

## IEEE Power and Energy Society

### Entity Annual Report

2025

**Entity: IEEE PES China Satellite Technical Committee - Power System Operation, Planning and Economics Committee (PSOPE)**

**Website:** <https://ieeepes.org/technical-activities/ltac/>

**Chair:** Jingru Li

**Vice-Chair:** Yaohua Wang , Qixin Chen

**Secretary General:** Nian Mei

**Deputy Secretary General:** Chong Xu

**Immediate Past Chair:** Mingqun Guo

#### 1. Significant Accomplishments:

China - PSOPE's primary accomplishments in 2025 are fourfold: (i) Committee operation management; (ii) organization of high-level academic platform; (iii) Application and set of international standards; (iv) Promotion of membership development and talents training. These accomplishments are detailed below.

##### (i) Committee operation management

- Actively coordinate with the corresponding IEEE PES Technical Committee in the United States to promote the process of adding IEEE standard review functions.

After research, it was found that most of the contact persons of the IEEE PES China Satellite Technical Committee can directly submit IEEE standard proposals to the corresponding IEEE PES Technical Committee in the United States. However, the IEEE PES Power System Operation, Planning and Economic Technical Committee in the United States does not have the function of standards, which



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makes our technical committee's IEEE standard proposal submission process more complex and time-consuming.

We have actively contacted the Chairman of the IEEE PES Technical Committee in the United States and suggested that they establish an IEEE standard review function to greatly simplify our application process for IEEE standards and improve the success rate of our application. The headquarters confirmed that PSOPE is still in the process of becoming a PES standard committee, a procedure that will take several months. Currently, PSOPE has been approved by the PES Technical Committee to serve as a standard committee. The next step involves drafting its charter and procedural documents for submission to the standards association for final approval.

- Actively support the preparatory work for the IEEE PES China Satellite Technology Committee Annual Meeting.

Date: December 26-27,2025.

Location: Kun Tai Jiahe Hotel.

Content: Fully leverage the role of a bridge and hub, systematically advance key aspects such as expert invitations, agenda planning, coordination of the agenda, and conference liaison, ensuring the meeting focuses on cutting-edge technologies and promotes in-depth exchanges, thereby significantly enhancing the academic influence and organizational cohesion of the IEEE PES China Satellite Technology Committee.

- The secretariat units of two subcommittees were reconstituted to high standards, with a high level of quality

Actively organizing professional academic forces to participate in the IEEE PES China Satellite Technical Committee, continuously attracting outstanding talents from the industry and injecting fresh vitality. The secretariat units of the Power Market Sub Committee and the Power System Operation & Planning Emerging have been successfully completed, along with the organizational management of new members in the Sub Committee. The registration and review of all new members 'filing information have been completed, and the corresponding membership application processes have been processed simultaneously, ensuring that all archives are complete and compliant, laying the foundation for new members to participate in the committee's work.

(ii)Organization of high-level academic platform

- At the IEEE PES China Satellite Technology Committee Annual Meeting, a sub-forum was convened on "Challenges and Planning Pathways for the Operation of a New-Type Power System under the 15th Five-Year Plan Strategy."



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The session focused on key issues in the transformation and development of the new-type power system under the 15th Five-Year Plan. Seven distinguished experts from institutions such as the Chinese Academy of Sciences, State Grid Liaoning Electric Power Company, Guangdong Power Grid Company, and State Grid Energy Research Institute were invited to deliver keynote speeches. Participants engaged in in-depth discussions on cutting-edge challenges and countermeasures in power system operation, planning, and economic technologies, establishing an academic platform to foster industry consensus and promote collaborative innovation.

- Hosted and co-hosted multiple high-level academic exchange events

The Bulk Power System Operation SC hosted an academic symposium on the evolution and future prospects of large power grid simulation technology, and hosted a specialized seminar titled Practical Focus: Challenges and Breakthroughs in Power Dispatch Simulation Technology.

The Distributed Energy Resources and Distribution System Planning SC actively participated in the 2025 Academic Annual Conference and Energy Conversion & Economy Annual Forum, hosted by the Distributed Generation and Smart Distribution Professional Committee of the China Society for Electrical Engineering, to jointly explore the transformation path of distribution networks and the new landscape of energy development. The forum, themed "Serving the Development of New Business Forms and Models, Building a New Distribution System" gathered over 350 expert representatives from industry authorities, power enterprises, universities, and research institutes to discuss the transformation path of distribution networks and the new energy development landscape. The conference featured six parallel sessions, focusing on cutting-edge topics such as "Planning for a New Distribution System" which facilitated in-depth discussions and forged broad consensus on addressing the large-scale development of distributed energy and building a new-type power system, while outlining practical pathways.

