

Alliant Energy Corporate Services Legal Department 319-786-4742 – Phone 319-786-4533 – Fax

Paula N. Johnson Senior Attorney - Regulatory

April 1, 2014

Dr. Burl Haar, Executive Secretary Minnesota Public Utilities Commission 121 7<sup>th</sup> Place East, Suite 350 St. Paul, MN 55101-2147

RE: Interstate Power and Light Company Docket No. E999/CI-08-948 Smart Grid Report

Dear Dr. Haar:

Interstate Power and Light Company respectfully submits its Smart Grid Report in the above captioned docket.

Copies of this filing have been served on the Minnesota Department of Commerce, Division of Energy Resources, the Minnesota Attorney General-Residential and Small Business Utilities Division, and the attached service list.

Respectfully submitted,

<u>/s/ Paula N. Johnson</u> Paula N. Johnson Senior Attorney - Regulatory

PNJ/tao Enclosures

cc: Service List

Interstate Power and Light Co. An Alliant Energy Company

Alliant Tower 200 First Street SE P.O. Box 351 Cedar Rapids, IA 52406-0351

Office: 1.800.822.4348 www.alliantenergy.com

## STATE OF MINNESOTA

#### **BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION**

Beverly Jones Heydinger David C. Boyd Nancy Lange Dan Lipschultz Betsy Wergin Chair Commissioner Commissioner Commissioner Commissioner

IN THE MATTER OF COMMISSION CONSIDERATION OF STANDARDS RELATED TO SMART GRID INVESTMENTS AND INFORMATION UNDER THE FEDERAL INDEPENDENCE AND SECURITY ACT OF 2007	DOCKET NO. E999/CI-08-948
--	---------------------------

## AFFIDAVIT OF SERVICE

STATE OF IOWA ) ) ss. COUNTY OF LINN )

Tonya A. O'Rourke, being first duly sworn on oath, deposes and states:

That on the 1<sup>st</sup> day of April, 2014, copies of the foregoing Affidavit of Service, together with Interstate Power and Light Company's Smart Grid Report, were served upon the parties on the attached service list, by e-filing, overnight delivery, electronic mail, and/or first-class mail, proper postage prepaid from Cedar Rapids, Iowa.

<u>/s/ Tonya A. O'Rourke</u> Tonya A. O'Rourke

Subscribed and Sworn to Before Me this 1<sup>st</sup> day of April, 2014.

<u>/s/ Kathleen J. Faine</u> Kathleen J. Faine My commission expires on February 20, 2015 Notary Public

Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Anderson	Julia.Anderson@ag.state.m n.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota St St. Paul, MN 551012134	Electronic Service	Yes	OFF_SL_8-948_1
Bailey	bailey@ilsr.org	Institute For Local Self- Reliance	1313 5th St SE Ste 303 Minneapolis, MN 55414	Electronic Service	No	OFF_SL_8-948_1
Baranko	gail.baranko@xcelenergy.c om	Xcel Energy	414 Nicollet Mall7th Floor Minneapolis, MN 55401	Electronic Service	No	OFF_SL_8-948_1
Briggs	sbriggs@swce.coop	Steele-Waseca Cooperative Electric	2411 W. Bridge St PO Box 485 Owatonna, MN 55060-0485	Electronic Service	No	OFF_SL_8-948_1
Crocker	gwillc@nawo.org	North American Water Office	PO Box 174 Lake Elmo, MN 55042	Electronic Service	No	OFF_SL_8-948_1
Dahlberg	markdahlberg@nweco.com	Northwestern Wisconsin Electric Company	P.O. Box 9 104 South Pine Street Grantsburg, WI 548400009	Electronic Service	No	OFF_SL_8-948_1
Eide Tollefson	HealingSystems@earthlink. net	R-CURE	P O Box 129 Frontenac, MN 55026	Paper Service	No	OFF_SL_8-948_1
Eleff		Regulated Industries Cmte	100 Rev Dr Martin Luther King Jr Blvd Room 600 St. Paul, MN 55155	Paper Service	No	OFF_SL_8-948_1
Ferguson	sharon.ferguson@state.mn .us	Department of Commerce	85 7th Place E Ste 500 Saint Paul, MN 551012198	Electronic Service	Yes	OFF_SL_8-948_1
Fuller	john.fuller@senate.mn	MN Senate	75 Rev Dr Martin Luther King Jr Blvd Room G-17 St. Paul, MN 55155	Electronic Service	No	OFF_SL_8-948_1
	Anderson Bailey Baranko Briggs Crocker Dahlberg Eide Tollefson Eleff Ferguson	AndersonJulia.Anderson@ag.state.m n.usBaileybailey@ilsr.orgBarankogail.baranko@xcelenergy.c omBriggssbriggs@swce.coopCrockergwillc@nawo.orgDahlbergmarkdahlberg@nweco.comEide TollefsonHealingSystems@earthlink. netEleff.usFergusonsharon.ferguson@state.mn .usFullerjohn.fuller@senate.mn	Anderson   Julia Anderson @ag.state.m   Office of the Attorney General-DOC     Bailey   bailey@ilsr.org   Institute For Local Self- Reliance     Baranko   gail.baranko@xcelenergy.c om   Xcel Energy     Briggs   sbriggs@swce.coop   Steele-Waseca Cooperative Electric     Crocker   gwillc@nawo.org   North American Water Office     Dahlberg   markdahlberg@nweco.com Nethwestern Wisconsin Electric Company     Eide Tollefson   HealingSystems@earthlink net   R-CURE     Eleff   Regulated Industries Cmte     Ferguson   sharon.ferguson@state.mn us   Department of Commerce     Fuller   john.fuller@senate.mn   MN Senate	Anderson   Julia.Anderson@ag.state.m   Office of the Attorney   1800 BRM Tower     Anderson   n.us   Office of the Attorney   1800 BRM Tower     Anderson   St. Paul,   St. Paul,     Bailey   bailey@ilsr.org   Institute For Local Self- Reliance   1313 5th St SE Ste 303     Baranko   gail.baranko@xcelenergy.c   Xcel Energy   414 Nicollet Mall7th Floor     Minneapolis,   MN   55414     Baranko   gail.baranko@xcelenergy.c   Xcel Energy   414 Nicollet Mall7th Floor     Minneapolis,   MN   55401   55414     Briggs   sbriggs@swce.coop   Steele-Waseca   2411 W. Bridge St     Opd Box 174   MN   55060-0485   Owatonna,     Crocker   gwillc@nawo.org   North American Water   PO Box 174   Lake Elmo,     Office   markdahlberg@nweco.com   Northwestern Wisconsin   P.O. Box 9   104 South Pine Street     Grantsburg, with   ret   Regulated Industries Cmte   100 Rev Dr Marin Luther King Jr BMd   No     Stoze 2   sharon.ferguson@state.mn   Department of Commerce   85 7th Place E Ste 500   Sist15 5     Fuller   John.f	Anderson Julia Anderson@ag.state.m Office of the Attorney General-DOC 1600 BRM Tower 445 Minnesta St SL Puul, MN SS1012134 Electronic Service   Bailey bailey@ilsr.org Institute For Local Self- Reliance 1313 5th SL Ste 303 Minneapolis, MN S5414 Electronic Service   Baranko gail.baranko@xcelenergy.c om Xcel Energy 414 Nicollet Mall7th Floor Minneapolis, MN S5401 Electronic Service   Briggs sbriggs@swce.coop Stele-Wasecna Cooperative Electric 2411 W. Bridge St PO Box 485 Ovatornia, MN S5060-0485 Electronic Service   Crocker gwillc@nawo.org North American Water Office PO Box 9 Isos 485 Ovatornia, MN S5062-0485 Electronic Service   Dahlberg markdahlberg@nweco.com Netwestern Wisconsin Electric Company P.O. Box 9 ISA400009 Electronic Service   Elef markdahlberg@nweco.com Netwestern Wisconsin Electric Company P.O. Box 9 ISA400009 Electronic Service   Elef markdahlberg@nweco.com Netwestern Wisconsin Electric Company P.O. Box 9 ISA400009 Electronic Service   Elef markdahlberg@nweco.com Netwestern Wisconsin Netwestern Wisconsin Electric Company P.O. Box 9 ISA400009 Electronic Service   Elef markdahlberg@nweco.com Netwestern Wisconsin Netwestern Wisconsin Electronic Service P.O. Box 9 ISA400009 Electronic Service   Elef markdahlberg@nweco.com Netwestern Regulated Industries Cme N	Anderson     Julia Anderson @ag.statem     Office of the Attorney General-DOC     1900 BPM Towar 45 Miniscia St Miniscia St St 107134     Electronic Service     Yes       Bailey     bailey@illsr.org     Institute For Local Self- Reliance     1313 5th St SE Ste 303 Miniscia St S5414     Electronic Service     No       Baranko     gail baranko@xcelenergy.c. om     Coel Energy     414 Nicolet Mal7th Floor Minneapolis, MN     Electronic Service     No       Briggs     abriggs@swce.coop minoregolis, motion     Stele-Waseca Cooperative Electric     241 W. Bridge St P O Box 174 U. Bridge St P O Box 174 Lake Elino, MN     Electronic Service     No       Dahlberg     markdahlberg@nwoc.org     Northic American Water Office     PO Box 174 U. Sto422     Electronic Service P O Box 174 Lake Elino, MN     No       Dahlberg     markdahlberg@nweco.com Net     Northwestern Wisconsin Electro Company     PO Box 174 Del Street Forotanac, Sto42     Electronic Service     No       Eleft     Markdahlberg@nweco.com Net     Northwestern Wisconsin Electro Company     PO Box 129 Forotanac, Sto42     Paper Service     No       Eleft     HealingSystems@earthlink.     R-CURE     P O Box 129 Forotanac, Sto52     Paper Service     No       Eleft     Ataron.fergus

