

IEEE Power Engineering Society Entity Annual Report

2014

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:

PSPI Committee continues to be instrumental in bringing to the industry forefront the issues and methodology for conducting power system planning in the face of smart grid. Renewable resources (distributed and utility scale), distributed energy resources (DER), demand responses, energy storage and electric vehicles have to be considered in Resource Adequacy Planning and Transmission System Planning in the presence of FERC Order 1000 and revised environmental constraints. Active Circuit Planning for distribution system planning has taken center stage, incorporating demand-side resources, distributed generation, renewable resources and automation. We have also succeeded in bringing out the issues of integrating customer resources with AMI system and enterprise IT systems to maximize the benefits of smart grid.

We contributed to the development of the QER Report for US DOE. Despite very short lead time, all our WGs worked efficiently to develop inputs for the areas selected by PES that would be of interest in Smart Grid.

This year we have been extremely successful in showing our appreciation for our members' effort in contributing to the industry. Under established process and procedures, our PSPI Awards & Recognition Subcommittee has nominated and selected the PSPI prize paper for 2014. This award was presented to the authors at the PSPI Committee meeting in the 2014 PES GM at Washington DC. This award paper is:

Wijarn Wangdee and Roy Billinton, "Probing the Intermittent Energy Resource Contributions from Generation Adequacy and Security Perspectives," *IEEE Trans. on Power Systems*, vol. 27, no. 4, pp. 2306-2313, November 2012.

The PES Award and Recognition Committee also selected this PSPI prize paper as the unique PES Prize Paper for 2014. The award was announced and presented to the authors at the PES Award Dinner in the 2014 PES GM. Then, as additional honor to our Committee's work, PES nominated the above prize paper for the IEEE W.R.G. Baker Paper Award for 2015.

Our Committee's awards did not stop there. Dr. Tao Hong, Chair of our Committee's Energy Forecasting WG received the TC Distinguished Service Award for his outstanding leadership of the Global Energy Forecasting Competition, which was jointly sponsored by IEEE PES Education Committee.

We also succeeded in highlighting the concern for flexibility in power system planning, as exemplified by the technical sessions run by Assessment of System Flexibility Working Group, which works closely with other PES Technical Committees and Coordinating Committees. In addition, we succeeded in calling attention to the need for more useable and practical energy forecasting tools. Our Energy Forecasting Working Group continued with its success of the Global Energy Forecasting Competition (GEFCom). We have also brought out the true value of asset management across the entire electricity value chain – G, T & D – through our Asset Management Working Group.

The following Working Groups and Subcommittee have been instrumental in working relentlessly to make our Committee a success:

- 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 and PES members are much more receptive to this new power system planning paradigm under smart grid and renewable resource and DER integration. We have succeeded in bringing out the issues and solution methodology to incorporate flexibility into power system planning, integrating intermittent renewable and demand response resources. Resulting plans and market designs can optimally capture economics, system and service reliability, sustainability and customer choices. Our Committee has also been instrumental in the P2030.1 work in defining the utility system impacts associated with the integration of EVs, and in the P1547.7 standards.

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. Many of them have been interviewed and 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 are also receiving recognition for their contribution to the PES work. That allows them to show the value of their involvement with IEEE PES to their companies, thus furthering the fulfillment of the IEEE PES mission.

4. Recognition of Outstanding Performance:

As mentioned above, our GEFCOM 2014 is a continuing the phenomenal success of GEFCOM 2013.

For GM2014, we have delivered 7 panel sessions, 2 transaction paper sessions and 1 Poster Paper session. Details are given below:

Asset Management Working Group Combo	Committee Meeting	Power System Planning and Implementation	Chesapeake 2	Anthony McGrail	Tuesday, July 29, 2014	13:00	17:00
Energy Forecasting Working Group	Committee Meeting	Power System Planning and Implementation	Chesapeake 8	Tao Hong	Tuesday, July 29, 2014	14:00	16:00
Integrated Intelligent Customer Planning Working Group	Committee Meeting	Power System Planning and Implementation	Chesapeake 10	Heber Weller	Wednesday, July 30, 2014	14:00	17:00
Modern and Future Distribution System Planning Working Group	Committee Meeting	Power System Planning and Implementation	Chesapeake 4	Luis(Nando) Ochoa	Monday, July 28, 2014	15:30	17:00
PSPI Main Combo	Committee Meeting	Power System Planning and Implementation	Patomac 1	ML Chan	Wednesday, July 30, 2014	08:00	12:00
Transmission Planning Working Group Combo	Committee Meeting	Power System Planning and Implementation	Chesapeake 7	Michael Henderson	Tuesday, July 29, 2014	08:00	12:00

