Prepared Testimony of
Brent Hodges – Director Retail Strategy
Reliant Energy
Submitted to the
Texas Senate Committee on Business and Commerce

August 24, 2010

Re: Smart Grid Technology

Reliant Energy

Mr. Chairman and members of the committee: Thank you for allowing me to testify today.

My name is Brent Hodges and I am Director of Retail Strategy for Reliant Energy, a wholly owned subsidiary of NRG Energy, Inc. Reliant Energy sells electricity to approximately 1.6 million[1] retail consumers in the competitive regions of ERCOT. I am here today to provide you with an overview of Reliant's smart grid retail products which utilize the transmission and distribution utilities' (TDSPs') smart grid infrastructure to enable customers to manage their electricity usage while promoting energy efficiency and lowering their overall energy costs.

Texas is more advanced than other states in deploying smart grid technologies. To give a short history of the smart grid in Texas I will quickly summarize the legislation and PUCT rules and projects that have led us to where we are today. In legislation passed in 2005, the Texas Legislature encouraged the adoption of new metering and meter information technologies by electric utilities in Texas. In 2007, the Legislature passed a statute[2] that included a provision that Smart Grid networks be deployed as rapidly as possible. In May 2007, the PUCT adopted the advanced metering rule (AMS rule[3]) setting forth the requirements for smart meter deployment cost recovery, including remote meter reading, access to 15 minute interval data, two-way communications with devices in the home, and the use of advanced meter data in ERCOT settlement calculations. In August 2007, PUCT opened Project No. 34610, Advanced Meter Implementation, to begin work with market participants to define market requirements for data exchange interfaces and home-area-network communications. As a result of this legislative and regulatory framework, three of the four TDSPs (Oncor, CenterPoint Energy, and AEP) have PUCT-approved advanced metering system deployments underway and the fourth (TNMP) has submitted its filing to the PUCT for approval. As of July 31, 2010, over 1.7 million advanced meters have been installed in the competitive regions of Texas.

In addition to the legislative and regulatory framework established in Texas, the efforts of the Federal government around the smart grid have benefited Texas utilities. The national focus and attention on the Smart Grid, especially as it relates to enabling informed participation by consumers, has been intensified. The Energy Independence and Security Act of 2007 (EISA) made the development of a Smart Grid a national policy goal. EISA authorized DOE to solicit applications for Smart Grid investments and demonstration projects and assigned the National Institute of Standards and Technology (NIST) the responsibility to coordinate the development of smart grid standards. In February 2009, the U.S. Congress passed the American Recovery and Reinvestment Act ("ARRA"), which

[1] As of June 30, 2010
[2] PURA Sect. 39.107 (i)
[3] PUC SUBST. R. § 25.130

provided funding for the DOE Smart Grid grants and incentives and for NIST to fulfill its EISA obligations. By the fall of 2009 NIST had published a draft document outlining the Smart Grid framework and roadmap for interoperable standards. In addition, NIST created the Smart Grid Interoperability Panel (SGIP), which is a public-private partnership supporting NIST in coordinating, accelerating, and harmonizing the development of smart grid standards. Reliant is committed to the development of Smart Grid standards and I represent Reliant on the governing boards for both the SGIP and the North American Energy Standards Board (NAESB), where several key standards are being developed.

In the fall of 2009, DOE selected 132 smart grid projects to fund and Texas entities were awarded more than $285 million for these projects. Reliant Energy was one of the awardees and received almost $20 million in funding to develop and market smart grid enabled products to residential customers.

Now that the legislative and regulatory framework is established and the smart metering infrastructure is being deployed, it is time for retail consumers to participate and gain the benefits of this infrastructure, for which they are paying through a monthly surcharge.

Energy Management

Reliant Energy has spent the past three years investing in the development and testing of consumer-focused products that utilize the functionality of the smart metering infrastructure and empower customers to manage their electricity usage through information, choice, and control. In March 2010, Reliant Energy executed a definitive agreement with the DOE to receive smart grid investment grant (SGIG) funding and committed to a total project expenditure of $64 million. The smart grid products Reliant Energy now offers include a weekly summary email, smart grid portal, time-of-use (TOU) rate plan, and in-home displays. Reliant Energy expects that these products will enable customers to reduce their energy cost, consumption, and demand.

