

## MINUTES

### **Banner Center for Energy Smart Grid Focus Group Meeting**

*Understanding Training Needs for the Smart Grid Revolution*

Gaylord Palms Hotel, Kissimmee, Florida

**Friday, January 29, 2010**

**10:00 AM - 3:00 PM**

### **I. Welcome and Introductions**

*Jose Farinos*, Dean of Advanced Technology, welcomed all those in attendance to the Banner Center for Energy's first focus group on smart grid training needs. Dean Farinos gave an overview of the structure and focus of the discussion and lead into individual introductions.

Self-Introductions as follows:

James Auld, Florida Power & Light

Rodney Miller, FPL

Bob Triana, FPL

Kurt Morauer, Banner Center for Construction

Bruce Heshner, Brevard Community College

Everton Jackson, Polk State College

Richard Hyatt, Southern Educational Systems

Andy Halloway, Southern Educational Systems

Tracy Hickman, Lake City Community College

Betsy Levingston, Lakeland Electric

Carl Romano, Lake City Community College

Tom Mudano, Mainsail Project Solutions

Bryan Kamm, Coastal Caisson Corp/Bauer

Jay Matteson, Palm Beach State College

M. Matteson, Palm Beach State College

Aleksandar Damjanovic, University of South Florida

John Kelly, Lake Sumter Community College

Paul Kalv, City of Leesburg-Electric

### **II. Smart Grid 101**

*Bob Triana*, Operations Manager, Energy Smart Florida, Florida Power & Light. Mr. Triana gave an overview of the smart grid along with a discussion on key issues for industry and training needs.

#### Overview of Smart Grid:

- Smart grid investment grant and awards summary for the state of Florida.
- For FPL this will be a 2.5-3 year project with the 538 million budget.
- What is the smart grid and who is involved?
- Importance of an educated workforce.

#### Smart Grid, Delivery End-to-End:

- Need a buildup of intelligence in the meters so the customer doesn't have to be technologically savvy to program successfully.
- End product will lower FPL costs and will therefore benefit the customer through cost reduction.
- Standards and interoperability still an issue.

#### Metering Infrastructure:

Questions were raised regarding solar power, privacy issues, and planning for energy savings in individual homes. Answers: For solar powered homes additional solar meters would be needed. Privacy is an important issue that is still being discussed on many levels. The time to plan for energy savings is now but the smart grid will make energy savings and planning much easier for every customer. The smart grid will facilitate planning in that the customer will not have to wait a month to see the effects of a change in energy usage.

#### Smart Grid, Training:

- Electricians- inside homes to install appliances. New appliances will also have further intelligence so there will need to be new training there.
- Need safety training to install smart meters,
- Training of manufacturers,
- Energy management analysts/ carbon footprint auditing, all data crunching.

#### Smart Grid, From the Home to the Distribution Grid:

- FPL has 3 types of new equipment: self-healing technology, power quality, and diagnostics.
- Intelligence will be there to know the grid is actually working right resulting in increased power quality.
- There will be a need for linemen to take down old equipment and put up new. There would be an advantage to have extra training for linemen to understand the technology he/she is installing.

#### Substations:

- There needs to be a large number of people in different fields that understand the levels of the grid.

- Through self-diagnostics, equipment monitoring will be easier because equipment will be able to be taken out of service as it starts to go bad. This will reduce power loss. Also, equipment can be fixed before it breaks resulting in further cost savings.
- There is a need for manufacturers of all new equipment, people to run fiber lines, and people at diagnostic centers.

#### Transmission Grid:

- There will be a measurement of the stress placed on the system, increasing the ability to see when the grid will have problems.
- Phasor Measurement Unit PMU will be installed on different points on the grid. The PMU is critical to the system as a diagnostic center and in energy management.

