COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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

DIRECT TESTIMONY OF

MARK D. WYATT

ON BEHALF OF

DUKE ENERGY KENTUCKY, INC.

January 28, 2013

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I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Mark D. Wyatt. My business address is 526 South Church Street, Charlotte, North Carolina.

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

A. I am employed by Duke Energy Business Services LLC, an affiliate of Duke Energy Kentucky, Inc. (Duke Energy Kentucky or Company), as Vice President, Grid Modernization.

Q. PLEASE BRIEFLY DESCRIBE YOUR JOB DUTIES AS VICE PRESIDENT, GRID MODERNIZATION.

A. I am the lead executive responsible for the overall deployment of Grid Modernization in the six states in which Duke Energy Corp. has regulated utility affiliates. My accountabilities include leadership of the program management function for deployment of the following aspects of the Grid Modernization program: (1) Automated Metering Infrastructure (AMI); (2) Distribution Automation (DA); (3) the two-way digital communications network; and (4) all supporting information technology (IT) systems required to enable the collection and management of Grid Modernization generated data in support of Duke Energy's business goals and objectives.

The program management function consists of the following functional areas: (1) managing the integrated cost and schedule for all projects under the Grid Modernization program; (2) managing Grid Modernization vendor/supplier relationships; (3) performing periodic quality assurance audits of Grid

Modernization vendors/suppliers; (4) providing independent assessments of Grid Modernization projects; and (5) management oversight of the U. S. Department of Energy (DOE) Smart Grid Investment Grant (SGIG) award.

Q. PLEASE BRIEFLY DESCRIBE YOUR PROFESSIONAL AND EDUCATIONAL BACKGROUND.

A. I earned a Bachelor of Science Degree in Computer Science from North Carolina State University in 1980. I currently serve on the board of directors of Customer Services Week, a non-profit organization that provides educational opportunities for utility customer service professionals.

Q. PLEASE SUMMARIZE YOUR WORK EXPERIENCE.

A. I joined Duke Power in 1980 in the information management department. I moved to the distribution department several years later, where I was responsible for the deployment of common business processes and supporting technology that enhanced the effectiveness of engineering, construction and operations functions within the department. Following this assignment, I experienced a series of promotions within the company through assignments in the retail customer services, transmission, distribution, and information technology areas. In the mid-1990s, I assumed a senior management role within the company's unregulated business unit, where I was responsible for both domestic and international information technology operations.

Prior to the Duke Energy / Progress Energy merger in July 2012, I served as vice president of retail customer products and services. In this role, I was responsible for providing services to approximately 4 million customers in North Carolina,

South Carolina, Indiana, Ohio and Kentucky. During this time, I was responsible for call center operations, revenue billing and receivables, marketing, energy efficiency, relationships with large business customers, and grid modernization.

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

A. The purpose of my testimony is to discuss Duke Energy's overall vision and strategy of its ongoing Grid Modernization program, along with the benefits that customers are presently receiving and will continue to receive in the future as a result of the Company's Grid Modernization deployment. I will also discuss the Company's stance regarding the Energy Independence and Security Act of 2007's ("EISA 2007") Smart Grid Investment Standard and Smart Grid Information Standard.

II. GRID MODERNIZATION VISION AND STRATEGY

Q. WHAT IS DUKE ENERGY'S OVERALL VISION AND STRATEGY WITH REGARD TO GRID MODERNIZATION?

A. From the power plant to the customer's home or business, Duke Energy's Grid Modernization program is an end-to-end approach that enables near-real time communication across the electric power grid, creating a two-way communication between the utility and our customers. The Company is continually looking for innovative ways to meet the future energy needs of its customers, and will continue to invest in grid modernization technologies that optimize the current power delivery system. In addition to creating efficiencies and improving reliability, this technology gives customers more information and tools to better

manage their energy usage.

These investments are already beginning to transform today's century-old power delivery system into an advanced energy network that provides timely energy usage information, remote grid monitoring and control. By deploying advanced energy technologies and modernizing our power grid, Duke Energy will provide its customers with more choice and control to make more informed energy decisions, which will help create a cleaner, lower carbon, more energy-efficient world.

Duke Energy's Grid Modernization program is strategically positioned to have a holistic view of our Company's shared business drivers, opportunities and risks. The new Duke Energy has an opportunity to build on the shared expertise, partnerships and research of its legacy companies to develop a comprehensive grid modernization program that positions the utility as an industry leader, and drives value for customers.

Q. DESCRIBE SOME FUNCTIONAL CAPABILITIES OF GRID MODERNIZATION THAT CUSTOMERS COULD EXPERIENCE AS A RESULT OF ADVANCED METERING INFRASTRUCTURE (AMI).

A. Duke Energy's grid modernization program entails the deployment of advanced metering infrastructure (AMI) and distribution automation (DA), the two-way digital communication network; and all supporting information technology systems required to enable the collection and management of device-generated data in support of Duke Energy's business goals and objectives.

The Company will look to build upon best practices from the current Duke Energy Ohio deployment as it looks to proceed with similar efforts in its remaining service territories, including Duke Energy Kentucky. Customers living in the Company's Ohio service territory have recently witnessed the following functional capabilities as a result of the utility's ongoing AMI deployment:

Actual Metering and Customer Service Account Savings: Smart meters enable Duke Energy to reduce the costs associated with estimated meter reads, and sending a meter reader to the customer's home to conduct a manual read. To date, close to 75% of the gas and electric meters located inside the premises in the Company's Ohio service territories have been replaced with a smart meter, eliminating the need to enter the premises for a meter read and the need for estimated meter reads.

Customer Access to Daily Usage: The digital communications network and the AMI meter provide customers with the ability to access their daily energy usage information from the previous day. This, in turn, provides customers with better insight into their daily energy usage patterns.

Remote Connections/Disconnections: With the new technology, Duke Energy Ohio can remotely connect new electric service or disconnect existing electric service. This reduces the inconvenience to customers that results from having to schedule an appointment with the Company to either connect or disconnect service and further enables a more timely response to a request to connect or disconnect service. The processes in place today that govern the

Company's ability to disconnect services will not be hindered as a result of this upgrade, and will in fact become more streamlined.

Time-Differentiated Pricing: These new technologies also enable customers to participate in time-differentiated pricing programs. Duke Energy Ohio has already proposed several time-differentiated pricing pilots which have been approved by the Public Utility Commission of Ohio. Duke Energy Kentucky Witness Timothy J. Duff will discuss our pilot tariff programs in greater detail. Through these dynamic rate pilot tariffs, we will learn a great deal about what customers find beneficial when taking control of their energy usage and costs.

Q. WHAT ADDITIONAL CUSTOMER BENEFITS EXIST AS A RESULT OF A GRID MODERNIZATION DEPLOYMENT?

A. In addition to smart meters, the Company is also deploying Distribution Automation (DA). Our DA component includes the application of two-way communications to important system devices providing us with more detailed information of system activity as well as the capability of remote monitoring and operation of system devices. The Company expects to gain a number of benefits from this modernization of our distribution system, including improved system reliability, improved power quality, improved operating efficiencies, and improved customer satisfaction.

The plan for implementing DA involves the transformation of an existing distribution system requiring manual on-site operation of power equipment to an advanced distribution system with power equipment capable of being operated

automatically or remotely through installation of a two-way communications network and advanced control systems. One example of this transformation involves circuit breakers and reclosers. This technology addresses temporary line faults, avoiding extended interruption of service and isolating permanent line faults, which reduces the number of customers experiencing extended interruption of service. Our plan in Ohio recently called for increasing the use of reclosers on main feeders in high customer density areas as well as automating some of the reclosers. Experience proves that additional reclosers on main feeders help reduce the number of customers experiencing a sustained outage. Also, we believe that the automation of this equipment will help the Company to obtain real-time operating data, reduce truck visits to customer premises, improve operating efficiencies, reduce operations and maintenance (O&M) cost and reduce outage duration. The application of line sensors will provide near real time load and fault data for our distribution system, which will enhance outage response, system operations, and distribution system planning.

Self healing technology, which provides an immediate benefit of increased system reliability, uses distribution line power devices such as switches, programmable reclosers, and circuit breakers that are automated and thus capable of communicating via an intelligent control system. The control system, communications system, and power line devices all work together as a "team" – all serving to identify, communicate, and isolate the portion of the system affected by a fault or other problem, thus minimizing the impact to customers.

III. EISA 2007: CONSIDERATION OF SMART GRID INVESTMENTS (SECTION 1307(a)(16)(A)

Q. ARE YOU FAMILIAR WITH THE EISA 2007 STANDARDS IN SECTION 1307(a)(16)(A) THAT ARE APPLICABLE TO THE COMMISSION'S CONSIDERATION OF SMART GRID INVESTMENT?

A. Yes. The EISA 2007 standards contained in Section 1307(a)(16)(A) require that each state, prior to undertaking investment in non-advanced grid technologies, require the electric utility to demonstrate that it has considered its investment in grid technologies as they relate to six factors: total cost, cost effectiveness, improved reliability, security, system performance, and societal benefits. This Standard also requires that each state consider recovery of Smart Grid capital expenditures, operating expenses and other costs related to the deployment of smart grid technology, including a reasonable return on the capital expenditures.

Q. HAS DUKE ENERGY KENTUCKY CONSIDERED THESE SIX POLICY FACTORS SET FORTH IN EISA 2007, IN CONNECTION WITH ITS INVESTMENT IN GRID MODERNIZATION?

A. Yes. Duke Energy Kentucky has considered all of these factors and is continuing to monitor them as they relate to any potential AMI initiatives in Kentucky.

