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September 30, 2021

RECEIVED

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PUBLIC SERVICE  
COMMISSION

*Via Electronic Mail to PSCED@ky.gov*

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

Re: *In the Matter of: Application of Big Rivers Electric Corporation for Approval to Transfer Functional Control of its Transmission System to Midwest Independent Transmission System Operator, Inc. – Case No. 2010-00043*

Dear Executive Director:

Finding No. 2 of the Public Service Commission's November 1, 2010, Order in the above-styled matter requires Big Rivers Electric Corporation to "file a report by September 30 of each year describing its current evaluation of available options for complying with NERC's contingency reserve requirement and its review of the short-term and long-term costs and benefits of continued membership in Midwest ISO." On September 28, 2018, Big Rivers filed a motion to be relieved of the obligation to file such annual reports. As that motion is still pending, Big Rivers is filing its next annual report with this letter.

I certify that on this date a copy of this compliance filing was served on each party of record in the above -styled matter by electronic mail or first-class mail.

Please feel free to contact me should you have any questions regarding this filing.

Sincerely,

*/s/ Tyson Kamuf*

Tyson Kamuf  
Corporate Attorney  
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cc: Service List

**BIG RIVERS ELECTRIC CORPORATION**  
**APPLICATION OF BIG RIVERS ELECTRIC CORPORATION**  
**TO TRANSFER FUNCTIONAL CONTROL**  
**OF ITS TRANSMISSION SYSTEM TO**  
**MIDWEST INDEPENDENT TRANSMISSION SYSTEM OPERATOR, INC.**  
**CASE NO. 2010-00043**

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**Big Rivers Electric Corporation**  
**Midcontinent Independent System Operator**  
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**Background**

Big Rivers Electric Corporation ("Big Rivers") joined the Midcontinent Independent System Operator, Inc. ("MISO") on December 1, 2010, to meet the mandated Contingency Reserve requirements of the North American Electric Reliability Corporation ("NERC") as approved by the Federal Energy Regulatory Commission. In 2009, Big Rivers commissioned Charles River Associates ("CRA") to conduct an economic assessment of the options available to Big Rivers for supplying Contingency Reserves. The CRA Analysis completed in 2010 concluded that Big Rivers had no viable options for meeting its Contingency Reserve requirement other than with a stand-alone, self-supply plan or by joining MISO. Based on CRA's analysis, joining MISO was estimated to be at least \$32 million less costly to Big Rivers than a standalone, self-supply option over the five-year period from 2011 to 2015. Big Rivers was approved by MISO for membership in December 2009 and, following approval by the Kentucky Public Service Commission, fully integrated into MISO on December 1, 2010.

**Today's Options**

Big Rivers believes that the options for meeting its Contingency Reserve requirement are virtually unchanged from what was described in the analysis

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completed by CRA in 2010 and as described in Big Rivers' update to the Commission in September 2020. The same obstacles which hindered or prevented participation in other reserve sharing groups exist today as were identified in the CRA Analysis. The same obstacles which hindered participation in the PJM Interconnection LLC ("PJM") Regional Transmission Organization ("RTO"), as those identified in the CRA Analysis, continue to exist today as well. Louisville Gas and Electric Company and Kentucky Utilities Company ("LG&E/KU") were acquired in 2011 by PP&L Corporation ("PP&L"), and PP&L is a member of the PJM RTO. However, LG&E/KU have not changed from their Independent Transmission Operator/Reliability Coordinator ("ITO/RC") operational construct and thus are not members of any RTO.

Additionally, East Kentucky Power Cooperative, Inc.'s ("EKPC") membership in the PJM RTO does not afford Big Rivers a viable alternative. Big Rivers' transmission system is neither directly interconnected with EKPC, nor is Big Rivers indirectly connected to the EKPC system by virtue of significant firm transmission rights across another system. Therefore, there has been no change in the status of any options available to Big Rivers for possible participation in the PJM RTO from those described in its September 2020 update to the Commission. Thus, again in 2021, the only viable option for Big Rivers to continue

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to satisfy its NERC requirements is continued MISO membership.

To meet its Contingency Reserve requirements on a standalone basis, Big Rivers still requires 417 MWs of Contingency Reserve based on the loss of its largest single generating unit, the D.B. Wilson Unit 1. The standalone solution remains more expensive than MISO membership.

Under the Transmission Owners Agreement with MISO, Big Rivers was required to maintain membership for five years. Big Rivers met that obligation by remaining in MISO through the end of 2014. A one-year withdrawal notification is required prior to exit. Big Rivers would need to meet the requirements in Article 5 of the MISO Transmission Owners Agreement to withdraw from MISO. Those requirements are:

- Written notice, effective at the end of the calendar year *after* notice is received (Article Five, Section I);
- Availability of continued transmission service for existing customers for the term of the service agreement (Article V, Section II.A);
- Payment of all RTO financial obligations (Article Five, Section II.B);
- Obligations to construct planned facilities shall be negotiated between MISO and Big Rivers Electric. (Article Five, Section II.C);

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- Other obligations between MISO and Big Rivers shall be renegotiated. (Article Five, Section II.B); and
- Receipt of applicable federal and state regulatory approvals (Article Five, Section III).

