Duke Energy®

139 East Fourth Street. R 25 At II
P O Box 960
Cincinnati, Ohio 45201-0960
Tel: 513-419-1837
Fax: 513-419-1846
dianne.kuhnelll@duke-energy.com

Dianne B Kuhnell
Senior Paralegal

VIA OVERNIGHT DELIVERY

January 9, 2009

Mr. Jeff Derouen
Executive Director
Kentucky Public Service Commission
211 Sower Blvd
Frankfort, Ky 40601

Re: Case No. 2008-00408

Dear Mr. Derouen:

Enclosed please find an original and twelve copies each of the testimony of the following witnesses in the above captioned case.

Please date-stamp the extra two copies of each testimony and return to me in the enclosed envelope.

Sincerely,

Dianne B. Kuhnell

Dianne B. Kuhnell
Senior Paralegal

cc: Dennis G. Howard II
Parties of record

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of Consideration of the New Federal Standards of the Energy Independence and Security Act of 2007	))))	Case No. 2008-408

DIRECT TESTIMONY OF

RICHARD G. STEVIE

ON BEHALF OF

DUKE ENERGY KENTUCKY, INC.

January 12, 2009

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I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, BY WHOM YOU ARE EMPLOYED, AND IN WHAT CAPACITY.

A. My name is Richard G. Stevie. My business address is 139 E. Fourth St., Cincinnati, Ohio. I am Managing Director of Customer Market Analytics for Duke Energy Business Services, Inc. ("Duke Energy Business Services"), a wholly-owned service company subsidiary of Duke Energy Corporation ("Duke Energy"). Duke Energy Business Services provides various administrative services to Duke Energy Kentucky, Inc. ("Duke Energy Kentucky" or the "Company") and other Duke Energy affiliates including Duke Energy Ohio, Inc., Duke Energy Indiana, Inc., and Duke Energy Carolinas, LLC.

Q. PLEASE BRIEFLY DESCRIBE YOUR DUTIES AND RESPONSIBILITIES AS MANAGING DIRECTOR OF THE CUSTOMER MARKET ANALYTICS DEPARTMENT.

A. I have responsibility for several functional areas including load forecasting, load research, demand side management ("DSM") analysis, market research, load management analytics, and product development analytics. The Customer Market Analytics Department is responsible for providing functional analytical support to Duke Energy Kentucky as well as the other Duke Energy affiliates previously mentioned.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I received a Bachelor's degree in Economics from Thomas More College in May

1971. In June 1973, I was awarded a Master of Arts degree in Economics from the University of Cincinnati. In August 1977, I received a Ph.D. in Economics from the University of Cincinnati.

My past employers include the Cincinnati Water Works where I was involved in developing a new rate schedule and forecasting revenues, the United States Environmental Protection Agency's Water Supply Research Division where I was involved in the research and development of a water utility simulation model and analysis of the economic impact of new drinking water standards, and the Economic Research Division of the Public Staff of the North Carolina Utilities Commission where I presented testimony in numerous utility rate cases involving natural gas, electric, telephone, and water and sewer utilities on several issues including rate of return, capital structure, and rate design. In addition, I was involved in the Public Staff's research effort and presentation of testimony regarding electric utility load forecasting. This included the development of electric load forecasts for the major electric utilities in North Carolina. I also was involved in research concerning cost curve estimation for electricity generation, rate setting, and separation procedures in the telephone industry, and the implications of financial theory for capital structures, bond ratings, and dividend policy. In July 1981, I became the Director of the Economic Research Division of the Public Staff with the responsibility for the development and presentation of all testimony of the Division.

In November 1982, I joined the Load Forecast Section of The Cincinnati Gas & Electric Company ("CG&E"). My primary responsibility involved

directing the development of CG&E's Electric and Gas Load Forecasts. I also participated in the economic evaluation of alternate load management plans and was involved in the development of CG&E's Integrated Resource Plan ("IRP"), which integrated the load forecast with generation options and demand-side options.

With the reorganization after the merger of CG&E and PSI Energy, Inc. in late 1994, I became Manager of Retail Market Analysis in the Corporate Planning Department of Cinergy Services and subsequently General Manager of Market Analysis with responsibility for the load forecasting, load research, DSM impact evaluation, and market research functions of Cinergy Corporation. After the merger of Cinergy Corp. and Duke Energy in 2006, I became the General Manager of the Market Analysis Department with responsibility for several areas including load forecasting, load research, market research, DSM strategy and analysis, load management development, and business development analytics. Since then, I have become the Managing Director of the Customer Market Analytics Department.

Since 1990, I have chaired the Economic Advisory Committee for the Greater Cincinnati Chamber of Commerce. I have been a part-time faculty member of Thomas More College located in Northern Kentucky and the University of Cincinnati teaching undergraduate courses in economics. In addition, I am an outside adviser to the Applied Economics Research Institute in the Department of Economics at the University of Cincinnati as well as a member of an advisory committee to the Economics Department at Northern Kentucky

University.

Q. ARE YOU A MEMBER OF ANY PROFESSIONAL ORGANIZATIONS?

A. Yes, I am a member of the American Economic Association, the National Association of Business Economists, and the Association of Energy Services Professionals.

Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY BEFORE ANY REGULATORY AGENCIES?

A. Yes. I have presented testimony on several occasions before the Kentucky Public Service Commission (the "Commission"), the North Carolina Utilities Commission, the South Carolina Public Service Commission, the Indiana Utility Regulatory 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 several of the standards for electric and natural gas utilities as set forth in the Energy Independence and Security Act of 2007 ("EISA 2007"), which amend the Public Utilities Regulatory Act of 1978 ("PURPA"). I also discuss Duke Energy Kentucky's tariffs and demand side management offerings that are directly responsive to the requirements of the EISA 2007 electric and natural gas standards related to energy efficiency.

II. ENERGY INDEPENDENCE AND SECURITIES ACT OF 2007

A. ELECTRIC UTILITY STANDARDS

Q. ARE YOU FAMILIAR WITH THE EISA 2007 STANDARDS THAT ARE APPLICABLE TO RATE DESIGN FOR ELECTRIC UTILITIES?

A. Yes. The EISA 2007 energy efficiency standard for electric utilities states that the rates allowed to be charged by any electric utility shall align utility incentives with the delivery of cost-effective energy efficiency and promote energy efficiency investments. To achieve those goals, regulatory Commissions are to consider six policy options.

Q. WHAT ARE THE SIX POLICY CONSIDERATIONS RELATED TO ELECTRIC UTILITIES?

A. The policy considerations for electric utilities include:

1) removing the throughput incentive and other regulatory and management disincentives to energy efficiency;
2) providing utility incentives for the successful management of energy efficiency programs;
3) including the impact on adoption of energy efficiency as one of the goals of retail rate design, recognizing that energy efficiency must be balanced with other objectives;
4) adopting rate designs that encourage energy efficiency for each customer class;
5) allowing timely recovery of energy efficiency related costs; and
6) offering home energy audits, offering demand response programs,

publicizing the financial and environmental benefits associated with making home energy efficiency improvements, and educating homeowners about all existing Federal and State incentives, including the availability of low cost loans that make energy efficiency improvements more affordable.

Q. DOES DUKE ENERGY KENTUCKY AGREE WITH THE EISA 2007 ENERGY EFFICIENCY ELECTRIC RATE DESIGN STANDARDS?

A. Duke Energy Kentucky does agree with the EISA 2007 energy efficiency standard in that the Company believes utility incentives should be aligned with the delivery of cost-effective energy efficiency and promote energy efficiency investments. However, the Company does not support all of the policy considerations regarding rate design. Further, although Duke Energy Kentucky agrees with the standard, the Company does not believe that the standard needs to be formally adopted. The existing Demand Side Management statute provides the Commission and utilities with sufficient flexibility to encourage energy efficiency and is consistent with the intent of EISA 2007.

Q. PLEASE EXPLAIN WHICH POLICY CONSIDERATIONS DUKE ENERGY KENTUCKY SUPPORTS UNDER THE EISA 2007 ENERGY EFFICIENCY ELECTRIC RATE DESIGN STANDARD.

A. Duke Energy Kentucky fully supports the first, second, fifth, and sixth policy considerations. Comments on the third and fourth policy considerations may be found in the testimony of Company Witness Jeffrey R. Bailey.

With respect to the first policy consideration, the Company agrees that in

order to fully realize the potential of energy efficiency, the throughput incentive and other regulatory and management disincentives to energy efficiency must be removed. Because energy efficiency programs actually reduce sales, utilities have a natural incentive to focus more on supply side options than demand side options. There is an opportunity to achieve earnings on the supply side investment that does not occur if the utility encourages customers to be more energy efficient. There are several methods which may be utilized for removing the throughput incentive. These range from recovery of lost margins to decoupling to restructuring of rates. While the Company supports removal of the throughput incentive, the method utilized is important.

With regard to the second policy consideration, the Company believes that energy efficiency needs to be placed on a level playing field with supply side options. Providing utility incentives for the successful management of energy efficiency programs is the proper direction. Duke Energy Kentucky believes that in order to realize the greatest potential of benefits from energy efficiency, there must be a mechanism in place that both creates value for customers and provides an incentive for utilities to invest in energy efficiency and promote market innovation. In the past, utility companies have not had the same incentive to adopt energy efficiency measures as they have had to adopt traditional supply side resources. Duke Energy Kentucky has introduced a new proposal, known as Save-A-Watt, to address this problem. I discuss the Company's save-a-watt proposal later in my testimony.

With regard to the fifth policy consideration, the Company believes that in order to increase investment, utilities should be permitted to receive timely recovery of energy efficiency related costs.

And, with respect to the sixth policy consideration, Duke Energy Kentucky believes that utilities should offer a myriad of energy efficiency programs for customers including, home energy audits, demand response and conservation initiatives, as well as educational opportunities.

Q. ARE THERE POLICY CONSIDERATIONS WHY DUKE ENERGY KENTUCKY DOES NOT SUPPORT THE EISA 2007 ENERGY EFFICIENCY ELECTRIC RATE DESIGN STANDARD?

A. Yes. While Duke Energy Kentucky supports the encouragement of energy efficiency, as explained by the Direct Testimony of Duke Energy Kentucky Witness Jeffrey R. Bailey, there are policy considerations, other than energy efficiency, that need to be considered in adopting actual rate design schemes for various customer classes. For example, rate designs such as inclining block rates or seasonal rates need to be supported by cost of service studies and through the load analysis. There are other ways to promote and encourage energy efficiency than simply imposing higher rates on customers for higher levels of consumption. Many customers, especially residential customers, may not have the time or sophistication to manage energy consumption on their own to avoid higher price blocks, and potentially, would be face an increase in their bills.

Duke Energy Kentucky believes that in order to reach maximum potential for customers, being energy efficient must become a value driven back of mind

approach. Customers should not have to sacrifice comfort and convenience to achieve savings and be more efficient.

Q. WHY DOES DUKE ENERGY KENTUCKY BELIEVE THE EISA 2007 ELECTRIC ENERGY EFFICIENCY STANDARD DOES NOT NEED TO BE FORMALLY ADOPTED?

A. Duke Energy Kentucky agrees with the standard. The Company merely suggests that a formal adoption of it is not necessary as there are sufficient regulations, policies and utility tariffs in place that accomplish the goals of the EISA 2007 standard.

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

A. As the Commission has recently stated in its Report to the Kentucky General Assembly prepared pursuant to the 2007 Energy Act in Case No. 2007-00477, Demand Side Management[1] has been used successfully in Kentucky to help maintain the proper balance between the needs of consumers for reliable power at fair, just and reasonable rates and the ability of utilities to generate and distribute that power. The existing statute, KRS 278.285 gives the Commission authority to approve utility sponsored DSM initiatives and provide timely recover as well as an incentive through a discrete rider mechanism.