Q. DOES DUKE ENERGY KENTUCKY AGREE WITH THE EISA 2007 FACTORS FOR CONSIDERATION RELATED TO GRID MODERNIZATION IMPLEMENTATION?

A. The Company supports the EISA 2007 standards related to Grid Modernization, but does not believe the standards need to be formally adopted by the

Commission, which is the same position we took in the March 25, 2011 Report of the Joint Parties in Case No. 2008-00408. All of the six factors set forth in EISA 2007 are appropriate elements to consider in implementation of Grid Modernization and, in fact, Duke Energy Kentucky has considered each of them in evaluating Grid Modernization, notwithstanding the requirements of EISA 2007.

Q. ARE THERE POLICY CONSIDERATIONS UNDER EISA 2007 THAT DUKE ENERGY KENTUCKY DOES NOT SUPPORT?

A. No. Duke Energy has, in fact, analyzed and considered these same factors as it has studied and moved forward with its grid modernization initiatives in the six states in which it operates, including Kentucky. Joint Intervenors Community Action Council (CAC) and the Attorney General filed a response to the Utility Working Group's Report in 2011, stating that the primary issue facing customers with regard to grid modernization initiatives is cost. Duke Energy has acknowledged this concern and has continued to evolve its understanding of costs and benefits as the Company moves forward with implementing its Grid Modernization initiative throughout its service territories. Since Duke Energy Kentucky provides both natural gas and electric utility service to its Northern Kentucky customers, Duke Energy will continue to analyze grid modernization technologies for both electric and natural gas investment.

Q. PLEASE DESCRIBE DUKE ENERGY'S EFFORTS IN INVESTIGATING GRID MODERNIZATION TECHNOLOGY.

A. Duke Energy began investigating the development of a grid modernization program in 2004. Initially, the purpose was to gather and correlate data on generation characteristics, outages, transmission loading, distribution system constraints and metering opportunities, and then use that data to better optimize Duke Energy's system and identify potential operating efficiency improvements. The investigation led to the determination that opportunities existed to further enhance system performance and operations. Near that same time, Duke Energy Kentucky was also considering the possibility of an automated meter reading (AMR) project using a power line carrier system in its Midwest region.

In 2006, Duke Energy initiated an internal working group consisting of all operational areas (except for generation) tasked with putting together "use cases" designed to describe what technology Duke Energy needed to accomplish this initiative and how it wanted to provide value added products and services to regulated customers.

Once Duke Energy determined the actual technologies needed to enable its vision for the future, a variety of vendors (metering, behind-the-meter and communication products) were evaluated to assess their product offerings and their ability to meet Duke Energy's functional requirements. Duke Energy is continuing to work with several vendors to enable its vision of Duke Energy's future in this area. At this point, we have developed an architecture that allows us

to minimize the proprietary communications networks and increase the long-term flexibility of the "smart grid."

Duke Energy has developed a simulated model of its Grid Modernization vision, which it calls the EnVision Center. Located in Erlanger Kentucky, the EnVision Center represents what Duke Energy foresees as the culmination of Grid Modernization technology design and implementation for the future of energy delivery. The EnVision Center provides visitors an interactive and special effects experience that demonstrates the possibilities of a modernized grid as well as how the technology could enable further advancements in energy efficiency. The center features a movie-style studio with sets consisting of a substation with two-way digital technology, a "smart" home – complete with solar panels and a plug-in hybrid vehicle, an apartment complex with "smart meters" and a power delivery work center – monitoring conditions with real-time data. Electric poles equipped with "intelligent" power equipment are also staged throughout.

IV. EISA 2007: CONSIDERATION OF SMART GRID INFORMATION (SECTION 1307(a)(17)(A-C)

Q. ARE YOU FAMILIAR WITH THE EISA 2007 STANDARDS IN SECTION 1307(a)(17)(A-C)?

A. Yes. EISA 2007 Section (a)(17)(A-C) provides that state regulatory bodies shall consider the following information to the extent practicable and available: time-based prices or rates; kWh usage; updates of information on prices and usage offered on a daily basis, including hourly price and use information and a day-ahead projection of such price information; and annual written information on

sources of power provided by type of generation (including greenhouse gas emissions) for available intervals. The Information Standard also requires electric utilities to provide consumers access to their own information at any time through the internet and by other means of communication elected by the electric utility for smart grid applications.

Q. DOES DUKE ENERGY KENTUCKY AGREE WITH THE FACTORS FOR CONSIDERATION RELATED TO THIS STANDARD?

A. The Company supports the EISA 2007 standards related to Smart Grid Information, but does not believe the standards need to be formally adopted by the Commission. This is the same position we took in the March 25, 2011 Report of the Joint Parties in Case No. 2008-00408.

Q. WHAT COMMISSION POLICIES AND REGULATIONS ARE ALREADY IN PLACE THAT ACCOMPLISH THE GOALS OF EISA 2007?

A. The Commission has jurisdiction to approve utilities' investment in infrastructure. In fact, Duke Energy Kentucky received the Commission's approval to deploy an advanced metering pilot through its last electric rate case, Case No. 2006-00172. Also, the Commission may consider residential Grid Modernization deployment as an element of demand side management (DSM) plans which are submitted for approval under KRS Chapter 278.285. The Kentucky statute gives the Commission authority to review utility sponsored demand side management and energy conservation plans and approve such plans for recovery via a discrete rider adjustment. The Commission can approve such

programs if the Commission determines that the programs are reasonable.

Q. OVERALL, DOES DUKE ENERGY KENTUCY BELIEVE THE COMMISSION SHOULD ADOPT THE STANDARD SET FORTH IN EISA SECTIONS 1307(a)(16)(A) AND 1307(a)(17)(A-C)?

A. No. Although Duke Energy supports the EISA 2007 standards related to grid modernization investments, it does not believe the standards must be formally adopted by the Commission. The Commission's existing authority over rate making provides the necessary legal basis for the recovery of grid modernization investments. The company does believe that the Commission should authorize appropriate cost recovery for costs related to the implementation of grid modernization technology, including the remaining book value of equipment rendered obsolete. In order to promote the development of Grid Modernization systems, the cost recovery mechanisms approved by the Commission should take into consideration the nature and timing of grid modernization installations and investment, and provide for timely recovery.

V. CONCLUSION

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECTTESTIMONY?

A. Yes.

VERIFICATION

STATE OF NORTH CAROLINA)
) SS:
COUNTY OF MECKLENBURG)

The undersigned, Mark D. Wyatt, being duly sworn, deposes and says that he is Vice President, Grid Modernization of Duke Energy Business Services LLC, that he has personal knowledge of the matters set forth in the foregoing testimony, and that the answers contained therein are true and correct to the best of his information, knowledge and belief.

_____
Mark D. Wyatt, Affiant

Subscribed and sworn to before me by _____ on this ____ day of January 2013.

_____
NOTARY PUBLIC

My Commission Expires

VERIFICATION

STATE OF NORTH CAROLINA)
)
COUNTY OF MECKLENBURG)

SS:

The undersigned, Mark D. Wyatt, being duly sworn, deposes and says that he is Vice President, Grid Modernization of Duke Energy Business Services LLC, that he has personal knowledge of the matters set forth in the foregoing testimony, and that the answers contained therein are true and correct to the best of his information, knowledge and belief.

Mark D. Wyatt, Affiant

Subscribed and sworn to before me by Mark Wyatt on this 23rd day of January 2013.

NOTARY PUBLIC

My Commission Expires 9/19/15

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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

DIRECT TESTIMONY OF

TIMOTHY J. DUFF

ON BEHALF OF

DUKE ENERGY KENTUCKY, INC.

January 28, 2013

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I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Timothy J. Duff. My business address is 526 South Church Street, Charlotte, North Carolina 28202.

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

A. I lead the Customer Planning and Regulatory Strategy Group, for Duke Energy Business Services, Inc (DEBS). DEBS is a service company that supports many of the affiliated companies in the Duke Energy Corp. structure including, but not limited to the regulated utilities Duke Energy Kentucky, Inc., (Duke Energy Kentucky) and Duke Energy Ohio, Inc., (Duke Energy Ohio).

Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL QUALIFICATIONS.

A. I graduated from Michigan State University with a Bachelor of Arts in Political Economics and a Bachelor of Arts in Business Administration, and received a Master of Business Administration from the Stephen M. Ross School of Business at the University of Michigan. I started my career with Ford Motor Company and worked in a variety of roles within the Company's financial organization. After five years with Ford Motor Company, I began work with Cinergy in 2001, providing business and financial support to plant operating staff. Eighteen months later I joined Cinergy's Rates Department, where I provided revenue requirement analytics and general rate support for the company's transfer of three generating plants. After my time in the Rates Department, I spent a short period of time in the Environmental Strategy Department, and then I joined Cinergy's

Regulatory and Legislative Strategy Department. After Cinergy merged with Duke Energy in 2006, I worked for four years as Managing Director, Federal Regulatory Policy. In this role, I was primarily responsible for developing and advocating Duke Energy's policy positions with the Federal Energy Regulatory Commission. I assumed my current position in 2010.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE KENTUCKY PUBLIC SERVICE COMMISSION?

A. Yes, I have testified previously before the Kentucky Public Service Commission Utilities (Commission) in matters related to Duke Energy Kentucky's energy efficiency portfolio and the associated recovery mechanism. I have also provided testimony in cases before the Indiana Utilities Regulatory Commission, the North Carolina Public Utilities Commission, and the Public Utilities Commission of Ohio.

