

IEEE Power and Energy Society Entity Annual Report

2025

Entity: IEEE/PES Power System Dynamic Performance Committee
Website: <https://cmte.ieee.org/pes-psdp/>
Chair: Zhenyu (Henry) Huang
Vice-Chair: Glauco Taranto
Secretary: Federico Milano
Immediate Past Chair: Bikash Pal

1. Significant Accomplishments:

1.1 Task Forces and Working Groups

All PSPDC Working Groups (WGs) and Task Forces (TFs) have been very active and successful during 2025. The following TF reports have been completed and uploaded to the IEEE Resource Center since the last report:

- [PES-TR126: CIGRE JWG C4/C2.58 on Evaluation of Voltage Stability Assessment Methodologies in Transmission Systems](#) – Udaya Annakkage and Jose Rueda Torres – Both PES and CIGRE completed.
- [PES TR134 Advanced Pump Storage Hydro Power Modeling](#), prepared by the Working Group on Adjustable Speed Pumped Storage Hydro, (Chair: E. Muljadi), released in June 2025.

The [TF on Integrating Relay Models with RMS Dynamic Simulations](#) and the [TF on Power System Restoration with Renewable Energy Sources](#) have submitted their final report, which are currently with PSDP officers for revision and approval.

1.2 GM2025 Panel Sessions

The following panel sessions has been organized by the two subcommittees under PSDP at the PES GM 2025 in Austin. The material of the panel session is available at the IEEE Resource Center:

<https://resourcecenter.ieee-pes.org/conferences/general-meeting/pesbndlgm25>

Panels sponsored by the Power System Stability Subcommittee.

Title	Sponsoring WG/TF	Chair (s)	Date/Time
Novel Approaches Increasing Speed and Reliability of Dynamic Security Assessment	WG on Dynamic Security Assessment	Kishan Prudhvi Guddanti, Martin Wolter	Monday, July 28, 2025 1:00 PM - 2:50 PM
Experiences in the Use of Voltage Stability Assessment Tools in Control Centers	WG on Voltage Stability	Sarma NDR Nuthalapati, Venkataramana Ajarapu	Monday, July 28, 2025 3:00 PM - 4:50 PM
Practical Aspects of Methods to Capture T&D Interactions in Dynamic Performance of the System	WG on Dynamic Security Assessment	Alok Kumar Bharati, Alex Flueck	Tuesday, July 29, 2025 8:00 AM - 9:50 AM
Power System Strength in Electricity Systems Dominated by CIG: Concepts, Assessment, Challenges and Solutions	WG on Power System Dynamic Modeling	Claudia Rahmann, Alex Stankovic	Tuesday, July 29, 2025 10:00 AM - 11:50 AM
Integrating Relay Models with RMS Dynamic Simulations – Stability Perspective	TF on Integrating Relay Models with RMS Dynamic Simulations	Glauco Taranto	Tuesday, July 29, 2025 01:00 PM - 02:50 PM

Panels sponsored by the Power System Stability and Controls Subcommittee.

Panel Sessions	Sponsoring WG/TF	Chair(s)	Date / time
Power System Strength in Electricity Systems Dominated by CIG: Concepts, Assessment, Challenges and Solutions	joint PSS/PSSC subcommittees	Claudia Rahmann Alex Stankovic	Tuesday, July 29, 2025 — 10:00 AM - 11:50 AM
Insights gained from small signal stability analysis in systems with high IBR penetration	WG on Dynamic Performance of Renewable Energy Systems	Shruti Rao	Tuesday, July 29, 2025 — 3:00 PM - 4:50 PM
The status of utility management using synchrophasors	TF on Forced Oscillation	James Follum Chetan Mishra	Wednesday, July 30, 2025 — 8:00 AM - 9:50 AM
Optimal Restoration Strategy with Security Constraints in Inverter Dominated Power Systems	TF on Power System Restoration with RE Sources	Jun Wang Yunhe Hou	Wednesday, July 30, 2025 — 10:00 AM - 11:50 AM
Nonlinear Dynamics and Stability of IBR-Dominated Power Systems		Kaustav Dey	Wednesday, July 30, 2025 — 8:00 AM - 9:50 AM



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PSDP has proposed several Panel Sessions for the 2026 IEEE/PES General Meeting in Montreal, Canada, in July 19-23, 2026.

1.3 GM2025 Paper Submissions and Acceptance

PSDP has steady numbers of paper submitted and accepted for PES General Meetings over the past 10+ years as shown in the chart below. At PES GM2025, PSDP had 108 regular conference papers submitted and 56 papers accepted, at an acceptance rate of 52%. Out of the 56 papers includes 5 for the best papers sessions, 16 for paper forum sessions, and 35 for poster sessions. PSDP also had 16 transaction papers and 45 panel talks in the panel session listed in Section 1.2.

