### SULLIVAN, MOUNTJOY, STAINBACK & MILLER PSC

ATTORNEYS AT LAW

Ronald M. Sullivan Jesse T. Mountjoy Frank Stainback James M. Miller

Michael A. Fiorella Allen W. Holbrook R. Michael Sullivan Bryan R. Reynolds Tyson A. Kamuf Mark W. Starnes

C. Ellsworth Mountion

Susan Montalvo-Gesser

Via Federal Express

September 3, 2010

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

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PUBLIC SERVICE COMMISSION

In the Matter of: Application of Big Rivers Electric Corporation Re:

for Approval to Transfer Functional Control of Its Transmission System to Midwest Independent Transmission System Operator, Inc.

PSC Case No. 2010-00043

Dear Mr. DeRouen:

Enclosed for filing on behalf of Big Rivers Electric Corporation ("Big Rivers") are an original and nine copies of an update to the application filed in this matter and updates to the following data request responses previously filed by Big Rivers: Items 1-3, 1-5, and 1-7 of the first data request of Kentucky Industrial Utility Customers, Inc. ("KIUC"), Item 2-20 of KIUC's second data request, and Items 1 and 9 of Commission Staff's first data request. A copy of this letter and all attachments hereto have been served on the attached service list.

Sincerely,

Tyson Kamuf

TAK/ei **Enclosures** 

Albert M. Yockey cc:

> David G. Crockett C. William Blackburn

Ralph L. Luciani Douglas Beresford John Lilyestrom

Service List

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

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

### Service List Case No. 2010-00043

Keith L. Beall Gregory A. Troxell Midwest ISO, Inc. 701 City Center Drive P.O. Box 4202 Carmel, Indiana 46082-4202

Mark David Goss Frost Brown Todd LLC Suite 2800 250 West Main Street Lexington, KY 40507-1749

David C. Brown, Esq. STITES & HARBISON 1800 Providian Center 400 West Market Street Louisville, Kentucky 40202

Michael L. Kurtz, Esq. BOEHM, KURTZ & LOWRY 36 East Seventh Street, Suite 1510 Cincinnati, Ohio 45202

Hon. Dennis G. Howard, II Hon. Lawrence W. Cook Assistant Attorneys General 1024 Capital Center Drive Suite 200 Frankfort, KY 40601-8204

### **VERIFICATION**

I verify, state, and affirm that the updated 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.

C. William Blackburn

COMMONWEALTH OF KENTUCKY )
COUNTY OF HENDERSON )

SUBSCRIBED AND SWORN TO before me by C. William Blackburn on this the  $\frac{7^{57}}{100}$  day of September, 2010.

Notary Public, Ky. State at Large My Commission Expires 03/03/2014

### **VERIFICATION**

I verify, state, and affirm that the updated 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.

David G. Crockett

COMMONWEALTH OF KENTUCKY )
COUNTY OF HENDERSON )

SUBSCRIBED AND SWORN TO before me by David G. Crockett on this the  $\boxed{\Box^{\dagger}}$  day of August, 2010.

Notary Public, Ky. State at Large
My Commission Expires 1 - 9 - 2014

### BIG RIVERS ELECTRIC CORPORATION'S SECOND UPDATE TO THE APPLICATION AND DATA REQUEST RESPONSES PSC CASE NO. 2010-00043 September 7, 2010

1

- 2 Update to Application) Attached is a new Attachment RR-1 executed by Big Rivers to
- 3 obtain Reserve Services from MISO for the period October 1, 2010, through January 1, 2011.
- 4 This Attachment RR-1 will replace the one filed as Exhibit 13 to the Application in this matter.

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Witness) David G. Crockett

### **ATTACHMENT RR-1**

### Form of Service Agreement for Real-Time Reserve Services During Phased Integration

1.0	This Service Agreement, dated as of theday of, is entered
	into, by and between the Midwest ISO ("Transmission Provider") and Big Rivers
	Electric Corporation ("Reserve Services Customer"), (also hereafter referred to as
	Party or Parties as the context requires).

- 2.0 The Reserve Services Customer has been determined by the Transmission Provider to be eligible for Reserve Services as set forth in Attachment RR of the Tariff, and the Transmission Provider agrees to provide service upon the request of an authorized representative of the Reserve Services Customer.
- 3.0 The Reserve Services Customer: (i) agrees to supply information as set forth in Attachment RR of this Tariff, and such other information, data, and specifications reasonably necessary, in accordance with Good Utility Practice, to permit the Transmission Provider to provide the requested service; (ii) agrees to perform the obligations required of Reserve Services Customers set forth in the Tariff; and, (iii) agrees to take and pay for the requested service in accordance with the provisions of the Tariff and this Service Agreement.
- 4.0 Service under this Service Agreement shall commence on the date set forth in Paragraph 7.0 herein, or a date that may be established by the Commission. Service under this Service Agreement shall terminate on the termination date set forth in Paragraph 7.0 herein, or as otherwise required by Commission orders or regulations.
- 5.0 Any notice required or authorized by Attachment RR or this Service Agreement ("Notice") or a request made by a Party regarding this Service Agreement shall be in writing. Notice shall be personally delivered, transmitted by facsimile (with receipt verbally or electronically confirmed), emailed, delivered by overnight courier or mailed, postage prepaid, to the other Party at the address designated below. A Party may change its designated address upon Notice to the other Party.

	Transmission Provider	Reserve Services Customer
Name	Stephen G. Kozey	Mark A. Bailey
Title:	General Counsel	President & CEO
Address:	PO Box 4202	P.O. Box 24
	Carmel, IN 46082-4202	Henderson, KY 42419
	Fax: 317-249-5912	Fax: 270-827-2558
Email@	skozey@midwestiso.org	mbailey@bigrivers.com

6.0	Description of Reserve Services Customer points of interconnection, via the Transmission Owner's facilities, with the Transmission System:
	[Attach a separate sheet if necessary, listing points of interconnection]
7.0	Upon meeting all other conditions required by Attachment RR and the Tariff, the Reserve Services Customer and Transmission Provider agree to commence service at hour 00:01 (Midwest ISO system operations time) on the 1st day of October, 2010. Service under this Service Agreement shall terminate automatically upon the earlier of: (i) hour 00:01(Midwest ISO system operations time) January 1, 2011; or (ii) the integration of the Reserve Services Customer's Balancing Authority into the Midwest ISO Balancing Authority Area.
8.0	The Parties mutually agree to use Zone 1 as a representative Reserve Zone for the purpose of determining the Regulation and Spinning Reserves Distribution rate to be used in the calculation of charges under Section C.3 of Attachment RR. This representative Reserve Zone may be changed only by mutual consent of the Parties, and will remain in effect until termination of this Service Agreement.
9.0	Representations and Warranties. Each Party represents and warrants to the other that, as of the date it executes this Service Agreement:
	9.1 The Party is duly organized, validly existing and in good standing under the laws of the jurisdiction where organized;

The execution and delivery by the Party of this Service Agreement and the performance of its obligations hereunder have been duly and validly authorized by all requisite action on the part of the Party and do not

conflict, based on present knowledge and information, with any applicable law or with any other agreement binding upon the Party; this Service Agreement has been duly executed and delivered by the Party, and, upon

The Tariff is incorporated herein and made a part hereof.

