$	5.01%	4.98%	4.99%	5.02%	4.99%	5.03%
(f) Applicable TIER <sup>1</sup>	1.24	1.24	1.24	1.24	1.24	1.24
<b>(g) Rate of Return on Environmental Compliance Rate Base <math>[(e) \times (f)]</math></b>	<b>6.21%</b>	<b>6.18%</b>	<b>6.19%</b>	<b>6.22%</b>	<b>6.19%</b>	<b>6.24%</b>

<sup>1</sup> Applicable Times Interest Earned Ratio (TIER) for calculating the Rate of Return on Environmental Compliance Rate Base per Big Rivers' ES Tariff approved by Order of the Commission dated October 1, 2012, in Case No. 2012-00063.



**Big Rivers Electric Corporation**  
**Case No. 2017-00345**  
**Calculation of Rate of Return on Environmental Compliance Rate Base**  
**For the Expense Months: June 2016 - May 2017**

**Calculation of Monthly Rate of Return**

Expense Month	<u>Dec-16</u>	<u>Jan-17</u>	<u>Feb-17</u>	<u>Mar-17</u>	<u>Apr-17</u>	<u>May-17</u>
<b>Month-to-Date Interest Expense on Long-Term Debt:</b>						
RUS - Series A Note	\$ 396,478.77	\$ 397,626.66	\$ 359,152.64	\$ 397,633.27	\$ 384,865.57	\$ 397,701.21
RUS - Series B Note	\$ 794,347.74	\$ 808,134.02	\$ 729,927.50	\$ 808,134.02	\$ 793,247.16	\$ 819,688.73
CoBank - Series 2012A Notes	\$ 747,078.99	\$ 739,041.28	\$ 667,521.15	\$ 738,782.00	\$ 707,330.44	\$ 730,908.12
CFC - Series 2012B Refinance Note	\$ 937,708.59	\$ 937,708.59	\$ 848,460.82	\$ 930,019.13	\$ 900,269.25	\$ 930,019.19
CFC - Series 2012B Equity Note	\$ 166,141.14	\$ 166,141.14	\$ 166,141.15	\$ 164,403.79	\$ 164,403.79	\$ 164,403.80
Series 2010A P.C. Bonds	\$ 416,500.00	\$ 416,500.00	\$ 416,500.00	\$ 416,500.00	\$ 416,500.00	\$ 416,500.00
<b>(a) Total Monthly Interest Expense on Long-Term Debt</b>	<b>\$ 3,458,255.23</b>	<b>\$ 3,465,151.69</b>	<b>\$ 3,187,703.26</b>	<b>\$ 3,455,472.21</b>	<b>\$ 3,366,616.21</b>	<b>\$ 3,459,221.05</b>
Total Outstanding Long-Term Debt (Beginning of Month)	\$ 816,330,442.17	\$ 816,517,136.27	\$ 816,530,909.17	\$ 813,164,517.58	\$ 813,314,211.12	\$ 813,327,918.51
Total Outstanding Long-Term Debt (End of Month)	\$ 816,517,136.27	\$ 816,530,909.17	\$ 813,164,517.58	\$ 813,314,211.12	\$ 813,327,918.51	\$ 809,931,385.00
<b>(b) Average Outstanding Long-Term Debt during Month</b>	<b>\$ 816,423,789.22</b>	<b>\$ 816,524,022.72</b>	<b>\$ 814,847,713.38</b>	<b>\$ 813,239,364.35</b>	<b>\$ 813,321,064.82</b>	<b>\$ 811,629,651.76</b>
<b>(c) Number of Days During Year</b>	<b>366</b>	<b>365</b>	<b>365</b>	<b>365</b>	<b>365</b>	<b>365</b>
<b>(d) Number of Days During Month</b>	<b>31</b>	<b>31</b>	<b>28</b>	<b>31</b>	<b>30</b>	<b>31</b>
<b>(e) Average Cost of Debt [(a) ÷ (b)] x [(c) ÷ (d)]</b>	<b>5.00%</b>	<b>5.00%</b>	<b>5.10%</b>	<b>5.00%</b>	<b>5.04%</b>	<b>5.02%</b>
<b>(f) Applicable TIER <sup>1</sup></b>	<b>1.24</b>	<b>1.24</b>	<b>1.24</b>	<b>1.24</b>	<b>1.24</b>	<b>1.24</b>
<b>(g) Rate of Return on Environmental Compliance Rate Base [(e) x (f)]</b>	<b>6.20%</b>	<b>6.20%</b>	<b>6.32%</b>	<b>6.20%</b>	<b>6.25%</b>	<b>6.22%</b>

**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM  
OF BIG RIVERS ELECTRIC CORPORATION  
FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
FOR THE TWO-YEAR BILLING PERIOD ENDING JULY 31, 2017  
AND THE PASS THROUGH MECHANISM  
OF ITS THREE MEMBER DISTRIBUTION COOPERATIVES  
CASE NO. 2017-00345**

