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*In The Matter Of:* Consideration Of The Implementation Of Smart Grid And  
Smart Meter Technologies – Case No. 2012-00428

Dear Mr. DeRouen:

Enclosed for filing are an original and ten (10) copies of the Direct Testimony of Roger D. Hickman on behalf of Big Rivers Electric Corporation (“Big Rivers”) and its member distribution cooperatives (Jackson Purchase Energy Corporation, Kenergy Corp., and Meade County Rural Electric Cooperative Corporation) in the above entitled docket. A copy of this testimony has been served by first class United States mail on those parties listed on the attached service list.

Please confirm the Commission’s receipt of this filing by placing the Commission’s filestamp on the enclosed additional copy and returning it to Big Rivers in the enclosed, postage-paid envelope.

Should you have any questions about this filing, please contact me or contact Mr. Hickman by electronic mail at [roger.hickman@bigrivers.com](mailto:roger.hickman@bigrivers.com).

Sincerely,



Tyson Kamuf

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**ORIGINAL**



Your Touchstone Energy® Cooperative 

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY**

**In the Matter of:**

**CONSIDERATION OF THE  
IMPLEMENTATION OF SMART GRID AND  
SMART METER TECHNOLOGIES** )  
)  
)

**Case No.  
2012-00428**

**DIRECT TESTIMONY**

**FILED: January 28, 2013**

**ORIGINAL**

**COMMONWEALTH OF KENTUCKY**  
**BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY**

**In the Matter of:**

**CONSIDERATION OF THE )  
IMPLEMENTATION OF SMART GRID AND ) Case No.  
SMART METER TECHNOLOGIES ) 2012-00428**

**DIRECT TESTIMONY**

**OF**

**ROGER D. HICKMAN  
REGULATORY AFFAIRS MANAGER**

**ON BEHALF OF**

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

**FILED: January 28, 2013**

DIRECT TESTIMONY  
OF  
ROGER D. HICKMAN

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1 DIRECT TESTIMONY  
2 OF  
3 ROGER D. HICKMAN  
4

5 I. INTRODUCTION

6  
7 **Q. Please state your name, business address, and position.**

8 A. My name is Roger D. Hickman. My business address is 201 Third Street,  
9 Henderson, Kentucky 42420. I am employed by Big Rivers Electric  
10 Corporation (“Big Rivers”) as its Regulatory Affairs Manager.

11 **Q. Please describe your job responsibilities.**

12 A. As Big Rivers’ Regulatory Affairs Manager I am involved with all of Big  
13 Rivers’ proceedings before the Kentucky Public Service Commission (“the  
14 Commission”). I have also represented Big Rivers in the Statewide  
15 Demand-Side Management and Energy Efficiency Stakeholder collaborative  
16 facilitated by the Kentucky Department for Energy Development and  
17 Independence, the Regulatory Advisory Working Groups convened by the  
18 Commission Staff, and electric utility collaboratives in Case No. 2008-  
19 00408.<sup>1</sup> I also work closely with Big Rivers’ Demand-Side  
20 Management/Energy Efficiency (“DSM/EE”) Coordinating Committee.

21 **Q. Briefly describe your education and work experience.**

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<sup>1</sup> *In the Matter of: Consideration of the New Federal Standards of the Energy Independence and Security Act of 2007.*



1 A. I received a Bachelor of Arts, Summa Cum Laude, in Mathematics and  
2 Political Science from the University of Kentucky in May, 1974. In August,  
3 1979, I received a Master in Business Administration (“MBA”) with a  
4 Finance concentration from the University of Kentucky. In 1984, I became  
5 a Certified Public Accountant (“CPA”) (State of Ohio); today I am an  
6 inactive CPA.

7 My working career has been primarily divided among higher  
8 education, banking, and the utility industry with a brief tenure of self-  
9 employment in the late 1980s to early 1990s. During the 1970s, after  
10 attaining my Bachelor’s degree, I worked in higher education while working  
11 on my MBA. After graduate school, I primarily worked in banking in  
12 Cincinnati and Louisville during the 1980s. Since the early 1990s, I have  
13 worked in the utility industry as a financial or regulatory analyst, in  
14 between time as a utility consultant or a utility regulator. My professional  
15 experience is detailed in Exhibit Hickman-1 which accompanies this  
16 testimony.

