



## 4th International Conference on Smart Grid and Renewable Energy

[www.sgre-qa.org](http://www.sgre-qa.org)

8-10 January 2024  
Doha, Qatar

### Special Session on Grid ancillary services of future power system organized and co-chaired by:

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### <sup>2</sup>Call for Papers

#### Outline of the Session:

The power and energy system around the world is changing drastically owing to requirements for mitigating the impacts of climate change as well as attaining energy security. These changes involve the replacement of fossil-fuel-based generations with renewable generation sources like wind and solar power. Owing to the nature of these generation sources being variable and uncertain, they bring new challenges to the planning and operation of future power and energy systems. It is important to predict the energy mix of the future energy system considering sector coupling between different energy sectors such as hydrogen, heat, and electricity. This enables the estimation of future energy prices and CO<sub>2</sub> emissions. At the same time, operating a power system with a high share of variable renewable energy sources requires a large volume of balancing reserves to maintain the stability and security of the power system.

Many of these renewable generations are connected to power systems through power electronic converters. Therefore, when these generations replace conventional fossil-fuel-based generators, the inertia of the power systems is reduced. Operating a power system with low inertia is challenging, and renewable generation sources need therefore to take additional responsibilities such as providing ancillary services in future power system (Ex: inertia support, frequency and voltage support, blackstart support, etc.)

Topics of the session include, but are not limited to:

- Energy mix of the future energy system.
- Planning and operation of future power and energy systems.
- Operating a power system with low inertia.
- Grid services in the future power systems and related grid code.
- Advanced models of grid following and grid-forming converters and controls.
- Standardization of EMT and multi-frequency model.

#### Author's schedule:

Deadline for submission of special session papers	November 1, 2023
Notification of acceptance	November 15, 2023
Deadline for submission of final manuscripts	December 1, 2023

All the instructions for paper submission are included in the conference website:

<http://www.sgre-qa.org/>