In order to change rate structures, utilities must do so in a base rate case. Utilities are required to provide a cost of service study and must support any changes in its retail rate design.

[1] Electric Utility Regulation and Energy Policy in Kentucky, A Report to the Kentucky General Assembly Prepared Pursuant to Section 50 of the 20007 Energy Act, by the Kentucky Public Service Commission, July 1, 2008.

On both fronts, energy efficiency and rate design, the regulatory mechanisms are already in place for utilities to propose energy efficiency programs and changes to the rate structure and for the Commission to evaluate and decide whether or not to approve the proposals.

Q. WHAT TARIFFS DOES DUKE ENERGY KENTUCKY CURRENTLY HAVE THAT ARE CONSISTENT WITH THE GOALS OF THE EISA 2007 ENERGY EFFICIENCY RATE DESIGN STANDARDS FOR ELECTRIC UTILITIES?

A. As explained in the Direct Testimony of Duke Energy Kentucky Witness Jeffrey R. Bailey, Duke Energy Kentucky has several tariff offerings to customers that provide opportunities for load management and real time pricing. In addition, the Company currently has in place a Demand Side Management Rider ("Rider DSM") that recovers costs associated with utility sponsored energy efficiency initiatives, including home energy audits and educational programs. Rider DSM currently provides for program cost recovery and lost revenue recovery with a small incentive based upon shared savings (10% of avoided costs less program costs). While this model has had some success, it is simply not sufficient to encourage significant utility investments in energy efficiency technology, products, and services.

Q. THE COMPANY HAS RECENTLY PROPOSED A NEW REGULATORY RECOVERY MECHANISM, LABELED SAVE-A-WATT. WHAT ARE THE FEATURES OF THIS MECHANISM?

A. As Overland Consulting noted in its independent report in Case No. 2007-477, the

save-a-watt proposed recovery mechanism is an extension of a shared savings model, in which the savings are based, in part, on avoided capacity and energy costs that are obtained from the MWh and MW savings achieved through the implementation of the energy efficiency programs. The key components include recovery of lost margins for three years and a percentage of the avoided costs. The Company filed this proposal for the Commission's consideration in Case No. 2008-00495.

Under this approach, the Commission is being asked to consider the cumulative MWh and MW impacts from energy conservation and demand-side reductions in the same way the Commission would consider a supply-side solution (*e.g.*, construction of additional generation assets and ancillary infrastructure needed to support those generation assets). The save-a-watt proposal values the energy conservation and demand-side solution (energy efficiency) based upon costs avoided from a similar reduction on the supply-side (plant and infrastructure construction). For energy conservation, the Company is seeking 50% of the net present value ("NPV") of avoided energy and capacity costs achieved. For demand response programs, the percentage is 75% of the avoided capacity costs achieved annually. From the revenues collected using these respective percentages of avoided costs, the Company must cover the energy efficiency program costs. Anything left over represents a margin to cover taxes and earnings.

The save-a-watt model also includes an earnings cap on the performance-based revenues earned by Duke Energy Kentucky. These caps vary, based upon

the level of performance, or targeted savings, achieved.

Q. HOW DOES THE SAVE-A-WATT PROPOSED MECHANISM COMPARE TO THE CURRENT SHARED SAVINGS MECHANISM?

A. The shared savings approach is also an avoided cost based mechanism. The save-a-watt and shared savings financial incentive mechanisms are similar. The major difference is that under the save-a-watt approach, customers face less risk because the utility bears the risk of recovering its program costs from the percentages of avoided costs, while under the shared savings method, the utility recovers the program costs directly.

Under save-a-watt, there is no guarantee that Duke Energy Kentucky would recover its program costs or earn a reasonable margin on its energy efficiency program costs. In addition, there is limited recovery of lost margins. However, at the same time, there is an opportunity under the proposed save-a-watt plan for the Company to be successful in earning an incentive, as well as the potential for the Company to exceed its savings targets.

Retail customers could benefit today if they invested in cost-effective alternatives that reduce their electricity use. With the low rates in the Duke Energy Kentucky service area, many customers do not take advantage of energy efficiency measures. Duke Energy Kentucky faces very real hurdles in convincing customers to participate in its energy efficiency programs. The Company is willing to accept the risk that if it misses the mark in its marketing efforts, it will earn less.

In addition, the revenues that the Company collects under the energy

efficiency rider also depend upon the measurement and verification of the impacts achieved by the programs. The Company is compensated only when its energy efficiency programs succeed in reducing energy consumption and it is able to keep costs low.

Q. WHAT ENERGY EFFICIENCY PROGRAMS DID DUKE ENERGY KENTUCKY PROPOSE AS PART OF ITS SAVE-A-WATT PROGRAM?

A. Duke Energy Kentucky developed its portfolio of programs in collaboration with interested stakeholders. The energy efficiency programs and measures considered and included consist of: (i) programs already offered and tested by Duke Energy Kentucky's affiliate utility operating companies, (ii) new programs that were recommended to the Collaborative, and (iii) existing programs offered by Duke Energy Kentucky in Kentucky. The list is as follows:

RESIDENTIAL CUSTOMER PROGRAMS

- Residential Energy Assessments
- Smart $aver® for Residential Customers
- Home Performance Plus
- Kentucky Reach and Teach Energy Conservation
- Low Income Services (including Home Energy Assistance Program)
- Energy Efficiency Education Program for Schools
- Power Manager

NON-RESIDENTIAL CUSTOMER PROGRAMS

- Non-Residential Energy Assessments
- Smart $aver® for Non-Residential Customers

- PowerShare®

RESEARCH PILOT PROGRAMS

- Efficiency Savings Plan

Q. HAVE ANY OTHER STATES APPROVED THE SAVE-A-WATT MECHANISM?

A. Yes. Ohio approved the save-a-watt mechanism in an Opinion and Order dated December 17, 2008 in Case No. 08-920-EL-SSO, The North Carolina Utilities Commission is considering whether to approve the save-a-watt mechanism in Docket No. E-7, SUB 831. The Indiana Utility Regulatory Commission is reviewing a partial settlement of the save-a-watt mechanism in Cause No. 43374.

B. EISA 2007 NATURAL GAS UTILTY STANDARDS

Q. ARE YOU FAMILIAR WITH THE EISA 2007 ENERGY EFFICIENCY STANDARDS THAT ARE APPLICABLE TO RATE DESIGN FOR NATURAL GAS UTILITIES?

A. Yes. The standard for natural gas utilities states that each natural gas utility shall integrate energy efficiency resources into the plans and planning processes and adopt policies that establish energy efficiency as a priority resource in the plans and processes of the natural gas utility. The policy considerations for natural gas utilities are:

1) separating fixed-cost revenue recovery from the volume of transportation or sales service provided to the customer;
2) providing to utilities incentives for the successful management of energy efficiency programs, such as allowing utilities to retain a

portfolio of the cost reducing benefits accruing from the programs;

3) promoting the impact on adoption of energy efficiency as one of the goals of retail rate design, recognizing that energy efficiency must be balanced with other objectives; and

4) adopting rate designs that encourage energy efficiency for each customer class.

Q. DOES DUKE ENERGY KENTUCKY AGREE WITH THE EISA 2007 ENERGY EFFICIENCY RATE DESIGN STANDARDS APPLICABLE TO NATURAL GAS UTILTIES?

A. In general, Duke Energy Kentucky does agree with the EISA 2007 energy efficiency standard applicable to natural gas utilities. However the Company may have a concern with the policy considerations regarding rate design as discussed in the testimony of Company Witness Jeffrey R. Bailey. Further, although Duke Energy Kentucky agrees with the standard regarding energy efficiency, the Company does not believe that the standard needs to be formally adopted. The existing Demand Side Management statute provides the Commission and utilities with sufficient flexibility to encourage energy efficiency for all utilities and is consistent with the intent of EISA 2007.

Q. PLEASE EXPLAIN WHICH POLICY CONSIDERATIONS DUKE ENERGY KENTUCKY SUPPORTS UNDER THE EISA 2007 ENERGY EFFICIENCY NATURAL GAS RATE DESIGN STANDARD.

A. Duke Energy Kentucky Witness Jeffrey R. Bailey discusses the first, third, and fourth policy considerations applicable to natural gas utility rate design in the

EISA 2007 standards.

Duke Energy Kentucky agrees with the second policy consideration regarding providing utilities incentives for the successful management of energy efficiency programs, such as allowing utilities to retain a portfolio of the cost reducing benefits accruing from the programs. Duke Energy Kentucky agrees with the standard. The Company merely suggests that a formal adoption is not necessary as there are sufficient regulations, policies and utility tariffs in place that accomplish the goals of the EISA 2007 standard.

III. CONCLUSION

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

A. Yes.

VERIFICATION

State of Ohio)
) SS:
County of Hamilton)

The undersigned, Richard G. Stevie, being duly sworn, deposes and says that 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.

Richard G. Stevie, Affiant

Subscribed and sworn to before me by Richard G. Stevie on this 10th day of Dec 2008.

NOTARY PUBLIC

My Commission Expires:

ANITA M. SCHAFER
Notary Public, State of Ohio
My Commission Expires
November 4, 2009

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of Consideration of the New Federal Standards of the Energy Independence and Security Act of 2007	)))))	Case No. 2008-408

DIRECT TESTIMONY OF

DAVID E. FREEMAN

ON BEHALF OF

DUKE ENERGY KENTUCKY

January 12, 2009

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I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME, BUSINESS, ADDRESS, AND OCCUPATION.

A. My name is David E. Freeman and my business address is 139 East Fourth Street, Cincinnati, OH 45202. I am employed by Duke Energy Business Services Inc. as Midwest Integrated Resource Planning Director for Duke Energy Corporation's Midwest regulated utility operating companies, including Duke Energy Kentucky, Inc ("Duke Energy Kentucky or the Company").

Q. PLEASE DESCRIBE BRIEFLY YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. In 1992, I received a Masters of Business Administration from the University of Cincinnati with a major in Quantitative Analysis and a minor in Finance. In 1985, I received a Bachelor of Science in Engineering from the University of Cincinnati with a major in Mechanical Engineering. In 1978, I received an Associate's Degree in Civil and Environmental Engineering Technology from the University of Cincinnati. I have approximately thirty years experience in the utility industry. I have been employed by Duke Energy Business Services since the merger between Duke Energy and Cinergy Corp. in 2006. Prior to that, I worked for Cinergy Corp. and the Cincinnati Gas & Electric Company. I was appointed to my current position as Midwest Integrated Resource Planning Director on July 1, 2008. Throughout my thirty years of experience, I have held many positions of increasing responsibility. Most recently, I have held positions in Global Risk Management from January 2005 through June 2008. Prior to that, I was a Senior Engineer

involved with post analysis cost evaluations, after-the-fact interchange costing, and performance analytics for Power Services from October 2000 through December 2004. From October 1998 through October 2000, I held various trading positions related to power, natural gas, and transmission markets in Cinergy Marketing and Trading and Cinergy Power Marketing and Trading. I was an Analyst/Strategist in the Cinergy Power Marketing and Trading Group from August 1997 through September 1998. I was a Supervisor in Resource Planning from January 1995 through July of 1997.

Q. PLEASE DESCRIBE YOUR DUTIES AND RESPONSIBILITIES AS MIDWEST INTEGRATED RESOURCE PLANNING DIRECTOR.

A. As Midwest Integrated Resource Planning Director, I am responsible for planning for the long-term capacity needs of the Duke Energy Indiana, Inc., and Duke Energy Kentucky systems by minimizing the long-run cost of providing reliable, economic, and efficient electrical services to meet the forecasted needs of our customers. My responsibilities include preparing and filing Integrated Resource Plans ("IRPs") in accordance with state regulations.