5.0

9.2

receipt of any necessary regulatory approvals, this Service Agreement constitutes the legal, valid and binding obligation of the Party enforceable against it in accordance with its terms except insofar as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization, fraudulent conveyance, moratorium or other similar laws affecting the enforcement of creditor's rights generally and by general principles of equity regardless of whether such principles are considered in a proceeding at law or in equity;

- 9.3 There are no actions at law, suits in equity, proceedings or claims pending or, to the knowledge of the Party, threatened against the Party before or by any federal, state, foreign or local court, tribunal or governmental agency or authority that might materially delay, prevent or hinder the performance by the Party of its obligations hereunder; and
- 9.4 It is in compliance with all NERC and Regional Entity standards applicable to its operations and facilities.
- 10. <u>Assignment</u>. Neither Party may assign this Service Agreement or its rights hereunder without the prior written consent of the other Party, which consent shall not be unreasonably withheld, except in the case of a merger, consolidation, sale, or spin-off of substantially all of a Party's assets. Notwithstanding anything to the contrary herein, the following conditions shall apply to assignment of this Service Agreement by the Reserve Services Customer: (1) assignment may be made to only another eligible Reserve Services Customer; (2) if any change is requested by the assignee, it may be approved by the Transmission Provider only if such change does not impair reliability; and (3) the assignee must agree to be subject to and bound by all applicable terms and conditions of the Service Agreement and the Tariff.
- 11. <u>Third Party Beneficiaries</u>. There are no intended third-party beneficiaries of this Service Agreement. Nothing in this Service Agreement shall be construed to create any duty to, any standard of care with reference to, or any liability to, any person not a Party to this Service Agreement.
- 12. Entire Agreement. This Service Agreement, which incorporates the Tariff, constitutes the entire understanding and agreement of the Parties, and supersedes any and all previous communications, representations, understandings, and agreements (oral or written) between the Parties with respect to the subject matter hereof. The headings used in this Service Agreement are for purposes of convenience only and shall not be construed to affect the meaning or construction of any of the provisions hereof.
- 13. <u>No Joint Venture</u>. Nothing contained in this Service Agreement shall be construed to imply the existence of a joint venture, principal and agent relationship, or employment relationship between the Parties, and no Party shall

- have any right, power or authority to create any obligation, express or implied, on behalf of the other Party without the express written consent of the other.
- 14. <u>Governing Law</u>. This Service Agreement, to the extent not subject to the jurisdiction of the FERC, shall be governed by and construed in accordance with applicable State laws.
- Additional Terms. If the Reserve Services Customer is the United States of America or an agency thereof, the terms and conditions found in Section 12B of the Tariff applicable to participation by the United State of America shall be incorporated in this Service Agreement and shall become a part hereof by this reference. If the Reserve Services Customer is a public-power entity, the terms and conditions found in Section 12E of the Tariff applicable to participation by public power entities shall be incorporated in this Service Agreement and shall become a part hereof by this reference.
- 16. No Waiver of Jurisdictional Immunity. If the Reserve Services Customer is not subject to the jurisdiction of the FERC as a "public utility" under the Federal Power Act, the Reserve Services Customer shall not be required to take any action or participate in any filing or appeal that would confer FERC jurisdiction over the Reserve Services Customer. Nothing in this Service Agreement waives any objection to, or otherwise constitutes consent to, the jurisdiction by FERC over the Reserve Services Customer or its transmission service, facilities and rates.

IN WITNESS WHEREOF, the Parties have caused this Service Agreement to be executed by their respective authorized officials.

	Transmission Provider		Reserve Services Custor	<u>mer</u>
Ву:		By:	marka. Ta	ilen
Name:		Name:	Mark A. Bailey	
Title:		Title:	President & CEO	
Date:		Date:	July 27, 2010	

### BIG RIVERS ELECTRIC CORPORATION'S SECOND UPDATE TO THE APPLICATION AND DATA REQUEST RESPONSES PSC CASE NO. 2010-00043 September 7, 2010

1	Item PSC 1-1) Refer to the Direct Testimony of Mark A. Bailey at page 13.
2	a. Has Big Rivers found any new options to satisfy its Contingency Reserve
3	Obligations on a long term basis since the original filing?
4	b. If so, identify and describe those options.
5	
6	Update to Response) Big Rivers continued discussion of a power purchase option with Southern
7	Illinois Power Cooperative ("SIPC") during the period of time from April through June 2010.
8	On May 24, 2010, SIPC provided Big Rivers a revised capacity charge proposal for their
9	combustion turbines in the amount of \$4.38 per kW-month. SIPC indicated that this proposal
10	included the transmission costs for the delivery of this power to the Big Rivers system. SIPC
11	had previously informed Big Rivers that 75 MW of firm transmission was available via
12	grandfathered transmission rights of SIPC across the 161kV transmission interconnection with
13	Big Rivers and that the remaining 75 MW of transmission would have to be acquired through a
14	service request (TSR) on the Midwest ISO OASIS. This purchase option obviously does not by
15	itself represent enough firm power to replace all of the 320 MWs of interruptible smelter load
16	which must be restored within 105 minutes per the NERC Standard.
17	
18	Big Rivers continued discussion of a power purchase option with Paducah Power System.
19	However, when a transmission service request on the E.ON system was being pursued, Big
20	Rivers learned that Paducah Power had not completed a required Large Generator
21	Interconnection Agreement ("LGIA") with E.ON. Without the completion of transmission

22

system studies necessary to provide generator interconnection service pursuant to an LGIA, the

Paducah combustion turbine units can only be used to serve load on the Paducah system and cannot be sold to another utility. To date, Big Rivers is not aware of Paducah pursuing this matter with E.ON.

Big Rivers has discussed power purchase options with Owensboro Municipal Utilities ("OMU").

OMU was willing to discuss a short term firm power sale commitment of maybe up to 100 MWs.

OMU agreed to pursue the firm transmission across the E.ON system to deliver the power to Big

Rivers. To date, Big Rivers does not believe that OMU has made this transmission service

request.

Big Rivers has discussed a firm power purchase with Bluegrass Generating. Big Rivers, upon request, supplied a capacity purchase price for the Bluegrass combustion turbines that was acceptable to Big Rivers. Bluegrass Generating did not accept the Big Rivers capacity charge proposal and submitted its own schedule of annual capacity charges for each year from 2011 through 2015. Big Rivers also submitted a transmission service request for 324 MWs out of the E.ON system from Bluegrass to the Big Rivers system. SPP required a system impact study be performed and Big Rivers agreed to pay SPP to complete it. The results indicated that approximately \$3.9 million in E.ON system upgrades were required and that a Facilities Study would be required in order to refine the cost and time schedule for the completion of those projects. Additionally, SPP indicated that Big Rivers would need to engage East Kentucky Power, Vectren, Duke, and TVA in studies of potential impacts on their systems as well in order for the service to be provided. Big Rivers consulted with the smelters and chose not to pursue the additional studies with any of these parties.

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21 Witness)

membership.

David G. Crockett

Big Rivers has discussed a power purchase with East Kentucky Power. Big Rivers submitted a transmission service request for 100 MWs of firm service across the E.ON system from East Kentucky to Big Rivers. SPP informed Big Rivers that the transmission service could be approved. Big Rivers withdrew that transmission request and re-submitted a firm service request for 400 MWs. SPP required a system impact study be performed and Big Rivers agreed to pay SPP to complete it. The results indicated that approximately \$200,000 in accelerated costs for three transmission upgrades would be incurred by E.ON. This study however was conducted by SPP with the presumption that the \$3.9 million in E.ON system upgrades from the earlier Bluegrass studies had been completed. SPP again indicated that a Facilities Study would be required for the E.ON system and that again further studies involving East Kentucky, Vectren, and TVA were necessary for the service to be provided. Due to the cost involved in the additional study or studies, Big Rivers again chose not to pursue this and instead submitted another firm transmission service request for 200 MWs across E.ON. Big Rivers is awaiting the results of this request from SPP.

While no alternative solution to the Contingency Reserve problem has thus been identified, Big

Rivers continues to explore economically advantageous alternatives to Midwest ISO

### BIG RIVERS ELECTRIC CORPORATION'S SECOND UPDATE TO THE APPLICATION AND DATA REQUEST RESPONSES PSC CASE NO. 2010-00043 September 7, 2010

1		
2	Item PSC 1-9	Refer to pages 37 - 38 of the Direct Testimony of David G. Crockett
3	("Crockett Te	stimony"). Provide the cost of the Reserves Agreement under which Big Rivers
4	will satisfy its	contingency reserve obligation during the period January 1, 2010 to September
5	1, 2010.	
6		
7	Update to Re	sponse) The actual costs for access to reserves under Attachment RR for the
8	months of Apr	ril 2010 through June 2010 are as follows:
9	April	\$88,992.04
10	May	\$72,190.35
11	June	\$59,011.58
12	These amount	s are the costs for just having the reserve agreement in place; they do not include
13	the cost for po	wer actually purchased under Attachment RR. MISO has not yet invoiced Big
14	Rivers for July	y or August 2010.
15		
16	Witness)	C. William Blackburn

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### BIG RIVERS ELECTRIC CORPORATION'S SECOND UPDATE TO THE APPLICATION AND DATA REQUEST RESPONSES PSC CASE NO. 2010-00043 September 7, 2010

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Item KIUC 1-3) If not included in your responses to Item 1 or Item 2, please provide all Documents and Studies to/from Big Rivers, CRA, and MISO, or any other firm acting on behalf of Big Rivers relating to the estimate of the benefits and/or costs to Big Rivers to join MISO.

