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September 28, 2011

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

RE: *Application of Big Rivers Electric Corporation to Transfer Functional control of Its Transmission System to Midwest Independent Transmission System Operator, Inc.*, P.S.C. Case No. 2010-00043

Dear Mr. DeRouen:

Enclosed for filing in the Public Service Commission ("*Commission*") general correspondence file for Big Rivers Electric Corporation ("*Big Rivers*") are an original and ten copies of the report of Big Rivers in compliance with finding number two in the November 1, 2010 order of the Commission in the above-styled matter. In that finding, Big Rivers is required 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."

I certify that a copy of this compliance filing has been served on each party of record in the above-styled matter. Please contact me if you have any questions regarding this filing.

Sincerely yours,

James M. Miller
Counsel for Big Rivers Electric Corporation

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Midwest Independent System Operator
Cost/Benefit Analysis for Kentucky Public Service Commission

Prepared September 27, 2011

Background

Big Rivers Electric Corporation ("Big Rivers") joined the Midwest Independent System Operator ("Midwest ISO") on December 1, 2010 in order to meet its NERC-mandated Contingency Reserve requirements. In 2009, Big Rivers commissioned Charles River Associates ("CRA") to conduct an economic assessment of the options available to Big Rivers for the supply of Contingency Reserve given that the Midwest Contingency Reserve Sharing Group ("MCRSG") to which Big Rivers had belonged was dissolving at the end of 2009. The CRA Analysis completed in 2010 concluded that in the near term Big Rivers had no viable options for meeting its Contingency Reserve requirement other than with a stand-alone self-supply plan or by joining the Midwest ISO. Based on the analysis of CRA, joining Midwest ISO was found to be at least $32 million less costly to Big Rivers than stand-alone self-supply over the five year period from 2011 to 2015.

Today's Options

Big Rivers believes that the options for meeting its Contingency Reserve requirement are virtually unchanged from that which was described in the analysis completed by CRA in 2010. The same obstacles, which hindered or prevented participation in other reserve sharing groups, exist today as were identified in the CRA Analysis. Additionally, even though LG&E/KU has been acquired by PP&L who is a member of the PJM RTO, there has been no indication to date that LG&E/KU will change from its current ITO/RC operational construct. As late as August 18, 2011, an inquiry by Big Rivers' Vice President System Operations to LG&E/KU confirmed this fact. Participation in the PJM RTO can only occur if Big Rivers' transmission system was directly interconnected with or Big Rivers had firm transmission rights to connect to the system of a PJM member company. The closest potential point of interconnection with PJM would be at AEP's Rockport Plant located in Southern Indiana. This

interconnection would involve the connection of Big Rivers' Coleman EHV 345kV transmission station with the 765kV transmission station of AEP at Rockport. A 14 mile 345kV transmission line including an Ohio River crossing and 345 to 765kV transformers located at Rockport would be required. Big Rivers' preliminary cost estimate for the completion of this interconnection with AEP is approximately $66.0 million. While this interconnection would have to be studied by the Midwest ISO, PJM, and LG&E/KU at a minimum, Big Rivers' initial load flow studies indicate that the power flows imposed on its transmission system as a result of this direct interconnection into the Rockport power plant with its 2,600 megawatts of generating capacity would result in transmission lines in both the Big Rivers and the neighboring Kentucky Utilities systems being loaded at or above their ratings under certain contingency (i.e. non-normal) conditions. These line overload conditions and any other transmission network problems identified in the MISO, PJM, or LG&E/KU studies would have to be corrected in order to complete this interconnection. An interconnection project of this scope and magnitude would likely take 4 to 5 years for completion. The total cost to Big Rivers cannot be accurately determined at this time because of the uncertainties about the entire scope of transmission network upgrades that might ultimately be required as a result of the downstream impact of this interconnection. Thus, the only viable option for Big Rivers at this time is either the stand-alone self-supply plan or continued Midwest ISO membership.

In order to meet its Contingency Reserve requirement on a stand-alone basis, Big Rivers still requires 417 MW of Contingency Reserve based on the loss of its largest single generating unit, the D.B. Wilson plant. The stand-alone option in the CRA Analysis included the assumed supply of 200 MW of Contingency Reserve from the smelters in the form of ten-minute interruptible load. The smelters have not agreed to provide this interruptible load service to Big Rivers. Therefore, the self-supply plan would necessitate the addition of a minimum of 200 MW of new peaking generating capacity to the Big Rivers system which is estimated to cost approximately $100 million over the five year study period. Thus, Big

Rivers' current estimate is that Midwest ISO membership will provide a net benefit of at least $132 million over the five year period compared to the stand-alone self-supply plan.

Under the Transmission Owners Agreement with the Midwest ISO, Big Rivers is required to maintain membership for five years. Big Rivers will have met that obligation by remaining in the Midwest ISO through the end of 2014. A one year withdrawal notification is required in order to exit. Therefore, the latest date on which that notice could be given by Big Rivers is December 2013.

Big Rivers' MISO Experience To-Date

Big Rivers' integration into the Midwest ISO was very successful. Big Rivers transferred Balancing Authority, Interchange Authority, and Transmission Service Provider functions to the Midwest ISO in a planned and orderly fashion on the originally scheduled date. Additional personnel from Big Rivers, ACES Power Marketing, and the Midwest ISO were available during the transition period on the evening of November 30 and into the early hours of December 1 to provide the needed resources to deal with any issues that might arise. In actuality, Big Rivers experienced only some minor issues in the first few hours of operation after integration. Big Rivers has experienced no major issues in the operation of its transmission and generation systems within the Midwest ISO market from December 2010 to the present time.

