

CALL FOR PAPERS

Microgrids and local energy communities

Our future energy systems must become sustainable and hence change fundamentally. They are heading for a radical transformation, where renewable energy technologies — both centralised and decentralised — will play a central role in the energy transition. The challenges nowadays are of major importance.

KEY DATES

15 December 2017

Deadline for receipt of abstracts

29 January 2018

Notification of authors

23 March 2018

Full papers to be uploaded

There are technical issues, such as the intermittence of renewable generation, which requires flexible solutions including energy storage, requirements for energy conversion efficiency, requirements for massive data transmission and management. There are also business challenges to tackle, as market behaviour in largely renewable markets will dramatically change, and new business models will emerge as well as new economic opportunities. The energy transition is also clearly linked to policy and regulatory challenges, including energy pricing rules.

With this background, the CIRED 2018 Workshop focuses on *microgrids*, which are electricity distribution systems containing loads and distributed energy resources (such as distributed generators, storage devices, or controllable loads), that can be operated in a controlled, coordinated way, whether they are:

- ➔ **Isolated microgrids**, which only function in an island mode,
- ➔ **Embedded microgrids**, which can be controlled either while connected to the main power network or while islanded,
- ➔ **Local energy communities**, which comprise consumers cooperating for the satisfaction of their energy needs using local production sources, and which are not designed to operate in an island mode.

Microgrids and local energy communities can have a tremendous impact on distribution system development, and may offer a number of important advantages for the end-users and for the utilities. For customers, producers and those who do both, microgrids have the potential to reduce energy costs, improve service continuity and bidding system services and flexibility; for distribution system operators, microgrids and local energy communities may reduce or postpone investments, increase hosting capacity and improve quality of services. A proper regulatory framework has to be designed to allow microgrids and local energy communities to bring these expected benefits to the various stakeholders, while maintaining an effective market operation, making sure there is no negative impact on the overall cost base and avoiding unfair cross-subsidisation.



WORKSHOP THEMES

① Business models, roles, responsibilities and regulatory aspects

Theme 1 addresses topics related to the overall regulatory, business and organisational frameworks for microgrid implementation and operation, focusing mainly on the roles of the microgrid operators and DSOs in making microgrids an integrated part of the electricity distribution system of the future.

Key topics:

- ➔ Regulatory aspects
- ➔ The roles and responsibilities of the different actors
- ➔ Handling of actor interfaces
- ➔ Business models for stimulating cost efficient implementation and utilization
- ➔ Business cases for microgrids and local energy communities (from system operators', aggregators' and customers' points of view)

② Architecture and system development

In the domain of microgrids and local energy communities, robust architectures are necessary in order to foster system development, as well as suitable models to compare development options. These are issues addressed in Theme 2.

Key topics:

- ➔ Impact on network architecture and system development of services offered by microgrids and local energy communities (e.g., increasing of hosting capacity, resiliency, flexibility, investment deferment)
- ➔ Models and tools for including microgrids and local energy communities in development studies, including multi-energy hubs
- ➔ Microgrids and local energy communities to provide security of supply beyond the parameters associated with the DSO

③ Network integration, control concepts and operations

Theme 3 invites authors to present their contributions related to technical microgrid integration methods and solutions, as well as field trial results, tests and standards.

Key topics:

- ➔ The coordinated control of a large number of distributed sources with different technical characteristics and possible conflicting requirements
- ➔ Ride-through capabilities, essential for the stable operation of microgrids, especially when in islanded mode of operation
- ➔ Efficient load-sharing capabilities among power electronics interfaced distributed generators
- ➔ Protection and safety issues
- ➔ The design and dimensioning of storage and controllers able to face the requirements posed by the islanded operation and during transitions from interconnected to islanded mode.
- ➔ Assessment of services offered by microgrids and local energy communities. (e.g., post fault services, resiliency increase, flexibility)

WORKSHOP COMMITTEE

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How to submit your paper

Prospective authors are invited to submit an abstract of 2 A4 pages (including diagrams and illustrations) **by 15 December 2017** directly via the Workshop website. All submissions will be peer reviewed by an international panel and successful authors will be invited to submit a full paper of 4 A4 pages **by 23 March 2018**. It is a condition of acceptance that all papers must have at least one author registered for the Workshop.



For full details and to submit your abstract online, please visit www.cired2018-workshop.org