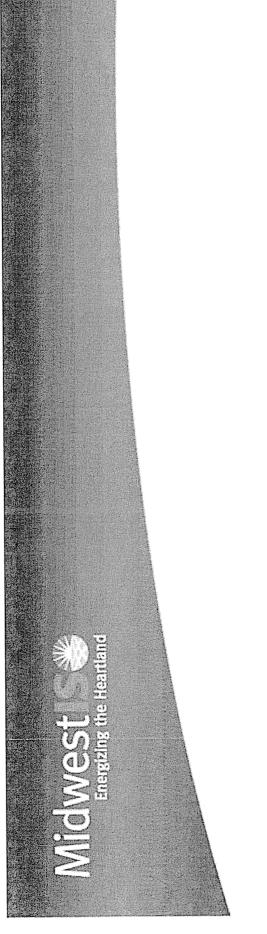
6

7

**Update to Response)** See attached PowerPoint presentation prepared by MISO.

8

9 Witness) David G. Crockett



# Midwest SO Cost Allocation

Big Rivers Electric Corporation July 28, 2010

Update to Item KIUC 1-3
Page 2 of 23

Cost Allocation Project Types

Baseline Reliability

Transmission Access

Market Efficiency

Multi Value Projects



# Cost A location: Profect I yours

- Baseline Reliability Projects
- Transmission Access Projects
- Generator Interconnection Projects
- Transmission Delivery Service Projects
- Market Efficiency Projects
- Multi Value Projects (MVP)
- Other Projects
- None of the above



### Cost Allocation and Recovery Vechanish

Multi Value Projects (MVP)

Pedional Indiana

5 of

Reliability (RECB I)
Market Efficiency
(RECB II)
Generator
Interconnection
Projects
Other Direct
Assigned Projects

Local

The cost allocation goals are

- -A fair system
- -Get transmission built to
- address a wide variety of goals –Maintain the Midwest ISO
- Value Proposition

MVP approach was filed at FERC on July 15<sup>th</sup>

State participation in the process reduces recovery risk to the extent

- —Investments are deemed to be in the public interest
  - -The cost allocation is seen as

Midwest Assigned Projects

### Qualification

- Network Upgrades identified in the base case as required to ensure standards and reliability standards adopted by Regional Reliability Organizations and applicable within the Transmission Provider that the Transmission System is in compliance with applicable national Electric Reliability Organization ("ERO") reliability Region.
- Project cost must be greater than \$5M or 5% of the Transmission Owners Net Plant

### Cost Allocation

- than 345 kV are assigned to the affected pricing zones based on 100% of costs for network upgrades 100 kV or greater and less -ine Outage Distribution Factor (LODF)
- 20% postage stamp allocation for network upgrades 345 kV or greater



### Transmission Access

- Generator Interconnection
- Qualification
- Interconnection study are eligible for sharing All network upgrades identified through the
- Coast Allocation
- Generator pays 100% of network upgrades less than 345kV
- Generator pays 90% of network upgrades greater than or equal to 345kV with the remaining shared via a postage stamp rate
- Transmission Delivery Service
- Direct Assigned. No sharing.



### Market Efficiency Projects

### Qualification

- Network upgrades that are shown to have regional economic benefits as demonstrated through multi-metric and multi-year planning guided by the Planning Advisory Committee
- Involve facilities operating at voltages of 345kV or higher
- Project cost must be greater than \$5M
- Show a Benefit/Cost ratio on sliding scale of Weighted Gain No Loss: 1.2:1 in year 1 to 3.0:1 in year 10
- Weighted Gain No Loss = 70% Adjusted Production Cost
  - + 30% Load LMP

### Cost Allocation

- Projects shall be allocated on a sub region-wide basis to the three defined Planning Sub Regions based on the relative Eighty percent (80%) of the costs of the Market Efficiency benefit determined for each Planning Sub Region
- 20% postage stamp allocation to all load



upgrades that provide regional benefits including Multi Value Projects (MVP) are large network public policy needs, economic and reliability

MVP's are a new category of project that is eligible for cost sharing The MVP methodology was filed with the FERC on July 15, 2010 and will have an effective date of July 16, 2010 upon commission approva



### တ

# Must meet one of the following MVP Criteria

- Enable the Transmission System to reliably and economically deliver energy in support of public policy requirements
- multiple pricing zones with a Total MVP Benefit-to-Provide multiple types of economic value across Cost ratio of 1.0 or higher
- Issue that provides economic value across multiple Transmission Issue associated with a projected violation of a NERC or Regional Entity standard A Multi Value Project must address at least one and at least one economic-based Transmission pricing zones



### Other MVP Requirements

- approved by the Midwest ISO Board prior to July Must not be in-service, under construction or 16, 2010 or the date a Transmission Owner becomes a signatory member of the ISO Agreement, whichever is later
- Project must be greater than \$20M or 5% of the TO's net plant
- planning process and approved by the Midwest Must be evaluated through the Midwest ISO ISO Board



### Other MVP Requirements

- limited to, the construction or improvement of Project must include, but not necessarily be transmission facilities operating at voltages above 100 kV
- Request or Transmission Service Request do Projects driven solely by an Interconnection not qualify
- Cannot contain facilities in the Midwest ISO excludes list, Attachment FF-1



- The MVP revenue requirements will be collected through the MVP Usage Rate (MUR)
- The MUR will be applied to all monthly net withdrawals, drive out and through schedules

### MUR II

Withdrawal Weighting Factor) '/ (Monthly Net Actual Energy Withdrawals + monthly Real-Time Export Schedules + monthly Real-Time Schedules) Total MVP Annual Revenue Requirements \* Monthly

Applicable Month Prior Year Withdrawals / Total Prior Year Withdrawals Monthly Withdrawal Weighting Factor =



For MVPs approved before the new TO joins the Midwest ISO the TO would be

responsible for:

25% of the MVP usage rate in the first year

50% of the MVP usage rate in the second year

75% of the MVP usage rate in the third year

- 100% of the MVP usage rate in the fourth year and beyond



Agreements were not changed in the July Treatment of Schedule 26 charges, including MVPs, for Grandfathered 15th filling



# What kind of projects will be MVPs?

- that could qualify them as MVPs has been A set of "Starter Projects" with attributes developed by the Midwest ISO
- them, will be developed within 5-10 years These starter projects, or projects like after the approval of the MVP cost allocation methodology
- Represents about \$4.6B in investment



### Proposed MVP Starter Projects

	MVP Starter Projects	Zone (State)	Voltage Class	Estimated Cost
(1)	Big Stone-Brookings	XEL (ND/MN)	345 kV	\$150,000,000
(2)	Brookings-Twin Cities	XEL (MN)	345 kV	\$700,000,000
(3)	Lakefield-Mitchell County	ITCM (MN/IA)	345 kV	\$600,000,000
(4)	Sheldon-Webster-Blackhawk-Hazelton	MEC (IA)	345 kV	\$458,000,000
(2)	Dubuque-Spring Green & Lacrosse-Spring Green-W Middleton	ATC (WI)	345 kV	\$811,000,000
9 dat	Sheyenne-Audubon 230 kV rebuild	OTP (MN)	230 kV	\$60,000,000
	Thomas Hill-Adair-Ottumwa	AMMO (MO)	345 kV	\$195,000,000
	Adair to Palmyra	AMIL (IL)	345 kV	\$100,000,000
6 (tem	Palmyra-Quincy-Merdosia-Ipava & Ipava-Meredosia-Pawnee	AMIL (IL)	345 kV	\$345,000,000
KI (10)	Pawnee-Pana	AMIL (IL)	345 kV	\$76,000,000
OC (11)	Pana-Mt. Zion-Kansas-Sugar Creek	AMIL (IL)	345 kV	\$250,000,000
1-1	St. John to Hiple 2nd circuit	NIPS (IN)	345 kV	\$75,000,000
(13)	Davis Besse to Beaver 2nd circuit	FE (OH)	345 kV	\$71,000,000
(14)	Sidney-Rising	AMIL (IL)	345 kV	\$68,000,000
(15)	Michigan Thumb Loop Expansion	ITC (MI)	345 kV	\$510,000,000
(16)	Sullivan-Meadow Lake-Greentown <sup>1</sup>	DUK/AEP (IN)	765 kV	\$171,875,000
	Total			\$4,640,875,000