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Edward	Garvey	garveyed@aol.com	Residence	32 Lawton St Saint Paul, MN 55102	Paper Service	No	OFF_SL_8-948_1
Darrell	Gerber		Clean Water Action Alliance of Minnesota	308 Hennepin Ave. E. Minneapolis, MN 55414	Paper Service	No	OFF_SL_8-948_1
Bruce	Gerhardson	bgerhardson@otpco.com	Otter Tail Power Company	PO Box 496 215 S Cascade St Fergus Falls, MN 565380496	Electronic Service	No	OFF_SL_8-948_1
Mark	Glaess		Minnesota Rural Electric Association	11640 73rd Ave N Maple Grove, MN 55369	Paper Service	No	OFF_SL_8-948_1
Elizabeth	Goodpaster	bgoodpaster@mncenter.or g	MN Center for Environmental Advocacy	Suite 206 26 East Exchange Str St. Paul, MN 551011667	Electronic Service eet	No	OFF_SL_8-948_1
Burl W.	Haar	burl.haar@state.mn.us	Public Utilities Commission	Suite 350 121 7th Place East St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_8-948_1
Lori	Hoyum	lhoyum@mnpower.com	Minnesota Power	30 West Superior Street Duluth, MN 55802	Electronic Service	No	OFF_SL_8-948_1
Eric	Jensen	ejensen@iwla.org	Izaak Walton League of America	Suite 202 1619 Dayton Avenue St. Paul, MN 55104	Electronic Service	No	OFF_SL_8-948_1
Paula N.	Johnson	PaulaJohnson@alliantener gy.com	Interstate Power and Light Company	200 First Street SE PO Box 351 Cedar Rapids, IA 524060351	Electronic Service	No	OFF_SL_8-948_1
Larry	Johnston	lw.johnston@smmpa.org	SMMPA	500 1st Ave SW Rochester, MN 55902-3303	Paper Service	No	OFF_SL_8-948_1

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Heidi	Konynenbelt	hkonynenbelt@otpco.com	Otter Tail Power Company	215 S. Cascade Street, PO Box 496 Fergus Falls, MN 565380496	Electronic Service	No	OFF_SL_8-948_1
Matthew	Lacey	Mlacey@grenergy.com	Great River Energy	12300 Elm Creek Boulevard Maple Grove, MN 553694718	Electronic Service	No	OFF_SL_8-948_1
Douglas	Larson	dlarson@dakotaelectric.co m	Dakota Electric Association	4300 220th St W Farmington, MN 55024	Electronic Service	No	OFF_SL_8-948_1
John	Lindell	agorud.ecf@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	Yes	OFF_SL_8-948_1
Carl	Nelson	cnelson@mncee.org	Center for Energy and Environment	212 3rd Ave N Ste 560 Minneapolis, MN 55401	Electronic Service	No	OFF_SL_8-948_1
Andy	Pomroy	andy.pomroy@house.mn		570 State Office Building 100 Rev Martin Luther Jr Blvd St. Paul, MN 55155-1206	Electronic Service King	No	OFF_SL_8-948_1
Kent	Ragsdale	kentragsdale@alliantenerg y.com	Alliant Energy-Interstate Power and Light Company	P.O. Box 351 200 First Street, SE Cedar Rapids, IA 524060351	Electronic Service	No	OFF_SL_8-948_1
Gregory	Randa	granda@lakecountrypower. com	Lake Country Power	2810 Elida Drive Grand Rapids, MN 55744	Electronic Service	No	OFF_SL_8-948_1
Michelle	Rosier	michelle.rosier@sierraclub. org	Sierra Club	2327 E. Franklin Avenue Minneapolis, MN 554061024	Paper Service	No	OFF_SL_8-948_1

