Hutcherson, Susan G (PSC)

From: Schafer, Anita [Anita.Schafer@Cinergy.COM]
Sent: *Thursday, May 18, 2006 2:06 PM*
To: Hutcherson, Susan G (PSC)
Cc: D'Ascenzo, Rocco
Subject: Case No. 2006-00045 Testimony
Attachments: Cover_Le.pdf; Sailers_.pdf; Lemke_Te.pdf

Susan, per our phone conversation this morning, attached you will find a cover letter, Testimony of Bruce Sailers and James Lemke for filing today. The original is being overnighted tonight for your receipt tomorrow(addressed to Elizabeth O'Donnell). Thank you for your help in this matter.

Duke Energy®

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John J. Finnigan, Jr.
Senior Counsel

VIA OVERNIGHT MAIL

May 18, 2006
Ms. Elizabeth O'Donnell
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
P.O. Box 615
Frankfort, Kentucky 40602-0615

Re: Case No. 2006-00045

Dear Ms. O"Donnell:

Enclosed please find the testimony of James W. Lemke and Bruce L. Sailers on behalf of Duke Energy Kentucky in the above captioned case.

Please contact me should you have any questions or concerns regarding this material.

Sincerely,

John J. Finnigan, Jr. /kms

John J. Finnigan, Jr.
Senior Counsel

cc: All Parties of Record

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF CONSIDERATION	)	
OF THE REQUIREMENTS OF THE	)	
FEDERAL ENERGY POLICY ACT OF 2005	)	CASE NO. 2006-00045
REGARDING TIME- BASED METERING,	)	
DEMAND RESPONSE AND	)	
INTERCONNECTION SERVICE	)	

DIRECT TESTIMONY OF

BRUCE L. SAILERS

ON BEHALF OF DUKE ENERGY KENTUCKY

TABLE OF CONTENTS

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Bruce L. Sailers, and my business address is 139 E. Fourth Street, Cincinnati, Ohio 45202.

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

A. I am Load Control Development Manager for Duke Energy Shared Services, Inc. ("Duke Energy Shared Services"), a wholly-owned service company subsidiary of Duke Energy Corporation ("Duke Energy"). Duke Energy Shared Services provides various administrative services to The Union Light, Heat and Power Company d/b/a Duke Energy Kentucky ("Duke Energy Kentucky" or the "Company") and other Duke Energy affiliates.

Q. PLEASE BRIEFLY DESCRIBE YOUR DUTIES AS LOAD CONTROL DEVELOPMENT MANAGER.

A. I am responsible for identifying new load management and demand response programs and developing associated cost/benefit studies and evaluations. In addition, I work with existing load management programs as a resource to perform reporting and analysis related to pricing, cost/benefit evaluations, and program research.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATION.

A. I received a Bachelor's of Business Administration degree from the University of Cincinnati in 1986, majoring in finance and quantitative analysis. I received a Masters of Business Administration, with a concentration in marketing, from the University of Cincinnati in 1992.

Q. PLEASE BRIEFLY DESCRIBE YOUR WORK EXPERIENCE.

I joined The Cincinnati Gas & Electric Company ("CG&E") in Load Forecasting in February 1990. I have since worked in several areas of the company including Load Forecasting, Market Research, and now Load Management Development.

Q. ARE YOU A MEMBER OF ANY PROFESSIONAL ORGANIZATIONS?

A. Yes. I am a member of the American Marketing Association ("AMA") and the Association of Energy Services Professionals.

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

A. My testimony adopts and incorporates Duke Energy Kentucky's responses to the Commission's Data Requests which were initially sponsored by Dr. Richard G. Stevie, Head of the Market Analysis Department for Duke Energy Shared Services. I then present and explain Duke Energy Kentucky's position with respect to Demand response programs and Smart Metering. I also provide responses to the issues raised by the Kentucky Public Service Commission ("Commission") during its informal Conference on May 10, 2006. Lastly, I sponsor Attachments A and B.

II. DATA REQUESTS

Q. HAVE YOU REVIEWED DUKE ENERGY KENTUCKY'S RESPONSES TO THE DATA REQUESTS THAT HAVE BEEN SUBMITTED BY THE COMMISSION AND VARIOUS INTERVENORS IN THIS CASE?

