ELECTRIC POWER RESEARCH INSTITUTE

EPRI Smart Grid Demonstration Update

An EPRI Progress Report **August 16, 2010**

ABOUT THE NEWSLETTER

The EPRI Smart Grid Demonstration Initiative is a five-year collaborative research effort focused on design, implementation, and assessment of field demonstrations to address prevalent challenges with **integrating distributed energy resources** in grid and market operations to create a “Virtual Power Plant.” This newsletter provides periodic updates on the project and relevant industry news and events.

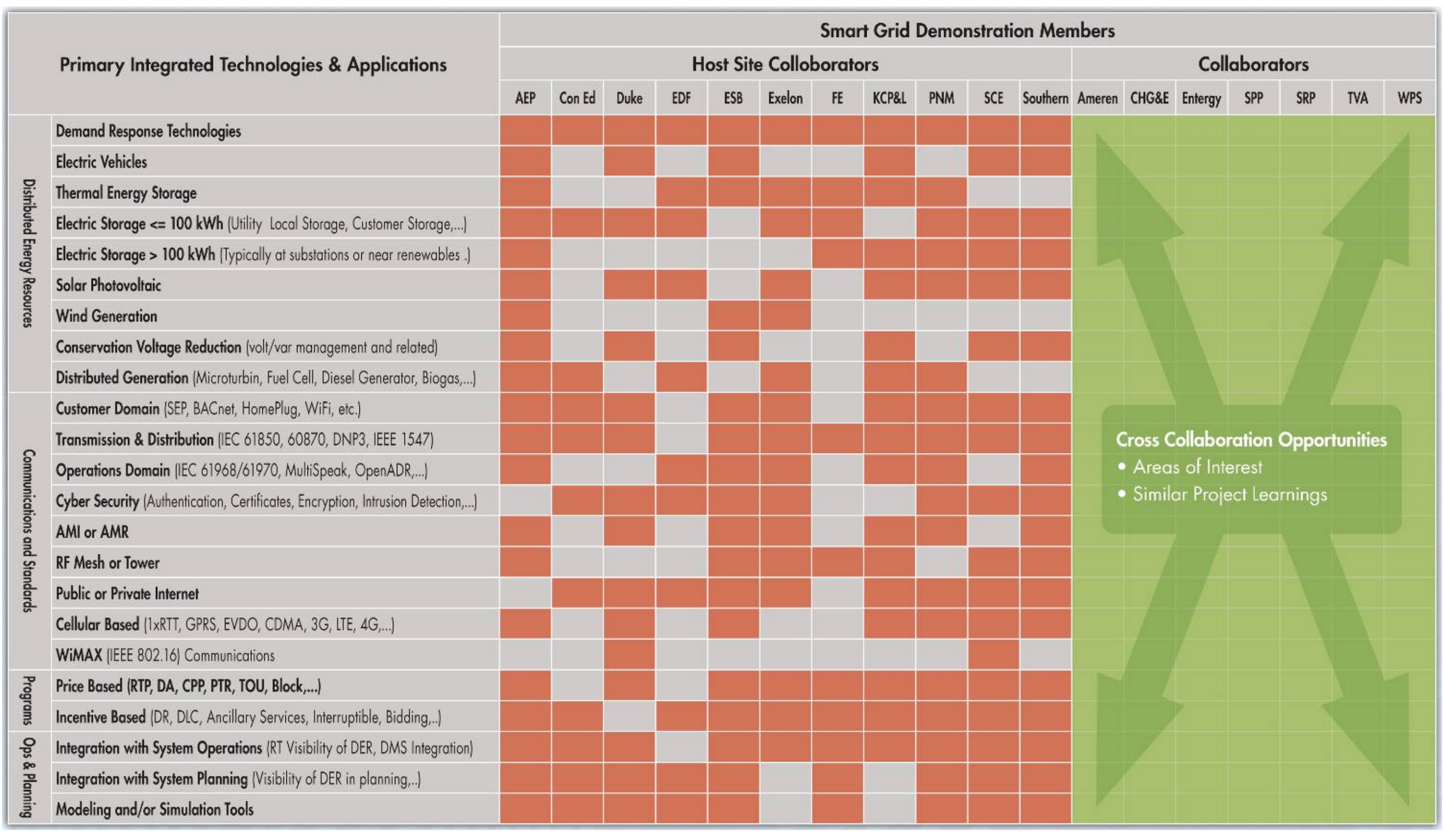
PROJECT UPDATE

9th, 10th & 11th Smart Grid Demonstration Host Sites Officially Selected

Smart Grid Demonstration Host Site projects from Southern California Edison (SCE), Duke Energy and Southern Company were presented to the EPRI Board of Directors the week of August 2nd. Adding three new host-sites to the pool of existing large scale projects helps to achieve the goal of creating cross-collaboration research projects on similar technologies and applications not only for the host-sites, but for all members of the initiative. In addition, it provides the opportunity to identify additional targeted research based on the highest priority smart grid issues. Determining the strategic research efforts will be the focus of the October Smart Grid Advisory meeting hosted by Con Edison October 25-27.

