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July 1, 2011

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**RE: Application of Louisville Gas and Electric Company for an Order  
Approving a Responsive Pricing and Smart Metering Pilot Program**  
Case No. 2007-00117

Dear Mr. DeRouen:

Enclosed please find Louisville Gas and Electric Company's ("LG&E") evaluation of the Responsive Pricing and Smart Meter Pilot Program pursuant to the Commission's Order dated July 12, 2007, in the above mentioned proceeding.

LG&E has gained valuable insight through this pilot program and would be willing to meet with the Commission to discuss the contents of this report.

Should you have any questions concerning the enclosed, please contact me at your convenience.

Sincerely,

Rick E. Lovekamp

cc: Parties of Record

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND )  
ELECTRIC COMPANY FOR AN ORDER )  
APPROVING A RESPONSIVE PRICING ) CASE NO. 2007-00117  
AND SMART METERING PILOT )  
PROGRAM )

Responsive Pricing and Smart  
Metering Pilot Program Final Report  
for  
Louisville Gas and Electric Company

July 1, 2011

Responsive Pricing and Smart Metering Pilot Program Final Report  
Kentucky Public Service Commission Case No. 2007-00117

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**EXECUTIVE SUMMARY**

Louisville Gas and Electric Company (“LG&E”) has completed a three-year Responsive Pricing and Smart Meter pilot program (“Pilot”). The Pilot was designed to provide residential and commercial customers a variable rate schedule for their energy usage and to determine whether customers change their electric usage given either economic incentives or additional information related to their energy cost.

Meeting the requirements of Kentucky Public Service Commission (“Commission”) Order Case No. 2007-00117, the Company has submitted interim reports to enable the Commission to adequately monitor the program. In particular, the Commission expressed interest in data pertaining to the pilot participants’ electrical usage, cost, and overall feedback on the program, as well as the Company’s evaluation of pilot objectives and cost. On an annual basis, the Company collected program data and submitted comprehensive reports with detailed analysis for Commission review. The following final report examines the overall performance of the pilot program and presents recommendations for further demand-response research.

Throughout the three-year pilot, analysis on customer behavior has been performed to measure two key components: (1) the actual energy shift and change in customer behavior patterns, and (2) how time-of-use rates and various devices effected customer satisfaction. Pilot results showed high-quality load reductions for demand response, with load found to shift from higher-priced weekday hours to lower-priced off-peak and weekend time periods. Additionally, customers using in-home devices but not on the time-of-use rates were found to be using almost half of their energy during the low tier of the rate schedule. Those customers who received critical peak pricing (“CPP”) signals shifted their energy use but created a 0.5 – 0.8 kW per customer higher peak than the original system peak and consumed more overall energy.

LG&E has collected, analyzed, and reported on the progress of the pilot program over the last three years. Only about 80 customers remain on the Responsive Pricing rate; others elected to return to the standard rates mostly due to the lack of expected energy savings. The Pilot has provided information on customer behavior patterns and customer satisfaction with time-of-use rates that will be valuable in designing future pilot programs. But after three years of experience with the Pilot’s equipment and rate schedules, LG&E believes it has gleaned all the useful information it can from the Pilot. Therefore, LG&E recommends that the Commission issue an order discontinuing the Pilot and returning the Pilot customers to their standard rates.

Operationally, LG&E has gained valuable experience in recognizing the risks of emerging technologies in smart metering and advanced two-way communications. LG&E seeks to consider developing further experience and methods for deploying these technologies through additional pilots and trials designed to test customer acceptance, use, and cost to benefit analysis. For example, capability to automatically capture, upload, and validate data is vital to providing customers with access to their consumption trends and associated costs, and evaluating consumer

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willingness and ability to conserve energy. Furthermore, such system could enable LG&E to provide customers with access to their data through a variety of virtual based tools thus enhancing the customer value and maintaining continued customer satisfaction. Piloting these solutions would be of crucial benefit to LG&E as their societal value is showing to be very important to broader smart meter activities.

