

NEXTSTEP

NEXT distribution SubStation improvEd Platform



The **NEXTSTEP** project aims to develop an innovative solution for Secondary Substation. Efacec, the consortium coordinator, together with project partners – Eneida, University of Coimbra, INESC TEC and ITeCons – combine the required scientific and industrial expertise on the technologies linked to the proposed solution, i.e., distribution automation, including self-healing functions; advanced management; protection, automation and control; power electronics and energy storage; advanced measurement and monitoring; energy efficiency; ecodesign; IoT and ICTs.

The **NEXTSTEP** initiative also comprises a demonstrator at the Portuguese distribution network, operated by E-REDES (former EDP Distribuição), the outsourced entity.

PARTNERS



ENEIDA.IO

OUTSOURCED PARTNER



Project Funded by:



UNIÃO EUROPEIA
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Main Outcomes

Modular housing granting high thermal, acoustic, physical and mechanical performance, including sustainable materials; environment sensors and smart management of natural ventilation; urban customization; green roof and façades towards that performance and CO2 capture.

Solutions towards **grid resilience**: environment and electric values wireless sensors (energy harvesting, plug and play, inter-changeable/operable).

An **advanced controller** providing: modular and distributed architecture; monitoring and remote self-healing of the LV grid; asset condition monitoring; DER asset and street lighting management; automatic and agnostic smart meters mapping.

A **MV/LV transformer**, according to **ecodesign**, providing better energy efficiency and lower sound power, using a new partial discharges sensor.

Less volume MV cells, adapted to the previous sensor and to the new fault detector.

A device suitable for **flexible applications** – at the secondary substation and throughout the LV feeder – for: voltage regulation; grid services support, e.g. harmonic distortion mitigation, phase balancing, compensation of voltage dips and of power factor.

An **energy storage system**, according to ecodesign, for: adding dimension to the previous device function; bringing energy efficiency with capacity support during self-healing.

Architecture

