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Industry Technical Support Leadership Committee (ITSLC) Annual Report 2025

Overall Metrics related to IEEE PES Resource Center Downloads per Technical Activities

Since its launch, ITSLC has developed several products available on the [IEEE PES Resource Center](#). Currently, **four** ITSLC-led products are amongst Top-Ten Resource Center downloads, highlighted below. This success is the result of ITS-LC's cooperation with various organizations across IEEE, including, but not limited to IEEE Standards Association, IEEE USA, IEEE European Policy Committee, IEEE PES Technical Committees, Conferences, Education, and Chapters.

Title	Committee	Date Published	Type	Downloads (Jan 2020-Dec 2025)
1. Simulation methods, models, and analysis techniques to represent the behavior of bulk power system connected inverter-based resources (TR113)	PSDP	September 2023	Technical Report	1,259
2. Stability definitions and characterization of dynamic behavior in systems with high penetration of power electronic interfaced technologies (TR77)	PSDP	May 2020	Technical Report	1,221
3. Resilience Framework, Methods, and Metrics for the Electricity Sector (TR83)	ITSLC	October 2020	Technical Report	1,087
4. Data Center Growth and Grid Readiness (TR131)	ITSLC	May 2025	Technical Report	971
5. Innovative Teaching Methods for Modern Power and Energy Systems (TR120)	PEEC	March 2024	Technical Report	920
6. IEEE Power and Energy Technology Assessment and Roadmap (TR123)	Technical Council	July 2024	Technical Report	810
7. Impact of Inverter Based Generation on Bulk Power	ITSLC	July 2018	Technical Report	807

<u>System Dynamics and Short-Circuit Performance (TR68)</u>				
8. Evaluation of Voltage Stability Assessment Methodologies in Modern Power Systems with Increased Penetration of Inverter-Based Resources (TR126)	PSDP	November 2024	Technical Report	701
9. Forced Oscillations in Power Systems (TR110)	PSDP	May 2023	Technical Report	697
10. Flexibility for Integrated Grid Planning with Distributed Energy Resources (TR115)	ITSLC	September 2023	Technical Report	679

ITSLC Initiatives and Accomplishments

- **ITSLC Published Technical Reports and White Papers:**
 - On May 2025, the ITSLC published a technical report titled: “**Data Center Growth and Grid Readiness (TR131)**” the report was chaired by Babu Chalamala and Veronika Rabl and included wide range of global authors and reviewers.
 - On October 2025, the ITSLC published a white paper titled: “**Modernizing Grid Stability: The Role of Electromagnetic Transient Modeling in an Inverter-Rich Power System**” the report was chaired by Jason Handley and included wide range of global authors and reviewers.
- **ITSLC Technical Reports Under Development:**
 - White Paper on Offshore Wind (Under Development, Chairs Jay Liu), first part on the offshore wind development expected to be published in Q1, 2026.
 - White Paper on Reliability and Resilience for a New Grid Needs (Under Development, Chairs: Haibin Sun and Marianna Vaiman) building on past ITSLC Paper: *Resilience Framework, Methods, and Metrics for the Electricity Sector* and expected to be published Q3, 2026.
 - White Paper on Utility Integrated Grid (Under Development, Chairs: Wen Tu and Sean Ness) this paper is expected to be published Q3, 2026.
 - White Paper on Closing the Gap Between Carbon Goals and Technical Reality (Under Development, Chair: Chan Wong) this paper is expected to be published Q4, 2025.
 - White Paper Virtual Power Plants (Under Development, Chair: Shikhar Pandey) this paper is expected to be published Q4, 2025.

Conferences and Webinars

- **2025 Grid Edge Technologies Conference and Expo**
 - The 2025 Grid Edge Technologies Conference and Expo was held in San Diego, CA in January.
 - The following were ITSLC panels:
 - Microgrids for Power System Resilience: Present and Future
 - Addressing Complex Challenges with Digital Twins: A Big Data Enabled Solution for the Evolving Grid
 - Automated DERMS with Dynamic Rate
 - Enabling innovative technologies in the next generation renewable energy integration
 - Grid Forming Inverters: Current Status and Roadmap Toward Wide Use by Electric Power Utilities and Independent System Operators—Utility, Developer, and Regulatory Perspectives.
 - Industry Viewpoints on IEC 61850
 - Eliminating Grid Initiated Wildfires while Protecting Critical Infrastructure from Wildfire
 - Innovation on the Edge (Super Session)
 - Impact of Medium-Heavy Duty Fleet Electrification on Utility Grids: Techniques for Identifying and Estimating Loads

- Advanced Synchrophasor Applications for IBR-Dominated Power Grids
- **2025 Energy & Policy Forum**
 - The 2025 Energy & Policy Forum was held in Washington, DC in March.
 - The ITSLC in-person meeting was also held in conjunction with the Conference
- **IEEE PES GM 2023**
 - The 2025 IEEE PES General Meeting was held on July 2025 in Austin, TX.
 - ITSLC sponsored/co-sponsored panels included:
 - Late Breaking News: Executive Roundtable on Enhancing Grid Resilience and Preventing Large-Scale Outages
 - A Review of Utilities' Plans to Further Enhance Planning Tools, Models, and Strategies for the update of Reliability Standards to Address Inverter-Based Resources Including FERC Order No. 901
 - Scaling AI in Utilities- Approaches, Challenges, and Lessons learned
 - Digital Twin 2.0- Going Beyond Today's Modeling and Simulation to Prepare for a Grid 2.0
 - Desire, Potential, and Reality of Virtual Power Plants
 - Energy Transition is facing challenges globally, what does this mean for decarbonization goals and power systems?
 - Advanced Grid Control: Opportunities and Challenges in ADMS-DERMS Integration
 - Application of Wide Area Probabilistic Methods and Metrics to assess resource adequacy (Probabilistic Planning)
 - Data Center Growth and Grid Readiness
 - In addition to the panel sessions, ITSLC hosted on site meetings with its members, as well as with NERC, and FERC. In addition, a CEP luncheon was organized.