Q. ARE YOU A REGISTERED PROFESSIONAL ENGINEER?

A. Yes, I am a registered professional engineer in the State of Ohio.

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

A. The purpose of my testimony is to provide an overview of Duke Energy Kentucky's IRP planning and to discuss Duke Energy Kentucky's position regarding whether or not the EISA 2007 integrated resource planning standard should be adopted by the

Commission, and if not, whether there are any integrated resource planning standards that should be considered.

II. EISA 2007 INTEGRATED RESOURCE PLANNING STANDARD

Q. ARE YOU FAMILIAR WITH THE INTEGRATED RESOURCE PLANNING STANDARD SET FORTH IN THE EISA 2007?

A. Yes. The standard proposes that each utility develop a plan to integrate energy efficiency resources into utility, state, and regional plans; and adopt policies establishing cost-effective energy efficiency as a priority.

Q. IS ADOPTION OF THIS STANDARD NECESSARY IN KENTUCKY?

A. No. While Duke Energy Kentucky agrees that energy efficiency should be considered as part of the utility's resource planning process, the Company does not believe this standard is necessary and it should not be adopted by the Commission. The Commonwealth of Kentucky, through the General Assembly's grant of authority to the Commission, has sufficient policies and rules already in place that promote energy efficiency and accomplish the goal of the EISA 2007 Integrated Resource Planning Standard. The current Kentucky policies and procedures provide the necessary balance among the multiple factors that need to be considered in providing reliable service at reasonable prices. Specifically, Kentucky's rules for Integrated Resource Planning by electric utilities and law regarding Demand Side Management[1] provide the Commission and utilities with excellent tools to appropriately balance the interests in promoting energy efficiency and providing a reliable and cost-effective supply of electricity for customers.

[1] Kentucky Statute 278.010(17) defines Demand-Side Management as "any conservation load management, or other utility activity intended to influence the level or pattern of customer usage or demand, including home energy assistance programs."

Q. PLEASE EXPLAIN HOW CURRENT INTEGRATED RESOURCE PLANNING REGULATIONS ARE CONSISTENT WITH THE EISA 2007 INTEGRATED RESOURCE PLAN STANDARD.

A. Kentucky's Integrated Resource Planning Regulation, 807 KAR 5:58 (the "IRP Regulation") makes energy efficiency an integral part of the utility's resource planning process to meet load growth. Under this regulation, each electric utility must file an IRP every three years. The IRP Regulation sets forth specific requirements for the utilities to evaluate in its IRP, including but not limited to projected load growth, as well as the resources planned to be implemented to meet that growth. Section 5 of the IRP Regulation requires utilities to submit a summary of the plan including a description of the utility's resource acquisition plan including, among other things, improvements in operating efficiency of existing facilities and demand-side management programs. Under Section 7 of the IRP Regulation, utilities are required to submit historical information including an identification and description of existing demand side management programs and an estimate of the impact on utility sales and coincident peak demand.

As part of its fifteen year forecast, utilities are required to include the estimates of existing and continuing demand side management programs. Utilities must include the impact on both energy sales and system peak demands, including utility and government sponsored conservation and load management programs.

As part of the required Resource Assessment and Acquisition Plan, Section 8 of the IRP Regulation requires utilities to develop a plan to provide an adequate and reliable source of electricity to meet forecasted energy requirements at the lowest

possible cost. The plan must include an assessment of potentially cost-effective resource options available to the utility, including improvements to and more efficient utilization of existing utility generation, as well as conservation and load management or other demand-side management programs not already in place.

Clearly, the current IRP Regulations are consistent with the EISA 2007 standard and make energy efficiency an integral part of the utility's resource plans. No additional standards are required.

III. DUKE ENERGY KENTUCKY'S 2008 INTEGRATED RESOURCE PLAN

Q. PLEASE GIVE A BRIEF OVERVIEW OF DUKE ENERGY KENTUCKY'S CURRENT INTEGRATED RESOURCE PLANNING PROCESS.

A. Stated very simply, the IRP process involves taking a myriad of resource options, and, through screening and analysis, methodically funneling them down to an optimal combination of feasible and economic alternatives that will reliably meet the anticipated future customer loads. More specifically, the IRP process involves a number of steps: (1) development of planning objectives and assumptions; (2) preparation of an electric load forecast; (3) identification and screening of potential electric demand-side resource options; (4) identification of, screening of, and performing sensitivity analysis around the cost-effectiveness of potential electric supply-side resources; (5) identification of, screening of, and performing analysis around the cost-effectiveness of potential environmental compliance options; (6) integration of the demand-side and supply-side and environmental compliance options; (7) performance of final sensitivity and scenario analyses on

the integrated resource alternatives; and (8) selection of an optimal plan based on quantitative and qualitative factors (such as risk, reliability, technical feasibility, and other qualitative factors).

Q. WHAT TYPES OF RESOURCE ALTERNATIVES ARE CONSIDERED IN DUKE ENERGY KENTUCKY'S INTEGRATED RESOURCE PLANNING PROCESS?

A. The Company considers a multitude of options and combinations of options, including energy efficiency programs (both conservation and demand response programs), environmental compliance alternatives, and supply-side alternatives (such as peaking units, combined cycle units, coal-fired units, integrated gasification combined cycles ("IGCC"), renewable resources, and purchases) in our IRP process.

In determining the final plan, other factors are considered such as flexibility, risk, availability of equipment, constructability, and transmission constraints.

Q. PLEASE EXPLAIN HOW DUKE ENERGY KENTUCKY CONSIDERS AND RECOMMENDS THE MOST APPROPRIATE METHOD TO INTEGRATE ENERGY EFFICIENCY RESOURCES INTO UTILITY, STATE, AND REGIONAL PLANS.

A. Duke Energy Kentucky believes that continuing to use an Integrated Resource Planning process is the most appropriate method to integrate energy efficiency resources into utility, state and regional plan to meet the goals of reliable, cost-effective supply of power to customers. Duke Energy Kentucky uses sophisticated

models for its IRP process. These models identify the least cost supply resources that could be used to satisfy future electric demand under a variety of constraints including cost, reliability concerns, and the recognized need for a diverse mix of fuel and technologies. Through the IRP process, Duke Energy Kentucky analyzes its existing and long-range generation plans which include fuel diversity, energy efficiency and demand-side management opportunities and use of renewable resources. This plan is submitted to the Commission for its review and comment. Both the Commission and interested stakeholders have an opportunity to offer alternatives to Duke Energy Kentucky's IRP proposals. Although the Commission does not issue orders formally approving the IRP, the Commission Staff does issue a report evaluating the Company's plan and makes recommendations.

As shown in the Company's recently filed IRP in Case NO 2008-248, Duke Energy Kentucky's generation system currently utilizes both coal and natural gas to generate electricity to serve customers. Additionally, Duke Energy Kentucky continues to review and evaluate opportunities to expand its resource pool including energy efficiency alternatives.

Q. DOES DUKE ENERGY KENTUCKY INCLUDE ENERGY EFFICIENCY AS PART OF ITS INTEGRATED RESOURCE PLAN ANALYSIS?

A. Yes. In the IRP, energy efficiency programs are screened for cost-effectiveness and those programs that are demonstrated to be cost-effective in the screening process are included in the integration/optimization process.

Q. WHY ARE ENERGY EFFICIENCY IMPACTS RELEVANT TO THE INTEGRATED RESOURCE PLANNING ANALYSIS?

A. Duke Energy Kentucky's energy efficiency programs are designed to help reduce demand on the Duke Energy Kentucky system during times of peak load and to reduce consumption during peak and off-peak hours. As mentioned above, energy efficiency consists of traditional conservation energy efficiency and demand response programs. Implementing cost-effective energy efficiency programs helps reduce overall long-term supply costs and emissions.

Q. HOW DID DUKE ENERGY KENTUCKY MODEL ENERGY EFFICIENCY IN ITS MOST RECENT IRP?

A. The Company chose to model energy efficiency programs in "bundles" to allow the optimization model to select demand-side alternatives in the same way the model can select supply-side and environmental compliance alternatives. The demand response programs were modeled as two separate bundles (one bundle of non-residential programs and one bundle of residential programs) that could be selected based on economics. The conservation energy efficiency programs were modeled as one bundle that could be selected based on economics. The assumption was made that these costs and impacts would continue throughout the planning period.

IV. ALTERNATIVES TO EISA 2007 STANDARDS

Q. ARE THERE OTHER STATE POLICIES OR REGULATIONS THAT PROVIDE THE COMMISSION WITH AUTHORITY TO INTEGRATE ENERGY EFFICIENCY AS A PRIORITY RESOURCE?

A. Yes. The Commission has jurisdiction to approve utilities' energy efficiency plans through the Demand Side Management statue. This statue gives the Commission

authority to review utility sponsored demand-side management and energy conservation plans and approve such plans for recovery by a discrete rider adjustment.

Duke Energy Kentucky has recently proposed a modification to its current demand-side management plan which it refers to as its Save-a-Watt approach. In this sense, Duke Energy Kentucky considers energy efficiency as a "fifth fuel" source. The Commission can approve such programs if the Commission determines that the programs are reasonable.

Q. BESIDES ENERGY EFFICIENCY, WHAT OTHER FACTORS MUST BE CONSIDERED WHEN PLANNING GENERATION RESOURCES?

A. When utilities are considering future electric generating resource options, including purchase power or energy efficiency alternatives, they have a number of constraints to consider beyond achieving a diverse fuel supply. First, as I previously mentioned, a basic overriding principle to resource planning is that any plan must satisfy the objective of providing a least-cost resource mix. Achieving a least-cost mix requires a delicate balance of a number of considerations including reliability and environmental considerations. The generation resource must match the characteristics of a utility's future load requirements, whether it is peaking, intermediate, or base load requirements. Any of these needs could make a particular generation source, including an energy efficiency plan, more appropriate and consequently more reliable than another.

Q. IS THERE ANOTHER STANDARD THAT THE COMMISSION SHOULD CONSIDER ADOPTING TO PROMOTE FUEL SOURCE DIVERSITY?

A: Duke Energy Kentucky believes the current Integrated Resource Planning regulations and Demand Side Management regulations provide the Commission and utilities with all that is necessary to promote the interest in making energy efficiency an integral part of the utility's resource plan and no additional standard is necessary.

V. CONCLUSION

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

VERIFICATION

STATE OF OHIO)
) SS:
COUNTY OF HAMILTON)

The undersigned, David E. Freeman, being duly sworn, deposes and says 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 knowledge, information and belief.

David E. Freeman, Affiant

Subscribed and sworn to before me by David E. Freeman on this 10th day of Dec, 2008.

NOTARY PUBLIC

My Commission Expires:

ANITA M. SCHAFER
Notary Public, State of Ohio
My Commission Expires
November 4, 2009

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of Consideration of the New Federal Standards of the Energy Independence and Security Act of 2007	))))	Case No. 2008-408

DIRECT TESTIMONY OF

JEFFREY R. BAILEY

ON BEHALF OF

DUKE ENERGY KENTUCKY

January 12, 2009

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I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Jeffrey R. Bailey. My business address is 1000 East Main Street, Plainfield, Indiana 46168.

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

A. I am employed by Duke Energy Business Services, LLC, and affiliated service company of Duke Energy Kentucky, Inc., ("Duke Energy Kentucky" or the "Company") as Director Pricing and Analysis.

Q. PLEASE SUMMARIZE YOUR EDUCATION.

A. I received Bachelor of Science degrees in Industrial Management and Engineering from Purdue University, West Lafayette, Indiana. I also received a Master of Science degree majoring in Industrial Engineering from Purdue University.