### Benefits of Starter Projects

- The Midwest ISO performed a benefits analysis of the MVP starter projects in support of the July 15th FERC
- Though driven by public policy requirements the projects will provide additional benefits including:
- Reduced aggregate production cost of delivered energy
- Maintaining or reducing the Midwest ISO Planning Reserve Margin
- The analysis used a production cost model to show how the introduction of the MVP Starter Projects provides regional benefits
- This analysis looked at range of future scenarios for 2015 and 2025 cases



# Annual Adjusted Production Cost Savings

- fuel, emission, variable operations and maintenance adjusted for pool imports cost and exports revenue Adjusted production cost is the combined cost of required for a generation fleet to produce energy
- The MVP starter projects relieve many of the highest areas of congestion in the Midwest ISO providing greater access to less expensive generation and thus adjusted production cost decreases
  - Adjusted Production Cost savings of \$300M in 2015 to \$1.3B in 2025
- Big Rivers share of savings in 2015 = \$3.3 million (assuming a 1.1% load ratio share)



## Annual Loss Savings

- The impact of MVP starter projects on system losses was analyzed for the "Business as Usual" future for the year 2015
- annual Midwest ISO system line losses by 1,503 GWh decreasing system losses from 3.09% of annual energy to 2.82%. The MVP starter projects decrease the year 2015
  - Expanding to a full 765kV overlay allows the year 2025 annual Midwest ISO system line losses to decrease by 1,975 GWh
- Loss Savings of \$68-\$104M
- Big Rivers share of savings ranges from \$0.75 million to \$1.1 million (assuming a 1.1% load ratio share)



# Roson Sara Savings Raylos

- Relieving congestion, or maintaining transfer limits, allows the Midwest ISO to maintain a lower reserve margin requirement than it otherwise would
- Midwest ISO LOLE studies have shown that congestion alone can lead to an increase in reserve requirement of 2,400MW
- \$960,000/MW the Midwest ISO can avoid ~\$2.3B in new capacity investment Assuming a generic capital cost of



## Comparison of Estimated Benefits and Costs to Big Rivers with Midwest ISO membership

Nominal Dollars in Millions	2011	2012	2013	2014	2015	Present Value
1) Decreased Cost to Serve Big Rivers Load	11.0	12.1	13.3	14.4	14.8	51.8
2) Estimatetd MVP Starter Project Benefits					4.0	3.7
3) Charges for Starter MVPs	0:0	0.0	(0.29)	(0.8)	(10.8)	(8.1)
4) Charges for RECB   Baseline Reliability Projects	0.0	0.0	0.0	(0.12)	(0.25)	(0.26)
5) Midwest ISO Administrative Charges	(4.6)	(4.1)	(3.9)	(3.9)	(4.1)	(16.5)
6) FERC Charges	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(2.8)
ପୁ 7) Internal Staffing/Equipment Costs	(0.8)	(0.8)	(0.8)	(0.8)	(0.8)	(3.2)
late	4.9	6.5	7.6	ω 1-	2.2	24.6
a c 8) Cost Avoided for 200 MW of New Reserves	22.0	22.6	23.1	23.7	24.3	92.0
7 Net Benefits	26.9	29.1	30.7	31.8	26.5	116.6
្នុធ្និ ខ្លួក • BREC transmission charges assumes only non-GFA load is charged	assumes	only no	n-GFA lo	ad is ch	ıarged	
<ul> <li>represents approximately</li> </ul>		1.1% of all Midwest ISO load	vest ISO	load		

- BREC transmission charges assumes only non-GFA load is charged
- represents approximately 1.1% of all Midwest ISO load
  - Additional MVP Starter Project Assumptions:
- First Energy is allocated their load ratio share of the starter projects All starter projects listed on slide 16 are in-service by 2015
- if First Energy is excluded the charges to BREC would increase no
  - more than 10%



Notes: Data for lines 1,5,6,7, and 8 sourced from Testimony of Mr. 08 to MTEP 10 annual project approvals assuming Big Rivers had Luciani. Present Value assumes an 8% discount rate. Baseline Reliability Project estimate based on historical average of MTEP been a member.

2

### Contacts

Jeremiah Doner

317-249-5717

Jesse Moser

317-249-2157



Update to Item KIUC 1-3
Page 23 of 23

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#### BIG RIVERS ELECTRIC CORPORATION'S SECOND UPDATE TO THE APPLICATION AND DATA REQUEST RESPONSES PSC CASE NO. 2010-00043 September 7, 2010

1	Item KIUC 1-5) Please provide all Documents and Studies generated internally by Big
2	Rivers relating to an estimate of benefits and cost to Big Rivers to join MISO. Please include
3	in your response all agendas, minutes or other Documents considered or reflecting actions,
1	including derivatives and decisions, by the Big Rivers Board of Directors.
5	
6	Update to Response) Attached are additional documents responsive to this request.
7	
3	Witness) David G. Crockett



#### Board Meeting April 6, 2010

Item 2 - MISO/Contingency Reserve Update Management's Report



### Membership Case No. 2010-00043 KPSC Application Filing - NSC

- Responded on April 7 to twenty-two items in KPSC data request
- Responded on April 7 to forty-one items in KIUC data request
- Supplemental data requests received by April 19 with responses due by April 30
- Hearing date set for July 7



## 2. HMP&L Discussions

- MISO agreed to carve out GFA treatment for the HMP&L contracts
- information and discuss need/timing for decision on Met with HMP&L on April 12 to provide updated MISO integration

# SIPC Combustion Turbines/Transmission

from BR versus MISO Transmission Service for the SIPC is investigating usage of GFA transmission SIPC CTs (2-75 MW units)

# 4. Combustion Turbines/Transmission

- Bluegrass Generating (3-156 MW units)-Transmission Service Request across E.ON system to Big Rivers
- Paducah Power (2-62 MW units)-Confidentiality Agreement being developed and requires transmission service across E.ON system to Big Rivers

#### 5. MISO

- Agreed to GFA treatment for the Kenergy contract but not for the smelter contracts
- Commercial Model Development deadline is June 15



# 6. Smelter Interruptible Load

- Agreed to provide the 330 MWs of interruptible load for Contingency Reserve
- Generating relative to supply of replacement Participating in discussions with Bluegrass power
- cost for Big Rivers and takes different position on Smelter consultant-higher MISO membership smelter contract GFA treatment issue



#### Board Meeting May 21, 2010

Item 5 - MISO/Contingency Reserve Update Management's Report



### Membership Case No. 2010-00043 KPSC Application Filing - MSO

- Responded on April 30 to thirteen items in KPSC second data request
- Responded on April 30 to twenty items in KIUC second data request
- Intervenor testimony due date extended from May 13 to May 28
- Hearing date unchanged-July 7



## 2. HMP&L Discussions

- MISO has met with and held teleconference with HMP&L concerning their options
- to discuss MISO integration and market operation HMP&L asked to meet with Big Rivers on May 10 matters
- > Talking with power marketing agent (TEA)
- would affect Big Rivers and HMP&L day-to-day > Questions focused on how market operation operations
- > Indicated likely to become MISO Market **Participant**



# SIPC Combustion Turbines/Transmission

- updated quotation after reviewing it with their Board SIPC management has promised to provide an this week
  - GFA firm transmission limited to 75 MWs with remaining transmission requiring MISO transmission reservation



# 4. Combustion Turbines/Transmission Options

Bluegrass Generating-TSR for 324 MWs from E.ON system to Big Rivers

>SPP study results due next week

>Supplied a power supply quote form (terms with no pricing)

must be performed by SPP for E.ON system before Paducah Power-Generator Interconnection Study TSR can be made