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

A. The purpose of my testimony is to discuss some of the dynamic pricing programs that are made possible with a smart grid infrastructure, and more specifically Duke Energy Ohio's experiences with dynamic pricing pilot programs in its Ohio service territory that have been enabled by its grid modernization (Smart Grid) program. I will also discuss the benefit of collaborating with stakeholders in the development of the dynamic pricing pilots.

II. DYNAMIC PRICING

Q. PLEASE DEFINE DYNAMIC PRICING.

A. In the context of utility rates, dynamic pricing is commonly used (or misused) to refer to the broader category of time-differentiated or time-of-use-based pricing whereby the cost of electricity changes and depends on the time when the service is provided or the commodity is delivered. Dynamic pricing, in the truest sense, is better defined as a real-time price where the price changes frequently (an hourly basis or less) reflecting the utility's cost of generating and/or purchasing electricity at the wholesale level and offers a pricing signal to the user on an advanced or forward basis to control their consumption.

Other time-based pricing of services for the provision of electric power includes, but is not limited to:

- **time-of-use pricing (TOU pricing)**, whereby electricity prices are set for a specific time period on an advance or forward basis, typically not changing more often than twice a year. Prices paid for energy consumed during these periods are pre-established and known to consumers in advance, allowing them to vary their usage in response to such prices and manage their energy costs by shifting usage to a lower cost period or reducing their consumption overall;
- **critical peak pricing** whereby time-of-use prices are in effect except for certain peak days, when prices may reflect the costs of generating and/or purchasing electricity at the wholesale level

- **real-time pricing** (also: **dynamic pricing**) whereby electricity prices may change as often as hourly (exceptionally more often).; and
- **peak load reduction credits** for consumers with large loads who enter into pre-established peak load reduction agreements that reduce a utility's planned capacity obligations.

Q. HOW DOES SMARTGRID / GRID MODERNIZATION FACILITATE DYNAMIC PRICING OPPORTUNITIES FOR CUSTOMERS?

A. Grid Modernization facilitates dynamic pricing opportunities for customers because of the data collection and communication capabilities that are enabled by the deployment of the infrastructure. Specifically the advanced metering infrastructure allows for interval usage data to be collected and the communicated on close to a real-time basis. Having access to this data will allow the Company to support rate structures that are time dependent.

III. LESSONS LEARNED FROM DUKE ENERGY OHIO'S DYNAMIC PRICING EXPERIENCES

Q. PLEASE BRIEFLY SUMMARIZE THE HISTORY OF DUKE ENERGY OHIO'S SMARTGRID AND DYNAMIC PRICING INITIATIVES.

A. Duke Energy Kentucky Witnesses Mark Wyatt and Donald Schneider more fully discuss Duke Energy Ohio's deployment of Smart Grid, what it includes, and its successes in their direct testimonies. However, in summary, the Public Utilities Commission of Ohio (PUCO) approved Duke Energy Ohio's grid modernization program (Smart Grid) in 2008. Shortly thereafter, Duke Energy Ohio convened monthly meetings open to all interested stakeholders (Ohio Collaborative), to

discuss the plans for Smart Grid implementation including the development of dynamic pricing opportunities for customers. The dynamic pricing/time-of-use rate opportunities were a key motivator for stakeholder buy-in to facilitate the implementation of the Smart Grid program. These regular monthly meetings provided Duke Energy Ohio with a valuable opportunity to create transparency around the status of the deployment and engage the various parties in open and free flowing discussions. Duke Energy Ohio used these discussions to better understand the various views of the Parties and, in many cases, to modify or enhance Duke Energy Ohio's plans for deployment and rate design.

Through Duke Energy Ohio's pilot programs in 2010, 2011, and 2012, the Duke Energy Ohio and the Ohio Collaborative have learned a tremendous amount about customer acquisition, attractiveness of different rate designs and potential impacts associated with the rate designs. Building upon all of these initial learnings, Duke Energy Ohio continues to work with the Ohio Collaborative to develop rate pilots, to better understand customers' requirements and receptiveness to time differentiated rates and demonstrate the customer benefits that can be realized from having the opportunity to be served under time differentiate rates.

Q. WERE THERE ANY STAKEHOLDER CONCERNS WITH THE IMPLEMENTATION OF DYNAMIC PRICING AND SMARTGRID?

A. Yes. Initially, the Ohio Collaborative members were concerned that the initial versions of the time-of-use rate would have too many hours of the day in the

summer period and that would place customers on a rate that was higher than the existing rates. Duke Energy Ohio worked with the Ohio Collaborative to redesign the rate to address this concern. As a result, the process of proposing technology-enabled pilot tariffs to the PUCO for its consideration is streamlined and the proposed tariffs are, to the extent noted in the respective dockets, generally supported by interveners. This process enabled Duke Energy Ohio to move quickly to work with its customers during appropriate seasonal periods to pilot technology-enabled tariff offerings and gain valuable insight into the customer experience.

Q. PLEASE DISCUSS DUKE ENERGY OHIO'S APPROACH TO NEW TARIFF OFFERINGS.

A. Just as with the actual physical deployment of Smart Grid, Duke Energy Ohio took a very deliberate and calculated approach to rolling out a portfolio of time-differentiated rates. One example of this deliberate approach was Duke Energy Ohio's decision not to offer time-differentiated rates during the first year of deployment. Customers in states such as Texas and California mistakenly perceived that rate changes were caused by faulty meters rather than by rate increases. As a result, Duke Energy Ohio decided it would be prudent to give customers some experience with the new meters prior to moving forward with new rates. This plan was successful as evidenced by the fact that Duke Energy Ohio received very few complaints associated with the accuracy of the new meters to date.

Q. PLEASE EXPLAIN DUKE ENERGY OHIO'S VOLUNTARY PILOT DYNAMIC PRICING RATE PROGRAMS.

A. In early 2010, after working with the Ohio Collaborative, Duke Energy Ohio developed a time-differentiated rate for customers with new advance meters. Duke Energy Ohio's application for rate TD-AM, outlined a two hundred and fifty customer pilot program that would offer customers the voluntary opportunity to be served on time-of-day rates. On March 3, 2010, the PUCO approved the pilot and permitted Duke Energy Ohio to begin customer acquisition for the pilot.

During this time, while working through the concerns in concert with the Ohio Collaborative, Duke Energy Ohio began development of another time-differentiated rate. This second pilot tariff was a Peak Time Rebate (PTR) that was also an opt-in, voluntary offering. This tariff was available to 500 customers and was approved by the PUCO on June 23, 2010.

After launching its first two pilots, Duke Energy Ohio worked with the Ohio Collaborative to develop a third pilot involving a rate design with a critical peak price structure. That proposed rate combined the elements of the rates TD-AM and PTR – it had every day time-of-use parameters as well as an event-based price similar to the peak time rebate offering. Duke Energy Ohio sought approval for this pilot to include two hundred and fifty customers in July of 2010. For a number of reasons, including concerns of some collaborative members and the timing of the tariff filing, which would likely have caused participants to miss the critical peak events, Duke Energy Ohio seized this opportunity to look at the

results of the other pilots and consider the concerns about the tariff, which lead to the decision to modify the design and re-file the tariff at a later date.

Q. WHAT HAS BEEN DUKE ENERGY OHIO'S EXPERIENCE AND LESSONS LEARNED WITH RESPECT TO THESE DYNAMIC PRICING PILOT PROGRAMS?

A. The customer acquisition results for Duke Energy Ohio's first two pilots, while somewhat disappointing as compared to the targeted participation, did provide the Company and the Ohio Collaborative with important insights regarding customer preference and the ability to test the underlying technology associated with serving customers on time-differentiated rates. For the TD-AM pilot, the Company solicited over sixty-three hundred customers through multiple channels including email, community meetings, direct mail and outbound calling. Despite these efforts, only twenty eligible customers volunteered for the pilot. For the Company's Rate PTR pilot, twenty-eight hundred customers were solicited and thirty-six volunteered and were eligible to participate. While the low acquisition rate for TD-AM was not a complete surprise, Duke Energy Ohio was surprised with the low PTR results (1.2%), as it was essentially a no-lose proposition for participants.

Q. PLEASE DISCUSS SOME OF THE REASONS WHY THE ACQUISITION RATE WAS LOW AND DISCUSS WHY CUSTOMERS CHOSE NOT TO PARTICIPATE?

A. It is important to note that over half of the interested customers responding to solicitations were disqualified. The most common reason for this was that the customer was taking advantage of Ohio's competitive market for electricity and chose to purchase electricity from a Competitive Retail Generation Service (CRES) provider rather than by Duke Energy Ohio. Given that the time-differentiated rates being piloted are generation rates for Duke Energy Ohio, a customer not receiving its generation service from Duke Energy Ohio would not be eligible for the pilot, as the Company cannot obligate the CRES to provide service on a time differentiated basis.

Also, in some focus groups comprised of both pilot participants and others that were solicited but did not join, Duke Energy Ohio learned that the majority of customers wanted three things out of the rate offerings. First, customers wanted the opportunity to achieve meaningful savings, which appears to translate into the ability to save approximately $5 to $20 dollars per month. Second, customers wanted a rate structure that had a shorter peak period during which they would need to curtail their usage, as the seven hour peak windows in TD-AM and PTR were considered too long and therefore disruptive to their lifestyle. Finally, customers did not like rates that added a lot of complexity and different pricing periods and seasons, as features such as shoulder periods make it more difficult to determine appropriate behaviors.

