



Restoration of peatlands (removal soil)

Project Details

COMPANY

Réseau de Transport d'Électricité

COUNTRY

France

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Peatland Restoration

CONTEXT

The limited company Réseau de Transport d'Électricité (RTE) manages the French electricity transmission network. As a public utility, its role is to operate, maintain, and develop the high and very high voltage network. It ensures the smooth functioning and safety of the electricity system. RTE ensures electricity transmission between electricity suppliers and consumers, whether they are electricity distributors or manufacturers connected directly to the transport network. RTE manages Europe's largest network with 100,000 kilometers (km) of lines between 63.000 and 400.000 volts and 46 cross-border lines (called "interconnections"). RTE made a turnover of €4,702 million in 2013 and has 8,500 employees.

Peatlands are wetland ecosystems characterized by water saturation and development of specific vegetation that produce peat (bio-hydro-geological material made of accumulation of organic matter in anaerobic conditions). These ecosystems provide many regulating services such as support for low flow, water purification, contribution to water storage, and climate regulation. These are also rich reservoirs of biodiversity and supports of many cultural services (aesthetic, sense of belonging, etc.).

The restoration of peatlands is part of the LIFE Elia-RTE project¹. The main objective of this project is converting forest corridors of the high-voltage power lines into ecological corridors by restoring stable natural habitats that will require minimal intervention in the future. These actions undertaken onsite are real opportunities for nature, local stakeholders, and RTE.

In the Ardennes, the area covered by the LIFE project includes three sites over the municipalities of Mazures, Sécheval, and Hargnies (Figure 1). The area, in the vicinity of the nuclear plant and electric network, is a vast and dense forest. To ensure the security of electricity supply, vegetation management must prevent contact between trees and cables.

RTE, the National Forestry Office (ONF), the Nature Park of Ardennes, the Municipalities of Sécheval and Hargnies, and the LIFE team are the main relevant stakeholders in the restoration of peatlands project.

By taking biodiversity-friendly measures, RTE maintains and develops good relations with local stakeholders and reduces vegetation management costs. Accompanying RTE in this process, the ONF,

¹ LIFE is the EU's financial instrument supporting environmental, nature conservation and climate action projects throughout the EU. Since 1992, LIFE has co-financed some 4 171 projects, contributing approximately €3.4 billion euros to the protection of the environment and climate.

responsible for public forest management, is involved in restoring a rare ecosystem, rich in biodiversity, in areas where production of wood is poor. The Regional Natural Park of Ardennes has partnered with the project to boost biodiversity in forest corridors, important areas to ensure connectivity between natural habitats. Finally, the municipalities of Sécheval and Hargnies, public owner of forest corridors, were interested to be involved in the project to improve the landscape and public perception of the impact of power lines.

OBJECTIVE AND PROJECT OVERVIEW

The project's objective is to restore peatlands located under overhead power lines to encourage the return of specific plant and animal communities of these ecosystems and restore their functional components. Corridors of the high-voltage power lines will then fully take on their role as corridors for biodiversity, allowing species characteristic of these environments to move and colonize new sites.

Several peatlands, rare ecosystems, and those extremely rich in biodiversity are located under power lines have benefited from important restoration work thanks to the LIFE project. In total, around 6 hectares have been restored. These ecosystems are more stable in that their vegetation is competing strongly with seedlings from trees that could threaten electrical safety at maturity. It requires less work to maintain vegetation at a distance from the cables of the high-tension line.

THE BUSINESS CASE

The restoration project required an initial investment for realizing work; however, when peatlands are restored, the site does not need to be maintained by RTE, which saves on vegetation maintenance costs. The return on investment varies globally between 6 and 12 years. A cost-benefit analysis showed a reduction of the vegetation management costs of 50 percent on a 30-year timescale. With LIFE, the project received a grant for 50 percent of the work by the European Commission, thus the return on investment is shorter for RTE.

Landscape has been improved, as well as the public perception of the vegetation management in the forest corridor. Relations with local stakeholders have also been improved.

DECISION MAKING PROCESS

The department of consultation and environment of RTE is in charge of the national management of the project. It is supported locally by the regional center for maintenance.

RTE involved local and several external stakeholders early in the project (Figure 2). At early stages of project implementation, RTE involved the Regional Natural Park of the Ardennes, local municipalities, the ONF, and the LIFE team. In order to choose appropriate sites, RTE took advantage of the trust established with partners upstream.