A. Yes. The responses were prepared under the direction of Dr. Richard G. Stevie, my direct supervisor. The responses accurately reflect the position of Duke

Energy Kentucky. For the purposes of my testimony in this case, I incorporate and adopt the responses provided by Dr. Stevie.

III. DEMAND RESPONSE PROGRAMS

Q. PLEASE BRIEFLY EXPLAIN THE COMPANY'S POSITION WITH RESPECT TO DEMAND RESPONSE PROGRAMS.

A. Duke Energy Kentucky is committed to providing energy service to customers at a reasonable cost. Demand response programs are one tool we use to deliver this service. We currently participate in a Demand Side Management ("DSM") Collaborative effort in Kentucky to discuss energy efficiency and demand response programs. Through the collaborative process, programs are identified and evaluated. As programs are found to be cost-effective, we submit them to the Commission for approval. Duke Energy Kentucky supports cost-effective demand response programs.

Q. PLEASE BRIEFLY EXPLAIN THE CURRENT DEMAND RESPONSE PROGRAMS AND SERVICES OFFERED BY DUKE ENERGY KENTUCKY.

A. Attachment A identifies and describes the demand response programs offered to Duke Energy Kentucky customers. The Power Manager program is the one demand response program that originated within the DSM Collaborative. The other programs are rate options that have existed for many years. Attachment B identifies Duke Energy Kentucky's current Time-Based Metering/Demand Response Tariff Provisions and provides information on each program, including the number of customers participating and the estimated load response from the

program. This information is provided by customer class and this is a brief description for each tariff/service.

Q. PLEASE PROVIDE AN ESTIMATE OF THE ASSOCIATED LOAD THAT IS AVAILABLE FROM THESE CUSTOMERS BECAUSE OF DEMAND RESPONSE.

A. Estimated demand response impacts are provided in Attachment B.

Q. PLEASE BRIEFLY DESCRIBE THE TIME-BASED SCHEDULES SET FORTH IN THE ENERGY POLICY ACT OF 2005.

A. The Energy Policy Act of 2005 ("EPAct 2005") describes four time-based schedules. They include: (1) Time-of-use ("TOU") Pricing whereby electricity prices are set for a specific time period on an advance or forward basis, typically not changing more often than twice a year, based on the utility's cost of generating and/or purchasing such electricity at the wholesale level for the benefit of the consumer. Prices paid for energy consumed during these periods shall be pre-established and known to consumers in advance of such consumption, allowing them to vary their demand and usage in response to such prices and manage their energy costs by shifting usage to a lower cost period or reducing their consumption overall; (2) Critical Peak Pricing, whereby time-of-use prices are in effect except for certain peak days, when prices may reflect the costs of generating and/or purchasing electricity at the wholesale level and when consumers may receive additional discounts for reducing peak period energy consumption; (3) Real-time Pricing, whereby electricity prices are set for a specific time period on an advanced or forward basis, reflecting the utility's cost

of generating and/or purchasing electricity at the wholesale level, and may change as often as hourly; and (4) Credits for consumers with large loads who enter into pre-established peak load reduction agreements that reduce a utility's planned capacity obligations.

Q. GIVEN THE PARTICULAR CIRCUMSTANCES IN KENTUCKY, (*E.G.* LOW RATES, BASE LOAD GENERATION, ECT), WHICH OF THE SCHEDULES CONTAINED IN EPACT 2005, IF ANY, WOULD MORE LIKELY RESULT IN A SHIFT OF LOAD FROM PEAK TO OFF PEAK?

A. At this time, Duke Energy Kentucky has not determined which schedule is most likely to produce the best results. Given the relatively low rates in Kentucky, the programs most likely to result in a shift of load from peak to off-peak will be those programs that isolate high price periods and send price signals to customers during those periods. However, different customers have different needs, even within rate classes. It is conceivable that some customers simply may not participate in some of these rate offerings. Therefore, the Company believes an emphasis should be placed on those schedules that can produce cost effective results. All of these schedules may have appeal to specific customer groups, and provide value to Duke Energy Kentucky provided that they are cost effective, and could be offered to customers in an effort to obtain load shifting. Enabling technologies may be required for some schedules given the need for close attention to prices on a regular basis.

