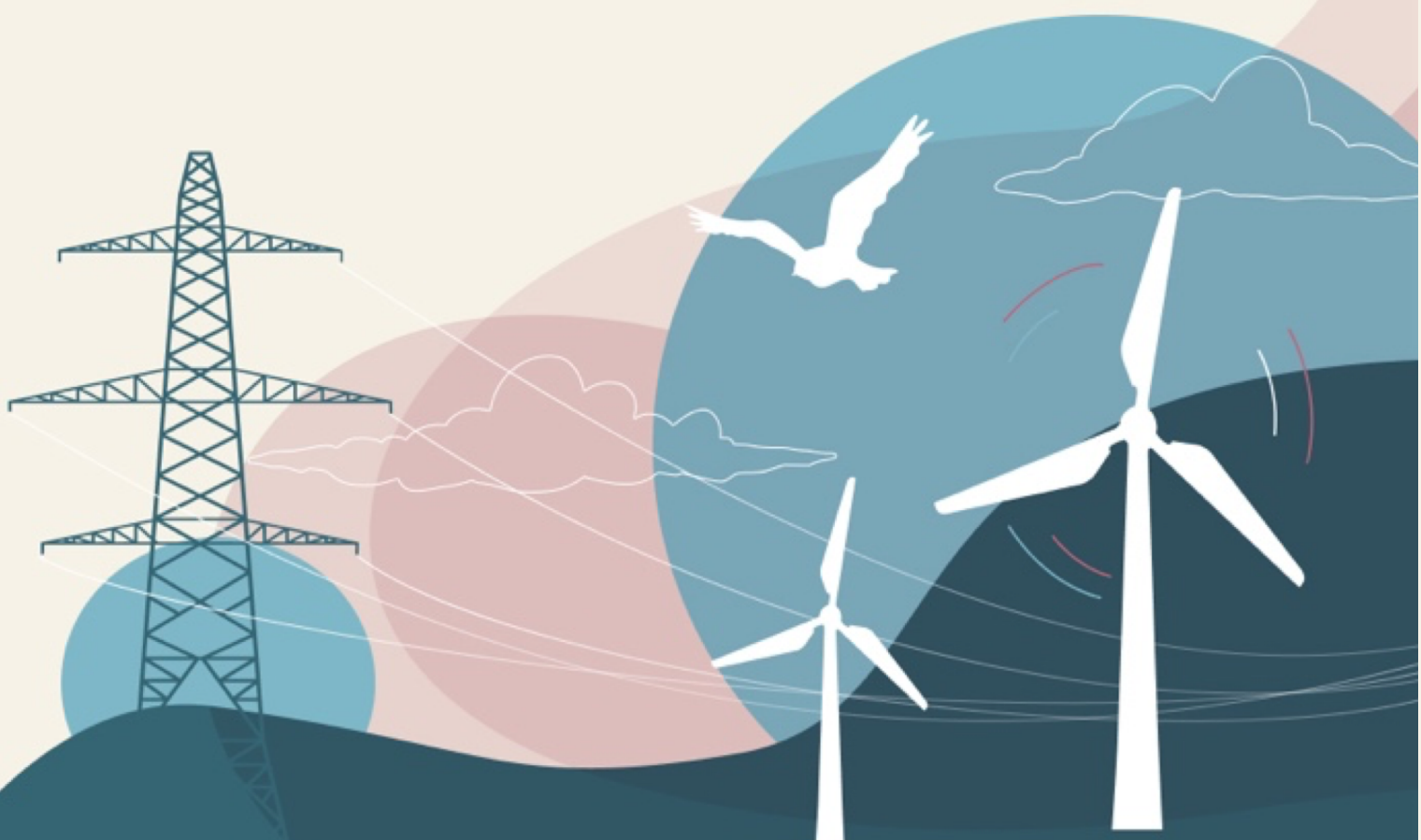
2026

WINGSPAN



WINGSPAN 2026

Panel Discussion Abstracts

Panel I – Derisking Energy: Investing in Nature, Society and Climate Protection

Dr. Nadine Kanu, Vice President of the German Wind Energy Association (BWE)
Olivier Feix, Head of Strategy, Elia Group
Sebastian Bock, Director of Policy, NABU
***Moderator:* Antonella Battaglini, CEO, Renewables Grid Initiative**

An energy transition that moves fast to protect the climate as well as protects and restores nature needs long-term funding, cost-effective projects, and public acceptance. Conversely, investors need certainty, communities need reasons to trust, and nature needs long-term commitment. This panel focused on how these different needs can be reconciled. Bringing together high-level perspectives from the grid sector, wind developers, and the conservation community, the panellists discussed the most pressing issues they see for the energy transition.

