EPRI Smart Grid Demonstration Update

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

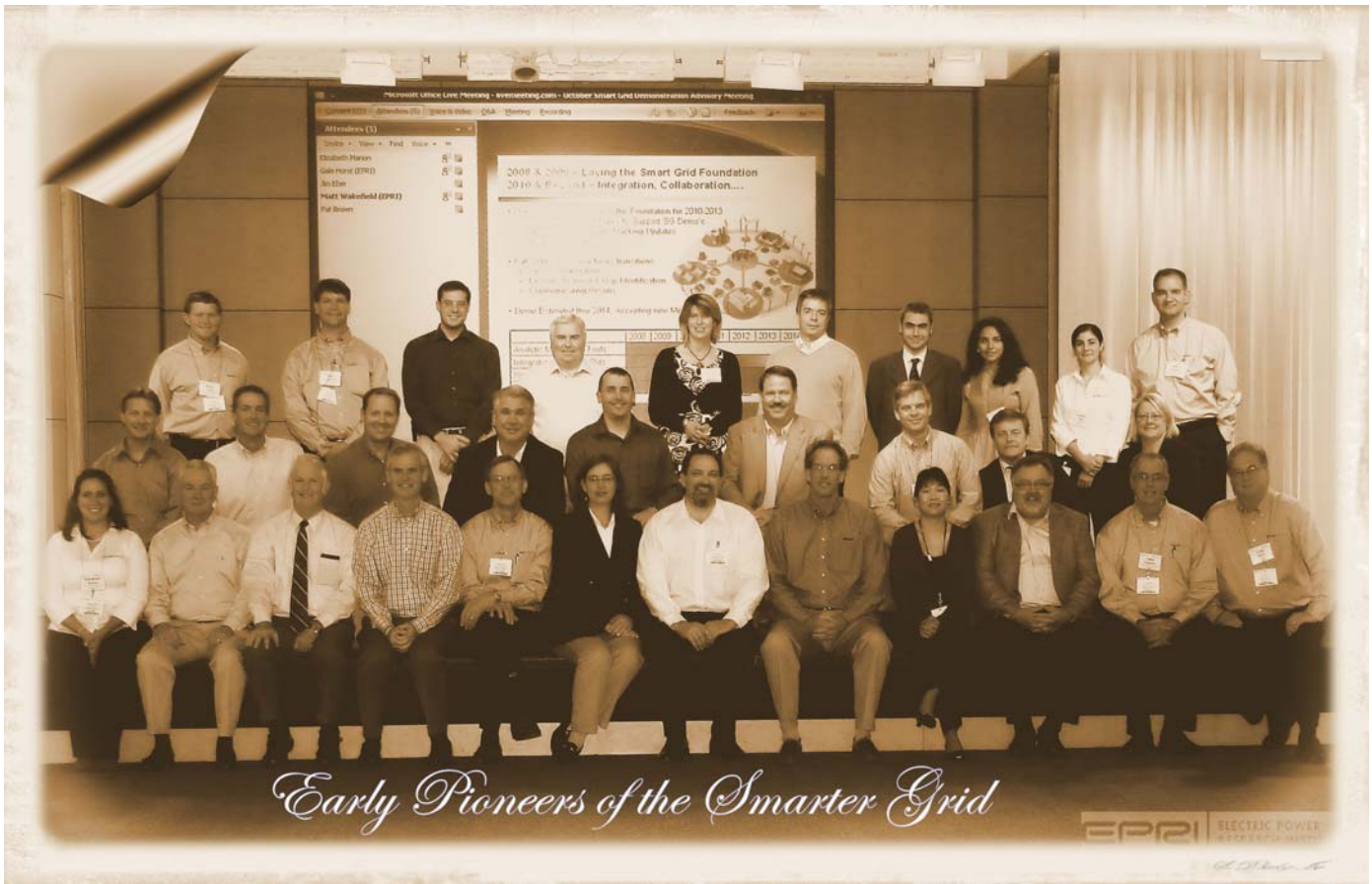
ABOUT THE NEWSLETTER

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

EPRI Smart Grid Demonstration Advisory Meeting Review (Hosted by Con Edison, NY Oct 25-27)

Con Edison hosted the Fall Smart Grid Advisory meeting and as promised, it was a productive meeting used to solidify our research and technology/knowledge transfer for the remainder of the initiative (through 2014). All eleven smart grid demonstration projects provided an overview and update of their projects on the first day. This was followed by a work-shop on day two to prioritize research topics for 2011 and review Technology/Knowledge Transfer activities. A broad range of Technology Transfer Activities were discussed including Webcasts, Newsletters, Meetings, Progress Reports, Strategic Updates and the Final Deliverable, "Reference Guide to Integrating Distributed Energy Resources," which is now under development. The third day of the meeting focused on smart grid research and projects being performed by Con Edison including a tour of their Control Center.