IV. SMART METERING POSITION

Q. PLEASE DESCRIBE DUKE ENERGY KENTUCKY'S POSITION ON TIME-BASED PRICING PROGRAMS.

A. As with all customer-related programs, Duke Energy Kentucky is interested in providing our customers with programs and services that improve their energy related knowledge base and increase their satisfaction with our services. However, programs offered should be evaluated in terms of the benefits they provide relative to the costs incurred to offer them. A cost/benefit review, whether qualitative or quantitative should be performed for service offerings including time-based pricing programs.

Q. PLEASE BRIEFLY DESCRIBE THE TIME-BASED PRICING STANDARD CONTAINED IN THE EPACT 2005.

A. EPAct 2005 states: "Not later than 18 months after the date of enactment of this paragraph, each electric utility shall offer each of its customer classes, and provide individual customers upon customer request, a time-based rate schedule under which the rate charged by the electric utility varies during different time periods and reflects the variance, if any, in the utility's costs of generating and purchasing electricity at the wholesale level." It goes on to state: "Each electric utility subject to subparagraph (A) shall provide each customer requesting a time-based rate with a time-based meter capable of enabling the utility and customer to offer and receive such rate, respectively."

Duke Energy Kentucky notes that these proposed standards do not require specific pricing structures or provide specific detail on the allocation of costs to

support these standards. As approved, the standard is quite vague and these issues are left for state commissions to determine.

Q. PLEASE EXPLAIN DUKE ENERGY KENTUCKY'S POSITION REGARDING WHETHER THE COMMISSION SHOULD ADOPT THE TIME-BASED PRICING STANDARDS IN EPACT 2005

A. Duke Energy Kentucky is indifferent toward the adoption of the time-based pricing standards in EPAct 2005 as long as time-based pricing is not mandatory for all customers. Duke Energy Kentucky already complies with the EPAct 2005 standards with the exception of offering residential customers a TOU rate option. It has been Duke Energy's experience in Ohio that not many residential customers are interested in a TOU rate, therefore, there is limited impact on revenues and demand response. If the Commission adopts the EPAct 2005 standards, a revenue neutral, residential TOU rate would be developed and offered to customers. Since system-wide benefits would probably be limited, we would propose that meter and installation costs be paid by the customers who choose to participate in the TOU rate. If time-based pricing is **mandatory**, then a full scale advanced metering infrastructure ("AMI") solution would be required that would include the installation of advanced meters ("smart meters") with two-way communication capabilities linked to a meter data management system to handle the volume of data as well as the time-based pricing structures.

Q. DOES DUKE ENERGY KENTUCKY BELIEVE THAT THE COMMISSION SHOULD MANDATE ANY FORM OF TIME-BASED PRICING?

A. No. Duke Energy Kentucky does not support a mandated form of time-based pricing. Customers prefer options. Some customers may enjoy a rate structure such as critical peak pricing while others may like real-time pricing. Other customers may prefer to participate in traditional flat rate tariffs. A mandated approach to a specific form of time-based pricing does not take into account customer preferences or the geographic, demographic, or other differences across utility service territories in Kentucky.

Q. DOES DUKE ENERGY KENTUCKY SEE ANY BENEFIT TO PROVIDING SMART METERING AND TWO-WAY METER COMMUNICATION TECHNOLOGY TO ALL ITS CUSTOMERS?

A. Yes, there appears to be a number of benefits to providing advanced metering with two-way communications technology to enable smart metering benefits.

Q. COULD ANY TIME-BASED PRICING PROGRAMS BE IMPLEMENTED WITHOUT SMART METERS?

A. By definition, a time-based pricing program needs to collect usage information for the time periods specified in the program so that different prices can be applied to different time periods. Meters that are not time-based limit options for pricing programs because time periods must then be defined by a meter read. It is not practical, without some form of additional technology, to gather usage information beyond monthly meter reading cycles. These monthly reads could be

used to provide monthly or seasonal time-based pricing programs. However, the rate would still be some form of flat rate over the month or season. This type of program may provide a moderate amount of conservation during high price months but would not provide significant demand response on critical days when it is needed.

Q. PLEASE BRIEFLY EXPLAIN THE DIFFERENT LEVELS OF TECHNOLOGY AVAILABLE FOR SMART METERS AND THE BENEFITS ADVANTAGES AND DISADVANTAGES OF EACH?

