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Thriving Regions, Stronger Europe

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Stand 10Stand23276

I-sole

A smart grid for the production and distribution of energy from renewable

Total cost:
€ 3,500,000.00

OP ERDF Sicily 14/20 Contribution:
€ 2,972,713.46

AXIS **01**
Innovation and Research

Progetto: I-sole - Smart Grids per le Isole Minori
Action 1.5.1: Support for technological advancement of companies through funding for pilot lines and early product validation actions and large-scale demonstration
Intervention: Completed

Project designed for the smaller islands, for greater exploitation of renewable sources, through the development of innovative, low-cost and easy-to-install technical solutions for monitoring, control of power generation and distribution.

The **I-Sole** project, titled ***Smart Grids for the Minor Islands*** aims to develop innovative, cost-effective and easy-to-install technical solutions for monitoring and controlling electricity generation and distribution. These solutions are designed to be flexible and are targeted at the minor islands, where sustainability and the exploitation of renewable sources are of great interest and relevance.

The project involves the implementation of three pilot *"smart generation and distribution systems"* on the islands of Ustica, Favignana and Lipari utilizing the various solutions developed within the project.

I-Sole focuses on the development of Smart Grid devices, **intelligent information networks for electricity distribution**. These networks enable **real-time control of energy flows**, integration of storage systems, **intelligent interaction with users**, and forecasting of load and generation. Smart grids facilitate the increased utilization of renewable energy sources, ensuring the security of the

power system while offering greater flexibility in managing generation, storage, and power demand.

Renewable energy sources represent significant economic and environmental opportunities, including reduced energy costs, lower fuel consumption and a decrease in emissions compared to conventional diesel-fired generation plants.

In detail, the I-Sole project encompasses the development and testing of:

- innovative **generation**, **conversion** and **storage systems for renewable energy sources**, with a particular focus on **photovoltaic** and **hydroelectric** technologies, as well as decentralized and centralized storage architectures.
- **innovative intelligent electronic devices**, new measurement **algorithms**, and communication systems for **monitoring**, **protection** and **remote management** of distributed generation and storage systems. These advancements aim to enhance safety and harness the full potential of these systems in terms of contributing to grid stability and regulation of voltage and frequency.
- **distributed metering systems**, including integration with second-generation ***smart metering*** systems, for monitoring power flows on the medium-voltage grid.