ENERGY & NATURE | *Workshop Summary Report*

Implementing Integrated Vegetation Management across Europe

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Renewables Grid Initiative

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Introduction

Integrated vegetation management (IVM) is an approach to managing the vegetation in the spaces beneath power lines – 'grid corridors' - that focuses on the ecological health of the affected area, while still removing vegetation which could interfere with system security by touching a line. This often includes selective removal of fast-growing trees and invasive species, while promoting low-growing native plants, creating new habitats that thrive among these plant communities, and exploring new economic opportunities for local stakeholders.

Compared to conventional vegetation management, whereby grid operators periodically clearcut vegetation in the corridors, IVM has been proven to bring many benefits for nature, people, and grid operators alike. For example:

- By selectively removing faster growing and invasive tree species in grid corridors, grid operators can support the development of important ecosystems which provide habitat and forage for local biodiversity.

- Given the 'networked' nature of grid infrastructure, these ecological corridors can serve as important 'stepping stones' for nature and thus encourage ecological intactness and interconnectivity at landscape scale.

- In moving away from highly mechanised management techniques, grid operators can look to local actors to assist with vegetation management. In rural areas, this can mean engaging farmers or shepherds to take over management through mowing or grazing, which can bring important economic opportunities in areas of high rural exodus.

- With a more ecologically-minded management, grid corridors – previously perhaps considered as 'no-man's land' – become interesting, attractive areas for leisure and economical activities, such as honey production, farming of orchard plantations, game-hunting, or hiking routes.

- By entering into more partnerships with (local, regional or national) stakeholders, opportunities arise for constructive engagement on the 'need for grids' and renewable energy infrastructure in general, which can build public support.

- While IVM implementation requires investment of time and money to become successful, a cost-benefit analysis from the LIFE Elia-RTE project calculated that IVM is 1.4 to 3.9 times less expensive for than traditional management over 30 years.

Despite these benefits, it is important to recognise that a switch to IVM still implies a paradigm shift away from familiar mechanistic solutions to vegetation management, towards nature-based solutions. This, in turn, requires the consent of colleagues, the regulator and often relevant authorities. Furthermore, given that grid operators often do not own the land underneath power lines, any alternative approach to the status quo in vegetation management

requires coordination with the respective landowners. As such, many companies struggle to make the shift, citing roadblocks at the industry, regulatory and public level. Furthermore, while a roll-out of IVM across Europe holds huge potential for ecosystem interconnectedness and the energy transition, a coordinated approach remains highly elusive.

Recognisant of the complex state of play, the Renewables Grid Initiative (RGI) has been engaging with the topic for many years, including through diverse communication activities. In 2019, RGI and Ecofirst - a cooperative of ecological consultants who continue to be IVM implementation partners in Belgium - worked together to conduct a benchmarking exercise, published as a briefing paper '"Green Electricity Corridors in Europe"'. The aim of this was to understand what the common roadblocks are, what tools could be needed to overcome these, and to propose ways in which IVM policies can be better developed and implemented.

These workshops represent the next step in promoting IVM in Europe, through a coordinated exchange of lessons learned between grid operators from different geographies and regulatory contexts.

In 2023, RGI launched a new series of in-person workshops for European TSOs and DSOs to further the discussion and advance the cause of IVM. These workshops represent the next step in promoting IVM in Europe, through a coordinated exchange of lessons learned between grid operators from different geographies & regulatory contexts, but also further discussion on challenges, opportunities, and pathways forward.

This report will serve to summarise the content of the first workshop in this series and bring new insights to the state of affairs of IVM adoption in Europe. At the end of each chapter, we include a concise list of the discussions which followed and open questions identified. In the conclusions, we will reflect on these points and thus identify priorities for future work. In this way, this document can be perceived as a first step in a new, coordinated approach in support of IVM implementation in Europe and beyond.

Key Resources

- Presentations from the workshop, click here.
- Green Electricity Corridors with Ecofirst, click here.
- Grids & the Environment video, click here.
- Energy & Nature webinar recordings, click here.

Session 1: Introduction to IVM through LIFE Elia-RTE

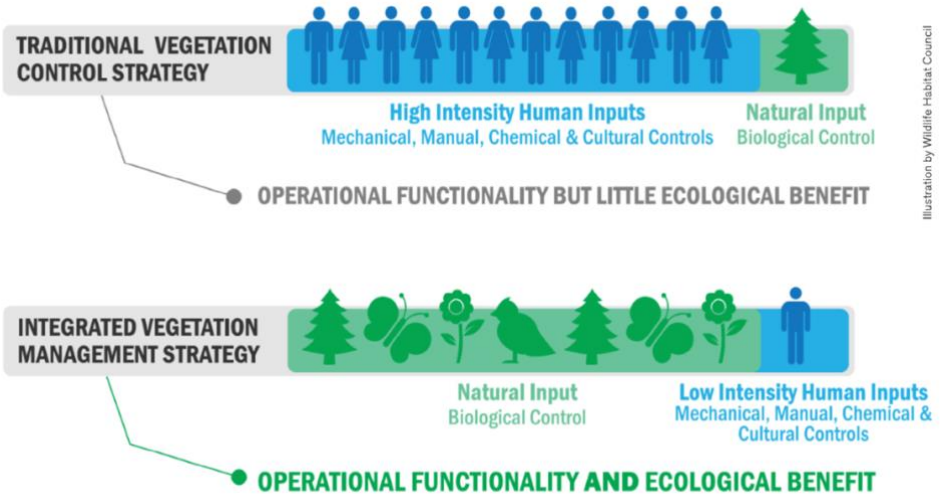
Some pioneering grid operators have recognised the value of IVM early and have already implemented it in their control area, with positive impacts for nature and grid operation. Pilot projects such as the LIFE Elia-RTE project (2011-2017) serve as well-documented models from which we can all learn.