Team Photo from the Smart Grid Demonstration Advisory meeting

Back Row: Brian Green, EPRI; Matt Wakefield, EPRI; Drew McGuire, Southern Co.; Tom Weaver, AEP; Teresa Fallon, ESB Networks; Olivier Normand, EDF; Xavier Mamo, EDF; Carolina Tranchita, EDF; Christina Haddad, EPRI; John Wharton, EPRI. Middle Row: Brian Schell, AEP; Chris Campbell, SRP; John Hawkins, PNM; Ed Hedges, KCPL; Brian Teddy, Wisconsin Public Service; Melvin Schoech, CenterPoint; Mike Rowand, Duke Energy; Eric Schultz, EDF; Paula Traynor, EPRI. Front Row: Elizabeth Marion, EPRI; Greg Stewart, TVA; Frank Doherty, Con Ed; Bruce Rogers, TVA; Dennis Symanski, EPRI; Eva Gardow, FirstEnergy; Joe Schatz, Southern Co.; Mark Nealon, Ameren; Serena Lee, Con Ed; Ed Kamiab, SCE; John Simmins, EPRI; Gale Horst, EPRI.

Strategic Research Topics for Cross-Collaboration in 2011

Now that we have eleven large scale demonstration host-site projects, it is important to proactively work across the projects to advance learning from similar activities. To facilitate this effort, the members reviewed the "critical elements" and attributes of each host-site along with a roundtable discussion of highest priority smart grid issues for each member. The goal of this effort was to identify the top priority research topics to collaborate on in 2011. A formalized selection and voting process determined the top 3 priorities for cross-collaboration in 2011. (We ended up selecting four topics since there was a tie for 3rd & 4th.)

And the top Cross-Collaboration Smart Grid Research Topics for 2011 are:

- Conservation Voltage Reduction (CVR) and Volt/VAR Optimization
- DMS Integration and Visualization
- Energy Storage Monetization
- Consumer Behavior and Engagement

Secondary Topics for cross-collaboration include:

- Cyber Security
- Electric Vehicle Charging
- Modeling and Simulation Tools

This strategic topic selection process will be repeated in 2011, 2012 and 2013 to enable research to be focused on the top priorities of the members of the initiative. The EPRI Smart Grid Demonstration Staff is reviewing the Research Plans developed during the workshop and putting together the appropriate technical staff to accomplish our goals. We will be coordinating with members actively involved in deployments focused on these topics to support the research plans. Members interested in any or all of these topics please contact Matt Wakefield.

Smart Grid Demonstration Host-Site "Deep Dive" webcasts for Smart Grid Demonstration Members

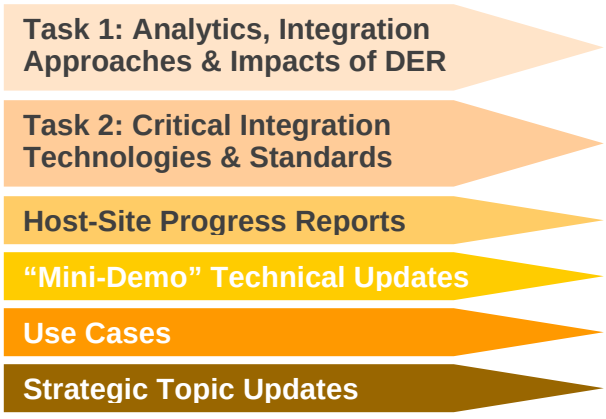
Because we now have eleven host-sites, it is difficult to get into much detail of all the projects during our face-to-face meetings we have three times per year. To facilitate deeper learning and reporting on the individual projects, we are scheduling monthly webcasts for Smart Grid Demonstration Members rotating the presentation of a different host-site each month. If you are a member, you should have received an invitation. Contact Matt Wakefield for more information.

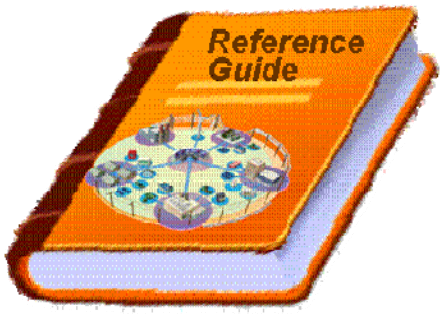
2011 Smart Grid Demonstration Host-Site Webcast Schedule (3rd Thursday of the Month at 11am (Eastern) for 1 ½ to 3 hours)

- January 20th, ESB Networks
- February 17th, FirstEnergy
- March 17th, Electricité de France
- April 21st, American Electric Power
- May 19th, PNM Resources
- June 16th, Southern California Edison
- July 21st, Southern Company
- August 18th, Duke Energy
- September 15th, Exelon (ComEd/PECO)
- October 20th, Con Edison
- November 17th, KCP&L
- December 15th, TBD

The Final Deliverable – "A Smart Grid Reference Guide to Integration of Distributed Energy Resources"

We are beginning to compile all the results of the Smart Grid Demonstration Initiative into a consolidated, easy to use reference guide. We acknowledge it is challenging to keep abreast of all the deliverables from this project – we are at over 60, not counting the use cases. By consolidating all the results into a comprehensive Reference Guide, utilities will have a tool to help them manage projects related to integration of DER.





We will be reviewing the status of the Reference Guide at each of the upcoming Smart Grid Demonstration Meetings with the first interim Reference Guide published in the Fall of 2011 based on the deliverables from the past two years. Updates to the Reference Guide will be published in 2012 & 2013 with the final guide published in 2014.

Host-Site Progress Reports

We have been publishing two host-site progress reports per year and the advisory meeting included a discussion on the quantity, content and method to provide updates to the progress reports. Discussion included whether or not two progress reports are needed per year and by a narrow margin, the consensus was to continue to have two progress reports per year. To avoid duplication and ease of reading, future updates to progress reports will "living documents," meaning that each update will build off the previous update. The most recent update will include content from all previous versions, but will highlight the newest content to enable our audience to more easily find the updated information. This format will be reviewed at the October 2011 smart grid meeting to determine its effectiveness. The goal is to have draft progress reports from host-sites completed in June and December with publication in July and January each year, but we have flexibility on timing. The progress reports contain the most in-depth information about each host-site, so it is important that EPRI supports our members to make sure we are capturing the vast majority of information in the progress reports.

Smart Grid Training

The smart grid collaborative members approached our smart grid team to discuss the concept of incorporating smart grid training as part of this initiative. EPRI has a vast set of technical expertise in emerging smart grid technologies, architecture and integration and is well positioned to provide smart grid training for members. A roundtable discussion uncovered a number of approaches and smart grid topics to consider exploring over the next year to see how it helps achieve the goals of our members.

Approaches: A number of training approaches were discussed and approach for 2011 includes a combination of ½ day training sessions coordinated with the next three Smart Grid Advisory Meetings and also the resulting training topic will then be translated into a "Module" for the members so they can facilitate their own internal smart grid training.

Training Topics: A number of smart grid topics were discussed, a summary of some of the highest rated smart grid training topics included Cost Benefit Analysis, Use Cases, Consumer Behavior/Engagement, Communications (media, standards, etc.), Energy Storage and more.

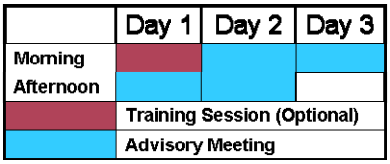
Next Steps: At the March 2011 Smart Grid Advisory meeting, we will hold an optional ½ day training session at the beginning of the meeting on a yet to be determined topic. The resulting training topic will be "modularized" for our members for internal training. This will be our first test to see how the training format and topics add value to our members.

Upcoming Smart Grid Demonstration Advisory Meetings

The Smart Grid Demonstration Initiative facilitates three face-to-face meetings per year and we have 12 more meetings between now and the end of the initiative in 2014. We discussed format, content and locations of upcoming meetings.

Content in the Advisory meetings will include

- Strategic Topic Updates (Four for 2011)
- Collaborator Activities Related to Strategic Topics
- Review of "Reference Guide"
- Presentation on Key Deliverables
- Hosting Utility Presentations, Tours, Demonstrations (Stakeholders Invited)



Typical Meeting Format

Smart Grid Leadership Report

EPRI would like to thank those who participated in the Smart Grid Survey distributed this past May to understand key drivers for smart grid deployments. The survey results have been analyzed and included in a new report titled "Smart Grid Leadership Report: Global Smart Grid Implementation Assessment." The goal of the report is to provide a global perspective on the key drivers for utilities to deploy Smart Grid projects and identify emerging trends in those deployments. The survey was offered to numerous international utilities, but the response rate was relatively low compared to the number of known Smart Grid projects and therefore does not allow for a complete observation of the state of the Smart Grid around the world. However, the responses that were collected still provide valuable insight into technologies and applications used as well as drivers that influence and benefits that result from current Smart Grid projects. The findings suggest that the core drivers for Smart Grid deployments are primarily economic and policy based. Regulatory policy goals, specifically regarding Green House Gas (GHG), Energy Efficiency (EE), and Reliability and Renewable Portfolio Standards (RPS), are key external drivers to Smart Grid deployment. The survey results indicate that information and communication technologies are at the forefront of Smart Grid deployments around the world, however, the results also indicate that market research and customer education of the Smart Grid has been limited. A smarter grid holds the promise of improved customer-empowerment, reliability, reduced cost and reduced pollution. Collaboration among utilities will help achieve this goal in an effective manner so results can be applied across the industry taking into account unique factors within projects. Leveraging this opportunity could contribute significantly to the effectiveness of the industry in its efforts to meet the needs of customers and society. We invite you to view the full report, *Smart Grid Leadership Report: Global Smart Grid Implementation Assessment,* here: http://my.epri.com/portal/server.pt?Abstract_id=000000000001021417

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.

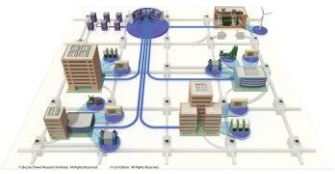
EPRI Smart Grid Demonstration Host-Site Updates

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

American Electric Power (AEP) Smart Grid Demonstration Update

AEP has selected a circuit in NE Columbus Ohio where up to 80 community energy storage (CES) units will be installed. A test install of the physical footprint was performed at AEP's Dolan Labs that allowed a review of the excavation and installation process of the underground battery storage container. One hundred candidate locations have been selected from which the 80 final locations will be finalized. While the siting process is taking place, the NE Columbus circuit is being loaded into OpenDSS in preparation for the AMI interval load data. The OpenDSS tool will be used to model the CES that will be placed on this circuit. Data from South Bend IN was previously used to create the OpenDSS CES object and perform preliminary simulations to understand expected results and necessary triggering algorithms. Concurrently, an AEP team is examining the control algorithms for the control hub that can direct the set of CES units to mimic a substation battery. The control hub algorithm can enable additional benefits by having the ability to direct the remote CES units to operate together in a controlled manner. Eight additional circuits are also targeted for Volt-VAR simulations. These circuits are also located in the Columbus Ohio area.

Consolidated Edison Smart Grid Demonstration Update



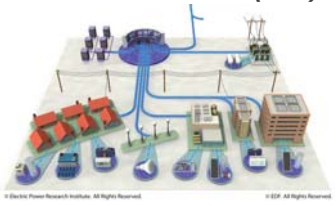
The ConEdison SG demonstration is working toward the interfaces to enable a DRCC (demand response (DR) command center) and a DCC (distribution control center). The DRCC is based on visualization and interactions between network operators, DR aggregators, and DR resources. An anticipated development in the months ahead will be a first look at control screens where the DRCC information will be displayed and decisions offered to the control center operators. This will serve as a gateway between multiple DR resources and utility operators. This approach will use grid agents making the addition of devices and systems a simplified process with little or no impact on the DRCC operators. Rolling this capability up into a DCC allows addition of early detection and prediction for a proactive response. In the DCC step we will begin to enable DER to be treated as virtual generation as targeted in the virtual power plant (VPP) concept.

In a separate but related project, EPRI, in conjunction with Con Edison, developed an animation explaining the concept of a VPP. This narrated animation documents an approach to achieving an N-2 level of reliability. This is the ability of a substation to continue serving the customers without a loss of service in the event of a loss of one transformer (N-1) followed by the loss of a second transformer (N-2) in the same station. The animation demonstrates the concept providing a great resource to explain a VPP to those yet unfamiliar with the concept. With permission from Con Edison, this animation/video has been placed online and can be viewed at the following link: http://www.youtube.com/watch?v=uBdO7N88o98

Duke Energy Smart Grid Demonstration Update

The initial deployment of the Project Plug-IN portion of Duke Energy's demonstration begins with its initial deployment in December. The THINK City electric vehicle is manufactured in Elkhart County, IN and powered by Enerdel lithium-ion batteries – also manufactured in Indiana. The vehicle can travel 100 miles on a single charge with zero local emissions. The project includes both a Residential and Non-Residential charging infrastructure and "Smart Charging" tests will include control capabilities and customer impacts. PEVs will be placed at strategic points on the distribution system to optimize distribution impact analysis.

Electricité de France (EDF) Smart Grid Demonstration Update



During 2010, EDF accomplished two studies related to SG methodologies and tools.

OpenDSS

The first study aims to import a realistic French distribution system (with 9000 loads and previously described in an ".xls" file) into OpenDSS and to test the power flow analysis of OpenDSS. The goal was to take into account the fact that most French LV distribution grids are unbalanced and to analyze the performances of OpenDSS (speed and accuracy), by comparing the results to the software "FACE", which has already been validated by EDF R&D.

First of all, it is noted that OpenDSS is very friendly and intuitive and it does not require any specific

programming language knowledge. This flexibility was very useful during the creation of a program that automatically generates ".dss" files. Therefore the creation of the 9.000-node circuit has been easily possible. OpenDSS is able to achieve good accuracy within a rather short time. OpenDSS appeared to have better results than FACE, which had been studied by EDF R&D. The results of this study show that OpenDSS would fit quite well to perform analysis on a grid like the French distribution grid; the outlooks of analysis on such grids are now possible.

Finally, OpenDSS has a proven capacity to perform power flow analyses on both balanced and unbalanced circuits. It must be noted, however, this kind of resolution when unbalanced configuration is modeled, requires more time than in a balanced configuration. The next step of this research will be to integrate Distributed Resources in the tested system, and test the ability of OpenDSS to take into account the electrical descriptions of these new devices.

Review of the CBA method of Distributed Resources integration in Europe
The objective of the second study is to give an overview of the main characteristics of Cost Benefit Analysis (CBA) implemented in Europe for SG and the integration of Distributed Resources. The analyses are based on two types of projects: i) European demonstration projects which are part of the successive Framework Programs for Research and Technology Development of the European Union and; ii) demonstration projects and simulations that are implemented on a French national scale.

European projects are generally focused on the appraisal of one, or several, specific business models which vary depending upon the technologies used and on the specific contexts of their field tests. In national simulations, the value appraisal is, in most cases, focused on the costs and benefits for society as a whole over the large-scale roll-out of Smart Meters and, in some cases, the implementation of Demand Response programs.

The study of these methods of CBA highlights the lack of coordination between the European projects and the European countries and the lack of standardization in the methods used. Consequently, the primary findings of the economic assessments of the demonstration projects and simulations are difficult to compare.

In terms of results, the results of these projects have led to contrasting findings. Conclusions from national simulations, assessing the costs and benefits of a large-scale deployment of Smart Metering depend upon the scope of benefits and the time horizon considered by the study. In most cases, results are positive when considering an enlarged scope of benefits and a long-run perspective. The methods used in European projects can result in even more contradictory conclusions and depend upon the assumptions taken into account. In most cases, the business models tested in the experiments are not profitable.

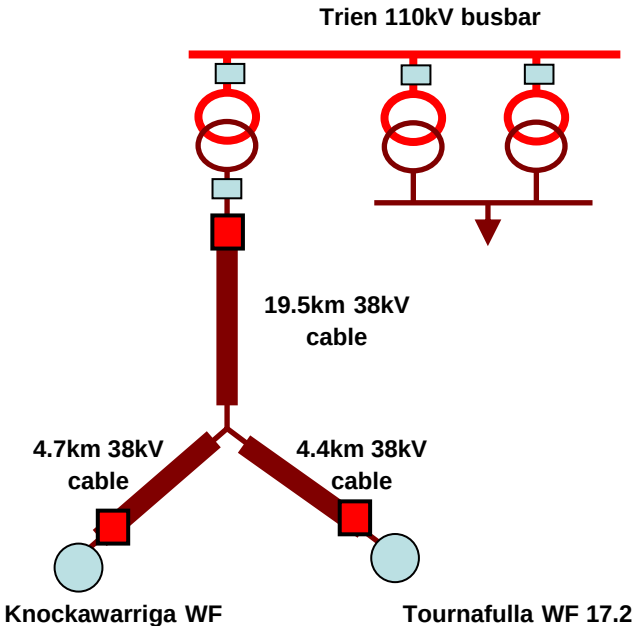
ESB Networks Smart Grid Demonstration Update

Key milestones have been reached in the Integrating Renewables Generation work stream of the ESB Networks project. Largely the key hardware for this demonstration including the 38kV booster required for Project B (Use of Voltage Regulators to Limit Voltage Rise) and the high resolution monitoring equipment for Project A (Voltage/Var Control) have been installed. The objective of Project A is to derive a methodology for coordinated control and operation of generator reactive power controls to optimize the VAR requirements of the Transmission System Operator while remaining within the voltage limits required by the distribution system operator. The particular network configuration of the two wind farms being examined offer the opportunity to run a number of scenarios to demonstrate various mode of operation as they are connected to a dedicated 110/38kV transformer.