East Kentucky- TSR for 400 MWs across E.ON system to Big Rivers

>SPP study results due in late June



### 5. MISO Integration

- Commercial Model development
- Training Sessions
- Transmission Expansion Costs-MISO must file with FERC on July 15

# 6. Smelter Interruptible Load

- 330 MWs of interruptible load for Contingency Reserve
- Smelter consultant report on MISO costs under review 0

## Questions/Comments?



#### Board Reefing Une 18, 2010

MISO/Contingency Reserve Update



### KPSC Case No. 2010-00043 - MISO Membership

- Received on May 28 and reviewed smelter consultant's (KIUC) testimony
- Submitted data requests on June 9 to KIUC seeking additional information
- Submitted response to KIUC testimony on June 9 as well
- Received notification this week of delay in the hearing from July 7 to August 18



#### 2. HMP&L

HMP&L was that Big Rivers would initially be used MISO's understanding from discussions with as their agent in market operational matters

Data submissions to MISO have included the Station Two units



# SIPC Combustion Turbines/Transmission

SIPC provided an updated unit capacity quotation of \$4.38 per kW per month (\$3.94 M annually per CT) including transmission costs GFA firm transmission limited to 75 MWs (one CT) scheduled by SIPC with MISO

Transmission for delivery of second CT capacity would have to be provided by SIPC through an approved MISO reservation



# Combustion Turbines/Transmission Options

Bluegrass Generating-TSR for 324 MWs from E.ON system to Big Rivers >SPP study results indicated transmission capacity not available without estimated \$3.9 M in upgrades to E.ON system and possible issues on Vectren and Duke systems >Requested Facilities Study be performed by SPP Results due in late July

>Bluegrass asked Energy Services to provide a price that would be acceptable to Big Rivers



- Combustion Turbines/Transmission Options (continued)
  - East Kentucky- TSR for 400 MWs across E.ON >SPP study results due in late June system to Big Rivers

### 5. MISO Integration

- Commercial Model data provided to MISO
- transmission system by MISO to be provided by Big Data defining our desire for functional control of the Rivers on or before July 31
- MISO communication additions to our main and backup control centers are underway
- EMS RTU additions for MISO control of generating units are ongoing by our staff
- MISO may file a transmission expansion cost sharing proposal with FERC on July 15 without consensus approval of its stakeholders

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### MISO Integration (continued) ю .

Teleconference with MISO team this afternoon on PSC hearing delay and impact on integration, contingency reserve service, etc.

Update to Item KIUC 1-5
Page 21 of 55



# 6. Smelter Interruptible Load

Possibly 320 MWs of interruptible load for

(3)

Contingency Reserve

Big Rivers to supply a minimum of two years of ARS events with cause, contingency reserve amount, and duration information to smelters by close of business today

Smelters will review data and schedule next meeting

0

## Questions/Comments?



### Board Seet To Seet To

MISO/Contingency Reserve Update



# KPSC Case No. 2010-00043 - MISO

### Membership

- MISO, and Big Rivers data requests. Received KIUC responses to KPSC,
- Informal conference requested and held on the original hearing date of July 7.
- reset for September 8 rather than August MISO has requested the hearing date be **(3)**



#### 2. HMP&L

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External study performed for HMP&L to document options available to them within the MISO market operations. Study results are under review by HMP&L staff.



# Combustion Turbines/Transmission Options

- Bluegrass Generating-TSR for 324 MWs from E.ON system to Big Rivers
- capacity charge that would be acceptable to Big > Energy Services provided Bluegrass with a Rivers
- > Bluegrass rejected the Energy Services' proposa and countered with a five year capacity charge schedule
- > Energy Services withdrew the request for a Facilities Study by SPP

Update to Item KIUC 1-5 Page 27 of 55



- Combustion Turbines/Transmission Options (continued)
- East Kentucky- TSR for 400 MWs across E.ON system to Big Rivers
- accelerated system upgrade costs on E.ON with possible issues on EKPC, SIGE, and >SPP study results indicated that \$220k in TVA.
- > Facility Study involving other affected utilities will not be pursued.
- > Considering option to pursue new TSR for 200 MWs.



### 4. MISO Integration

- Date now expected to be December 1.
- Orientation and training sessions led by MISO staff are continuing on their original schedules.
- Transition to MISO Reliability Coordinator service from TVA still set for September 1.
- Reserve service under Attachment RR of MISO tariff Extension beyond September 30 of Contingency must receive FERC approval.



# 5. Smelter Interruptible Load

- Smelters proposed 320 MWs of interruptible load for Contingency Reserve with no firm replacement power required.
- Big Rivers supplied to smelters two years of ARS event information including cause, contingency reserve amount, and duration.
- similar to ARS events during August and September Big Rivers supplied data showing potential impact to smelter load if replacement power were unavailable 2008.

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## Smelter Interruptible Load (continued) S

Smelters are reviewing data and will schedule next meeting. 0

Smelters have hired an industry expert on NERC compliance to advise them in these matters.

Update to Item KIUC 1-5 Page 31 of 55

(3)

# Destions/Comments.



# Board Meeting August 20, 2010

# MISO/Contingency Reserve Update

Update to Item KIUC 1-5 Page 33 of 55



# KPSC Case No. 2010-00043 - MISO **Membership**

- Hearing dates are set for September 15 and 16.
- updated responses to KIUC and PSC data Big Rivers and MISO have prepared request items.
- Met with MISO on August 5 for discussion of hearing issues and will meet again on August 26 for hearing preparation work.



# 2. HMP&L

to register with MISO as the asset owner of Station must do so by September 15 for market operations No new activity to report. If HMP&L were to desire Two generation and as a market participant, they beginning December 1.



# Combustion Turbines/Transmission Options

East Kentucky- TSR for 200 MWs across E.ON system to Big Rivers

study must be performed to determine if the service >SPP informed Big Rivers that a system impact can be provided.



# 4. MISO Integration

- Target date is December 1.
- Transition to MISO Reliability Coordinator service is set for September 1.
- under Attachment RR of MISO tariff to December 31 termination date of Contingency Reserve service MISO made request to FERC to extend the
- projects providing regional benefits including meeting recovery approach for large network transmission MISO filed with FERC on July 15 a new cost public policy needs.



# 5. Smelter Interruptible Load

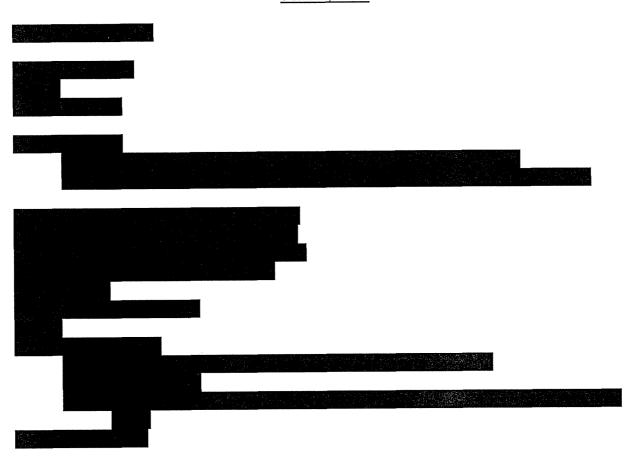
Big Rivers and smelters meeting on Thursday, August 19.