Q. WHAT WAS THE NEXT TARIFF DESIGN AND PILOT OFFERING?

A. After obtaining valuable information about customer response from its previous offerings, Duke Energy Ohio focused on rolling out a second wave of time-differentiated pilots that incorporated some of its customer experience. In the fall of 2010, Duke Energy Ohio began working on rate TD-Lite, which is a time-of-use rate with only three seasons, a shorter peak period (5 hours) and a much higher peak versus off-peak differential. These features made the rate simpler, less disruptive and offered the opportunity for customers modifying their behavior appropriately to see a more substantial bill savings. In addition to the rate enhancements, a segment of this pilot group of customers received a Home Energy Management Device (HEM). An HEM is an electronic device that engages customers around their energy usage and allows them to control and program when devices such as air conditioners and pool pumps run and consume energy After first vetting it with the Ohio Collaborative, Duke Energy Ohio filed its application with the Commission for approval of the TD-Lite and HEM pilot for one hundred and fifty customers on October 25, 2010. The PUCO approved the application on January 27, 2011, and Duke Energy Ohio began customer acquisition in early March 2011. A much higher acquisition rate was achieved.

Q. PLEASE DISCUSS THE OTHER RATE PILOTS THAT WERE DEVELOPED AND OFFERED TO CUSTOMERS AS PART OF ITS SECOND GENERATION OF PILOTS IN 2011?

A. While the Rate TD-CPP Pilot was pending the Commission's approval, Duke Energy Ohio decided that it would revamp the Critical Peak Price tariff to address

the concerns raised by the Collaborative regarding the original design of the rate. The Company modified the number of seasons (three seasons) and the length of the peak period (four hours) in the tariff.

Finally, Duke Energy Ohio developed a second iteration of its Peak Time Rebate offering (PTR 2.0). This rate featured a shorter, less intrusive five hour peak period, but still featured a $0.28 per kWh credit component. The other interesting aspect of this pilot was that it featured a bifurcated acquisition strategy with two hundred customers being offered the rate on an opt-out basis and two hundred customers being acquired through an opt-in program. This bifurcated acquisition strategy was designed to allow Duke Energy Ohio and the Ohio Collaborative to gain understanding into the impact that different acquisition approaches may have on two distinct aspects of the pilot. First, the opt-out acquisition approach provided additional understanding into how to most effectively attract and acquire customers to participate in time-differentiated pricing offers. Secondly, this bifurcated acquisition provided information with respect to whether or not the level of behavioral modification taken by customers that affirmatively select to participate in the pilot is higher or lower than those who are placed into the rate.

Q. PLEASE DISCUSS THE TIME DIFFERENTIATED RATE PILOTS THE COMPANY OFFERED IN 2012?

A. In 2012, Duke Energy Ohio and the Ohio Collaborative desired to take another step toward developing time-differentiated rates that could potentially, at some

point in the future, become included in Duke Energy Ohio's Standard Service Rate Offerings. After working with the Ohio Collaborative, the Duke Energy Ohio received approval to test two pilot rate designs. The first pilot offering was a time-of –use rate structure (TD 2012). The rate structure was similar to the one offered in 2011, however the company offered customers three variations of the rate that reflect different ratios of peak to off-peak pricing. Essentially, the pilot allowed customers to affirmatively select among three rates within the structure, so that they could pick a rate that aligns with their personal risk/reward preferences. One rate had a peak rate that was approximately 250% of the Base RS residential rate, one rate had a peak rate that was approximately 350% of the Base RS residential rate, and finally, one rate had a peak rate that was approximately 450% of the Base RS residential rate. Essentially, the pilot offered customers the ability to affirmatively select among three rates within the proposed tariff structure that aligned with their personal risk/reward preferences. For example, a customer who believed he or she had the ability to shift usage away from peak would have the opportunity to choose the rate with the highest peak rate, as it would provide the opportunity for the customer to realize the maximum bill reduction. The acquisition for TD 2012 proved to be the most successful to date, as it was able to enroll over two hundred customers among the three rates. The Company believed that through this pilot, it will be able to gain a level of understanding of customer risk tolerance, as well as better insight into the impact that risk tolerance has on the behavior changes motivated by the rate.

The second pilot Duke Energy Ohio offered in 2012 was another iteration of a peak time rebate pilot. The pilot was offered to customers on Duke Energy Ohio's standard residential rate. The purpose of this pilot was to validate some of the preliminary insights that were gained in 2010 and 2011. The pilot continued to offer customers the opportunity to receive a rebate of $0.28 for every kWh of reduction that they take make in comparison to their baseline usage during a peak period of 2:00 to 7:00 PM. One additional change to the pilot design was the expansion of the number of events that may be called from ten to fifteen, which allowed for an assessment regarding what impact the number of events has on customer acquisition and satisfaction with the program. The Company again employed a bifurcated acquisition for this PTR pilot. Duke Energy Ohio was successfully able to acquire nearly five hundred new customers and converted over three hundred of its previous pilot participants to participate in PTR 2012.

The 2012 pilots proved to be the Company's most successful from an acquisition standpoint. The Company acquired nearly 200 customers on TD 2012 across the three offerings and was able to acquire over 725 customers on PTR 3.0, including 400 customers through the opt-out acquisition. While this successful acquisition allowed the Company to exceed 1,000 participants for the first time, however, the scale was short-lived. Shortly after acquisition, the City of Cincinnati aggregated, causing the pilots to lose over 170 customers. The Company believes that the acquisition of over 1000 customers across the two 2012 time-differentiated pilots represents a significant milestone and is a positive

sign. First, it clearly signified that the Company, along with the Collaborative, has improved its understanding of how to more effectively market the rates and acquire customers. Second, the increased participation in the pilots is a sign that the rate structures are becoming more appealing to customers. Finally, more customers may be becoming aware and comfortable with the concept of time-differentiated rates.

Q. PLEASE DISCUSS THE OVERALL LESSONS LEARNED TO DATE AND THE ADVISABILITY OF CONTINUING WITH THESE PILOT PROGRAMS.

A. As described earlier, Duke Energy Ohio, in conjunction with its Ohio Collaborative, has taken a very thoughtful and measured approach to developing and rolling out different time-differentiated rates. This approach has been extremely helpful in allowing Duke Energy Ohio to test its Smart Grid systems and the underlying systems necessary for supporting time-differentiated pricing. Additionally, Duke Energy Ohio and the Ohio Collaborative have gained valuable knowledge about the critical and desirable features of different time differentiated rate designs. Duke Energy Ohio believes that it is advisable to continue the managed approach to rolling out and testing different pilot rate designs, acquisition strategies, and supporting technologies during the remainder of its Smart Grid deployment. This will allow the Company, the Ohio Collaborative and the Commission to have a more thorough understanding of impacts and

desirability of time-differentiated pricing prior to making any decisions regarding full-scale rate offerings.

Q. PLEASE DISCUSS DUKE ENERGY OHIO'S PLANNED PILOTS FOR 2013?

A. After considering its time-differentiated pilots to date, Duke Energy Ohio believes that it has tested many facets of time-differentiated pricing, and believes that there are two major components that it still needs to be assessed with respect to the effectiveness and attractiveness of rates to customers. First, Duke Energy Ohio would like to assess the impact that giving customer choice regarding the when peak period falls an also persistence of impacts. For that reason, in an application filed with the PUCO in December of 2102, proposing the TD-13 time differentiated rate pilot. Duke Energy Ohio, as with all of its pilots, vetted the rationale and structure of the TD -13 with its Ohio Collaborative and incorporated the feedback received in the rate design proposed in the TD-13 Tariff. The basic rate structure is similar to TD 2012 and the TD Lite Pilot offered in 2011, as it features three seasons and two rate periods. The summer season will run June through August and feature a peak period lasting from 1PM to 7PM. The Winter Season will run December through February and will feature a peak period lasting from 7AM to 1PM. The remainder of the year Fall/Spring season will be all off-peak. What is significantly different is that customers will be able to select a three hour block within the peak period for both the summer and Winter Seasons. In other words, at the customer's selection, they will have peak pricing for only

half of the peak hours. Obviously since there half the total peak-priced hours, the peak to off peak price differential is higher than under TD-2012 and is approximately 8 to 1. Due to this flexibility in the offering, there will be a total of nine different configurations of the pilot that a customer can choose to participate in, as shown in the table below.

1	Summer	1:00 PM to 4:00 PM
	Winter	7:00 AM to 10:00 AM
2	Summer	1:00 PM to 4:00 PM
	Winter	8:00 AM to 11:00 AM
3	Summer	1:00 PM to 4:00 PM
	Winter	10:00 AM to 1:00 PM
4	Summer	3:00 PM to 6:00 PM
	Winter	7:00 AM to 10:00 AM
5	Summer	3:00 PM to 6:00 PM
	Winter	8:00 AM to 11:00 AM
6	Summer	3:00 PM to 6:00 PM
	Winter	10:00 AM to 1:00 PM
7	Summer	4:00 PM to 7:00 PM
	Winter	7:00 AM to 10:00 AM
8	Summer	4:00 PM to 7:00 PM
	Winter	8:00 AM to 11:00 AM
9	Summer	4:00 PM to 7:00 PM
	Winter	10:00 AM to 1:00 PM

By allowing customers to choose a shorter peak period, Duke Energy Ohio anticipates the ability to assess if the flexibility will make participation more attractive and potentially acquire more customers. Duke Energy Ohio hopes to gain important insights regarding customers taking on more significant behavioral changes, since they can do it over a shorter period.

The other significant feature of the pilot is that Duke Energy Ohio is requesting the pilot's duration be 24 months rather than 12 months that was the duration of all of its prior pilots. Duke Energy Ohio believes that a longer pilot will allow it to assess the persistence of customer's response to price signals included in the pilot. Duke Energy Ohio believes it is important to assess the long term satisfaction of customers on a time-differentiated rates and their willingness to respond to the price signals over a period longer than twelve months.