17 **Q. Have you previously testified before the Kentucky Public Service**  
18 **Commission (“Commission”)?**

19 A. Yes. I was a hearing witness in the most recent two-year review of Big  
20 Rivers’ Fuel Adjustment Clause (“FAC”), Case No. 2010-00495<sup>2</sup> (the “2010  
21 FAC Case”). I have worked closely with my Big Rivers’ colleagues in

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<sup>2</sup> *In the Matter of: An Examination of the Application of the Fuel Adjustment Clause of Big Rivers Electric Corporation from July 17, 2009 through October 31, 2010.*

1 developing testimony and responses to data requests in a number of  
2 proceedings before the Commission. Among these are all Big Rivers' FAC  
3 reviews, the reviews of its Environmental Surcharge mechanism, its two  
4 most recent rate cases (Case Nos. 2011-00036 and 2012-00535), and its  
5 2012 environmental compliance plan case (Case No. 2012-00063).

6  
7 **II. PURPOSE OF TESTIMONY**

8  
9 **Q. What is the purpose of your testimony?**

10 A. The purpose of my testimony is to address the topics which the Commission  
11 raised in its order, dated October 1, 2012, ("the October 1 Order") in this  
12 proceeding. I also present feedback on other topics which Big Rivers and its  
13 Members believe the Commission should consider in this proceeding.

14 **Q. On whose behalf are you testifying?**

15 A. I am testifying on behalf of Big Rivers and its three Member Cooperatives,  
16 Jackson Purchase Energy Corporation ("JPEC"), Kenergy Corp.  
17 ("Kenergy"), and Meade County Rural Electric Cooperative Corporation  
18 ("Meade County RECC") (collectively, "the Members" or "the Member  
19 Cooperatives"; individually, "Member" or "Member Cooperative"; together  
20 with Big Rivers, "the Big Rivers Parties").

21 **Q. How was your testimony developed?**

1 A. Following the Commission's issuance of the October 1 Order, I met with Big  
2 Rivers' President and CEO, and its Members' CEOs, to discuss our  
3 approach to the directives in the order. Big Rivers' Member CEOs elected  
4 to file jointly with Big Rivers and nominated representatives to work with  
5 me and others from Big Rivers to develop this joint testimony. This Big  
6 Rivers/Members team, in addition to me, includes:

- 7 1. Scott W. Ribble, Vice President, Engineering and Operations  
8 ("E&O"), JPEC;
- 9 2. John E. Newland, Vice President, Engineering, Kenergy;
- 10 3. Michael L. French, Systems Engineer, Meade County RECC;
- 11 4. Russell L. Pogue, Manager, Marketing and Member Relations, Big  
12 Rivers;
- 13 5. Michael J. Mattox, Director, Resources and Forecasting, Big Rivers;
- 14 6. John S. Talbert, Director, Regulatory and Government Relations, Big  
15 Rivers.

16 In mid-November 2012, I met individually with each Member  
17 representative to discuss topics of importance to them and their respective  
18 cooperatives. Also in mid-November 2012, I met with representatives of the  
19 National Rural Electric Cooperative Association ("NRECA") and the  
20 Cooperative Research Network ("CRN") to ascertain their insights on both  
21 Smart Grid and Smart Meter applications and technologies. On November  
22 27, 2012, NRECA/CRN representatives met with about twenty employees of

1 Big Rivers and its Members to exchange ideas and information about Smart  
2 Grid and Smart Meters. That meeting concluded with the Big Rivers/  
3 Members team initiating its review of the documents referenced in  
4 Appendix A of the Commission's October 1 Order. This document review  
5 concluded at a meeting in early December 2012. The discussions at these  
6 meetings form the basis for my testimony. The positions taken in my  
7 testimony are exclusively those of Big Rivers and its Members.

8 **Q. Please describe the general outline of your testimony.**

9 A. My testimony begins with a summary of each Member's experience-to-date  
10 with either Smart Grid and/or Smart Meter technology. I also include one  
11 section for some of the documents listed in Appendix A of the Commission's  
12 October 1 Order. In general, the Big Rivers Parties concur with the  
13 positions presented in my testimony. Where there are differences, I have  
14 noted them and the Member or Members with those differing positions.  
15 Finally, the next to last section of my testimony outlines the Big Rivers  
16 Parties' position on additional topics which we believe the Commission  
17 should consider in this proceeding.

18 **Q. Are you sponsoring any exhibits?**

19 A. Yes. I am currently sponsoring just my professional summary, Exhibit  
20 Hickman-1.

21

1 **III. MEMBERS EXPERIENCE WITH SMART GRID/SMART METER**

2  
3 **Q. Please describe JPEC's experience with Smart Grid/Smart Meter.**

4 A. In 2007 JPEC put an internal employee team together which included  
5 Information Technology, E&O, customer service, and accounting to develop  
6 the goals and objectives for an Advanced Metering Infrastructure ("AMI")  
7 system, which included financial, automation, outage detection, *etc.* This  
8 team interviewed prospective vendors, industry insiders, and other utilities  
9 that were using the technology. The decision was made to use Cannon  
10 Technologies because they were the most technologically advanced AMI  
11 system at the time.