EPRI Smart Grid Demonstration Two- Year Update

Over the past two years, EPRI and eighteen international collaborating electric utilities have made significant progress in developing a foundation of tools and references while performing research to support the advancement of integration of Distributed Energy Resources (DER) in large scale demonstrations. Extracting knowledge from not only the individual projects, but also across multiple projects where similar research is being performed, is underway. This update provides an overview of all eleven host-site demonstration projects, research reports completed to date along with a summary of key demonstration attributes that sets the stage moving forward to extend collaboration opportunities across multiple projects to advance the strategic needs of not only the member utilities, but the industry as well. The update is publicly available for download and limited hard copies are available upon request.



EPRI Extends the Smart Grid Demonstration Initiative – Accepts New Members

EPRI is extending the multiyear, international smart grid demonstration initiative through 2014. Due to the large number of new smart grid demonstration projects around the world, there has been growing interest in this initiative. Since the research within the initiative was planned to be completed during 2013, it was not feasible to accept new members whose projects would extend into 2014. The momentum within the smart grid community and the EPRI collaborative has created an environment for extending the initiative. The goal is to create additional value for existing members and new members by identifying additional approaches for interoperability and integration of distributed energy resources as part of overall system operations and control.

Frequently Asked Questions

Q- Do new members get access to all the deliverables created since 2008?
A- Yes

Q- Do existing members get to participate in the initiative beyond the original end date of 2013 at no additional cost?
A- Yes

Q- Do new members have the opportunity to become a host-site?
A- Yes, just like original members, host-site projects must be defined within the first two years of membership so research corresponds within the years of the host members funding. In addition, members that are not host-sites have the opportunity to be a “mini-demo” throughout the entire duration of the initiative.

Q- What is a “mini-demo”?
A- A “mini-demo” is a research project opportunity open to non-host-site members that is related to integration of distributed energy resources. In general, “mini-demo” research projects must meet at least one of the six criteria to be a host-site with a research timeline typically of 6-12 months.

Q- Who do I contact if I have more questions?
A- Matt Wakefield, 865-218-8087

EPRI Smart Grid Demonstration Host-Site Updates

This section provides a brief highlight of recent activities for each host-site.

Duke Energy (New Host-Site effective August, 2010)

The objective of Duke Energy’s Smart Grid Demonstration Project is to optimize distributed energy resources to achieve a more efficient and reliable grid, enable improved customer programs, and prepare for increased adoption of distributed renewable generation and Plug-in Electric Vehicles (PEV). To achieve its goal, Duke Energy will install 40,000 advanced meters, 8,000 communication nodes at transformers, and distribution automation including voltage/VAR control, self healing, sectionalization, and line sensors. Five homes will be equipped with solar photovoltaic panels, battery energy storage PEVs, and home energy management systems. The project will employ dynamic pricing for load control and intends for three to five hundred plug-in electric vehicles to be on the roads and charging by the end of 2011. A unique and valuable aspect of the project is the plan to evaluate commuter behavior, technical factors, and data management requirements relating to PEVs operating in different utility service areas; and measuring the transformer impacts of PEV “clustering.”

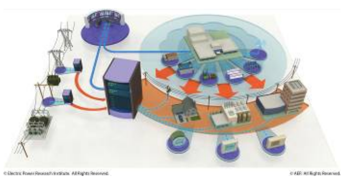
Southern California Edison (New Host-Site effective August, 2010)

This project will deploy Smart Grid technologies to improve the operating performance of local distribution systems and encourage customer participation in the control of electricity demand. The project will illustrate how today’s infrastructure will function when combined with a diverse range of Smart Grid technologies; create a better understanding of issues related to integration among utilities and Independent System Operators; and provide an analysis of associated benefits to customers and the environment. The integration efforts will span fundamental energy delivery segments such as system protection and automation, a centralized integrated control platform, distributed energy resources and an array of “edge of the network” devices. The ISGD project is divided into four topic areas including energy smart customer devices, year 2020 distribution system, secure energy network, and workforce of the future. Interacting components will create greater value by supplying additional information used to optimize operation of the components, thus enhancing the reliability of the entire system. The intent of the project is to produce an integrated system of protection, performance, efficiency, and scale that extends across the energy delivery system to provide multiple stakeholder benefits.

Southern Company (New Host-Site effective August 2010)

This project intends to approach the Smart Grid in a fully-integrated systems approach across four retail operating companies: Alabama Power, Georgia Power, Gulf Power and Mississippi Power. Southern Company demonstrates a more complete model of a Smart Grid by incorporating an Integrated Distribution Management System (IDMS), renewable energy generation including PV, landfill gas, and wind, energy storage at transformer and substation level, an intelligent universal transformer, advanced distribution operational measures, customer response to dynamic pricing in two different demographic regions, and new communications applications. By deploying and demonstrating integration of these technologies and applications, it will address many of the unknowns and enable Southern Company to create an overall aggregated virtual power plant, increase system reliability, lower greenhouse gas emissions, and lower system demand.

American Electric Power (AEP) Smart Grid Demonstration Update



Simulation is considered a key part of looking at new technology in the distribution system. Since a simple snapshot of the data is not adequate for dynamically responsive technology, the AEP approach takes into consideration timing sequences using detailed interval data captured from a recent AMI deployment. These load profiles change over time due to weather, seasonal changes and occupancy. A preliminary task is loading and validating circuit data and AMI data that will enable the simulations. A process of cross-checking feeder data measurements with AMI data was used as a part of a data validation process for the modeled circuit.