**Big Rivers' MISO Experience To-Date**

Big Rivers has experienced no major issues in the operation of its transmission and generation systems within the MISO market from December 2010 to the present time. Big Rivers has gained a better understanding of the benefits and costs of MISO membership. As expected, the most prominent benefit of joining MISO recognized by Big Rivers has been the ability to meet its NERC Contingency Reserve requirement. Big Rivers is purchasing Contingency Reserve service for its load in the MISO Ancillary Services Market. The cost of the Contingency Reserve ancillary services from MISO for 2020 was \$144,603. The cost of the services from MISO from January through August of 2021 is \$176,463. The 2021 annualized cost is thus projected to be approximately \$264,694 (*i.e.*, \$176,463 x 12 / 8).

Under the Midwest Contingency Reserve Sharing Group operation in 2009, Big Rivers had to hold back 32 MW of its generation capacity from the market to

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meet its reserve obligation to the other group members. In 2009, for the remainder of the year after Big Rivers assumed control of the operation of its generating plants in July, Big Rivers was able to sell 82.6% of its available generating capacity. Beginning in January 2010, Big Rivers purchased Contingency Reserve service from MISO. Thus, Big Rivers has recognized a MISO membership benefit by being able to sell additional energy into the market as a result of purchasing Contingency Reserve services. Furthermore, these purchased Contingency Reserve services from MISO allow Big Rivers to mitigate or avoid the materially substantial NERC penalties which would apply if Big Rivers, without its MISO membership, *i.e.*, on a standalone basis, should be found in violation of NERC's Contingency Reserve requirements.

Big Rivers has continued to experience minimal adverse effects from transmission congestion at the Big Rivers transmission system border since joining MISO. While it is difficult to quantify the financial benefit recognized by Big Rivers, the market redispatch of generation by MISO to manage transmission congestion has had a positive effect on Big Rivers' ability to both purchase power from, and sell power to, MISO. During the period from 2007 to 2009, Big Rivers experienced curtailments in power purchases or power sales on at least fifty (50) occasions due to transmission constraints outside of the Big Rivers transmission

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system. However, since joining MISO, Big Rivers has experienced very limited deliverability–related limitations, other than those experienced by Century as part of the special protective relay system Century completed as a result of the idling of Big Rivers’ Coleman Station. Thus, MISO membership has continued to be a notable benefit for Big Rivers in terms of favorable transmission operational experiences.

In the CRA Analysis, it was estimated that the MISO administrative charges would be \$5.3 million in 2011 and \$4.8 million in 2012. The actual MISO charges are shown in the table below.

<b>Big Rivers Electric Corporation MISO Administrative Charges</b>	
2011	\$ 4.7 million
2012	\$ 5.2 million
2013	\$ 5.0 million
2014	\$ 2.2 million
2015	\$ 2.3 million
2016	\$ 2.4 million
2017	\$ 2.4 million
2018	\$ 2.6 million
2019	\$ 2.0 million
2020	\$1.8 million

The projected MISO charges for 2021 are \$2.2 million.

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In the CRA Analysis, it was assumed that Big Rivers would have to add staff to meet the additional workload demands associated with operation in the MISO market. CRA had estimated a cost of approximately \$800,000 in additional staff and equipment would be necessary to support operation in the MISO Market. Through careful planning and job redesign, Big Rivers has been able to avoid the staffing additions deemed necessary by CRA; however, Big Rivers is currently considering adding one additional staff to deal with the constant proposed changes to the MISO policies and procedures.

**Conclusion**

As stated previously, continued MISO membership is currently the most cost-effective option for meeting Big Rivers' NERC-mandated Contingency Reserve requirement. The benefit derived by Big Rivers from MISO membership has continued to be greater than was estimated in the CRA Analysis because:

- (1) additional internal staffing and equipment costs have been less than anticipated thus far;

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- (2) the MTEP/MVP<sup>1</sup> cost allocations to Big Rivers have currently been eliminated by smelter contract terminations and cancellation of MISO to Tennessee Valley Authority (“TVA”) transmission service;<sup>2</sup> and
- (3) Big Rivers has realized a benefit from the ability to sell more power into the market than was the case prior to its MISO membership due in part to Big Rivers’ ability to purchase Contingency Reserve services from MISO and due to the reduced transmission constraints.

Clearly, in the near-term, membership in MISO remains Big Rivers' best option, but Big Rivers will continue to closely evaluate this as well as other options for meeting its Contingency Reserve requirement and monitor costs, benefits, and implications of continued future MISO membership. An annual cost/benefit analysis will continue to be performed and supplied to the Commission as required in the approval order.

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<sup>1</sup> MTEP = MISO Transmission Expansion Plan; MVP = Multi-Value Project.

<sup>2</sup> In 2014, Big Rivers was assessed for MTEP and MVP projects. The MVP cost allocations were assessed on transmission reservations for service to Big Rivers' non-grandfathered agreement member load (*i.e.*, both aluminum smelters). On a going-forward basis, as a result of the smelter contract terminations and the termination of the MISO to TVA transmission reservation, Big Rivers will no longer receive MTEP and MVP cost allocations.

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Michael T. (Mike) Pullen  
Chief Operating Officer  
Big Rivers Electric Corporation