12 JPEC chose to pilot a full scale installation of 1000 meters on  
13 facilities serving their member load from the Burna substation which is in a  
14 rural area of Livingston County, Kentucky. This substation was chosen due  
15 to its rural nature and rate class mix. The initial results of the pilot were  
16 good. The system reported a daily read from 95% of the meters without any  
17 implementation of repeaters. With the help of Cannon Technologies, an  
18 acceptable location was chosen for one three-phase repeater and, with its  
19 installation completed, the read rate was increased to 99%, and the meter  
20 reads were accurate.

21 Using a rigorous system acceptance test, JPEC monitored the system  
22 for approximately a year. A financial analysis was done in conjunction with

1 JPEC's accounting department. Based upon the combined results of that  
2 financial analysis and the engineering acceptance testing, JPEC decided,  
3 following approval of the JPEC Board of Directors, to implement a full scale  
4 AMI system.

5 Following the conclusion of the pilot, JPEC changed-out existing  
6 electro-mechanical meters with digital meters in late 2008. Of the changed-  
7 out meters, about 29,000 were customer meters and twenty-eight  
8 substation meters. After full scale deployment, JPEC had an average AMI  
9 read of 96-97%. The fall-off in the reads came from the more urban areas,  
10 which was not expected, nor were these types of areas included in a pilot  
11 project. Since implementation, JPEC still has to read 500-1000 meters  
12 (between 1.% to 3.5% of the total meters) manually on a monthly basis,  
13 since the system will not physically read all of the meters. Repeaters have  
14 been added to the system with little positive affect. Presently there are  
15 technical drawbacks (*e.g.*, band rate issues) with JPEC's system that will  
16 not allow them to provide future options (*e.g.*, hourly reads).

17 JPEC also has experience with an automated switching scheme  
18 around the Kentucky Oaks Mall. With the installation of Cooper Form 6  
19 electronic controls, Cooper switches, and JPEC-owned fiber optic lines,  
20 which were collectively operational in 2010, this area was linked together  
21 with three surrounding substations to provide a "self-healing" network.  
22 This network is able to automatically isolate system faults and re-feed from

1 different directions keeping outage times to a minimum. It has operated as  
2 designed.

3 **Q. Please describe Kenergy's experience with Smart Grid/Smart**  
4 **Meter.**

5 A. Kenergy deployed two AMI pilots with in the last five years. Both vendors,  
6 ACLARA (formerly TWACS) and Cannon Technologies (partnered with  
7 Cooper Power Systems), utilized a power line carrier method for two way  
8 communication. Both pilot vendors utilized powerline carrier technology,  
9 but in slightly different ways. The pilots arose, among other reasons, with  
10 an objective of identifying operational savings through full AMI  
11 deployment. A number of factors contributed to Kenergy's suspending both  
12 pilots in mid-2011. These factors included other operational priorities,  
13 dissatisfaction with vendor support, and a failure to achieve expected  
14 operational efficiencies. Kenergy's management has received the Kenergy  
15 Board's approval to initiate a 2013 study to determine the feasibility of full  
16 system deployment beginning in 2014. The study will involve extensive  
17 evaluation of the present, and anticipated future, state of technologies.  
18 Primary to the project will be a business case that includes measured  
19 operational savings and efficiencies.

20 **Q. Please describe Meade County RECC's experience with Smart**  
21 **Grid/Smart Meter.**

1 A. Meade County RECC implemented an AMI pilot in 2003. Following the  
2 conclusion of the pilot, MCRECC had deployed 28,500 AMI meters which  
3 are a mixture of digital, and retrofitted electro-mechanical meters. These  
4 meters report once-a-day. Since installing these AMI meters, Meade  
5 County RECC has been addressing technological problems, including  
6 experiencing false positives (*e.g.*, signaling a line is out when it is not) or  
7 false negatives (*e.g.*, signaling a line is connected when it is not). With the  
8 installation of these AMI meters, Meade County RECC has averaged 98 -  
9 99% on meter reading accuracy.

10

11 **IV. REVIEW OF APPENDIX A DOCUMENTS**

12

13 **A. *EISA 2007 Smart Grid Investment Standard***

14 **Q. Have the Big Rivers Parties reviewed and discussed the Smart Grid  
15 Investment Standard from the Energy Independence and Security  
16 Act of 2007 (“EISA 2007”)?**

17 **A.** Yes, we have.

