SESEC V Report

Report on CEEIA Annual Standardization Meeting 2025

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Seconded European Standardization Expert in China
(SESEC)

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From 23 to 24 July 2025, the Standardization Working Committee of the China Electrical Equipment Industry Association (CEEIA) convened its 2025 Council and General Assembly in Shanghai. The CEEIA Committee Secretariat summarized the standardization work in 2024, proposed key tasks in 2025.

The meeting also released the ***Research Report on the Standard System for Electrical Equipment in the New Power System***. This research report summarized China's electrical standardization system covering five major specialized areas: power generation, transmission & transformation, distribution & consumption, energy storage, and carbon footprint.

In this SESEC report, we will delve into the two major sections highlighted at the annual standardization meeting.

1. Summary of Work in 2024

1.1 Standardization Research

CEEIA established a Coordination General Group for New Power System Equipment and Dual Carbon Standards. This group oversees five coordination working groups focused on power generation equipment, transmission and transformation equipment, distribution and consumption equipment, energy storage equipment, and carbon footprint.

Aligned with directives from the National Standardization Administration (SAC), the Ministry of Industry and Information Technology (MIIT), and the National Energy Administration (NEA) regarding the development of a standard system for the new power system and related industrial policies, the teams have researched and proposed standardization directions, priorities, and planned standards for their respective fields over the next 3 – 5 years.

CEEIA has also engaged in exchanges and discussions with organizations from the downstream of the industry chain, including the China Electricity Council (CEC) and State Grid Corporation of China, to ensure coordination between the standard system development and end-user sectors.

The review of the studies from the General Group and all coordination working teams has been completed and culminated in the birth of the *Research Report on the Standard System for Electrical Equipment in the New Power System.*

1.2 Policy Support

CEEIA has supported the State Administration for Market Regulation (SAMR) in executing critical initiatives such as *the Action Plan for Promoting Large-Scale Equipment Renewal and Consumer Goods Replacement*, facilitating the development of **15 key national standards**.

It has also assisted MIIT and SAMR in completing **safety-specific revisions for 4 mandatory national standards** in the fields of explosion-proof electrical equipment and electrical accessories and supported MIIT in conducting research and review of **16 mandatory national standards**.

Commissioned by MIIT, CEEIA completed two policy-supporting documents to facilitate high-level strategic planning. These documents have not yet been officially released:

- The *Implementation Evaluation Report on the National Standard System Construction Plan for Promoting High-Quality Development During the "14th Five-Year Plan" Period (Electrical Equipment Sector)*
- The *List of Standard Development and Revision Projects for Equipment Renewal and Technological Transformation in the Industrial Sector*,

Furthermore, CEEIA submitted proposals for 257 national standards and 107 sector standards in key areas including

new energy power generation, **new power systems**, **new energy storage**, **hydrogen energy technology**, and **energy efficiency improvement**.

1.3 CEEIA in International Standardization

CEEIA has deepened its involvement in the governance of international standards organizations. By serving as the domestic supporting body for the **IEC/DMT (Directives Maintenance Team)**, CEEIA experts have researched integration approaches for specialized directives of ISO, IEC, and JTC 1.

In alignment with IEC's standards digitalization initiative, CEEIA has explored mechanisms to harmonize Online Standards Development (OSD) tools with China's standard formulation processes. It has also contributed to international standardization policy research, assisting SAC in revising the *Administrative Measures for Participating in International Standardization Activities of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC)*.

Furthermore, commissioned by SAC, CEEIA developed plans to globalize Chinese standards in key sectors such as **new energy**, **clean energy**, and **intelligent power transmission and distribution**.

In 2024, the electrical industry took the lead in developing **11 international standards**. **A total of 10 international standardization experts from the sector were awarded the IEC 1906 Award**.

1.4 Performance Review for Association Standards

In September 2024, the CEEIA Secretariat established a dedicated task force for the comprehensive performance evaluation of association standards organizations. The task force broke down 59 assessment indicators across four key areas specified in the document: organizational management capability, professional technical capability, standards development capability, and promotion and application capability.