**Response to Commission Staff's  
First Request for Information  
dated September 15, 2017**

**October 6, 2017**

1 **Item 5)** *KRS 278.183(3) provides that during the two-year review, the*  
2 *Commission shall, to the extent appropriate, incorporate environmental*  
3 *surcharge amounts found just and reasonable into the existing base rates*  
4 *of the utility.*

5

6 *a. Does Big Rivers believe any surcharge amounts need to be*  
7 *incorporated into its base rates in conjunction with this two-*  
8 *year review? If so, provide the surcharge amount that Big*  
9 *Rivers believes should be incorporated into its existing base*  
10 *rates.*

11 *b. For subpart a. above, explain how the surcharge amount*  
12 *should be incorporated into the base rates, including all*  
13 *supporting calculations, work papers, and assumptions as*  
14 *well as any analysis that Big Rivers believes supports its*  
15 *position. Provide all supporting schedules in Excel*  
16 *spreadsheet format, with formulas intact and unprotected*  
17 *and all rows and columns fully accessible.*

**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM  
OF BIG RIVERS ELECTRIC CORPORATION  
FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
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CASE NO. 2017-00345**

**Response to Commission Staff's  
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**October 6, 2017**

- 1           c.   *Provide the Base Environmental Surcharge Factor ("BESF")*  
2                   *that reflects all environmental surcharge amounts*  
3                   *previously incorporated into existing base rates and the*  
4                   *amount determined in subpart b. above. Include all*  
5                   *supporting calculations, work papers, and assumptions.*  
6                   *Provide all supporting schedules in Excel spreadsheet*  
7                   *format, with formulas intact and unprotected and all rows*  
8                   *and columns fully accessible.*
- 9           d.   *Does Big Rivers believe that there will need to be*  
10                   *modifications to either the surcharge mechanism or the*  
11                   *monthly surcharge reports, other than a revision to BESF, as*  
12                   *a result of incorporating environmental surcharge amounts*  
13                   *into Big Rivers' existing base rates? If so, provide a detailed*  
14                   *explanation of the modifications and provide updated*  
15                   *monthly surcharge reports.*

16  
17   **Response)**

**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM  
OF BIG RIVERS ELECTRIC CORPORATION  
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**October 6, 2017**

1           a. Big Rivers does not believe any surcharge amounts need to be  
2           incorporated into its base rates in conjunction with this two-year  
3           environmental surcharge (ES) review. This position aligns with  
4           Big Rivers' Members' request that any amount appearing on the  
5           ES line of a customer's billing statement represent a customer's  
6           total portion of his(her) environmental compliance charges, versus  
7           having a portion of those charges embedded in Big Rivers' existing  
8           base rates.

9           Commission Staff noted this position in its Informal  
10          Conference (IC) Memo, dated March 23, 2016, in Case No. 2015-  
11          00320.<sup>1</sup> In its Order dated May 31, 2016, in Case No. 2013-00320,<sup>2</sup>  
12          the Commission noted that Big Rivers' position was reasonable at  
13          the time of that Order. Big Rivers' Members' position is unchanged  
14          from the earlier two-year review. Therefore, Big Rivers believes

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<sup>1</sup> See *In the Matter of: An Examination By The Public Service Commission Of The Environmental Surcharge Mechanism Of Big Rivers Electric Corporation For The Two-Year Billing Period Ending June 31, 2015 And The Pass Through Mechanism Of Its Three Member Distribution Cooperatives*. IC Memo filed March 23, 2016.

<sup>2</sup> *Ibid.* Order dated May 31, 2016, page 7.

**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
OF THE ENVIRONMENTAL SURCHARGE MECHANISM  
OF BIG RIVERS ELECTRIC CORPORATION  
FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
FOR THE TWO-YEAR BILLING PERIOD ENDING JULY 31, 2017  
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CASE NO. 2017-00345**

**Response to Commission Staff's  
First Request for Information  
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**October 6, 2017**

- 1                   this position remains reasonable and does not recommend any roll-  
2                   in into its base rates.  
3                   b.   Not Applicable.  
4                   c.   Not Applicable.  
5                   d.   Not Applicable.

6  
7

8 **Witnesses)** Roger D. Hickman (*a. only*) and  
9                   Nicholas R. Castlen (*b., c., and d. only*)

10

**BIG RIVERS ELECTRIC CORPORATION**

**AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION  
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OF BIG RIVERS ELECTRIC CORPORATION  
FOR THE SIX-MONTH BILLING PERIOD ENDING JANUARY 31, 2017,  
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CASE NO. 2017-00345**

**Response to Commission Staff's  
First Request for Information  
dated September 15, 2017**

**October 6, 2017**

1 **Item 6)**     *Refer to Form 2.20, Inventories of Spare Parts and Limestone,*  
2 *for the expense month ending May 31, 2017. Confirm that the amounts*  
3 *provided for Wilson -Limestone Inventory are correct.*

4

5 **Response)** Confirmed.

6

7

8 **Witness)**   Nicholas R. Castlen

9