

I. Title of the special session:

Evolving technologies to support renewable energy sources in low inertia power systems

2. Objective of the special session:

Depletion of fossil fuels and increased focus on use of green energy sources requires government energy policy targets to strongly encourage the power generation from renewable energy sources. Increased generation share from non-synchronous renewable energy sources will displace conventional synchronous generation sources and lead to low inertia power systems. Large generation from renewable energy sources will pose techno-economic challenges for system operators and grid utilities to maintain the grid security and reliability due to the uncertain generation characteristics of renewable generation sources. Hence, there is a need of novel energy policies, optimization & control techniques, and evolving technologies like energy storage systems, electric vehicles, HVDC systems, demand side response, virtual power plants etc. to support the enhancement of renewable energy sources and provide solutions to the techno-economic challenges for power system management in low inertia systems.

3. Topics of the special session (Not limited to)

- I. Optimisation and Control strategies for low inertia systems
- II. Technical challenges and solution for renewable energy sources integration
- III. Power system flexibility issues
- IV. Evolving technologies to supplement renewable energy sources
- V. Policies and regulations for low inertia power systems
- Vi. AI and machine learning techniques for low inertia power systems

4. Proposer full name and affiliation (Chair of the special session)

Dr. Vivek Prakash

Assistant Professor, School of Automation, Banasthali Vidyapith, Tonk-304022,
Rajasthan, India