

Special Section on:

Low Inertia Power Systems: Challenges and Opportunities

Sponsored by the IEEE IES Technical Committee on Smart Grids and the IEEE PES PSDP Power System Stability Controls Subcommittee

Theme:

The target of reducing greenhouse gas emissions motivated by environmental and sustainability concerns has led to substitute a significant share of conventional generation with renewable sources. In this transition, synchronous machines are being replaced with power electronics-interfaced generation. As consequence the inertia – normally provided by the large mass of rotating machines – that naturally slowed down the reaction (e.g., frequency variations) to disturbances and unbalances is significantly reduced. This means an historical paradigm shift that requires rethinking existing methodologies for the modelling, design, control, operation, and planning of power systems and of the role and functions of power system electronics so that stability and quality of service can be ensured also under these new conditions.

The aim of the special section is to provide a timely opportunity for researchers, practicing engineers, and other stakeholders to share their latest discoveries related to power electronic converters as well as renewable energy, storage, and smart grid challenges and opportunities with a clear focus on low inertia power systems. Therefore, all submissions need to demonstrate strong original contributions related to this focus covering:

- ✓ Frequency and voltage control techniques
- ✓ Virtual inertia implementations
- ✓ Protection challenges and solutions
- ✓ Energy management approaches (demand side management, sector coupling)
- ✓ Artificial intelligence applications
- ✓ User flexibility
- ✓ Modelling and simulation
- ✓ Controller and Power Hardware-in-the-Loop (CHIL/PHIL) testing

Manuscript Preparation and Submission

Check carefully the style of the journal described in the guidelines “Information for Authors” in the IEEE- IES website: <http://www.ieee-ies.org/pubs/jestie>. Please submit your manuscript in electronic form through: <https://mc.manuscriptcentral.com/jestie-ieee/>.

On the submitting page, in pop-up menu of manuscript type, select: “**SS on Low Inertia Power Systems: Challenges and Opportunities**”, then upload all your manuscript files following the instructions.

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Timetable

Deadline for manuscript submissions

July 31, 2022

Information about manuscript acceptance

November, 2022

Publication Date

January, 2023