IBERDROLA ESPAÑA

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BRIEFING NOTE

These improvement and maintenance works have been undertaken throughout 2017

Iberdrola inspects 65,000 kilometres of power lines in Spain to ensure security of supply

- **The company inspected very high, high and medium voltage overhead and underground power lines to guarantee their reliability and optimum functioning even under adverse weather conditions**

- **It performed inspections on 42,500 km of overhead power lines and on a further 11,300 km of underground power lines. This was in addition to thermographic inspections of 7,800 km and maintenance work on a further 3,400 km of the corridors through which the power lines pass.**

Iberdrola Distribución inspected over 65,000 km of power lines in Spain in 2017 to ensure supply security, with the ultimate goal of improving the quality of the service it offers.

The company inspected very high, high and medium voltage power lines to guarantee their reliability and optimum functioning even under adverse weather conditions.

Iberdrola inspected some 42,500 kilometres of overhead power lines and an additional 11,300 kilometres of underground power lines. In addition, 7,800 kilometres of cables were inspected using thermography. Vegetation was cut back and maintenance undertaken along over 3,400 kilometres of power line corridors.

These inspections are designed to detect potential problems in the components of its installations, e.g. insulators, conductors, iron fittings, pylons, etc., caused by lightning, fallen trees, construction work or buildings close to the lines, etc.

The company also performed infra-red or thermographic tests on some 7,800 km of overhead power lines. This kind of inspection of electricity infrastructure is performed with special thermographic cameras transported by helicopter or by a team of workers on the ground. It allows the temperature of the installations to be measured, to detect any points where temperatures are too high ("hot spots") so that they can be corrected and the supply guaranteed in the event of peak demand.

Project LIDAR in the Basque Country and Valencian Autonomous Region

Iberdrola Distribución has also completed a pilot project involving the exhaustive analysis of 1,000 km of overhead power lines in the Basque country and Valencian Autonomous Region. The lines are surveyed by helicopter using a camera equipped with the latest LIDAR (Laser Imaging Detection and Ranging) technology.

This camera uses a laser to sweep the land, this data along with images taken during the flight, gives precise information on the installations -geo-referenced data and images- as well as the distances to any nearby object or to the ground and details of the surrounding vegetation. This provides an inventory of the vegetation in the electrical corridors, estimating its growth in order to optimise pruning and felling work.

Iberdrola also carried out cleaning operations last year in the corridors through which its lines pass, pruning the trees that posed the greatest risk of coming into contact with about 3,400 km of power lines.

The inspection campaign forms part of the company's endeavours to improve its electricity installations in order to enhance the quality and security of supply. The future is moving towards ever smarter, safer and more reliable networks, challenges which Iberdrola Distribución takes head on as a company which leads in innovation so as to offer a better service each day to its customers and society in general.