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Dan L.	Sanford	N/A	American Transmission Company LLC	W234 N2000 Ridgeview Pkwy Court Waukesha, WI 53188-1022	Paper Service	No	OFF_SL_8-948_1
William	Seuffert	Will.Seuffert@state.mn.us		75 Rev Martin Luther King Jr Blvd 130 State Capitol St. Paul, MN 55155	Electronic Service	No	OFF_SL_8-948_1
Mrg	Simon	mrgsimon@mrenergy.com	Missouri River Energy Services	3724 W. Avera Drive P.O. Box 88920 Sioux Falls, SD 571098920	Electronic Service	No	OFF_SL_8-948_1
Beth H.	Soholt	bsoholt@windonthewires.or g	Wind on the Wires	570 Asbury Street Suite 201 St. Paul, MN 55104	Electronic Service	No	OFF_SL_8-948_1
Chanti	Sourignavong	chantipal.sourignavong@h oneywell.com	Honeywell	1985 Douglas Drive North MN10-111A Golden Valley, MN 55422-3992	Paper Service	No	OFF_SL_8-948_1
Ron	Spangler, Jr.	rlspangler@otpco.com	Otter Tail Power Company	215 So. Cascade St. PO Box 496 Fergus Falls, MN 565380496	Electronic Service	No	OFF_SL_8-948_1
Erin	Stojan Ruccolo	ruccolo@fresh-energy.org	Fresh Energy	408 Saint Peter St Ste 220 Saint Paul, MN 55102-1125	Electronic Service	No	OFF_SL_8-948_1
SaGonna	Thompson	Regulatory.Records@xcele nergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Electronic Service	No	OFF_SL_8-948_1

# 

## **SMART GRID REPORT**

## BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

## INTERSTATE POWER AND LIGHT COMPANY'S 2013 ANNUAL SMART GRID INFORMATIONAL REPORT

#### DOCKET NO. E999/CI-08-948

#### MARCH 29, 2014

Pursuant to the Minnesota Public Utilities Commission (Commission) June 5,

2009, Order Taking Action Under Federal Independence and Security Act of 2007,

beginning on April 1, 2010, and annually thereafter, utilities shall file reports on past,

current, and planned smart grid projects, with a description of those projects, including:

total costs, cost effectiveness, improved reliability, security, system performance, and

societal benefit, with their electric service quality reports. Additionally, on March 3,

2011, the Commission issued a Notice Clarifying information Sought in Smart Grid

*Reports.* The Commission requested additional information on the following topics:

- "Smart" functions enabled with existing infrastructure and systems (please also include what percentage of the utility's meters are currently mechanical, Automated Meter Reading (AMR), or Advanced Metering Infrastructure (AMI), and a sentence on the capability of each);
- Planned or completed system improvements which could affect customer service, power quality, or service quality metrics;
- Current customer access to data (such as usage or outage data) and how that data educates customers; any planned additional customer access to data;
- Time-varying rates and demand response; and
- Discuss the general costs of completed or planned projects (including the costs of changes to billing systems, and if applicable, the early retirements of meters or other equipment) compared to the benefits realized or expected to be realized.

Interstate Power and Light Company (IPL) provides the following report

pertaining to its utility operations in Minnesota, based on requirements contained in the

Commissions initial Order, as well as its related subsequent clarifying Notice.

### I. OVERVIEW OF IPL'S SMART GRID INVESTMENTS

As reported in its prior Smart Grid Annual Report submitted to the Commission on March 29, 2013, IPL has not implemented any Smart Grid-specific projects in Minnesota thus far.

IPL continues to believe there are operational, service and societal benefits that would accrue to customers, with the deployment of AMI and Smart Grid at IPL at some point in the future. IPL is heavily focused on replacement of its legacy Customer Information Systems (CIS) as part of the Alliant Energy Corporate Services, Inc. multiyear project to replace both the IPL and Wisconsin Power and Light Company (WPL) CIS systems with one combined Oracle Customer Care and Billing system (CC&B). Full deployment of the CC&B system is a major prerequisite for IPL to be able to fully support goals of future Smart Grid investments and deployments, especially related to AMI smart metering.

