

# ISGT 2020 – Enabling Intelligent and Resilient Communities

## Call for Papers

The eleventh Conference on Innovative Smart Grid Technologies (ISGT 2020), sponsored by the IEEE Power & Energy Society (PES), will be held on February 17-20, 2020 at the Grand Hyatt Washington, Washington DC with the theme “Enabling Intelligent and Resilient Communities.”

ISGT 2020 is a forum to discuss the latest issues, trends, and emerging and innovative technologies for grid modernization in the face of challenges of a rapidly changing environment resulting from the dramatic increase in deployments of renewable and Distributed Energy Resources (DERs) and the emergence of new business and operating concepts and services. The elements of interest include prosumers, microgrids, aggregators, distribution markets, and platforms in the generation, commercialization, and management of electricity. The Conference will feature plenary sessions, panels, technical papers presented in poster sessions, and tutorials by experts on grid modernization, transmission and distribution systems planning and operations, DER integration, smart grid technologies and applications, system integration, and customer-centric technologies and services. A key focus of ISGT is to facilitate in-depth discussions among the participants – sharing experiences and lessons learned, and raising the awareness and understanding of the latest concepts, applications, and technologies. Following the precedent of the previous ISGT, **all accepted papers will be presented in poster sessions**. Accepted papers presented at the conference by the authors in the poster sessions will also be posted in IEEE Xplore. Also, to promote a more efficient and comprehensive engagement among participants, ISGT 2020 will endeavor to make as many 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 will also feature speakers and panelists from key federal and state government agencies and discuss ongoing activities, trends and recent developments in the regulatory and policy arenas. The theme for ISGT 2020 is “Enabling Intelligent and Resilient Communities” with three tracks: 1) Customer Analytics and Behind the Meter Technologies, 2) Distribution and Transmission Operation for the Grid of the Future, and 3) Distribution and Transmission Planning for the Grid of the Future.

**The Conference Organizing Committee invites researchers and practitioners worldwide to submit papers for review and possible presentation.**

The Conference scope covers the following general topics:

### **Track 1: Customer Analytics and Behind the Meter Technologies**

- Technologies and methodologies addressing grid integration of Distributed Energy Resources (DER), including:
  - PV distributed generation
  - Distributed wind generation
  - Small natural gas units
  - Energy storage
  - Combined distributed generation-energy storage
  - Energy management technologies
  - Smart homes and buildings
- Electric vehicles, and other DER Distribution markets and system platforms (DSP, DSO, etc.)
- Smart Transportation that integrates electrification and digitization including automated and electric vehicles (EVs) and EV charging infrastructure
- Smart Buildings including measuring energy use, pinpointing operations and maintenance problems, automating lighting and thermostats, and tracking building performance.
- Transactive Energy Systems and related topics such as emerging grid services, tradable products, and incentive-compatible market design
- Possibilities and limitations of emerging hardware/software technologies (Internet of Things-IoT, Blockchain, etc.) in facilitating distributed transactive exchanges

- Applications of big data analytics
- Applications of artificial intelligence techniques (machine learning, etc.)
- Demand response
- Smart inverters

### **Track 2: Distribution and Transmission Operation for the Grid of the Future**

- Emerging practices and methodologies for transmission and distribution grid operation, including provision of grid services from DER and dynamic grid control.
- Operational experience with microgrid and advanced technologies
- Distributed and optimization methods, e.g., for use in DER Management Systems (DERMS) and microgrid controllers
- Advanced Distribution Management Systems (ADMS) and future grid operating systems, platforms, and applications
- Sensing, communications and control
- Next generation AMI
- Next generation synchrophasors
- Advanced technologies for managing grid dynamics
- Advanced technologies and methodologies for wide area operations and awareness
- Edge computing, control and analytics
- Smart controls and sensors in end-use devices
- Applications of cloud computing in electric power systems
- Applications of “Big Data” and advanced analytics
- Employing Unmanned Aerial Vehicles (UAVs)
- Utilizing smart robotics for asset monitoring, grid service and maintenance
- Use of data-driven methods, FACTs, and synchrophasors for wide-area control
- Synthetic inertia from inverter-based generation
- Converged infrastructures, including Smart Cities
- Smart Street Lighting
- Data Analytics that analyze data generated by sensors and monitors to monitor and manage energy use, pedestrian safety, traffic flows, air quality
- Substation and distribution automation (FLISR, Volt-VAR Optimization, outage management, restoration, etc.)
- Wide-area monitoring, protection, automation and control
- Smart communities
- State estimation
- Grid optimization
- Operations planning

### **Track 3: Distribution and Transmission Planning for the Grid of the Future**

- Emerging practices for integrated Transmission and Distribution systems planning considering DER and grid-edge actors, including approaches for:
  - Scenario and forecasting analysis
  - Hosting capacity analysis
  - Interconnection processes
  - Locational value analysis
  - DER sourcing
  - Transmission-distribution coordination.
  - Assessing impacts of renewable generation
- Impacts of sensor data quality, accuracy, communications, and storage on applications
- Methods and tools that can evaluate technological and policy options.

- Operational and regulatory coordination challenges and possibilities at the transmission and distribution seams
- Application of “Big Data” and advanced analytics to grid planning
- Development of models, algorithms, and analytical tools
- Technologies and methodologies for advancing physical and cybersecurity
- Application of grid architecture to address requirements and design considerations for coordination, information management, interoperability, and communications and control systems.
- Applications of augmented reality in the power industry
- Non-wires alternatives
- Spatial load forecasting
- Resiliency and reliability assessment
- Joint T&D planning
- New utility business models and regulatory frameworks

### **Manuscript Submission**

Complete manuscripts (maximum length 5 pages, and in accordance with the [PES Author’s Kit](#)) are to be submitted by **August 31, 2019 (no later than 11:59 PM Eastern)** via the document submission portal, which will be available on the [ISGT website](#).

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. Papers will be selected to be presented in a poster session. Please contact [2020isgt@ieee.org](mailto:2020isgt@ieee.org) with any questions.

### **Conference Registration and Accommodation**

Information on hotel and conference registration will be available on the [ISGT website](#).

### **Conference Organizing Committee**

- Conference Chair: Julio Romero-Aguero
- Technical Program Chair: Gerald FitzPatrick
- Technical Vice chair: Farrokh Rahimi

### **Important Dates**

Paper Submission Site Opens: **June 17, 2019**

Paper Submission Site Closes: **August 31, 2019 (at 11:59 pm EST)**

Notification of Paper Acceptance: **October 31, 2019**

Contact: [2020isgt@ieee.org](mailto:2020isgt@ieee.org)

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