Information

With energy usage information disseminated to customers in programs such as weekly summary emails, a smart grid portal, and in-home displays, Reliant customers can execute timely and fact-based decisions that make a difference on their monthly electricity bill. Pilots in other parts of the country have shown similar types of direct energy usage feedback can result in a 4-15%[4] reduction in consumption depending on the method of feedback. With the level of consumer engagement around price already present in the Texas market, Reliant Energy believes similar results are achievable and desired by Texans who want to act on this timely knowledge of their energy usage. Prior to the smart meter deployments, this

[4] "In-Home Displays Spike Interest in Energy Usage and Efficiency," *Energy Insights,* July 30, 2008.

type of consumer participation was limited because the consumer's intra-day interval usage was not available.

In addition, Reliant Energy offers several educational programs to help customers improve their energy efficiency. Reliant Energy offers customers a free home energy audit, a home electricity review including a peer comparison, and a website which includes various efficiency tips and tools.

Choice

Accessing the energy information provided by a smarter grid and smart meters through standard interfaces, Reliant Energy has created new smart grid enabled offers to motivate consumers to engage in energy efficient behavior for themselves, which results in benefits to the electric grid. Reliant Energy offers a TOU rate plan with a pricing structure that encourages customers to shift demand from summer peak periods to lower priced periods such as nights and weekends. Throughout the country, TOU pricing has demonstrated a significant benefit to the reduction of electricity peak demand. For instance, during California's statewide 2005 TOU pricing pilot, customers reduced their peak-period energy use by 5.9% as a result of TOU rates.[5]

Control

The information and choice products described above will drive consumer energy decisions in real time and for the long term. There is overall market value in consumers engaging in energy efficient behavior by acting on the smart grid information they receive in real time and by driving consumers to make smart appliance investments with greater frequency based upon that information. Reliant Energy will be conducting a pilot using a TOU rate plan to manage the operation of smart appliances in customer's homes by utilizing the functionality of the Home Area Network (HAN), which is enabled by the smart meter and by the TDSP communication network. This pilot will test the communication functionality and the automatic operation of the smart appliance when given the economic incentives provided by the TOU rate structure.

Recommendations

The key to Texas Leadership in energy management and customer engagement is having the right market framework and using standards-based technology. The Texas approach of relying on competitive energy services markets to deliver products and services that customers want is the right approach to drive commercial investment and innovation. Texas has also encouraged the use of open standards[6] for communicating with devices inside the

[5] "Impact Evaluation of the California Statewide Pricing Pilot," March 16, 2005.

[6] PUC SUBST. R. 25.130(g)(1)(J) capability to communicate with devices inside the premises, including, but not limited to, usage monitoring devices, load control devices, and prepayment systems through a home area network

home. However, additional national standards[7] are currently being developed that could benefit the Texas smart grid implementation and should be adopted in the Texas market when completed.

Reliant offers the following recommendations for the committee to consider in setting their priorities for the upcoming legislation session. Implementation of these recommendations will help to make Texas a smart grid implementation model for other jurisdictions to follow.

1. As smart grid implementation evolves in Texas, the communications interfaces for customer energy information (Smart Meter Texas, AMS smart meter HAN interface) should follow applicable national smart grid standards as endorsed by the National Institute of Standards and Technology (NIST) and the Smart Grid Interoperability Panel (SGIP). To facilitate the coordination of evolving smart grid standards, a governance and change control process should be implemented for these smart grid interfaces. Reliant Energy proposes that the process mirror the governance processes for ERCOT protocol changes. Customers, TDSPs, and REPs will benefit from the use of national standards, which help to lower the cost of technology, prevent stranded investments, facilitate future upgrades, enable product innovation, promote vendor competition, and ensure cyber security best practices are incorporated.