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

The benefits offered by the PSDP Committee to the power and energy industry are as follows:

- Fostering high quality technical work in 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). PSDP sponsored TF/WG reports are very useful to our researchers and industry power professionals. The technical reports by PSDP Committee are among the most downloaded documents from the IEEE Resource Center.
- Consistently organizing relevant panel sessions describing practical experiences and technical tools related to power system stability, control, and modeling in the environment of new IBR technologies, which address the latest industry initiatives and challenges.
- Providing an open forum for interaction among representatives of manufacturers, vendors, academia, and research institutions to raise, address, and resolve current technical issues facing the power industry, always related to power system dynamic performance.

- Advancing dynamic stability concepts to keep up with the evolution of the grid and the surrounding technologies such as inverter-based resources and larger loads including data centers.

3. Benefits to Volunteer Participants from the Committee Work:

The benefits to the PSDP Committee participants are as follows:

- The Committee actively seeks the active participation of its members in its different activities with the goal of promoting and enhancing their professional development. Examples include:
 - encouraging members to participate in different committee activities;
 - promoting and organizing panel sessions of interest to PSDPC members;
 - imposing term limits (2 years) on committee officers and on subcommittee (SC) and WG Chairs (4 years) to allow for continuous renewal and involvement by the membership in the committee’s leadership; and
 - maintaining a balance between members from industry and academia, as well as between members from North America and outside North America, who serve in the committee and subcommittee leadership positions, to ensure diversity and global representation to the extent possible.
- The Committee provides a forum through Panel Sessions, Special Technical Sessions, and presentation opportunities within its Committee/SC/WG/TF meetings to disseminate the latest important technical issues of interest to industry participants and researchers.
- Participants in the various activities of the PSDPC have the opportunity of establishing contacts with leading international experts in power system dynamic performance.

4. Recognition of Outstanding Performance:

The following PSDP distinguished committee members were recognized in 2025 for their outstanding achievements:

PES and External Awards:

- **Prof. Bikash Pal** was awarded the 2025 IEEE PES Prabha Kundur Power System Dynamics and Control Award “for contribution to robust control and estimation of power systems.”
- **Prof. Ali Abur** was awarded the 2025 IEEE PES Charles Concordia Power Systems Engineering Award “for contributions to power system state and network model estimation.”

PSDP members being elevated to Fellow grade, class 2025:

- **Kai Strunz**– for contributions to multi-scale modeling and control of AC-DC power and energy systems
- **Mark McVey** – for contributions to standards for stability and deployment of reactive power control technology.
- **Slava Maslennikov**– for contributions to reliable electric power systems monitoring and mitigation of natural and forced oscillations

- **Balarko Chaudhuri**– for contributions to control and stability of AC-DC grid systems

The following recognitions were awarded by the PSDP Committee:

- PSDP Paper award:** “Methods for Analysis and Quantification of Power System Resilience”, IEEE Trans. on Power Systems, Volume & Page Numbers: Vol. 38, Nr. 5, pages 4774-4786, Publication Date (Month & Year): September 2023, URL: <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9913670&isnumber=10224522>
Names of Authors: Aleksandar M. Stankovic, Kevin L. Tomsovic, Ian Dobson, Ninel Cukalevski, James A. Kavicky, Victor Levi Frederic D. Petit, Giovanni Sansavini , Fabrizio De Caro , Martin Braun , Joseph Eto, Blair Fink, Christian Hachmann , Joe H. Chow, , David Hill , Chen-Ching Liu , Lamine Mili , Rodrigo Moreno , Chuanyi Ji , Mathaios Panteli , Chanan Singh, Yin Xu , Anurag K. Srivastava , and Shijia Zhao
- PSDP Technical Report award:** TR-110 “Forced Oscillations” Lei Chen, Dan Trudnowski, Luke Dosiek, Sukumar Kamalasan, Yanhui Xu, Xiaozhe Wang
- PSDP Outgoing Committee Chair:** Bikash Pal, for his leadership as Chair of the Power System Dynamic Performance Committee
- PSDP Outgoing Sub-Committee Chair:** Federico Millano, for his leadership as Chair of the Power System Stability Control Subcommittee
- PSDP Outgoing Task Force Chair:** Antonello Monti, for his leadership as Chair of Task Force on Modelling and Simulation of Large PS with high penetration of Inverter based Generation
- PSDP Outgoing Technical Program Chair (TCPC):** Panos Papadopoulos, for his leadership as Technical Committee Program Chair for 3 years