Duke Energy Ohio is targeting 5,000 customers for this pilot acquisition. While this target appears to be aggressive given past acquisitions, Duke Energy Ohio believes that the rate will be more attractive given the level of customer flexibility

Q. IS DUKE ENERGY OHIO UNDERTAKING ANY OTHER ACTIVITIES TO POTENTIALLY FURTHER FACILTATE THE AVAILABILITY OF TIME-DIFFERENTIATED RATES TO CUSTOMERS?

A. Yes, Duke Energy Ohio is undertaking the following activities to potentially further facilitate the availability of time-differentiated rate offerings to customers:

- Duke Energy Ohio has conducted and plans to continue conducting educational workshops for all interested parties and specifically interested CRES providers wherein Duke Energy Ohio will provide and share its experiences related to the time differentiated rates. Duke Energy Ohio is also committed to conduct workshops for CRES providers and interested

parties twice a year during the course of Smart Grid deployment so long as there is interest in doing so.

- Duke Energy Ohio is progressing toward its commitment to provide CRES providers the necessary billing system functionality to offer CRES customers, time differentiated rates consistent with its existing supplier tariff.
- Duke Energy Ohio will be working with the Collaborative to develop a deployment plan for a general public awareness and education campaign designed to increase customer awareness and inform customers about the justification for time differentiated rates and the value that they can potentially bring to customers.

Q. MR. DUFF, BASED UPON LESSONS LEARNED FROM THE EXPERIENCES IN OHIO, IF DUKE ENERGY KENTUCKY WERE TO OFFER ANY DYNAMIC PRICING OPPORTUNITIES FOR RESIDENTIAL CUSTOMERS, WHAT WOULD YOU RECOMMEND?

A. Based upon the experience of Duke Energy Ohio, I believe that taking a slow and deliberate approach with respect to offering dynamic price offerings in Kentucky is prudent. Aggressively pursuing offering time-differentiated rate offerings at the same time that the Duke Energy Kentucky is deploying its Grid Modernization Infrastructure could confuse customers and cause customer to associate potential bill volatility with the overall deployment and cause customer backlash. Waiting to offer dynamic pricing time differentiated rates until full

deployment is achieved would be advisable. Additionally, customer acceptance and feedback from Ohio indicates that a fairly simple time-of-use rate structure, one without too many seasons or too many time blocks, would be an appropriate initial offering in Kentucky. This is also consistent with the recommendations in the March 25, 2011 Report of the Joint Parties in PSC Case 2008-00408.

Q. BASED UPON DUKE ENERGY OHIO'S EXPERIENCES WITH THE OHIO COLLABORATIVE AND THE PUCO APPROVAL PROCESSES, WHAT SHOULD THE KENTUCKY PUBLIC SERVICE COMMISSION CONSIDER BEFORE REQUIRING OR APPROVING A DYNAMIC-PRICING PROGRAM?

A. I believe that the Kentucky Public Service Commission should consider that developing a cost-justified time based rate that provides a significant enough price signal to be attractive to customers may be challenging. One of the most significant issues that we had to discuss and resolve with the Ohio Collaborative was the need to move away from a cost justified differential between peak and off –peak period in order to create rates that were attractive to customers. Another consideration that the Kentucky Public Service Commission should make is the risk of dynamic pricing only being embraced by "natural winners," those customers whose usage does not occur during peak periods, resulting in little to no shift in usage. Obviously, a customer who would not have to make any behavioral or usage changes and would find a dynamic price offering that would lower his or her bill would find the offering more attractive than a customer that

would have to shift usage and change behavior. Unfortunately, if no shifting of usage occurs, there will be no system savings and essentially the utility will simply collect less revenue while incurring the same level of cost.

Q. IN CASE NO. 2008-00408, THE KENTUCKY ATTORNEY GENERAL AND COMMUNITY ACTION COUNCIL, INC. TOOK THE POSITION THAT TIME-OF-USE RATES SHOULD NEVER BE MADE MANDATORY? BASED UPON DUKE ENERGY'S EXPERIENCE WITH DYNAMIC PRICING IN OTHER JURISDICTIONS, WHAT IS YOUR BELIEF AS TO WHETHER DYNAMIC PRICING SHOULD BE MADE MANDATORY?

A. Based on the Company's experience in other jurisdictions, I do not believe that the Commission should make dynamic pricing mandatory at this time. Customers have become accustom to paying average rates and have little understanding that the cost of using energy truly varies based upon when you consume it. While forcing all customers to be on a dynamic pricing structure would insure that only the "natural winners" are not the only participants, forcing all customers on a rate design that they do not fully understand the rationale for and one that will cause rate increases for half the customers, absent significant shifting of their usage, will undoubtedly cause significant customer backlash. I believe that a more pragmatic approach with testing and marketing of dynamic pricing options would allow customers the time to become more comfortable with the rationale for the rates and allow for technological advances to occur that will allow more of the load

shifting for customers to be automated and less of a burdensome. Allowing informed and empowered customers to affirmatively choose to participate in dynamic price offerings that offer them opportunities to take control of their energy bills is better long term solution than a mandating participation in dynamic pricing.

IV. CONCLUSION

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

VERIFICATION

State of North Carolina)
) **SS:**
County of Mecklenburg)

The undersigned, Timothy Duff, being duly sworn, deposes and says that he is the General Manager, Retail Customer & Regulated Strategy, that he has personal knowledge of the matters set forth in the foregoing testimony, and that the answers contained therein are true and correct to the best of his information, knowledge and belief.

Timothy Duff, Affiant

Subscribed and sworn to before me by Timothy DUFF on this 10th day of January 2013.

NOTARY PUBLIC
CHRISTOPHER LEE HAMRICK

My Commission Expires:

My Commission Expires October 24, 2014

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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

DIRECT TESTIMONY OF

WILLIAM DON WATHEN JR.

ON BEHALF OF

DUKE ENERGY KENTUCKY, INC.

January 28, 2013

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I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is William Don Wathen Jr. My business address is 139 East Fourth Street, Cincinnati, Ohio 45202.

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

A. I am employed by Duke Energy Corporation (Duke Energy), Duke Energy Business Services (DEBS) as Director Rates & Regulatory Strategy, Ohio and Kentucky.

Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL QUALIFICATIONS.

A. I received Bachelor Degrees in Business and Chemical Engineering, and a Master of Business Administration Degree, all from the University of Kentucky. After completing graduate studies, I was employed by Kentucky Utilities Company as a planning analyst. In 1989, I began employment with the Indiana Utility Regulatory Commission as a senior engineer. From 1992 until mid-1998, I was employed by SVBK Consulting Group, where I held several positions as a consultant focusing principally on utility rate matters. I was hired by Cinergy Services, Inc., in 1998, as an Economic and Financial Specialist in the Budgets and Forecasts Department. In 1999, I was promoted to the position of Manager, Financial Forecasts. In August 2003, I was named Director of Revenue requirements in the Rates Department where I had responsibility for the preparation of financial and accounting data used in the wholesale and retail rate filings for Duke Energy Kentucky, Inc. (Duke Energy Kentucky or the Company)

and Duke Energy Ohio, Inc. (Duke Energy Ohio), and for changes in fuel and gas cost adjustment Kentucky, and for changes in fuel and gas cost adjustment clauses. In December 2009, I was named to Vice President Rates Ohio and Kentucky. In July 2, 2012, following the merger between Duke Energy and Progress Energy, I assumed my current role as Director Rates & Regulatory Strategy, Ohio and Kentucky.

Q. PLEASE DESCRIBE YOUR DUTIES AS DIRECTOR RATES & REGULATORY STRATEGY, OHIO AND KENTUCKY.

A. As Director Rates & Regulatory Strategy, Ohio and Kentucky, I am responsible for all state and federal regulated rate matters involving Duke Energy Kentucky and Duke Energy Ohio.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC SERVICE COMMISSION OF KENTUCKY?

A. Yes.

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

A. The purpose of my testimony is to discuss the constructive regulatory treatment Duke Energy Ohio received to facilitate its Grid Modernization (f/k/a Smartgrid) deployment initiative and the necessity for such treatment in Kentucky to encourage and facilitate such deployment.

II. RATE DESIGN TO ENCOURAGE GRIDMODERNIZATION INVESTMENT

Q. PLEASE EXPLAIN HOW DUKE ENERGY OHIO RECOVERS ITS COSTS OF IMPLEMENTING A FULL GRID MODERNIZATION DEPLOYMENT INITIATIVE.

A. As explained by Duke Energy Kentucky witness Donald Schneider, Duke Energy Ohio received approval, in 2008, for a full deployment for both its gas and electric operations in its Ohio service territory including, but not limited to an intelligent Automated Meter Infrastructure (AMI), distribution automation (DA), a two-way digital communication network, and all supporting information technology systems required to enable the collection and management of smart grid device generated data. The Public Utilities Commission of Ohio also approved a tracking mechanism designed to allow Duke Energy Ohio to recover its implementation costs for the Grid Modernization project in a timely manner which allowed the Company to ensure the project was fully implemented in a relatively short period of time, thus allowing customers to enjoy the efficiency and reliability benefits of the Grid Modernization system. Timely cost recovery is a critical element in deploying such a significant capital improvement program in a manner that maximizes the benefits.