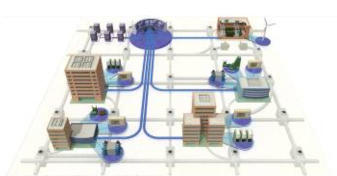
The simulations have been broken down into several sets of simulation tasks. The first set of simulation tasks is focused on evaluating the impact of selected individual technologies and the appropriate control algorithms. AEP is modeling the effect of adding a single type of smart grid technology to specific circuits or groups of circuits. This is intended to reveal information about the technical benefits and potential issues associated with the technology or the application of the technology. These first tasks focus on the impact of the technology and how the utility envisions actual implementation and utilization. Technologies to be simulated include community energy storage (CES), PV, PHEV, Volt/Var, DR, Wind, and NaS Battery.

The first phase of simulation has focused on CES utilizing data from a single selected circuit. Two approaches to triggering the storage utilization were developed in the OpenDSS tool. A selected trigger level was simulated as this is the basic and ideal simple triggering method. However the simulations revealed that variance in high-peak days can exhaust the available stored energy prior to the end of the peak using the simple trigger. A second triggering method examined was setting a minimum demand for discharge within a window of time. This method of combining the time with demand, referred to as time-triggered load following, produced better results. These simulations have indicated several things:

- Variable load behavior needs adequate storage capacity to meet peak shaving requirements. 25 kWh storage units are difficult to trigger at the optimal time to shave the peak without depleting the storage too early. A more successful triggering was achieved when using a larger (75 kWh) unit. These results seem to indicate that the smaller the energy storage capacity (in kWh), the more accurate the triggering algorithm must be to optimize use of the energy storage.
- For optimal utilization of storage, an adaptive storage dispatch algorithm is needed. This would particularly be the case if the storage is used where the peak time of day is variable or unpredictable. Although the time-triggered load following dispatch worked reasonably well when the storage size was appropriately matched, there was enough variance in the circuit modeled to see instances of triggering at a less-than-optimal time.

Moving beyond the single-technology simulation, the second set of simulation tasks will be to understand potential impacts of a combination of smart grid technologies. We may find that additional parameters relative to the operation of certain individual technologies must become input into the control, charging, or dispatch algorithm of another technology. For example if a PHEV and CES system are implemented concurrently, what knowledge and dynamic data from the PHEV system will be needed to manage and optimize the CES technology in tandem? The team intends to learn which technologies will impact one or more of the other technologies. This will be a key part of learning the various utilization algorithms as each new technology is added into the system.

Consolidated Edison Smart Grid Demonstration Update



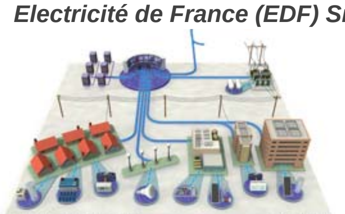
An evaluation of key technology for this project is nearing completion. Some of the technologies were installed earlier in the project work and are currently providing data and experience with the technology while others are in the concept or development stages. A key part of the 3G System of the Future (3GSOF) project relies on use of GridAgents. The GridAgents enable a manageable level of distributed intelligence rolled up to provide grid visibility, automation and controls for distribution operations. Communication to control field devices for purposes such as islanding and auto-reconfiguration will also become more manageable using the GridAgents concept.

Although GridAgents each represent individual grid resources, the project has been able to locate the agents at a location other than on the physical device they represent. GridAgents themselves have been proven to be a distributed approach. As the platform was implemented for the project, the GridAgents have been moved further toward the edge of the network. The project has found that as long as the GridAgents have access to the information and control needed, they can represent the related technology in the same way as if they were residing on the actual devices they represent. The current experience focused on GridAgents needed for the Demand Response Command Center (DRCC). The agents that play a role in the DRCC are the Meter Agents, the Manager Agents, Load Control Agents and Building Agents.

Also under study is the dispatch of customer load controllers for compact network load alleviation. Several use cases were developed to understand the impact and approaches to be considered for the project covering intentional islanding and dispatch of customer load controllers.

Several approaches have been examined for building management. A technical evaluation of the Johnson Controls building automation system and access to the lighting system revealed several challenges. Certain devices are under the building system control (HVAC for example) while others are a separate system and dispatch mechanisms. Depending on the building system components, building systems such as the building backup generators and the lighting system need to be addressed and accessed separately. In addition, generators will need management schemes that consider the allowable runtime limitations largely based on air quality management. Several demand response programs with NYISO and PJM were identified relative to a typical building scenario where participation can be beneficial for the individual customer.

Electricité de France (EDF) Smart Grid Demonstration Update



The EDF PREMIO Smart Grid Demonstration Project involves the integration of distributed resources into a Virtual Power Plant (VPP), This demonstration project aims to identify potential technologies, to assess their advantages and disadvantages, to develop standards, and to identify areas for improvement in response to European, national and regional concerns about electricity supply and CO_2 emissions.