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## 1.0 INTRODUCTION

On March 21, 2007, LG&E filed an application with the Commission that established Case No. 2007-00117 requesting Commission approval to develop a Responsive Pricing and Smart Metering pilot program (“Pilot”). LG&E planned to use time-of-use rates with a critical peak pricing component and “smart” devices with secure communications to send pricing signals to a test group of customers, allowing them to choose to save money and decrease system demand by shifting their electricity usage away from peak generation system demand periods. The smart devices would also provide information regarding real-time and historical energy usage.

By Order dated July 12, 2007, the Commission approved the Pilot for an initial term of three years that would serve up to two thousand customers. LG&E filed a motion on September 15, 2008 to amend the July 12, 2007 Order to incorporate up to an additional fifteen customers to the approved tariff. The additional customers were to be employees of General Electric Company (“GE”) located on the same routes as the other Pilot customers. The request was made to cooperate with GE’s effort to promote and test demand side management-ready appliances in the employees’ homes. The smart equipment provided by LG&E to the GE employees was identical to the other customers participating in the Pilot. The Commission’s Order dated October 7, 2008 granted authority to include the additional GE employees.

In compliance with the Commission Order in Case No. 2007-00117, LG&E filed 2008, 2009 and 2010 interim reports evaluating the Pilot on an annual basis.<sup>1</sup> This final report summarizes the overall operation and outcomes of the Pilot program. The highlights in this report are intended to inform the Commission with respect to future decisions associated with the Pilot as well as time-of-use pricing construct and associated consumer education initiatives.

### *1.1 Purpose*

The purpose of the three year pilot was to test the hypothesis, “a responsive pricing rate structure consisting of time-of-use and real-time, critical peak pricing components in conjunction with a Demand-Side Management (“DSM”) program will likely maximize demand response for residential and commercial customers in a cost-effective manner.”<sup>2</sup>

### *1.2 Background*

The Pilot program was designed so that a participating customer with a typical load profile would not experience a change in electricity costs if their usage pattern did not change. However, a customer’s electric bill would decrease if usage shifted from higher-cost peak

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<sup>1</sup> Interim reports cover the analysis of data related to customers’ participation, energy usage and costs, load impact and operation of the Pilot, in greater detail.

<sup>2</sup> *In the Matter of: Application of Louisville Gas and Electric Company for an Order Approving a Responsive Pricing and Smart Metering Pilot Program*, Case No. 2007-00117, Application at 4 (Mar. 21, 2007).

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periods to lower-cost off-peak periods. Likewise, a customer's electric bill would increase if usage shifted from lower-cost off-peak periods to higher-cost peak periods.

The Pilot was intended to include up to one hundred residential customers and up to fifty commercial customers to be enrolled on time-of-use rate structures. To determine if cost savings could be realized by some customers not on the time-of-use rates by using a combination of smart devices, the approved Pilot allowed for up to four hundred customers to be given a combination of such devices to provide the participating customers energy usage information, allowing the customers to change usage to produce cost savings, if desired.

## 2.0 PILOT DESCRIPTION

### *2.1 Responsive Pricing*

LG&E filed with the Commission a tariff sheet establishing Residential and General Service Responsive Pricing which incorporated a time-of-use rate with critical peak pricing ("CPP"). This Responsive Pricing tariff became effective in January 2008. Responsive Pricing was offered to customers on the six selected routes who had lived at their residences for at least twelve months. Responsive Pricing participation was voluntary and featured four pricing periods (low, medium, high, and CPP) as opposed to a standard customer's flat rate. Low and medium pricing periods had rates lower than the standard rate and made up approximately 87% of the hours in a year. CPP events could occur during hours of high generation system demand for up to eighty hours per year, implemented at LG&E's discretion. Customers received at least 30 minutes notice prior to CPP events, which had a rate of approximately five times that of the standard flat rate. The rate structure and pricing changed depending on the time of year and is detailed below.