A. The definition of "smart meters" is changing rapidly. Ten years ago, a meter that could record hourly usage information may have been considered very advanced. Today, as technology evolves, this same meter would not be considered very advanced. The traditional "smart meter" is more expensive than a normal meter and requires onsite programming, as well as, additional monthly premise visits to gather the reads or change the on and off peak periods. There are many features that meters can incorporate to increase their usefulness. Typically, meter manufacturers add these features in a modular fashion and the cost of the meter increases with each module added. Some of the features will not provide much benefit without a two-way communication system between the meter and the utility. This communication system can be expensive but allows for increased benefits from smart meters. Some of the features with an AMI deployment include outage confirmation, meter error logging, tamper detection, voltage monitoring, on-demand reads, environmental benefits due to less vehicle miles and hourly or more frequent usage information. The disadvantage is that AMI

requires a significant investment to gain operational efficiencies, and improve or increase service and pricing options to customers. Perhaps the greatest advantage is the potential to ultimately provide more and better information to Kentucky customers, the utility, and the Commission.

V. CONCLUSION

Q. PLEASE SUMMARIZE DUKE ENERGY KENTUCKY'S POSITIONS REGARDING DEMAND RESPONSE, TIME-BASED PRICING PROGRAMS, AND SMART METERING TECHNOLOGY?

A. Duke Energy Kentucky believes that any time-based pricing and demand response program should be cost-effective. There should not be a mandated program in which all customers are forced to participate. Demand response, time-based pricing and advanced smart metering technology provides significant benefits to both the customer and the utility. Duke Energy Kentucky expects to deploy AMI infrastructure in the near future.

Q. WERE ATTACHMENTS A AND B PREPARED BY YOU OR UNDER YOUR DIRECTION?

A. Yes.

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

A. Yes.

VERIFICATION

State of Ohio)
) SS:
County of Hamilton)

The undersigned, Bruce L. Sailers, being duly sworn, deposes and says that he is the Load Control Development Manager for Duke Energy Shared Services Inc., 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.

Bruce L. Sailers

Bruce L. Sailers Affiant

Subscribed and sworn to before me by Bruce L. Sailers on this 12th day of May, 2006.

NOTARY PUBLIC

My Commission Expires:

NOTARIAL SEAL
STATE OF OHIO

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

186244

Attachment A

Tariff / Rider	Residential	Commercial	Industrial
PowerManager			
Customers	5,278		
Estimated Load Impact (MW)	7.3		
Rate DT			
Customers	0	128	76
Estimated Load Impact	unknown for all customer classes		
Rate TT			
Customers	0	6	3
Estimated Load Impact	unknown for all customer classes		
Rate RTP			
Customers	0	2	6
Estimated Load Impact (MW) (Excludes Rider PLM Load)	0	0	0
Rate RTP-M	Numbers included in Rate RTP above		
Customers			
Estimated Load Impact			
Rider LM			
Customers	0	109	5
Estimated Load Impact	unknown for all customer classes		
Rider IS			
Customers	0	0	1
Estimated Load Impact(MW)	0	0	2
Rider PLM			
Customers	0	23	31
Estimated Load Impact (MW)	0	3.8	5.7
Total Estimated Load Impact (MW)	7.3	3.8	7.7

1

Attachment B

Tariff / Rider	**Description of Service / Provision**
Residential	
PowerManager	Direct Load Control – Air Conditioners
Commercial & Industrial	
Rate DT	Time of Use – Distribution Voltage
Rate TT	Time of Use – Transmission Voltage
Rate RTP	Real Time Pricing - Voluntary
Rate RTP-M	Real Time Pricing - Mandatory
Rider LM	Load Management Time of Use
Rider IS	Load Management – Interruptible Service
Rider PLM	Load Management – PowerShare Program

Service Description

- PowerManager® (Residential Direct Load Control ("DLC")). PowerManager® is a voluntary program for residential customers with central air conditioning. It is a residential air conditioning, direct load control program. This is a cycling DLC program where a load management switch is installed to the central air compressor unit outside the home. The compressor unit can be cycled on and off during an event between the months of May through September. Customers may enroll in different options which pay varying installation and event incentive levels for different levels of load reduction capability. Our current offerings include:

    a. Option A – 1.0 kW cycling
    b. Option B – 1.5 kW cycling
    c. Retention Option – not advertised – 0.5 kW cycling

    This program was approved in Case No. 2003-00367 dated November 20, 2003.