Q. PLEASE SUMMARIZE YOUR WORK EXPERIENCE.

A. I began my employment with PSI Energy, Inc. ("PSI") in 1990 as Supervisor, Rate Engineering. I was subsequently promoted to Manager, Rate Engineering in 1991. I held several positions in the Rate, Pricing, and Market Planning areas until 1997, when I accepted the position of Manager, Sales Analysis. In 2000, I joined the Financial Operations Department, where I held the positions of Manager, Financial Projects, and Manager, Finance. I returned to the Rate Department in 2002, as Manager, Pricing. My primary responsibility during this time was the development and administration of the rates and charges, as may be contained in tariffs, agreements, or contracts for electric service, for Cinergy and its affiliate companies, including the Union Light, Heat and Power Company

("ULH&P"). I was promoted to my current position as Director Pricing and Analysis in October 2006.

Before joining PSI in 1990, I was employed by the Indiana Utility Regulatory Commission ("IURC"). I began my employment there in 1983 as a Staff Engineer. During my tenure with the IURC, I held several positions, progressively increasing in responsibility, the last of which was Assistant Chief Engineer. My primary responsibility as Assistant Chief Engineer was the supervision of the gas and electric sections that investigated rate and regulatory matters pending before the IURC.

Q. WHAT ARE YOUR DUTIES AS DIRECTOR, PRICING AND ANALYSIS?

A. As Director, Pricing and Analysis, I am responsible for the development of the Company's rates and charges for all of Duke Energy's utility operating companies.

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

A. The purpose of my testimony is to discuss the rate design standards for electric and natural gas utilities as set forth in the Energy Independence and Security Act of 2007 ("EISA 2007"), which amend the Public Utilities Regulatory Policy Act of 1978 ("PURPA"). I discuss Duke Energy Kentucky's position on the Commission's consideration to adopt the rate design standards to promote energy efficiency for electric and gas utilities. More specifically, I address two of the PURPA Amendment policy considerations for electric rate designs, namely: 1) including the impact on the adoption of energy efficiency as one of the goals of

retail rate design, recognizing that energy efficiency must be balanced with other objectives; and 2) adopting rate designs that encourage energy efficiency for each customer class. I also discuss Duke Energy Kentucky's position regarding three of the PURPA rate design standards and policy considerations for natural gas utilities. Specifically, I discuss: 1) separating fixed-cost revenue recovery from the volume of transportation or sales service provided to the customer; 2) promoting the impact on adoption of energy efficiency as one of the goals of retail rate design, recognizing that energy efficiency must be balanced with other objectives; and 3) adopting rate designs that encourage energy efficiency for each customer class.

Finally, I discuss Duke Energy Kentucky's current rate design and policies that are responsive to the EISA rate design standards.

II. ENERGY INDEPENDENCE AND SECURITIES ACT OF 2007

A. ELECTRIC UTILTIY STANDARDS

Q. ARE YOU FAMILIAR WITH THE EISA 2007 STANDARD APPLICABLE TO RATE DESIGN FOR ELECTRIC AND NATURAL GAS UTILTIES?

A. Yes. The standard for electric utilities states that rates allowed to be charged by any electric utility shall align utility incentives with the delivery of cost-effective energy efficiency and promote energy efficiency investments. The standard for natural gas utilities states that each natural gas utility shall integrate energy efficiency resources into the plans and planning processes and adopt policies that establish energy efficiency as a priority resource in the plans and processes of the natural gas utility. To achieve those goals, regulatory Commissions are to

consider six policy options for electric utilities and four regulatory policies for natural gas utilities.

Q. WHAT ARE THE POLICY CONSIDERATIONS RELATED TO ELECTRIC UTILTIES?

A. The policy considerations for electric utilities include: 1) removing the throughput incentive and other regulatory and management disincentives to energy efficiency; 2) providing utility incentives for the successful management of energy efficiency programs; 3) including the impact on adoption of energy efficiency as one of the goals of retail rate design, recognizing that energy efficiency must be balanced with other objectives; 4) adopting rate designs that encourage energy efficiency for each customer class; 5) allowing timely recovery of energy efficiency related costs; and 6) offering home energy audits, offering demand response programs, publicizing the financial and environmental benefits associated with making home energy efficiency improvements, and educating homeowners about all existing Federal and State incentives, including the availability of low cost loans that make energy efficiency improvements more affordable.

Q. SHOULD THE COMMISSION ADOPT THE EISA PURPA RATE DESIGN STANDARDS FOR ELECTRIC UTILTIES?

A. As explained by Company witness Richard G. Stevie, while Duke Energy Kentucky does not oppose the standards and believes that electric utility incentives should be aligned with the delivery of cost-effective energy efficiency and promote investment, the Company does not think the adoption of the EISA

PURPA standards are necessary to accomplish this in Kentucky. Kentucky's existing Demand Side Management statute, KRS 278.285, provides the Commission with the necessary authority, if it chooses, to encourage utility energy efficiency investment.

Q. WHAT IS THE COMPANY'S OPINION ON THE POLICY CONSIDERATION OF INCLUDING THE IMPACT ON ADOPTION OF ENERGY EFFICIENCY AS ONE OF THE GOALS OF RETAIL RATE DESIGN?

A. While the Company believes energy efficiency should be encouraged, Duke Energy Kentucky supports the general concept that rates charged to core markets, including retail residential, commercial, industrial, and other customer classes, should approximate the cost of providing these customers with service. It is intrinsically fair that customers should pay rates that reflect the cost that the utility incurs to provide service. Encouraging energy efficiency, while important, must be in alignment with the cost of service for the benefit of both the customer and the utility.

Q. WHAT IS THE COMPANY'S OPINION ON THE POLICY CONSIDERATION OF ADOPTING RATE DESIGNS THAT ENCOURAGE ENERGY EFFICIENCY FOR EACH CUSTOMER CLASS?

A. As previously discussed, base rate designs must take into account a number of factors, including cost of service, and the utility's load data, peak, and customer characteristics. As such, the Company believes that rate design alternatives such

as inverted / inclining or declining block structures should be justified and supportable through competent studies. Utilities should not be forced to implement rate designs that are not supportable by such studies.

While rate design can certainly facilitate energy efficiency investment, it can be encouraged in ways other than through the utility's design of its base rates. For example, as discussed in the testimony of Duke Energy Kentucky Witness Mr. Stevie, Kentucky's current Demand Side Management statute allows the Public Service Commission to approve utility sponsored energy efficiency programs and provide an incentive for the utility to make energy efficiency investments. Duke Energy Kentucky firmly believes that under the existing Kentucky statute and with the proper incentive, utility sponsored energy efficiency initiatives and the resulting impacts will reach their full potential.

Q. WHEN ARE DECLINING BLOCK RATE STRUCTURES APPROPRIATE?

A. Declining block structures can be used to recover fixed costs of the utility in the early blocks to aid the utility in revenue stability, or to recover the customer component of costs not recovered in the customer charge.

Additionally, declining block structures are justified when improving load factor with increased usage warrants a reduction in the price to be paid because these customers impose less demand as a function of usage than lower load factor customers. In essence, a customer that has a greater proportion of energy usage to their demand usage should have a lower per unit cost, otherwise these higher load factor customers would contribute excessively to the fixed costs of the utility.

Q. WHEN IS AN INCLINING OR INVERTED BLOCK STRUCTURE APPROPRIATE?

A. In general, an inverted or inclining block structure implies that increased usage is inefficient and lower usage is efficient. Further, an inverted block will not encourage reductions during particular periods such as peak unless they are coupled with time of use rates. Inverted block structures may still serve various policy goals, such as "lifeline" rates and conservation. Inverted block structures have also commonly been associated with attempting to reflect marginal costs. However, without a time-differentiated rate (which would eliminate the need for an inverted structure in the first place) there is no way to determine whether the usage at any point during the monthly billing period is truly on the margin. Furthermore, without evidence of disproportionately increased on-peak usage as energy consumption rises, one can not conclude that an inverted structure is justifiable. Duke Energy's Kentucky's data does not suggest that any such disproportionate relationship exists.

B. EISA STANDARDS APPLICABLE TO NATURAL GAS UTILITIES

Q. WHAT ARE THE EISA ENERGY RATE DESIGN EFFICIENCY STANDARDS AND POLICY CONSIDERATIONS APPLICABLE TO NATURAL GAS UTILITES?

A. The EISA energy efficiency rate design standards applicable to natural gas utilities states that the rates allowed to be charged by a natural gas shall align utility incentives with the deployment of cost effective energy efficiency. The policy considerations for natural gas utilities are: 1) separating fixed-cost revenue

recovery from the volume of transportation or sales service provided to the customer; 2) providing to utilities incentives for the successful management of energy efficiency programs, such as allowing utilities to retain a portfolio of the cost reducing benefits accruing from the programs; 3) promoting the impact on adoption of energy efficiency as one of the goals of retail rate design, recognizing that energy efficiency must be balanced with other objectives; and 4) adopting rate designs that encourage energy efficiency for each customer class.

Q. WHAT IS THE COMPANY'S OPINION REGARDING THE ADOPTION OF THE EISA STANDARD THAT NATURAL GAS UTILIY RATES SHOULD ALIGN INCENTIVES WITH THE DEPLOYMENT OF ENERGY EFFICIENCY?

A. Duke Energy Kentucky agrees with the standard, but does not believe formal adoption is necessary as the Commission has adequate authority under existing ratemaking powers give proper balance to many factors including the alignment of incentives for energy efficiency in utility rate design. Utility rate design needs to be supported by competent studies and the decision as to which structure best suits the needs of the utility and its customers should be left to the expertise of the utility with appropriate commission oversight. There are other considerations that need to be taken into account other than energy efficiency in developing base rates The principles of utility rate design espoused by Bonbright,[1] are roughly encapsulated by the following criteria: effectiveness in producing the revenue requirement, stability and predictability for both the utility and consumers,

[1] James C. Bonbright, Principles of Public Utility Rates, (New York: Columbia University Press, 1969)

discourage wasteful use of energy, reflect present and future social costs, fairness, avoidance of undue discrimination, simplicity, and promote innovation. These criteria need to be carefully balanced. Encouraging energy efficiency can be accomplished through a number of different strategies other than a complete restructuring a utility's entire base rates, including through the implementation of discrete rider adjustment mechanisms.

If, however, natural gas rates are designed to encourage energy efficiency investment, then natural gas utilities do need an appropriate incentive to counteract the revenue erosion and cost recovery issues associated with declining sales.

Q. WHAT IS THE COMPANY'S OPINION REGARDING THE POLICY CONSIDERATION OF SEPARATING FIXED-COST REVENUE RECOVERY FROM THE VOLUME OF TRANSPORTATION OR SALES SERVICE PROVIDED TO THE CUSTOMER?

A. Duke Energy Kentucky is generally supportive of rate decoupling for natural gas utilities, providing of course, the methodology used is appropriate. Unfortunately, one of the draw backs of increasing energy efficiency is that a volumetric rate design does not allow natural gas utilities an adequate opportunity to recover its base revenues due to the steadily declining throughput per customer. The declining throughput occurs primarily because furnaces are increasingly more efficient, customers increasingly have better insulated homes and customers have responded to natural gas price increases. This creates a dilemma for utilities between advocating for further conservation measures or attaining an adequate

return by selling more gas. By severing the relationship between cost recovery and customer throughput, the utility can both recoup its legitimate costs and sponsor conservation. A decoupling mechanism would recover the appropriate level of costs from its customers by breaking the link between customer usage and cost recovery.

