



## EI<sup>2</sup> 2023 Special Session 01

### Local Energy Systems with Flexible Resources and Energy Transactions

#### Introduction and topics

Driven by the net-zero carbon emissions target, conventional energy systems are undergoing a rapid change from large national energy systems to local energy systems (LEs) in communities, neighborhoods, districts and buildings. LEs interconnected at the global power distribution level are designed to locally produce and utilize energy, thereby alleviating the pressure on transmission infrastructure. The emergence of LEs not only alleviates fuel poverty but also supports community income generation, strengthens network management, and reduces operational expenses. The LEs with a high penetration of renewable power generation and electrification of heat and transport at the grid edge, facing challenges such as the variability of new energy output and the uncertainty of energy markets, requires new technologies such as energy storage and flexible energy demand management as well as new energy policies, business models and market mechanisms to enable synergetic interactions between the energy systems to improve the overall energy efficiency and reduce carbon emissions.

This special issue is devoted to collection of the state-of-the-art on the original research and development modeling, control, optimization, and application in the local energy Systems and pave the way for bringing together the local range of energy carriers to reduce carbon emission and enable clean energy.

Topics of interests(including but not limited to):

- \\ Models and designs for regional and local energy systems
- \\ Energy planning and management
- \\ Distributed energy solutions
- \\ Innovative controls for renewable source integration
- \\ Novel renewable energy converter/inverter systems
- \\ Advanced power electronic technologies and front-ends for local energy systems
- \\ Microgrids and local energy communities
- \\ Local energy systems for electric mobility
- \\ Market integration and business model innovation for local energy
- \\ LEM designs and establishment (such as P2P Energy Trading/Sharing markets)
- \\ Modelling of LEM and LEM participants
- \\ Pricing and settlement schemes for multiple energy transactions
- \\ Mechanisms for incentivizing and utilizing flexibility in LEs
- \\ Demand response scheme design in LEs
- \\ Distributed energy resources and VPP in LEs

#### Special Session Chairs



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#### Publication



Website

The conference papers will be published by the IEEEExplore website and indexed by EI, and high-quality papers will be recommended to Energy Conversion and Economics, Energy Internet, Journal of Modern Power Systems and Clean Energy (MPCE), CSEE Journal of Power and Energy Systems (CSEE JPES), Applied Energy, and others.

Submission Link: <https://easychair.org/conferences/?conf=ei22023>

Full Paper Submission Deadline: Oct. 31th, 2023

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