TESC 2022
Transactive
Energy
Systems
Conference and Workshop
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TESC2022 – Conference Announcement

IEEE PES and the GridWise Architecture Council

Architectures to Decarbonize, Decentralize, and Democratize the Grid

The IEEE PES, in partnership with the GridWise® Architecture Council (GWAC), will convene the IEEE PES International Transactive Energy Systems Conference and Workshop (#TESC2022) on May 3-5, 2022, as a virtual conference.

Decarbonization, decentralization, and democratization of electricity resources are driving the most dramatic changes to the grid since Tesla and Edison. Many state and local policymakers have pledged to meet their energy needs with 100% carbon-neutral energy, including new efforts to electrify heating, transportation, and industrial sectors.

With this transformation come new challenges and complexity in managing the grid that must be addressed concurrently. Grid Architecture facilitates this transformation by providing tools to manage complexity, new structures for accommodating change, and techniques for comparing and evaluating proposed architectures.

Call for Participation

Abstracts for papers/presentations are being sought to address all aspects of grid architecture in a high DER grid with a focus on the ongoing transformation to a decarbonized, decentralized, and democratized grid, including the following topic categories:

- **Smart Grid and Smart Cities** – Smart grid and smart city initiatives are complementary allies in the effort to create a decarbonized future. This topic will discuss how the two depend on each other in areas such as the electrification of transportation, the deployment of distributed energy resources, and how information can be used to support a more democratized system. Understanding how the requirements of one influences the architecture and design of the other is critical to the success of both.

- **Regulatory Perspectives** – The decarbonization of the electricity grid is rapidly progressing. The grid is also becoming more decentralized with the growing adoption of scalable distributed generation, storage, and microgrids, accompanied by new business models and markets. State and federal regulators and policymakers are tasked with integrating these distributed resources in a manner that maximizes their benefits to ratepayers, create a more democratized grid, and enables customers and other distributed resource owners to become transactive participants in the distribution network. We seek papers and panelists that explore regulatory actions and policies to transition the electricity system from where we are today to where we want to go.

- **Customer Perspectives** – The grid of the future is expected to be highly participatory. Customers will see a growing array of cost-effective choices for how to obtain and use electricity so that energy decision-making and the supply of grid services become more democratized. This topic will discuss visions for a future-state grid with active participation of customers and customer-side systems that include residential, commercial, industrial, and agricultural customers among others. The topic will also discuss measures to protect passive customers against potential unintended consequences of transactive exchanges among active customers, aggregators, and markets.

- **Smart Buildings in a Secure Grid** – Today's smart buildings market is faced with a myriad of issues: reducing CO2 emissions through enhanced energy management; load management through building/grid integration; the demand for more open, interoperable systems; and managing the associated cyber security risks. Owners and end users are requiring designers and suppliers ensure their facilities are secure while also ensuring reliable access both internally and over the internet, exposing building systems and grid systems to significant risks. This topic will delve into these issues and present lessons learned from building/grid integrations, system architecture and design best practices, and deploying cyber secure systems and processes.

- **International Perspectives** – The North American power grid is faced with many issues on the road to decarbonize, decentralize and democratize. Many other countries are faced with the same and, in some cases, more severe issues. Regulatory and policy issues are being addressed in unique and successful ways. Deploying large DER projects while maintaining grid stability in Australia, overcoming regulatory restrictions in Europe, or even changing them, rapidly – to meet growing demand, and addressing a more distributed, decentralized grid architecture are but a few areas we'll look at in this globally-focused topic.

- **Changing Energy Landscape** - The grid of the future is shaping up to be very different than the one we rely on today. New technologies, expanding energy markets, evolving regulatory frameworks, advanced analytics/modeling tools, increased customer choices, broader policies and a growing focus on energy equity and environmental justice are influencing the pace and pathways of decarbonization. This topic explores the changing energy landscape and how the energy industry is (or is not) responding to both the uncertainties and the opportunities arising from these changes.

Abstracts will be considered for panel sessions and paper presentations. Abstract authors must clearly identify if they intend to submit a paper. Papers require submission of a full paper upon acceptance of the abstract by the TESC2022 Technical Committee. The Technical Committee will review submitted full papers. Authors will be notified as to acceptance, rejection, or the need to revise the papers, as well as whether the paper will be presented in a panel or a poster session. Accepted papers will appear on IEEE Xplore digital library after the conference and will compete for a best paper award.

Submission Requirements:

The abstracts should indicate which of the six topic categories listed above are intended and be **no longer than 500 words.** Please use this **Word** form when submitting your abstract. Final papers will be limited to 5 pages in IEEE PES two-column format**.** Final papers will be limited to 5 pages in IEEE PES two-column format**.** Abstracts and papers should be submitted to **gridwiseac.coordinator@pnnl.gov** according to the dates below**.**

Why Attend TESC2022

- Exchange ideas with other key stakeholders who are transforming the electrical grid to achieve deep decarbonization through grid architecture, interoperability, building to grid interactions, and distributed energy resources.
- Join other thought leaders with both vision and rigor to work through questions, motivate action, and align efforts to lead the industry through the rapid change of the distributed modern grid.
- Understand how bold policy solutions can either create or avoid problems for electricity infrastructure.
- Learn from the states that have already adopted a policy to decarbonize their economies in the next 30 years and local governments implementing similar initiatives.
- Attend the global event where you will see the energy future and be equipped to lead your organization into that future.
- Discern which trends are driving change and value creation.
- Discuss investment strategies and plans with utilities, investors, researchers, regulators, NGOs, and policymakers.

Important Dates:

January 14, 2022	Panel and paper abstract submission deadline
February 7, 2022	Notification of panel abstract acceptance/rejection
March 7, 2022	Panel PowerPoint presentation and full paper submission (paper optional but encouraged)
March 31, 2022	Notification of full paper acceptance or rejection
April 22, 2022	Submission of MP4 video file of presentation
May 2, 2022	Pre-Conference Tutorial
May 3-5, 2022	TESC 2022 Conference and Workshop

Contact **gridwiseac.coordinator@pnnl.gov** with questions.