Q. HAVE ANY OF DUKE ENERGY KENTUCKY'S AFFILIATED UTILITY OPERATING COMPANIES IMPLEMENTED A DECOUPLING MECHANISM?

A. Yes. Duke Energy Kentucky's sister utility, Duke Energy Ohio, Inc., has recently implemented a form of decoupling known as a modified straight-fixed variable rate design ("SFV"). While the design in this case does not allow for the recovery of all fixed costs in a fixed fee, it does place a greater portion of the utility's fixed costs for providing natural gas in the fixed customer charge portion of the customer's bill. The benefits of this design are that it provides the utility with a greater opportunity to recovery fixed costs, thereby reducing the disincentive in promoting energy efficiency, while at the same time, levels customer bills. A smaller portion of the customer's bill will be impacted by market fluctuations in natural gas prices during peak winter periods. The larger customer charge provides greater revenue predictability for the utility, mitigates the erosion of recovery of fixed costs due to energy efficiency and will likely extend or lengthen the time between rate cases.

Q. WHAT IS THE COMPANY'S OPINION REGARDING THE POLICY CONSIDERATIONS OF PROMOTING THE IMPACT ON ADOPTION

OF ENERGY EFFICIENCY AS ONE OF THE GOALS OF RETAIL RATE DESIGN FOR NATURAL GAS UTILTIES AND ADOPTING RATE DESIGNS THAT ENCOURAGE ENERGY EFFICIENCY FOR EACH CUSTOMER CLASS?

A. As discussed above related to electric utility rate design, Duke Energy Kentucky believes the interest in promoting energy efficiency should not supersede other interests. If the costs imposed by a particular customer class support a particular rate design that lends itself to promoting energy efficiency, then those alternatives could be explored. In general, Duke Energy Kentucky believes that a properly designed rate should promote a reasonable balance of consumption and conservation.

Q. WHAT IS THE COMPANY'S OPINION REGARDING THE POLICY CONSIDERATION OF NATURAL GAS UTILTIES ADOPTING RATE DESIGNS THAT ENCOURAGE ENERGY EFFICIENCY FOR EACH CUSTOMER CLASS?

A. As previously discussed regarding the similar policy consideration for electric utilities, base rate designs must take into account a number of factors, including cost of service, and the utility's load data, peak, and customer characteristics. As such, the Company believes that rate design alternatives such as inverted / inclining or declining block structures should be justified and supportable through competent studies. Utilities should not be forced to implement rate designs that are not supportable by such competent studies.

III. DUKE ENERGY KENTUCKY'S CURRENT RATE DESIGN

Q. HOW DOES DUKE ENERGY KENTUCKY DESIGN ITS VARIOUS RATE SCHEDULES?

A. Duke Energy Kentucky periodically examines its rate structures and uses information derived from its cost of service studies as a major component for the rate design. The cost of service information provides the allocation of costs to the various rate classes and separation of the customer and demand components of cost. Additionally, the Company's load research data is reviewed to determine relationships between energy and demand that might prove pertinent to the design of the rates.

Q. WHAT ARE THE COMPANY'S MAJOR RETAIL ELECTRIC AND NATURAL GAS RATE SCHEDULES?

A. The Company's major retail electric rate schedules include: Rate RS - Residential Service; Rate DS – Service at Secondary Distribution Voltage; Rate DP – Service at Primary Distribution Voltage; Rate DT - Time of Day Rate for Service at Distribution Voltage; and Rate TT – Time of Day Rate for Service at Transmission Voltage . The Company's major retail natural gas rate schedules are Rate RS- Residential Service and Rate GS - General Service"), Rate FT-L - Firm Transportation Service, and Rate IT - Interruptible Transportation Service.

Q. HAS THE COMPANY PERFORMED ANY ANALYSIS ON INVERTED OR DECLINING BLOCK STRUCTURES?

A. Yes. In its last electric rate case, the Company performed a rate design analysis for its residential class and looked at the feasibility of a declining block structure. The analysis showed that improvements in load factor were not significant in

most usage ranges. We therefore concluded that a declining block structure was not appropriate. The Company also looked at the feasibility of an inverted block rate structure. Duke Energy Kentucky's load research data showed that higher use customers are as efficient, in terms of impacting on-peak periods and coincident peaks, as lower usage customers and that an inverted structure was not supportable.

We reviewed the characteristics of residential customers to examine the relationships between demand and energy use, both on a coincident and non-coincident basis, and how these load characteristics might impact operating costs during seasonal and time-of-use periods. We also used cost of service information to develop demand and energy costs in serving this class of customers.

Q. WHAT STRUCTURE DID THIS ANALYSIS SUPPORT?

A. Improvements in load factor have typically supported a declining block structure; however, the improvements in load factor were not significant. So, from a usage perspective, a declining block structure was not supportable. Although the residential load factor improved more significantly beyond 2,000 kWh, the number of customers that use an average of greater than 2,000 kWh per month is small: so a declining step somewhere beyond 2,000 kWh was also not warranted.

For further analysis, the Company also plotted individual customers' average monthly kWh usage versus their average coincident demand, which is the demand imposed by these customers during the calendar month at time of system peak. We found that, on average, as consumption increases load imposed at time of system peak also increased proportionately. The analysis supported the position that the overall structure of the residential electric rate should be a single (flat) kWh charge for all kWh consumed.

Q. DID THE COMPANY EXAMINE WHETHER OR NOT A SEPARATE SUMMER AND WINTER ENERGY RATE SHOULD BE ESTABLISHED FOR RESIDENTIAL CUSTOMERS?

A. Yes. We used a production cost simulation for all hours of the forecasted test period to determine if there was a significant cost difference between summer and winter periods. This also allowed examination of any differences in costs by strata for peak and off-peak periods. This was accomplished by establishing native load requirement and native load costs to determine a cost per kWh to serve customers during the forecasted test period. The analysis showed no significant justification – in terms of variable costs – to support a differential in price between the summer and winter periods. This is likely due to the large amount of base load capacity now providing service to the Company's load. This analysis confirmed that overall load shapes of customers within the various strata are similar and impose similar costs on the system.

Q. DOES DUKE ENERGY KENTUCKY HAVE ANY ELECTRIC TARIFFS IN PLACE THAT ENCOURAGE ENERGY EFFICIENCY AND ARE

CONSISTENT WITH THE EISA PURPA AMENDMENTS?

A. Yes. Duke Energy Kentucky's electric Real Time Pricing Rate ("Rate RTP") is a voluntary tariff offering non-residential customers the opportunity to manage their electric costs by either shifting load from higher cost to lower cost pricing periods and adding new load during lower cost pricing periods or to learn about market pricing. Rate RTP has been offered on an experimental basis since January 1999. The program is available to non-residential customers served under Rates DS, DP, DT, and TT. Binding Price Quotes are sent to each participating customer on a day-ahead basis. The program is intended to be bill neutral to each customer with respect to their historical usage through the use of a Customer Baseline Load ("CBL") and the Company's Standard Offer Rates. The Company has seven customers currently taking advantage of this tariff offering.

Duke Energy Kentucky also offers four load management tariffs, Peak Load Management Program Rider ("Rider PLM"), the Load Management Rider ('Rider LM') for non-residential customers served under Rates DS, DP, DT, and Rate TT. These riders offer the customer the ability to control their energy costs and consumption levels based upon various pricing signals. Under Rider PLM, customers have the option to reduce their demand, reduce energy usage below a baseline or to sell excess customer owned generation. In return for managing their load at the utility's peak, participating customers receive a bill credit. Under Rider LM, the Company's standard tariff is essentially converted to a time of use rate. Rates DT and TT are mandatory time of use rates applicable to customers with demands of 500 kW or greater or who are served at transmission level voltages. In

all cases, customers who can manage load or modify usage in accordance with the terms of the riders or rate can produce bill savings. As explained by Duke Energy Kentucky Witness Stevie, the Company currently has a Demand Side Management Rider mechanism that recovers program costs, lost margins and a small shared savings incentive for utility sponsored energy efficiency initiatives. Although the portfolio of energy efficiency programs consists of mostly electric initiatives, there are some that have natural gas impacts as well. The Company has recently filed a new energy efficiency proposal in Kentucky that is designed to increase the Company's energy efficiency strategy while taking risk away from customers. This proposal is known as Save-A-Watt. Duke Energy Kentucky's sister utilities have proposed similar initiatives in Indiana, Ohio, and North and South Carolina.

Q. DOES DUKE ENERGY KENTUCKY CURRENTLY HAVE ANY NATURAL GAS TARIFFS THAT ARE CONSISTENT WITH THE GOALS OF THE EISA 2007 ENERGY EFFICIENCY RATE DESIGN STANDARDS FOR NATURAL GAS UTILTIES?

A. Duke Energy Kentucky's gas rates reflect the cost to serve its various classes, as well as customers within those classes, and reasonably encourage conservation. However, each design is volumetric in nature. While the Company is generally supportive of decoupling, specific methods of decoupling or rate design should not be mandated.

IV. CONCLUSION

Q. IF THE EISA STANDARDS FOR GAS AND ELECTRIC UTILITIES WERE ADOPTED BY THE COMMISSION, WHAT WOULD BE THE LIKELY IMPACT ON CUSTOMERS IN TERMS OF CONSUMPTION PATTERNS AND COST?

A. The impacts would all be highly dependent upon the final form of any design changes or programs that might be employed to accommodate the standards. It is safe to say, however, that impacts to customers can be significant, and careful review is needed to ensure that such impacts are reasonable and necessary to accomplish the objectives of the standard.

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

A. Yes.

VERIFICATION

State of Indiana)
) SS:
County of Hendricks)

The undersigned, Jeffrey R. Bailey, being duly sworn, deposes and says that 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.

Jeffrey R. Bailey, Affiant

Subscribed and sworn to before me by Jeffrey R. Bailey on this 9th day of DEC 2008.

NOTARY PUBLIC LANA J. HORNER

My Commission Expires: 4/19/2015

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of Consideration of the New Federal Standards of the Energy Independence and Security Act of 2007	))))	Case No. 2008-408

DIRECT TESTIMONY OF

TODD W. ARNOLD

ON BEHALF OF

DUKE ENERGY KENTUCKY, INC.

January 12, 2009

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?

A. My name is Todd W. Arnold. 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 the Duke Energy Corporation (Duke Energy) affiliated companies as Senior Vice President, SmartGrid and Customer Systems.

Q. PLEASE BRIEFLY DESCRIBE YOUR JOB DUTIES AS VICE PRESIDENT, SMART GRID AND CUSTOMER SYSTEMS.

A. As Vice President, Smart Grid and Customer Systems, I am responsible for the SmartGrid strategy, deployment planning and implementation, as well as the customer and meter data management systems.

Q. PLEASE BRIEFLY DESCRIBE YOUR PROFESSIONAL AND EDUCATIONAL BACKGROUND.

A. I received a Bachelor's Degree in Marketing from Indiana State University in 1977 and a Master's Degree in Business Administration from the University of Indianapolis in 1986. I began my career with Public Service Indiana (PSI) in 1977 in field sales and marketing. I have served in many customer operations, distribution operations and corporate office capacities. I have my "Strategic Leader" professional certification from the Call Center Industry Advisory Council (CIAC). CIAC is a not for profit corporation established by the call center industry to provide standardized competency-based professional certification for call center leaders. I am currently a member of the Board of Directors of People Working Cooperatively.

Q. PLEASE SUMMARIZE YOUR WORK EXPERIENCE.

A. I have over 32 years of utility experience including field operations, customer service, strategic planning, system implementation, process reengineering and merger integration. Prior to my current position, I was Senior Vice President, Customer Service for Duke Energy, responsible for call center operations, billing, credit and collections and meter data management for Duke Energy's affiliated operating companies.

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

A. The purpose of my testimony is to discuss what a SmartGrid is, how the federal government and other states define a SmartGrid, the functionality of a SmartGrid, reliability improvements, grid security, system performance, and improvements for customers in Kentucky as a result of SmartGrid deployment.