- Rate DT, Time-Of-Day Rate For Service At Distribution Voltage (KY.P.S.C. Electric No. 4, Sheet No. 41). Applies to non-residential customers with average monthly demands of 500 kW or greater and who receive service at distribution voltage. Under this rate, demand charges vary between summer and winter, and between on- and off-peak periods. Summer, winter, on-peak, and off-peak periods are the same as described under Rider LM below. This rate was

originally approved as an experimental rate on October 3, 1985 in Case No. 9299 and subsequently updated.

- Rate TT, Time-Of-Day Rate For Service At Transmission Voltage (KY.P.S.C. Electric No. 4, Sheet No. 51). Applies to non-residential customers who receive service at transmission voltage. Under this rate, demand charges vary between summer and winter, and between on- and off-peak periods. Summer, winter, on-peak, and off-peak periods are the same as described under Rider LM below. This rate was originally approved as an experimental rate on October 3, 1985 in Case No. 9299 and subsequently updated.

- Rate RTP, Real Time Pricing Program (KY.P.S.C. Electric No. 4, Sheet No. 99). Applies to non-residential customer receiving service under Rate DS, Rate DP, Rate DT, or Rate TT. The RTP Program is voluntary and offers 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. 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 rates. This rate was originally approved by the Commission pursuant to 807 KAR 5:011, Section 9(1) dated March 24, 1997. It was revised in Case No. 2000-302 dated October 30, 2000, and has been extended in subsequent cases.

- Rate RTP - M, Real Time Pricing - Market-Based Pricing (KY.P.S.C. Electric No. 4, Sheet No. 59). Applicable to all new customers as of January 1, 2002 having estimated service requirements of 5,000 kilowatts or more and to existing customers whose service requirements increase by 5,000 kilowatts or more. Where an existing customer's requirements increase by 5,000 kilowatts or more, that customer's incremental load is subject to the provisions of this rate schedule. This rate is similar to Rate RTP as described above, but it is not an optional rate. Rate RTP-M was approved in an Order dated May 11, 2001 in Case No. 2001-058.

- Rider LM, Load Management Rider (KY.P.S.C. Electric No. 4, Sheet No. 73). This voluntary rate applies to non-residential customers who receive service under Rate DS (Service At Secondary Distribution Voltage) or Rate DP (Service At Primary Distribution Voltage). For customers with simple time-of-use metering, Rate DS or Rate DP demand charges are based only upon the on-peak periods. For customers with interval metering, Rate DS or Rate DP demand charges are based upon the on-peak demand or 50% of the off-peak demand, whichever is larger. Customers with simple time-of-use metering pay $5 per month to participate in this program. Customers with interval metering pay $100 per month. The summer season is the months of June through September. The "off-peak period" for the summer season is defined as the period from 8:00 p.m. of one day to 11:00 a.m. of the following day; Friday from 8:00 p.m. to 11:00 a.m. of the

following Monday; and from 8:00 p.m. of the day preceding a legal holiday to 11:00 a.m. of the day following that holiday. The "off-peak period" for the winter season is defined as the period 2:00 p.m. to 5:00 p.m. and from 9:00 p.m. of one day to 9:00 a.m. of the following day; Friday from 9:00 p.m. to 9:00 a.m. of the following Monday; and from 9:00 p.m. of the day preceding a legal holiday to 9:00 a.m. of the day following that holiday. The "on-peak period" is defined as all hours exclusive of the "off-peak period" hours. This rate was originally approved on October 3, 1985 in Case No. 9299 and subsequently updated.

- Rider IS, Interruptible Service Rider (KY.P.S.C. Electric No. 4, Sheet No. 74). This voluntary rate applies to non-residential customers who can reduce demand by 1,000 kW or more at the direction and discretion of the Company. Participants must be willing to reduce demand for fourteen consecutive hours in any twenty-four hour period. Under this rate, customers receive monthly demand credits that vary based on the maximum number of hours per year that the participant is willing to be interrupted. Participants that do not reduce demand when notified are billed a penalty of $5 per kW. Customers must enter in a service agreement with the Company that specifies the details, rules, and regulations of the program. This rate was approved on October 3, 1985 in Case No. 9299.

- Rider PLM, Peak Load Management Program (KY.P.S.C. Electric No. 4, Sheet No. 77). Applies to non-residential customers receiving service under Rate DS, Rate DP, Rate DT, Rate TT, Special Contracts, or Rate RTP. The PLM Program is voluntary and offers customers the opportunity to reduce their electric costs by managing their electric usage during the Company's peak load periods. Customers and the Company will enter into a service agreement under this Rider which will specify the terms and conditions under which the customer agrees to reduce usage. PowerShare® is the brand name given to Cinergy's Peak Load Management Program. There are two product options offered for PowerShare® called CallOption® and QuoteOption®:

    - CallOption® – A customer being served under a CallOption® product agrees, upon notification by the Company, to reduce its demand or provide generation for purchase by the Company. Each time the Company exercises its option under the agreement, the Company will provide the customer a credit for the energy reduced or generation provided. If available, the customer may elect to buy through the reduction at a market-based price. In addition to the energy credit, customers on the CallOption® will receive an option premium credit. Only customers able to provide a minimum of 100 kW load response qualify for CallOption®.

    - QuoteOption® – Under the QuoteOption® products, the customer and the Company agree that when the average wholesale market price for energy during the notification period is greater than a predetermined strike price, the Company may notify the customer of a QuoteOption® event and provide a Price Quote to the customer for each event hour. The customer

will then determine whether they wish to reduce demand or provide generation during the event period. If they wish to reduce demand or provide generation, the customer will notify the Company and provide the Company an estimate of the customer's projected load reduction or generation. Each time the Company exercises the option, the Company will provide the customer an energy credit. There is no option premium for the QuoteOption® product since customer load reductions are voluntary. Only customers able to provide a minimum of 100 kW load response qualify for CallOption®.

This rate was approved pursuant to 807 KAR 5:011, Section 9(1) dated November 12, 1999 in Tariff Filing No. T60-1196.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OFCONSIDERATION OF THE REQUIREMENTS OF THE FEDERAL ENERGY POLICY ACT OF 2005 REGARDING TIME-BASED METERING, DEMAND RESPONSE AND INTERCONNECTION SERVICE	))))))	CASE NO. 2006-00045

DIRECT TESTIMONY OF

JAMES W. LEMKE

ON BEHALF OF DUKE ENERGY KENTUCKY

TABLE OF CONTENTS

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is James W. Lemke, and my business address is 1619 W. Defenbaugh, Kokomo, IN 46902.

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

A. I am a Principal Engineer for Distribution Planning in the Midwest for Duke Energy Shared Services Inc ("Duke Energy Shared Services"), a wholly-owned service company subsidiary of Duke Energy Corporation ("Duke Energy"). Duke Energy Shared Services provides various administrative services to The Union Light, Heat and Power Company d/b/a Duke Energy Kentucky ("Duke Energy Kentucky" or the "Company") and other Duke Energy affiliates.

Q. PLEASE BRIEFLY DESCRIBE YOUR DUTIES AS PRINCIPAL ENGINEER FOR DISTIBUTION PLANNING, MIDWEST OF DUKE ENERGY SHARED SERVICES.

A. As Principal Engineer for Distribution Planning in the Midwest for Duke Energy Shared Services, I am responsible for review and approval of requests to interconnect distributed generation equipment. Additionally, I participate in the IEEE 1547 Standards Working Groups.

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

A. I received a Bachelor of Science Degree in Electrical Engineering from Purdue University in 1974. I am a registered Professional Engineer in the State of

Indiana. I have worked for Duke Energy Shared Services or one of its predecessor companies since 1974 in various transmission or distribution engineering roles. The majority of my experience has been in the areas of distribution system planning, distribution system protection, and distributed generation interconnection.

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

A. My testimony addresses Duke Energy Kentucky's current position with respect to interconnection opportunities currently available in the Company's service territory. I also respond to the issues raised by the Commission during its May 10, 2006, informal conference in this matter.

II. IMPLEMENTATION OF THE INTERCONNECTION STANDARD OF SECTION 1254 OF THE EPAct 2005

Q. PLEASE BRIEFLY DESCRIBE DUKE ENERGY KENTUCKY'S INTERCONNECTION.

A. Duke Energy Kentucky provides interconnection service to any customer requesting such service. The customer's generation system must meet Duke Energy Kentucky's standards for interconnection. These standards are established to ensure that the customer's generation system does not adversely impact the safety, reliability, integrity, or service quality of Duke Energy Kentucky's system. Duke Energy Kentucky enters into contracts with customers for the interconnection service, and Duke Energy Kentucky files the contracts with the Commission. Duke Energy Kentucky's interconnection policy requires the

customer to pay any costs for modifying Duke Energy Kentucky facilities to accommodate the interconnection with the customer's facilities.

