

DECEMBER 30, 2020

Industry Technical Support Leadership Committee Annual Report

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

Five ITS LC-led documents are among Top-Ten Resource Center downloads (since 2017): #1, #2, #4, #8, and #9

Title	Type	Downloads (2017 – Nov. 2020)
1. Impact of IEEE 1547 Standard on Smart Inverters	Technical Report	1,439
2. Impact of Inverter Based Generation on Bulk Power System Dynamics and Short-Circuit Performance	Technical Report	1,279
3. Microgrid Stability Definitions, Analysis, and Modeling	Technical Report	1,220
4. The Definition and Quantification of Resilience	Technical Report	1,059
5. Paper Tutorial Course Transient Analysis of Power Systems. Solution Techniques, Tools, and Applications	Tutorial Paper	1,029
6. Contribution to Bulk System Control and Stability by Distributed Energy Resources connected at Distribution Network	Technical Report	871
7. IEEE Tutorial on the Protection of Synchronous Generators	Tutorial Paper	857
8. Sharing Knowledge on Electrical Energy Industry's First Response to COVID-19	White Paper	723
9. Energy Storage Primer	White Paper	665
10. System Neutral Grounding Considerations for Inverter-Interfaced Distributed Energy Resources	Technical Report	549

Cooperation Initiatives and Accomplishments

COVID-19 Fast-Track Initiative

- IEEE PES COVID-19 Knowledge Sharing Task Force was created at the end of March 2020, led by Aleksi Paaso and involved a number of global industry leaders.
 - White paper, including the questionnaire and interviews conducted across the globe, was completed in May 2020: [Sharing Knowledge on Electrical Energy Industry's First Response to COVID-19](#)
 - Two webinars on Sharing Knowledge on Electrical Energy Industry's First Response to COVID-19 have been presented, as well as a number of podcasts related to our report

- [Sharing Knowledge on Electrical Energy Industry - Response to COVID-19 \(Video\)](#)
- [Sharing Knowledge on Electrical Energy Industry's First Response to COVID-19: Part II – Technical Impacts \(Video\)](#)

MOU Initiatives

- FERC
 - A revision of the Technical Report from May 2018 entitled [Impact of IEEE 1547 Standard on Smart Inverters](#) was completed by August 2020 based on feedback and questions received by FERC. The revised Technical Report led by Babak Enayati
 - Hosted 3-part web-based energy storage tutorial in September, led by B. Chalamala & R. Masiello along with other Energy Storage and Stationary Battery Committee members. 30+ FERC employees attended each session plus an additional 20+ from outside organizations.
 - [Grid Energy Storage Technology, Session 1 \(Video Recording\)](#)
 - [Analytics and Deployment Status, Session 2 \(Video Recording\)](#)
 - [Applications and Valuation of Energy Storage, Session 3 \(Video Recording\)](#)
 - Babak Enayati is leading the organization of a second 3 part web-based tutorial series per FERC's request on smart inverters due to be scheduled for January/February 2021.
 - Responded to FERC Docket AD20-17 (August 2020): Impacts of COVID-19 on the Energy Industry – which included the submission of the IEEE PES white paper: [Sharing Knowledge on Electrical Energy Industry's First Response to COVID-19](#)
 - Other topics addressed in 2020: IEEE Standards P2800 Activity, review and responses to FERC dockets, future trainings related to Transmission needs & opportunities – integrating new resources, the need to expand transmission, Smart Inverters and Cybersecurity within the grid.
 - IEEE was to participate at the FERC Reliability and Technical conferences – Babak Enayati was proposed speaker for June 25, 2020 but, event was cancelled for 2020.
 - Meetings were held in February, May, August, and November. Next remote meeting being planned for January 2021.
- DOE
 - [Energy Storage Primer](#) paper was completed March 2020 based on request from DOE for high level information for regulators. Led by Veronika Rabl and the Energy Storage and Stationary Battery (ESSB) Committee.
 - [Electric Storage Opportunities and Research Needs](#) paper was completed June 2020. Led by Chan Wong and the Energy Storage and Stationary Battery (ESSB) Committee.
 - Submitted response to Department of Energy's Energy Storage Grand Challenge Request For Information (RFI) via IEEE-USA (August 2020) which included links to both the Energy Storage Primer paper and the Energy Storage Opportunities and Research Needs paper listed above.