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

The PSDPC coordinates with the CIGRE Study Committee C4 – System Technical Performance, in areas of mutual interest, and has hosted over the past decade numerous meetings of CIGRE Working Group meetings on the Sunday of the IEEE PES General Meeting. These areas included 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. In 2020, the Joint IEEE/TF/ CIGRE WG C4/C2.58 on Evaluation of Voltage Stability Assessment Methodologies in Transmission Systems started its activities via on-line teleconferences. [A new joint TF CIGRE/IEEE on Reassessment of Power System Stability Definitions and Classifications for Converter-Dominated Grids will start in 2026.](#)

Many of the members of these CIGRE WGs have also actively participated in and contributed to our Panel Sessions, WGs, TFs, and many committee and subcommittee activities, resulting in mutually beneficial exchange of areas between the two profession societies. Furthermore, in the past and presently, officers of the PSDPC also have served as CIGRE Study Committee Chairs.



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The PSDPC is also closely working with the Power System Relaying and Control (PSRC) Committee, as in the past, on many activities of mutual interest and there are standing liaisons between the two committees. PSRCC members participate in a new PSDPC TF.

The PSDPC also works with the Analytic Methods for Power Systems (AMPS) Committee and the Power System Operation, Planning and Economics (PSOPE) Committee, particularly on the topic of dynamic state estimation and its connections to power system dynamic performance.

The PSDPC works closely with the Energy Development and Power Generation (EDPG) Committee and Electric Machinery (EM) Committee, particularly in Standards developed and sponsored by these Committees. The PSDPC maintains liaisons and several PSDP members are active participants in the WGs from EDPG and EM for development of IEEE Standards.

The PSDPC has dedicated liaisons to several coordinating committees including the Intelligent Grid and Emerging Technologies Coordinating Committee (iGET CC) (Glauco Taranto and Henry Huang), Renewable Systems Integration CC (Edgar Casale), Energy Internet CC (Claudio Cañizares), and Marine Systems CC (Samuele Grillo). PSDP support both the application and impact analysis of emerging and cross-cutting technologies such as AI/ML and power electronics and the impact of emerging technologies on power system dynamics.

The PSDPC supports the Industrial Technical Support Leadership Committee (ITS LC) to connect power system dynamic stability expertise with broader industry needs.

6. Coordination and Involvement with Young Professionals:

The PSDPC always encourages young professionals to participate in our WG and TF activities. And particularly, we actively recruit young professionals to take on officer responsibilities at all levels. We have a good percentage of young professional members as indicated in Section 8.

7. New Technologies of Interest to the Committee:

The following is a list of some of the new technologies that are of interest to the PSDPC and are a part of the topics covered by many of our recent and proposed Panel Sessions, WGs and TFs:

- Modelling, control and stability analysis of wind, solar and other forms of renewable generation and inverter-based energy sources, such as energy storage systems.
- Microgrids
- Electric Vehicles
- Grid Edge
- HVDC transmission systems
- Application of synchrophasor measurements to dynamic monitoring and control
- Application of high-performance computing to dynamic security assessment
- Impact and contribution of distributed energy sources, connected to distribution grids, to overall system dynamics, stability, and security



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- Dynamics, stability, and control of power systems with high penetration of variable renewable generation.
- Machine Learning
- Synchrophasors
- Digital Twin
- Generic dynamic models of renewable resources
- Monitoring, detection and localization of forced oscillations
- Analytical methods for large- and small-signal stability analysis of power systems
- Pumped storage hydro
- Experiences in use of transient stability assessment tools in control centers
- Restoration of 100% renewable energy resourced power systems
- Definitions of power system strength metrics
- Definition of benchmark systems for power system dynamic analysis
- Update existing definitions of power system stability in order to fit the needs of modern power systems with high-penetration of inverter-based resources.

8. Global Involvement

The PSDPC is one of the most diverse Technical Committees in the PES. Below are estimated numbers of members from Regions 8, 9 and 10 (Africa, Europe, Middle East, Latin America, Asia and Pacific) as well as the number of young professionals. Note these numbers are based on our 2019 roster prior to Signup123 retirement.

Total Number of committee members from Regions 8, 9 and 10	Number of Young Professionals (under 35 years of age) – Including committee & subcommittee	Officers from regions 8,9 and 10	Subcommittee officers from regions 8, 9 and 10	Subcommittee members from regions 8,9, and 10
142	35%	2 (50%)	2 (50%)	35%

9. Problems and Concerns:

None to report.

10. Significant Plans for the Next Period:

