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January 28, 2013

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Re: *In the Matter of: Consideration of the Implementation of Smart Grid and Smart Meter Technologies*, Administrative Case No. 2012-00428

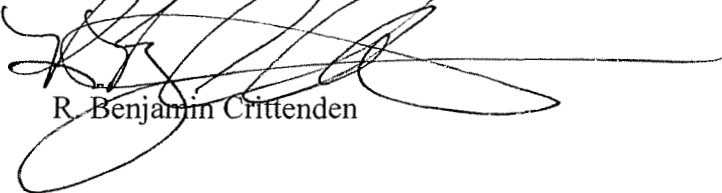
Dear Mr. Derouen:

Please find enclosed and accept for filing the original and ten copies of the testimony of Lila P. Munsey and David M. Roush being filed by Kentucky Power Company.

Copies of the testimony are being served on all other parties of record to this proceeding along with a copy of this letter.

Very truly yours,

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COMMONWEALTH OF KENTUCKY
BEFORE THE
PUBLIC SERVICE COMMISSION OF KENTUCKY

IN THE MATTER OF

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

DIRECT TESTIMONY OF LILA P. MUNSEY AND DAVID M. ROUSH

ON BEHALF OF

KENTUCKY POWER COMPANY

January 28, 2013

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BEFORE THE
PUBLIC SERVICE COMMISSION OF KENTUCKY

IN THE MATTER OF

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

DIRECT TESTIMONY OF
LILA P. MUNSEY
ON BEHALF OF
KENTUCKY POWER COMPANY

January 28, 2013

VERIFICATION

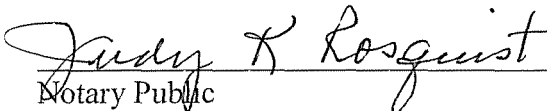
The undersigned, Lila P. Munsey, being duly sworn, deposes and says she is the Manager, Regulatory Services for Kentucky Power Company, that she has personal knowledge of the matters set forth in the forgoing testimony and the information contained therein is true and correct to the best of her information, knowledge, and belief.



Lila P. Munsey

COMMONWEALTH OF KENTUCKY)
) CASE NO. 2012-00428
COUNTY OF FRANKLIN)

Subscribed and sworn to before me, a Notary Public in and before said County and State, by, Lila P. Munsey, this the 23rd day of January 2013.



Notary Public

My Commission Expires: January 23, 2013

DIRECT TESTIMONY OF
LILA P MUNSEY, ON BEHALF OF
KENTUCKY POWER COMPANY
BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY

CASE NO. 2012-00428

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**DIRECT TESTIMONY OF
LILA P. MUNSEY, ON BEHALF OF
KENTUCKY POWER COMPANY
BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY**

I. INTRODUCTION

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION.**

2 A. My name is Lila P. Munsey. I am Manager of Regulatory Services for Kentucky Power
3 Company ("Kentucky Power," "KPCo" or "Company") and my business address is 101
4 Enterprise Drive, Frankfort, Kentucky 40601.

5 **Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**
6 **PROFESSIONAL EXPERIENCE.**

7 A. I received a Bachelor of Science in Civil Engineering from Purdue University, West
8 Lafayette, Indiana, in May 1978 and began my career with Appalachian Power Company
9 ("APCo") as a Civil Engineer in the Hydroelectric Department. In August 1983, I was
10 promoted to the position of Cost Allocation Analyst for APCo where I conducted
11 numerous studies to support retail rate filings and regulatory interactions with the West
12 Virginia and Virginia regulatory commissions. In November 1985, I transferred to the
13 Rate Department of American Electric Power Service Corporation, ("AEPSC"), in
14 Columbus, Ohio, as an Associate Rate Analyst where I developed and supported
15 operating company retail rate filings within American Electric Power Company, Inc.'s
16 ("AEP") seven eastern states. I was promoted to Rate Analyst in November 1989 where I
17 developed, supported, and testified in retail filings concerning cost-of-service issues.

1 In January 1998, I moved to the newly-formed transmission pricing group as a
2 Transmission Contracts & Regulatory Specialist for AEP. In this capacity, I prepared
3 AEP's Federal Energy Regulatory Commission ("FERC") transmission rate filings,
4 including transmission cost-of-service studies, rate design, and tariff development in
5 support of the Regional Transmission Organization ("RTO") developmental filings and
6 negotiations for the Alliance TransCo and ultimately AEP's entrance into PJM's RTO on
7 October 1, 2004. I also prepared long-term reservation contracts with other utilities,
8 developed a contract management tracking system, provided expertise on AEP's Open
9 Access Transmission Tariff and tariff revisions as necessary, and developed the merger-
10 related FERC filings required for AEP's merger of the operating companies in the seven
11 eastern states with those in the four western states previously known as Central &
12 Southwest ("CSW"). In June of 2000, I was promoted to Senior Regulatory Consultant
13 in the Transmission and Interconnections Department, which became part of the
14 Regulated Tariffs Department in 2005. In September 2010, I transferred from AEPSC to
15 Kentucky Power where I assumed my current responsibilities and position.