Q. PLEASE IDENTIFY THE BASIS FOR THE TECHNICAL STANDARDS CURRENTLY REQURED BY DUKE ENERGY KENTUCKY FOR INTERCONNECTION.

A. Duke Energy Kentucky uses the Institute of Electrical and Electronics Engineers ("IEEE") Standard 1547 as the core of its technical interconnection requirements for customer interconnections.

Q. PLEASE BRIEFLY DESCRIBE THE INTERCONNECTION STANDARDS PROPOSED IN THE ENERGY POLICY ACT OF 2005?

A. The Energy Policy Act of 2005 includes the following standards relative to interconnection: (1) interconnection service should be available to any customer; (2) interconnection technical standards should be based on IEEE 1547; and (3) interconnection agreements and procedures should promote current best practices as stipulated in model codes adopted by NARUC and be just and reasonable, and not unduly discriminatory or preferential.

Q. ARE DUKE ENERGY KENTUCKY'S INTERCONNECTION REQUIREMENTS CONSISTENT WITH THOSE STANDARDS?

A. Yes, Duke Energy Kentucky's interconnection requirements are consistent with those standards as follows: (1) Duke Energy Kentucky offers interconnection service to any customer; (2) Duke Energy Kentucky uses IEEE 1547 as the core of its technical interconnection requirements; and (3) the Interconnection

Agreements used by Duke Energy Kentucky are very similar to those contained in the "Model Interconnection Procedures and Agreement for Small Distributed Generation Resources" adopted by NARUC.

III. DUKE ENERGY KENTUCKY'S POSITION ON IEEE 1547

Q. PLEASE DESCRIBE DUKE ENERGY KENTUCKY'S POSITION WITH RESPECT TO WHETHER THE COMMISSION SHOULD ESTABLISH A STATEWIDE STANDARD FOR INTERCONNECTION?

A. Duke Energy Kentucky believes its voluntary interconnection practice is consistent with the requirements in the Energy Policy Act of 2005. To be consistent with other State practices and the Energy Policy Act of 2005, there may be value in a statewide standard established by the Commission. This would promote uniform interconnection practices that are consistent within Kentucky and can be consistent with best practices that are evolving nationally. This will also result in transparent interconnection standards. Should the Commission decide a statewide standard is warranted, Duke Energy Kentucky suggests the Commission consider a high level and flexible approach which is adaptable to the individual circumstances of both the customer and the utility An interconnection standard that is very rigid or overly complicated and intricate will likely result in a standard that discourages participation, is operationally difficult to implement and inefficient to maintain.

Q. IF THE COMMISSION WERE TO ESTABLISH A STATEWIDE STANDARD, WHAT SHOULD BE INCLUDED AT A MINIMUM?

A. A minimum standard should include (1) a requirement to provide interconnection service; (2) a requirement to base technical requirements on IEEE 1547; and (3) a requirement for the customer to pay for any costs to modify Duke Energy Kentucky's system to accommodate the generator's interconnection.

Q. IF THE COMMISSION WERE TO ESTABLISH A STATEWIDE STANDARD, WHAT SHOULD BE INCLUDED AT A MAXIMUM?

A. Additional components of an overall standard could include (1) requirements for Interconnection Agreements; and (2) a process for review and approval of interconnection requests. However, Duke Energy Kentucky believes that its current informal review and approval process has been very successful in meeting customer expectations and schedules. Considering the small number of customers applying for interconnection, a more formal process is unwarranted and unnecessary and may make the process less efficient and more burdensome for all parties.

Q. ARE THE STANDARDS SET FORTH IN IEEE 1547 SUFFICIENT OR IS MORE REQUIRED?

A. Although the IEEE 1547 Standard contains the minimum technical requirements to design most interconnection systems, there are some important issues that are not addressed and must be included in an overall interconnection technical requirement. Several of those issues are as follows: (1) IEEE 1547 does not address impacts on the utility's overcurrent protection system; (2) IEEE 1547 does not address the maximum amount of distributed generation that can be connected at a particular location; (3) IEEE 1547 does not address redundancy in

the design of an interconnection protection system; and (4) IEEE 1547 does not specify which methods are acceptable ways to meet requirements.