II. OVERVIEW OF DE-OHIO'S SMARTGRID INITIATIVE

Q. WHAT IS SMARTGRID?

A. SmartGrid is the new name for the Duke Energy's Utility of the Future project to transform its gas and electric transmission and distribution system into an integrated, digital network – much like a computer network – to produce operating efficiencies, enhanced customer and utility information and communications, innovative services, and other benefits. One fundamental component of the SmartGrid project is Advanced Metering Infrastructure (AMI). AMI is a metering and communication system that records customer usage data over frequent intervals, and transmits the data over an advanced communication

network to a centralized data management system. The usage data is made available to the utility and customers on a frequent and timely basis. The SmartGrid project uses the communication network to carry data from AMI and other intelligent devices on the distribution grid, creating a networked system and utilizing the AMI to its greatest extent.

SmartGrid, however, is not limited to AMI metering. The possibilities with SmartGrid technologies are infinite as it is continuously evolving much like the internet has evolved over time. SmartGrid is much more than simply the functions it is capable of performing. It is an open architecture integration of the electric distribution system which will provide capabilities and/or a platform for emerging technologies.

III. DE-KENTUCKY'S VIEW OF A "SMART GRID"

Q. HOW DOES DE-KENTUCKY VIEW THE DIFFERENCES BETWEEN A "SMART GRID", "ADVANCED METERING INFRASTRUCTURE" AND "AUTOMATIC METER READING"?

A. From DE-Kentucky's perspective, these three categories are on the same general spectrum of service and functionality with automatic meter reading (AMR) being the most basic, a smart grid being the most complex and functional, and advanced metering infrastructure ("AMI") somewhere in between. AMR generally includes remote access to the meter, monthly kWh reads, interval data, and basic theft, outage and restoration detection. AMI typically allows for on demand meter reads, programmable load intervals, bi-directional and net metering, time-of-use and real time pricing options, and demand response capabilities. DE-Ohio's

vision of a "smart grid" provides not only the metering options of AMR and AMI, but also enhanced options such as web-based applications for our operating personnel, remote and continuous collection of power quality data, remote programmability, and energy management services, along with distribution system automation components.

IV. DE-KENTUCKY'S INVESTIGATION OF SMARTGRID TECHNOLOGIES

Q. PLEASE DESCRIBE DE-KENTUKCY'S EFFORTS IN DECIDING TO INVEST IN SMARTGRID TECHNOLOGY.

A. Duke Energy began investigating the development of a data management system in 2004. Initially, the purpose was to gather and correlate data on generation characteristics, outages, transmission loading, distribution system constraints and meters, and then use that data to better optimize Duke Energy's system and employee work loads. The investigation led to the determination that Duke Energy was not gathering the data frequently enough or in sufficient quantities to perform system and employee optimization analyses. Near that same time, DE-Ohio was also considering the possibility of an AMR project using a power line system in its Midwest region.

In 2006, Duke Energy initiated an internal working group consisting of every operational area of DE-Kentucky (except for generation) tasked with putting together "use cases" designed to describe what technology DE-Ohio needed to accomplish this initiative and how DE-Ohio wanted to provide service and use products in the future. Approximately 18-20 "use cases" were developed in conjunction with a consultant, KEMA, Inc., hired to assist DE-Kentucky with

this endeavor. KEMA's staff analyzed and shaped the "use cases" using information from peer companies, and helped to determine what technology would be needed in order to accomplish the goals of each use case.

Once DE-Kentucky determined the actual technologies needed to bring its vision for the future (as set forth in its "use cases"), vendors of metering, behind-the-meter and communication products were surveyed to assess their product offerings and to compare to DE-Kentucky's functional requirements. In July of 2007, Duke Energy hosted a full-day meeting with the vendors at which DE-Kentucky set forth its vision and then asked the vendors to submit proposals. It quickly became apparent that what DE-Kentucky wanted to accomplish with its SmartGrid initiative was unique enough that none of the vendors' proposals met the needs of DE-Kentucky. For instance, Duke Energy's vision was to have interoperable metering endpoints which would work with any communication system, and what was offered were metering endpoints that only connected to proprietary communication systems. Therefore, we selected a few firms that were closest to meeting our needs and have been working with them to move toward full compliance with our requirements and vision. Due to the nature of technology development in the smart grid area, Duke Energy did not pursue a traditional specification document from which vendors could bid, but instead opted to select vendors that were most willing to work with us to best achieve our goals. Duke Energy is continuing to work with several vendors to best implement its vision of DE-Kentucky'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." The process of developing technology and vendors will be an ongoing process; however, we have narrowed our initial vendor list to Echelon for metering, Verizon for backhaul communications and Ambient to assemble the communication nodes required to interface with the endpoints and the Verizon network.

Q. DID DUKE ENERGY DETERMINE THAT CERTAIN TECHNOLOGIES WERE NOT APPROPRIATE AFTER EXAMINATION?

A. Yes. Duke Energy considered and discarded several technologies before deciding on its current proposal. For example, Duke Energy examined broadband over the power lines (BPL), but has found the equipment susceptible to disturbances on the power line. We continue to evaluate BPL technology and are working with vendors to stabilize the technology.

Another technology reviewed by Duke Energy is a "Radio Mesh network." Mesh networks originated in the military and uses radios that can speak both to one another and to a "mother" radio. In the utility setting, there would be a radio at each endpoint (meter) that would be able to communicate with each other and with the "mother" radio. The systems designed for the military were mainly utilized in the mobile environment and proved to be very reliable because as the devices moved, they always had multiple paths for communication back to "mother." However, Duke Energy believes that the challenges with the Mesh network operating in a non-mobile environment, primarily in unlicensed spectrum over a very large footprint are significant. First, the radios cannot transmit data across large distances, which would be a challenge given DE-Ohio's

expansive rural service territory areas. Second, the radios operate in an unlicensed spectrum, which means that cordless phones, baby monitors, remote controls, etc. all occupy that same space and often interfere with each others' signals. Since the spectrum is unlicensed, interference mitigation can be costly and unpredictable. Duke Energy is still evaluating the option of utilizing some of the Mesh technologies as a fill in where cellular providers do not have service and expansion of the networks is not likely.

Q. HAS DUKE ENERGY CONSULTED WITH INDUSTRY GROUPS ON ITS SMARTGRID VISION?

A. Yes. Duke Energy has consulted and collaborated on its SmartGrid initiative with the Electric Power Research Institute (EPRI), the research and development arm of the electric utility industry. Duke Energy is working on approximately twelve (12) projects under EPRI's "Intelligrid" umbrella.

Duke Energy has also been working with the Gridwise Architectural Council and Gridwise Alliance, which were formed by the Pacific Northwest National Lab and the U.S. Department of Energy to focus on researching the future of the smart grid. The focus of the Gridwise Architectural Council is on standards, i.e. how communication systems work together and the benefits of meters using the same "language." The Gridwise Alliance is involved in developing policies and standards at the state and federal levels. Duke Energy personnel are also involved in many other organizations that may have "smart grids" as a subset of their main focus, and participate in the internal development of Duke Energy's SmartGrid.

Representatives from Duke Energy have been involved with several conferences and seminars relating to smart grid investments. Utilimetrics (formerly AMR Associates) and Distributech hold annual conferences and trade shows in which Duke Energy participates in order to keep up-to-date on new developments in technology.

Q. HAS DUKE ENERGY PARTICIPATED IN ANY GOVERNMENTAL INITIATIVES RELATING TO SMART GRIDS?

A. Yes. Duke Energy has monitored the Department of Energy's (DOE) Modern Grid Initiative and frequently participates in venues to help shape the definition, direction and policy setting of this group. Duke Energy personnel also contribute, through trade associations, material to be considered in defining the smart grid, as well as setting national policy through the DOE. Duke Energy has also applied for funding for a few smart grid-related projects from DOE, but has not been selected to date.

V. CUSTOMER SERVICE BENEFITS OF SMARTGRID

Q. WHAT TYPES OF CUSTOMER SERVICE OFFERINGS WILL BE ENABLED BY THE SMARTGRID INITIATIVE?

A. Through the SmartGrid initiative, infrastructure will be installed that will enable DE-Ohio to provide a variety of new service offerings. The service offerings resulting from the SmartGrid initiative cross a broad spectrum.

Q. HOW WILL SMART GRID IMPROVE CUSTOMERS' BILLING?

A. Customers will receive more accurate bills due to the increased accuracy of the meter readings. In addition, DE-Kentucky will know sooner when meters are not working or functioning properly; thereby, allowing DE-Kentucky to fix any faulty meters and minimize the impact on a customer's bill. Also, tamper and theft situations will be detected sooner, because error messages are sent when a meter is pulled from its base and/or plugged back in. High bill inquiries will be resolved faster and customers will feel more confident about the information, because of the ability to review data on a daily basis. In addition, there are currently situations when we are unable to access the meters. With over a third, or over 400,000, of DE-Ohio's gas and electric meters inside, it is difficult to get monthly reads to provide an accurate bill. In these situations, DE-Ohio sends an estimated bill. In 2007, DE-Ohio estimated over 1.1 million bills. Customers often question the validity of an estimated bill. Also, when a bill is estimated too low, customers are not happy when they have to pay a higher bill to make up for an underestimated bill from the prior month/months. With this new technology,

estimated bills will be significantly reduced, enabling us to provide a more positive customer experience.

Q. HOW WILL DAILY USAGE INFORMATION IMPROVE THE CUSTOMERS' EXPERIENCE?

A. It is standard for electric and gas utilities to bill the customer based on a monthly meter read that takes a recent reading and subtracts the prior month's historical read. These historical monthly billings result in the customer receiving a bill for which the utility and the customer have very little understanding of what usage caused that bill. This is equivalent to you receiving your monthly VISA or MasterCard bill and only being able to see the total. How could you understand your monthly credit card bill if you could only see the total and not each individual charge? SmartGrid provides the start to removing the mystery from the monthly utility bill.

This will begin with us being able to provide customers their daily usage. When a customer calls our customer service representatives with a question on their bill, the customer service representative will also have the daily usage information available to facilitate answering questions customers have about their bill.

We are making available to our DE-Kentucky customers this summer a product called Energy Analyzer. It combines the customer's individual usage history with external weather data to provide information on how weather has impacted their usage. If the customer completes a short survey regarding their home's structure and their energy habits, it will then provide analysis that yields

information on how they have impacted their usage and what they can do to save energy. It would be our intent to eventually upgrade this tool to use the daily information to provide an even better energy analysis.

We believe SmartGrid will be the foundation for technology that is being developed that will enable customers to have more granular information at the device or appliance level.

Q. WHAT OTHER TYPES OF CUSTOMER SERVICE BILLING OFFERINGS COULD BE ENABLED?

A. The Company would also be enabled to offer customers prepaid metering, and other flexible billing options. Customers expect a variety of options and there are features of prepaid metering that are attractive to some customers. Prepaid metering would eliminate the need for a security deposit, there would be no need to run a credit check, and customers would not have to worry about late fees. SmartGrid provides the foundation to evaluate shorter term billing periods for our customers such as weekly or bi-weekly billing tied to direct debit from their banking account.

Q. ARE THERE ANTICIPATED BENEFITS FOR DE-KENTUCKY'S LOWER-INCOME CUSTOMERS?

A. Yes, SmartGrid technology can provide our lower-income customers with more options to help them manage their electric bill. The SmartGrid technology will also benefit our lower-income customers through enabling prepaid metering. By selecting prepaid metering, customers can eliminate having to pay a security deposit, they can better manage their budget by being able to "pay as they go,"

and this option also eliminates late fees. Also, for customers who select the prepaid option, we foresee fewer customers being disconnected for non-payment. This is because these customers will have a set amount on their prepaid card versus receiving a bill after service is already received and being surprised by a higher than expected amount.

The special assistance agencies can also expedite service to our lower-income customers by having prepaid cards to give directly to customers. Instead of having to prepare vouchers and then notifying DE-Ohio that they are helping a customer, the agency can provide a prepaid card directly to the customer who can receive the credit to their account by calling Duke Energy Kentucky's Interactive Voice Response (IVR) or by visiting a pay agent.