2. In order to fully deliver benefits to consumer from smart meters and Advanced Meter System (AMS) deployments, TDSPs' AMS communications networks must provide adequate bandwidth, latency and message delivery to specific premises to provide meaningful informational, demand management, distributed generation and plug-in electric vehicle programs to customers. If Texans are to be empowered participants in the market, they must have access to near real-time energy usage information and be able to receive specific information from program providers including sensitive price and control signals which must be securely and reliably delivered.

3. All elements behind the meter and in the customer Home Area Network (HAN) must remain fully competitive to maximize innovation and minimize cost. The markets for in-home displays, smart thermostats, smart car chargers, electricity service, electric vehicle charging, and load management will produce far stronger results with broad market participation driven by the consumer's choice of a value proposition. HAN

(HAN), based on open standards and protocols that comply with nationally recognized non-proprietary standards such as ZigBee, Home-Plug, or the equivalent

[7]Two applicable examples are OpenADE, which is a standard machine to machine interface for third party access to customer usage information, and NAESB is developing an Energy Usage Information Model, which enables the exchange of energy information in a consistent format.

technology should not be provided by the TDSPs and recovered in base rates.

Testimony of:

Patrick James
TXU Energy Director of Product Development

Presented to:

Senate Business and Commerce Committee
August 24, 2010

6555 Sierra Drive • Irving Texas 75039

Good morning Mr. Chairman and members of the committee.

My name is Patrick James and I am Director of Product Development at TXU Energy. TXU Energy is a competitive retailer that serves over 2 million customers here in Texas. We are part of Energy Future Holdings.

I would like to thank the committee for the opportunity to talk with you today. This is my first time testifying before you so I apologize in advance if anything I do or say is not in normal protocols.

Earlier today, my colleague Carl Richie gave a broad overview of some of our energy efficiency and demand side management programs that leverage smart meters. Today, I will focus my remarks on two of our innovative offers in those areas – iThermostat and Time of Use.

First, iThermostat.

Our iThermostat is the first low-cost web-enabled programmable thermostat in the Texas retail electric market. It lets customers monitor, manage, and control the temperature for their home or business remotely over the internet, including via their smart phones. It also provides Demand Response functionality through its smart meter interface.

Many people have programmable thermostats but may never program them due to the hassle or perceived complexity. They lose out on the energy efficiency and cost savings benefits of the device. Our easy to use interface helps customers actually do this effectively.

I have an iThermostat at my home and can control it using the Blackberry right here in my pocket. Through the Blackberry interface I could increase the temperature at my home back in Dallas while I am here with you today in Austin. In our filed testimony we've

provided screen shots of this functionality so you can see how robust and interactive this kind of technology can be.

Now on to our second offering, the TXU Energy Time-of-Use plan.