16 **Q. WHAT ARE YOUR RESPONSIBILITIES?**

17 A. I manage Regulatory Services, which has the responsibility for rate and regulatory
18 matters affecting Kentucky Power. This includes the preparation and coordination of the
19 Company's exhibits and testimony in rate cases and any other formal filings before state
20 and federal regulatory bodies. Another responsibility is assuring the proper application
21 of the Company's rates to all classifications of business.

22 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY BEFORE ANY**
23 **REGULATORY COMMISSIONS?**

1 A. Yes. I have testified concerning certain environmental surcharge matters in Kentucky
2 Case No. 2011-00401, which involved an application by Kentucky Power to retrofit Big
3 Sandy Unit 2 with a Dry Flue Gas Desulfurization (“DFGD”) Scrubber. I also provided
4 testimony in periodic Commission reviews of the Company's Fuel Adjustment Clause
5 and Environmental Surcharge filings. Prior to joining Kentucky Power, I testified before
6 this Commission in Case No. 91-066, a regulatory proceeding involving the adjustment in
7 electric base rates for KPCo. I have also presented testimony for Wheeling Power
8 Company before the Public Service Commission of West Virginia and for Appalachian
9 Power Company before the Virginia State Corporation Commission.

II. PURPOSE OF TESTIMONY

10 Q. **WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

11 A. The purpose of this testimony will be to respond to the Commission order in Case No.
12 2012-00428 on behalf of Kentucky Power to address aspects of a Smart Grid (“SG”)
13 system from hardware and software issues to reliability improvement, cost recovery
14 issues, and dynamic pricing or time-of-use (“TOU”) rates. Additionally, the testimony
15 will discuss the Energy Independence and Security Act of 2007 (“EISA 2007”) Smart
16 Grid Investment Standard, EISA 2007 Smart Grid Information Standard, Report of the
17 Joint Parties, Joint Comments of the Attorney General (“AG”) and Community Action
18 Council (“CAC”), and the Kentucky Smart Grid Roadmap.

III. CURRENT UTILITY OPERATIONS

1 **Q. PLEASE DESCRIBE THE CURRENT UTILITY OPERATIONS.**

2 A. KPCo is engaged in the generation, transmission and distribution of electric power to
3 approximately 173,000 retail customers in an area in eastern Kentucky, and in supplying
4 and marketing electric power at wholesale to other electric utility companies,
5 municipalities and other market participants. In addition to its AEP System
6 interconnections, KPCo is interconnected with the following utility companies:
7 Kentucky Utilities Company and East Kentucky Power Cooperative Inc. KPCo is also
8 interconnected with the Tennessee Valley Authority. KPCo is a member of PJM.
9 KPCo's distribution system includes approximately 10,000 miles of distribution lines and
10 approximately 1,250 miles of transmission lines operated at voltages from 34.5 kV to 765
11 kV. KPCo operates and maintains approximately 82 distribution substations and 29
12 transmission substations.

13 In addition, KPCo is one of ten subsidiary operating companies of AEP, one of
14 the largest electric utilities in the United States that delivers electricity to more than 5
15 million customers in eleven states. As a member company of AEP, KPCo is able to
16 collaborate with other AEP member companies to share and receive the results from SG
17 studies conducted throughout the AEP system.

18 **Q. PLEASE SUMMARIZE THE PRIMARY KPCO SG INITIATIVES**
19 **IMPLEMENTED TO-DATE.**

20 KPCo has primarily focused on the following three areas of SG development:

- 21 • Distribution Automation (“DA”),
- 22 • Volt/VAR Optimization (“VVO”), and

- 1 • Supervisory Control and Data Acquisition (“SCADA”).

2 These SG technologies were chosen because they provide the most benefits to
3 KPCo customers, and can provide immediate cost savings and improved reliability.

4 The installation of DA has been evolving throughout the KPCo service area. A
5 total of nine distribution circuits have been automated, which include five circuits in the
6 Ashland District, two circuits in the Hazard District, and two circuits in the Pikeville
7 District. Additional circuits have been proposed for the Hazard District (six circuits), the
8 Pikeville District (four circuits), and the Ashland District (12 circuits).

9 VVO is under development with a project initiated in 2012. The planning and
10 engineering to select equipment and site locations has been completed, and 25 circuits are
11 planned for VVO technology by the end of 2013. This SG technology improves the
12 overall distribution system voltage by reducing the peak voltage and end-to-end voltage
13 differential for each circuit. The effect is to reduce peak demand and energy
14 consumption for customer loads. This project is expected to reduce peak demand by
15 approximately 5 MW and energy usage by approximately 24,000 MWh.