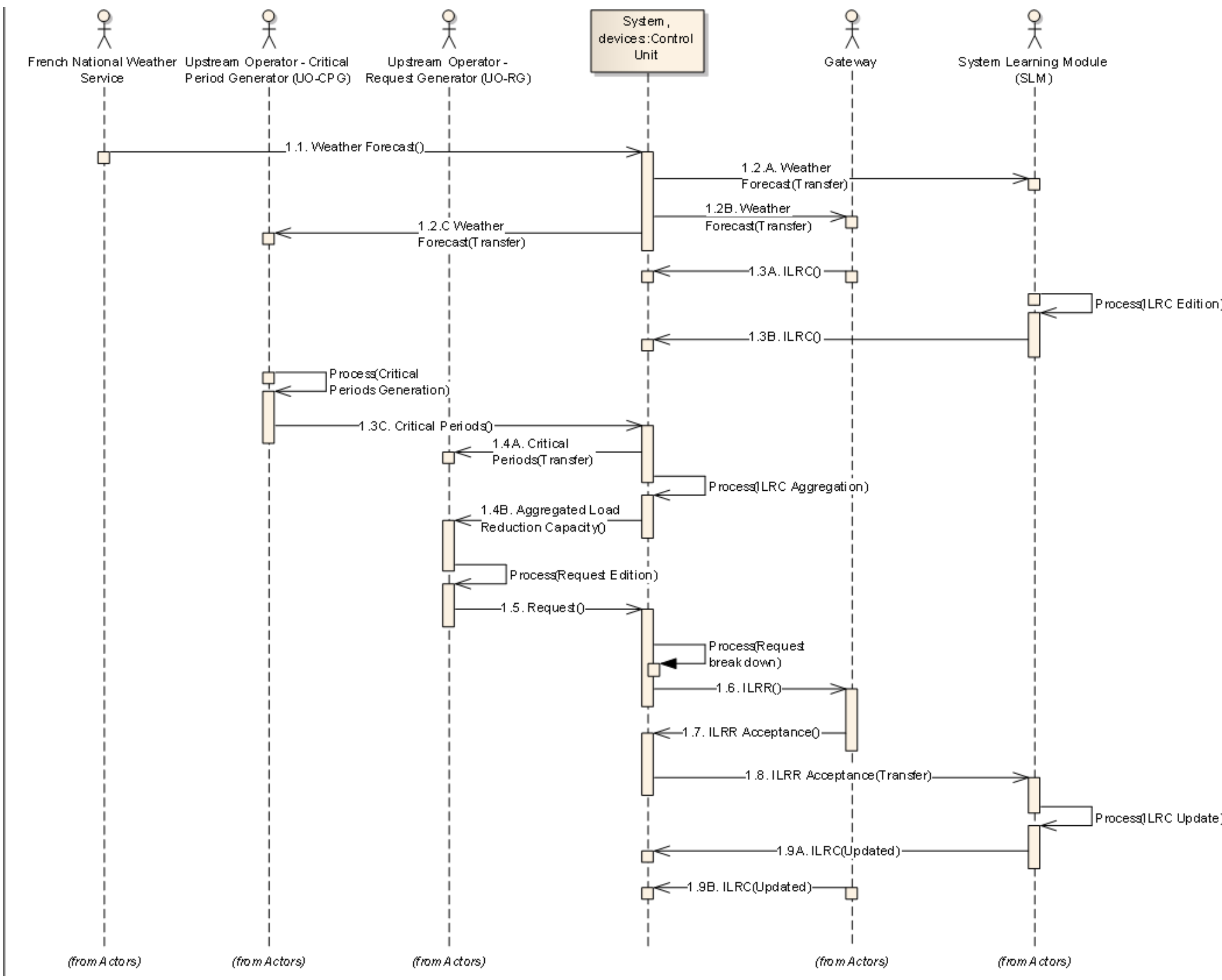
The goal of this VPP is to offer “day-ahead” and “day-of” (same-day) services for optimal load reduction. The VPP will respond to the needs of an upstream operator by controlling different distributed resources.

The function of the VPP can be broken down into a sequence of exchanges between the Control Unit and different actors (see below). The nominal sequence is launched as soon as a “day-ahead” weather forecast is received by the Control Unit. Following this, individual load reduction capacities (ILRC) are calculated by the systems and the System Learning Module (SLM) using the weather forecast. At the same time, the Upstream Operator Critical Period Generator (CPG) generates critical periods for the following day. The CU then aggregates the ILRC along with the critical periods and then submits an aggregated load reduction capacity to the Upstream Operator. The Upstream Operator, in turn, generates a request for load reduction capacity (in kW) and submits it back to the CU. These requests can be either ‘day-ahead’ or ‘day-of’ requests.

After receiving this request, the Control Unit separates it into individual load reduction requests (ILRR) through a process of economical optimization. Each individual request is shaped for the specific features of each individual System. The ILRR are dispatched to their Systems and, in return, the Systems will confirm whether they accept the ILRR or not. The acceptance of the ILRR impacts the overall capacity of the participating System, therefore changes to individual load reduction capacities (ILRC) must be updated by the SLM.

The IntelliGrid Use Case development process was used to describe the scenario of a typical direct load control event. Even though this process was started after development had begun, a number of new lessons were learned. The Use Case development process helped:

- Improve exchanges on technical aspects thanks to the use of a common language (simplified UML)
- Structure the understanding of PREMIO VPP physical behavior
- Identify possible gaps in a communication sequence and opportunities for optimization

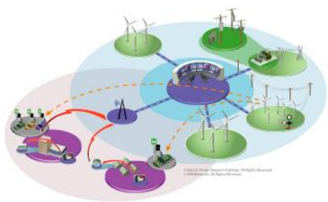


This is the sequence diagram for the normal scenario for an individual load reduction requests (ILRR) on the PREMIO platform. This was an artifact of the use case process.

