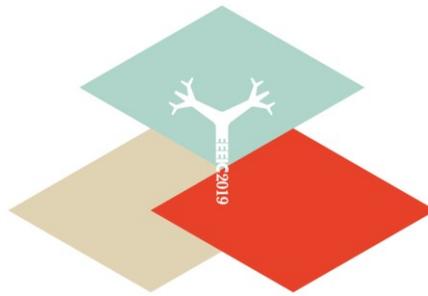




INDUSTRIAL AND COMMERCIAL
POWER SYSTEM
EUROPE



GENOVA | ITALY | 11th.14th June 2019



INTERNATIONAL CONFERENCE
ON ENVIRONMENT
AND ELECTRICAL ENGINEERING

SPECIAL SESSION

FREQUENCY REGULATION SERVICES BY LOADS AND RENEWABLE ENERGY SOURCES

Sponsored by AEIT, AEE Society AEIT, IEEE Italy Section Power &Energy Branch PE31

ORGANIZED AND CHAIRED BY:
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OBJECTIVE AND TOPICS

A wide installation of renewable energy sources (RESs) into the power system has been promoted during last decades. In this scenario, the control of the grid frequency is becoming highly complex. Indeed, RESs are distributed, extremely variable, not programmable, and they do not contribute to the frequency regulation. Moreover, the spread of RESs is associated to the displacement of large-scale traditional and fully controllable generation units, which today mainly operate the frequency control. This means that the frequency control power reserve is decreasing as well as the rotational inertia of the power systems, which is also becoming markedly time-variant and non-uniformly distributed within the grid. Potentially, this leads to frequency instability phenomena compromising the overall power system stability.

Transmission System Operators (TSOs) and the scientific and industrial communities are tackling the problem proposing new paradigms of control. One of the principal strategies consists in involving into the frequency regulation flexible customer loads with Demand Side Response (DSR) programs and the same renewable energy generation units.

The development of control schemes able to allow loads and renewables to provide frequency control services to the power system is nowadays one of the main objectives for many national and international research programs. Indeed, the imminent switch off of large fossils-based generation units calls for an urgent update of the power system and the relevant grid codes. Possible frequency regulation services are: synthetic inertia, fast frequency regulation, primary frequency regulation, secondary frequency regulation.

This special sessions, will welcome papers presenting all potential solutions: photovoltaic generators, suitably coupled with battery energy storage systems, single or multiple wind generators, controlled in a centralized or distributed manner, microgrids (MG) or virtual power plants (VPP) composed by renewables and/or loads, large commercial or industrial loads, aggregated residential loads, building air-conditioning systems.

All the instructions for paper submission are included in the conference website: <https://www.eeeic.net/eeeic>