June through September			October through May		
Time	Weekdays	Weekends	Time	Weekdays	Weekends
Midnight to 10 a.m.	Low	Low	Midnight to 8 a.m.	Low	Low
10 a.m. to 1 p.m.	Medium	Low	8 a.m. to 6 p.m.	Medium	Low
1 p.m. to 6 p.m.	High	Medium	6 p.m. to 10 p.m.	High	Medium
6 p.m. to 9 p.m.	Medium	Low	10 p.m. to Midnight	Low	Low
9 p.m. to Midnight	Low	Low			

### *2.2 Smart Devices*

The Pilot utilized four kinds of smart devices: smart meters; programmable communicating thermostats; in-home energy usage displays; and load control switches. Customers participating in the Responsive Pricing group (including the GE group) received all available devices listed above. The remaining Pilot customer groups received a choice of up to three in-home devices in addition to the smart meter. GE employees participating on the Pilot received a suite of GE

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“smart” appliances — or Demand Response appliances — to replace their standard appliances.<sup>3</sup> In most cases, this included a refrigerator, range, microwave, dishwasher and a laundry pair. In-home devices and “smart” appliances received a signal from the smart meter which alerted the participants, when high and critical peak pricing periods were in effect. The appliances were programmed to avoid energy usage during that time or operate on a lower wattage. Similarly, the thermostat was automatically set so that less air conditioning was used during high and critical peak pricing periods, while load control switch was programmed to shut off water heater operation or a pool pump during these periods. Customers had the ability to override such settings if they so desired by accessing the devices directly or via website.

#### *2.3 Customer Groups*

The Pilot included several combinations of smart devices to determine the impact of various types of tools and energy cost information on customers’ energy usage. Customers residing on the selected metering routes who did not volunteer for Responsive Pricing were eligible to receive one or more smart devices. Over the course of the Pilot, approximately 95 customers chose programmable thermostats and in-home energy usage displays; approximately 20 customers chose programmable thermostats and/or load control switches; and approximately 90 customers chose in-home energy usage displays only.

#### *2.4 Pilot Implementation*

LG&E assessed metering routes in 2007 in an effort to deploy the Pilot in areas representative of the entire service territory. Six routes were selected to include city and rural environments. A summary of criteria used in selecting the routes is presented in the following table.

Criteria	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6
Customer Density	High	High	High	Moderate	Moderate	Low
Foliage Density	Moderate	Moderate	Moderate	Low	Low	High
Terrain Dynamics	Low	Low	Moderate	Moderate	Moderate	High
Customer Variety	Low	Moderate	Moderate	High	High	Moderate
Property Size	Low	Low	Moderate	Moderate	Moderate	High

The “Customer Variety” criterion in the table above relates to energy usage, customer type (residential and commercial), and building size. The “Property Size” criterion relates to the acreage of the property.

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<sup>3</sup> LG&E was only responsible for providing GE employees with the smart meter and in-home devices, while GE exclusively supplied “smart” appliances.

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LG&E contracted with Trilliant, Inc. (“Trilliant”) to be the hardware supplier for the Pilot. Trilliant was responsible for installing the communications network and provided communications cards for the smart meters, as well as the in-home devices discussed herein. LG&E contracted with GoodCents Solutions (“GoodCents”) to install the smart devices. The smart meter communication network deployment began in September 2007 and GoodCents began installing smart devices at customers’ residences and businesses along the selected routes in November 2007. All electric smart meters and the communication infrastructure were installed by the end of January 2008.

The initial marketing efforts were directed toward customers interested in the time-of-use rate. The goal was to have this group identified, equipment deployed, and customers educated prior to the summer of 2008. The original application suggested that the Pilot would be deployed within six months of approval. However, the challenges of smart metering being an emerging technology, being a new program to both LG&E and our customers, equipment availability and attracting participants ultimately delayed device deployment. The total number of Responsive Pricing participants peaked at 104 by the end of the year 2008. However, at the end of 2009 the participation level slowly began to decline with a total of 80 Responsive Pricing customers still remaining in the program. Fifty percent of customers who requested to be removed from the Responsive Pricing program reported very marginal savings, if any, and did not want to continue participating. The remaining contingent of customers who asked to be removed from the Responsive Pricing program reported moving from the residence; purchasing a new HVAC system or a new suite of appliances; or not wanting to continue participating after one year of activity.