The tracking mechanisms used by Duke Energy Ohio are similar to a tracking mechanism approved by this Commission when it approved a tracker for the Company's accelerated main replacement program (Rider AMRP) for its gas business in Case No. 2001-00092. Generally, the trackers used by Duke Energy Ohio for its Grid Modernization program and by Duke Energy Kentucky in its

Rider AMRP, is an annual filing that allows the Company to recover (1) a return on incremental capital investment in the new program at the then-current weighted-average cost of capital, (2) depreciation expense and property taxes on incremental plant placed in service and (3) incremental operating and maintenance expenses associated with the program net of any identifiable and quantifiable economic benefits derived program.

In addition, the cost recovery mechanism allow the Company to defer return, deprecation, and property taxes attributable to the incremental plant associated with the plant for the period between the in-service date of the new plant and the date when cost recovery begins for the same incremental plant. The Company creates regulatory assets for these post-in-service carrying costs, deferred depreciation expense, and deferred property taxes and amortizes these deferrals when recovery begins.

Q. PLEASE BREIFLY EXPLAIN THE REGULATORY PROCESS FOR THESE TWO RIDERS.

A. The riders described above essentially track revenue requirements associated with incremental capital investment. In this case, the objective is infrastructure modernization. Updates can be done more or less frequently but in the Company's view, annual updates are the most reasonable approach balancing the need to stay on a timely path for recovery while not overtaxing the Commission's review process.

The annual filing begins with the Company filing a series of schedules and workpapers to support the proposed rates in its Grid Modernization riders. The

proposed rates are based on the incremental plant invested and associated incremental expense in the most immediate prior year. Interested parties are allowed to intervene. The regulatory staff conducts a financial and physical audit, conducts discovery, and presents a report summarizing its findings. Intervenors may submit discovery requests and may provide their own comments and/or testimony regarding the filing. After the review process, hearings are held and the PUCO issues an order approving the Grid Modernization rider rates with whatever adjustments it deems necessary.

Customarily, at the time of a base rate case, the existing investment in new rate base is folded in to the Company's overall rate base along with all of the commensurate costs. If the project is completed, then the rider is eliminated; however, if the project is not completed at the time of the rate case, the rider may be reset to $0. In this case, "incremental" investment and revenue requirement will be for expenditures made after the date upon which the rate base was established in the rate case.

Q. WHY WAS THE TRACKING MECHANISM IMPORTANT FOR DUKE ENERGY OHIO TO ENCOURAGE THE GRID MODERNIZATION INVESTMENT?

A. The deployment of an infrastructure modernization program such as a Grid Modernization requires a significant expenditure of capital. The nature of the program is such that the full extent of benefits will be achieved only when the program is completed. Consequently, it is beneficial for both customers and the utility to accelerate the deployment as expediently as reasonably and practically

possible in order to fully achieve those reliability and efficiency benefits. A periodic tracking mechanism, such as the ones Duke Energy Ohio files with the PUCO for its own Grid Modernization program, allows the utility to fully commit its resources to program deployment, to receive timely recovery of its costs, and to provide some measure of financial security without having to file multiple back to back expensive full base rate cases. Absent the tracking mechanism, a utility would have to develop a deployment program that is slower in duration, and potentially staggered to allow for full rate recovery. This would delay the realization of the full benefits of the program and is ultimately more costly, and it could subject the utility to redundant prudency reviews.

This tracking mechanism is a useful tool for the PUCO as well in that it allows the PUCO to continually review the Company's progress and its performance. Via the rider process, the PUCO reviews the Company's costs at least annually and is able to make sure the Company's management of such costs results in reasonable rates for customers. Furthermore, the review process keeps the PUCO Staff and intervenors engaged with the Company to explore all of the benefits available from a fully deployed Grid Modernization, such as development of new rate designs and energy efficiency program.

Q. PLEASE DESCRIBE THE COMPONENTS OF THE REVENUE REQUIREMENTS INCLUDED IN RIDER DR-IM AND RIDER AU.

A. The revenue requirement for both riders includes the following components:

- a return on the rate base;
- depreciation and property taxes;

- incremental operating and maintenance (O&M) expenses; and
- recovery of deferred return, depreciation, property taxes, and O&M expenses.

Q. HOW IS RATE BASE CALCULATED?

A. Rate base is calculated in a manner consistent with the traditional rate base calculation for a general retail rate case. One component is net plant, or gross plant minus accumulated depreciation. Rate base is offset with accumulated deferred income taxes associated with accelerated tax depreciation. As discussed above, the PUCO allows the Company to accrue post-in-service carrying costs (PISCC), which is essentially a return on the plant after it goes into service but before any recovery of the costs begins. There are deferred income taxes associated with this item as well because PISCC results in a difference in what the Company can deduct for its current taxes versus what it can deduct for book taxes.

Q. ARE THERE COSTS THAT ARE SHARED BETWEEN THE ELECTRIC AND GAS DISTRIBUTION BUSINESSES?

A. Yes. The fact that Duke Energy Ohio, like Duke Energy Kentucky, is a combination electric and gas utility allows the Company to maximize the potential benefits of the Grid Modernization project for both electric and gas customers. For much of the Grid Modernization equipment, it is a simple exercise to assign costs directly to electric or to gas. The cost of some equipment and some expenses, however, is incurred for both electric and gas services.

The costs for "common" equipment are allocated between gas and electric

service based on appropriate allocation factors. The development of these allocation factors is based on the Company's determination of the extent to which each type of plant (*e.g.*, communication boxes, information technology costs (IT), etc.) contributes to the gas or electric Grid Modernization function.

Q. DESCRIBE THE COMPUTATION FOR DEPRECIATION AND PROPERTY TAX EXPENSES INCLUDED IN THE RIDER DR-IM AND RIDER AU REVENUE REQUIREMENT.

A. Depreciation expense is annualized by using currently approved accrual rates and the depreciable gross plant for each plant type as of a date certain. Similarly, property tax expense is annualized by applying the latest average property tax rates to the calculated property tax valuation as of a date certain.

Q. WHAT INCREMENTAL EXPENSES ARE INCLUDED IN THE REVENUE REQUIREMENT CALCULATIONS?

A. The only incremental expenses included in the Rider DR-IM and Rider AU revenue requirement calculations are specifically identifiable costs associated with the implementation of the Grid Modernization project for gas and electric. Such costs include IT costs, system support, data transfer fees, and any other costs that are incremental to expenses included in base rates and can be directly attributed to the Grid Modernization program.

Q. DO THE REVENUE REQUIREMENT CALCULATIONS REFLECT THE SAVINGS THAT DISTRIBUTION AUTOMATION AND SMARTGRID PROJECTS WILL GENERATE?

A. Yes. The Duke Energy Ohio Grid Modernization riders offset the revenue

requirement with identifiable and quantifiable O&M savings. The most obvious example is the reduction in meter reading expense that comes from being able to remotely read electric and gas meters. Since existing base rates include an amount to recover the cost of meter reading, any reduction in that expense attributable to the Grid Modernization program is included in the revenue requirement calculation. In this way, the rider mechanism ensures that the Company is not receiving compensation through base rates for an expense it is no longer incurring. The tracker mechanism allows for such benefits to flow through to customers in a very timely way.

Q. DO YOU BELIEVE THE KENTUCKY PUBLIC SERVICE COMMISISON SHOULD CONSIDER SIMILAR CONSTRUCTIVE REGULATORY TREATMENT FOR A UTILTIY THAT IMPLEMENTS A SMARTGRID/ GRID MODERNIZATION INITITIATVE?

A. Yes. As I previously mentioned, the benefits of such a constructive rate structure accrue to not only the utility in terms of reducing the lag associated with filing a base rate case, but also to customers and the Commission itself. Customers receive the benefits of savings and improvements in efficiency and reliability. The accelerated deployment enabled by a cost tracking mechanism allows the deployment to be completed in a timely fashion and shorter duration than if the utility was solely limited to base rates recover. Further, the annual adjustment will also work to smooth out the rate impacts over time rather than as a single adjustment during a base rate case when all other costs are reviewed and considered for increases. Finally, the ability to continually review the Company's

deployment progress through an annual filing allows the Commission to keep track of the utility's progress and performance and make adjustments if necessary.

Q. DO YOU BELIEVE THE KENTUCKY PUBLIC SERVICE COMMISSION HAS THE ABILITY TO APPROVE A SIMILAR RATE STRUCTURE TO ENCOURAGE SMARTGRID/ GRID MODERNIZATION INVESTMENT?

A. Although I am not an attorney, based upon my experience with the Kentucky Public Service Commission procedures in the past, I understand that the Commission has broad jurisdiction to approve utilities' investment in such infrastructure. I also believe that tracking mechanisms are one way for the Commission to encourage an investment. Duke Energy Kentucky received the Commission's approval to deploy advanced metering, with an expenditure of $14,000,000 in Duke Energy Kentucky's last electric rate case, Case No. 2006-00172. It is important to note that deployment was limited and was not a full Smart Grid/ Grid Modernization deployment.

I also understand that the Commission may consider a smartgrid-type deployment as an element of Kentucky's demand side management (DSM) plan statute under KRS Chapter 278.285. The Kentucky statute, among other things, gives the Commission authority to review utility sponsored demand side management and energy conservation plans and approve such plans for recovery via a discrete rider adjustment. The Commission can approve such programs if the Commission determines that the programs are reasonable.

I am also aware the Kentucky Supreme Court has upheld the Kentucky Public Service Commission's broad authority to approve tracking mechanisms

and reasonable rate structures such as economic development tariff rates. Both of those instances involved Duke Energy Kentucky cases.