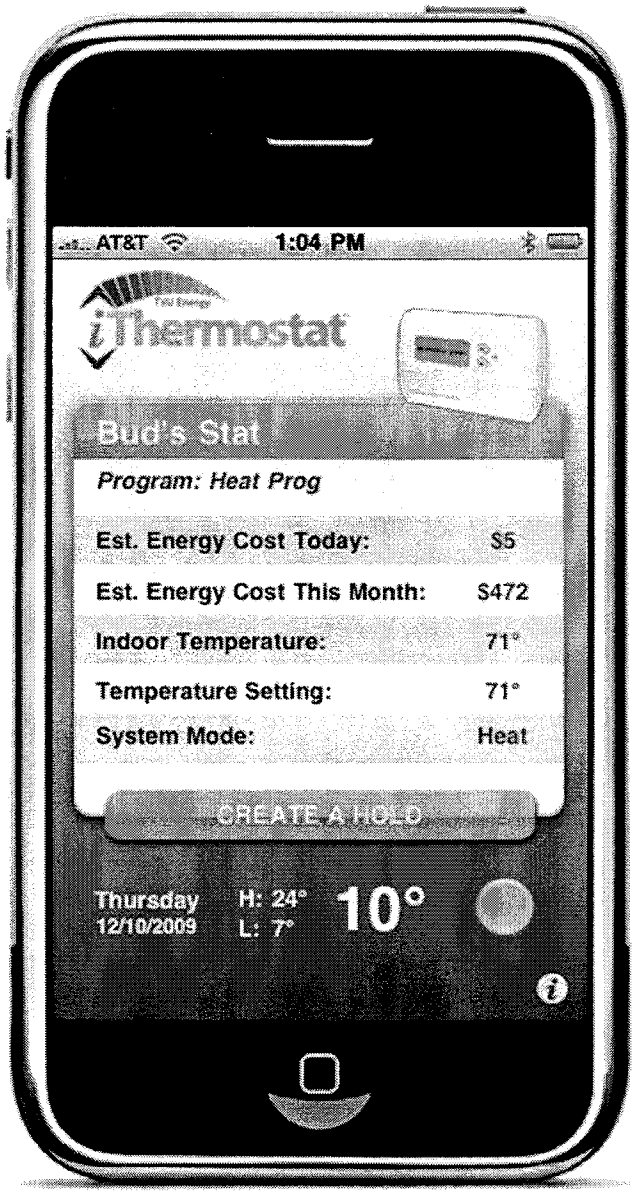
TXU Energy has been offering time-of-use plans since 2006 here in Texas and we are in the process of rolling them out more broadly with new smart meters.

The TXU Energy Time-of-Use plan leverages the smart meter's ability to measure electricity usage at various points in time – not just once each month.

Using this timely information, we can offer customers the potential to save on their electricity bills. Customers can save money on this plan when their electric usage is low during on-peak hours or when they shift energy-intensive activities, like running the A/C and other major appliances, to lower cost off-peak hours. This energy load shifting to off-peak hours is also beneficial to the ERCOT market. It reduces the need for peaking plants; thus, lowering costs and helping the environment. Over 90 percent of hours in the year are off-peak on our current plan.

Coupled with our iThermostat, our Time-of-Use product's benefits are compounded. Giving customers more energy efficiency options and lower energy costs. As more and more smart meters are rolled out the benefits from products like our Time-of-Use plan and our iThermostat should only increase.

Mr. Chairman and members of the committee, this concludes my prepared remarks. Thank you again for the opportunity to testify here today. I look forward to answering your questions.


AT&T
1:04 PM
iThermostat
Bud's Stat
Program: Heat Prog
Est. Energy Cost Today: $5
Est. Energy Cost This Month: $472
Indoor Temperature: 71°
Temperature Setting: 71°
System Mode: Heat
CREATE A HOLD
Thursday
12/10/2009
H: 24°
L: 7°
10°

TXU energy

Edit My Profile
Manuals | Log Out

99°
96°

Thermostat Home

Thermostat Home


Program Settings


Reports & Tracking


28 Unread Alerts

Weather Forecast for Rockwall, TX

Currently	Today	Saturday	Sunday	Monday
Feels Like 96°	Hi: 99° Low: 78°	Hi: 100° Low: 78°	Hi: 102° Low: 77°	Hi: 103° Low: 77°

Up - 1018002

Est. Energy Cost Today:	$1
Est. Energy Cost This Month:	$151
Indoor Temperature:	80°
Temperature Setting:	80°
System Mode:	Cool
Current Program:	Cool 7-Up
Keypad Lockout (DISABLED):	Apply

Down -1021364

Est. Energy Cost Today:	$4
Est. Energy Cost This Month:	$187
Indoor Temperature:	76°
Temperature Setting:	76°
System Mode:	Cool
Current Program:	Cool 7-Down
Keypad Lockout (DISABLED):	Apply

Communication Status

- Gateway Connected
- Up - 1018002 Thermostat Connected
- Down -1021364 Thermostat Connected