This process will be initiated early in the development life cycle next time to achieve the additional benefits of:

- Quickly defining the scope.
- Identifying the need for resources (communication bottleneck, activities involved, etc.)
- Adopting a common language at early stage of the project for efficient collaboration
- A good beginning of next step of the project: choice of communication language and protocol, communications modeling/simulation, systems development, etc.

ESB Networks Smart Grid Demonstration Update



The four work-streams of this project are all progressing. The draft project plan has been developed for the overall project and for each of the four work streams; Integrating Distributed Wind Generation, Smart Meter Customer Behavior Trial, EV Home Charging on Low Voltage Networks, and Developing Smart Green Circuits.

On the Smart Green Circuits stream, the Dungloe networks have been converted to OpenDSS and validation of the base case modeling has been carried out. These specific networks have particular interest as there is a 600kW wind generator feeding into the circuit. The studies of these networks on the Synergee Modeling tool has also been carried out and will be used to validate the results prior to physical demonstration. Smart Technology Scenarios have been modeled with preliminary results on the expected effects of: Voltage Conservation, Doubling the voltage by converting the network to 20kV, embedded Wind generation, reconductoring, battery storage in combination with wind generation and combinations of these scenarios.

At the Smart Green Circuits Second demonstration location – Kerry Networks, a self healing network has been implemented and is in operation. In this circuit, Nulec loop automation technology has been deployed to automatically isolate faulted network and restore supply to customers connected to healthy network. This is proving very successful. In addition to the function of the networks for fault detection and restoration, the Nulec devices act as voltage and load sensors on the network and will be used for OpenDSS modeling of these circuits and implementation of design of voltage conservation arrangements.

The micro planet devices that will be utilized to manage the voltage on LV networks as part of our voltage Conservation demonstration has been tested on our network and has given the expected results.

Exelon (ComEd/PECO) Smart Grid Demonstration Update

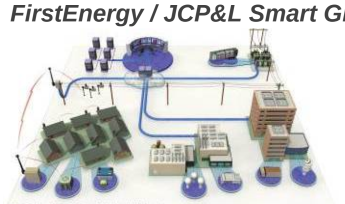
The Exelon project is one of the newer host sites to join the collaborative. The PECO demonstration is being developed in conjunction with Drexel University where an advanced distributed energy management system will be developed for a “Smart Campus” initiative. The PECO project will combine and co-optimize second generation demand response, renewable generation resources, and energy storage in a micro-grid type environment.

At ComEd the customer application pilot (CAP) is a comprehensive customer behavior study that will provide research to understand consumer responses to varying types of pricing programs in various combinations with enabling technology and customer education. The project has deployed various display technologies and an “opt-out” residential pricing program to over eight thousand customers. Customers were assigned to six rate types on a random basis. The rates included are Flat Rate (FR), Increasing Block Rate (IBR), Critical Peak Pricing (CPP), Peak-Time Rebate (PTR), Day-Ahead Real-Time Pricing (DA-RTP), and Time-Of-Use (TOU). In conjunction with a number of customer technologies that utilize the AMI system, the project was designed to give customers visibility into their energy use and a method to control their costs. The technology deployed is provided to customers at no charge and in some treatment groups, customers are given the opportunity to purchase technology. Customers are not given a choice of the rate and the technology as they are both assigned as part of the randomization.

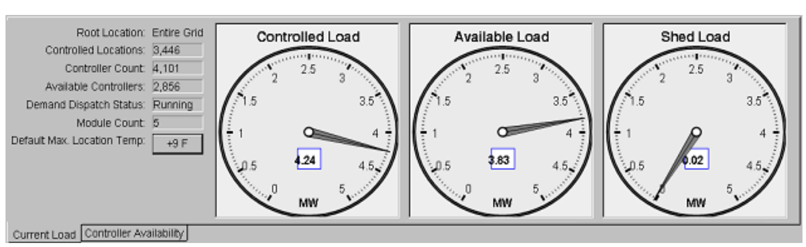
Consumers can access information on the internet to view their energy use and cost with a personal cost management tool. In addition to a customer group that was given only web access, three additional groups receive additional technologies. Members of one group receive a basic In-Home Display (IHD), while another receives advanced IHDs, and members of the third group each receive a Programmable Communicating Thermostat (PCT) / IHD combination. An additional component being evaluated is consumer education and includes a control group that does not receive the educational materials. From the matrix of rates, enabling technologies, and customer education, a selection of 23 combinations (“treatments”) were selected.

The customer enrollment process included a call center where representatives are trained to handle the customer questions and issues. To date the consumers exercising their “opt-out” option have been minimal (less than 100). The reasons given for the opt-outs are being tracked and categorized. The CAP program will run between the June 2010 and May 2011 billing cycles and gather experimental and empirical evidence to determine the factors the influence customer behavior. The data should provide a basis for determining the relative benefits of various combinations of rate, enabling technology, customer education approaches.

