

Press release

Innovation for Sustainability

Red Eléctrica, EIT, InnoEnergy, and Elewit have developed three projects on innovative technology to drive the energy transition

After four years and a 1.6-million-euro investment in innovation, the Grid2030 program, a pioneer in Spain, comes to its end.

The technological challenges of the electrical system throughout the ecological transition process are the main focus of the developed solutions.

Madrid, November 10, 2022

Together with EIT Innoenergy, Red Eléctrica and Elewit—Redeia enterprises—have closed the Grid2030 program, which has encouraged the development of innovative solutions to the problems the electrical system faces in the current ecological transition process. A total of 1.6 million euros have been invested in the development of three technological projects within the framework of the program, which has been running for four years.

Grid2030 is a pioneering multi-year open collaborative initiative that is supported by EIT Innoenergy and Red Eléctrica and promoted by Elewit. The three companies have defined different challenges in innovation during the previous two editions in an effort to find solutions to the problems of the electrical system under the new energy model. These solutions include improving the system's efficiency and flexibility, promoting the integration of renewables, and optimizing the performance and accessibility of assets in the transmission grid.

Innovative solutions for the electrical system of the future

Entrepreneurs and innovators from public and private organizations, universities, research centers, and European businesses have participated in the development of the three projects.

- **Flexible Smart Transformer:** An initiative of Red Eléctrica, Efacec (Portugal), and Circe (Spain). Grids need more flexibility and components with new functionality in the present energy transition. This project presents an innovative modular prototype

gabinetedeprensa@ree.es

www.ree.es > Sala de prensa

Tel. 91 453 33 33 / 32 81 - 91 728 62 17

that uses power electronics and a transformer with magnetic coupling through a dielectric medium rather than a closed ferrite core and high-frequency switching. The combination of each module's strong isolation capacity will enable the control of voltage levels and grid stability, which will increase the grids' sustainability and efficiency.

- **Reduced Inertia Transient Stability Enhancement:** Developed by experts from the Supergrid Institute (France), the IMDEA Energy Institute (Spain), and Red Eléctrica. The project's goal was to increase the electrical system's flexibility in an environment where non-manageable energies are widely used. As tools for system operation, the project has specifically created new stability resources and integrated controls. These cutting-edge controls optimize the behavior of HVDC-VSC links and storage systems.
- **Enigma:** A project between Red Eléctrica and Spanish businesses HI Iberia, Ingelectus, and Prysma. In this project, AI agents have been developed to manage the energy that new renewable plants supply to the grid. The trained agents have learned to respond to potential eventualities while keeping the frequency within the required margins using a single-node grid simulator and *reinforcement learning* techniques. The findings indicate a different approach to controlling these plants from a disruptive standpoint.

About Red Eléctrica

The only transmission agent and operator of the Spanish electricity system is Red Eléctrica, a subsidiary of Redeia. It has provided the entire nation with a safe and high-quality power supply since 1985. Today, it is the foundation of the ecological transition in Spain. www.ree.es

About EIT Innoenergy

EIT InnoEnergy fosters innovation in sustainable energy throughout Europe. From human talent to the final consumer, it supports and finances innovation at every stage. We establish connections through our grid across Europe to boost the development of innovative solutions. <http://www.innoenergy.com>

About Elewit

It is Redeia's technological platform. It was established in 2019 to provide solutions to new challenges in the telecom and electrical industries. Driving connectivity and the energy transition in order to build a sustainable future is its main goal. www.elewit.ventures