1.5 Optimized the Organizational Development of CEEIA Specialized Committees

To address standardization needs in emerging fields, the CEEIA established 3 new specialized committees:
- Electrical Equipment Testing and Safety Assessment for Specific Environments,
- Amorphous Alloys, and
- Digital Twins for High-Voltage Flexible DC Transmission Equipment.

In addition, CEEIA also renewed membership in 6 specialized committees:
- Electric Cables and Wires,
- Secondary Cells and Batteries,
- Rotating Machinery,
- Robotics Safety and Inspection for Electrical Environments,
- Management Systems for Electromechanical Equipment Manufacturing,
- Microgrids and Distributed Power Generation Equipment.

The renewal optimized the allocation of human and technical resources, ensuring both the quality and continuity of efforts in association standards.

1.6 Advancement of the Development and Revision of Association Standards

In 2024, CEEIA approved 148 new association standard projects and published 119 association standards. As of December 31, 2024, CEEIA has a total of effective 694 association standards and 321 ongoing standard projects.

Currently, various standard development and revisions emphasize leveraging the rapid, flexible, and innovative nature of association standards to drive the electrical industry toward **high-end, intelligent, and green development**.

(1) Supported High-End Development

To meet the demand for high-performance products in diverse scenarios, CEEIA has developed association standards for **torsion-resistant cables for wind power**, **high-efficiency electric motors**, and **graphene-enhanced lead-acid batteries**.

Use “Forerunner” association standards for power tools to guide products toward the premium segment, while standards for high thermal conductivity materials are creating new opportunities in the application market for new materials.

(2) Promoted Digital Transformation

Association standards for **smart motors**, **intelligent circuit breakers**, and **smart switches** are fostering innovation in product digitalization. Digital service capabilities are enhanced through standards addressing online monitoring, remote operation and maintenance, fault diagnosis, and condition prediction.

Additionally, association standards for fire warning perception, dynamic fire monitoring, and electromagnetic protection against induced lightning are strengthening disaster early-warning capacities.

(3) Advanced Green Development

Association standards specifying **carbon footprint quantification methods and requirements** have been developed for products such as electric cables, lead-acid batteries, transformers, switchgear, and explosion-proof electrical equipment.

The green design standard system has been further expanded with new association standards for rotating machinery, electrical accessories, circuit breakers, power tools, transformers, and industrial boilers.

Efforts also included association standards for **carbon accounting management in zero-carbon high-efficiency regional energy systems**, **carbon asset development and trading**, and **carbon footprint evaluation in industrial parks**.

Association standards aimed at improving the energy efficiency of hydropower, wind power, and photovoltaic power generation equipment are supporting the transition to clean energy.

1.7 Enhanced Promotion and Implementation of Association Standards

CEEIA association standards have been increasingly adopted to support certification initiatives, serving as technical references for innovative conformity assessment programs in the electrical industry, China Robot Certification, and China Quality Certification Center (CQC) certifications (e.g., for low-voltage circuit breakers).

In setting product benchmarks, the association standard on quality grading of power tools has been recognized as a criterion for evaluating high-performance products and is now used by e-commerce platforms.

These standards also provide an evaluation basis for regional standardization demonstration projects, and standardized demonstration enterprises. Furthermore, over 100 CEEIA association standards have been publicly adopted and declared by companies on the National Enterprise Information Service Platform.

2. Proposed Tasks in 2025

Moving forward, CEEIA will align closely with national strategies, including the “Dual Carbon” goals and the development of a new power system, while deepening standardization reform and comprehensively implementing key national standardization tasks.

Key Task 1. Deepen Implementation of the National Standardization Development Outline

(1) CEEIA will strengthen the role of standards in supporting scientific research, with a focus on electrical equipment for new power systems, low- and zero-carbon technologies, and digital-intelligent applications. The committee will integrate association standards into a coordinated “R&D – standard pre-study – industrial application” mechanism. This aims to align cutting-edge technology development with standard setting and speed up the conversion of research outcomes into standards that complement national and industry standards.