16 The goal to install SCADA at all Kentucky Power substations continues to be
17 implemented. As of the time of this filing, it is estimated that 38 percent of the SCADA
18 installations are completed for distribution substations and 90 percent are completed for
19 transmission substations. SCADA is needed to support DA and VVO, as well as to
20 provide other reliability benefits.

21 The Company has also completed the installation of Automated Meter Reading
22 (“AMR”) meters replacing all older electro-mechanical meters. The AMR meters are
23 micro-processor based meters that use short-range radio frequency (“RF”)

1 communication, which is accomplished with a transceiver mounted in a utility vehicle.
2 As the vehicle passes through the area where the meter is located, data is transferred
3 between the meter and the vehicle. AMR meters are capable of supporting TOU rates,
4 but are generally not considered as SG technology since they only communicate one-way
5 with the utility. Nevertheless, customers are able to access their energy data through their
6 account on the KPCo website.

7 Finally, as indicated later in this testimony, KPCo has been involved with the SG
8 collaborative projects initiated by the Commission including the Report of the Joint
9 Parties and the Kentucky Smart Grid Roadmap. The Company is supportive of cost-
10 effective SG development, and is an active participant in smart grid implementation.

11 **Q. DOES THE CURRENT USE OF THESE TECHNOLOGIES BENEFIT**
12 **CUSTOMERS?**

13 A. Yes. Customers are receiving benefits from the use of the identified technologies. The
14 DA installations provide significant reliability benefits to KPCo customers. DA
15 facilitates the automatic sectionalizing of radial distribution circuits. By connecting
16 circuits together with automated switches and adding additional automated switches for
17 sectionalizing, fewer permanent outages are experienced by customers on those circuits.
18 Because of the topography and rural nature of the KPCo service area, customers on those
19 circuits experience improved service reliability. It is estimated that more than five
20 million customer outage minutes have been avoided since the program began.

21 The SCADA installations also improve customer reliability by providing remote
22 monitoring and operation of substation equipment. SCADA is also needed to support DA
23 and VVO. Through the use of SCADA at all KPCo substations, equipment can be

1 operated remotely to expedite the restoration of substation equipment during storm
2 events. All of these improve reliability for customers.

3 Finally, AMR meters can be read faster with fewer people requiring less drive
4 time, which has reduced operating costs. Additionally, fewer customer meters are
5 estimated, so customer bills reflect actual energy usage.

6 **Q. DO THE CURRENT TECHNOLOGIES SUPPORT DYNAMIC PRICING?**

7 A. For the purposes of this proceeding, the Commission has defined TOU rates as
8 synonymous with Dynamic Pricing. AMR meters will support TOU rates. The AMR
9 meter is required to have a channel for each rate period such as an on-peak period and an
10 off-peak period. The energy is then measured for each period and associated with the
11 applicable rate. TOU rates are fixed for specific periods of time, so the customer has
12 knowledge of the period times and associated rates, so they may choose energy use
13 options that suit their specific needs. TOU rates are not preferred by all customers
14 because TOU rates require the customer to be an active participant.

IV. EISA 2007 AMENDMENTS TO PURPA

15 **Q. PLEASE SUMMARIZE THE EISA 2007 SMART GRID INVESTMENT**
16 **STANDARD.**

17 A. In EISA 2007, Section 1307, State Consideration of Smart Grid, "Each State shall
18 consider requiring that, prior to undertaking investments in non-advanced grid
19 technologies, an electric utility of the State demonstrate to the State that the electric
20 utility considered an investment in a qualified SG system based on appropriate factors

1 including total cost, cost-effectiveness, improved reliability, security, system
2 performance, and societal benefit.”

3 **Q. HOW DOES KPCO CONSIDER THESE FACTORS IN ITS INVESTMENT**
4 **DECISIONS?**

5 A. These project attributes are required for all projects, and are reviewed during the KPCo
6 project approval process. If total cost and cost-effectiveness were not required, it would
7 be difficult to differentiate and prioritize projects. Technology and new products are
8 constantly evolving, and as such, are evaluated for use and inclusion in utility standards
9 for new construction and upgrades. Reliability, security and system performance over the
10 life of an asset can impact operation and maintenance costs, and so it is practical and
11 desirable to consider these factors. Societal benefits are more difficult to measure, but
12 customer benefits and preferences are obtained through surveys, web-based media and
13 direct contact through the AEP Call Centers.

14 **Q. DO YOU STILL SUPPORT THE POSITION ON THE EISA 2007 SMART GRID**
15 **INVESTMENT STANDARD AS PRESENTED BY COMPANY WITNESS**
16 **WAGNER IN CASE NO. 2008-00408?**

17 A. Yes. In his Direct Testimony, Company witness Wagner indicates the Commission
18 currently possesses the authority to require a utility seeking to make an investment in a
19 non-advanced technology to demonstrate that it considered investment in a qualified SG
20 technology; therefore, it is not necessary to formally adopt EISA 2007. There are
21 regulatory mechanisms currently in place which afford the Commission the opportunity
22 to review any such investments.