FirstEnergy / JCP&L Smart Grid Demonstration Update



FirstEnergy deployment of integrated distributed energy resources into the JCP&L/FirstEnergy energy delivery system is in support of both operations and market business performance requirements. FirstEnergy has documented a list of detailed operations and market business requirements. Seven operational use cases under development will detail the process of giving the regional utility operators the ability to target and trigger load reductions in response to delivery system and reliability needs and two use cases will support market business requirements. Market participation is through regional transmission organizations (RTO) and/or independent system operator (ISO) programs enabling benefits that flow back to both the rate payers and the company.



Additional load control capability was installed prior to the 2010 peak season. The Integrated Distributed Energy Resources Management (IDER) platform display is located at a workstation in the Regional Dispatch Office in Red Bank, NJ giving dispatch operators visibility and control of the system. The user interface includes the dials, shown above, that provide the regional dispatch operator display of near real-time information. The operators activate the system from this workstation and can schedule a load reduction event to occur at a given time or initiate one immediately. The **Controlled Load** dial indicates the aggregate amount of Active Load from all operating air conditioners. The **Available Load** displays the aggregate amount of load that can be managed within the program rules, i.e., 6°F or 9°F temperature rise, based on customer participation agreement. The **Shed Load** dial indicates the total amount of load that is currently being managed by the system.

In the recent hot summer months of 2010 FirstEnergy has experienced the need to exercise the two-way system which has functioned as intended. In addition, the system was utilized to relieve load while a transformer issue was resolved. Note that this control system is successfully using a two-way mesh network for communications demonstrating a system implemented without the use of smart meters.

In addition to the load control system,pilot, Ice Energy systems have been installed for permanent peak shifting. Experience gained from these deployed systems is provide data for forthcoming performance assessment and strategic value analysis.

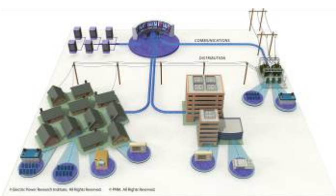
KCP&L Smart Grid Demonstration Update

The KCP&L project kickoff meeting focused on developing a research plan and a use case 101 workshop and scoping session. Next steps in the research plan are aligned with the development of the required DOE Metrics and Benefits plan and solidifying the hypothesis that will be addressed in KCP&L's Smart Grid Demonstration Project. Use Case scoping focused on four system interfaces:

- Distribution Control and Data Acquisition (DCADA) to Field Devices (First Responder Apps)
- Distribution Management System (DMS) to DCADA Integration
- DMS to Distribution Energy Management System (DERMS)
- DERMS to Home Energy Management Portal

Upcoming use case workshops will be facilitated by EPRI using the IntelliGrid methodology and include KCP&L subject matter experts and key project team vendors. KCP&L will be able to leverage the existing body of use case work from the EPRI use case repository along with the work developed by NIST to kick start their use case development. KCP&L will be deploying 15,000 smart meters in the last quarter of 2010 and data from the meters will begin to collect baseline data to be used in the metrics and benefits plan.

PNM Resources Smart Grid Demonstration Update



Commercial buildings offer an ideal platform for PV generation because they are generally flat and the load often decreases during evening hours. The premise of this study is that building energy systems can be used to smooth some or all of the intermittency of PV generation. In the study, a building-scale PV system (5kW size) is associated with a second commercial building, which has various options for energy use, including thermal storage, solar cooling, and a flexible digital control system which is able to control individual components such as fans. The University of New Mexico (UNM) Mechanical Engineering (ME) building was used as a basis for this model. In the ME building, there are several fans totaling 50kW of peak power consumption. By adjusting the speed of the fans as a function of solar radiation fluctuation, the intermittency of the nearby PV system can be compensated for.

To illustrate the concept, a random signal with a characteristic period of 30 seconds was superimposed to the control signal for the fan speed. The temperature response resulting from that was calculated. As can be seen in Figure 1, the fan power responds very quickly to control signal, while the building temperature remains steady.