LIFE Elia-RTE was a project between the Belgian TSO, Elia, French TSO, RTE, and Ecofirst, a cooperative of ecological experts that sought to combine electrical safety of power lines with biodiversity-friendly vegetation management by creating green corridors under high-voltage overhead lines and by relying on a multi-partner approach. The budget was €3.2m, of which €1.1m was funded by the EU's LIFE Programme, €0.8m by the Belgian region of Wallonia, €0.9m by Elia, and 0.4m by RTE. The objectives of the project were to:

- Enhance biodiversity through tangible actions by creating green corridors on 28 sites in Belgium and 7 sites in France.
- Create conditions for slower tree growth, thus avoiding the need for recurrent cutting.
- Manage the practice in the long term via a win-win multi-partner approach.
- Positively influence public perception of vegetation management in connection with high-voltage power lines.
- Share the experiences throughout Europe.

The first session of the workshop, led by Johan Mortier – Environmental Expert and Elia and Jean-François Godeau – Research & Development Scientist at Ecofirst – endeavoured to give participants a comprehensive understanding of the LIFE Elia project's scope, explain its

philosophy and share insights into the history and processes which led to the project's inception.



Firstly, colleagues presented the characteristics of classical vegetation maintenance by "clear cutting" every 3-5 years. This method relies heavily on high-intensity human inputs to indiscriminately remove all vegetation in an area. A major consequence of this approach is that it leads to the creation of a 'no-man's land' for the stakeholders involved, for example:

- **Landowners** – through one-time resource and revenue compensation
- **Foresters** – through the creation of abandoned areas beneath grids.
- **The public** – due to the visual impact on the landscape.
- **The grid operator** – from the considerable recurring cost (which can increase).
- **Nature** – due to the regular total destruction of an area.

In contrast, IVM seeks to manage vegetation in a way which reduces high intensity human inputs and instead increases natural inputs (see fig. 2). This is achieved by developing contextually appropriate actions or 'interventions'. In the case of the LIFE project, these actions were:

1. 'Forest edges' – enabling lower, slower-growing species to grow along corridor edges.
2. Conservation orchards of endangered wild local species.
3. Restoration of endangered natural habitats, incl. peatland, heaths, and lean grasslands.
4. Semi-natural ponds which quickly attract specific and vulnerable fauna, with no management requirements.
5. Combatting invasive species – which are often opportunistic pioneer plants and thus thrive in conventionally managed corridors.
6. Meadows – often kept vital through annual mowing by local farmers.
7. Flowering pastures – grazed by local farmers' herds of sheep, cows, or horses.

Colleagues also presented the various steps involved in the working methodology to plan, prepare, execute, monitor, and communicate these processes and the timeframe over which these steps take place (see slide 8 & slide 14).

Once the 6-years LIFE project drew to a close, Elia made the decision to continue with IVM through a subsequent 'Ecological corridors' project (2018 – 2030) – entirely self-funded – and has incorporated IVM into their core sustainability programme "ActNow", which aims to bring 90% of forest corridors under ecological management by 2030. Johan's presentation shared some of the main factors behind Elia's ongoing support for IVM, which are summarised below.

IVM implementation demonstrates the possibility of reconciling the grid with nature and biodiversity, which is an important challenge as we accelerate the energy transition.

Implementation of IVM facilitates more flexibility in terms of management, thus increasing the possibility to respond to local desires for nature-positive efforts. This approach fosters more nuanced and overall better relationships with local communities and authorities, both at the local and regional levels which in the Belgian case, led to a perceived improvement in the acceptance of overhead lines (OHL). In terms of security of the OHL, IVM entails a re-examination of the width of certain corridors and selective removal of tall-growing plants, thus removing risk of interference from vegetation. Furthermore, benefits for staff included more internal education, competence in recognising vegetation for patrollers, and Elia colleagues reported more of a sense of pride in the meaningfulness of their work, particularly in relation to biodiversity and the community. Economically, IVM was shown to reduce long-term cost of maintenance for the corridors. Finally, IVM implementation demonstrates the possibility of reconciling the grid with nature and biodiversity, which is an important challenge as we accelerate the energy transition.

Key Resources

- Presentations from this session, click here
- Elia's 'ActNow' programme, click here.
- Portuguese TSO, REN's IVM approach, click here.

Discussion

The following points summarise the discussion among participants after the presentations, without seeking to answer the questions which arose. In the conclusion chapter at the end of this report, these points will be summarised and translated into priorities for a working group of EU grid operators, led by RGI.

- Some participants expressed doubt about their ability to replicate IVM on the scale of the Belgian case without the support of the LIFE Programme. Access to public funding was identified as a considerable lever in making IVM projects viable and 'clincher' in securing internal buy-in for IVM (see chapter 3).

- One participant expressed doubt in the sense of planting new species (e.g., for the orchards) and reported that their organisation only restores the vegetation of areas by selective removal of fast-growing species and supporting 'acceptable' vegetation which is already present on sites.

    - Ecofirst responded that plantation was a necessary step in some cases where grid corridors had previously been entirely overrun by species such as eagle fern (*Pteridium aquilinum*) or to attract game to grid corridors managed by hunters.

    - Another participant underlined that planting productive species, e.g. such as strawberry trees *(Arbutus unedo)*, olive trees *(Olea europaea)* and cork oaks *(Quercus suber)* in Portugal, or fir trees for sale as Christmas trees in Slovakia and Finland can provide important incentives to landowners.

- One participant asked if planting of trees can serve as compensation for landowners which host the infrastructure on their land.

- The issue was raised of ecological corridors – especially those with ponds - potentially attracting bird species, which are susceptible to collision or electrocution with power lines. How is this risk mitigated?

- Participants discussed the importance of data availability and mapping tools in setting up IVM projects. Technologies such as LiDAR, drones, and satellite imagery are used to map and visualise vegetation in grid corridors. Some grid operators have already created digital versions of all grid corridors. Cadasters are often created with details on land ownership, soil composition, species present etc.

Session 2: Biodiversity-positive management techniques and monitoring

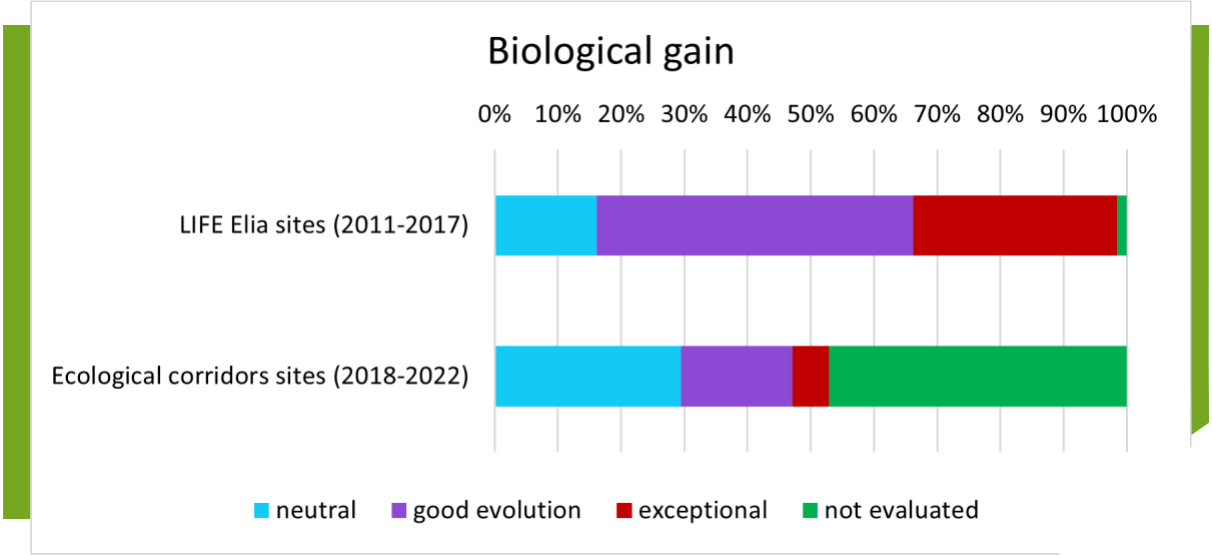
For projects with impacts on biodiversity, monitoring and biological surveying is a vital component. Thirteen years after the project started, monitoring is still ongoing in the target corridors to ensure continuity of the management and measure the biological evolution of the restored sites. Furthermore, monitoring in Elia's more recent 'Ecological corridors' is also ongoing and led by Ecofirst. From 2018 onwards, Ecofirst produced one report per year on biological monitoring and in March 2023, they launched a '10-years after report' with comprehensive coverage and evaluation of IVM management and its impacts on biodiversity.

In the second session of the workshop, Pierrette Nyssen – Ecologist at Ecofirst, presented the ins and outs of the monitoring of the Belgian project. The biological monitoring is carried out according to scientific standards, but also leaves room for pragmatism. For example, precise surveys are carried out of several taxonomic groups (e.g., flora, butterflies, dragonflies, bats), but expert opinions on the structure, diversity, and development of the vegetation are also included in the reports. The monitoring itself implies:

- One visit per season to compose a basic protocol of most taxonomic groups.
- Protocol submitted to Elia.
- Extensive monitoring during the 'high period' (June/July) by skilled ecologists.
- A before/after survey (where feasible), or a short-after vs. long-after survey.
- Regular photography for documentation of the sites with geo-localisation.
- Classification of the habitats according to the EU Habitat Directive.

The results of the biological monitoring so far have been very positive. For example, in 82% of the LIFE sites, the 'biological gain' was rated as 'good' or 'exceptional'. The positive development

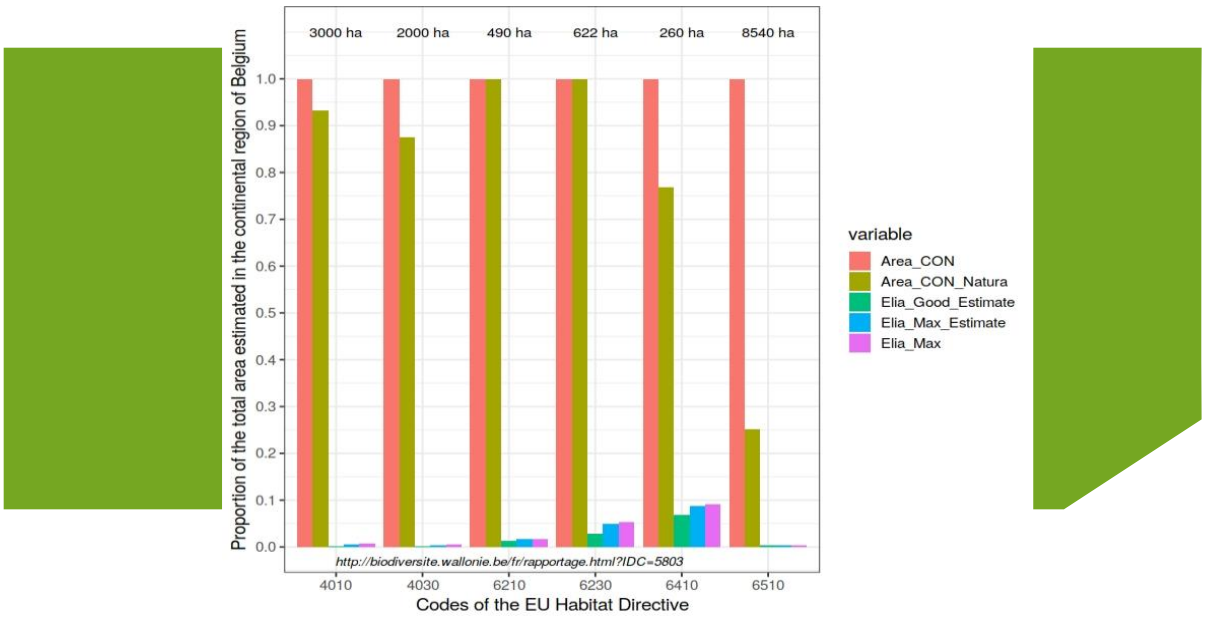
of these ecosystems becomes even more striking when we consider that many of these areas are classified among the Annex I habitats of the EU Habitat Directive as Special Areas of Conservation, whose EU conservation status elsewhere in Belgium is 'bad'. For example, 111ha out of 136ha of grass- and heathlands in the Elia corridors are recognised as Natura 2000 habitat types. Calculated for the biographic region of Belgium, the Elia corridors represent 1-10% of the overall surface areas of their kind and thus contribute significantly to the Natura 2000 network.



No less than 111 species from the Walloon Red List have been recorded in the Ecological Corridors, as well as 9 species listed in Annex II of the Habitats Directive and 5 species listed in Annex I of the Bird Directive. The latter include black stork (*Ciconia nigra)*, black woodpecker *(Dryocopus martius)*, peregrine falcon *(Falco peregrinus)*, black kite *(Milvus migrans)*, and red kite *(Milvus milvus)*. Furthermore, on one site, a record of 151 distinct plant species and 43 butterfly species were counted.

Based on these findings, Ecofirst has been able to conclude that the ecologically managed Elia grid corridors, as well as safely fulfilling their purpose of transmitting electricity across the landscape, make a significant contribution to nature conservation in Belgium. More specifically, they function as:

- New suitable habitat for species, e.g., breeding areas, feeding zones, rest stops for migratory species.
- Steppingstones to spread out from core populations, to 'stop over' during dispersion.
- Connection between nearby open habitats.
- Glades inside the forest, boosting biodiversity and attractiveness of the area.



It is important to emphasise that these results are not outliers, and several projects else in Europe confirm the important contribution of well-managed grid corridors to biodiversity, and indeed the potential for a coordinated, European IVM approach to build up "continental scale networks of biodiversity"[1]. The collaborative research project, 'Bio Transport', between Spanish TSO, Red Eléctrica de España, and researchers from the Spanish National Research Council and Doñana Biological Station, is a good example.

Green corridors safely fulfil their purpose of transmitting electricity while making a significant contribution to nature conservation.

Key Resources

- Presentation on green corridor monitoring, click here.
- EcoFirst's 10-years after report, click here.
- Ecofirst's annual reports , click here.
- Bio Transport IVM project in Spain, click here.

[1]Ferrer, Miguel & de Lucas, Manuela & Hinojosa, Elena & Morandini, Virginia. (2020). Transporting Biodiversity Using Transmission Power Lines as Stepping-Stones?. Diversity. 12. 439. 10.3390/d12110439.

Discussion

Some participants reported the need for guidance on standardised approaches to biological monitoring, to quantify the contribution of actions taken to ecosystem restoration. These data can then be presented to colleagues and regulators and serve as concrete proof of the value of IVM to biodiversity.

There is a general need for further clarity and better communication of the potential of IVM to contribute to ecosystem restoration overall, and more specifically to European and international targets governing this. For example:

- The EU Nature Restoration Law will bring binding targets for all EU Member States (MS) to restore ecosystems. While there is a lack of clarity on how this will be implemented at MS-level, the Belgian case suggests IVM could contribute to targets.
    - How can this be quantified and formally reported? Which metrics are available, and which will be 'accepted' by EU standards?

- Could IVM contribute to global restoration targets, such as those agreed at the 2022 UN Biodiversity Conference 'Kunming-Montréal' to protect 30% of Earth's lands, oceans, coastal areas, and inland waters by 2030?
    - As above – how should this be quantified and reported? Which metrics and methods?

- In some EU Member State, TSOs are not used to work together with qualified ecologists and the resources on behalf of grid operators are often lacking to employ/contract ecologists to work with them. This makes such detailed biological monitoring difficult.

- Several grid operators underlined that biological value of grid corridors **must not** interfere with system security. It is paramount that access to all assets for maintenance purposes be possible.
    - One solution could be to consult asset managers on IVM plans to receive assurance that access is possible.
    - In the case of Elia, it was insisted that a minimum distance of at least 10m from the cables to the trees should be kept (up to 20m for a 380kV). Following these rules, all corridors range in width between 30-50m wide, depending on the configuration of the towers. In addition, two lorries must be able to pass each other or a crane to manoeuvre around the pylons.

Session 3: Socio-economic aspects - Stakeholder engagement, partnerships, and public acceptance

An important way in which IVM contrasts to conventional vegetation management is in the number of stakeholders involved both directly and indirectly. Experiences of IVM projects have shown that this shift can bring many benefits for all stakeholders involved, whether in terms of employment opportunities, value creation (e.g., access to new pasture), more positive relationships with the land through aesthetic and biological 'improvement', or educational opportunities.

A further important observation from the Belgian project is that IVM seems to positively influence people's perception of the electricity grid, namely in that it is indeed possible to "ensure a sustainable energy transition, with care for the environment, biodiversity and local residents near its installations". The positive impact on public acceptance of infrastructure is not to be understated here.

Vegetation management had shifted from a constraint to an opportunity in terms of fulfilling commitments to biodiversity, governance, ethics, and compliance.

The third session of the workshop focussed on these socio-economic and human aspects of IVM. In three presentations, we heard from Aurélie Maebe – Project Leader at Ecofirst, two colleagues from the French TSO, RTE, Emilie Cardon - Biodiversity & Landscape CSR Officer and Bruno Salvi - National coordinator for vegetation policy, and Elia's Johan Mortier.

Partnerships with local stakeholders

The first presentation from Aurélie Maebe focussed on partnerships with external stakeholders within the LIFE and subsequent Ecological Corridors project. Such partnerships are both vital for successful IVM implementation – as Elia doesn't usually own the land beneath power lines, and generally beneficial for project management – as local stakeholders often have better knowledge of the area and are located close by.

Formal agreements help strengthen the commitment of all parties to fulfil 'their part' of the deal, for example to provide free access to land, to mow the land according to pre-defined conditions. Agreements are usually negotiated with landowners and/or site managers (e.g., forestry administrations, hunters) and while verbal agreements are possible, Ecofirst strives to reach two formal agreements:

1. A written contract between the grid operator and the landowner.
2. An agreement between the owner and site manager (i.e., when these are not the same person/people)

The contract specifies the types of action to be taken and confirms the commitment not to damage installations or restored habitats. Once the contract expires, the owner then decides whether to continue to manage the sites or to delegate the management to another party. When the management is delegated to another stakeholder, the 'free of charge' agreement' stipulates that arrangement has been agreed at will and free of charge. It also defines the technical conditions of management (e.g., grazing, or mowing period, number of animals, prohibition of the use of pesticides), the length of the commitment (usually five years) and the cancellation terms, and the 'free of charge' nature of the commitment.

Partnerships with regional/national institutions

One important consideration to make regarding partnerships is that in many cases, provided that the management contributes positively to nature and the landscape, financial assistance is often available (e.g., tax benefits, financial compensations, and subsidies) and can be obtained at regional, national, and European levels (e.g., Natura 2000). This factor can directly support and incentivise for partnerships. In the Belgian case, farmers in the region of Wallonia received subsidies to carry out the management of the ecological corridor, thus removing a cost for Elia.

- Build strong relationships based on trust and transparency.
- Involve associations in consultation processes (instead of being in opposition).
- Build understanding for each other's missions (which can then be transmitted to local branches, thus saving time and effort).

The settlement of national partnerships involves several steps, beginning with dialogue between network heads of RTE's national team and national federations, followed by mutual presentations of respective missions (e.g., the need for certain grid projects, the goal of IVM). After this, uniform contractual documents are redacted and signed, and communication

channels between local offices are established. These new communication channels help to transmit information from national to local level (and vice versa) and often lead to invitations to further events with national and local actors, thereby amplifying the reach of RTE's mission.

Benefits of IVM for public engagement and acceptance

In the final presentation, Johan Mortier described how Elia's evaluation of IVM confirmed that vegetation management had shifted from a constraint to an opportunity in terms of fulfilling commitments to biodiversity, but also social and economic commitments, including governance, ethics and compliance. Indeed, recognisant of the value of IVM, Elia made a public commitment and announced to external stakeholders in 2021 that IVM would be carried forward as a core activity in the company's overall sustainability programme, 'ActNow'. Regarding relations with local actors, Elia reported IVM's positive impact in terms of:

- Improved relations with local administration and municipalities.
- Added value for the local actors through corridor management (e.g., shepherds).
- The corridor ceases to be a 'no man's land' and becomes an attractive place to visit.
- Stronger relations with residents and a greater understanding for Elia's mission.
- More opportunities for education and formation, including for schools and through community planting or pruning.
- Landowners and users, as the corridor benefits the adjacent forest and wildlife.

Spurred on by their positive experiences, Elia has also begun to provide information about IVM to other stakeholders far and near, including TSOs, municipalities, schools, and other linear infrastructure managers (e.g., gas grids, railways, highways). The replicability of IVM actions – which can reasonably be implemented in any context by adapting them to the local environment – is a major strength of the approach and something that the LIFE project consortium actively promoted. Indeed, this fact has contributed to LIFE Elia-RTE project winning several prizes, including the European Commission's Natura 2000 Award and RGI's 'Good Practice of the Year' award.

Key Resources

- All presentations from this session, click here.
- LIFE Elia-RTE reports:
  - Local partnerships booklet (see section 9), click here.
  - Negotiations and agreements booklet, click here.
- LIFE Elia-RTE awards
  - Natura 2000 award, click here.
  - 'Good Practice of the Year' award, click here.

Discussion

Participants insisted that the socio-economic and cultural benefits of IVM are not to be understated. IVM actions can provide economic opportunities to local people, prevent rural exodus, inform public understanding about the need for grids and the energy transition, and thus garner more public support for the grid. These benefits should receive more recognition at the regulatory level and participants were keen to discuss methods to 'quantify' these benefits.

Participants insisted that the socio-economic and cultural benefits of IVM should not be understated.

Participants seemed confident that state aid is indeed available in most Member States (possibly at different levels of government: national or regional) for implementation of management nature-friendly measures. They expressed that these funding mechanisms can be used to implement large-scale ecological developments that could not have been established without external assistance. However, many said that they do not have a good overview of what funding mechanisms are available and they would find guidance in this regard useful.

One participant remarked that their experience confirms that joint endeavours with landowners for IVM (and more biodiversity) are a win-win situation. Landowners receive compensation (either from the grid operator or from external sources) for their management and host more biodiversity on their land and the grid operator has less maintenance activities to deal with, saving time and money.

Participants described some advantages and disadvantages of different kinds of partnerships. For example, short-term partnerships with local partners may be easier to negotiate and imply less bureaucratic hurdles, but their informal nature requires more time to follow up and does not ensure accountability. Meanwhile, contracts with larger associations are subject to long bureaucratic processes and rules, and regional/federal authorities often have frequent staff changes and limited resources to engage meaningfully with the topic.

Session 4: Regulatory aspects and challenges

While institutional structures and the function and responsibilities of regulatory authorities vary across Europe – also often within Member States (MS) –, implementation of IVM necessarily implies engagement with certain regulatory and administrative authorities at local, regional, and national levels, e.g., to request permits for actions, to gather expertise for management of certain areas, to grant funds for initial investments.

Biodiversity and social impact are increasingly important for grid operators.

Thus, the fourth session of the day focussed on the regulatory aspects of IVM implementation and the challenges encountered on the way, presented by Johan Mortier (Elia) and Lionel Coquelet, - Team Coordinator at Ecofirst. While the regulatory and political situation in Belgium is unique, the complexity this implies is certainly not. Hence, lessons from Belgium can be reasonably extrapolated to other Member States.

Engagement with regulatory authorities

Johan Mortier's presentation began with an overview of the function and structure of the Belgian regulators. While there are regulators at both federal and regional levels, decisions on the national tariff compensations for Elia's activities fall to the national regulatory authority (NRA), 'Commission for Electricity and Gas Regulation' (CREG). Hence, the decision on granting Elia the funds required for IVM implementation – recognised as operational expenses (OpEx) in Belgium – lies with CREG. CREG was supportive of Elia's participation in the LIFE project on the condition that they actively seek subsidies and fulfil annual reporting duties. It is conceivable that this positive decision was influenced by the funding constellation of the LIFE project, where Elia covered <1/3 of the overall €3.2m project budget (€0.9m), compared to €1.1m from LIFE, €0.8m from the Belgian region of Wallonia, and €0.4m from RTE.

After the LIFE project ended, Elia re-entered into negotiations with CREG to request permission to continue IVM implementation through the subsequent 'Ecological Corridors' project. Elia was required to explain why IVM implementation initially requires greater operational costs, but lower costs in the long run. For these discussions, the cost-benefit analyses from the LIFE project was a useful illustrative tool. While the basis remuneration model for grid operators from NRAs traditionally only provides rewards for investments in physical assets, CREG also appreciated the extensive reporting of benefits for biodiversity and local communities, along with anecdotal evidence of improved relationships with stakeholders as further reason for Elia's continuation of IVM. Following this, CREG approved the project for every subsequent tariff period. For a breakdown of project costs, see slide 6 in Johan's presentation. While Elia did not originally intend to allocate funding for communication and biomonitoring, this decision was reversed in recognition of the benefits of being able to A) prove that IVM efforts have positive impacts and B) disseminate these impacts externally at low cost. Johan noted that this reflects that biodiversity and societal impact are ever more important factors for TSOs and DSOs.

Legislation and administrative processes

Belgian legislation regarding forest management varies between Flanders and Wallonia. Flemish legislation is more restrictive and takes a far more protective stance whereby every act of cutting must be authorised in a lengthy bureaucratic process, whereas Walloon legislation is generally permissive of cutting, so long as it is limited and takes place outside protected areas. Indeed, the stringent requirements for permitting and legal impositions (e.g., regarding invasive species) in Flanders were a factor in the LIFE project only being active in the region of Wallonia.

Over time, engagement between project partners and the authorities cultivated an understanding for the myriad benefits of IVM within the latter, to the point that authorities came to promote and expect IVM alongside overhead lines (OHL) as an alternative for underground cables which makes the grid corridors more acceptable and valuable. Against this background, the Flemish authorities and Elia's operational services in Flanders became more receptive to IVM in the region. Furthermore, the Flemish Government has since developed "Criteria for Integrated Nature Management", under which the Agency for Nature and Forests (ANB) and forest-owners draft 'Nature Management Plans" to show compliance. These plans, once accepted, act as planning permission and last for 24 years. Recognisant of the benefits of IVM, the ANB has included ecological corridors into these plans and collaboration with Elia is ongoing to accomplish a "general" management plan for all ecological corridors in Flanders. This process will in future remove the need to request specific cutting permits and allow more freedom in executing actions but could conceivably bring a risk that certain owners will not accept such long-term agreements.