IPL's Smart Grid strategy continues to focus on what IPL believes customers think matters most: safe, reliable energy at a reasonable cost. IPL developed an initial Smart Grid Strategic Road Map based on those drivers and priorities, with projects centered initially on leveraging prior Smart Grid investments at WPL. An AECS Smart Grid Working Group has been revisiting the assumptions and drivers behind the original Smart Grid Strategic Road Map and has updated it accordingly. This document will provide the foundational vision for the ongoing development of smart grid strategies to effectively apply technology solutions that would tangibly improve operational excellence and service to customers.

#### II. <u>"SMART" FUNCTIONS ENABLED WITH EXISTING INFRASTRUCTURE AND SYSTEMS</u>

While IPL has not deployed AMR or AMI, IPL does have some technologies that have been in place for quite some time that would be defined as Smart Grid. Although not considered to be AMI, IPL does have about 341 advanced electric meters installed at some of its largest Minnesota commercial and industrial customers that provide interval-based energy usage information, generally on a monthly basis, using Itron MV-90 based systems. These 341 advanced meters represent about 5% of IPL's approximate 7,000 Minnesota commercial and industrial electric customers. Of these 341 advanced meters, 115 are remotely interrogated through a dial-up communication line, and 226 are read manually using a handheld device with an optical coupler. Customers with this type of advanced metering could be provided access to energy usage information via the internet using a web interface known as  $PeakMap^{TM}$ . Currently, three of IPL's Minnesota customers are utilizing this capability at this time. With PeakMap, customers obtain precise energy consumption data to adjust business operations to take advantage of more favorable rates, make informed energy procurement decisions, allocate costs by metered locations, and fine-tune equipment operation and start-up schedules to reduce or eliminate costly demand peaks.

## III. PLANNED OR COMPLETED SYSTEM IMPROVEMENTS WHICH COULD AFFECT CUSTOMER SERVICE, POWER QUALITY, OR SERVICE QUALITY METRICS

IPL also has a limited deployment of Supervisory Control and Data Acquisition (SCADA) capabilities at some of the larger substations serving its Minnesota distribution loads. These capabilities are supported by distribution SCADA systems and staff located at IPL's Distribution Dispatch Center in Cedar Rapids, Iowa. An upgrade to the OSI distribution SCADA system was completed in 2012 that provides expanded numbers and types of monitoring and control points that the system is capable of

handling, in addition to being able to better support advanced applications such as distribution system Volt/Var optimization as implemented by WPL.

Additionally, IPL has technology in place on its 24 KV sub-transmission system that provides self-healing capabilities. It does so by automatically sectionalizing faulted sections of circuits, and transferring load to available alternate sources, thereby minimizing the magnitude and duration of any service disruption to customers served from this system.

In December of 2013, AECS completed a comprehensive "Corporate Strategy for Monitoring and Control of the Distribution System" (Strategy). With internal approval of this multi-faceted strategy, development is now under way on the related business cases to implement the Strategy. The goal is of the Strategy is to ensure asset utilization is maximized and the distribution system is operated consistently by:

- Monitoring the status and performance of critical substations, feeders, and equipment
- Controlling operation of key equipment to reduce duration and extent of system interruptions, and adjusting equipment to optimize operating characteristics
- Providing timely and sufficient data to support decisions and actions to improve reliability, operations, maintenance, engineering and delivery system planning effectiveness

In its Iowa service territory, IPL completed a small "proof of concept" project to test and evaluate the viability and efficacy of available technologies to support monitoring of select devices in IPL distribution systems, to reduce damage to substation assets, reduce overloaded feeders and load imbalances, and capture MAIFI information. The Department of Energy (DOE) added this project to the scope of its Smart Grid

Investment Grant that was previously awarded for WPL's Distribution Automation project described later in Section VII of this report. The implementation phase of this project was completed in the 4<sup>th</sup> quarter of 2012, and initial results provided support for a subsequent larger scale pilot project that is now underway. This expanded pilot project involves installation of 17 additional sets of three "line sensors" on distribution system feeders of rural substations that currently have no remote monitoring capability. Results from this pilot project will be used to help determine if line sensor technologies could be applied cost effectively to support goals around improving system reliability and operating efficiency, especially in rural areas with relatively low customer densities, such as that found in much of IPL's Minnesota service territory.