Since the SmartGrid technology will enable DE-Kentucky to communicate with its customers in new ways, it will be able to notify lower-income customers via text messages, cell phones, emails, or outbound IVR messages of pertinent information. An example of a message DE-Kentucky could send to its lower-income customers is a notification of the availability of programs, services or financial assistance. When the social service agencies have assistance available, DE-Kentucky could send a message through the customer's preferred communication channel to let them know funds are available and how to go about obtaining them. We also can send alerts regarding daily usage.

Another benefit SmartGrid technology will provide to our lower-income customers is that DE-Kentucky can design a service option to allow customers to identify a dollar threshold that they want to manage to each month. The

technology would allow us to monitor customers' electric usage and notify them at specified times throughout the month if their electric usage and dollar amount used fall within their threshold amount or it is estimated to be higher or lower based on where they are at that time. By being more aware of their electric usage throughout the month, customers can adjust their usage to better manage their bills to the amount they would like to spend that month.

DE-Kentucky also sees the technology enabling remote disconnects and reconnects as helping its lower-income customers. Because service orders will be worked more timely, customers will not be able to get as far behind. As accounts become eligible for disconnection due to non-payment, DE-Kentucky would utilize customers' preferred communications channels to make them aware and provide options for retaining service.

Q. PLEASE DESCRIBE HOW SMARTGRID IMPROVES THE STARTING AND STOPPING OF THE CUSTOMERS'S SERVICE?

A. We will no longer require a field trip or an appointment for those customers with inside meters to be home, when a customer requests a read to discontinue service in their name and begin service in another customer's name. In 2007, we completed over 200,000 succession reads, for gas and electric service. With a third of our meters inside the premise, you can assume close to 70,000 of these required appointments for the customers to be on premise. With SmartGrid, we can work the transfer of service on any day of the year since we can obtain the read remotely.

Another example is remote electric disconnects and reconnects, which provide more flexibility for our customers and DE-Kentucky. By having the remote disconnect and reconnect capability, customers with an inside electric meter will not have to be on the premise, in order for us to turn their electric service on or off. In 2007, we completed 100,000 reconnects and 110,000 disconnects. With over a third of our meters inside it is safe to assume that we set an appointment that required the customer to be on premise during at least a four-hour appointment window of time on over a quarter of these orders. Customers who have both electric and gas service will continue to require a field trip to connect or disconnect the gas service. However, we can go ahead and perform the electric service reconnect or disconnect at a more immediate time of their convenience and continue our practice of setting an appointment for the gas service.

Q. WHY ARE REMOTE RECONNECTS AND DISCONNECTS A BENEFIT TO CUSTOMERS?

A. The ability to remotely reconnect and disconnect electric service should provide a more positive customer experience because customers with inside meters would not have to be on premise for us to complete service requests. As stated earlier, the remote disconnect and reconnect functionality enables us to complete the customer's service request to match their schedule.

Q. WOULD THE ABILITY TO REMOTELY DISCONNECT AND RECONNECT CUSTOMERS ALSO BENEFIT DE-KENTUCKY ?

A. Yes. We expect this to ultimately reduce our costs related to meter reading, customer service calls and call center operations. The remote disconnect and

reconnect capability will eliminate the need to make a trip to the customer's premise, thus reducing costs for field visits and employees for this work. It will also empower our call center representatives by allowing them to respond to customers' service requests quickly because they will have access to the latest reads. Today, when a customer calls and we want to validate the billing read we must send a meter reader to obtain a special read to validate the read. Once this technology is fully deployed, we will no longer need to send a meter reader to the customer's premise, also saving costs. Another benefit to DE-Ohio is the ability to disconnect service in a timely manner for those customers who do not pay their bill. This will help reduce our receivables and charge-offs for unpaid service. While our goal is to provide service to our customers, there are situations where we are forced to disconnect service for non-payment. And when customers are able to pay enough to be reconnected, we can reconnect their electric service very quickly.

No longer needing to have personnel access the premise to obtain a read or access the premise to disconnect and reconnect an electric meter will reduce personnel injuries as inside the premise meters tend to have a higher incidence of accidents.

Q. WHAT TYPES OF CUSTOMER COMMUNICATIONS WILL BE ENABLED BY THE INTELLIGENT METERS?

A. Customers will have options to receive communications from us through their preferred method such as displayed on their account web page, text messages on

their cell phone, e-mail, automated outbound phone messages, or in-home digital display devices.

An example is proactive outage communication. The SmartGrid technology includes smart or intelligent meters and new communication capabilities. As mentioned earlier, with smart meters, the Company may know that a customer's power is out before the customer. Instead of relying on customers to call the Company when their power is out (which is how our current outage system works), we will already know, because the system will monitor and send error messages when it detects no power. Not only will this allow us to notify customers when power is out, but it will also allow us to determine the cause of outages sooner, enabling us to restore service faster than we do today.

DE-Kentucky will have the ability to provide customers daily usage information. Additionally, DE-Kentucky could forecast an individual customer's monthly usage based on mid-month data, weather, and applicable rates and provide the customer with information that will help them better manage to their budget. By leveraging this information the customer will no longer be surprised about how much energy they used when they receive their bill. They will be able to proactively monitor their usage and make the decision to manage their usage throughout the month.

Q. HOW WOULD IT BENEFIT A SMALL BUSINESS CUSTOMER TO RECEIVE A TEXT MESSAGE THAT THE POWER AT ITS BUSINESS LOCATION WAS CURRENTLY OUT?

A. A number of small businesses are not staffed twenty-four hours per day, seven days a week. In these situations, the notification to the appropriate person that the power is out could help with scheduling the workforce the following day, identifying to the owner that electronic processing may not be occurring, that refrigeration is out, or anything related to their specific business that requires electricity. This proactive notification will allow them time to activate back-up plans and better manage their situation. In addition, a text message that the power has been restored would prevent the owner from having to check in at their business or from having to call the Company.

Q. HOW WILL DE-KENTUCKY BENEFIT FROM THE NEW TECHNOLOGY INSTALLED IN THE SMARTGRID INITIATIVE?

A. Service requests will be worked as requested through the remote disconnect and reconnect process, eliminating callbacks from customers checking on the status of their service request. The significant reduction in estimated meter readings will reduce billing calls and the number of re-billings our customer service representatives must complete. We expect this to ultimately reduce our costs related to meter reading, customer service calls and call center operations.

Q. WILL DE-KENTUCKY MAINTAIN THE PRIVACY OF ITS CUSTOMERS, EVEN WITH ACCESS TO ADDITIONAL DATA THROUGH SMARTGRID TECHNOLOGY?

A. Yes. Even with the enhanced capability to collect customer-related data, DE-Ohio remains committed to the privacy of its customers, and its customer privacy policies will continue in force. All employees or Vendors that have access to Duke Energy's personal information must comply with the consumer protection provisions of R.C. Chapter 1349, Duke Energy's Personal Identifiable Information (PII) Privacy policies and all other applicable data privacy and data security laws, regulations and Duke Energy policies and procedures.

VI. INTELLIGENT METERS

Q. HOW DOES DE-OHIO CURRENTLY OBTAIN ELECTRIC METER READINGS?

A. DE-Kentucky currently obtains electric meter readings through monthly meter readings by meter readers; and meter readings submitted by customers by phone or through DE-Kentucky's website. Most meter readings are monthly meter readings obtained by meter readers. DE-Kentucky uses over 190 meter readers who walk routes once per month to read the meters. The meter readers either automatically record, or manually key in, the usage data into a handheld electronic storage device. The stored usage data is transmitted to DE-Kentucky's billing system daily. One of the main challenges for DE-Ketnucky's meter reading operations is obtaining access to inside meters located primarily in urban areas of DE-Kentucky's service territory. With over a third, or over 400,000, of

DE-Kentucky's gas and electric meters inside, it is difficult to get monthly reads to provide an accurate bill. DE-Kentucky maintains a "key room" containing over 60,000 keys to customers' homes, where the customers voluntarily provided DE-Kentucky with a keys to enter the customers' homes to perform the monthly meter readings in case the customer is not at home when the meter reader arrives. Most customers, however, refuse to give DE-Kentucky a key to enter their home or business. In such cases, if the meter reader cannot enter the home or business to read the meter, DE-Kentucky allows the customer to record the meter reading on a postcard left at the premises; to enter the meter reading online; or to call the meter reading into the Company's Call Center. Approximately 8% of Kentucky bills (residential and non-residential are estimated each month due to our inability to enter the customers' premises to read the meter. In 2007, DE-Kentucky estimated over 1.1 million bills. This results in a significant number of Call Center calls, customer complaints and costly off-cycle meter readings.

Q. PLEASE BRIEFLY DESCRIBE THE INTELLIGENT METERS DE-OHIO IS PROPOSING TO INSTALL.

A. DE-Kentucky is proposing to install intelligent meters with two-way communications. These intelligent meters will allow DE-Kentucky to read meters remotely, remotely connect and disconnect electric service, verify power outage/restoration, and engage in increased theft protection measures. DE-Kentucky will also eventually be able to send control information back through the communication system, using meter data as a basis to cycle the air conditioners and schedule use of power-heavy appliances depending on market

signals and customer preferences. These meters use the power lines for a communication medium from the meter to the transformer. At the transformer the meter data is then delivered using a public wireless carrier, currently we anticipate using Verizon.

Q. WHAT KIND OF DATA WILL THESE NEW METERS BE ABLE TO SEND TO DE-OHIO?

A. The new meters will be able to collect data regarding usage, ranging in frequency from every five minutes to daily reads for both energy and demand readings. The meters will also be able to collect and store other metrics (such as voltage, kilo-watt hour (kWh), energy data), providing us with more data points. The meters will also be capable of net-metering.

Q. WHY IS DE-OHIO INTERESTED IN COLLECTING THIS DATA?

A. DE-Kentucky would be better prepared to update its load forecast with access to this data. DE-Kentucky would also be able to look back at the load profile for a home on an hourly basis for several days for trouble-shooting purposes. This information could be provided to customers concerned about their levels of usage. Information from the "end points" of the system will also be combined with data from other distribution assets to better plan for growth, asset management, restoration services, etc. Generation capacity planning will also be enhanced by gathering more granular consumption data over weeks and months.

Q. WHAT OTHER OPTIONS WILL THESE NEW METERS ENABLE FOR DE-KENTUCKY?

A. The data collected and transmitted through the intelligent meters will provide new operational efficiencies. Restoration of service after an outage will be more rapid. DE-Kentucky will be able to trouble-shoot network problems using the network versus visual inspection. This will also reduce crew time in the field.

The intelligent meters would also enable DE-Kentucky to limit its amount of load in an emergency. The meters will enable DE-Kentucky to increase its energy efficiency offerings, provide for larger-scale distributed generation and maximize load control potential.

DE-Kentucky would also be able to enhance customer service. DE-Kentucky would be able to obtain special reads for customers calling in with questions about their meters, usage or billing. Customer-sited generation can be net metered on a larger-scale.

Q. HAS DE-KENTUCKY MADE A FINAL DETERMINATION REGARDING THE VENDOR AND METER TYPE IT WILL USE IN THIS PROJECT?

A. DE-Kentucky is currently evaluating three different scenarios, each representing a variation in the vendor of the meter and the provider of the communications system. Under evaluation are:

- Echelon meters and Verizon communications
- Echelon meters and Silver Spring Network communications
- GE meters and Silver Spring Network communications

There are different costs and benefits associated with each combination, which can vary in effectiveness based on the density of housing and type of terrain. It is also possible that DE-Kentucky will choose to optimize the meter selection by choosing a small mix of

vendors for its meters based on the results of a circuit-by-circuit analysis of the DE-Kentucky system.