# Questions/Comments?

Take notice that the purpose of this meeting is to discuss and take action upon the matters shown on the following agenda, to-wit:

## AGENDA BIG RIVERS ELECTRIC CORPORATION REGULAR MEETING OF THE BOARD OF DIRECTORS APRIL 16, 2010 8 A.M., CDT

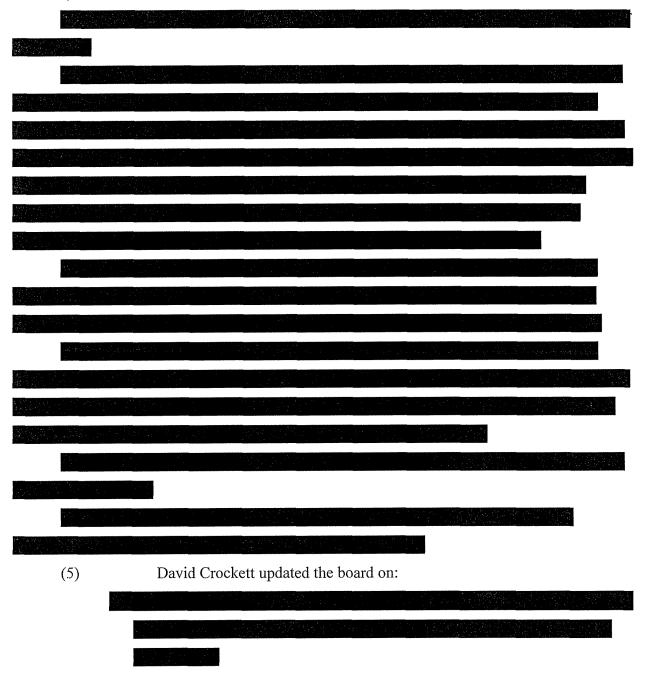


### VIII. Management's Report:

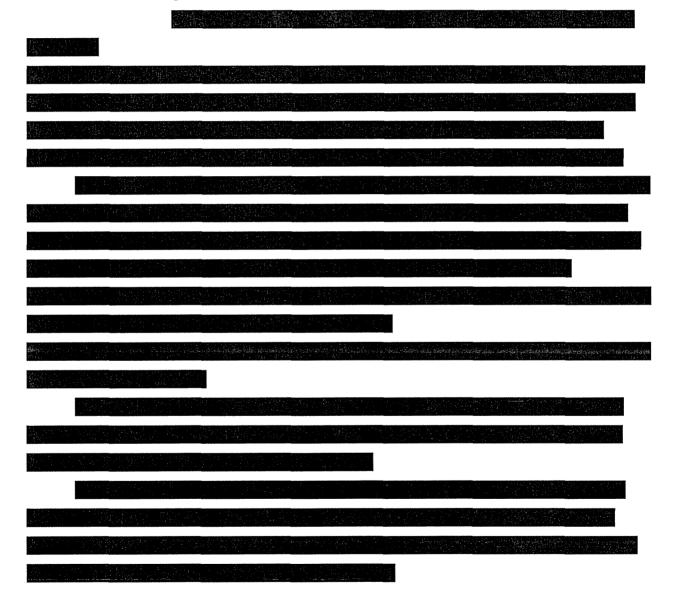
2. MISO/reserve sharing agreement update

### BIG RIVERS ELECTRIC CORPORATION REGULAR BOARD OF DIRECTORS MEETING APRIL 16, 2010

The regular meeting of the Board of Directors of Big Rivers Electric Corporation was called to order at 8 a.m., CDT, on Friday, April 16, 2010, at 145 North Main Street, Henderson, Kentucky 42420.

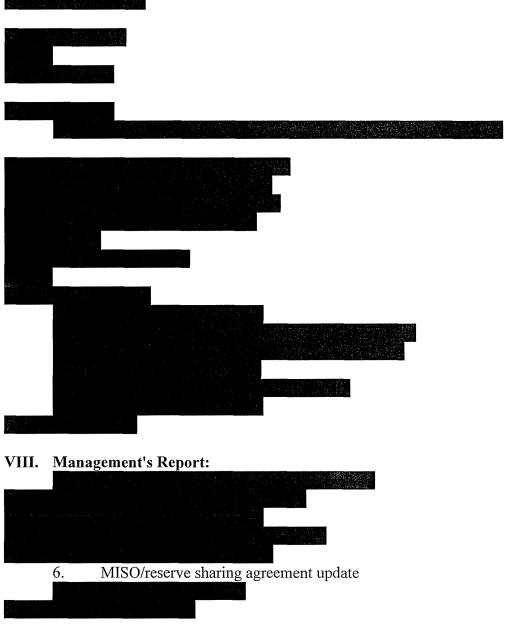


• the MISO/reserve sharing agreement issue - responses have been filed to the PSC and KIUC data requests with supplemental data requests due to Big Rivers by April 19 and a hearing date has been set for July 7. Big Rivers met with HMP&L on April 12 to provide updated information and discuss the timing for a decision on MISO integration. He described Big Rivers' efforts investigating alternative arrangements for resolving its Contingency Reserve obligation.



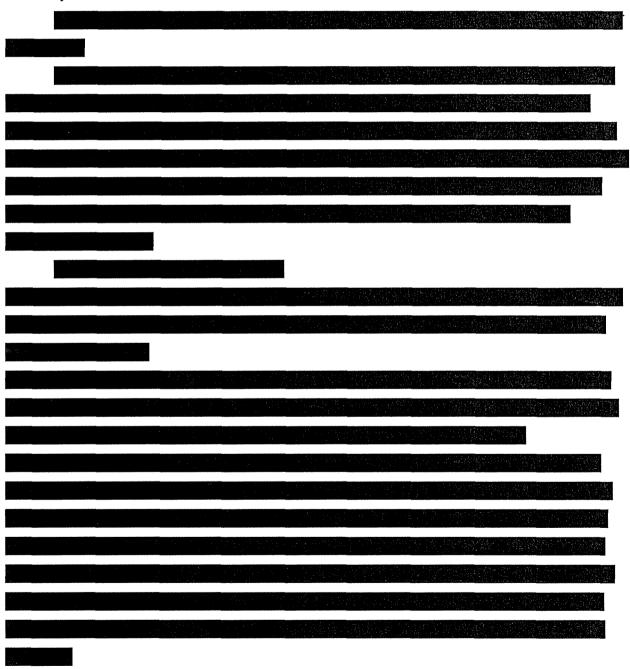
Take notice that the purpose of this meeting is to discuss and take action upon the matters shown on the following agenda, to-wit:

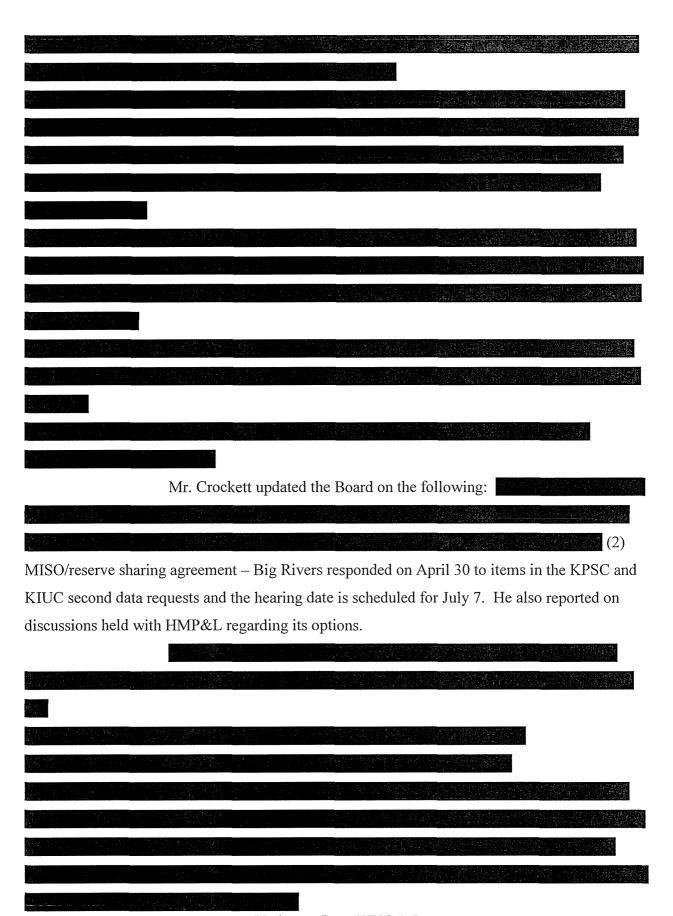
# AGENDA BIG RIVERS ELECTRIC CORPORATION REGULAR MEETING OF THE BOARD OF DIRECTORS MAY 21, 2010 8 A.M., CDT



### BIG RIVERS ELECTRIC CORPORATION REGULAR BOARD OF DIRECTORS MEETING MAY 21, 2010

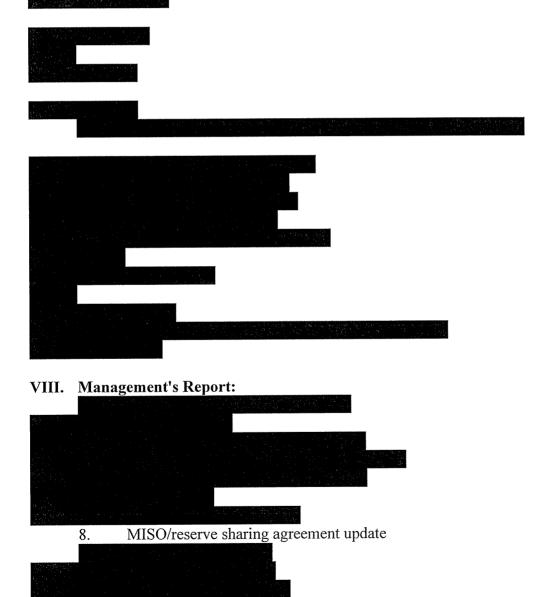
The regular meeting of the Board of Directors of Big Rivers Electric Corporation was called to order at 8 a.m., CDT, on Friday, May 21, 2010, at 201 Third Street, Henderson, Kentucky 42420.