- [Resilience Framework, Methods, and Metrics for Electricity Sector](#) technical report was completed in October 2020. Led by Bill Chiu.
- Webinar based on “Resilience Framework, Methods, and Metrics for Electricity Sector” technical report is being planned for early 2021.
- Meetings were held in February, April, June, and September (other follow-up calls held as projects required). Next remote meeting planned for January 2021.
- NERC
 - NERC participated in IEEE PES General Meeting panels organized and executed by Murty Yalla.
 - Meeting held in January and May (other follow-up calls held as projects required). Next remote meeting July 28, 2020.

IEEE PES Conference Activities

- Organized and delivered Success Factors on the Path to the Smart Grid, Keynote and Plenary Session, with leaders from ComEd, Austin Energy, U.S. DOE, FERC, and IEEE PES, at the ISGT-NA 2020, chaired by Veronika Rabl and Don Hall. Activities with NERC were also highlighted.
- Organized and delivered PES General Meeting ITSLC Late Breaking News (LBN) session presentations in August 2020.

Other initiatives:

- ITS LC supported IEEE initiative related to the Global Power System Transformation Consortium (G-PSTC), led by Jay Liu
 - The Consortium has a goal to support economic recovery related to COVID-19 and provide assistance to system operators and in advancing research for leading edge solutions
 - The team has expanded considerably throughout 2020 to include participation from IEEE Member & Geographic Activities (MGA) and IEEE Industry Application Society (IAS).
 - Year 1 deliverables included:
 - Landscape paper on technical standards, target region/country survey and potential tailored technical webinars, etc. (July 2020): [GLOBAL POWER SYSTEMS TRANSFORMATION CONSORTIUM: LANDSCAPE ANALYSIS OF RELEVANT STANDARDS, TESTING, AND CERTIFICATION ACTIVITIES](#)
 - Completion of a survey to system operators globally using PES Chapters and technical committees in September 2020. The report on this survey data is also due to be completed before the end of 2020.
 - The G-PSTC is not anymore responsibility of ITS LC. Jay Liu will continue supporting it in cooperation with Rudi Schubert (IEEE SA). ITS LC will support the initiative as needed.

Corporate Engagement Program (CEP)

- Plan developed Marianna Vaiman and Sharma Kolluri
 - “Basic Package” was developed
 - Image and Promotion
 - Communication between the Corporate Members and IEEE PES
 - Performance Measurements
- Current Corporate Engagement Participants:
 - ComEd: Calvin Zhang and Marianna Vaiman (IEEE liaison)
 - VELCO: Chris Root and Veronika Rabl (IEEE liaison)
 - Quanta Technology: David Elizondo and Sharma Kolluri (IEEE liaison)
 - ISO NE: Lauren Hennebury and Edvina Uzunovic (IEEE liaison)
 - National Grid: Subhadarshi Sarkar and Farnoosh Rahmatian (IEEE liaison)
- In Works
 - Panama Canal Authority is in the process of being signed, Enrique Tejera (PES lead)
- 2020 Organization structure
 - Leads: Regions 1-7 (Sharma Kolluri, Marianna Vaiman, and Chris Root), Region 8 (Jef Beerten and Bruno Meyer), Region 9 (Juan Celis), Region 10 (Nirmal Nair (acting))
 - IEEE PES MAL, Yu Jun, leads and coordinates all industry-related activities with China and IEEE PES VP Of Membership and Image, Julio Romero Aguero, leads all marketing efforts. IEEE PES University Corporate Engagement Educational Program Committee, John Teixeira
- November 2020 – First IEEE PES Corporate Engagement Program (CEP) webinar was hosted entitled: [*DER Integration from Transmission and Distribution Perspectives: VELCO and National Grid Experience*](#)
- December 2020 – Second IEEE PES Corporate Engagement Program webinar was hosted entitled: *Improving Resilience of Transmission and Distribution Grids: ISO-NE and ComEd Experience*
- CEP & Corporate liaisons web-meetings held in April, June and October (other follow-up calls held as projects required).

Organization Structure Update

- Aleks Paaso is appointed ITS LC Vice Chair
- Education, Area 4 was assigned to PES Education Corporate Engagement committee lead by John Teixeira. Efforts are coordinated with Marianna Vaiman and Sharma Kolluri.
- The Global Power System Transformation Consortium (G-PSTC) PES support was moved under the PES President.

