

<http://ewh.ieee.org/soc/pes/psdpc/>

Chair: Pouyan Pourbeik  
Vice-Chair: Claudio Cañizares  
Secretary: Costas Vournas

## 1. **Significant Accomplishments:**

### 1.1. **Task force / Working Groups:**

With several successful Task Forces (TFs) completing their work and being disbanded in 2015, in 2016 several new Task Forces were proposed by our two subcommittees, and subsequently approved by the committee. These new TFs are expected to start their activities in 2017. The new TFs are:

- Task Force on Methods for Analysis and Quantification of Power System Resilience (co-sponsored with CAMS)
- Task Force on Stability definitions and characterization of dynamic behavior in systems with high penetration of power electronic interfaced technologies
- Task Force on Oscillation Source Location
- Task Force on Power System Restoration with Renewable Energy Sources

### 1.2. **Panels sessions**

At each PES General Meeting, the Committee actively sponsors a number of highly attended and successful panel sessions on imminent industry and research issues in the area of power system dynamics. The following panel sessions were set up by the Committee at the PES General Meeting in 2016:

- Harnessing Power Electronics for System Stability through Feedback Control of FACTS, HVDC and Wind Power Plants
- Advancements in Load Modeling for Dynamic Voltage Performance Analysis
- Modeling and Stability Analysis of Large-scale AC-DC Systems: North American Perspective
- Microgrid Stability and Modeling
- Challenges to Operate a Large Transmission Grid with Minimal or No Connected Synchronous Generators - Going Towards 100% Penetration of Power Electronics-Interfaced Generation

### 1.3. **Tutorials**

The PSDP Committee has in recent years sponsored several successful tutorials. In 2016, PSDP sponsored the successful tutorial on Microgrids: Overview, Design, Analysis, Operation, Control, and Applications. PSDP also proposed a couple of tutorials that were sent to the PES Offices, for the PES GM 2017.

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

The benefits of the work of the Power System Dynamic Performance Committee to the power and energy industry are as follows:

- Fostering high quality technical work in the area of power system dynamic performance and reporting on this work in the form of public IEEE Technical Reports (available on the PES Resource Center) and other avenues (such as journal and conference papers).
- Consistently organizing relevant panel sessions describing practical experiences and technical tools related to power system stability, control, and modeling, which address the latest industry initiatives and challenges.
- Providing an open forum for interaction among representatives of manufacturers, vendors, academics and researchers to raise, address, and resolve current technical issues facing the power industry related to power system dynamic performance.

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

The benefits to the Power System Dynamic Performance Committee volunteer participants are as follows:

- The Power System Dynamic Performance actively seeks the active participation of its members in its different activities with the goal of promoting and enhancing their professional development. Examples include: a) encouraging members to participate in different committee activities; b) promoting and organizing panel sessions of interest to PSDP members; c) imposing relatively short term limits (~2-years) on committee officers in order to allow for continuous renewal and involvement by the membership in the committee's leadership; d) maintaining a balance between members from industry and academia among the committee leadership; e) also maintaining a balance between North American and those from outside North America who serve in the committee and subcommittee leadership positions, to ensure diversity and global representation to the extent possible.
- PSDP provides a forum through Panel Sessions, Special Technical Sessions, and presentation opportunities within its Committee/Subcommittee/Working Group/Task Force meetings to disseminate the latest important technical issues of interest to industry participants and researchers.
- Participants in the various activities of the PSDP Committee work have the opportunity of establishing contacts with leading international experts in power system dynamic performance.

PSDP's Panel Sessions and other technical sessions provide timely state-of-art information on current industry topics of interest to volunteers.

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

The following PSDP Committee members have been recognized in 2016 for their outstanding achievements:

- Göran Andersson, a longstanding and esteemed member of the committee, as well as a past chair of our Committee, was awarded the IEEE PES Prabha Kundur Award for 2016.
- IEEE PES Technical Council and PSDP Distinguished Service Awards were given to Pouyan Pourbeik, PSDP Committee Chair, for 2016

- The following PSDP Committee members were elevated to the grade of IEEE Fellow in 2016: Michael Henderson, Federico Milano, Mahendra Patel, Joao Pecas Lopes, and C Y Chung
- Göran Andersson was recognized for his service for the many years as the Awards and Recognition Working Group Chair for the Committee
- Rodrigo Ramos was recognized for his service for the three years as one of the Committee TCPCs
- Leonardo Lima was recognized for his service for the past four years as the Power System Stability Controls Subcommittee Chair
- 2016 Prize Paper Award: Z. Huang, P. Du, D. Kosterev and S. Yang, "Generator Dynamic Model Validation and Parameter Calibration Using Phasor Measurements at the Point of Connection", IEEE Trans. on Power Systems, Vol. 28, No. 2, May. 2013.
- 2016 WG Award: Task Force on Benchmark Systems for Small-Signal Stability Analysis and Control Chaired by Rodrigo Ramos and Ian Hiskens.
- Claudio Canizares, PSDP Committee Vice-Chair, received the 2016 IEEE Canada Electric Power Medal.

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

PSDP coordinates with the CIGRE Study Committee C4 – System Technical Performance, in areas of mutual interest. PSDP has hosted over the past decade numerous meetings of CIGRE Working Group meetings on the Sunday of the IEEE PES General Meeting. Some of these areas of mutual interest have been on modeling of combined-cycle power plant, modeling of wind turbine generators, wide-area control and measurement, on-line dynamic security assessment, load modeling and application of phasor measurement units in monitoring and control of system dynamic performance. Again in 2016 we hosted several CIGRE WG meetings on the Sunday of the PES GM.

Many of the members of these CIGRE WGs have also actively participated and contributed to our panel sessions, task forces and committee and subcommittee activities, resulting in mutually beneficial exchange of areas between the two profession societies. Furthermore, in the past and presently, officers of PSDP also have served as a study committee chair of CIGRE.

PSDP is also closely working with the Power System Relaying Committee, as in the past, on many activities of mutual interest and there are standing liaisons between the two committees. In 2016, members of the PSRC were invited to, and gave a brief presentation at, the PSDP Committee meeting on areas of mutual interest.

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

Here is a list of some of the new technologies that are of interest to PSDP Committee and are a part of the topics covered by many of our panel sessions, TFs and WGs:

- wind and solar power plants,
- microgrids,
- dynamic performance of high-voltage direct-current transmission,
- application of synchrophasor measurements to dynamic monitoring and control,

- application of high performance computing to dynamic security assessment, and
- the contribution of distributed energy sources, connected to distribution grids, to overall system dynamics, stability and security.

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

Continue to maintain the high quality and output of our TFs and WGs, and continue to increase the attractiveness of the various activities of our Committee to the industry. Presently, there are plans for five panel sessions to be held by the committee in 2017.

**8. Global Involvement:**

PSDP is one of the most diverse groups in PES. Below are numbers on members from Regions 8, 9 and 10 (Africa, Europe, Middle East, Latin America, Asia and Pacific).

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
137 (>40 from 8,9,10)	2 out of 4 officers	2 out of 4 officers	Do not have exact numbers but more than 35 – 40%

**Submitted by: Pouyan Pourbeik<sup>1</sup>, Chair (2016)**

**Date: January 16, 2017**

**Claudio Cañizares, Vice-Chair (2016)**

**Costas Vournas, Secretary (2016)**

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<sup>1</sup> P. Pourbeik is currently the past-chair of PSDP Committee. As of 1/1/17, per the standard procedures of the committee, he finished his term and the new Chairman of the Committee is Claudio Cañizares.