

## DLR devices

Red Eléctrica monitors weather parameters in real time to maximise line usage and integrate more renewables

The company rolls out more than 750 DLR devices, a solution that combines IoT (Internet of Things) technology with sensorisation to maximise the use of the transmission grid.

This technology can increase the flows that can safely run through certain overhead lines by up to 30% under optimal conditions.

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Red Eléctrica, the Redeia company responsible for the transmission and operation of the Spanish electricity system, is rolling out solutions to maximise the use of overhead lines, specifically through the installation of more than 750 DLR (Dynamic Line Rating) devices on some of the overhead lines. These installations facilitate the integration of renewable energy generation and ensure a constant electricity supply. This technology is recommended by the European Commission's Grid Action Plan for enhanced grid efficiency.

DLR systems consist of sensors and weather stations that capture various parameters of the conductors and environmental conditions in real time, advanced IoT communication systems, and artificial intelligence-driven calculation algorithms that allow for the accurate estimation of the lines' transport capacity at all times and optimisation of their use.

Thanks to these devices, Red Eléctrica aims to increase the capacity of some overhead lines by up to 30% at certain times under optimal conditions, which would allow for the transmission of more electricity, enabling greater integration of renewable energy in areas with high renewable potential.

Installing these DLR devices, as part of the 2021-2026 Electricity Planning initiatives, highlights Red Eléctrica's commitment to modernising and digitising its transmission grid assets. This effort aims to use innovative technology in locations where it enhances efficiency, such as the DLR devices that utilise IoT and real-time monitoring to improve the efficiency of the transmission grid, with the ultimate goal of maximising the integration of

renewable energy while ensuring the security of supply. This commitment is aligned with the efficiency and sustainability objectives of our country's electrical system.

For Miguel de la Torre, Head of System Development at Red Eléctrica, "incorporating these devices into the transmission grid will allow us to make better use of the existing grid and enable the system operator to work with greater versatility and flexibility."

In this regard, Manuel López Cormenzana, the Manager of Maintenance and Construction, states that, "optimising the construction needs of new transmission lines while maximising the transmission capacity of existing ones is a sign of the sustainable nature that our country's electrical system is adopting, in line with the ecological transition."

## **A helping hand towards technological innovation**

Red Eléctrica, in collaboration with Redeia's technology platform, Elewit, has spent years researching, analysing, and experimenting with the most state-of-the-art technology available on the market. The aim is to equip the Spanish electricity system with innovative solutions that enhance its efficiency and sustainability. This effort is driven by the current push to advance the ecological transition towards decarbonisation and the mitigation of climate change.

Leading technology firms, including Amazon AWS and Telefónica Tech, have partnered with Red Eléctrica and Elewit, providing their technological expertise to enhance the sustainability of the electricity system.

In this regard, Silvia Bruno, the director of Elewit, emphasises that the development of technological innovation in companies "is an essential pillar for continued growth, contributing to the construction of a more sustainable future. It is necessary to leverage the knowledge and experience of other partners or startups with whom we share the challenges of decarbonisation."