(2) Use standards to lead the transformation of the electrical industry. Government standards ensure basic requirements, while association standards drive innovation. Support the development of national standards for

emerging and future industries, and guide the sector toward high-end, smart, and green growth. Strengthen, supplement, and extend key industrial chains through standards to enhance modernization.

(3) Maximize the use of standardization platforms. Improve coordination between national, industry, and specialized committees. Enhance the planning of national, sector, and association standards. Standardize the management of national-level technical committees, optimize CEEIA committee structures, and advance standards in new fields like amorphous alloys, microgrids, distributed generation, and digital twins for flexible DC transmission.

Key Task 2. Scale Up the Efforts in Standard Internationalization

(1) Expand participation in international standards governance. Engage in integrating ISO/IEC working rules, focusing on changes in technical leader appointments, working group operations, and standard development management within ISO, IEC, and JTC1. Deepen involvement in IEC/SMB/SG14 (All Electric and Connected Society) strategic research and propose international standardization roadmaps supporting China’s “Dual Carbon” goals and energy transition.

(2) Advance key international standards in renewable energy, clean power, HVDC transmission, power electronics, and new energy storage. Propose and promote standards for new technologies such as electrical transport, medical cryogenic equipment, and insulation materials. Propose and promote international standards for lifecycle and carbon footprint assessment of electrical equipment and pursue new standard projects in areas like insulators and transformers.

Key Task 3. Continuously Improve the Performance of Association Standardization

(1) Improve overall performance of association standards. Use the official performance evaluation system to meet all targets, focusing on trademark registration, better intellectual property management, a digital platform for standards development, publication, promotion, and helping products go global.

(2) Pass the "Good Practice" certification for association standardization. Follow national regulations and guidelines to improve operations, pass third-party evaluation, and work toward having CEEIA standards recognized as national recommended standards.

Key Task 4. Promote the Compliance Work of Specialized Committees

(1) Strengthen committee development. Introduce annual reporting to clarify goals and improve cooperation. Create evaluation tools to manage committees based on performance. Enhance collaboration with branches for smoother operations.

(2) Improve committee structure. Include qualified foreign members and experts to broaden the impact of association standards. Assess member performance regularly, rotate members every three years, and keep committees active through updates.

(3) Boost association standard development and use. Develop standards based on new technologies and research. Promote and train to support adoption. Where no national committee exists, push to upgrade qualified association standards to national level. Set up feedback and review systems to keep standards effective through continuous improvement.

Key Task 5. Strengthen and Improve the Dynamic Management of Association Standards

(1) Advance the execution of association standard plans and standard reviews. For projects overdue for three years, specialized committees shall evaluate their necessity and decide on continuation or termination. For standards implemented for three years (published in 2020 and 2021), organize reviews to confirm their validity, revision, or withdrawal, and publicize the results.

(2) Establish an IT-based management system for association standard development. Develop and implement a digital management platform covering key processes such as project initiation, drafting, consultation, review, and publication. Ensure quality and efficiency in standard development through online operation and real-time monitoring.

Key Task 6. Deepen and Expand Standardization Service Capabilities

(1) Improve association standard demonstration projects. Get more CEEIA standards included in MIIT's "Top 100 Typical Cases" to boost practical impact and strengthen CEEIA's industry influence.

(2) Link standardization evaluation with industry development. Develop tiered innovative enterprises to set benchmarks across the sector.

(3) Expand evaluation of enterprise standards. Continue to assess technical levels of enterprise standards in the electrical industry, widen the scope of evaluations, and use benchmarking to increase the impact of advanced standards. As a result, create a new model where high-quality enterprise standards improve product quality.

To sum up, the CEEIA Committee will further integrate standardization with industrial upgrading, improve the supply of high-quality standards, and utilize standardization's dual role in supporting and leading the industry to contribute to sector-wide progress.

3. Research Report on the Standard System for Electrical Equipment in the New Power System

This report presents China's plan to create a unified set of rules and standards for its future electricity network, known as the New Power System. The main goal is to support the country's commitment to reach peak carbon emissions by 2030 and achieve carbon neutrality by 2060.

