

Special Section on:

Storage Integration and Dynamics in Stationary and Mobile Systems

Energy storage elements, e.g. fuel cells, batteries, super-capacitors, and flywheels, are widely utilized in many applications for enhanced system performance and reliability, and to create a more resilient system. These storage elements can be utilized as main and/or auxiliary energy sources, such as using batteries and/or fuel cells in electric or hybrid electric vehicles, using batteries along with diesel-fed synchronous generators in electrified vessels, and utilizing batteries to store excessive power from renewables or grid and inject it later whenever needed. Moreover, the higher penetration of renewables in the power system increases the need of using storage elements for short-term grid support in order to introduce inertial support. On the other hand, due to the upcoming strict regulation concerning CO2 reduction and the 1.5°C ambition, fuel cell utilization in future mobile systems is increasing covering a wide range of power up to multi-MW scale. This implies the utilization of different topologies and/or integration schemes, and innovative solutions with competitive features, such as multiport operation and high step-up conversion, compared to the state-of-the-art equivalent solutions are always sought. In addition to that, the use of wide band-gap devices is seen as an enabling technology for enhanced performance in terms of power density and efficiency. Besides the prior mentioned integration-related challenges, other challenges associated with the system hybridization and its power management towards an optimized performance and extended lifetime are expected along with system stability and the need for innovative control schemes for enhanced system dynamics.

We encourage all researchers working in this area to submit papers to this Special Section. Topics of interest include, but are not limited to:

- ✓ Innovative converters for storage interface
- ✓ Multiport converters for hybrid storage integration
- ✓ High step-up and/or single-stage converters for storage interface
- ✓ Innovative AC and DC integrations schemes for low- and medium-voltage
- ✓ Power management schemes for enhanced system performance
- ✓ Innovative and improved control schemes in storage-fed systems
- ✓ Power quality issues in storage-fed systems
- ✓ Stability issues in storage and hybrid storage-fed systems
- ✓ Storage integrated management system
- ✓ Charging infrastructures, control, and schemes
- ✓ Component and system-level reliability
- ✓ Condition monitoring and applications of artificial intelligence (AI)
- ✓ Storage elements modelling considering different applications

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: <http://mc.manuscriptcentral.com/jestie-ieee/>.

On the submitting page, in pop-up menu of manuscript type, select: “SS on Storage Integration and Dynamics in Stationary and Mobile Systems”, then upload all your manuscript files following the instructions.

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