



*EMPOWER brings together all the key stakeholders of the electric energy sector in Cyprus, with an ambitious goal to develop sustainable and intelligent technologies and tools for the electric power system of Cyprus*




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# EMPOWER

*Empowering the Cyprus power system with sustainable and intelligent technologies*



The project INTEGRATED/0916/0035 is co-financed by the European Regional Development Fund and the Republic of Cyprus through the Research and Innovation Foundation.



# STORAGE SOLUTIONS

One of the main objectives of the EMPOWER project has been the exploration of the flexibility of energy storage solutions, to increase the penetration level of renewable energy sources in the islanded power system of Cyprus.

The beneficial effects of adopting these storage solutions are already proved through two pilots the project has implemented.

## PILOT I

In the first pilot, a battery storage system is combined with Aeolian Dynamics' wind and photovoltaic power plant, aiming to support the grid stability, by compensating the unpredicted variations of renewable energy.



Pilot I: Battery storage system at Aeolian Dynamics

# PILOT II

In the second pilot, a battery and a flywheel storage system are installed within the University of Cyprus Campus, to provide ancillary services to active distribution grids with massive photovoltaic installations.

Such services enhance the utilization and power quality of the grid, while reducing the electricity cost of the prosumer.



Photovoltaics within the University of Cyprus Campus



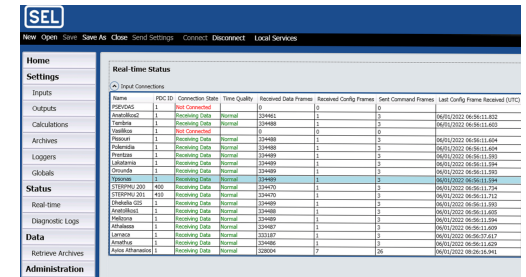
Pilot II: Battery & Flywheel storage system at KIOS CoE

# EMPOWER PLATFORM

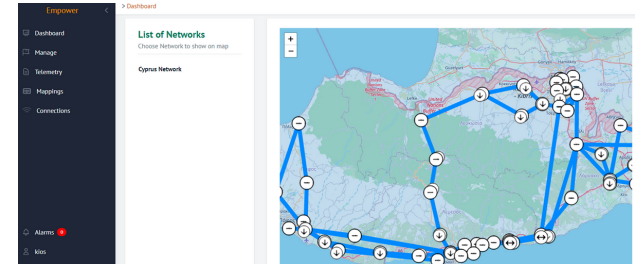
After the successful installation of the Phasor Measurement Units (PMUs) at the substations and the receiving of their measurements at a Phasor Data Concentrator, a project platform has been developed and installed in the National Energy Control Center of the Transmission System Operator of Cyprus.

The EMPOWER Platform contains all the smart and innovative technologies and tools that have been developed through the project (eg. dynamic state estimator, wide area controller, etc.), to enhance the situational awareness and control capabilities of the system operators.

These smart modules can utilize synchronized PMU measurements, as well as conventional measurements, offering an improved experience in relation to the overall operation of the grid.



The EMPOWER Phasor Data Concentrator



The EMPOWER Platform Interface