(iii) Application and set of international standards

The Technical Committee actively calls on all sub committees to cooperate with each other and vigorously carry out the application for international standards based on their respective technical fields and the technical characteristics of member units.

The affiliated units of the Technical Committee Secretariat has successfully released an IEEE standard, "Standard for Laser Scanning Systems of Drones for Survey and Design of Over 110 kV Overhead Transmission Lines." It has also secured approval for two international standard projects: "Guidelines for Integrated Design of Flexible DC Systems in HVDC Converter Stations," "AC Ultra-High Voltage Substation Design (Revised)," and the CIGRE technical report "Planning of Flexible DC Transmission Systems," marking the first-ever CIGRE technical report project. The Secretariat of the Power Market SC has applied for two international standard projects: IEEE standards "Grid Deployment of Multirotor



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Drone Systems for Inspection of Overhead Transmission and Distribution Lines and Substations" and ITU standards "Use Cases for IoT Edge Computing" .

(iv) Promotion of membership development and talents training

Multiple members serve as editors or consultants for top-tier international journals such as IEEE Transactions on Power Systems and Nature Reviews Electrical Engineering, demonstrating exceptional academic leadership. Through organizing special issues for journals like Sustainability and Applied Science, as well as deep collaborations with world-class institutions such as Cambridge and Imperial College London, members have been cultivated global perspectives and academic organizational capabilities. Pioneering papers published in Nature sub-journals and leading the compilation of industry annual reports highlight their research strength and influence in cutting-edge fields. These initiatives have systematically elevated members' academic standing while supplying core disciplines with internationally competitive key talents.

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

Dedicated to building an internationally influential platform for industry-university-research collaboration, technology transfer, and international exchange. By establishing an information hub that integrates scientific innovation with industrial practice, the platform not only focuses on overcoming technical bottlenecks in the operation, planning, and economics of power systems but also provides a high-level space for experts and scholars in related fields to exchange and collaborate, jointly promoting the dissemination and application of advanced concepts, methods, technologies, and tools. The platform also deeply participates in and leads the formulation and review of international standards in the fields of power system operation, planning, and economics, actively facilitating the deep integration of China's technological practices with the international standard system.

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

With the expansion of academic exchange programs and diversified organizational formats, PSOPE has attracted a growing number of enthusiastic volunteers. Through active participation in various activities and peer interactions, these volunteers not only enhance their professional knowledge and skills but also accumulate practical experience directly applicable to career development, thereby achieving mutual growth for both individuals and the organization.

**4. Recognition of Outstanding Performance:**

After internal recommendations and comprehensive evaluations by the technical committee, six outstanding members were selected, all of whom received awards from the IEEE PES China Satellite Technical Committee at the annual meeting.

Distinguished individual Contribution Award	Nian Mei
Distinguished Secretary-General Award	Jianxin Zhang
Distinguished Female Science and Technology Worker Award	Na Zhang
Distinguished Young Talent Award	Xun Lu
Distinguished Volunteer Award	Wenjie Qiao
Academic Publishing Award	Liang Ma

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

The Power Market Sub Committee participated in the 2025 IEEE PES China Regional Conference and held exchange activities with the Institute of New Power Systems and National Standards at Wuhan University.

The Integrated Energy Sub Committee actively participated in several important academic exchange activities both domestically and internationally, including: delivering an academic report titled "Entropy Theory and Analytical Methods for Integrated Energy Systems Facing Renewable Energy Integration" at the 6th Cross-disciplinary Forum in 2025; attending the CIGRE 2025 International Conference on Large Power Grids and joining the C1.47 working group for offline discussions; presenting an academic report at the China Academic Annual Conference on Power Systems and Automation in Higher Education Institutions; attending the IEEE ISGT Asia conference and serving as the chair of a sub-forum to host the presentation session; and delivering a report titled "Research on Analysis, Operation, and Control of Urban Integrated Energy Systems" at the academic symposium "AC/DC Transmission and Digital-Intelligent Transformation of Source-Grid-Load-Storage in New-Type Power Systems," jointly organized by the Global Energy Interconnection Group and Zhejiang University. These activities demonstrate the subcommittee's extensive academic engagement and influence in the field of integrated energy systems.