### **3. 0 PILOT OPERATIONS**

#### *3.1 Customer Marketing*

The primary marketing and education campaigns in 2008 were directed toward developing the Responsive Pricing customer group. Moreover, six marketing efforts were deployed in an effort to enroll eligible customers into the remaining Pilot groups. LG&E utilized a variety of communication techniques and messaging (i.e. four direct mail campaigns, one telemarketing effort, and door-to-door participant recruitment on identified routes). Overall, these efforts yielded approximately 200 customer enrollments. However, LG&E’s objective to have all the customer groups fully subscribed and their equipment deployed was not fully realized. LG&E found only low customer receptiveness to multiple marketing campaigns. Consequently, LG&E learned that developing additional marketing strategies to enroll the remaining participant groups was no longer appropriate and decided to cease further marketing efforts.

Overall, LG&E recognized that there is the need to further study different customer segments and the need to understand how customers will actually behave in terms of various marketing and education efforts on energy consumption, load reductions and energy management tools.

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*3.2 Customer Education and Information Feedback*

LG&E evaluated various methods of communication, interaction and feedback between the Responsive Pricing customers and the company in an effort to provide more direction to pilot participants with their energy consumption.

*3.2.1 Usage Reports*

LG&E performed a bill comparison analysis for each of the Responsive Pricing customers based on their individual energy usage behaviors over the summer periods. LG&E supplied personalized customer usage reports to the Responsive Pricing customers in an effort to help them better understand what measures to take in order to shift their usage from the High and Critical rate periods. The customer reports established that an average Responsive Pricing customer experienced a 1.4% bill decrease for the summer billing period. Also, the customer reports established that 17% of the Responsive Pricing customers were almost bill neutral. Customers, who decided to no longer participate, informed LG&E that the opportunity for energy cost savings was the main reason they had signed up.

*3.2.2 Consumer Website*

LG&E provided a web site for Responsive Pricing participants to obtain program information and guidance on optimizing their energy consumption on an individual basis. Website covered variety of topics, including the Responsive Pricing bill layout; critical peak pricing preparedness; energy efficiency tips; and the transition between pricing schedules. LG&E found the level of interaction from the Responsive Pricing Participants to be very low by monitoring the frequency of site traffic.

*3.2.3 Bill Information*

LG&E implemented a bill format specifically designed for Responsive Pricing participants. The bill included specific information about Responsive Pricing participants' energy usage during each rate period as well as their total energy usage. For comparative purposes and in an effort to allow participants to make the best use of the Responsive Pricing program, the bill also presented information on how Responsive Pricing electric charges compared to the standard electric rate charges.

*3.2.4 Consumer Support*

LG&E provided both telephone and email support for Pilot participants. The phone support was available from 8:00 a.m. – 5:00 p.m. Callers were knowledgeable about and involved in the management of their energy usage. In addition, callers indicated that they were using their participation on the Pilot as a way to gain more control over their energy usage. LG&E also received calls from non-participants who wanted to know about smart meters in general.

Participants also used the email support feature of the Pilot to resolve concerns related to their participation. These customers had wide-ranging questions regarding critical peak pricing and

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billing information. Where appropriate, inquiries were forwarded to a designated contact at LG&E to be addressed.

### *3.3 Critical Peak Pricing Events*

LG&E initiated nineteen critical peak pricing events in total as summarized in the table below.