18 **Q. What comments and/or observations do the Big Rivers Parties have  
19 about the EISA 2007 Smart Grid Investment Standard?**

20 **A.** The Big Rivers Parties believe the factors listed in the Smart Grid  
21 Investment Standard are among the factors any utility would consider  
22 when evaluating any potential smart grid investment. However, we have



1 concerns about this standard, and believe other factors must be considered  
2 when evaluating the reasonableness of any smart grid investment.

3 First, we question what the Smart Grid Investment Standard means  
4 with the term “qualified Smart Grid system.” Who determines what makes  
5 the smart grid system “qualified”? What is the approval process for any  
6 such smart grid investment? Would approval be timely so that the  
7 requesting utility would have time to implement the technology with  
8 minimal exposure to technological obsolescence?

9 Second, what is the threshold at which a utility must “qualify” any  
10 smart grid investment? The Commission’s current Certificate of Public  
11 Convenience and Necessity (“CPCN”) authority envisions a utility seeking  
12 the Commission’s approval for large projects related to generation  
13 expansion/upgrades, environmental controls, and transmission  
14 expansion/upgrades that are outside the ordinary course of business. The  
15 Big Rivers Parties do not believe that all smart grid investments will  
16 necessarily meet the threshold envisioned by the CPCN legislation and  
17 related regulations. Therefore, we do not believe that all smart grid  
18 investments necessarily fall within the comprehensive reviews of a CPCN.

19 Third, should the Commission adopt any smart grid investment  
20 standard, it should not simultaneously mandate the adoption of any specific  
21 smart grid technology, and should not mandate a time deadline for the  
22 implementation of any smart grid technology. The Big Rivers Parties

1 believe smart grid is so technologically driven that there is not any one  
2 solution that fits all utilities' unique service area geographies and customer  
3 demographics. Stated another way, "one sizes does not fit all" when it  
4 comes to smart grid investments. The NRECA has taken this position in  
5 comments filed at the Federal level.<sup>3</sup> Moreover, we believe, as has been  
6 stated by the NRECA, that smart grid investments should be made "at the  
7 pace of value", *i.e.*, where the technology provides our customer-owners  
8 with safe, reliable power at the lowest reasonable cost. Furthermore, the  
9 NRECA has stated,

10 "Premature implementation of new technologies, ahead of  
11 the "pace of value" can have severe adverse consequences.  
12 These impacts will not be limited to near term issues such as  
13 decreased reliability, increased cost, and other service issues.  
14 Systems experiencing poor performance resulting from  
15 immature technologies will find it more difficult to later  
16 implement improved technologies."<sup>4</sup>  
17

18 Finally, the Big Rivers Parties believe any smart grid investment  
19 standard adopted by the Commission should also clearly outline the  
20 Commission's position regarding cost recovery for smart grid investments.  
21 Because of the rapid change in smart grid technology, a smart grid  
22 technology which is currently financially and technologically feasible may  
23 be technologically obsolete (*e.g.*, the technology is no longer supported) by

---

<sup>3</sup> *Comments of the National Rural Electric Cooperative Association on the "Smart Grid"*, August 12, 2010, Federal Energy Regulatory Commission and National Association of Regulatory Utility Commissioners Smart Grid Collaborative,

<sup>4</sup> *Comments of the National Rural Electric Cooperative Association*, February 19, 2010, Office of Science and Technology Policy, Executive Office of the President.

1 the time the roll-out of the technology is complete. Moreover, some  
2 technology may need to be replaced or upgraded prior to the end of its  
3 service life. Will the Commission allow recovery of the costs of smart grid  
4 investments which have been made in good faith? If a utility's smart grid  
5 investment decision was reasonable at the time of the investment, then the  
6 Big Rivers Parties believe the utility should be allowed to recover this  
7 investment made in good faith. We further believe the Commission should  
8 include such cost recovery provisions in any smart grid investment  
9 standard it may adopt. We also believe, as noted in the Report of the Joint  
10 Parties in response to the Commission's February 29, 2010 Guidance  
11 Document in Case No. 2008-00408, the Commission already has the  
12 authority to consider much, if not all, of what is in the Smart Grid  
13 Investment Standard when reviewing CPCNs, Integrated Resource Plans  
14 and Construction Work Plans.

15  
16 **B. *EISA 2007 Smart Grid Information Standard***

17 **Q. Have the Big Rivers Parties reviewed and discussed the EISA 2007**  
18 **Smart Grid Information Standard?**

19 A. Yes, we have.

20 **Q. What comments and/or observations do the Big Rivers Parties have**  
21 **about the EISA 2007 Smart Grid Information Standard?**

1 A. As member organizations, the Big Rivers Parties have been, are, and will  
2 continue to be focused on the needs of their members. Based on our  
3 experience-to-date, we do not believe there is currently a substantial desire  
4 among retail members to be provided information about wholesale market  
5 energy prices, much less any demand for such information to be available  
6 on an hourly or day-ahead basis.