Governmental Organization MOU Initiatives

- **U.S. Federal Energy Regulatory Commission (FERC)**
 - Relevant Dockets:
 - Building for the Future Through Electric Regional Transmission Planning and Cost Allocation
 - Commissioner-Led Technical Conference Regarding Large Loads Co-Located at Generating Facilities Docket No. AD24-11-000
 - Order Approving Reliability Standard CIP-015-1 - FERC issued Order No. 907 approving Reliability Standard CIP-015-1 and directing further revisions.
 - Potential Enhancements to the Critical Infrastructure Protection Reliability Standards - FERC issued a Withdrawal of Notice of Inquiry and Termination of Rulemaking Proceeding regarding potential enhancements to the CIP Reliability Standards.
 - Order Approving Revisions to Appendix 4E of the NERC ROP - FERC issues an order approving revisions to Appendix 4E of NERC's Rules of Procedure. The order also directs a compliance filing within 120 days.
 - Virtualization Reliability Standards Docket No. RM24-8-000 – Notice of Proposed Rulemaking

- North American Electric Reliability Corporation Docket No. RD25-7-000 – Order Approving Extreme Cold Weather Reliability Standard EOP-012-3 And Directing Data Collection
- Supply Chain Risk Management Reliability Standards Revisions Docket Nos. RM24-4-000 and RM20-19-000; Order No. 912 - Equipment and Services Produced or Provided by Certain Entities Identified as Risks to National Security
- Order 909 – Reliability Standards for Frequency and Voltage Protection Settings and Ride-Through for Inverter-Based Resources
- **U.S. Department of Energy (DOE)**
 - The purpose of this MOU is to more effectively align the efforts of DOE/OE and IEEE to address grid modernization challenges, especially at the distribution system level. DOE/OE and IEEE will work collaboratively with the following objectives: (1) Sharing technical needs for grid interoperability requirements; (2) Identifying technological gaps and approaches for addressing them; and (3) Individually, developing, disseminating and sharing information on advancements in technology and associated practices for planning and operations.
 - In the Q1 meeting, the potential of a white paper on best practices for wildfire mitigation and prevention was discussed
 - DOE and ITS LC discussed combining the following into one white paper:
 - Journey of Kilowatt Hour
 - Grid technology gaps, white paper on defining the coordinated planning framework (R + T + D)
 - Framework for grid architecture
- **North America Electric Reliability Corporation (NERC)**
 - ITS LC/NERC MOU renewed, signed by Mark Lauby, NERC SVP, and Tim Licitra, IEEE PES Executive Director
 - General Meeting Panels
 - Physical Security Panel
 - Reliability Impacts of Emerging Large Loads on the Bulk Power System
 - Panel on Microgrids
 - Application of Wide-Area Probabilistic Methods and Metrics to Assess Resource Adequacy

Corporate Engagement Program (CEP)

- The CEP program has presently 17 members:
 - ComEd
 - Quanta Technology
 - VELCO
 - ISO New England
 - National Grid
 - AEMO Australia
 - Burns & McDonnell
 - Smart Wires
 - Eaton INC.
 - AES
 - SEL Inc.

- Southern Co.
- Carrier Corp
- Entergy
- Schneider Electric
- EnerYOU
- Fronius
- In January, the CEP held 2 informational sessions in which 4 IEEE PES Technical Committee chairs gave presentations about their TC and informed the audience about current projects.
- In June, the CEP held a widely attended webinar titled “Data Centers and Grid Reliability in a Rapidly Evolving Landscape” featuring speakers from Quanta Technology, EPRI, Dominion Energy, and NERC.
- The 2025 Industry Expert Series presenter was Marianna Vaiman, who presented on “Using Advanced Technologies to Enhance Grid Stability, Reliability, and Resilience” at the CEP Luncheon during the 2025 General Meeting.

Executive Advisory Committee -

- One of the ITS-LC roles is to work closely with the EAC and support its’ mission to initiate and prioritize topics of executive interest. For example, the white paper on “Closing the Gap Between Carbon Goals and Technical Reality” was initiated and reviewed by EAC.
- EAC has been active in supporting the Corporate Engagement Program.
- During the EAC Meeting on-site in Austin in July 2025, the EAC members reviewed the recent ITS-LC white papers, technical reports, and webinars. They also reviewed topics of interest for future work and provided priority recommendations.
- The EAC will now work in coordination with IEEE PES Technical Council and Local Organizing committees for future Grid Edge shows, T&D shows, and General Meetings in Super Session planning.