Take notice that the purpose of this meeting is to discuss and take action upon the matters shown on the following agenda, to-wit:

## AGENDA BIG RIVERS ELECTRIC CORPORATION REGULAR MEETING OF THE BOARD OF DIRECTORS JUNE 18, 2010 8 A.M., CDT



### BIG RIVERS ELECTRIC CORPORATION REGULAR BOARD OF DIRECTORS MEETING JUNE 18, 2010

The regular meeting of the Board of Directors of Big Rivers Electric Corporation was called to order at 8 a.m., CDT, on Friday, June 18, 2010, at the Coleman Station, 4982 River Road, Highway 334, Hawesville, KY 42348.

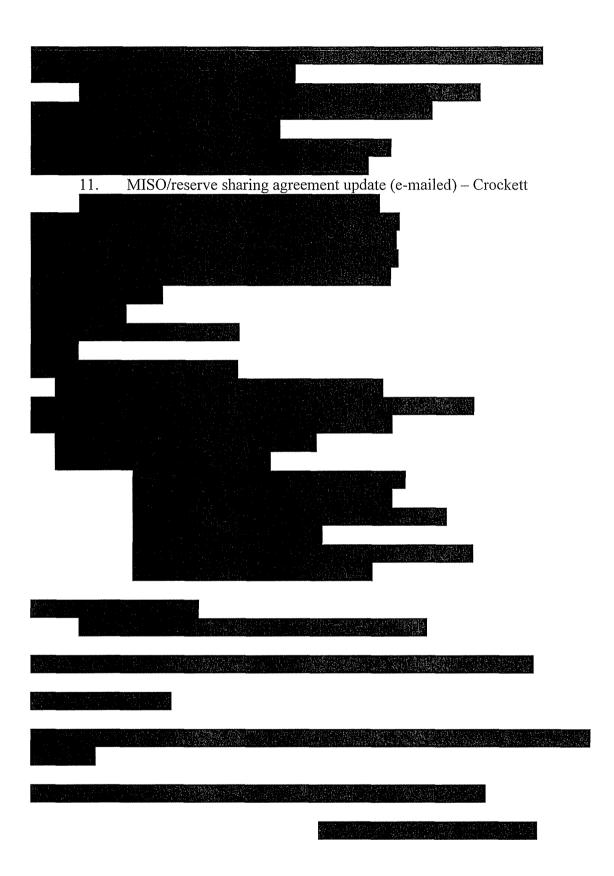


· 建酸的物品的一种,然而是一种的对象的。	Mr. Crockett provided the Board an update on the MISO/contingency
	stated that the PSC has delayed the hearing from July 7 to August 18.
<b>第</b> 1866年	
palate transition to the property of Xellenia.	

Take notice that the purpose of this meeting is to discuss and take action upon the matters shown on the following agenda, to-wit:

# AGENDA BIG RIVERS ELECTRIC CORPORATION REGULAR MEETING OF THE BOARD OF DIRECTORS JULY 16, 2010 8 A.M., CDT

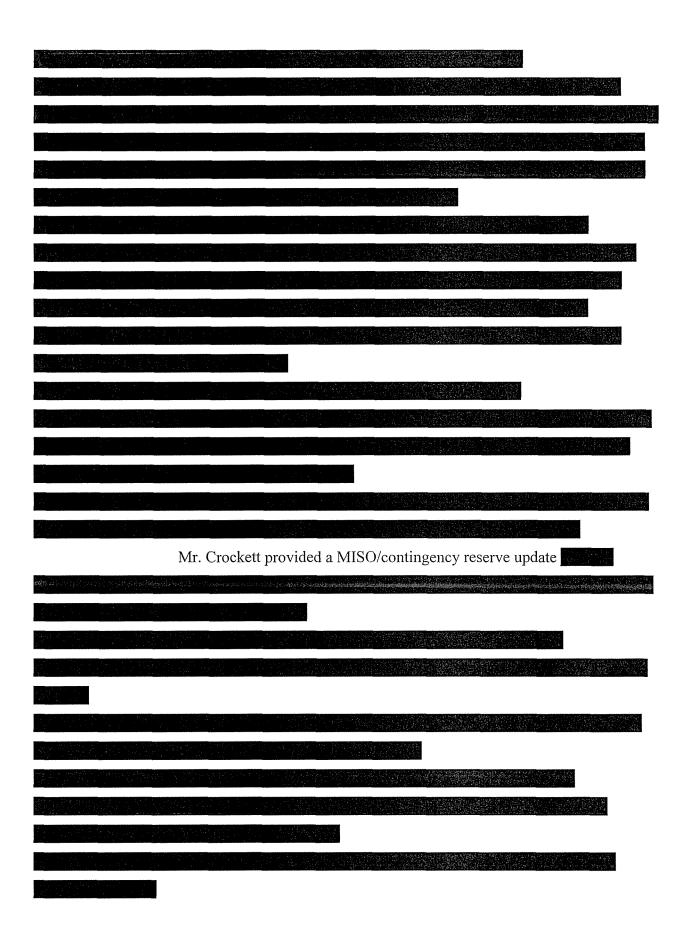




### BIG RIVERS ELECTRIC CORPORATION REGULAR BOARD OF DIRECTORS MEETING JULY 16, 2010

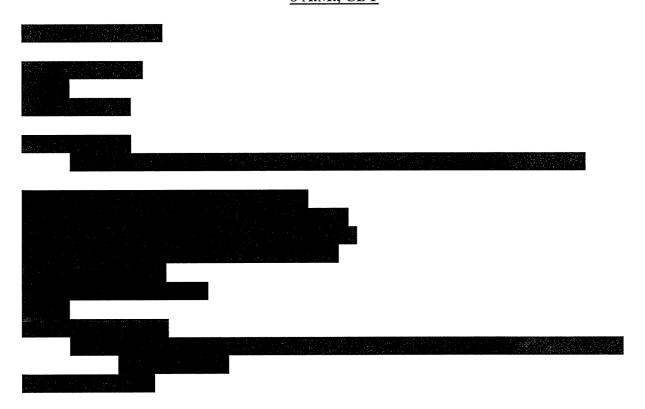
The regular meeting of the Board of Directors of Big Rivers Electric Corporation was called to order at 8 a.m., CDT, on Friday, July 16, 2010, at 201 Third Street, Henderson, Kentucky 42420.