7 Finally, the Big Rivers Parties believe any customer's price and  
8 usage information are the property of the customer and his electric service  
9 provider. Big Rivers' Members currently go to great lengths to protect that  
10 information. We do not believe we should provide customer-identifiable  
11 information to any third party without the consent of the customer. We  
12 believe the only exception to this position is when the information is  
13 required to fulfill the information requirements of any regulatory agency or  
14 other legal proceedings. And, even in those proceedings and to the extent  
15 possible, the customer's information privacy should be protected.

16

17 **C. *Dynamic Pricing***

18 **Q. Have the Big Rivers Parties reviewed and discussed Dynamic**  
19 **Pricing?**

20 A. Yes, we have.

21 **Q. What comments and/or observations do the Big Rivers Parties have**  
22 **about Dynamic Pricing?**

1 A. The Big Rivers Parties concur that Dynamic Pricing includes Time-of-Use  
2 Pricing, Critical Peak Pricing, and Real-Time Pricing mentioned in the  
3 Commission's October 1 Order. Specifically, we note the Commission, in a  
4 prior order discussing dynamic pricing, stated (*emphasis added*), in part,  
5 that dynamic pricing was "not only practical but *economically* feasible."<sup>5</sup>  
6 We believe that any form of Dynamic Pricing should not only be  
7 economically feasible, but that it should, like other rate and pricing  
8 decisions, be supported by an appropriate cost-benefit analysis reflecting  
9 good utility practice. Furthermore, we believe any such dynamic pricing  
10 protocols should not be mandated by the Commission, but should be  
11 implemented on a case-by-case, utility-by-utility decision.

12  
13 **D. *Attorney General and Community Action Council Comments***

14 **Q. Have the Big Rivers Parties reviewed and discussed the comments**  
15 **filed by the Office of the Attorney General for the Commonwealth**  
16 **of Kentucky ("AG") and the Community Action Council of**  
17 **Lexington-Fayette, Bourbon, Clark, Harrison, and Nicholas**  
18 **Counties ("CAC")?**

19 A. Yes, we have.

20 **Q. What comments and/or observations do the Big Rivers Parties have**  
21 **about the AG's and CAC's comments?**

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<sup>5</sup> Administrative Case No. 2006-00045, *Consideration of the Requirements of the Federal Energy Policy Act of 2005 Regarding Time-Based Metering, Demand Response, and Interconnection Service* (Ky. PSC Dec. 21, 2006)

1 A. There are some AG and CAC comments with which we agree and other AG  
2 and CAC comments with which we disagree, as discussed below. There are  
3 also some AG and CAC comments on which we do not express any opinion.

4 We concur with the AG and CAC that smart grid investments should  
5 provide measureable and significant value to customers.<sup>6</sup> While we  
6 understand the AG/CAC position that many smart grid technologies are not  
7 worth the cost,<sup>7</sup> we believe each such technology, or suite of technologies,  
8 should be evaluated on its own merits. We concur with the AG and CAC  
9 that the Commission should not mandate dynamic pricing.<sup>8</sup> We also agree  
10 that there are ways, other than dynamic pricing, smart grid and smart  
11 meter, to promote energy efficiency and energy conservation.<sup>9</sup> Moreover,  
12 the Big Rivers Parties believe our current DSM and EE programs may be  
13 effective options, versus smart grid and/or smart meters, to increase energy  
14 efficiency and energy conservation in our service areas. Finally, we share  
15 the AG and CAC concern about the security of smart grid and smart meter  
16 systems.<sup>10</sup> We believe system security is already an important component  
17 of any utility's system implementation.

18 There are, however, areas where the Big Rivers Parties disagree with  
19 the AG and CAC. The AG and CAC stated that smart grid and smart meter

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<sup>6</sup> *Joint Comments of Intervenors Community Action Council and Attorney General*, March 25, 2011, Case No. 2008-00408 ("CAC and AG Comments"), page 2.

<sup>7</sup> *Ibid.*

<sup>8</sup> *Ibid.*, page 5.

<sup>9</sup> *Ibid.*, page 6.

<sup>10</sup> *Ibid.*, page 8.

