



## 8<sup>th</sup> International Conference on Clean Electrical Power

### *Special Session on Energy storage solutions for flexibility provision in a net-zero power system*

The EU Green Deal and the subsequent Fit For 55 package set clear targets for the European decarbonization path, supported at an international level by the Paris Agreement. More recently, the energy crisis is accelerating the need for energy efficiency improvement and Renewable Energy Sources (RES) deployment. In this context, it is believed that electrification of energy demand and decentralization of energy generation will play a central role, together with the digitalization of the power grid. Many studies showed that the role of energy storage in supporting a RES-based and electrified energy system will be crucial, but we are still missing a clear view about 1) which kind of energy storage solutions will be optimal to cope with energy production/consumption variability and 2) how energy storages will be induced to behave correctly, ensuring power system security.

This special session aims at gathering contributions able to cope with the above questions. This relates possible contributions dealing with (but not limited to):

- modelling of flexibility provision from all kinds of energy storage solutions (including also for example EV fleets, thermal inertia from buildings, district heating management or hydrogen-based solutions);
- operational optimization of energy storage within multi-energy systems for balancing purposes, especially when sector-coupling is seen as a possible added value;
- optimization of energy storage planning based on power system adequacy and security needs, especially if the interaction between different grids (e.g. power and gas) is considered;
- analysis of energy system scenarios (2030-2040-2050) to highlight the role of energy storage in the provision of useful ancillary services (from reserves to fast frequency regulation);
- role and potential of different market-based or administrative approaches to have energy storage helping power system balancing and security (e.g. use of proper price signals, market design, structure of market services and their pricing);
- studies on the potential for revenues stacking through energy storage management (e.g. coming from arbitrage, capacity-based mechanisms, balancing services).

The special session is organized by:

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