The strategy brings together national, sector, and association standards to ensure the energy system is secure, efficient, and smart. The standards cover the entire electricity chain: how power is generated, how it is moved across the grid, how it is used, and how it is stored.

The standard-setting process follows several key principles:

- It aligns with national policies on industry and standardization.
- It uses both top-down planning and bottom-up input from experts and companies.
- It combines mandatory standards with voluntary market-led standards to encourage innovation.

The standards are organized into five main areas:

- **Power Generation**: New standards will focus on making coal power cleaner, expanding hydropower, and supporting new wind and solar technologies—including offshore wind farms and better recycling of solar panels.
- **Transmission & Grid Equipment**: Standards will promote smart and green manufacturing, improve safety and reliability for renewable energy integration, and help equipment withstand extreme conditions.
- **Distribution & Consumption**: This includes standards for integrating rooftop solar and other distributed energy sources, managing energy use, supporting electric vehicle charging, and enabling smart electricity usage in homes and industries.
- **Energy Storage**: Standards will cover various storage technologies like pumped hydro, large-scale batteries, and hydrogen storage, making them safer, more efficient, and longer lasting.
- **Carbon Footprint**: A new system will measure and track the carbon emissions of energy products—such as transformers, cables, and motors—to help make manufacturing and energy use greener.

Looking forward, the standardization effort will prioritize building a more coherent and agile system, deepening digital and intelligent applications, strengthening green and low-carbon guidance, fostering cross-sectoral convergence, particularly with ICT, and enhancing China's role in international standards development to promote global adoption of its technologies and solutions. This comprehensive and layered standardization approach is designed to bolster technological innovation, industrial modernization, and the secure operation of the future power system.

4. Conclusions

In conclusion, the 2025 Annual Standardization Meeting of the China Electrical Equipment Industry Association (CEEIA) outlined a structured and forward-looking approach to standardization within the electrical equipment sector.

The event highlighted the completion of the Research Report on the Standard System for Electrical Equipment in the

New Power System, which establishes a comprehensive framework covering power generation, transmission, distribution, energy storage, and carbon footprint.

Key future directions include deeper integration of standards with national strategies such as the “Dual Carbon” goals and the development of the new power system, increased participation in international standardization, particularly within IEC and ISO, and continuous improvement in the quality and application of association standards.

Emphasis will also be placed on digital transformation of standard management processes, strengthening specialized committees, and enhancing the role of standards in supporting industrial innovation, safety, and sustainability.

These efforts aim to ensure that standardization effectively underpins technological advancement and market modernization in line with China’s energy and economic objectives.

Introduction of SESEC Project

The Seconded European Standardization Expert in China (SESEC) is a visibility project co-financed by the European Commission (EC), the European Free Trade Association (EFTA) secretariat and the three European Standardization organizations (CEN, CENELEC and ETSI). Since 2006, there has been four SESEC projects in China, SESEC I (2006-2009). SESEC II (2009- 2012), SESEC III (2014-2017), SESEC IV (2018- 2022) and SESEC V (2022-2025). Dr. Betty XU is nominated as the SESEC expert and will spend the next 36 months on promoting EU-China standardization information exchange and EU-China standardization cooperation.

The SESEC project supports the strategic objectives of the European Union, EFTA and the European Standardization organizations (ESOs). The purpose of SESEC project is to:

- **Promote European and international standards in China;**
- **Improve contacts with different levels of the Chinese administration, industry and standardization bodies;**
- **Improve the visibility and understanding of the European Standardization System (ESS) in China;**
- **Gather regulatory and standardization intelligence.**

The following areas have been identified as sectoral project priorities by the SESEC project partners: Internet of Things (IoT) & Machine-to-Machine(M2M) communication, communication networks & services, cybersecurity & digital identity, Smart Cities (including transport, power grids & metering), electrical & electronic products, general product safety, medical devices, cosmetics, energy management & environmental protection (including eco-design & labeling, as well as environmental performance of buildings).