1 investments should be justified with robust cost-benefit analysis.<sup>11</sup>  
2 However, the Big Rivers Parties believe these investments should be  
3 evaluated with analysis that reflects good utility practice, and Commission  
4 review should be consistent with the Commission's review of other  
5 investments. We disagree with the AG and CAC that utilities must bear  
6 the risk of less-than-predicted benefits or payback of smart grid or smart  
7 meter investments.<sup>12</sup> Given the "technology tiger" (*i.e.*, fast moving  
8 technological developments which create technological obsolescence in  
9 shorter and shorter timeframes), utilities must be able to recover all such  
10 costs which have been incurred in good faith as outlined above. We  
11 disagree with the AG and CAC that higher fixed customer fees will lead to  
12 erroneous price signals.<sup>13</sup> The Big Rivers Parties are unsure how smart  
13 grid or smart meter investments relate to this concern. Furthermore, we  
14 believe that cost of service studies may reasonably suggest that higher  
15 customer charges are needed. Finally, while we appreciate the AG and  
16 CAC offering other potential policy standards for consideration,<sup>14</sup> we believe  
17 the Commission should review these standards – The National Institute for  
18 Standards and Technology Guidelines, the Global Privacy Standard, and  
19 the Canadian Best Practices – in a separate proceeding and not unduly  
20 complicate this proceeding by reviewing them now.

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<sup>11</sup> *Ibid.*

<sup>12</sup> *Ibid.*, page 3.

<sup>13</sup> *Ibid.*, page 6

<sup>14</sup> *Ibid.*, pages 9-11

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**E. Kentucky’s Smart Grid Roadmap**

**Q. Have the Big Rivers Parties reviewed and discussed Kentucky’s Smart Grid Roadmap (“the SG Roadmap”) from the Kentucky Smart Grid Roadmap Initiative?**

A. Yes, we have.

**Q. What comments and/or observations do the Big Rivers Parties have about Kentucky’s SG Roadmap?**

A. As with the AG and CAC comments, there are areas where the Big Rivers Parties agree with the Kentucky SG Roadmap, and other areas where we disagree. Most importantly, the Big Rivers Parties are concerned about how some of the SG Roadmap’s recommendations can be funded. We strongly believe this funding burden rests with the Commonwealth of Kentucky and not with the customers of the Commission’s jurisdictional regulated utilities. Other utilities within the Commonwealth – municipal utilities<sup>15</sup> and TVA-powered cooperatives<sup>16</sup> – have vested interests in the

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<sup>15</sup> Big Rivers estimates that Kentucky municipal providers of electricity serve over 100,000 customers. This estimate is based on information from the Kentucky Municipal Utilities Association website ([www.mepak.org](http://www.mepak.org)), information on individual municipal utility websites, and information from *Platt’s Directory of Power Producers and Distributors 2001*.



1 SG Roadmap. However, since they are not within the Commission's  
2 jurisdiction, addressing the SG Roadmap for them lies outside the  
3 Commission's jurisdiction. We believe the SG Roadmap's recommendations  
4 are too important to be addressed in a bifurcated manner. One state  
5 agency with comprehensive jurisdiction over all the utilities within the  
6 Commonwealth should have responsibility for any SG Roadmap oversight.

7 Specifically, the Kentucky SG Roadmap recommends smart grid  
8 investments focus on data network architecture, preferably an IP-based  
9 protocol.<sup>17</sup> The Big Rivers Parties have serious concerns about this  
10 recommendation. Not all areas of the Commonwealth are IP-ready with  
11 high-speed internet access. The quality of the communication  
12 infrastructure varies widely across the Commonwealth. What will be the  
13 cost of such an IP-based architecture? Who or what is the source of the  
14 funding for this protocol? Additionally, we believe mandating this protocol  
15 at this time will only increase security issues which will require additional  
16 funds to address, and will put the electric system at increased risk.

17 The Kentucky SG Roadmap recommends the creation of a Kentucky  
18 Smart Grid Council ("the SG Council").<sup>18</sup> The Big Rivers Parties

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<sup>16</sup> TVA-power cooperatives within the Commonwealth of Kentucky serve in excess of 190,000. This information is based on information from the Kentucky Association of Electric Cooperatives website ([www.kaec.org](http://www.kaec.org)).

<sup>17</sup> *Kentucky's Smart Grid Roadmap: Recommendations on a Vision and Direction for the Future of the Electric Power Grid in the Commonwealth*, The Kentucky Smart Grid Roadmap Initiative, September 18, 2012 ("Kentucky SG Roadmap"), page 7, Recommendation 1, and pages 23-24.

<sup>18</sup> *Ibid.*, page 7, Recommendation 2.

1 acknowledge this recommendation, but caution that this SG Council must  
2 have substantial involvement from both cooperative utilities and investor-  
3 owned utilities, plus jurisdictional and non-jurisdictional utilities, since  
4 each has unique operational characteristics and customer cultures. Also,  
5 the cooperative involvement must be from both the Generation and  
6 Transmission cooperative and the Distribution cooperative levels. We also  
7 again ask, “What will be the funding source for the SG Council?” Assuming  
8 all consumers within the Commonwealth may benefit from the council’s  
9 work, all consumers within the Commonwealth must share the funding for  
10 the SG Council. The council’s funding must not fall only on the customers  
11 of the Commission’s jurisdictional regulated utilities.