Key Resources

- Presentation on Belgian regulatory context, click here.
- Cost breakdown of LIFE Elia-RTE project, slide 6.
- Presentation on Administrative and funding aspects, click here.

Discussion

Historically, vegetation management has been classified as an operational expenditure (OpEx) – a short-term cost with no real benefits to the company – as opposed to a capital expenditure (CapEx) – which yields long-term benefits to the company.

Generally, the basic grid operator remuneration model does not provide much room for value created by grid operators beyond direct investment in physical assets. This is logical (as conventional vegetation management does constitute a recurring cost without any palpable benefits) but does not leave room for consideration the incalculable benefits of IVM in terms of benefits to biodiversity, socio-economic value creation, and contribution to public acceptance of infrastructure. Furthermore, by stabilising the vegetation, IVM brings a measurable reduction of management costs, which could reasonably posit IVM as an investment with long-term benefits. Accordingly, grid operators expect (or already experience) difficulty in having funds for IVM plans granted according to the stance of their respective national regulatory authority (NRA).

Indeed, some participants expressed that the strict regulatory framework in their Member State is the main impediment in implementing IVM, and that more flexibility in this regard would be a positive development. This is, however, not uniform across Member States and certain NRAs already consider IVM as CapEx. Participants agreed that the current lack of EU-wide harmonisation in how funds for vegetation management are granted to grid operators by NRAs is problematic. Some potential 'solutions' discussed were:

- A centralised source of information of the various remuneration models across the EU.
- Guidance from the European level on appropriate funding models to permit IVM.
- A more harmonised European approach in general (which was also identified as an important precondition for IVM roll-out across the continent).
- Methods to quantify and accurately report the non-financial benefits of IVM – as well as well-presented case studies and evidence for these benefits – would be advantageous for grid operators' interactions with NRAs.

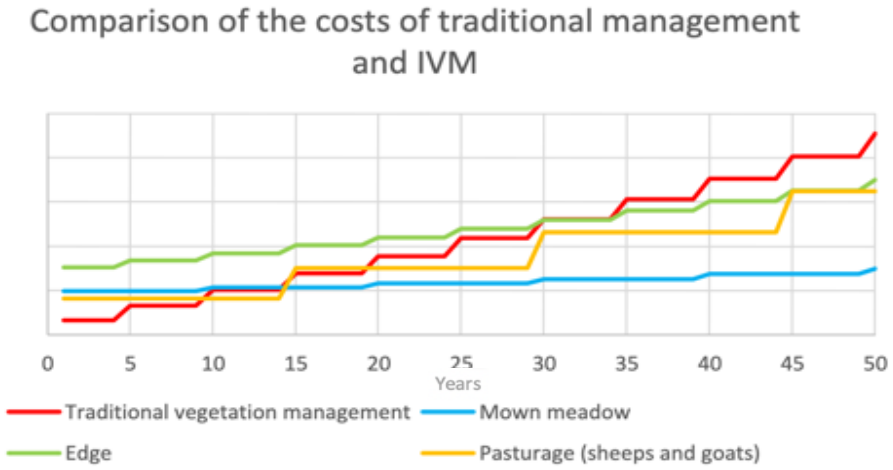
Finally, one participant voiced that they would appreciate more flexibility in terms of legislation and permission for planting trees underneath powerlines and/or replacing felled trees with shrubs. They commented that there should be a greater understanding for and focus on the considerable benefit of these actions (incl. the erection of fences to protect young trees from herbivore browsing), so long as they do not endanger line security.

Session 5: Financial aspects and cost-benefit analyses

While both conventional and integrated vegetation management (IVM) entail a certain amount of staff and material costs, IVM can provide an attractive alternative due to its potential to drive down costs in the long-term. This is due to a shift away from recurring capital-intensive, mechanical (and sometimes chemical) interventions, towards solutions whereby nature 'takes care of itself' and 'win-win' partnerships with local stakeholders eliminate the need for paid contractors and can instead be free-of-charge or applicable for financial assistance from external (often public) sources.

The final session of the workshop sought to dive deep into the financial aspects of IVM implementation for which Aurélie Maebe, Project Leader at Ecofirst, delivered a presentation with reflections from the Belgian LIFE and proceeding Ecological Corridors project.

Under traditional vegetation management, the costs are generated through the removal of vegetation via various actions such as rotary milling, manual felling, pollarding, and pruning. In general, these routine mulching actions must be carried out every three years on average for a cost of around €1,500 per hectare, with higher costs for manual clearings occurring every five years (€6,500/ha). Under IVM, the costs are far more diverse and include actions such as plantation, selective removal of taller-growing trees, mowing and sowing of flower meadows, restoration of moors and peatlands, and digging ponds. While the initial cost here can be relatively high, they often require less frequent and less intense intervention.



A full documentation of the cost-benefit analysis can be found in the cost-benefit analysis of the LIFE-Elia project. For the purpose of this report, it suffices to remark that in all cases analysed in Belgium, IVM was always cheaper than the traditional management and a return on investment was achieved after 15-35 years. Ecofirst also remarked that involving third parties for management plays a considerable role in keeping down costs and ensuring longer-term sustainability.