### **6. Coordination and Involvement with Young Professionals:**

The active participation and efficient collaboration of young professionals have become a key driving force in advancing the committee's development. Over the past year, the committee has organized multiple thematic seminars, academic exchanges, and international forums , providing a broad platform for young scholars and engineers to engage in academic exchanges. These young researchers have not only published groundbreaking research in high-impact journals such as IEEE Transactions on Power Systems and Nature sub-journals, but also served as editors or consultants for internationally renowned journals. This demonstrates their exceptional academic organizational capabilities and innovative vitality. In standard-setting, young members actively participate in the initiation and drafting of international standards,



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collectively promoting the standardization and internationalization of industry technologies. By continuously attracting outstanding young talents and building cross-organizational collaboration networks, the committee has created a "strong magnetic field" that attracts young professionals. This initiative facilitates deeper cooperation and collaborative breakthroughs in cutting-edge fields for integrated energy systems, power markets, and grid planning, injecting a continuous stream of youthful energy into the sustainable development and international competitiveness enhancement of the power industry.

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

The committee conducts in-depth research and extensive exchanges in key areas including large power grid simulation, distributed resources and smart distribution networks, integrated energy systems, electricity market mechanisms, flexible DC transmission, drone-based inspection, and IOT edge computing. Through specialized symposiums such as "Evolution and Future Prospects of Large Power Grid Simulation Technology" and "Challenges and Breakthroughs in Power Dispatching Simulation Technology," the committee has established a cross-disciplinary dialogue platform, fostering deep integration of simulation modeling, artificial intelligence, and power system operations. In standardization efforts, the committee has spearheaded the initiation and publication of multiple international standards, including drone laser scanning systems and flexible DC transmission planning, transforming innovative achievements into industry norms. Meanwhile, members continue to produce high-level research in cutting-edge fields such as power system resilience, vehicle-grid interaction, and data-driven optimization. By strengthening collaborations with world-class universities and institutions, the committee continuously tracks global technological trends, cultivates internationally competitive research communities and collaborative networks, and provides robust technical support for advancing the green transformation and high-quality development of power systems.

## **8. Global Involvement**

The committee has consistently regarded global involvement as a crucial pathway to advancing professional development and enhancing influence, actively engaging in and contributing to the international power and energy sector. By maintaining continuous alignment with the IEEE PES technical committee in the United States, we are actively promoting the addition of standard review functions to establish a smoother channel for international standard proposals. Over the past year, committee members have deeply participated in high-level international academic activities such as the CIGRE International Large-Scale Power Systems Conference and IEEE ISGT Asia, not only delivering presentations and serving as sub-forum chairs but also joining international working groups for offline discussions. In terms of international standards, we have successfully released one international standard and promoted the initiation and formulation of various international standards and reports, including those from IEC and CIGRE. These systematic international engagements have significantly strengthened China's international



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discourse power in the fields of power system operation, planning, and economics, and have contributed solid efforts to building an open, collaborative, and innovative global energy governance system.

## **9. Problems and Concerns:**

A primary concern for China - PSOPE is to broaden the scope of its subcommittee (SC) outreach and activities beyond merely organizing panel sessions, emphasizing deliverables with greater impact. Consequently, we persist in urging all SC, Working Group (WG), and Task Force (TF) chairs to generate additional reports, webinars, and papers that augment the PES General Meeting (GM) session organization, ultimately enhancing the value proposition for PSOPE members.

Furthermore, China - PSOPE has intensified industry engagement by incorporating practical and cutting-edge topics into its activities. Nevertheless, striking a healthy balance between industrial and academic participation within the committee remains an ongoing challenge. In 2026, we will persist in our endeavors for amplify value for the industry, by advancing various strategic initiatives .

## **10. Significant Plans for the Next Period:**

In 2026, the committee will initiate a series of learning and exchange activities. The specific activities are introduced as follows:

- Academic activities: Organize technical exchanges, collaborative research, and skill training between internal and external units of the technical committee in a timely manner to address issues of common concern in the fields of power system operation, planning, and economics. Invite industry experts to share cutting-edge scientific research achievements. At the same time, fully leverage the fundamental support role of the IEEE PES Satellite Technical Committee to assist the committee in planning and organizing relevant academic forums and seminars.
- IEEE Standard Application and Development: Continuously liaising with the corresponding IEEE PES Technical Committee in the United States, making every effort to facilitate direct submission channels for IEEE standard proposals, integrating innovative research results from various sub committees, refining key technologies based on industry research hotspots and market demand, actively applying for IEEE standard projects, and deeply promoting international standard development and publication.
- Member development and talent cultivation: Targeting industry units such as provincial companies, research institutes, universities, and enterprises, we will strengthen the publicity efforts of the Technical Committee, actively develop more experts and scholars as committee members, and promote the increase of the proportion of IEEE PES members.

**Submitted by: Secretariat of IEEE PES China Satellite Technical Committee - Power System Operation, Planning and Economics Committee**



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