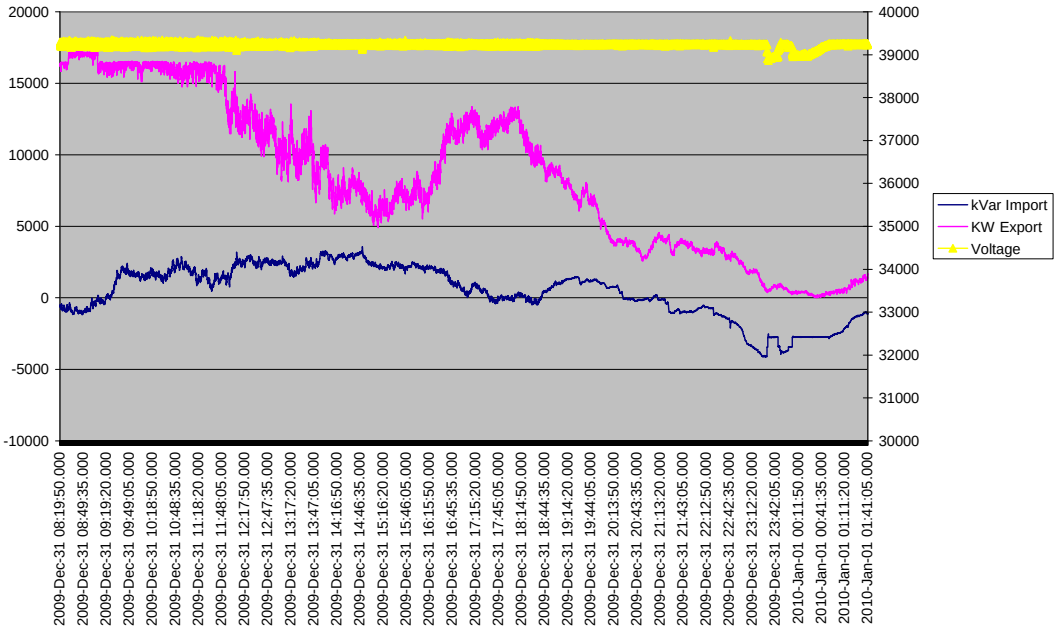
Wind Project A: Voltage/Var Control

An initiation meeting has taken place between ESB, the two wind farm owners and EirGrid, the TSO. All parties are very co-operative with the trial. It emerged that, in agreement with system operators, Tournafulla had been operating on constant voltage, while Knockawarriga had been operating on constant power mode. This was actually one of the operation scenarios that was to be trialed as part of the project. Tournafulla had been operating on constant voltage due to spurious over voltage trips of the Generator. These spurious trips are being investigated. The Wind farm export data has been collected for four weeks at 5 second interval resolution which confirmed this mode of operation. The graph of the output of Tournafulla below shows the KW export and the kVar import over a 15 hour period. The var absorption reacts to the KW export in order to keep the voltage constant.

Dig Silent & OpenDSS Models of this have been set up and the data collected is being used to verify the models. In addition, another monitoring device has been installed at the 38kV busbar in Trien station in order to confirm the voltage at that point.



A review of the Tournafulla five second data showed that the largest change in kW output over a 5 second period was 1.6MW, or approximately 10% of the installed capacity. Further analysis showed that the maximum change within a 30 second period was 2.8MW or 16%. This could be significant when grossed up to the national level of wind expected on the Irish system; however, as the generators are distributed across the country diversity should reduce this effect.



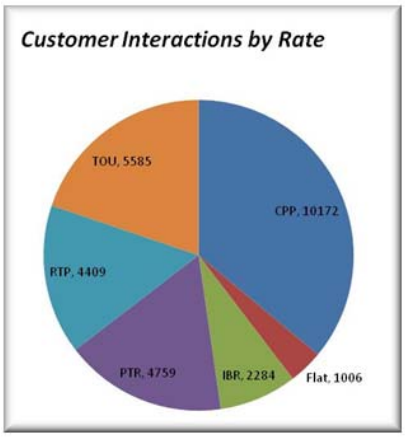
Going forward, data will be collected at 30 second intervals. Analysis of existing data was tested to assess the level of accuracy that would be lost in this move. The result was that 30 second averages would be within 3% of 5 second interval readings for 95% of the time. The Use Case for this project is being developed and should be completed by the end of the year. The next scenario to be modeled is with Tournafulla on Constant Voltage while Knockawarriga operates at 95% lagging Power Factor.

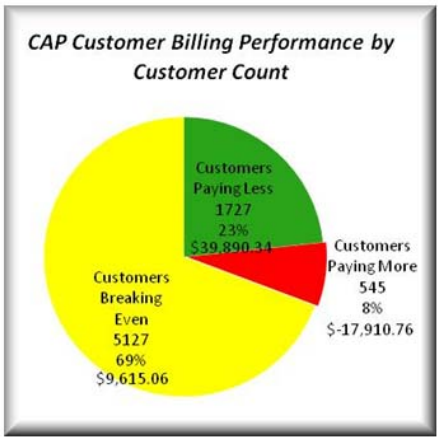
Exelon (ComEd/PECO) Smart Grid Demonstration Update

The benefits of an AMI system should include enabling customers to understand their energy consumption and the variability in the cost of delivering that energy. The ComEd customer applications project (CAP) conveys information to customers using four elements: an electricity rate structure, methods to present energy usage information, education on the rate structure and technology, and ways customers can take responsive action. The CAP is learning the combinations of technology that result in the most significant savings and changes in customer energy use. While the customer feedback will gather information from a final survey, data gathered to date includes some early observations.