Summer CPP Event Log			
Year	Date	Time (EST)	MAX Temperature (°F)
2008	July 18	16:00 - 18:00	92
	July 21	16:00 - 18:00	89
	August 11	16:00 - 18:00	79
	August 12	16:00 - 18:00	81
	September 4	16:00 - 18:00	86
2009	June 2	15:00 - 19:00	89
	June 19	14:00 - 18:00	91
	June 24	14:00 - 18:00	91
	June 26	14:00 - 18:00	92
	July 28	14:00 - 18:00	82
	August 26	14:00 - 18:00	89
2010	June 17	15:00 - 19:00	90
	June 18	15:00 - 19:00	93
	June 22	15:00 - 19:00	93
	June 23	15:00 - 19:00	94
	June 25	15:00 - 19:00	91
	July 15	15:00 - 18:00	94
	July 23	15:00 - 18:00	95
	August 10	15:00 - 19:00	100

### *3.4 Field Equipment*

The Pilot implementation and operations have been successful. The equipment and communication technologies deployed have achieved the purposes of the pilot. Nevertheless, the Pilot infrastructure is starting to exhibit signs of degradation through irregular hardware malfunctions and sporadic network performance. LG&E has learned that the functioning of smart meter network infrastructure can be unpredictable, especially in rural areas. However, LG&E recognized that there were areas of identified metering routes where the costs associated with deploying additional network equipment to improve system performance may not have been economically justifiable. LG&E has acknowledged the need to evaluate different variations of emerging technologies on a periodic basis. Since this process was not warranted within the scope of the Pilot, LG&E believes such evaluations will be necessary to allow for the development of ongoing quality control and understanding of potential interoperability issues and implementation risks as new technologies and standards continue to develop.

## 4. 0 PILOT RESULTS

### *4.1 Demand Response Impacts*

The analysis of the three summers of data demonstrates participating Pilot customers consistently decreased their energy usage slightly in high and critical peak pricing periods; however,

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Responsive Pricing customers used more energy overall throughout the summer periods compared to non-Responsive Pricing customers.

Average demand reductions during CPP events varied from 0.2 kWh to over 1.0 kWh per participant during high-temperature periods. Overall the Responsive Pricing load reductions were greatest in the first hour of the critical peak pricing period and then decreased throughout the evening. Customers were beginning to use the appliances or turning up the air conditioning before the critical peak pricing period was over. The daily load profiles for the average Responsive Pricing customers changed and resulted in daily demand being shifted from high-priced hours to lower-priced hours. Based on a comparison of the average hourly energy usage between the Responsive Pricing group and Control group, load was found to shift from higher-priced weekday hours to the lower-priced off-peak and weekend time periods.

Average load bounce-back was greater on days when the critical peak pricing period was in effect for four hours than on the days when the critical peak pricing period was in place for three hours. The maximum average load increase after CPP was released amounted to 0.8 kW. LG&E recognizes that varying the total system load through added communications technologies between the utility and premise equipment may mitigate negative results related to bounce-back. However, the overall effect from these technologies is still unknown and will have to be evaluated through additional tests and trials.

LG&E found that load reductions can be achieved through implementation of time-of-use pricing and CPP events. Moreover, customers on the Responsive Pricing Tariff were receptive to pricing signals as evidenced by the shifts in their energy usage. In addition, customers were willing to receive information and communication to inform them on the impact of their existing behaviors and areas for improvement. Nevertheless, LG&E acknowledges that further studies would be required to investigate how customers process and apply such information on a daily basis.

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*4.2 Participant Usage and Cost*

Responsive Pricing customer usage data is detailed in the following table. Pilot participant 12-month historical usage (i.e., usage prior to beginning of Pilot) and Pilot usage are included. The data is displayed in kWh usage and billed cost for minimum, maximum, and average per participant. Minimum and maximum values are based on average monthly usage by participant for each specified time period. Costs are total customer electric billed costs. A customer's usage for each period can vary for many reasons and depends on when the customer enrolled in the program (i.e., electrical usage in cooling season will generally be higher than heating season because air conditioners use large amounts of electricity and many customers' heating units primarily use natural gas).