### IV. CUSTOMER ACCESS TO DATA

As stated in Section II. above, large electric retail and wholesale customers with advanced metering have the ability to access energy usage information via IPL's webbased interface called PeakMap<sup>™</sup>. This web-based interface provides an enhancement to the monthly data reports (included with their bill, on request) that customers currently receive for analyzing their 15-minute interval load data. Currently, there are approximately 200 IPL customers utilizing PeakMap, three of which are in Minnesota.

The PeakMap user interface works hand-in-hand with the Itron MV-90 data collection and analysis software utilized by IPL to collect interval-based metering and event data. PeakMap uses a familiar, Internet browser-based design to deliver load profile information directly to those in the customers' organization who can use it to streamline operations. PeakMap's graphic interface and search functions make it highly interactive and intuitive to use. PeakMap makes it easy for customers to:

- Structure their business operations to take advantage of more favorable rates;
- Make informed energy procurement decisions;
- Pursue bulk purchasing and aggregation opportunities;
- Allocate costs to individual products or processes; and
- Fine tune equipment operation and startup schedules to reduce or eliminate demand peaks.

PeakMap also provides IPL staff with access to customers' interval load data to review and analyze for potential opportunities to leverage available programs and service that may help the customer reduce or manage their energy costs more effectively. PeakMap offers a self-service to customers at no incremental cost to them, replacing the single plotted graph previously offered to customers at a cost of \$25 per report. PeakMap provides the customer with more options at less cost to the utility since little billing staff time is required to support this service. Some key features of PeakMap include:

- Nine interactive graphs and two reports that are available (instead of one plotted graph).
- Historical data can be loaded for up to 24 months.
- Customers can access recorded quantities of their load profile data, as well as calculated quantities (KVAR, KVA, Power Factor) whenever it's convenient for them and as many times as they want through the Alliant Energy PeakMap website.
- The most recent data available is that which is through the last billing cycle (this is not real-time data; data is read at 15-minute intervals).

Although about 40 of IPL's customers use PeakMap on a regular basis, and have confirmed they find great value in the information it provides, PeakMap does not support providing such information to IPL's other customers. Therefore, as part of the Oracle Customer Care and Billing project, IPL is implementing the Oracle Utilities Customer Self-Service functionality that will support providing all customer classes with access to their energy usage data via a customer portal. With that new capability, IPL expects it will migrate its large commercial and industrial customers to its new customer portal with enhanced capabilities, and will retire the PeakMap system.

Also as previously reported, IPL supported the IBM/City of Dubuque "Smarter Electricity Project" by installing approximately 1,000 AMI meters at the residential premises of its participating customers. In early 2010, IPL did not make the additional investments required to integrate AMI and legacy IPL CIS billing systems due to significant cost for the systems to achieve this integration, and the potential for the IPL CIS system to be replaced. Therefore, the AMI data from these 1,000 meters has not been used by IPL for customer billing purposes.

The IBM/City of Dubuque Smarter Electricity Project formally ended in early 2012. Since then, fewer customers have been regularly accessing and using the electricity portal that was developed, with only a handful of volunteers continuing to log in to the portal as of October of this year. With the costs of maintaining the portal for users to access their data being disproportionately high for the very small number of continued users, access to the portal was discontinued on October 15, 2013. Users were individually notified, and a "Lessons Learned" document was drafted by IBM to summarize how the pilot enabled participants to reduce their energy consumption. In that document, it is reported by IBM that:

"...most actively engaged citizens (97 or 36%) were able to conserve an average 7% in electricity consumption. Total of 266 portal users conserved about 31817 kWh (or \$3,818) over a 21-week period. Active users of the Portal saved 3x the rate of energy savings for compared to non-active users. The behavior study of the 78 (53%) survey respondents who used the portal more than once showed that 69% said that the Electricity Portal increased their understanding of their electricity use; 72% said the portal helped reinforce what they were already doing to save electricity; 46% felt that portal helped them conserve electricity; 79% reported taking some action to conserve electricity during the pilot."