1 Q. PLEASE SUMMARIZE THE EISA 2007 SMART GRID INFORMATION
2 STANDARD.

3 A. In the same section, Section 1307, the Smart Grid Information subpart requires that “All
4 electricity purchasers shall be provided direct access, in written or electronic machine-
5 readable form as appropriate, to information from their electricity provider.” The
6 information is to include prices, usage, intervals and projections and sources.
7 “Purchasers shall be able to access their own information at any time through the Internet
8 and or other means of communication elected by that utility for Smart Grid applications.”

9 Q. ARE THE REQUIREMENTS OF THE INFORMATION STANDARD BEING
10 ACHIEVED?

11 A. Yes. Through the KPCo website, customers on a TOU tariff can log into their account to
12 review price, usage and other data as applicable. Further, the Company has committed to
13 participate in the Green Button (“GB”) initiative. Implementation of the GB is expected
14 to be completed in 2013. GB is an industry-led effort that responds to a White House
15 call-to-action to provide consumers with easy-to-understand data about their household
16 energy use. TOU rates are currently available to residential, commercial and industrial
17 customers through the Company website. The GB initiative will further simplify this
18 process. See the testimony of Company witness Roush for an explanation of the rates,
19 tariffs and customer participation.

20 Q. DO YOU STILL SUPPORT THE POSITION ON THE EISA 2007 SMART GRID
21 INFORMATION STANDARD AS PRESENTED BY COMPANY WITNESS
22 WAGNER IN CASE NO. 2008-00408?

1 A. Yes. In his Direct Testimony, Company witness Wagner explains that it would not
2 benefit ratepayers to adopt the EISA 2007 Smart Grid Information Standard since rate
3 offerings, such as “real time pricing” or “critical peak pricing” as explained in Company
4 witness Roush’s testimony, require deployment of the necessary SG components. Until
5 that infrastructure is in-place, it does not make sense to adopt the standard.

6 **Q. PLEASE COMMENT ON THE REPORT OF THE JOINT PARTIES IN CASE**
7 **NO. 2008-00408.**

8 A. The Joint Parties is a collaborative of electric utilities located throughout the State of
9 Kentucky, including Kentucky Power, who were assembled to investigate the
10 development and use of SG technologies. The collaboration also included the University
11 of Louisville and the University of Kentucky, who facilitated the gathering and
12 presentation of information. The Report of the Joint Parties represented the culmination
13 of SG information collected during the multi-year study. The implementation of SG
14 technologies is still in the infancy stage, and it will continue to evolve over an extended
15 period of time. It was also recognized there will not be a single solution for all utilities,
16 but each utility will have to develop solutions that are unique to the needs and
17 expectations of their customers and the operating characteristics of their respective
18 utilities. The importance of SG cost/benefit analysis was also discussed, and it was
19 agreed the use of existing methods of evaluation such as payback, net present value or
20 internal rate of return could be used to determine the prudence of SG investments.

21 **Q. PLEASE RESPOND TO THE JOINT COMMENTS OF THE AG AND CAC IN**
22 **CASE NO. 2008-00408.**

1 A. The main concern of the AG and CAC Joint Response (“Report of the Joint Parties”) was
2 the cost to implement SG technologies. The Joint Intervenors recommend: (a)
3 investments in SG technologies be justified by a robust cost-benefit analysis; (b) the
4 implementation of SG investments should be accompanied by measurable and
5 enforceable performance metrics; and (c) investments must be subject to prudence
6 reviews and audits to determine if the consumer benefits have been delivered as
7 promised. The Company understands the basis for these concerns and would be willing
8 to work with stakeholders to address them at the appropriate time in the context of a
9 specific proposal. KPCo understands the Joint Intervenors are concerned with the risks
10 of implementing new technologies, but the risks can be managed with careful evaluation
11 and the use of pilot programs to test new SG technologies before investing in full scale
12 implementation. The Joint Intervenors were also on record as not supporting mandatory
13 TOU rates. The Company would agree that mandatory TOU rates would not be in the
14 best interest of all customers, but there could be value in providing uniform equipment
15 installations, whereby customers will always have the option of TOU rates without the
16 need for further equipment upgrades. Another concern was that the remote disconnection
17 capability of smart meters may make it much more difficult for low-income energy
18 assistance to be effective. This is a non-issue since the Commission has the authority to
19 direct utilities on how this process will be facilitated. Finally, the Joint Intervenors were
20 concerned about cyber security and privacy issues. The Company shares these concerns,
21 and will take the necessary precautions to address these issues.