Responsive Rate Participant Usage and Cost		Monthly Energy Usage (kWh)			Monthly Total Billed Cost (\$)		
		Minimum	Maximum	Average	Minimum	Maximum	Average
12 Months Prior to Pilot	2007	335	2,942	1,273	31	280	99
Pilot	2008	435	3,631	1,503	33	409	113
	2009	116	3,400	1,296	17	213	93
	2010	111	3,293	1,422	19	226	110

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*4.3 Customer Research*

Based on the assessment conducted by an outside market research firm, the Responsive Pricing program was found to be having a considerably positive effect on customers. Program data as well as customer testimony indicated that the program had influenced the following: awareness of home energy consumption; motivation to change behaviors related to energy usage; understanding of ability to control energy consumption behaviors; and willingness to be accountable for home energy usage. Furthermore, the Responsive Pricing program resonated best with a customer base that is already demonstrating a high level of activity and belief in the practice of home energy conservation and efficiency.

The most functional and cited reason for initial enrollment and satisfaction with the program was the prospect of saving money. Therefore, it should not be surprising that a customer's reported satisfaction with the program was highly correlated to their ability to quantify actual savings on their energy bill. Customer satisfaction results ranges included: 62% of customers being "extremely/very satisfied"; 29% of customers being "somewhat satisfied"; and 9% of customers "not very/not at all satisfied". As it relates to saving money on energy bills, while the majority (57%) believed the program had saved them money, there was a notable contingent (43%) that thought otherwise. When customer perceptions were compared with actual billing data, the reported perceptions were justified. Analysis of the billing cycles of June and September for the Responsive Pricing customer and standard residential rate customer, exhibited an average difference of \$4.60 over the four-month billing cycle in favor of Responsive Pricing customers.

While financial savings were a significant point of the Responsive Pricing program, providing a sense of "consumer control" was actually found to be the more powerful motivator for influencing ongoing customer engagement and retention.

LG&E recognizes that ongoing customer engagement and behavior will require further understanding and evaluation to ensure active customer participation, participant education and retention. Furthermore, LG&E believes that in order to continue understanding and evaluating customer perspectives of emerging technologies and energy management, further trials will be required.

*4.4 Revenue Impact*

LG&E collected customers' billing data to determine the revenue impact from the Pilot program. This data is detailed in the table below.

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Pilot Revenue Impact	Amount Collected (\$)		
	Basic Service Charge	Energy Charge	Total
Standard RS/GS Rate	11,885	179,646	191,531
Responsive RS/GS Rate	22,093	163,861	185,954

LG&E believes that recurrent tariff adjustments may be required in order to effectively assess customer adoption and maintain revenue neutrality.

## 5.0 RECOMMENDATIONS

The Pilot has provided valuable insight to the operations of smart meter network infrastructure. Above all, LG&E has learned that network performance can be largely dependent on terrain topography. Natural barriers such as foliage and the distance between the meters and backhaul communications equipment in remote areas of service territory are crucial variables which will require further evaluation. Furthermore, additional pilot programs would provide LG&E with an opportunity to exercise new and emerging technologies in metering and network communications, which could help overcome the aforementioned geography-specific barriers.

LG&E has gained significant knowledge about customer consumption, rebound of energy usage following or in anticipation of price reductions after peak pricing, and energy efficiency achieved by some customers though only providing information through in home displays. Nonetheless, LG&E suggests that in order to enhance the customer relationship, a higher level of guidance and direction be provided through additional pilot programs. These additional pilot programs may be completely new programs designed to advance understanding of rate design and impact on customer behavior simultaneously with implementing new technologies.

Continued focus on smart meter technologies by utilities and regulators across the country suggest that preparing for deployment through building integration and deployment capabilities must remain a key strategic consideration. LG&E believes that providing customers with technologies and detailed usage information, coupled with education, will empower them to make decisions about their personal energy consumption. Overall, customer education across all segments is required if demand response and variable rate structures are to be expanded or made a condition of service. This education effort would need to focus on both how the programs function and what the potential benefits are to the customer. Furthermore, an emphasis should be placed on how the utility is a partner to the customer in demand-side management, as results could include mutual system-wide improvements to overall cost-effectiveness and reliability of service. Acceptance, understanding, and use of these technologies to change consumption patterns required to achieve savings related to investments affect all customers' bills.