Big Rivers has had the opportunity to gain a better understanding of the costs and benefits of membership in the Midwest ISO. As expected, the most prominent benefit of joining Midwest ISO recognized by Big Rivers has been the ability to meet its NERC Contingency Reserve requirement. Big Rivers is purchasing Contingency Reserve services for its load in the Midwest ISO Ancillary Services Market. The cost of these ancillary services from the Midwest ISO for 2011 through August is $467 thousand. This represents an annualized cost of approximately $700 thousand (i.e. $467 thousand times 12/8). Under the MCRSG operation, Big Rivers had to hold back 32 MW of generation capacity to meet its reserve obligation. Thus, Big Rivers has recognized a benefit in Midwest ISO membership by being

able to sell additional energy into the market as a result of purchasing Contingency Reserve services rather than setting aside the generating capacity.

As a Midwest ISO member, Big Rivers has been able to sell an average of 92% of its available generating capacity during 2011 through the month of August compared to an average of 88% in 2010 prior to integration. Using Big Rivers' estimated annual generation for 2011 of 12 million MWhs, this 4% increase in volume represents approximately 480,000 MWhs of additional sales. Big Rivers has been able to sell all its excess generation that clears the energy market price versus Big Rivers' past opportunity to sell generation in blocks during on peak and off peak time periods to other utilities/entities in the bilateral market together with sales into the Midwest ISO energy market on a day ahead or real time basis.

Big Rivers has experienced a near elimination of transmission congestion at the Big Rivers' border since joining the Midwest ISO. While it is difficult to quantify the financial benefit recognized by Big Rivers, it has had a positive effect on Big Rivers' ability to both import power from and export power to the Midwest ISO. During the period from 2007 to 2009, Big Rivers experienced curtailments in power purchases or power sales on some fifty occasions due to transmission constraints outside of the Big Rivers system. However, since joining the Midwest ISO, Big Rivers has experienced virtually no congestion related limitations. While Big Rivers is unable to predict whether this trend will continue, it has been a notable benefit for Big Rivers since December 2010.

Big Rivers has experienced lower costs than anticipated associated with Midwest ISO membership. In the CRA Analysis, it was believed that the Midwest ISO administrative charges in 2011 would be $5.3 million. Through July 2011, Big Rivers has paid $2.9 million in administrative charges to the Midwest ISO. This represents an annualized cost of approximately $5.0 million (i.e. $2.9 million times 12/7) or some $350 thousand less than anticipated. The administrative charge estimates used in the CRA Analysis were provided by the Midwest ISO and confirmed by CRA. Reductions in certain large industrial loads below anticipated levels for 2011 have contributed to this favorable variance in

administrative charges. However, the industrial load reductions are expected to be reversed during the remainder of 2011 and the first half of 2012. In addition, in the CRA Analysis, it was assumed that Big Rivers would have to make staffing additions in order to meet the workload demands associated with operation in the Midwest ISO market. Big Rivers has thus far incurred only $275 thousand of the estimated $800 thousand cost associated with the internal staffing and equipment additions assumed in the CRA Analysis.

Big Rivers' responsibility for Midwest ISO transmission expansion cost sharing (MTEP or MVP costs) thus far is zero. Future cost sharing responsibility exists for one MVP project approved during 2010 by the Midwest ISO. One additional MVP project is under consideration for approval this year. The future cost allocation to Big Rivers for these two projects is difficult to estimate at this time since neither of the projects has progressed to the construction phase. However, last year, the Midwest ISO provided an estimate of Big Rivers' cost allocation for both MTEP and MVP projects on an annual basis for the years 2011 through 2015. According to those estimates, Big Rivers would have no cost allocation for either MTEP or MVP projects until 2013 at which time the cost was estimated to be approximately $300,000. However, the cost was estimated to rise to approximately $11.0 million in 2015. The slow progression thus far in the assessment and approval of projects which were identified in the Midwest ISO Starter List of MVP projects leads Big Rivers to believe that the cost allocation estimates which were included in the PSC application are likely overestimated.

Conclusion

As stated previously, continued Midwest ISO membership is currently the most cost-effective option for meeting Big Rivers' Contingency Reserve requirement. The benefit derived by Big Rivers from Midwest ISO membership has proven to be greater than was estimated in the CRA Analysis because (1) Big Rivers' cost under the stand-alone plan has increased since Big Rivers no longer believes that 200 MW of the smelter load can be assumed to be used as interruptible load to fulfill some of the Contingency Reserve requirement; (2) Big Rivers' costs for Midwest ISO administrative charges are less

than anticipated for 2011 although they are expected to return to anticipated levels in 2012; (3) internal staffing and equipment additional costs have been less than anticipated thus far; (4) the MTEP/MVP cost allocation to Big Rivers appears to be progressing more slowly than that anticipated in the PSC application information provided last year; and (5) Big Rivers has realized a benefit from the ability to sell more power into the market than was the case prior to our Midwest ISO membership due in part to our ability to purchase Contingency Reserve services from the Midwest ISO and because transmission constraints have been virtually eliminated. Clearly, in the near-term, membership in the Midwest ISO 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 Midwest ISO membership for the future. An annual cost/benefit analysis will continue to be performed and supplied to the PSC as required by the approval order.

David G. Crockett

Vice President System Operations

Big Rivers Electric Corporation