Key Resources

- Presentation of financial aspects of LIFE Elia-RTE project, click here.
- Cost-benefit analysis of the LIFE Elia-RTE project, click here.

Discussion

Participants agreed that guidance on cost-benefit analyses would be very useful in convincing colleagues and regulators that IVM is a worthwhile endeavour which – despite potentially higher initial costs – reduces costs in the long-term. To this end, the CBA carried out in the LIFE-Elia project should be very useful and is entirely replicable.

As in session four, where questions were raised about how to present the socioeconomic and biodiversity value of IVM to regulatory, several participants commented that it would be beneficial to be able to quantify the economic gains for local communities through IVM, e.g., through access to new pasture or direct remuneration agreements.

It was remarked that there is an increasing tendency to place lines underground and therefore, it might not make sense to implement IVM on all lines. Instead, grid operators should consider the likelihood of a particular line being placed underground before they choose it for IVM implementation. Equally, in decisions about whether to place a line underground – which can imply a range of technical and ecological complications - IVM can be considered as a potential beneficial measure to accompany lines which remain overhead.

Conclusion

This report has sought to summarise the IVM workshops held in Belgium in June 2023. The goal has been to detail learnings from the Belgian experience and document the discussions which ensued among participations regarding their own experiences with IVM implementation in their respective geographical and regulatory contexts.

This chapter will briefly summarise the main priorities identified in the discussions to distil key topics to be addressed in a working group of European grid operators. The key question we are asking here is this: **What do we need to push IVM forward across the EU?**

1. Guidance on how to represent the 'incalculable benefits' of IVM

While the proven myriad benefits of IVM are becoming ever clearer, many participants cited difficulty in accurately representing and communicating these to colleagues and in reporting and disclosure processes. This is especially true for non-financial benefits of IVM, such as socio-economic benefits created for local actors, improved public acceptance, and contributions to nature conservation. Participants expressed a desire for guidance here and mentioned standardised methodologies as useful in enabling them collect and disseminate such benefits. Furthermore, participants agreed that they would benefit from a repository of case studies and examples of successful IVM implementation from a range of contexts. This would allow them to demonstrate in discussions with colleagues and authorities that IVM is indeed being successful implemented in a diverse range of geographical and political contexts.

Targets and obligations at the European level and under international conventions (e.g., the

incoming EU Nature Restoration Law[2] and the Kunming-Montreal Global Biodiversity Framework) provide another strong incentive to clearly record and report the benefits of IVM, specifically for nature restoration. Participants expressed the need for clarity on how to accurately quantify and formally report these contributions, including on the metrics and tools available and those which are 'acceptable' by EU and international standards. Furthermore, some participants reported lacking both in-house ecological expertise to conduct biological surveys and resources to contract expert ecologists to undertake this work.

To address this, we will jointly discuss mechanisms for accurately recording, quantifying, and communicating positive experiences. Within the working group, we will discuss developments at policy level and appropriate approaches in terms of monitoring, reporting and verification schemes (MRV). These discussions will be informed by RGI's ongoing collaboration with the International Union for Conservation of Nature (IUCN). Furthermore, we will discuss methods for working with ecologists and nature conservation organisations, as well as how to address the (perceived) lack of resources. Finally, with a view to providing more evidence and case studies of IVM implementation, RGI will draft a report for publication in 2024 and undertake accompanying communication activities.

2. EU Harmonisation of remuneration and financing mechanisms

Participants expressed that the lack of uniformity between Member States in terms of regulatory remuneration mechanisms for funds spent on (integrated) vegetation management creates reluctance on behalf of grid operators to change the status quo, due to concerns about difficulty in the regulator granting such costs. It was noted that an overview of the various remuneration mechanisms across the EU would be a useful first step, but ultimately, an EU-wide harmonised approach would ease the way for more IVM implementation. Furthermore, participants expressed that they would benefit from more guidance from the EU on the various funding mechanisms available which could be accessed for IVM implementation. This includes direct funding opportunities for IVM implementation, but also schemes by which landowners can receive (public) funding for IVM actions in grid corridors.

This topic will be addressed in the working group and RGI will reflect these discussions in our ongoing engagement at European level.

3. Support on balancing nature restoration with access to grid assets & bird protection

Several grid operators reported having heard concerns among colleagues that increased biological value of grid corridors could prevent grid operators being able to access assets for

[2] On 12th July 2023, MEPs voted in support of the European Commission's proposal to install restoration measures by 2030 to cover at least 20% of all EU land and sea areas within a Nature Restoration Law. At the time of writing, there remain unclarities regarding the exact content and requirements of the law.

maintenance purposes (due to concerns of disturbing nature). It was agreed that access to assets for maintenance purposes must be maintained and Elia cited their actions in this regard (see pg11). Furthermore, the issue was raised that ecological corridors could create an 'ecological trap' by attracting bird species which are susceptible to collision or electrocution with power lines.

Both of these concerns are valid and important. For the former, we will continue to share experiences about how to guarantee access for maintenance alongside restoration actions. For the latter, RGI will draw upon its extensive experience and that of our Members in order to provide guidance on reducing risk for avian species around the grid.

If you are interested in joining the working group or have questions about IVM, don't hesitate to contact **Liam Innis, RGI's Manager – Energy Ecosystems** at liam@renewables-grid.eu.

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