Articles, Interviews, Podcasts

- Listen to the latest Grid Talk podcast where **Tom Pierpoint**, Member of IEEE Power and Energy Society (PES) Industry Technical Support Leadership Committee and Vice President of Engineering at Austin Energy, discusses the integration of emerging technologies and how utilities are preparing their grids for a modern, cleaner and more distributed grid. The host, Marty Rosenberg, also talked with Tom about the key takeaways from the IEEE PES white paper entitled “Sharing Knowledge on Electrical Energy Industry’s First Response to COVID-19”.
 - Listen here: <https://smartgrid.gov/gridtalk/>
- Listen to the latest On the Dot podcast where host Melinda Garvey speaks with **Shay Bahramirad** who founded IEEE Power and Energy Society (PES) Women in Power to stimulate more diverse involvement and leadership throughout PES and the industry it serves. Hear about her inspirational journey of pushing past limitations to accomplish her dreams.
 - Listen here: <https://www.youtube.com/watch?v=U-IVukPFAqg>
- In this Seeking Delphi podcast, **Shay Bahramirad** participates in a post-COVID future series discussing the electrical grid and emergency preparedness during the pandemic. Shay was one of the contributors to the IEEE Power & Energy Society's “Sharing Knowledge on Electrical Energy Industry’s First Response to COVID-19” white paper.
 - Listen here: <https://seekingdelphi.com/2020/06/10/podcast-46-the-post-covid-future-part-3-the-electrical-grid-and-emergency-preparedness-with-shay-bahramirad/>
- Read the article in Energy Daily: “Electrify vehicle fleets and transportation sector will follow” With the world put on hold to combat the spread of COVID-19, transportation traffic and industrial activity has been vastly reduced. In this recent article, **Damir Novosel**, chair of the IEEE PES Industry Technical Support Leadership Committee, discusses how the reduction in transportation has significantly contributed to a cleaner atmosphere, underscoring how vehicle electrification can reduce greenhouse gases.
 - [Download the PDF here](#)
- **COVID-19 Providing a World of Research on the Grid and Microgrids: IEEE Farnoosh Rahmatian**, immediate past chair of the IEEE Power & Energy Society (PES) Technical Council and president of NuGrid Power, is co-author of a new report, “[Sharing Knowledge on Electrical Energy Industry’s First Response to COVID-19](#),” which describes energy changes and challenges created by the pandemic. In this *Microgrid Knowledge* article, he discusses how smart microgrids, with their controls and ability to provide resilience, can solve numerous energy-related challenges created by the COVID-19 crisis.
 - Read the full article here: <https://microgridknowledge.com/microgrids-covid-19-ieee/>

- **How Energy Engineers Are Keeping Your Power On During COVID-19**

As COVID-19 swept across the globe, energy engineers quickly stepped in with their crisis response to ensure that customers stayed plugged in, turned on and operating at full capacity—while keeping their own employees safe. *IEEE Transmitter* sat down with IEEE Senior Member **Aleksi Paaso**, and a member of the IEEE Power & Energy Society (PES), to discuss the key findings and collective insights of system operators and utility providers around the world whose collaboration culminated in a recently published free IEEE PES white paper.

 - **Read the full interview here:** <https://transmitter.ieee.org/how-energy-engineers-are-keeping-your-power-on-during-covid-19/>
- **IEEE whitepaper addresses COVID-19 challenges for utilities**

IEEE’s free white paper “Sharing Knowledge on Electrical Energy Industry’s First Response to COVID-19”, provides insights to assist utilities and operators in meeting the challenges posed by the pandemic.

 - **Read more from Smart Energy International here:** <https://www.smart-energy.com/industry-sectors/energy-grid-management/ieee-whitepaper-addresses-covid-19-challenges-for-utilities/>
- **Engineers highlight COVID-19 utility challenges**

The IEEE PES white paper addresses challenges facing the utility industry as a result of the COVID-19 global lockdown, including emergency planning, changing consumption patterns, peak energy demand times, high voltage issues related to load reductions, and load forecasting and balancing.

 - **Read more from Power Engineering International here:** <https://www.powerengineeringint.com/whitepapers/engineers-highlight-covid-19-utility-challenges/>
- **IEEE PES COVID-19 White Paper Press Release**
 - Posted to IEEE Newsroom on May 28: <https://www.ieee.org/about/news/2020/ieee-shares-global-findings.html>
 - Posted to IEEE PES website on May 29: <https://www.ieee-pes.org/ieee-shares-global-findings-for-the-power-and-energy-industry-in-response-to-covid-19-pandemic>
- **Electric Transportation – Status and expected Grid impacts**
 - ITS LC members, **D. Novosel, T. Pierpoint, and V. Rabi**, prepared and presented an electric transportation review paper for the IEEE International Smart Cities Conference, held virtually in September 2020. The paper can be found at [Making Smart Transportation Work in Smart Cities](#)