TXU energy

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Manuals | Log Out

Program Settings

Thermostat Home


Program Settings


Reports & Tracking


28 Unread Alerts

Thermostat Programs | Set and Schedule Holds | Cycling Event Opt-Out

Select Mode	Select Program	Select Day
Up - 1018002	New 5-1-1 Program	Saturday
Cool	New 5-2 Program	Sunday
Heat	New Seven Day Program	Monday
Down -1021364	Heat Up	Tuesday
Cool	Heat Down	Wednesday
Heat	Cool 7-Up	Thursday
	Cool 7-Down	Friday

MY 30 DAY SPENDING FORECASTER ™ 8-20-10 THRU 9-19-10

Forecasted Cost	Program Optimization	Targeted Cost
$194	$0	$194

-1° 0° +1°

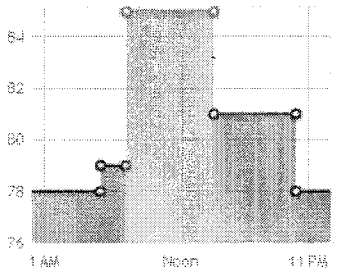
Update Program

Morning Start Time: 5:30am Temp: 79

Day Start Time: 7:30am Temp: 85

Evening Start Time: 2:30pm Temp: 81

Night Start Time: 9:00pm Temp: 78



Send To Thermostat

RER Certificate Number 10004

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Reports & Tracking

99° 96°
Thermostat Home

Program Settings

Reports & Tracking

28 Unread Alerts

Today | Month To Date | Year To Date | 08/20/2010 | 08/20/2010 | Go

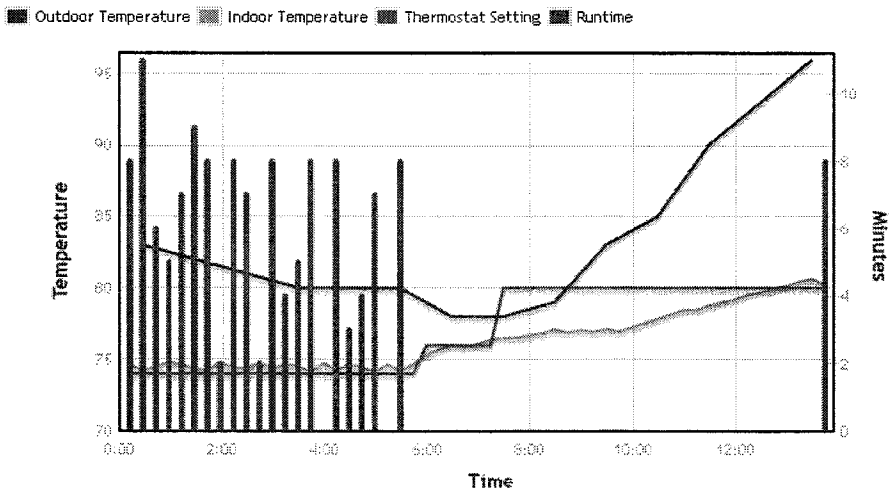
Date Range (Fri, 20 Aug 12:00 AM - Fri, 20 Aug 01:53 PM)

Select Thermostat:
- (•) Up - 1013002
- ( ) Down - 1021364

Select Display Options:
- [x] Outdoor Temperature
- [x] Indoor Temperature
- [x] Thermostat Setting
- [x] Runtime

Current Report Summary:

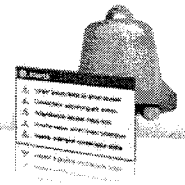
Cooling Estimated Cost:	$1
Heating Estimated Cost:	N/A
Cooling Runtime Minutes:	136
Heating Runtime Minutes:	N/A
Average Indoor Temp:	76°
Average Outdoor Temp:	83°



TXU energy

Edit My Profile

Manual | Log Out



Alerts

Thermostat Home

Program Settings

Reports & Tracking

2 Unread Alerts

You should replace your filter immediately and reset your filter counter by pressing the Run and Hold button on your device.

Created 19 Aug

Weekly Energy Usage Summary

Up - 1018002 estimated energy cost was $58.00

Down -1021364 estimated energy cost was $69.00

Total estimated energy cost was $127.00

Created 15 Aug