22 **Q. PLEASE COMMENT ON THE CONTENTS OF THE KENTUCKY SMART**
23 **GRID ROADMAP.**

1 A. The purpose of the Kentucky Smart Grid Roadmap (“Roadmap”) is to develop a
2 technical roadmap for developing and deploying “Smart Grid” technologies throughout
3 the Commonwealth. The Roadmap lays the foundation for SG development by
4 identifying six key recommendations:

- 5 1. Encourage investments focused on future-proof data network architecture,
6 preferably one that is Internet Protocol based.
- 7 2. Creation of an official Kentucky Smart Grid Council composed of academic,
8 industrial, governmental, and stakeholder members.
- 9 3. Funding of energy/technology policy and technology development research
10 within the state university system.
- 11 4. Creation of regulatory mechanisms to foster increased investments in both
12 cost-effective demand response programs and energy efficiency technologies
13 such as Volt/VAR.
- 14 5. Allow for real-time and multi-tariff pricing.
- 15 6. Establishment of clear metrics to establish priorities and goals for Smart Grid
16 deployments in Kentucky.

17 The Roadmap also correctly recognizes that the technologies that enable SG
18 development and the economic justification are still evolving, but it defines the known
19 SG components and identifies the available options for future development. The
20 recommendations establish a means to track SG development in the state and share
21 information that will ensure continued collaboration.

22 **Q. WHICH TECHNOLOGIES WILL PROVIDE THE MOST BENEFIT TO**
23 **CUSTOMERS?**

1 A. The Company expects the following SG technologies will continue to be beneficial to
2 KPCo customers: DA, VVO and SCADA. The DA technology improves system
3 reliability by reducing customer outage duration. VVO promotes energy efficiency, so
4 all customers benefit. SCADA is the communication system used to support these
5 technologies. Consumers are responsive to technologies that are cost-effective and
6 require minimal effort to achieve energy savings. Consumers have shown a willingness
7 to embrace technology, but industry-wide standards for SG communication and smart
8 appliances have been slow to develop.

9 **Q. WHAT ARE SOME CONCERNS GOING FORWARD?**

10 A. The primary concerns are interoperability standards for SG equipment and software
11 maturity. Utilities need interoperability standards to ensure that devices purchased from
12 multiple vendors after time will be interchangeable and operate on multiple
13 communication platforms. Through the implementation of SG projects across the AEP
14 system, it is apparent that one size does not fit all, and flexibility is needed for adapting
15 SG technologies to different operating environments.

16 Another concern is the ability to storm-harden SG communications. If SG
17 technology is expected to improve system reliability by continuously assessing system
18 conditions and providing automatic sectionalizing, the communication systems must be
19 able to withstand the most severe weather conditions. KPCo is testing the use of radio
20 frequency transceivers and radio repeaters to provide reliable communications to remote
21 devices during storms.

22 Other areas of concern pertain to cyber security and customer data privacy.
23 Internal communications with utility equipment can be addressed with private networks,

1 but as SG evolves to connect utility meters with the internet and customer interfaces, it is
2 imperative to ensure the privacy and integrity of customer data. Further development of
3 communication standards will help to alleviate these issues or concerns.

4 It has also been found that SG software applications do not always work as
5 advertised. This can cause customer frustration and a lack of customer confidence in SG
6 investments and a reluctance to participate in SG programs. Participation in SG
7 programs is typically optional, so it is imperative that utilities earn customer confidence
8 to encourage program participation. This will maximize the SG program cost-
9 effectiveness.

10 **Q. HOW WOULD KPCO LIKE TO PROCEED IN CONTINUED SMART GRID**
11 **DEVELOPMENT?**

12 A. KPCo recommends continuing participation in AEP SG pilot programs and collectively
13 evaluating the best options for KPCo once the AEP system-wide pilot programs are
14 completed and the results are known and evaluated. This collaboration process with
15 other AEP subsidiary operating companies and the Kentucky Collaborative provides
16 value to KPCo and our customers by minimizing our risks and R&D costs associated
17 with implementing new technologies. As previously indicated, KPCo is a subsidiary
18 operating company of AEP. The subsidiary operating companies within AEP are
19 conducting SG pilot projects to assess and develop a SG strategy for AEP. KPCo has
20 contributed to this effort by conducting pilot projects in the evaluation of AMR meters,
21 DA, VVO and SCADA control. Many of these pilot projects are on-going, and will
22 provide valuable insight and lessons learned in the near future. Further, as an investor-
23 owned utility, KPCo supports the use of concurrent cost recovery for utility investments

1 that benefit its customers. Each electric utility within the Commonwealth should
2 individually comment on recovery options that meet the needs associated with
3 participation and investment in SG programs.

