

2016

**Entity: Power System Operation, Planning and Economics Committee (PSOPE)**

**Chair: Hong Chen**

**Vice-Chairs: Luiz Barroso and Fran Li**

**Secretary: Jianhui Wang**

**TCPC: François Bouffard**

**1. Significant Accomplishments:**

**Committee Structure Reorganization**

2016 was the transition year for the combined new committee of PSOPE. PSOPE was formed to create one area of focus of the overall operations of power system, including operation, planning and economics.

The committee structure was approved at 2016 JTCM meeting. The leadership of the new committee was finalized in April. The O&P was then drafted and approved at 2016 General Meeting (GM). During and after 2016 GM, the committee has successfully transitioned into the new structure, including all the preparation for 2017 GM. The transition efforts also include integrating similar activities across the three original structures, as well as further explaining the new structure to the members.

The 2016 GM was still organized based on the previous committee structure, i.e. Power System Operations committee (PSOC), Power System Planning and Implementation Committee (PSPI), and System Economics subcommittee of Power System Analysis, Computing and Economics (PSACE).

**Tutorials and Panels Summary:**

PSOC sponsors four subcommittees:

- System Operations and Control Centers
- Transmission Security
- Operational Methods and
- Electricity Market Economics.

Each of these subcommittees organizes panel sessions at the General Meeting on relevant topics. In addition, PSOC sponsors poster and paper sessions. At the GM 2016, PSOC and its subcommittees conducted thirteen panel sessions, four transaction paper sessions, paper forum sessions with 47 papers, and one poster session with seventy seven poster papers. In addition, PSOC also selected fourteen papers to the four best paper sessions.

PSPI sponsors seven working groups.

- Conventional and Renewable Energy Supply Planning
- Transmission System Planning
- Modern and Future Distribution System Planning
- Energy Forecasting
- Asset Management
- Assessment of Power System Flexibility
- Integrated Intelligent Customer System Planning (This WG is now moved to the new committee of Smart Buildings, Loads and Customer Systems committee.)

At the GM 2016, PSPI organized eight panel sessions, two transaction paper sessions, and one poster session with 39 poster papers. In addition, PSPI also selected 17 forum papers to present in two paper forum sessions and five papers in the best paper sessions.

System Economics (SE) Subcommittee of PSACE sponsors five working groups.

- Test Systems for Economic Analysis
- Sustainable Energy Systems for Developing Communities
- Network Charging
- Demand Response
- Economics of Energy Storage

At the GM 2016, SE delivered five panel sessions and two tutorials. At 2016 T&D Expo, SE organized one panel session.

### **Other Committee and Subcommittee Activities:**

At the GM 2016, PSOC conducted a meeting of the Administrative Subcommittee and a meeting of the Main Committee. Each of the subcommittees met during GM 2016 to conduct its business and plan future work. Working group on State Estimation Algorithms and the following eight task forces met at GM 2016 as well:

- Task Force on Electricity and Natural Gas Market Coordination
- Task Force on Decision Support Tools for Energy Storage Investment and Operations
- Task Force on Advanced Future Bulk Power Systems with Massive Distributed Resources
- Task Force on Real-Time Contingency Analysis
- Task Force on Natural Disaster Preparation and Recovery
- Task Force on Bulk Power System Operations with Variable Generation
- Task Force on Benchmarks for Validation of Emerging Power System Algorithms
- Task Force on Voltage Control for Smart Grids

At the GM 2016, PSPI conducted a meeting of the Main Committee. Each of the WGs also met to plan future work. SE subcommittee and its WGs met during GM as well.

All the panel sessions and committee meetings were very well attended, and significantly increased international and industry participation.

The edited book, “**Power Grid Operation in a Market Environment: Economic Efficiency and Risk Mitigation**”, was published by *Wiley - IEEE Press* in November 2016. This book was a result of the TF effort “Equilibrium of Electricity Market Efficiency and Power System Operation Risk” led by Hong Chen.

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

By presenting and discussing the operational, planning and economics aspects of power system technologies and operations, PSOPE activities help guide research and development activities. In addition, PSOPE shares information about industry experiences to provide feedback to the industry regarding the effectiveness of new techniques and methodologies.

## **3. Benefits to Volunteer Participants from the Committee Work:**

With more committee activities, such as organizing and chairing panel sessions, paper forum, transaction paper sessions, as well as creating and organizing Task Forces, Working Groups, PSOPE has attracted more volunteers. Through their contacts with other participants, volunteer participants in PSOPE work gain knowledge and experiences they can apply in their jobs.

## **4. Recognition of Outstanding Performance:**

(1) **IEEE PES Technical Committee Working Group Award** for “Challenges of Renewable Integrations: Flexible Products and Long/Short-Term Market Design”

Chair of Working Group: Joseph Yan; Vice Chair of Working Group: Amy Li; Members of Working Group: Ranbir Sekhon, Mark Rothleder, George Gross, Yonghong Chen, Paul Sotkiewicz, Alex Papalexopoulos

(2) **IEEE PES Technical Committee Prize Paper** to Tao Hong, Jason Wilson and Jingrui Xie, Title of Paper: “Long Term Probabilistic Load Forecasting and Normalization with Hourly Information”

(3) **IEEE PES Technical Committee Distinguished Service Award** to Fangxing (Fran) Li, Vice Chair of PSPI (2014-2016), Secretary (2009-2014) and Webmaster (2009-2016)

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



PSOPE coordinates with several other PES committees, notably AMPS, PDSP and T&D. Coordination sometimes includes joint sponsorship of GM sessions. PSOPE has supported the work of several task forces by providing operational perspectives via a liaison.

**6. New Technologies of Interest to the Committee:**

The major new technologies of interest to PSOPE include the impact on power system operation, Planning and Economics of significant penetration of stochastic generation resources, the operational issues and opportunities related to smart-grid technologies, as well as market design challenges to support reliable and efficient system operation.

**7. Significant Plans for the Next Period:**

PSOPE will sponsor and organize technical activities related to 2017 GM, and other IEEE PES conferences, further attract more international and industry participation, as well as participation from young engineers and women engineers. The focus will be to strengthen PES awareness, including developing webinars to introduce and promote committee, and presenting related technical subjects.

**8. Global Involvement**

PES is looking to increase involvement with members from Regions 8, 9 and 10 (Africa, Europe, Middle East, Latin America, Asia and Pacific). Please provide the following information

Total Number of committee members	Officers from regions 8,9 and 10	Subcommittee officers from regions 8, 9 and 10	Subcommittee members from regions 8,9, and 10
580	1	3	190

**9. Problems and Concerns:**

One of the concerns for GM attendance is industry participation. PSOPE sponsored activities, such as panels and task forces, have significantly increased industry participation through practical and trending topics. The effort will continue in 2017, to bring more value to the industry, strengthen PES awareness.

It was difficult to handle the uncertainty regarding the number of panel slots for the 2017 GM. Many proposed panels were cut due to limited panel slots. A review of the allocation per committee and internally per subcommittee will be necessary for the 2018 GM.

**Submitted by: Hong Chen**

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