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Registration is Now Open for the 2014 IEEE PES GM
 April 4th, 2014
 Registration is Now Open for the 2014 IEEE PES General Meeting

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PSPI Activities at GM14 (July 27-31, 2014)
July 10th, 2014
Poster, Panel, Paper, Tutorial Events:

Title	Type	Primary Committee	Room	Session Chair 1	Session Chair 2	Day	Start Time	End Time
Planning for near-term Flexibility challenges	Panel Session	Power System Planning and Implementation	Potomac 3	Eamonn Lannoye	Harjeet Johal	Thursday, July 31, 2014	08:00	12:00
Advanced Modelling and Control of Future Low Voltage Networks	Panel Session	Power System Planning and Implementation	Chesapeake K	Luis(Nando) Ochoa	Mathias Stifter	Thursday, July 31, 2014	13:00	16:00
Asset management	Panel Session	Power System Planning and Implementation	Chesapeake 2	Anthony McGrail		Tuesday, July 29, 2014	13:00	17:00
Planning Transmission for Co-optimization with Resource Expansion	Panel Session	Power System Planning and Implementation	Chesapeake 7	Michael Henderson		Tuesday, July 29, 2014	08:00	12:00
Load Forecasting: the State of the Practice	Panel Session	Power System Planning and Implementation	National Harbor 4	Tao Hong	Hamidreza Zareipour	Monday, July 28, 2014	14:00	17:00
New Power System Planning (NewPSP) Combo Session	Panel Session	Power System Planning and Implementation	Potomac 1	ML Chan		Wednesday, July 30, 2014	08:00	10:00
Value of Flexible Resources in the ISO/RTO Markets with the Penetration of Grid-Scale Intermittent Renewable Resources and Distributed Generations	Panel Session	Power System Planning and Implementation	Chesapeake 7	Joseph Yan		Wednesday, July 30, 2014	14:00	17:00
Planning and Implementation Posters	Poster Session	Power System Planning and Implementation	Prince George's Exhibit Hall DE	Anil Pahwa		Monday, July 28, 2014	17:00	20:00
Generation and Transmission Planning	Transactions Paper Session	Power System Planning and Implementation	Camellia 4	Ron Chu		Thursday, July 31, 2014	13:00	17:00
Electric Vehicles and Wind Power	Transactions Paper Session	Power System Planning and Implementation	Camellia 2	Amy Li		Tuesday, July 29, 2014	14:00	17:00

Committee and Combo Session Events:

Title	Type	Primary Committee	Room	Session Chair 1	Session Chair 2	Day	Start Time	End Time
Assessment of Power System Flexibility Working Group Combo	Committee Meeting	Power System Planning and Implementation	Potomac 3	Eamonn Lannoye		Thursday, July 31, 2014	08:00	12:00
Conventional and Renewable Energy Supply Planning Working Group	Committee Meeting	Power System Planning and Implementation	Chesapeake 1	Joseph Yan		Monday, July 28, 2014	14:00	15:30

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

Each of our WGs contributed greatly to the QER report. On very short notice, we marshaled forces from each WG to contribute inputs to a number of areas in the QER.

We also coordinate 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).

We contributed to IEEE SA work where appropriate. We contributed the bulk of the work for IEEE P2030.1 – Impacts on Integrating EVs into the Electric Grid. We have also worked diligently with P1547.7, standards for integrating distributed generation to the grid.

6. New Technologies of Interest to the Committee:

Our Committee is interested in the following technologies:

- Dynamic Line Rating Systems
- Analytics/Big Data for Energy Forecasting
- Price Forecasting
- Probabilistic Forecasting
- Probabilistic Power System Planning
- Active Circuit Planning
- Interface of Smart Grid with Utility Enterprise IT Business System
- Demand Response, Microgrids and Building Energy Management as customer resources for Smart Grid

8. Significant Plans for the Next Period:

Our Committee has the following significant plans for 2014:

- GEFCOM2015
- Tutorial on transmission system planning
- A panel session has been planned for PES GM 2015 to continue the discussion on “Challenges of Renewable Integrations: Flexible Products and Long Term and Short Term Market Design”.

Submitted by: _ML Chan_

Date: Dec 20, 2014