Q. THE COMMISSION HAS INDICATED THAT IN ITS OPINION, THE ENERGY POLICY ACT OF 2005 REQUIRES UTILITIES TO PROVIDE INTERCONNECTION SERVICE TO ANYONE THAT REQUESTS IT, BUT THE STANDARD REALLY FOCUSES ON DISTRIBUTED GENERATION OF 10 MVA OR LESS, AND REQUIRES THAT IEEE 1547 BE FOLLOWED. DO YOU AGREE WITH THIS?

A. Since no IEEE based standard currently exists for distributed generator systems larger than 10MVA, the best we can do to establish consistent practice is to use the existing IEEE Standard 1547 when it is applicable. Duke Energy Kentucky does not believe that lack of a standard for systems greater than 10MVA has caused any problems in providing interconnection service to those customers. As a practical reality, these are typically too large to interconnect to a distribution system and will be interconnected at a transmission level. Also, Draft IEEE Standard 1547.5 is under development and will apply to those systems larger than 10MVA when completed.

Q. IS DUKE ENERGY KENTUCKY CURRENTLY IN COMPLIANCE WITH THE COMMISSION'S INTERPRETATION OF THE INTERCONNECTION REQUIREMENTS OF THE ENERGY POLICY ACT OF 2005?

A. Yes, as explained earlier, Duke Energy Kentucky provides interconnection service to any customer, regardless of size, and uses IEEE 1547, where applicable, as the core of its technical interconnection requirements.

Q. IS THERE ANY REASONABLE PROGRAM THAT CAN BE DEVELOPED TO TAKE ADVANTAGE OF THE CUSTOMER-OWNED OPEN TRANSITION GENERATION IN CASE OF A DIRE EMERGENCY?

A. Any customer with generation can participate in Duke Energy Kentucky's Rider PLM, Peak Load Management program, which includes a Generation Sell Back Option for distributed generation. The method used by a customer to connect a generator, whether it is through open-transition switching or through a parallel capable device requiring interconnection service, is not an issue from Duke Energy Kentucky's standpoint. However, Duke Energy Kentucky currently sees almost no participation from customers with open-transition switching connecting their generator and believes there are several characteristics of open-transition switching that inhibit participation. First, an open-transition switch will cause two momentary interruptions in service for every event – one to move load to the generator and one to move load back to the utility after the event is over. Second, many back-up generators connected with open-transition switching are not large enough to handle the customer's entire load. Therefore, any event they participate in would cause a loss of service for part of their load for the duration of the event. Although the Commission's definition of a "dire emergency" may be different

than those currently included in Rider PLM events, voluntary customer participation may be limited for the same reasons.

IV. CONCLUSION

Q. PLEASE BREIFLY SUMMARIZE DUKE ENERGY KENTUCKY'S POSITION ON CONFORMANCE WITH INTERCONNECTION PROVISIONS OF THE ENERGY POLICY ACT OF 2005 IN KENTUCKY.

A. Duke Energy Kentucky believes its voluntary interconnection practice is consistent with the requirements in the Energy Policy Act of 2005. Duke Energy Kentucky also supports the national use of IEEE 1547 as the basis of technical interconnection standards. Should the Commission decide a statewide standard is warranted, Duke Energy Kentucky suggests the Commission consider a high level and flexible approach with minimum detail. An interconnection standard that is very rigid or overly complicated and intricate will likely result in a standard that discourages participation, is operationally difficult to implement and inefficient to maintain.

Q. DOES THAT CONCLUDE YOUR PREFILED DIRECT TESTIMONY?

A. Yes, it does.

VERIFICATION

State of)
)
County of)

SS:

The undersigned, James W. Lemke, being duly sworn, deposes and says that he is the Principal Engineer for District Planning in the Midwest, that he has personal knowledge of the matters set forth in the foregoing testimony, and that the answers contained therein are true and correct to the best of his information, knowledge and belief.

James W. Lemke

James W. Lemke, Affiant

Subscribed and sworn to before me by Teresa L. Long on this 11th day of May, 2006.

Teresa L. Long

NOTARY PUBLIC

My Commission Expires: 3/9/2009