

Aerial Mapping Project on Impact of Vegetation on Electricity Network



In the UK, Bluesky has completed a multi-million pound aerial mapping project to assess the impact of vegetation on the electricity network of East Anglia and the South East of England. Working on behalf of UK Power Networks, Bluesky undertook what is reportedly the largest ever combined laser mapping and aerial photography survey commissioned by an electricity distribution network operator in

the UK – comprising some 34,000 square kilometres.

The laser-mapped (Lidar) data and aerial photographs were then analysed to assess the proximity of vegetation to the overhead power lines in order to create a proactive three-year vegetation management programme. Bluesky worked in partnership with ADAS, an agricultural and environmental consultancy, to complete the project.

Large quantities

Dedicated survey planes equipped with a state of the art the Lidar mapping system and aerial survey equipment flew the whole of the South East and East of England. Capturing millions of individual laser mapped height measurements and approximately 310,000 aerial images in just over three months, Bluesky successfully completed the unprecedented data capture element of the project within tight project deadlines, in challenging weather conditions and in adherence with strict Air Traffic Control restrictions.

The 80 terabytes of raw data were then processed and analysed to identify which overhead line spans had vegetation infringement; for example the length of vegetation infestation along each span and its location and distance from the overhead line.

3D web portal

This information has now been incorporated into a 3D web portal that can be viewed from the desktop, enabling UK Power Networks employees to carry out virtual patrols of the network, saving time and reducing the risk of foot patrols, sometimes across difficult terrain including physical barriers such as rivers, ditches, livestock and numerous other potential hazards.

This innovative GBP2.5 million project is of immense benefit to the customers and to the company, said Nigel Hall, head of service development at UK Power Networks. The risk-based tree-cutting programme will help reduce tree-related power cuts for customers, with the additional benefit that it could be carried out without any disturbance to local landowners because it was done from the air rather than on foot.

It will help the company to get best value from its GBP19 million annual tree-cutting budget, and the web portal will mean staff can carry out 'virtual patrols' from their desk, saving them time and reducing the potential hazards if they had had to walk the lines themselves, Nigel Hall further explained.

Added value

Rachel Tidmarsh, managing director of Bluesky, added prior to commissioning the Lidar and aerial mapping project, UK Power Networks undertook regular manual surveys as part of its assessment of network resilience, but the capture of Lidar and associated aerial photography for the entire catchment area allows for evidence-based decision-making and long-term planning, and provides a proven solution for other network operators.

Roy Dyer, head of Arboriculture in ADAS and manager of the ADAS contribution to this contract, described it as a groundbreaking contract. The combination of Bluesky's technical ability and ADAS' consultancy experience in managing vegetation near overhead lines enabled successful delivery of this challenging contract and the management and resilience of the overhead lines owned by UK Power Networks to be improved.