III. CONCLUSION

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

VERIFICATION

State of Ohio)
)
County of Hamilton)

The undersigned, William Don Wathen Jr., being duly sworn, deposes and says that I am employed by the Duke Energy Corporation affiliated companies as Director of Rates and Regulatory Strategy for Ohio & Kentucky; that on behalf of Duke Energy Kentucky, Inc., I have personal knowledge of the matters set forth in the foregoing testimony, and that the answers contained therein are true and correct to the best of my information, knowledge and belief.

William Don Wathen Jr., Affiant

Subscribed and sworn to before me by William Don Wathen Jr. on this 23rd day of January 2013.

NOTARY PUBLIC

My Commission Expires:

NOTARIAL SEAL
STATE OF OHIO

ROCCO O. D'ASCENZO
ATTORNEY AT LAW
Notary Public, State of Ohio
My Commission Has No Expiration
Section 147.03 R.C.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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

DIRECT TESTIMONY OF

DONALD L. SCHNEIDER, JR.

ON BEHALF OF

DUKE ENERGY KENTUCKY, INC.

January 28, 2013

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Donald L. Schneider, Jr., and my business address is 400 South Tryon, Charlotte, North Carolina, 28201.

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

A. I am employed by Duke Energy Business Services LLC, an affiliate of Duke Energy Kentucky, Inc. (Duke Energy Kentucky or Company), as General Manager, Grid Modernization.

Q. WHAT IS YOUR PRIMARY RESPONSIBILITY AS GENERAL MANAGER, GRID MODERNIZATION?

A. As General Manager, Grid Modernization, I am responsible for managing the project execution of all Advanced Metering Infrastructure (AMI) projects for all Duke Energy Corp. (Duke Energy) jurisdictions, including the states of Kentucky, Ohio, Indiana, North Carolina, South Carolina and Florida

Q. PLEASE BRIEFLY DESCRIBE YOUR PROFESSIONAL AND EDUCATIONAL BACKGROUND.

A. I received a Bachelor of Science Degree in Electrical Engineering from the University of Evansville in 1986. Upon graduation, I was employed by Duke Energy Indiana (then known as Public Service Indiana) as an electrical engineer. Throughout my career, I have held various positions of increasing responsibility in the areas of engineering and operations, including distribution planning, distribution design, field operations, and capital budgets. Immediately prior to my current position, I was General Manager, Grid Modernization Field Deployment,

responsible for managing the installation of all Grid Modernization equipment in the field, including both AMI and Distribution Automation (DA) devices for all Duke Energy jurisdictions at that time, which included the states of Kentucky, Ohio, Indiana, North Carolina and South Carolina. Prior to that I was General Manager, Midwest Premise Services, responsible for managing all of Duke Energy's Midwest Premise Services and meter reading departments for all Duke Energy Midwest jurisdictions at that time, which included the states of Kentucky, Ohio and Indiana. I was promoted to my current position in 2012.

Q. ARE YOU A REGISTERED PROFESSIONAL ENGINEER?

A. Yes, and have been since 1995.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE KENTUCKY PUBLIC SERVICE COMMISSION?

A. No.

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

A. I will discuss the status of Duke Energy Ohio's Grid Modernization deployment, the progress made to date generally, and successes we have experienced as a result of the deployment. I will also discuss the Kentucky Smart Grid Roadmap document created by the University of Louisville and University of Kentucky.

II. OVERVIEW OF DUKE ENERGY OHIO'S CURRENT GRID MODERNIZATION TECHNOLOGY DEPLOYMENT

Q. AS THE DEFINITION OF SMARTGRID, OR GRID MODERNIZATION, TENDS TO VARY AMONG UTILITIES, PLEASE DESCRIBE THE DUKE ENERGY OHIO SMARTGRID, OR GRID MODERNIZATION, DEFINITION AND APPROACH.

A. Duke Energy's definition of a smart grid, or grid modernization, entails the deployment of: (1) AMI; (2) DA; (3) a two-way digital communication network; and (4) all supporting information technology systems required to enable the collection and management of automated grid device generated data in support of Duke Energy's business goals and objectives. The AMI and associated communications network consists of a fully advanced metering system that provides two-way communications between the meter and the back office data systems. Communications "from the meter" include capabilities to receive regular usage interval meter data/reads, off-cycle meter reads, theft/tamper alarms, power quality alarms, etc. Communications "to the meter" include capabilities to send meter program updates, remote customer requested disconnects and reconnects, non-payment disconnects and reconnects, etc. The DA components include the application of two-way communications to important system devices providing us with more detailed information of system activity as well as the capability of remote monitoring and operation of system devices with the implementation of a new Distribution Management System (DMS). The possibilities with Grid Modernization technologies are expanding as it is

continuously evolving much like the internet has evolved over time. Grid Modernization is much more than simply the sum of the functions it is capable of performing. It is an integration of many points on the electric distribution system which will provide capabilities and/or a platform for emerging technologies, some of which will be beyond the meter.

Q. PLEASE DISCUSS DISTRIBUTION AUTOMATION OR DA IN GREATER DETAIL.

A. Distribution automation is a term used to describe the transformation of an existing distribution system that requires a lot of manual on-site operation of power equipment to an advanced distribution system with power equipment capable of being operated automatically or remotely through use of two-way communications and advanced control systems offered by existing Supervisory Control And Data Aquisition (SCADA) system and the implementation of a new Distribution Management System (DMS). The automation of distribution equipment helps to obtain near real-time operating data, reduce truck visits to customer premises, improve operating efficiencies, reduce operations and maintenance (O&M) cost, and reduce outage frequency and duration. Duke Energy has gained and expects to continue gaining a number of benefits from this modernization of its distribution system in other jurisdictions, including improved system reliability, power quality, operating efficiencies, and customer satisfaction.

Q. WHAT IS THE STATUS OF DUKE ENERGY OHIO'S GRID MODERNIZATION DEPLOYMENT?

A. We are in our fourth year of a full-scale DA deployment and in our third year of a full-scale AMI deployment.

Q. WHAT ARE THE DUKE ENERGY OHIO AMI DEPLOYMENT TOTALS TO DATE SINCE DEPLOYMENT BEGAN AND WHAT ARE THE OVERALL AMI PROJECT PLAN TOTALS UPON COMPLETION OF THE PROJECT?

A. Through 2012, Duke Energy Ohio installed a total of 511,145 electric meters, 342,041 gas modules, and 116,802 communications nodes and have certified 477,989 of the electric meters installed and 318,984 of the gas modules installed. Certified is a term used to identify when the meter has successfully completed the commissioning and verification process and the meter data is ready to be used for billing. These numbers put the total planned Ohio AMI deployment at approximately 72% complete, with deployment planned for completion in the middle of 2014. With the completion of the AMI deployment plan, Duke Energy Ohio will have installed over 730,000 electric meters, 450,000 gas meters/modules, and 135,000 communications nodes.

Q. WHAT ARE THE DUKE ENERGY OHIO DA DEPLOYMENT TOTALS TO DATE SINCE DEPLOYMENT BEGAN AND WHAT ARE THE OVERALL DA PROJECT PLAN TOTALS UPON COMPLETION OF THE PROJECT?

A. Through 2012, Duke Energy Ohio has installed and/or automated with two-way communications capabilities, a total of 819 system devices inside substations and over 2,790 system devices on distribution circuits. These numbers put the total planned Ohio DA deployment at approximately 55% complete, with deployment planned for completion year-end 2013. With the completion of the DA deployment, Duke Energy Ohio will have installed and/or automated with two-way communications capabilities, a total of 1,055 system devices inside substations and over 5,800 system devices on distribution circuits.

Q. PLEASE EXPLAIN SOME OF THE PROCESSES DUKE ENERGY OHIO DEVELOPED AROUND CUSTOMER INTERACTION DURING DEPLOYMENT.

A. The customer engagement process is a very important part of successfully implementing a program as large as Duke Energy Ohio's Grid Modernization program. For its AMI deployment, Duke Energy Ohio took a very purposeful approach to its communication strategy, avoiding broad-based marketing campaigns and focusing more on what is happening (meter install) and why it is happening (the "now" benefits).

Communications related to deployment are traditional in nature and include "snail mail," phone calls, and face-to-face meetings. For example,

customers in Ohio who are scheduled for a smart meter installation could hear from us up to ten times during the meter change and certification process. This includes notification of the meter replacement, site visits, phone calls, and follow-up letters. The final communications customers receive include a letter to advise them that their meter is now certified (*i.e.*, remotely sending usage data for billing) and to invite them to visit Duke's Envision Center to learn more.

Also, with greater than 30% of Duke Energy Ohio meters being located inside customer premises (similar to Duke Energy's Kentucky service territory), Duke Energy Ohio realized it would encounter difficulty in accessing a certain percentage of these inside meters. As a result, Duke Energy Ohio developed a detailed process defining the approach to gaining access to replace indoor meters defined as "Hard to Access (HTA)." In summary, the overall customer engagement process for the meter exchange work includes up to ten different communications efforts with customers to notify them of the meter exchange program and the company needs to gain access to the meter if it becomes an HTA situation. These mulitple points of contact (or attempted contact) occur over a minimum of a 47 calendar day period.

To supplement deployment communications, Duke Energy's website -- www.duke-energy.com/smartgrid -- includes an interactive deployment map and a "Frequently Asked Questions" (FAQ) document that addresses issues being discussed at a national level and by Duke Energy's customers. Duke Energy's "Envision Smart Energy" video is also available on the site. Responses in the FAQ document are used by customer service representatives, corporate

communications, community relations managers, and deployment personnel to respond to customer inquiries, including issues prevalent in the media.

