

## Projects

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# Supporting a remote grid upgrade with a LiDAR Topographical Survey

## PROJECT AT A GLANCE

Project:

**LiDAR Topographical Survey for proposed 11kV & 33kV OHL & UGC routes**

Location:

**Isle of Lewis, Scotland**

Client:

**Scottish and Southern Electricity Networks (SSEN)**

Duration:

**1 week**

## PROJECT BRIEF

**High-resolution LiDAR and imagery delivered to SSEN to support route design and feasibility for a 30-mile grid upgrade in remote terrain.**

SSEN required a detailed topographical survey to support the upgrade of approximately 30 miles of proposed 11kV and 33kV overhead and underground cable routes. This upgrade aims to meet growing demand on the transmission network.

The survey was critical to inform both early-stage feasibility assessments and more advanced design processes, requiring a comprehensive and accurate dataset across multiple potential route options.

## OUR APPROACH

To overcome terrain challenges and accelerate data collection, we carried out drone-based LiDAR and photogrammetry, supported by Leica GPS for precise ground control. Our GVC-certified surveyors conducted over 40 drone take-offs to ensure comprehensive coverage.

Alongside LiDAR data, high-definition aerial imagery was captured to assist with environmental and design assessments. Peat depth measurements were also taken on foot in key areas to help determine suitable ground clearances for the proposed route.

## CHALLENGES

- The final route had not been confirmed, requiring data collection across a broad corridor to support multiple design options.
- Survey outputs were needed to meet both feasibility and final design standards.
- Remote, rugged terrain presented logistical challenges for traditional survey methods.

## PROJECT OUTCOME / DELIVERABLES

- We delivered high detail point cloud data for use in PLS CADD, AutoCAD, MicroStation, and Optimal software.
- Our route designs ensured we were mitigating span lengths, clearance issues, and pole height constraints.
- We provided line profiles, pole schedules, and route maps using orthorectified imagery and LiDAR data, all to SSEN specifications.

## SERVICES USED

- Drone-based LiDAR Survey
- Photogrammetry
- Leica GPS Ground Control
- Peat Depth Survey
- HD Aerial Imagery Capture
- Data Processing & CAD Integration
- PLS CADD Design Support
- Topographic Mapping & Deliverables Production