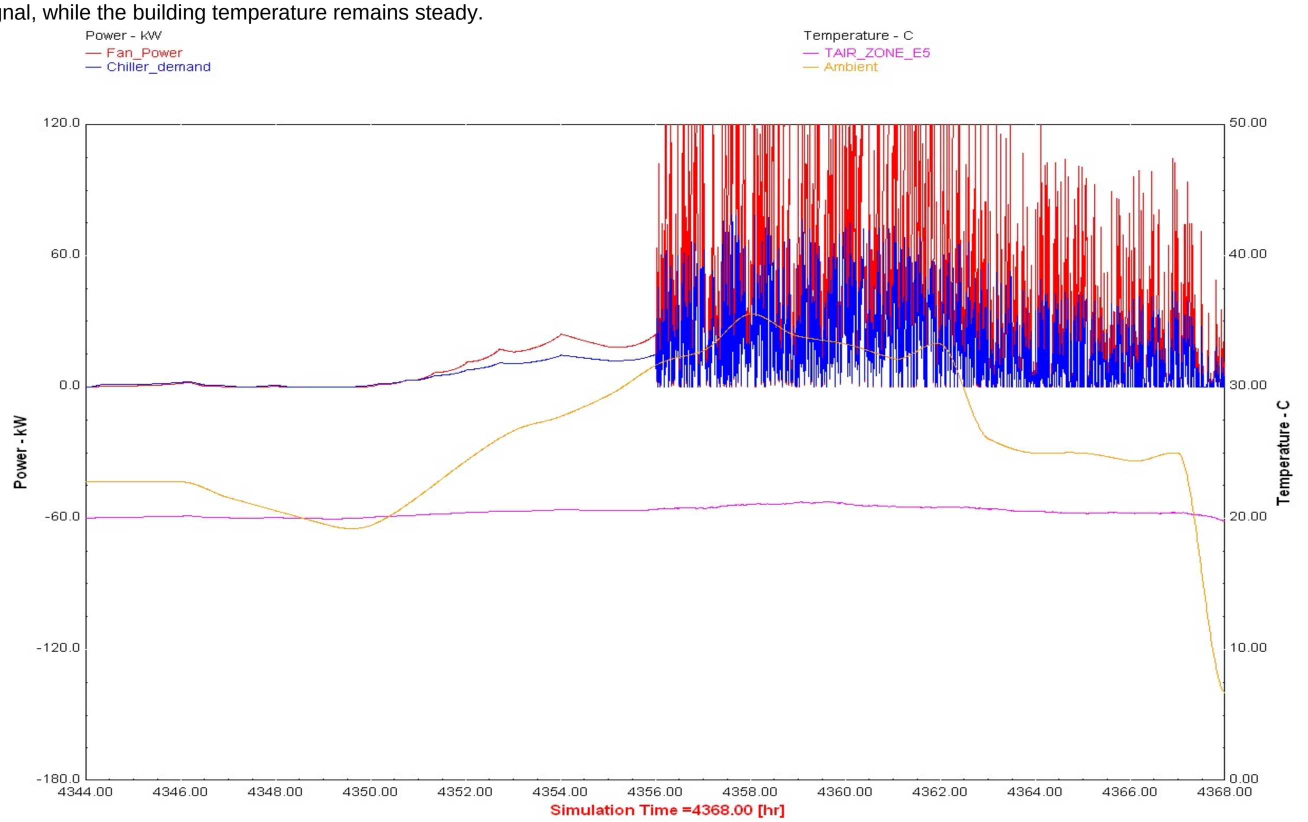


Figure 1: Response of fan power to the control signal and the subsequent changes in building temperature.

Experimental validation of building energy systems control
An implementation of the control strategies explored in the model was made on the largest air handler in the ME building. Since a neighboring PV system is not currently available, the output of a hypothetical PV system was simulated using the solar meter on the ME building roof, whose primary purpose is as an input for the solar thermal system control.

One of the aims of the present research is to use building energy systems to balance PV output in such a way that discomfort to building occupants does not occur. In the present case, the average ventilation to the building zones should not be affected, while short reduction or increases in air flow are acceptable since they have no detectable effect on temperature. Based on this requirement, the control strategy adopted for this test is as follows:

- The average solar radiation during a sliding 30 minute window is calculated by the control system;
- The instantaneous solar radiation is measured every 5 seconds;
- The difference between the instantaneous reading and the average is computed every 5 seconds (this can be positive or negative);
- The duct static pressure is adjusted based on the instantaneous-average radiation difference calculated in the step above, resulting in the fans slowing down or speeding up. When the simulated PV output drops, fans slow down, while fans speed up when the PV output exceeds the average. On a clear day, changes in solar radiation are slow enough that the fan speed is solely a result of zone temperatures, with no effect from the PV support strategy.

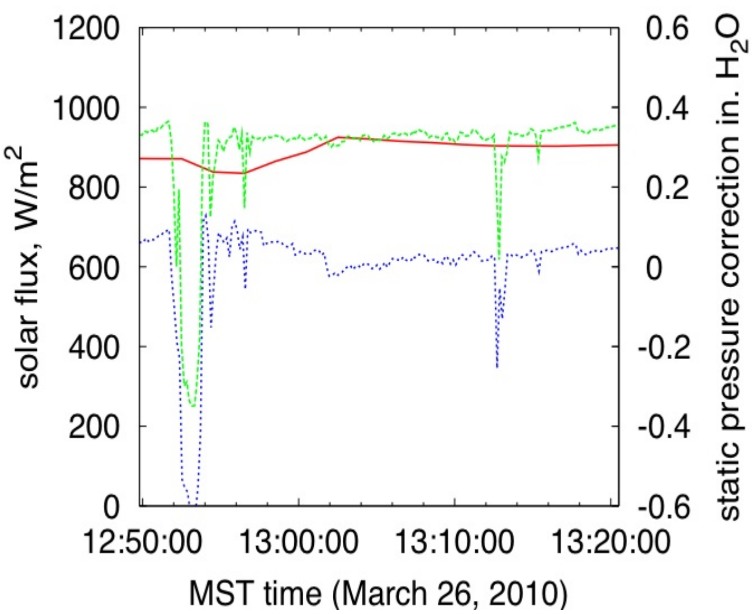


Figure 2 Correlation between solar radiation and static pressure in the UNM Mechanical Engineering building.