V. CONCLUSIONS

4 **Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.**

5 A. KPCo supports the intent of EISA 2007 and believes the Commission currently has the
6 authority and mechanisms in place to consider SG investments without formally adopting
7 EISA 2007. KPCo has invested in some of the SG technologies that provide the most
8 benefits to KPCo customers – technologies that can provide immediate cost savings and
9 improved reliability, including Distribution Automation, Volt/VAR Optimization, and
10 SCADA. As SG technologies continue to evolve, the Company will continue
11 participation in SG collaborative efforts, both internally and externally, and continue to
12 be responsive to the directives from the Commission.

13 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

14 A. Yes, it does.

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CONSIDERATION OF THE IMPLEMENTATION)	
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DIRECT TESTIMONY AND EXHIBITS
OF DAVID M. ROUSH
ON BEHALF OF
KENTUCKY POWER COMPANY

January 28, 2013

VERIFICATION

The undersigned, David M. Roush, being duly sworn, deposes and says he is the Director Regulated Pricing and Analysis, that he has personal knowledge of the matters set forth in the forgoing testimony and the information contained therein is true and correct to the best of his information, knowledge and belief

David M Roush

David M. Roush

STATE OF OHIO

)

) Case No. 2012-00428

COUNTY OF FRANKLIN

)

Subscribed and sworn to before me, a Notary Public in and before said County and State, by David M. Roush, this the 25th day of January 2013.

Ellen A. McAninch

Notary Public

My Commission Expires:

May 11th 2016



ELLEN A. MCANINCH
NOTARY PUBLIC
STATE OF OHIO
Recorded in
Franklin County
My Comm. Exp. 5/11/16

DIRECT TESTIMONY OF
DAVID M. ROUSH, ON BEHALF OF
KENTUCKY POWER COMPANY
BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY

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**DIRECT TESTIMONY OF
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I. INTRODUCTION

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is David M. Roush. My business address is 1 Riverside Plaza,
3 Columbus, Ohio 43215.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed by the American Electric Power Service Corporation (“AEPSC”)
6 as Director - Regulated Pricing and Analysis. AEPSC supplies engineering,
7 financing, accounting, and planning and advisory services to the ten electric
8 operating companies of the American Electric Power System (“AEP”), one of
9 which is Kentucky Power Company (“Kentucky Power,” “KPCo” or
10 “Company”).

11 **Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL AND BUSINESS
12 EXPERIENCE.**

13 A. I graduated from The Ohio State University (“OSU”) in 1989 with a Bachelor of
14 Science degree in mathematics with a computer and information science minor.
15 In 1999, I earned a Master of Business Administration degree from The
16 University of Dayton. I have completed both the EEI Electric Rate Fundamentals
17 and Advanced Courses. In 2003, I completed the AEP/OSU Strategic Leadership
18 Program.

1 In 1989, I joined AEPSC as a Rate Assistant. Since that time I have
2 progressed through various positions and was promoted to my current position of
3 Director – Regulated Pricing and Analysis in June 2010.

4 **Q. WHAT ARE YOUR RESPONSIBILITIES AS DIRECTOR – REGULATED**
5 **PRICING AND ANALYSIS?**

6 A. My responsibilities include the oversight of the preparation of cost-of-service and
7 rate design analyses for the AEP operating companies, and the preparation of
8 special contracts and pricing for customers.

9 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY REGULATORY**
10 **COMMISSIONS?**

11 A. Yes. I have submitted testimony before the Public Service Commission of
12 Kentucky (“Commission”), Indiana Utility Regulatory Commission, Michigan
13 Public Service Commission, the Public Service Commission of West Virginia and
14 the Public Utilities Commission of Ohio. With respect to the Public Service
15 Commission of Kentucky, I have testified in a number of cases, including Case
16 No. 2006-00045 which considered the requirements of the Federal Energy Policy
17 Act of 2005 regarding time-based metering, demand response, and
18 interconnection service.

II. PURPOSE OF TESTIMONY

19 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
20 **PROCEEDING?**

21 A. The purpose of my testimony is to present the Company’s position and provide
22 information to the Commission to assist in its consideration of the requirements of

1 the Energy Policy Act of 2005 (“EPAAct 2005”) and the Energy Independence and
2 Security Act of 2007 (“EISA 2007”) regarding dynamic pricing.

3 **Q. WHAT EXHIBITS ARE YOU SPONSORING IN THIS PROCEEDING?**

4 A. I am sponsoring the following exhibits:

5 DMR Exhibit 1 Time-based Pricing and Load Management Tariffs/Provisions

6 **Q. WHAT IS DYNAMIC PRICING?**

7 A. For purposes of this proceeding, the Commission’s order uses the term dynamic
8 pricing as synonymous with time-of-use pricing. While I am not aware of any
9 industry standard definition of dynamic pricing, in other forums I have seen a
10 distinction made between time-of-use pricing and dynamic pricing. One
11 definition is that dynamic pricing refers to prices that are not known with
12 certainty ahead of time. Examples are “real time pricing,” in which prices in
13 effect in each hour are not known ahead of time, and “critical peak pricing” in
14 which prices on certain days are known ahead of time, but the days on which
15 those prices will occur are not known until the day before or day of consumption.
16 This is in contrast to static time-varying prices, such as traditional time-of-use
17 rates, in which prices vary by rate period, day of the week and season but are
18 known with certainty.¹ I will discuss dynamic pricing in the broader sense as
19 established by the Commission’s order.

