Call for Contributions

1. Inform the Chair: with the title of your contribution
2. Submission URL:
https://www.iariasubmit.org/conferences/submit/newcontribution.php?event=ENERGY+2024+Special
Please select Track Preference as **GADB**
3. Note: *For 2024, all events will be held in a hybrid mode: on site or virtual choices (live, prerecorded videos, voiced presentation slides, and .pdf slides). We hope for better times allowing us to return to the traditional on site scientific events. However, we are ready to adapt any which way the conditions dictate.*

Special track

GADB: Grid Architecture the Digital Backbone

Chair
Prof. Dr. Vivian Sultan, California State University, USA vsultan3@calstatela.edu

ENERGY 2024: The Fourteenth International Conference on Smart Grids, Green Communications and IT Energy-aware Technologies
https://www.iaria.org/conferences2024/ENERGY24.html
March 10 - 14, 2024 - Athens, Greece

Grid architecture pertains to the configuration and organization of the electrical framework responsible for distributing power to residential and commercial establishments. The grid encompasses the tangible elements like transmission lines, transformers, and substations, together with the software and communication systems responsible for electrical management. The grid's architecture is in a perpetual state of evolution, adapting to the emergence of novel technologies and the emergence of new difficulties. Grid architecture research focuses on enhanced analytics in utility asset management, smart asset management for electric utilities, and digital utility asset management models.

A smart grid refers to a contemporary electrical infrastructure that enables the bi-directional transmission of electricity and data between power companies and consumers. A smart grid is an electricity network that utilizes digital technology and is characterized by automation, communication, and connectivity, in contrast to a traditional electric grid. The structure of the smart grid is always changing as emerging technologies are created and new obstacles emerge. The smart grid's digital infrastructure serves as the fundamental basis for seamlessly integrating an increasing proportion of renewable energy sources into the power network, facilitating the continued deregulation of electricity markets, and enabling consumer engagement in this market.

The smart grid architecture is specifically designed to facilitate a smooth and secure interchange of information, starting with the consumer socket and extending all the way to the control centers of the transmission system operators. It serves as the basis for the dependable integration of an increasing portion of renewable energy sources into the network, for the continued deregulation of the electrical markets, and for the involvement of consumers in this market. The smart grid's architecture comprises physical elements, including transmission lines, transformers, and substations, alongside software and communication technologies responsible for electricity management. The smart grid's digital infrastructure serves as the fundamental framework for seamlessly integrating an increasing proportion of renewable energy sources into the power grid, facilitating the continued deregulation of electricity markets, and enabling customers to actively engage in this market.
The smart grid architecture is specifically designed to facilitate the accumulation of substantial volumes of data during routine operations and the monitoring of asset conditions. The system is always developing and aims to provide a smooth and secure exchange of information between power utilities and consumers.

The smart grid's digital infrastructure serves as the fundamental support for effectively integrating an increasing proportion of renewable energy sources into the network, facilitating the continued deregulation of electricity markets, and enabling consumer engagement in this market. The smart grid's architecture comprises physical elements, including transmission lines, transformers, and substations, alongside software and communication technologies responsible for electricity management. Advanced analytics can assist in the management of transmission and distribution (T&D) assets by offering assessments of asset condition, evaluations of asset importance, and an integrated analytical framework for creating an asset-management strategy for a transmission or distribution network.

The digital backbone of the smart grid is the foundation for the reliable network integration of a growing share of renewable energy sources, for the further liberalization of the electricity markets, and for the consumers' participation in this market. The architecture of the smart grid is composed of physical components such as transmission lines, transformers, and substations, as well as the software and communication systems that manage the flow of electricity. Advanced analytics can help manage transmission and distribution (T&D) assets by providing measures of asset health, measures of asset criticality, and an integrated analytical model for devising an asset-management plan for a transmission or distribution network.

Suitable research topics for this special track include, but are not limited to, the following areas:

- Smart grid infrastructure and the Interoperability standards
- Flexibility & Smart Grid Design
- Sensors and Automation Devices
- International standard IEC 61850 and its application to smart grids for communication and integration.
- Power system protection
- Integration of electric vehicles
- Energy storage systems
- Communication Networks
- Advanced Metering Infrastructure (AMI)
- Digital Twins, AI/ML, IoT, and Big Data Analytics
- Challenges and Future Outlook

Contribution Types
- Regular papers [in the proceedings, digital library]
- Short papers (work in progress) [in the proceedings, digital library]
- Posters: two pages [in the proceedings, digital library]
- Posters: slide only [slide-deck posted on www.iaria.org]
- Presentations: slide only [slide-deck posted on www.iaria.org]
- Demos: two pages [posted on www.iaria.org]

Important Datelines
Inform the Chair or Coordinator: As soon as you decide to contribute
- Submission: Jan 30, 2024
- Notification: Feb 10, 2024
- Registration: Feb 20, 2024
- Camera ready: Feb 20, 2024
Note: The submission deadline is somewhat flexible, providing arrangements are made ahead of time with the chairs.

Paper Format
- See: http://www.iaria.org/format.html
- Before submission, please check and comply with the editorial rules: http://www.iaria.org/editorialrules.html

Publications
- Extended versions of selected papers will be published in IARIA Journals: http://www.iariajournals.org
- Print proceedings will be available via Curran Associates, Inc.: http://www.proceedings.com/9769.html
- Articles will be archived in the Open Access ThinkMind Digital Library: http://www.thinkmind.org

Paper Submission

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Registration
- Each accepted paper needs at least one full registration, before the camera-ready manuscript can be included in the proceedings.
- Registration fees are available at http://www.iaria.org/registration.html

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