

# **ISGT NA 2022 Call for Papers**

## **Moving to a 3-D Energy Landscape: Decarbonized, Democratized, Decentralized**

The thirteenth Conference on Innovative Smart Grid Technologies (ISGT 2022), North America, sponsored by the IEEE Power & Energy Society (PES), will be held in Washington, D.C, on February 21 – 24, 2022 with the theme “Moving to a 3-D Energy Landscape”.

ISGT 2022 is a forum to discuss the latest issues, trends, and emerging and innovative technologies for the future **d**ecarbonized, **d**emocratized, and **d**ecentralized, or 3-D, grid. The electric power system as we know it is undergoing a fundamental transformation in the face of dramatic increase in deployments of renewable and Distributed Energy Resources (DERs) and the emergence of new business and operating concepts and services. These changes are driven primarily by environment-friendly new technologies and regulations, increasing grid democratization opening up the grid to broad active participation, and new information technologies and analytical tools for decentralized decision and control.

The Conference will feature keynote and plenary sessions, panel sessions, and technical papers presented in poster sessions, as well as pre-conference tutorials. The conference is organized in three tracks: 1) Decarbonization of the grid, including renewable and DER technologies; 2) Grid democratization including technologies and tools for broad active participation; and 3) decentralized and distributed decision and control while maintaining grid reliability and resilience.

The Conference Organizing Committee invites practitioners and researchers worldwide to submit papers on conference topics outlined below. Accepted papers presented at the conference by the authors will be posted in IEEE Xplore (accepted papers will be presented in poster sessions). Also, to promote a more efficient and comprehensive engagement among participants, ISGT NA 2022 will endeavor to make the papers available online in advance of the conference to allow registrants time to prepare questions and comments for the presenters to address during the conference.

The Conference scope covers the three tracks and includes the following general topics:

### **1. Track 1: Technologies and processes for grid decarbonization**

- 1.1. Environmental issues and regulations
- 1.2. Renewable energy technologies
- 1.3. New DER technologies
- 1.4. Platforms and systems supporting grid integration with high DER adoption
- 1.5. Reliability and resilience considering a changing relationship between the bulk power system and distribution systems
- 1.6. Operational metrics for a decarbonized grid
- 1.7. Power electronics and inverter-based resources
- 1.8. Energy storage
- 1.9. Verification and validation of new technologies

### **2. Track 2: Technologies and processes for democratized participatory grid**

- 2.1. Innovative grid architecture
- 2.2. Distribution markets and system platforms (DSP, DSO, etc.)
- 2.3. Smart transportation that integrates electrification and digitization including automated and electric vehicles (EVs) and EV charging infrastructure
- 2.4. Smart buildings including measuring energy use, pinpointing operations and maintenance

- problems, automating lighting and thermostats, and tracking building performance.
- 2.5. Transactive Energy Systems and emerging hardware/software technologies (Internet of Things-IoT, Blockchain, etc.) as well as tradable products, and incentive-compatible market design
  - 2.6. Synthetic inertia from inverter-based generation, and their interface with customer's EMS
  - 2.7. Applications of Big Data, advanced analytics and artificial intelligence techniques
  - 2.8. New regulatory and business models
  - 2.9. Grid cybersecurity
  - 2.10. New planning processes that incorporate decarbonization, resilience, energy justice, or similar objectives.

### **3. Track 3: Decentralized and distributed decision and control technologies**

- 3.1. Edge computing, control, and analytics
- 3.2. Smart controls and sensors in end-use devices
- 3.3. Smart Cities grid interactions such as Smart Street Lighting, and data analytics that analyze data generated by sensors and monitors to monitor and manage energy use, pedestrian safety, traffic flows, air quality
- 3.4. Coordination of distributed, grid-edge functionality
- 3.5. Distributed systems and architectures for grid control
- 3.6. Autonomous grid control technologies
- 3.7. Opportunities for convergence with related areas, for example, with Internet of Things
- 3.8. DER modeling, forecasting, and flexible loads
- 3.9. Microgrids
- 3.10. Provision of grid services from grid edge assets and systems
- 3.11. Emerging substation and distribution automation technologies (advanced FLISR, Volt- VAR Optimization, outage management, restoration, etc.)
- 3.12. Applications of augmented reality in the power industry
- 3.13. Testbeds, datasets

### **Manuscript Submission**

Complete manuscripts (maximum length 5 pages, and in accordance with the [PES Author's Kit](#)) are to be submitted by **August 15, 2021 (11:59 PM EST)** via the document submission portal: <https://submissions.miramsmart.com/ISGT2022/login.aspx>

In addition to general criteria mentioned in the Author's Kit, the following criteria will be used in evaluating the submissions:

1. Evidence of actual deployment or application
2. Representative of a state-of-the-art capability or practice
3. Ability to inform strategies for advancing grid capabilities

Accepted papers must be presented at the conference before they can be included in IEEE Xplore. Registration at the conference is required for the author(s) presenting the paper. Papers will be selected to be presented in a poster session.

Please contact [2022isgt@ieee.org](mailto:2022isgt@ieee.org) with any questions.

### **Conference Registration and Related Information**

Information on conference registration will be available on the [ISGT 2022 website](#).  
In case a face-to-face venue is decided, information on hotel reservation will also be made available.

## Conference Organizing Committee

- Conference Chair: Ron Melton
- Technical Chair: Farrokh Rahimi
- Technical Vice chair: Seemita Pal
- Publications Chair: Masood Parvania
- Publications Co-Chair: Raymond Byrne

## Important Dates

- Paper Submission Site opens: **June 1, 2021**
- Paper Submission Deadline: **August 15, 2021 (11:59 PM EST)**
- Notification of Paper Session Acceptance: **October 31, 2021**

Contact: [2022isgt@ieee.org](mailto:2022isgt@ieee.org)

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