20 **Q. WHAT WAS THE REQUIREMENT SET FORTH IN EPACT 2005**
21 **SECTION 1252 FOR TIME-BASED METERING AND**
22 **COMMUNICATIONS?**

23 A. EPAAct 2005 required that:

¹ “A National Assessment of Demand Response Potential”, June 2009

1 “Not later than 18 months after the date of enactment of this paragraph,
2 each electric utility shall offer each of its customer classes, and provide
3 individual customer upon customer request, a time-based rate schedule
4 under which the rate charged by the electric utility varies during different
5 time periods and reflects the variance, if any, in the utility’s costs of
6 generating and purchasing electricity at the wholesale level. The time-
7 based rate schedule shall enable the electric consumer to manage energy
8 use and cost through advanced metering and communications
9 technology.”

10 This section of EAct 2005 goes on to state:

11 “... each State regulatory authority shall, not later than 18 months after the
12 date of enactment of this paragraph conduct an investigation in accordance
13 with 115(i) and issue a decision whether it is appropriate to implement the
14 standards set out in subparagraphs (A) and (C).”

15 Upon evaluation of these non-mandatory standards, the Commission previously
16 decided, in its order dated December 21, 2006, in Case No. 2006-00045 (“the
17 December 21 Order”), that it was not necessary for KPCo to implement the time-
18 based metering and communications standards contained in EAct 2005.

19 **Q. DOES THE COMPANY PROVIDE ELECTRICAL SERVICE THROUGH**
20 **ANY TIME-OF-USE TARIFFS OR PROVISIONS?**

21 A. Yes. The Company has and continues to offer a variety of time-based or time-
22 differentiated tariffs as well as several load management options designed to
23 encourage customers to reduce on-peak usage or shift usage to off-peak periods.

24 **Q. PLEASE DESCRIBE THE COMPANY’S TARIFF OFFERINGS THAT**
25 **CONTAIN TIME-BASED PRICING OR LOAD MANAGEMENT**
26 **PROVISIONS.**

27 A. DMR Exhibit 1 summarizes the wide variety of Company tariffs that contain
28 time-based pricing or load management provisions. The provision of service
29 under at least one of these tariffs is available to the vast majority of the

1 Company's customers, whether they are residential, commercial or industrial
2 customers. In fact, as shown in DMR Exhibit 1, the Company introduced
3 additional time-of-use tariffs and load management provisions in 2010. As such,
4 the Company continues to believe that KPCo and the Commission have
5 substantially met the proposed standard and that the Commission should not
6 require any further action on behalf of the Company to implement the time-based
7 metering and communications standards of EPCAct 2005 beyond what was
8 previously required in the December 21 Order.

9 **Q. WHAT LEVEL OF CUSTOMER PARTICIPATION IN THESE TIME-**
10 **BASED PRICING AND LOAD MANAGEMENT PROVISIONS HAS THE**
11 **COMPANY EXPERIENCED?**

12 A. While time based pricing or load management provisions are available to most
13 KPCo customers, less than ½ of 1% of the Company's customers have elected to
14 take service under one of these provisions. As of November 2012, that includes
15 370 residential, 210 commercial and 22 industrial customers. While estimates of
16 the load shifted from on-peak periods to off-peak periods by customers taking
17 service under these provisions is not available, the annual total energy used by
18 these customers is approximately 7.2 million kWh for residential customers, 8.3
19 million kWh for commercial customers and 3.0 billion kWh for industrial
20 customers. It should be noted that over ¾ of the kWh identified as industrial
21 above are for KPCo's largest customers (7,500 kW and above) that must take
22 service under Tariff C.I.P.-T.O.D. which requires time-of-day demand metering.
23 The amounts of energy used by customers taking service under the Company's

1 time-based pricing or load management provisions represents less than 1% of
2 total residential and commercial energy usage, but nearly 75% of total industrial
3 energy usage.

4 **Q. SHOULD THE COMPANY EXPAND THE AVAILABILITY OF**
5 **DYNAMIC PRICING?**

6 A. No. As recognized in the December 21 Order, the availability of dynamic pricing
7 must consider the implementation costs. At this time, dynamic pricing can make
8 sense for large customers because of the relatively low costs of the required
9 metering (compared to standard large customer metering) and the ability to
10 implement without significant investments in communication, automation and
11 back-office systems (due to the low number of large customers). Before
12 considering a comprehensive roll-out of dynamic pricing supported by a smart
13 grid system to all KPCo customers, the costs and benefits would need to be
14 considered, including the remaining book-value costs of any equipment rendered
15 obsolete by the deployment of the smart grid system.