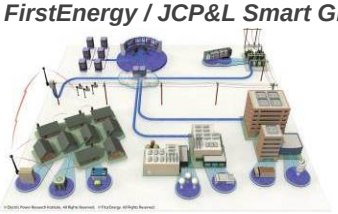
As noted in the graphics, the customer contacts (including all trackable contacts such as phone, letters, and email) from the critical peak price customers were slightly more that double those from each of the Time-of-Use (TOU), Real-Time Price(RTP), and Peak-Time-Rebate (PTR) groups. As further data is analyzed and the final survey is conducted (Spring 2011) the project may be able to provide further indicators. The early observations note that, CPP contact volume could be the result of a higher risk perception by the consumer; however, it could also be related to the methods used to inform and educate the consumers on the tariff. Note that the CAP was implemented as an "Opt-out" program where the customer was placed on a pricing plan randomly, but given the opportunity to opt-out of the program. A number of customers (~800) "finaled" (moved out or terminated their electric service) during the program. After excluding the "finals", the opt-out rate was low, approximately 2 percent from April through August 2010. The reasons given for opting out included: Not Interested (21%), Causing Higher Bills (16%), Won't or Can't shift energy usage (15%), Too Complex (11%), and Won't Save Money (10%).

During the summer of 2010, seven critical peak events were called. As shown on the graph, 69% of the CAP customers were breaking even, 23% were paying lower bills, and 8% were paying more. The results through the summer season are being analyzed by EPRI and a preliminary report is targeted for early 2011.





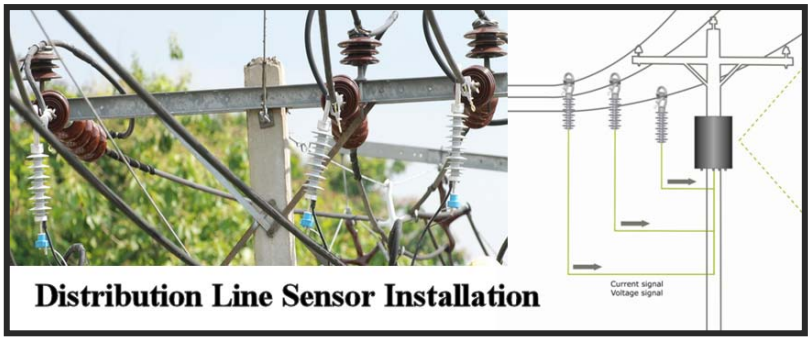
FirstEnergy / JCP&L Smart Grid Demonstration Update

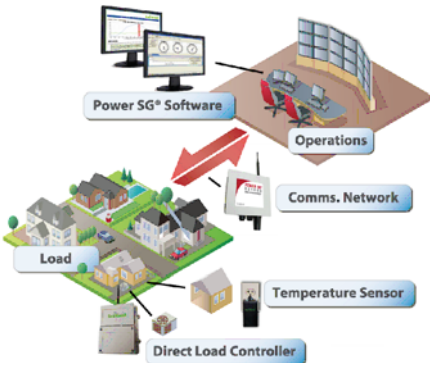


FirstEnergy's Integrated Distributed Energy Resources project enrolled an additional 15 MW in the Direct Load Control program for the summer of 2010. The two-way communication system allows control and visualization of the load through the smart grid platform to support utility operations and market programs. The Direct Load Control system manages residential non-critical HVAC load giving utility operators visibility to customer devices, their locations, status and state change. The premise controller measures power, voltage, and operational status wile the premise temperature sensor relays in-home temperature information back to the smart grid platform.

The newly acquired load was used to support the JCP&L operating company distribution system during peak loading periods over the summer. It was also registered in PJM emergency and economic market programs. PJM test events were conducted to support PJM program participation including a 6-hour test to ensure that the load reduction level could be held as well as a 1-hour test with a minimal ramp in time to show that the technology could meet ancillary program market program requirements. Both tests were successful.

FirstEnergy will be installing distribution line sensors in November of 2010 with integration into the smart grid control system available to system operators for control and visualization in 2011.The permanent peak load shifting (Ice Bear) units, installed in 2009 and operated independently in 2010, will be integrated into the smart grid platform in 2011.





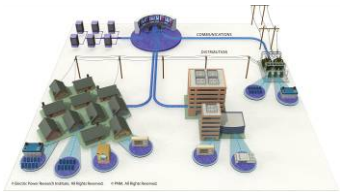
KCP&L Smart Grid Demonstration Update

KCP&L is in the review cycle with their first two use cases following several days of on-site use case workshops facilitated by EPRI and Ed Hedges of KCP&L. Use Case #1 covers how the Distributed Control and Data Acquisition (DCADA) Identifies Feeder Overload Condition and Use Case #2 discusses Integration Between Distribution Management System (DMS) and DCADA.

KCP&L submitted their revised Project Management Plan (PMP), Interoperability Plan, and Cyber Security Plan to the DOE on 10/29/10 and are continuing to work with the EPRI team to complete their Metrics and Benefits Reporting Plan.

As far as deployment, 984 Smart Meters have been exchanged (out of a total of approximately 14,000) and 187 welcome kits delivered. 70 In-Home Displays (IHD) have been provisioned. The present pace of provisioning 25 units/day in a small geographic footprint is the most aggressive deployment L&G has experienced. Other deployments have been less that half the quantity and spread over a much larger geographic area (after all meters have been installed).