12 We appreciate the SG Roadmap’s recommendation for funding smart  
13 grid research within the state university system.<sup>19</sup> However, that research  
14 should be funded by the Commonwealth, not by customers of the  
15 Commission’s jurisdictional regulated utilities. The Big Rivers Parties do  
16 have concerns about the possible duplication of research efforts. There  
17 have been, are, and will likely continue to be smart grid and smart meter  
18 research efforts overseen by the Electric Power Research Institute (“EPRI”),  
19 the Institute of Electrical and Electronics Engineers (“IEEE”), the Edison  
20 Electric Institute (“EEI”), and the NRECA/CRN. We recommend that any  
21 Kentucky university’s smart grid or smart meter research be done in

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<sup>19</sup> *Ibid.*, page 7, Recommendation 3, and page 47.

1 conjunction with research done by EPRI, IEEE, EEI, NRECA/CRN, and  
2 other similar utility industry and professional organizations.

3 We disagree with the Kentucky Smart Grid Roadmap that additional  
4 regulatory mechanisms are necessary to foster demand-side and energy  
5 efficiency programs.<sup>20</sup> The Big Rivers Parties believe the Commission  
6 already has adequate authority through either existing rate review statutes  
7 and regulations, or demand-side specific statutes and regulations.<sup>21</sup> These  
8 statutes and regulations provide an adequate suite of mechanisms to  
9 promote DSM and EE programs.

10 We also believe the Commission has adequate authority to authorize  
11 real-time or multi-tariff pricing.<sup>22</sup> The Big Rivers Parties emphasize that  
12 any such pricing or tariffs must be supported by an appropriate analysis  
13 reflecting good utility practice.

14 Finally, the Big Rivers Parties believe the metrics and priorities for  
15 smart grid deployments in the Commonwealth<sup>23</sup> would be best assigned to  
16 the Kentucky SG Council, assuming appropriate utility membership on the  
17 SG Council. We further believe the SG Council would be a good  
18 clearinghouse for university-based, smart grid/smart meter research  
19 programs. These clearinghouse activities could include working with  
20 universities on research grant applications, overseeing the total smart

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<sup>20</sup> *Ibid.*, page 7, Recommendation 4, and

<sup>21</sup> See KRS 278.030, KRS 278.285, 807 KAR 5:001, 807 KAR 5:006, and 807 KAR 5:011, et.  
al.

<sup>22</sup> *Ibid.* and Kentucky SG Roadmap, page 7, Recommendation 5.

<sup>23</sup> Kentucky SG Roadmap, page 7, Recommendation 6, and pages 41, 43.

1 grid/smart meter research funding, and functioning as a liaison between  
2 the universities' projects and similar EPRI, IEEE, EEI, and NRECA/CRN  
3 projects. The SG Council, like the Commission, should not mandate any  
4 particular technology or capability before it is ready, or before there is  
5 customer acceptance of that technology or capability.

6  
7 **V. OTHER TOPICS FOR COMMISSION CONSIDERATION**

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9 **Q. Have the Big Rivers Parties discussed other factors which they**  
10 **believe the Commission should consider as it evaluates smart grid**  
11 **and smart meter technologies?**

12 **A. Yes, we have.**

13 **Q. Please elaborate on what those factors are.**

14 **A. First, the Big Rivers Parties reiterate what we have stated above. Big**  
15 **Rivers and its Member Cooperatives are member organizations. As such,**  
16 **we are responsive to our members' needs. We are always focused on**  
17 **providing our members with safe, reliable energy at the lowest reasonable**  
18 **costs.**

19 Second, as the Commission well knows, the utilities under its  
20 jurisdiction are quite diverse. Some provide service in the mountainous  
21 terrain of Eastern Kentucky, while others provide service in the gently  
22 rolling hills of Western and Southwestern Kentucky. Some provide service

1 in densely populated service territories while others, such as the  
2 cooperatives within the Commonwealth, provide service to much more  
3 sparsely populated areas. The utilities' service areas and customer  
4 demographics vary widely. Hence, the Big Rivers Parties do not believe  
5 there is a "one size fits all" smart grid and smart meter solution for the  
6 Commonwealth.

7 Third, the Big Rivers Parties believe the Commission should not  
8 mandate the adoption of any smart grid and/or smart meter technology, nor  
9 should it adopt any smart grid and/or smart meter implementation  
10 timeline. Kentucky's utilities are diverse and such diversity may, and most  
11 likely will, require differing solutions. Consequently, we do not believe the  
12 Commission should mandate any technology or timelines for the electric  
13 jurisdictional utilities. Since not all utilities within the Commonwealth are  
14 within the Commission's jurisdiction, the Big Rivers Parties further believe  
15 neither the General Assembly nor the Governor should mandate the  
16 technologies or timelines for the utilities within the Commonwealth. Those  
17 decisions are best made on a case-by-case basis by the respective utilities.

18 Fourth, the Big Rivers Parties have serious concerns about the status  
19 of the communication infrastructure with the Commonwealth. It varies  
20 widely across Kentucky. Any smart grid or smart meter implementation  
21 will be seriously constrained by the Commonwealth's present  
22 communication infrastructure limitations.

1 Fifth, if one objective of smart grid and/or smart meter  
2 implementation is to increase energy conservation and efficiency, the Big  
3 Rivers Parties believe there are better, more cost-effective options to boost  
4 energy conservation and efficiency. During 2012, Big Rivers  
5 representatives, along with representatives from other utilities, energy-  
6 related interest groups, energy industry spokespersons, *et. al.*, participated  
7 in the Statewide Energy Efficiency Stakeholder process sponsored by the  
8 Kentucky Department for Energy Independence and Development and  
9 moderated by the Midwest Energy Efficiency Alliance. Those meetings  
10 revealed that a substantial portion of Kentucky's existing housing stock  
11 does not meet current construction codes. Moreover, a sizeable portion of  
12 that housing stock is substandard. In some cases, even some small  
13 commercial real estate does not meet current construction codes. The Big  
14 Rivers Parties believe that a better investment of the Commonwealth's  
15 dollars would be to upgrade the energy envelop of this housing stock. There  
16 are numerous avenues to accomplish this objective, including the existing  
17 DSM/EE programs of the jurisdictional utilities.

18 Finally, the Big Rivers Parties recommend that opt-out provisions be  
19 available in any programs involving smart meters. Such opt-out provisions  
20 options should be fair to all ratepayers, and should be integral to any  
21 comprehensive deployment plan.

22

1 **VI. CONCLUSION**

2

3 **Q. What are your conclusions and recommendations to the**  
4 **Commission in this proceeding?**

5 A. First, the Big Rivers Parties thank the Commission for allowing us to  
6 present our views on this critically important subject. We realize that  
7 others may differ with our positions, and we respect those differences. The  
8 Big Rivers Parties look forward to collaborating, in a manner similar to the  
9 collaborative effort in Case No. 2008-00408, with the other parties in this  
10 proceeding.

11 Finally, the Big Rivers Parties reiterate that we believe smart grid  
12 and smart meter investment decisions must be made on a case-by-case  
13 basis. Furthermore, there is “no one size fits all” solution. Accordingly, we  
14 urge the Commission not to adopt a smart grid or smart meter mandate, or  
15 to mandate a smart grid or smart meter adoption timeline.

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

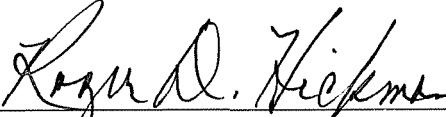
17 A. Yes.

**BIG RIVERS ELECTRIC CORPORATION**

**CONSIDERATION OF THE IMPLEMENTATION OF SMART GRID  
AND SMART METER TECHNOLOGIES  
CASE NO. 2012-00428**

**VERIFICATION**

I, Roger D. Hickman, verify, state, and affirm that I prepared or supervised the preparation of my testimony filed with this Verification, and that testimony is 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 24<sup>th</sup> day of January, 2013.

  
\_\_\_\_\_  
Notary Public, Ky. State at Large  
My Commission Expires 1-12-17



# Professional Summary

Roger D. Hickman  
Regulatory Affairs Manager  
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## Professional Experience

Big Rivers Electric Corporation – 2010 to present

Regulatory Affairs Manager

Kentucky Public Service Commission – 2012

Financial Analyst

LG&E and KU Energy LLC (*previously* E.ON U.S. LLC and LG&E Energy LLC) – 1998 – 2010

Compliance

Compliance Specialist

State Regulation and Rates

Senior Regulatory Analyst

Regulatory Analyst

Kentucky Utilities Company – 1991 – 1998

Financial Planning and Forecasting

Senior Financial Analyst

Financial Analyst

## Education

MBA, Finance Concentration, 1979

University of Kentucky

BA, Mathematics and Political Science (*Summa Cum Laude*), 1974

University of Kentucky

## Professional Certifications

CPA (Inactive), 1986, State of Ohio