Customer complaints related to Duke Energy's Ohio Grid Modernization deployment have been minimal – less than two tenths of one percent of total installations – and are generally focused in one of five areas: 1) communications, 2) installation, 3) service disconnection, 4) bill accuracy and 5) other miscellaneous. In most cases, the company uses existing processes to manage complaints. For issue-based questions and complaints (e.g., radio frequency electromagnetic fields from the meter), the company connects the customer with an internal subject matter expert to discuss concerns in detail. In some situations, Duke Energy Ohio has been able to use Duke Energy's Envision Center to help explain Duke Energy's Grid Modernization program, and that has proven helpful.

Q. PLEASE DISCUSS SOME OF THE SUCCESS STORIES EXPEREINCED TO DATE FROM DUKE ENERGY'S OHIO GRID MODERNIZATION DEPLOYMENT.

A. Customers seeing increased reliability is evident from reductions we have experienced in our System Average Interruption Frequency Index (SAIFI). SAIFI is a utility industry standard for reporting the average number of sustained (greater than five minutes) interruptions per customer per year. Duke Energy Ohio has been tracking the success of its self-healing technology and have experienced to-date a total of 20 operations, which have resulted in saving nearly 30,000 customers from a sustained outage, totaling over 2.7 million customer outage minutes saved. The increased sectionalization and remote control

capabilities of substation breakers has also been successful in contributing to the increased reliability, however, tracking these events is not easily accomplished. From the AMI deployment, Duke Energy Ohio is seeing great results from its capability to remotely capture off-cycle reads and remotely disconnect and reconnect service. Since May of 2010, when remote operation capability was implemented, Duke Energy Ohio has saved nearly 450,000 truck rolls. The company is currently offering daily energy usage data via the Duke Energy Ohio portal to over 475,000 customers, or roughly 65% of the Ohio customer base.

III. DUKE ENERGY KENTUCKY'S GRID MODERNIZATION DEPLOYMENT PLANS

Q. DOES DUKE ENERGY KENTUCKY HAVE ANY CURRENT PLANS FOR A GRID MODERNIZATION DEPLOYMENT? .

A. Duke Energy Kentucky is currently evaluating its opportunities for a full grid modernization deployment in its service territory. The Company does not currently have any definitive plans at this time. It is my understanding that the Company would need Commission approval prior to implementing a full-scale deployment like what has been done in Ohio. Duke Energy Kentucky would first seek approval prior to any large scale rollout.

Q. DOES DUKE ENERGY KENTUCKY CURRENTLY HAVE ANY GRID MODERNIZATION FACILITIES IN SERVICE?

A. Duke Energy Kentucky has installed three self-healing teams as part of our normal reliability and integretity program which looks at ways of improving reliability on our distribution system. With the success we have seen from the

self-healing teams as part of our Duke Energy Ohio Grid Modernization deployment, we now have the self-healing team solution as another tool in our toolbox for reliability improvement solutions.

Q. WHAT KIND OF DEPLOYMENT STRATEGY WOULD YOU RECOMMEND FOR DUKE ENERGY KENTUCKY.

A. Duke Energy Kentucky would recommend a strategy that fits the needs of the Company as well as its customers and would likely seek to implement a strategy based upon its lessons learned and best practices determined through the Duke Energy Ohio deployment strategy as well as any deployments in other Duke Energy jurisdictions.

Q. IS DUKE ENERGY ADVOCATING THAT THE KENTUCKY PUBLIC SERVICE COMMISSION ADOPT ITS OHIO MODEL AS THE SOLE MODEL FOR KENTUCKY?

A. Not necessarily. Duke Energy Kentucky's intent in providing the Commission with information regarding its sister utility in Ohio was simply to provide a view based upon Duke Energy's actual experience with a large scale Grid Modernization deployment initiative. Duke Energy has devoted significant resources in developing and implementing a strategy that fits with the goals of the company and its customers. The deployment model, including the regulatory treatment and rate recovery structures in Ohio are examples of strategies that Duke Energy has found both workable and encouraging to development. Duke Energy's model and the constructive regulatory treatment it has received in Ohio are good examples that work for Duke Energy. It may not be a model that works

for all utilities, let alone all utilities in Kentucky. Each utility should be free to develop what it believes is its best-case scenario that balances the needs and capabilities of the individual company and its customers.

IV. KENTUCKY SMARTGRID ROADMAP

Q. PLEASE DESCRIBE THE KENTUCKY SMART GRID ROADMAP DOCUMENT.

A. The Kentucky Smart Grid Roadmap was created by the Kentucky Smart Grid Roadmap Initiative (KSGRI). The KSGRI was led by individuals from the University of Louisville and the University of Kentucky. The document was created with inputs from academic, electric utilities, governmental and stakeholder representatives and highlights smart grid oriented projects in Kentucky and throughout the United States. The Kentucky Smart Grid Roadmap then makes recommendations in five key areas which I will address below.

Q. DOES DUKE ENERGY KENTUCKY AGREE WITH OR SUPPORT THIS DOCUMENT?

A. Duke Energy Kentucky participated in the original survey which contributed to the formation of the Kentucky Smart Grid Roadmap and is generally supportive of the document. However, the key recommendations need to be analyzed in context with each utility's system. There may not be a one-size fits-all approach that will work for all of Kentucky. The individual utilities must be left to develop a plan for deployment that best fits their specific needs and those of its customers.

Q. ONE KEY RECOMMENDATION IN THE KENTUCKY SMART GRID ROADMAP IS TO "ENCOURAGE INVESTMENTS FOCUS ON FUTURE-PROOF DATA NETWORK ARCHITECTURE, PREFERABLY ONE THAT IS INTERNET PROTOCOL BASED." HOW DOES THIS RECOMMENDATION FIT WITH DUKE ENERGY'S VIEW OF FUTURE INVESTMENTS IN NETWORK ARCHITECTURE?

A. Duke Energy Kentucky agrees with the Kentucky Smart Grid Roadmap that grid modernization technologies are still emerging. The Company has a forward looking strategy that continually pushes for open architectures and standards in grid modernization developments. Leveraging a standard such as internet protocol helps mitigate the risk of dependence on a single technology vendor.

Q. THE ROADMAP ALSO RECOMMENDS CREATING A "KENTUCKY SMART GRID COUNCIL COMPOSED OF ACADEMIC, INDUSTRIAL, GOVERNMENTAL AND STAKEHOLDER MEMBERS." DOES THIS APPEAR TO BE SIMILAR IN PURPOSE TO DUKE ENERGY OHIO'S COLLABORATIVE THAT INCLUDES DUKE ENERGY OHIO, OHIO COMMISSION STAFF AND OTHER INTERESTED PARTIES?

A. Duke Energy Kentucky is generally supportive of the collaborative concept and has experienced the usefulness of such a process first hand as explained by Duke Energy Kentucky Witness Mr. Duff. However, purpose of the Kentucky Smart Grid Council seems different and more focused on the broader development in the Commonwealth versus an individual utility. The scope of such an organization would need to be clearly defined and limited. Such a group would be beneficial

as a resource and sounding board for discussion of best practices and resource to foster consumer education. A collaborative that is tasked with developing a rigid single state-wide deployment strategy is likely to be unproductive and unworkable. There must be deference given to individual utilities who are experts in the capabilities and needs of their own distribution and transmission grids. There may not be a one-size fits-all grid approach that will work for all of Kentucky. The individual utilities must be left to develop a plan for such a deployment that best fits their specific needs and those of its customers.

Q. TWO OTHER KEY RECOMMENDATIONS IN THE KENTUCKY SMART GRID ROADMAP INCLUDE THE CREATION OF REGULATORY MECHANISMS TO FOSTER INCREASED INVESTMENTS IN BOTH COST-EFECTIVE DEMAND RESPONSE PROGRAMS AND ENERGY EFFICIENCY TECHNOLOGIES, AND ALLOWING FOR REAL-TIME AND MULTI-TARIFF PRICING. HOW DOES DUKE ENERGY KENTUCKY RESPOND TO THESE RECOMMENDATIONS?

A. Cost effective and timely mechanisms to recover grid modernization oriented investments are important. Duke Energy Kentucky Witness Don Wathen Jr. will outline various mechanisms that are necessary to encourage and facilitate such deployments. Duke Energy Kentucky Witness Timothy Duff discusses various pricing opportunities for customer that are made possible through a grid modernization deployment.

Q. THE FINAL KEY RECOMMENDATION IN THE KENTUCKY SMART GRID ROADMAP IS TO ESTABLISH "CLEAR METRICS TO ESTABLISH PRIORITIES AND GOALS FOR SMART GRID DEPLOYMENTS IN KENTUCKY." HOW DOES DUKE ENERGY KENTUCKY BELIEVE THIS SHOULD OCCUR?

A. Grid modernization technologies are continuing to advance and evolve. Duke Energy Kentucky supports creating benefit metrics for major grid modernization investments to help understand how projects affect grid reliability, overall efficiency and advanced customer interactions. Benefits should be evaluated on a project by project basis to ensure benefits are tailored to the investment.

V. CONCLUSION

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes.

VERIFICATION

State of North Carolina)
)
County of Mecklenburg)

SS:

The undersigned, Donald L. Schneider, Jr, being duly sworn, deposes and says that he is General Manager, Grid Modernization of Duke Energy Business Services LLC, that he has personal knowledge of the matters set forth in the foregoing testimony, and that the answers contained therein are true and correct to the best of his information, knowledge and belief.

Donald L. Schneider, Jr, Affiant

Subscribed and sworn to before me by Donald L. Schneider, Jr on this 10 day of January 2013.

NOTARY PUBLIC

My Commission Expires: August 13, 2017