16 It is apparent that for a number of reasons, at the current price level of the
17 Company's rates, most customers have decided that the economic rewards
18 associated with participating in the various time-based programs do not outweigh
19 the inconvenience or cost associated with changing their usage characteristics. It
20 is also very clear that the Company currently offers a variety of time-based
21 options for its customers and that any further action on this matter at this time
22 would not result in additional changes in customer usage or be beneficial to the
23 customers of KPCo.

III. CONCLUSION

1 Q. WOULD YOU PLEASE SUMMARIZE YOUR TESTIMONY?

2 A. KPCo currently offers a wide variety of tariffs that reflect time-based pricing
3 differentials and load management features and even with these offerings, the
4 Company is seeing minimal customer interest in these voluntary programs. As
5 evident from the Company's expansion of its offerings in 2010, the Company
6 does actively look for ways to expand the availability to customers of time-based
7 pricing and load management services. The implementation of wide-scale
8 dynamic pricing must consider the costs and benefits of such offerings. Any such
9 decision will be based upon the specific circumstances for each Kentucky utility
10 and cannot be a one-size, fits-all determination. At this time, the implementation
11 of further dynamic pricing through a smart grid system would not be beneficial
12 for KPCo's customers given KPCo's recent deployment of Automated Meter
13 Reading ("AMR") technology.

14 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

15 A. Yes, it does.

Kentucky Power Company
Time-based Metering/Demand Response Tariff Provisions

DMR Exhibit 1

<u>Tariff/Rider</u>	<u>Description of Service/Provision</u>	<u>Currently in Effect</u>	<u>Commission Case</u>	<u>Order Date</u>
<u>Residential</u>				
Tariff RS	Storage water heating	X*	91-066	10/28/1991
	Load management water heating	X	91-066	10/28/1991
Tariff RS-LM-TOD	Load management time-of-day	X	7687	12/28/1979
Tariff RS-TOD	Time-of-day	X	7687	12/28/1979
Tariff RS-TOD 2	Time-of-day	X	2009-00459	6/28/2010
RCLM**	Load management pilot	X	2010-00198	10/15/2010
<u>Commercial & Industrial</u>				
Tariff SGS	Load management time-of-day	X	9061	12/4/1984
Tariff SGS-TOD	Time-of-day	X	2009-00459	6/28/2010
Tariff MGS (formerly Tariff G S)	Recreational lighting	X	9061	12/4/1984
	Load management time-of-day	X	9061	12/4/1984
Tariff MGS-TOD	Time-of-day	X	91-066	10/28/1991
Tariff LGS	Load management time-of-day	X	91-066	10/28/1991
Tariff LGS-TOD	Time-of-day	X	2009-00459	6/28/2010
Tariff QP	Off-peak excess billing demand	X	91-066	10/28/1991
Tariff CIP-TOD	Time-of-day billing demand	X	8871	10/28/1983
Tariff IRP	Interruptible		8734	9/20/1983
Tariff CS-IRP	Interruptible	X	PSC Letter	6/22/1998
Rider TEC	Temporary emergency curtailable		98-345	7/7/1998
Rider ECS - C&E	Emergency curtailable	X	99-271	6/29/1999
Rider EPCS	Price curtailable	X	99-271	6/29/1999
Tariff RTP	Real-Time Pricing	X	2007-00166	2/1/2008

* Frozen provision available only to currently served customers

** Also available to small commercial customers

Service Description

Storage/Load Management Water Heating - Available to customers who install a Company approved water heating system which consumes electrical energy during off-peak hours and stores hot water for use during on-peak hours. Customer receives reduced energy charge for fixed block of monthly kWh.

Load Management Time-of-Day Service/Provision - Available to customers who use devices with time-differentiated load characteristics that consume energy only during off-peak hours and store energy for use during on-peak hours. Customer is served under time-of-day energy charges

Time-of-Day Service - Optional tariff for customers that are capable and willing to consume electrical energy primarily during the Company's designated off-peak period to take advantage of the price differential between on-peak and off-peak energy rates

Recreational/Athletic Field Lighting Service - Available to customers for separately metered lighting of non-profit outdoor recreational facilities

Off-Peak Excess/ TOD Billing Demand - Available to customers who operate primarily during the off-peak period and request installation of time-of-day metering in order to take service under this provision. A reduced rate is applied to either all off-peak demand or excess off-peak demands.

Interruptible Service/TEC/ECS/PCS - Available to customers that are willing to reduce load upon request by the Company. Customer either receives a reduced demand charge or a payment for amounts reduced