### **III. Smart Grid Conference/ Industry Outlook**

*Kevin Cooper, Program Coordinator Banner Center for Energy, Indian River State College. Mr. Cooper gave an overview of what was learned at the Smart Grid Summit in Miami, FL.*

#### What is Driving the Smart Grid Evolution?:

- Money, reliability, capacity, carbon, integration of smaller energy sources and energy solutions.
- Cost effective initiatives.
- Weaknesses of today's aging electrical system. 70 percent of transmission lines and transformers > 25 years old and approaching EOL.
- Urgency to effectively network and manage grid to ensure reliable energy.
- Smart monitoring on existing grid has been proven to minimize the number of incidents of low voltages, outages, and power spikes.
- Expected energy demand to outstrip supply by 2030. With proper monitoring of the electrical grid capacity of existing power lines can be increased by 5 – 10 %.
- Reduction of carbon footprint.

#### Challenges to Successful Implementation:

- Interoperability Standards: What technology will be used for the communication of data? What will be the framework for data storage?
- Inability to upgrade equipment in the field.
- Redefining utilities business models and incentive with a consumer base that is smarter and therefore able to use less power.
- Consumer adoption to a system where peak and off-peak price differences may not amount to changes in consumer behavior.
- Security and privacy issues. Who owns the data?

#### Academic Opportunities:

- The smart grid is a true merging of fields including IT, power generation, telecommunication, engineering, equipment manufacturing, security, data architecture.

- Training needs to focus on bridging the gap between different fields.
- Skill upgrades include facilities personnel understanding power storage; networks, and IT solutions and customer service personnel understanding data storage, data analysis, and energy efficient practices; and technicians and engineers understanding cycle lifetimes, and energy efficiency.
- Education is needed to change consumer behavior including energy efficient practices and data analysis. This can be done at the community college level to help disseminate information about the smart grid.

#### **IV. Updates and Discussion**

##### Paul Kalv, Director, City of Leesburg Electric Department.

The goals of city's smart grid proposal include: empowering the customer to know prices, rewarding energy efficiency, improving reliability of the grid, and fostering application of solar and other energy sources as part of the distribution integration. They do not look to new generators but instead look for ways to obtain load reduction. Demand side management will save a great deal of money.

##### Aleksandar Damnjanovic, University of South Florida.

It is important to bridge the gap between the retirement of industry workforce and the number of students being trained in the field. Software courses are important for power engineering technology programs because what is needed in the field today differs greatly from what was needed 20 years ago. The University of South Florida has the biggest power engineering program in Florida at the university level. They are doing research on smart transformers and need research on the technology of transformers. This technology will be able to save actual money. USF has smart grid project in St. Petersburg where they installed 500 smart meters.

##### Kurt Morauer, Banner Center for Construction.

Discussion on new training opportunities in the state of Florida. There are opportunities to look at the tower erection technician in conjunction with the power line worker program. St. Pete looked at smart grid technician program with courses in smart home/mobile electronics technology. Cataloging secondary programs around the state was discussed in order to fill in gaps in training at that level.

Mr. Morauer gave an update on the activities of the Banner Center for Building Construction and the interaction between diverse Banner Centers (Manufacturing, Energy, Construction, and Alternative Energy) and the availability of training opportunities across disciplines. He described a mobile trainer that he can make available to other Banner Centers, and discussed industry certifications available and under study.

## **V. Focused Discussion**

A discussion on who was missing from the table on smart grid took place.

*Action Item:* Invite attendees to the discussion from IT, representatives from certification agencies, manufacturing industries and retailers.

A discussion on specific training needs at the college level took place.

*Action Item:* Future meeting needed on the specific curriculum needs for smart grid training to follow. There is a need to look ahead in this field to make sure there are enough trained workers supplied when they are needed. Colleges do not want to sit back and wait until it is too late to start training individuals or developing related curriculum. The importance of a true merging of all related disciplines in the development of the smart grid, together with other more direct training needs were all placed on the table during this focus group. Meetings on this topic must continue in order to be prepared for the assured growing need for trained workers in the energy industry.

A discussion on objectives that need to be added to current curriculum to bring awareness to smart grid projects took place.

*Action Item:* Enhance current line worker, electrical line service repair programs to include training in the specific smart grid technology that will be installed by these technicians.

A discussion on what the Banner Center for Energy and other partnering colleges can do to provide public awareness of the smart grid took place.

*Action Item:* The Banner Center for Energy, along with its educational partners, can be a tool for training as well as information to the public regarding awareness of current smart grid initiatives and what individual households can do to simultaneously lower electric bills and conserve energy.