#### TIME-VARYING RATES AND DEMAND RESPONSE

IPL has two Demand Response resources in the form of an interruptible load program and a time-of-use (TOU) pricing program. Both of these programs are available to its customer base, inclusive of the small-to-medium C&I market segment. Any C&I customer with a metered demand as low as 50 kilowatts can participate in the interruptible program and all of IPL's customers (regardless of size) can participate in a TOU pricing program.

IPL has twelve customers on the interruptible rate program providing approximately 1.75 MW of potential demand response.

Effective February 17, 2012, IPL enhanced its electric TOU tariffs for residential, commercial, industrial and institutional customers by initiating the following:

• Decreased the energy charges; and

• Reduced the peak periods from 15 hours per day to 13 hours per day.

On a continuous basis, IPL markets this program to all customers through direct contact from key account management, customer support services and/or mail, and alliantenergy.com/timeofday. As of December 31, 2013, 39 customers were

participating in IPL's TOU pricing program, providing an estimated 760 KW of load reduction.

On June 1, 2012, IPL filed a cost-effective DLC program as part of its 2013-2015 Triennial Electric and Natural Gas Conservation Improvement Plan. This new program was approved by the Commission's October 19, 2012 (Docket No. E,G001/CIP-12-484). By the end of 2015, IPL's goal is to have nearly 4,500 customers participating in IPL's DLC program providing an estimated 3 MW of load reduction.

#### V. <u>GENERAL COSTS OF COMPLETED OR PLANNED PROJECTS COMPARED TO THE</u> BENEFITS REALIZED OR EXPECTED TO BE REALIZED

IPL did previously develop a business case in 2007 for deployment of an AMI project, coincidental with the business case developed for deployment of AMI at WPL. In that business case, IPL's Minnesota deployment of electric and gas AMI for all of its customers had an estimated capital investment cost of approximately \$25 million. However, a potential AMI deployment for IPL has been put on indefinite hold. No updates have been made to the original business case and cost estimate.

#### VII. CURRENT WPL SMART GRID PROJECTS

WPL has completed the deployment of AMI in its Wisconsin service territory. In February of 2008, WPL was issued a Certificate of Authority by the Public Service Commission of Wisconsin (PSCW) to implement its planned deployment of AMI to its approximate 640,000 gas and electric customers throughout its Wisconsin service territory. That deployment commenced in April 2008 with an initial AMI Pilot (Pilot) of about 20,000 electric and 20,000 natural gas customers as part of field acceptance testing of the technologies chosen by WPL. The success of that Pilot led to full deployment of approximately 462,000 electric AMI meters and 179,000 natural gas modules to WPL's residential and small commercial customers by the end of 2010.

WPL is currently using its AMI system to bill over 630,000 customers, with less than 1% of estimations on a monthly basis. In addition to its AMI deployment, WPL also has several other Smart Grid initiatives planned or underway. One such initiative is WPL's Work Force Management Consolidation project, currently deployed in a pilot phase in WPL's Stoughton, WI operating area. When fully implemented, it will provide integrated work management solutions that optimize the planning, tracking, scheduling, and dispatching of all field crew work, thereby improving operational effectiveness. As part of that set of solutions, AMI will serve as a supporting technology to improve management and response to electric outages for individual customers. For larger scale outages, AMI will provide alarms and data regarding momentary or sustained power outages, as well as voltage levels at a premise. AMI voltage monitoring capabilities will also be leveraged to monitor power quality on WPL's distribution grid to address short term operational issues, as well as to provide additional data to prioritize projects to address longer term issues as part of the investment planning process. This capability is also being used in conjunction with WPL's Smart Grid Investment Grant project as follows.

In May of 2010, WPL reached agreement with the DOE and accepted an American Recovery and Reinvestment Act (ARRA) grant from the DOE's Smart Grid Investment Grant Program. The \$3.2 million Distribution Automation grant will enable WPL's existing infrastructure to operate more efficiently by using enhanced substation and circuit level control of capacitor banks to optimize VAR flows and power factor, thus reducing loading on our distribution lines, transformers and feeder segments, and thereby reduce distribution waste and unnecessary power generation. This will allow for the same amount of energy to be delivered, but using less fuel to do it. Using less fuel will have a positive impact on the environment and will also reduce costs. The

deployment of the field devices and control systems software has been completed, with approximately 575 capacitor banks now being controlled and managed. The system leverages prior technology investments by use of new interfaces to bring in data from GIS, AMI, SCADA, and Outage Management systems. The system is now fully operational, and WPL will be monitoring its performance to track benefits that will be reported to the DOE through May of 2015.