

SUCCESS CASE 5.2026

HYLIGHT

DECARBONISING POWER LINE
INSPECTION THROUGH
AUTOMATED AIRSHIP
TECHNOLOGY

THE CHALLENGE

Every year, Enedis performs more than 100,000 km of overhead line inspections to support vegetation management programmes, identify network anomalies and maintain the reliability of the French electricity distribution network. Today, these inspections are performed predominantly using helicopters. While highly effective, helicopter inspections are associated with significant carbon emissions, noise pollution and operational costs. In the context of its environmental commitments, its "Entreprise à Mission" status and its objective to reduce greenhouse gas emissions by 30% by 2030, Enedis is actively seeking alternative solutions capable of delivering the same operational performance with a lower environmental footprint.

The challenge is therefore to develop a large-scale aerial inspection solution that combines safety, operational efficiency and decarbonisation while maintaining the acquisition quality required for network asset management.

THE SOLUTION

To address this challenge, Enedis partnered with Hylight to evaluate an innovative automated airship solution dedicated to power line inspection. The Hylight airship carries cameras and sensors required for network inspections while generating significantly lower environmental impacts than conventional aerial solutions.

The platform is designed to support multiple inspection missions, including:

- Vegetation management surveys;
- Detection of network anomalies;
- Video acquisition;
- LiDAR-based infrastructure monitoring.

Following regulatory approvals obtained in November 2025, the solution is now authorized to operate long-range inspection missions with a scope comparable to conventional helicopter inspections, outside restricted airspaces, and potentially even larger due to the low-noise technology allowing better capacity to obtain authorization in environmental restricted airspaces. The project aims to demonstrate that lighter-than-air technologies can become a credible alternative for large-scale infrastructure monitoring while supporting Enedis' decarbonisation strategy.

MAIN ACHIEVEMENTS

Several regional experiments were conducted across France to assess the operational value of the solution. Test campaigns were carried out in Nord-Pas-de-Calais, Picardie, Côte d'Azur, Sillon Rhodanien and Limousin. The experiments demonstrated the capability of the platform to identify a wide range of network defects, including:

- Corrosion issues;
- Foreign objects on the network;
- Vegetation encroachment;
- Missing or damaged insulators;
- Damaged supporting structures;
- Improperly installed components.

All detected anomalies were successfully integrated into Enedis asset management processes. The tests also generated significant external visibility, with coverage across multiple media outlets and national press attention, highlighting Enedis' commitment to environmental innovation.

KEY SUCCESS FACTORS

The first success factor is the alignment between operational performance and sustainability objectives. The solution directly contributes to Enedis' ambition to decarbonise network operations while preserving inspection quality. The second success factor is the technical capability of the Hylight platform. Experiments demonstrated that data acquisition quality for video and LiDAR-based inspections is compatible with Enedis' operational requirements. Another critical factor is the favourable operational profile of the airship, combining:

- Long flight endurance;
- Low noise emissions;
- Reduced aerial and ground risks;
- Low carbon impact;
- Significant daily inspection capacity.

Finally, obtaining the necessary aviation authorisations enables the transition from experimentation toward large-scale operational use.

WAY FORWARD

The ongoing experimentation programme aims to validate the solution on a much larger operational scale. For 2026, Enedis plans to assess the ability of the Hylight platform to perform significant inspection volumes while maintaining the highest levels of reliability and safety. Key performance indicators include:

- Demonstrating operational efficiency at scale;
- Achieving zero accidents involving third parties or network assets;
- Confirming economic competitiveness compared with helicopters and conventional drones.

The long-term ambition is to integrate this type of low-carbon aerial inspection solution into future network inspection frameworks and support the transformation of utility infrastructure monitoring across Europe.