

IEEE Power Engineering Society Entity Annual Report

2015

Entity: Power System Planning & Implementation (PSPI) Committee

Chair: ML Chan

Vice-Chair: Fangxing (Fran) Li (interim); Anil Pahwa (on temporary leave)

Secretary: Fangxing (Fran) Li

1. Significant Accomplishments:

During 2015 PSPI Committee was instrumental in helping the industry focus on issues and methodology for conducting power system planning while subjecting to the new transformation pressure that came from the Reforming Energy Vision (REV) from New York and the Distributed Resource Plan (DRP) initiative from California. In the presence of EPA's Clean Power Plan, FERC Order 1000 and Supreme Court ruling on FERC Order 745 on Demand Responses, our Committee has been able to help our industry practitioners navigate through these uncertain waters in planning their systems. All our panel sessions attracted over 100 attendees each during the Denver GM Meeting. Even more importantly, the attendees are getting younger.

We accomplish all this through the following Working Groups and Subcommittee:

- Conventional & Renewable Energy Supply Planning Working Group
- Transmission System Planning Working Group
- Modern & Future Distribution System Planning Working Group
- Integrated Intelligent Customer System Planning Working Group
- Energy Forecasting Working Group
- Asset Management Working Group
- Assessment of Power System Flexibility Working Group
- PSPI Awards & Recognition Subcommittee

2. Benefits to Industry and PES Members from the Committee Work:

The utility industry is much more in tune with this new power system planning paradigm under smart grid. The new initiatives from the two sides of the nation (REV and DRP), plus the Hawaiian experience have put on notice that power system needs to be transformed. We have also succeeded in bringing out the importance of flexibility into power system planning arena. Our WG is the center of activities for IEEE on the subject of system flexibility when integrating DER, microgrids, demand responses and demand-side resources. Asset Management has also taken a prominent position among the

industry disciplines, securing international participation from CIGRE, IAM and IET colleagues.

3. Benefits to Volunteer Participants from the Committee Work:

Participating in the works of our Committee, members have been considered as the industry voice in power system planning. They have gained respect in their respective companies. Their insight has been quoted in newspapers (e.g., China news agencies) and conference proceedings (e.g., DistribuTECH). The activities of Energy Forecasting Working Group have also led to our committee participants being the industry leaders in this new movement of energy forecasting.

Our members also received recognition for their contribution to the PES work. The PSPI Prize Paper was awarded to the following:

- G. A. Hamoud and C. Yiu, “Use of Mobile Unit Substations in Redundant Customer Delivery Systems”, *IEEE Transactions on Power Systems*, Vol. 29, No. 3, May 2014, pp. 1403– 1409

PSPI also awarded the PSPI Distinguished Service Award the following for their contribution to the popular Load Forecasting Tutorial: Tao Hong, Shu Fan, Hamidreza Zareipour, and Pierre Pinson.

Our PSPI Committee Chair, ML Chan, also received the PES Technical Council Distinguished Service Award.

4. Recognition of Outstanding Performance:

We have arranged the following programs to benefit the industry during the GM 2015: nine panel sessions, one Poster Paper sessions with over 50 papers presented, another 50 conference papers, and 12 Transaction papers. We also conducted two tutorials on Energy Forecasting (about 25 students each). We are continuing the Global Energy Forecasting Competition (GEFCom) that was started several years ago, sponsored by IEEE PES and Education Committee. It has brought a true sense of community among the Forecasting practitioners throughout the world, with the scope ranging from energy and load forecasting to renewable resources, for the long term, midterm, short term and near real-time.

5. Coordination with Other Entities (PES Committees, CIGRE, standards, etc.):

We also coordinate wit and contribute towards other Technical Committees, especially Power System Operations, Power System Computational Analysis and Economics, T&D, Climate Change Working Group, HVDC & FACTS Working Group, Innovative Smart

Grid Technology Coordinating Committee, FERC, CIGRE WG 1.27 and CIGRE WG C6.19 (Working Group on Planning and Optimization Methods for Active Distribution Systems).

6. New Technologies of Interest to the Committee:

Our Committee is interested in the following technologies and issues:

- Regulatory treatment for all the DER, microgrid, customer-side resources for grid planning and operations under the new business model of REV and DRP
- Inclusion of Grid Edge technologies into planning
- Dynamic Line Rating Systems
- Interactions between the bulk system and distribution system
- Analysis tools
- Generation supply shifts due to environmental policies
- Interactions of electrical supply with fuel supply
- Analytics/Big Data
- Price Forecasting
- Probabilistic Forecasting
- Probabilistic Power System Planning
- Active Circuit Planning
- Interface of Smart Grid with Utility Enterprise IT Business System
- Integration of Demand Response, Microgrids and Building Energy Management as customer resources into grid planning

7. Significant Plans for the Next Period:

Our Committee has the following significant plans for 2016:

- GEFCom2016
- Tutorial on transmission system planning for GM2017
- A panel session is being planned for PES GM 2016 to continue the highly successful discussion on “Challenges of Renewable Integrations: Flexible Products and Long Term and Short Term Market Design”
- Special Publication on Transmission Planning
- Update of the Assessment of Power System Flexibility WG’s LinkedIn site

Submitted by: _ML Chan_

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