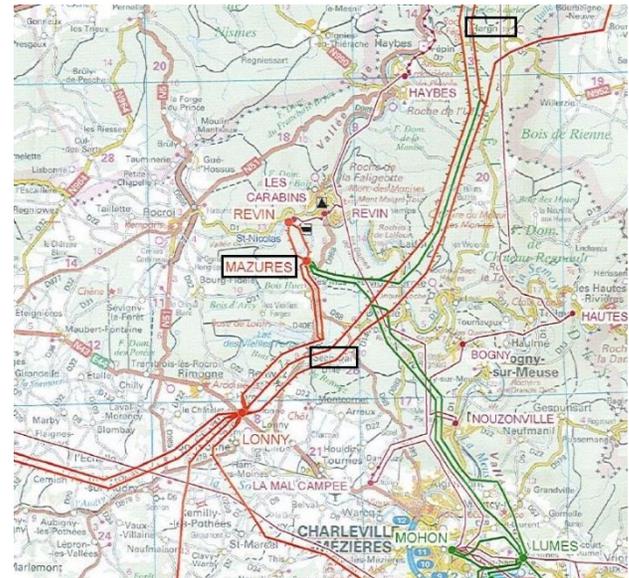


Figure 1. Site Locator Map



Figure 2. Dialogue with stakeholders

The restoration of peatlands project is consistent with RTE's commitments in its environmental policy and in its certified environmental management system ISO 14001. Other arguments have strengthened RTE's high-level support, as restoration of peatlands will achieve medium-term savings (reduction of vegetation management costs) and contribute to a better acceptance of infrastructures by local stakeholders.

PROJECT DETAILS

Restoration of peatlands is being conducted in an area characterized by significant diversity in terms of natural habitats, such as semi-natural dry grassland, European dry heaths, active raised bogs, and species-rich *Nardus* grasslands. It shelters an interesting fauna such as the Black grouse (bird), *Lycaena hippothoe* and *Clossiana selene* (daytime butterflies), and the common European viper (reptile).

The restoration of these special environments is possible through soil removal. The uppermost layer of earth is removed using machines, thus promoting the development of pioneer species (by uncovering the dormant seed bank underneath the uppermost layer) and the rich biodiversity that is associated with this. The water level can also be locally restored by sealing drains, revitalizing wet moorlands and peatlands, and providing shelter for the flora and fauna that typically inhabit the area. Revegetation of indigenous species may also accompany this work, transplanting cotton grass, sphagnum, and heather seedlings. Several ponds are dug, creating structured edges, and orchards are installed for conservation on suitable sites.

Biological indicators related to habitats in forest are also collected to monitor the improvement for biodiversity. The objective is to provide an overview of the initial state of the sites to follow the evolution of species diversity in time and beyond the scope of the LIFE project.

Social benefits resulting from this project include improved living conditions for stakeholders in the form of increased biodiversity and a range of enhanced or restored ecosystem services.

Restoration of peatlands began in the second quarter of 2012 and is expected to last 4 years. The European Commission has carried out a mid-term project inspection (2014) and was pleased with its progress.

LESSONS LEARNED

Some key lessons learned through implementing the project include:

- Investment of time and energy of local partners (ONF and the Regional Natural Park of Ardennes) was substantial; therefore, RTE has decided to sign a partnership agreement to cover the commitment of time and expertise of its partners.
- The presence of wetland habitats such as peatlands under the high-voltage power lines can create an apprehension from RTE maintenance crews. It can generate problems of access to power line towers and make managing cables more difficult in case of rupture. Employees must be aware of issues of ecosystems' preservation, and the realized arrangements must be designed taking into account the accessibility of infrastructures.
- Limiting the restoration of peatlands to the area underneath power lines is not necessarily relevant. It must be consistent with other restoration and preservation actions carried out locally. Therefore, RTE works with land managers who have a broader vision of local issues and can ensure consistency between the project and the arrangements of neighboring areas.
- It would be interesting to make arrangements based on a comprehensive guideline (e.g. French government-led ecological corridor guidelines, "Trame Verte et Bleue") to be consistent with the locally-relevant ecological issues. This involves working closely with land managers, local authorities, and state services.
- It is essential to involve biodiversity experts and establish partnerships with land owners and land managers. The *tri-partite* agreement (RTE, owner, expert/manager) set up by RTE allows this type of partnership.

- It is important to join other companies confronted with the same issues to develop synergies and share experiences. RTE is thus associated with other linear infrastructure managers within the Club of Linear Infrastructure and Biodiversity (CILB).
- The project has generated a lot of interest locally. Therefore, the multiplication of stakeholders has complicated its implementation. However, RTE has benefited from a leverage effect in terms of image.

FUTURE IMPLEMENTATION AND NEXT STEPS

RTE developed a practice guide for managing corridors of the high-voltage power lines. The restoration of peatlands project will be the subject of a descriptive sheet to make this an operational and reproducible project.

Considerations for replicating this work include:

- Verifying the feasibility of the project with biodiversity experts
- Pilot studies to experiment ecosystem-friendly measures on a small area
- Developing a multi-year program and a specific budget to generalize these measures

REFERENCES

- <http://www.life-elia.eu/en/>
- Lesigne J.-F., (2012), Biodiversité et infrastructures linéaires : la contribution de RTE à la Trame verte et bleue, Responsabilité et Environnement, Annales des Mines, Octobre 2012 – n°68 pp.77-86

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