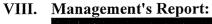




Take notice that the purpose of this meeting is to discuss and take action upon the matters shown on the following agenda, to-wit:

# AGENDA BIG RIVERS ELECTRIC CORPORATION REGULAR MEETING OF THE BOARD OF DIRECTORS AUGUST 20, 2010 8 A.M., CDT





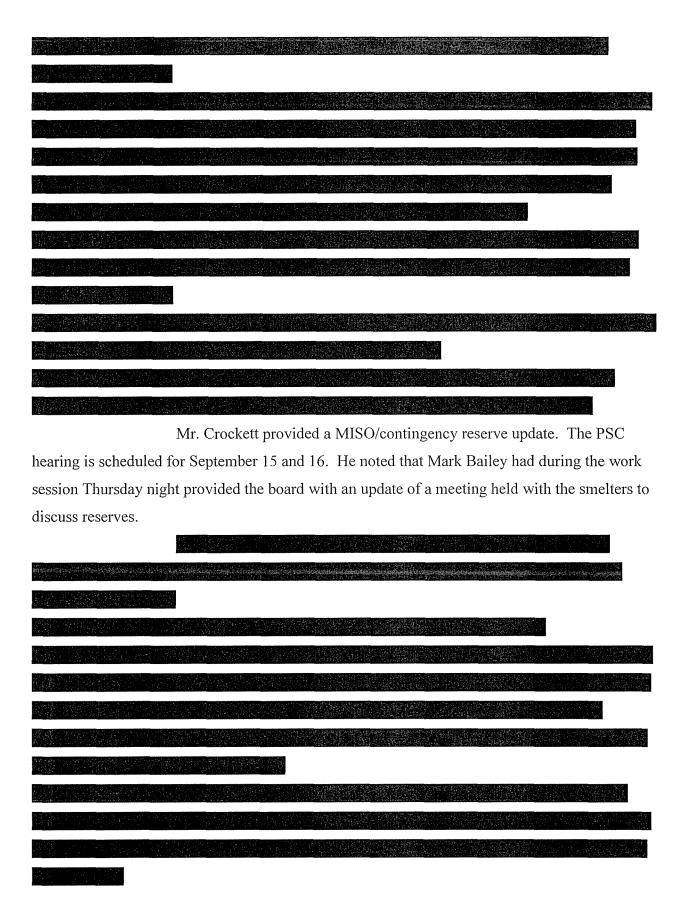


12. MISO/reserve sharing agreement update (e-mailed) – Crockett

### BIG RIVERS ELECTRIC CORPORATION REGULAR BOARD OF DIRECTORS MEETING AUGUST 20, 2010

The regular meeting of the Board of Directors of Big Rivers Electric Corporation was called to order at 8 a.m., CDT, on Friday, August 20, 2010, at 201 Third Street, Henderson, Kentucky 42420.





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## BIG RIVERS ELECTRIC CORPORATION'S SECOND UPDATE TO THE APPLICATION AND DATA REQUEST RESPONSES PSC CASE NO. 2010-00043 September 7, 2010

1	Item KIUC 1-7) Please provide all Documents between Big Rivers and Southern Illinois
2	Power Cooperative ("SIPC"), and related Studies, regarding the acquisition of capacity by Big
3	Rivers from SIPC to meet its reserve requirements.
4	
5	Update to Response) Attached is an additional document responsive to this request.
6	
7	Witness) David G. Crockett

### **David Crockett**

From: Michael Mattox

Sent: Monday, July 12, 2010 3:46 PM

To: David Crockett

Subject: FW: Peaker price?

Per your voicemail request.

Mike

From: William Hutchison [mailto:hutchison@sipower.org]

Sent: Monday, May 24, 2010 10:05 AM

To: Michael Mattox

Subject: FW: Peaker price?

Mike,

I wanted to send you the update on the CT quote that I finally was provided the ability to forward. After some internal discussion SIPC will revise the quote on the capacity pricing for the original \$7.90 / KW-Mo. to \$4.38 / KW-Mo.

The charges for the energy and Unit starts would remain the same.

I apologize for the delay and I hope this helps.

Bill Hutchison, MBA, P.E. Electrical Systems Department Manager Southern Illinois Power Cooperative 618-964-1448 X207

From: William Hutchison

**Sent:** Sunday, March 14, 2010 11:01 PM

To: 'Michael Mattox'
Cc: Scott Ramsey

Subject: RE: Peaker price?

I wanted to update you on the progress. SIPC has developed a price. There are several parts to this possible CT transaction.

First, the capacity pricing would be \$7.90 / KW-Mo. To pseudo tie the units out of MISO it will require a firm transmission reservation for the output of the units. If any MISO studies or upgrades were necessary BREC would also be responsible for those cost.

Second, Energy Cost for each MWh generated

Energy Charges: The Charge for Energy shall be calculated for each hour of Scheduled Delivery

using the formula set forth below;

 $A = B \times [(C \times D) + E]$  where,

A = Charge for Energy in \$/MWh;

B = MWh of Energy scheduled by Buyer and delivered by Seller

C = Midpoint of the daily Natural Gas prices of Trunkline\_ELA or Trunkline\_WLA with 2.46% fuel adder and \$0.3264 for transport as published by Gas Daily for the date of delivery in \$/MMBtu;

D = 12.2 MMBtu/MWhr; and

E = Variable O&M Charge of \$5.25/MWhr

Third, Start up costs for each start of a unit.

Start Charges:

Buyer shall incur a Start Charge for each Scheduled Delivery of Unit Contingent Energy using the formula set forth below:

 $A = [(B \times C) + D]$  where,

A = Start Charge in \$/start;

B = 650 MMBtus;

C = Midpoint of the daily Natural Gas prices of Trunkline\_ELA or Trunkline\_WLA with 2.46% fuel adder and \$0.3264 for transport as published by Gas Daily for the date of delivery in \$/MMBtu;

D = \$4,800.00

*Provided that* if Energy is scheduled intraday, the Buyer will incur all charges associated with an intraday exercise.

These are the three components that would be required in the contract. Also these units are permitted to operate no more than a thousand hours each annually, SIPC does not see this as an issue, but wanted to make BREC aware of the operating limit. Secondly the VOM price for the energy portion may be adjusted with the final terms of the contract based on the projected hours of operation. Finally, It is possible that RUS would have to approve this contract. SIPC does not see this as a major issue, but is a hurdle that may need to be cleared.

If you have any questions please feel free to contact me. Thanks
Bill Hutchison, MBA, P.E.
Electrical Systems Department Manager
Southern Illinois Power Cooperative
618-964-1448 X207

From: Michael Mattox [mailto:Michael.Mattox@bigrivers.com]

Sent: Thursday, February 18, 2010 10:41 AM

To: William Hutchison Subject: Peaker price?

Bill,

I think it has been a couple of weeks since we spoke. I was wondering where things were at with the pricing ACES was developing for BREC to use the SIPC peakers.

Thanks

Mike

Michael J. Mattox
Director, Resources & Forecasting
Big Rivers Electric Corporation
201 Third Street
Henderson, KY 42420
(270) 826-5669 (direct recorded)
(270) 844-6155 (direct)
(270) 827-2561 (BREC switchboard)
(270) 577-1617 (cell)
(270) 827-2101 (fax)
AOL IM: MikeMattoxBREC

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## BIG RIVERS ELECTRIC CORPORATION'S SECOND UPDATE TO THE APPLICATION AND DATA REQUEST RESPONSES PSC CASE NO. 2010-00043 September 7, 2010

l	Item KIUC 2-20) For each month during 2010 please provide the number, duration,
2	amount in MW and cause of each event when Big Rivers was required to call on MISO for
3	reserve sharing. This is a continuing request.
1	
5	Update to Response) See attached documents, which provide the MISO Contingency Reserve
6	Requests for June and July 2010.
7	
3	Witness) David G. Crockett

	MISO CONTINGENCY RESERVE EVENTS					
June						
		Reserve	Start Time	Stop Time		
Date	Event	Requested	(CPT)	(CPT)	Duration	
6/7/2010	Domtar unit outage	70 MW	1242	1300	18 minutes	
6/13/2010	Wilson mill outage	65 MW	1310	1318	8 minutes	
6/13/2010	Wilson mill outage	95 MW	1318	1333	15 minutes	
6/13/2010	Wilson unit swinging	295 MW	1333	1400	27 minutes	
6/16/2010	Henderson #2 unit outage	115 MW	1203	1300	57 minutes	
6/22/2010	Henderson #2 mill outage	35 MW	1446	1500	14 minutes	
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MISO CONTINGENCY RESERVE EVENTS					
July					The second secon
		Reserve	Start Time	Stop Time	
Date	Event	Requested	(CPT)	(CPT)	Duration
7/15/2010	Henderson #2 unit outage	30 MW	1918	2000	42 minutes
7/21/2010	Wilson mill outage	85 MW	1013	1035	22 minutes
7/29/2010	Wilson unit outage	420/120 MW	2007/2100	2100/2115	53/15 minutes
- W-1 - Warren - we will desirate a service of the service and					