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Integration and management of system and customer data through new pilots and trials will provide LG&E with the ability to analyze warehoused information in a manner that provides sustainable options for customers including demand response and demand side management. While the Pilot had been designed to test advanced two-way communications technology for automated meter reading, LG&E was unable to utilize and evaluate fully computerized meter data management system capabilities, given that such systems were not readily available and economically feasible during the Pilot deployment. Today however, these systems are not only readily available, but also scalable enough to handle trials and pilots alike at a fraction of the cost of a fully implemented system. Consequently, LG&E plans to continue evaluating methods for converting the data to information through a knowledge and management life cycle in which the data from smart meters are analyzed and integrated in a manner that leads to action. LG&E intends to develop a data-to-information-to-action plan as a better understanding of customer energy usage patterns, customer acceptance of multiple rate designs, infrastructure condition and performance of new intelligent technologies, emerges through additional pilot and trial analysis and is integrated as functional information into usable customer and demand side management programs as well as operation and maintenance strategies that identify, trend and alert LG&E's grid operators.

The Pilot consisting of approximately 2,000 meters is now complete and LG&E seeks that the Commission discontinue this pilot. LG&E would maintain existing meters in place and begin collecting meter reads through normal meter reading operations to ensure constant operational performance and continuous customer service. Pending Commission approval, LG&E would communicate the end of the Pilot with the remaining Responsive Pricing customers and reinstate these customers on standard rate schedule. Furthermore, LG&E would plan to provide the Responsive Pricing customers with an opportunity to participate in future time-of-use rate pilots, if they so desired.

LG&E believes that pilots and trials designed to understand customer behavior (i.e., acceptance, use, sustainability of savings, etc.) and investigate emerging technology integration into existing system infrastructure should be continued.

Moreover, LG&E recognizes that customer education about the benefits of energy efficiency and specifically smart technology is critical to gaining consumer acceptance and employment of this technology. Across the country, multiple utilities have implemented demand response programs and dynamic pricing pilots. While the results of these pilot programs varied widely, the key premise among the utilities focused on the need to further study how programs apply differently across customer segments, and the need for more insight into customer behavior. Consequently continued and new efforts focused on customer education via multiple rate offerings should be evaluated.

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The purpose of the objectives discussed below is to provide the Commission a shared understanding of LG&E's position and overall insights to be attained by conducting additional pilots and trials. LG&E seeks to develop internal capabilities to deal with changing smart meter technology and its integration into LG&E's existing system infrastructure prior to large or full-scale deployment of smart meters. The goals of the additional pilots are to: (1) develop a further understanding of customer perspectives (value and perception) of smart meter technology by providing customers with access to their data through a variety of smart tools and web based interfaces to determine customer value and overall impact on acceptance of energy efficiency; (2) develop an understanding and experience of how selected meter data management systems will interface with LG&E's current IT infrastructure; (3) develop an understanding of the progressive change in metering, communications and data management technologies over time, ongoing quality control and potential interoperability, implementation and standards issues; (4) develop an understanding and experience of multiple rate offerings by providing customers with optional rate choices, rate comparison tools and access to energy usage data; and (5) develop experience and techniques for deploying smart meter technologies and communications systems in rural service areas, and evaluate convergence of such infrastructure with existing direct load control program to ensure a sustainable demand response solution.

While the Company seeks to discontinue the current Pilot, LG&E plans to continue its efforts in the area of dynamic pricing and smart metering by developing and refining plans to address issues of standards and revenue recovery, and strategically monitoring and testing smart meter technologies and time differentiated rates to ensure that deployment does not outpace technology, customer adoption, and overall value of providing such capabilities to consumers.