An example of the correlation between solar radiation and static pressure setting is shown in Figure 2. The red trace shows the average solar radiation, measured over a half-hour sliding window. The green trace is the instantaneous solar radiation. The blue trace is the static pressure correction, which is added to the base static pressure value to control the fan speed. Clearly, in a real system, lag times are a factor. For example, in the present case, two different control boards are responsible for reading the solar radiation and setting the static pressure value, respectively. The two control boards communicate with each other every 30 seconds. In addition, each Variable Frequency Drive (VFD) is set to change control speed by a certain percentage every second. Finally, there is inertia in the physical system itself, so that a change in fan speed does not result in an immediate change in static pressure. UNM is currently implementing these factors in the TRNSYS model, so that UNM will be able to predict system lags in the simulation. Ultimately, the model, coupled with the experiment, will indicate what fraction of the PV intermittency can be balanced by fans and similar HVAC equipment. Other options are possible in conjunction with the fans speed, including inverter – battery combinations, flywheels, etc. The expectation is that by using existing building systems to do the "heavy lifting", the size requirements of fast-response ancillary systems may be reduced substantially.

Technology Transfer Activities – Deliverables Update

New Deliverables since last Newsletter available for download at www.epri.com.

- Presentations from the June Smart Grid Advisory Meeting hosted by Electricité de France in Paris are available online*
- Product ID 1021398: Southern California Edison Smart Grid Demonstration Project Description
- Product ID 1021399: Duke Energy Smart Grid Demonstration Project Description
- Product ID 1021400: Southern Company Smart Grid Demonstration Project Description
- Product ID 1021418:* KCP&L Smart Grid Demonstration Overview (2-Page Description)
- Product ID 1021419:* Exelon (ComEd/PECO) Smart Grid Demonstration Overview (2-Page Description)
- Product ID 1021420:* Southern California Edison Smart Grid Demonstration Overview (2-Page Description)
- Product ID 1021421:* Duke Energy Smart Grid Demonstration Overview (2-Page Description)
- Product ID 1021422:* Southern Company Smart Grid Demonstration Overview (2-Page Description)
- Product ID 1021444: Strategic Intelligence Update – Smart Grid Conferences & Events
- Product ID 1021497:* EPRI Smart Grid Demonstration Initiative Two Year Update

* Publicly available

Upcoming Deliverables
- Product ID 1021488: EDF Host-Site Semi Annual Progress Report – August 2010
- Product ID 1021489: ESB Host-Site Semi Annual Progress Report – August 2010
- Product ID 1021490: PNM Host-Site Semi Annual Progress Report – August 2010
- Product ID 1021500: Con Edison Host-Site Semi Annual Progress Report – August 2010
- Product ID 1021501: AEP Host-Site Semi Annual Progress Report – August 2010
- Product ID 1021485: FirstEnergy Host-Site Semi Annual Progress Report – September 2010

Smart Grid Industry News on web-site and with RSS Feed

We are posting industry related smart grid news on the home page of EPRI's Smart Grid Resource Center. We typically update the list of the previous week's key smart grid news items on Monday mornings. Please keep this resource in mind as you are tracking industry news. EPRI specific news and Twitter feed can be found on EPRI's home page.

EPRI "Resident Researcher" Employee Program - Smart Grid Engineer or Analyst

EPRI has an opening for a Smart Grid Engineer or Analyst in our Knoxville TN office.

The "Resident Researcher" program is open to EPRI utility members supporting the Power Delivery and Utilization (PDU) Sector. The five-year Smart Grid Demonstration Project has created a unique opportunity to expose your new or seasoned engineers or analysts to hands-on smart grid projects focused on integration of Distributed Energy Resources. Location of the position is in Knoxville, TN and duration can be from 1 to 3 years. This opportunity will provide broad experiences in real-world smart grid industry activities and help strengthen and prepare your workforce for the future. Please email or call Matt Wakefield (865-218-8087) for more information.

KEY EPRI SMART GRID DATES

EPRI Smart Grid Demonstration Meeting - October 25-27, 2010

When/Where: Hosted by Con Edison, New York City, October 25 – 27, 2010.

Con Edison is hosting the Fall EPRI Smart Grid Demonstration Meeting in New York City where we will get an update on their smart grid demonstration project. In addition, this will be an important meeting for all the member utilities of the Smart Grid Demonstration Initiative where we will be prioritizing research and technology transfer activities through 2014 based on our members' most important smart grid issues. In the second phase of the initiative, we are transitioning to include "Issues Based" smart grid research across all the host-sites where we will we will compare and align the inventory of all the smart grid technologies and applications and rank them against the collaboratives' interest. In addition, we will be developing a three year strategy on Technology Transfer for meetings, webcasts, reports and smart grid training. Smart Grid Demonstration members are invited for the entire meeting and Peer Review guests are invited to attend the ½ day session on October 27th to get an update on the overall initiative and specific updates on Con Edison's project.

4th International Conference on Integration of Renewable and Distributed Energy Resources

When/Where: December 6th – 10th, Albuquerque, NM (http://www.4thintegrationconference.com/)

A portion of the meeting will provide an update on EPRI Smart Grid Demonstration projects. Registrations are now open.

EPRI Smart Grid Demonstration Meeting – Feb/March 2011

When/Where: Hosted by Southern Company, Location and Date TBD.

Together...Shaping the Future of Electricity®

EPRI | 942 CORRIDOR PARK BLVD. | KNOXVILLE, TN 37932 | WWW.EPRI.COM