Q. WILL CUSTOMERS SEE A CHANGE IN THEIR SERVICE UPON INSTALLATION OF THESE METERS?

A. Yes. The most immediate change will be the elimination of having to obtain a manual meter reading. Having remote access to the usage data will reduce the need for customer appointments, result in more accurate billing and the ability for our customer service representatives to have better data to respond to customer billing inquiries. Over a period of time we would begin to offer the other enhanced customer service benefits mentioned herein such as improved outage communication and remote connect and disconnect.

VII. COLLECTION DEVICES

Q. WHAT IS A *COLLECTION DEVICE*?

A. A collection device is like a computer and is responsible for the actual collection of data from each meter and the relaying of that data to DE-Kentucky. At each collection box, there is a data collector, a modem and a processor. The processor manages the modem, so that it can be used for multiple devices. For instance, a single modem can be used to relay meter data, data from sensors on the system, as well as information from the customer's premise.

Q. WHERE WILL THE COLLECTION DEVICE BE LOCATED?

A. DE-Ohio will need to install approximately one (1) collection box for every four (4) to six (6) homes, depending on housing density. They will be located at the transformer. DE-Ohio is in discussions with its vendors about the possibility of

creating a meter/collector as one device. This would eliminate the need for collection equipment at the transformer in some circumstances, and would allow DE-Ohio to design a more robust, cost-effective network.

Q. PLEASE DESCRIBE THE FUNCTIONALITY OF THE COLLECTION BOX.

A. The collection box houses the meter data collector, a modem and a processor, along with the required power sources. The meter data collector communicates with each meter, collecting and sending information to the meter. The modem is the device connecting the collector to the DE-Kentucky back office system. The processor is used to manage the modem, allowing the modem to be used for more than one purpose. For example, the electric meter data, information from the transformer, information from other utility meters (gas and water), as well as communications with customer-owned equipment (e.g. air conditioners) beyond the meter, can all be managed back to DE-Kentucky's home office using the same modem. The processor also has a number of open slots, like a USB port on a computer, which can be connected to various communication methodologies to reach beyond the meter, all managed from within the collector box.

Q. IS DE-KENTUCKY ALSO CONSIDERING INSTALLING EQUIPMENT AT EACH TRANSFORMER THAT WOULD COLLECT DATA FROM THE TRANSFORMER AND SEND IT TO DE-KENTUCKY?

A. Yes. DE-Kentucky is pursuing the feasibility of installing collection equipment at each transformer that would enable DE-Kentucky to communicate with the transformers and would also send data from the transformer back to DE-Kentucky

regarding the health of the transformer. This capability would be combined within the collector box.

VIII. COMMUNICATIONS EQUIPMENT

Q. WHAT KIND OF COMMUNICATIONS EQUIPMENT IS REQUIRED FOR THE RELAY OF INFORMATION BETWEEN THE METER AND DE-KENTUCKY?

A. DE-Kentucky plans to utilize existing wireless communications systems for the communication of load data to DE-Kentucky.

Q. WHY IS DE-KENTUCKY WORKING WITH AN EXISTING WIRELESS PROVIDER INSTEAD OF INSTALLING ITS OWN SYSTEM?

A. The main benefit of working with an existing wireless telecommunications company is tapping into that company's expertise in the area and their existing infrastructure. The wireless company will do the research and development of the communications network and perform necessary upgrades. As a result, DE-Kentucky will always have access to the latest technology.

In addition, telecommunications is not our traditional business. However, it is possible that we may still have to meet this challenge when faced with deploying intelligent meters in areas without available wireless service. DE-Kentucky will need to determine whether traditional "wireline" service or broadband over the power lines would be feasible options to meet the needs of customers without available wireless service.

Q. WOULD THERE BE A DIFFERENT TYPE OF COMMUNICATIONS NETWORK BETWEEN THE METER AND THE COLLECTION DEVICE?

A. Yes. Each meter has a proprietary communications system from the meter to the collection device. However, from the collection device to DE-Kentucky, DE-Kentucky can use any wireless service provider available.

XI. INFORMATION TECHNOLOGY

Q. WILL DE-KENTUCKY NEED TO UPDATE ITS COMPUTER SOFTWARE TO HANDLE THE NEW DATA FLOWING FROM THE INTELLIGENT METERS?

A. Yes. DE-Kentucky is still assessing its needs in this area, but it is clear that DE-Kentucky will be receiving more data than ever before and must be able to efficiently process and utilize it. DE-Ohio will need updated computer applications that will, at a minimum, coordinate meter reading, outage management, customer interface, power delivery, generation, and billing.

Q. ARE THERE OTHER NEW SOFTWARE CAPABILITIES THAT DE-OHIO WILL NEED TO INSTALL?

A. DE-Kentucky will also need meter management software that will be able to monitor the health of the new meters and new software for distribution automation.

X. DEPLOYMENT SCHEDULE

Q. PLEASE DESCRIBE THE CONTEMPLATED STEPS IN THE DEPLOYMENT OF THE INTELLIGENT METERS.

A. There will likely be two (2) steps in the meter deployment as proposed by DE-Kentucky. The first step would be an assessment of the system and its assets to specify general deployment areas. We will start mostly in the center city and work our way out. This would include a circuit-by-circuit assessment aimed at determining the most appropriate meter/communications combination for each household and business location in the deployment area. Also occurring in this step would be DE-Kentucky entering into contracts with vendors, and hiring contractors for the meter and equipment installations.

The second step would begin upon completion of the first step. DE-Kentucky would begin to deploy the new meters to each customer by utilizing the routes already used for meter reading and billing purposes. DE-Kentucky intends to deploy approximately 80% of the meters and equipment within the first three (3) years of the initiative (2009-2011). The meter installers will likely follow the meter readers on their routes and switch out the meters along each route within a certain window (approximately two (2) weeks). The installers would also be responsible for obtaining the final reads from the old meters at the time of switch out. Customers would not see a disruption of service other than a short outage during the meter switch.

The collection box deployment would roughly track meter deployment. Customers with overhead service would experience no disruptions in service from

the collection box installation. We are currently evaluating installations on underground transformers and whether that might require a service interruption for installation. DE-Kentucky will require more highly-trained workers for the collector box installation than will be needed for the meter installation.

XI. ONGOING METERING PILOTS IN OTHER STATES

Q. ARE ANY OF DE-KENTUCKY'S AFFILIATED UTILTIY OPERATING COMPANIES DEPLOYING ADVANCED METERING INFRASTRUCTURE PILOT PROGRAMS IN THEIR STATES?

A. Yes. Duke Energy is currently installing meters in both North Carolina and South Carolina. 5,000 meters were installed in North Carolina as of July 2008 and another 2,500 have been installed in South Carolina. Duke Energy is also proposing a deployment in Indiana.

Q. DO YOU THINK THAT THE PILOT PROGRAMS WILL GIVE DE-KENTUCKY NEEDED EXPERIENCE WITH INTELLIGENT METERS?

A. Yes. DE-Kentucky believes that its affiliates' experience with their smart metering pilots will be highly educational and will result in the sharing of knowledge between the companies. For example, we have learned about installation techniques and the challenges of using the power line as a communication tool. Based on what we have learned, we have taken the appropriate steps to prepare the equipment prior to placing it in the field. We have also performed analysis on modems that revealed a shortcoming in our initial selection, allowing us to move to a modem with different capabilities.

Obtaining such knowledge and experience from our pilot programs will help make DE-Kentucky's deployment more robust and successful.

XII. DEMONSTRATION LABS

Q. PLEASE DESCRIBE THE DEMONSTRATION LABS INSTALLED IN OHIO AND THE CAROLINAS.

A. The demonstration labs are designed to provide a "hands on" experience with the types of SmartGrid equipment that will eventually be deployed on our system. The labs provide a controlled setting where we can demonstrate the functionality and interaction of devices on the system without having to energize the devices. Additionally, the labs provide a setting to tie all of the devices together and begin to optimize the interaction prior to using the equipment at a customer site. The labs allow Duke Energy to continually evaluate products and services in a controlled environment prior to purchasing and installing. The set up of the Ohio lab will mimic DE-Ohio's system and interface with customers, including a replica of a home and commercial business, complete with interface for an electric car. Finally, the labs will also have a working replica of a Duke Energy work center to help tie all of the pieces of SmartGrid together.

Q. HOW AND WHEN DOES DE-OHIO PLAN TO DEPLOY THE AMI SYSTEM?

A. DE-Ohio has already begun pre-deployment of the system. The majority of the deployment will occur over approximately a three-year time span. We will begin installing AMI equipment in phases so that we can continue to perform the economic analysis, business requirement definition and planning, monitoring of

the maturity of AMI technologies and defining and understanding customer needs and behaviors.

For the first phase, we plan to focus on areas in Cincinnati that will provide a good mix of gas, electric, and combination accounts, as well as inside and outside meter locations. This first phase is to demonstrate the strategic and tactical value of AMI to the customer, utility, and Commission. We plan to install advanced metering capabilities for a minimum of 50,000 electric meters and 40,000 gas meters during 2008.

XIII. COST BENEFIT ANALYSIS

Q. HAS DE-KENTUCKY ANALYZED THE COST-EFFECTIVENESS OF THE SMARTGRID PROJECT?

A. Yes. The SmartGrid project is cost effective when considering the benefits that flow to our customers, DE-Kentucky and society in general. Societal benefits cannot be attributed to a specific customer or customer class but accrue to society, like reduced emissions from lower line losses. Additionally, SmartGrid provides a platform which will provide a basis for enhanced services to customers as technologies emerge. Some of us can recall when computers were first introduced for personal use. Most people at that time did not understand the ways in which computers would become a part of one's daily life. Now it is difficult to imagine life without computers. SmartGrid is similar to this in that the initial applications are fundamental and basic but, with time, it will provide the foundation for many more applications which will provide value to customers. DE-Ohio's witness, Christopher D. Kiergan will discuss the cost/benefit analysis that he has

performed on behalf of DE-Kentucky to assist the Commission and other interested parties in understanding the value of the project. DE-Kentucky witness Richard Stevie will discuss another value derived from deployment of SmartGrid.

Q. ARE THERE OTHER WAYS OF MEASURING SOCIETAL BENEFITS OF SMARTGRID?

A. Yes, the Ohio electric distribution utilities commissioned a study by the Electric Power Research Institute (EPRI) to consider ways to measure societal benefits from SmartGrid deployment and related technologies. EPRI presented this study to Commission Staff on July 9, 2008. The EPRI study is available on the website at the following address:

http://my.epri.com/portal/server.pt?Product_id=000000000001017006

XIV. RIDER DR-IM

Q. PLEASE DESCRIBE RIDER DR-IM.

A. Rider DR-IM is a tracking mechanism that would allow DE-Ohio to recover the costs, and then pass through to customers the savings related to the SmartGrid project. DE-Ohio would make an annual filing seeking approval to recover the revenue requirement related to its distribution infrastructure modernization and maintenance costs which includes the SmartGrid project. DE-Ohio Witness William Don Wathen, Jr. will discuss the implementation of Rider DR-IM.

XV. CONCLUSION

Q. DOES THIS CONCLUDE YOUR PREPARED DIRECT TESTIMONY?

A. Yes, it does.

VERIFICATION

STATE OF OHIO)
) SS:
COUNTY OF HAMILTON)

The undersigned, Todd W. Arnold , being duly sworn, deposes and says 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 knowledge, information and belief.

Todd W. Arnold

Todd W. Arnold, Affiant

Subscribed and sworn to before me by Todd W. Arnold on this 11th day of Dec., 2008.

Anita M. Schafer

NOTARY PUBLIC

My Commission Expires:

NOTARY PUBLIC STATE OF OHIO

ANITA M. SCHAFER
Notary Public, State of Ohio
My Commission Expires
November 4, 2009