PNM Resources Smart Grid Demonstration Update



PNM will kick off a new phase of their project this quarter. This part of the project is being led by New Energy and Industrial Technology Development Organization (NEDO) and combines customer side generation with a building energy management system at the greenfield site, Mesa Del Sol/Forest City Covington.

Work will start in November with use case development to determine the scope and requirements of the effort. NEDO and PNM are working with their partners on the high level design with construction on piping and electrical to start in April 2011.

The ultimate goal is to be able to micro-grid the building for short periods of time.

Southern California Edison Smart Grid Demonstration Update

Progress has been made on completing the Metrics and Benefits Reporting Plan for the Southern California Edison Irvine Smart Grid Demonstration (ISGD) Project. This project builds on SCE's experience with other advanced Smart Grid technologies gained through the DOE co-funded Avanti distribution circuit, syncrophasor development and Edison SmartConnect™ smart meter program.

Rather than just a "shallow" demonstration and examination of a few technologies, the ISGD will be a "deep vertical dive" that will more closely replicate and test all of the interlocking pieces of the end-to-

end Smart Grid. This proposed demonstration will take place on a section of SCE's grid from transmission through distribution to customer premise devices. Thus, the project will literally provide a living laboratory for accurately assessing the interoperability of, and interaction between, all of these various Smart Grid technologies and systems working at the same time.

Southern Company Smart Grid Demonstration Update

Although economics aren't yet favorable for large scale deployment of photovoltaics in the Southern footprint, many installations are being planned – both utility owned for demonstration purposes and customer owned in commercial applications. System wide, planning and inquiries are being received for PV installations in excess of 50MW, with anticipation that that number could dramatically increase in coming months. The integration process of these resources will be a part of the use case development as well as the monitoring of the distribution applications.

Southern will investigate high penetration PV in two experiments. First, install 50 single-module, utility-connected photovoltaic (PV) sites in Georgia and 50 in Alabama, with the project plan to monitor each AC module's output and sunlight input at 1 to 5-second intervals for 18 months. This data will then be used to feed into detailed distribution system circuit models to study the impacts of bringing high penetration of PV onto the distribution system.

In another experiment, four different PV arrays (1.1 kW each) will be installed on the roof of the Alabama Power building in Birmingham, Alabama. The experiment will compare four different technologies (polycrystalline, monocrystalline, flexible thin film, and heterojunction with intrinsic thin layer) in a side-by-side comparison. This experiment will further Southern Company's understanding of PV operations in the southeast climate.

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

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 on Friday will provide an update on EPRI Smart Grid Demonstration projects. Registrations are now open.

Open Distribution System Simulator (OpenDSS) Tool Training

When/Where: December 14th – 15th, UC San Diego, CA. (Registration and Agenda)
This training is free, but space is limited, please register by December 1st.

EPRI Smart Grid Demonstration Advisory Meeting – March 8-10, 2011

When/Where: Hosted by Southern Company, Atlanta GA, March 8-10
Invitations for the meeting will be coming shortly. This meeting will include the following:

- Strategic Topic Updates (Four for 2011)
  - Conservation Voltage Reduction (CVR) and Volt/VAR Optimization
  - DMS Integration and Visualization
  - Energy Storage Monetization
  - Consumer Behavior and Engagement
- Collaborator Activities Related to 4 Strategic Topics
- Review the status of the "Smart Grid Reference Guide to Integration of Distributed Energy Resources"
- Presentation on Key Deliverables
- Southern Co Tour, Demonstrations, Presentations

Future EPRI Smart Grid Demonstration Advisory Meetings

All Smart Grid Demonstration Members (not just Host-Sites) are invited to host future meetings. Utility Members of the Smart Grid Demonstration Initiative interested in hosting one of the upcoming meetings, Contact Matt Wakefield.

2011 March 8-10 Meeting Hosted by **Southern Co**, Atlanta, GA
June/July – Meeting Hosted by **Duke Energy**, Cincinnati, OH
Oct/Nov – Meeting Hosted by **KCPL**, Kansas City, MO
2012 Feb/March – Meeting Host TBD
June/July – Meeting Hosted by **Southern California Edison**, Westminster, CA
Oct/Nov – Meeting Host TBD
2013 Feb/March – Meeting Host TBD
June/July – Meeting Host TBD
Oct/Nov – Meeting Host TBD
2014 Feb/March – Meeting Host TBD
June/July – Meeting Host TBD
Oct/Nov – Meeting Host TBD

Other Smart Grid Related Meetings and Conferences

For a full list of national and international smart grid meetings and conferences, visit EPRI's Smart Grid Calendar of Events.
Some key Smart Upcoming Smart Grid Conferences include:

- Grid-Interop 2010, Nov 30th - Dec 3rd, Chicago, IL
- 4th International Conference on Integration of Renewable and Distributed Energy Resources, Dec 6th-10th, Albuquerque, NM
- DistribuTECH 2011, Feb 1st – 3rd, San Diego, CA

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