All panellists agreed that cooperation and mutual learning are crucial steps to ensure accelerate the energy transition in a way that protects nature and include communities. Broad cooperation and the inclusion of different perspectives, knowledge, and considerations in the entire process, from planning to operation, are essential. This is even more crucial as each local context has its own needs, based on the stage of the energy transition, the local ecology and community.

New challenges arise from wide competition in investment, for the physical parts needed to build infrastructure, as well as increasing electrification and variability in electricity production and usage. Addressing these challenges requires flexibility and close cooperation between production, storage, transmission, distribution, and consumption.

Derisking investments requires not only infrastructure resilience, but also affordability, transparency and robust regulation. Flexibility, data sharing, and meaningful cooperation are all needed to accelerate the energy transition, nature protection, and include society all at once.

Panel II – Nature-positive for Renewables and Grids: Pathways to success

Peter Jones, Sustainability Manager, RWE
Jean-François Godeau, Research and Development Scientist, Ecofirst
Tris Allinson, Senior Scientist, BirdLife International
Robert Fennelly, Lead Senior Ecologist, EirGrid Group
***Moderator*: Gus Schellekens, Director GINGR, Renewables Grid Initiative**

The EU Nature Restoration Regulation commits Europe to restoring 20% of its land and sea by 2030, a goal that can be reached if the energy transition itself becomes nature-positive. Turning that ambition into practice takes collaboration across the energy sector and the conservation community. This panel combined the expertise from wind developers, ecology, civil society and TSOs to discuss how nature-positive solutions can be implemented, ranging from concrete examples of best practices to the enablers.

One of the key elements is data sharing and research. RWE is setting up a lesson learned database to help others in the industry learn from their experience and EirGrid has shared ecological records from 25 projects with their national data centre. Moreover, EirGrid continuously invests in research to support the inclusion of nature around their grid assets, while maintaining operational safety.

Maintaining operational safety and enhancing nature around the grid is also the focus of EcoFirst's long-standing cooperation with the Belgian TSO Elia on Integrated Vegetation Management. This work started with the Elia-RTE LIFE project and has led to the establishment of multiple habitats under power lines over the last 15 years. The experience has also shown how long-term ecological management can be more cost-efficient than conventional clear vegetation cutting and can enhance both nature and engagement with local communities.

From the nature conservation perspective, the mitigation hierarchy remains crucial, starting with avoiding high-risk areas for nature while planning new infrastructure, reducing negative impacts from it, and implementing measures to go achieve nature positive benefits. To support this, the use of sensitivity maps is recommended by BirdLife International, such as their AVISTEP tool, already implemented in several countries around the world.

Presentations – Bridging the gap: Leveraging Data Sharing as a Win-win for Wildlife protection and Renewables Projects

RISKY: Building a Global Open Platform for Wildlife Mortality at Energy Infrastructures

Joana Bernardino, Researcher, BIOPOLIS/CIBIO

Wildlife mortality data from wind farms and power lines are increasingly collected worldwide, but most datasets remain inaccessible and fragmented across environmental reports, unpublished studies, and isolated databases. This lack of accessibility hinders data integration at broad spatial scales, limiting the ability to quantify variability in mortality patterns and develop robust, evidence-based mitigation strategies.

The RISKY project addresses this challenge by compiling, standardizing, and openly sharing wildlife mortality data from transport and energy infrastructures. We will present the first global standardized open-access dataset on wildlife mortality data from wind farms and power lines, comprising more than 70,000 records, and highlight the main patterns emerging from these data. We will also introduce the RISKY web platform, which provides access to standardized mortality records, analytical tools and species sensitivity maps. By promoting open data and standardized workflows, RISKY aims to improve collaboration among researchers, industry, consultants, and public authorities, ultimately contributing to more effective biodiversity conservation alongside energy infrastructure expansion.

Reconciling energy transition with biodiversity: the LIFE Aegypius Return approach to energy infrastructure mitigation

José Pedro Tavares, Director, Vulture Conservation Foundation (VCF)

Portugal is currently undergoing a rapid energy transition, resulting in a surge of new renewable energy projects, particularly wind and solar farms. This shift necessitates the expansion of the national grid, with thousands of kilometers of new high and medium-voltage powerlines required to transport energy. While crucial for climate goals, this infrastructure poses a significant threat to large soaring birds, such as the endangered Cinereous Vulture (*Aegypius monachus*), through increased risks of electrocution and collision.

The LIFE Aegypius Return partners have been developing and sharing technical guidelines aimed at reconciling the expansion of the energy infrastructure with the conservation of the species. Active participation in multiple public consultation processes, participatory sessions, and open meetings has led to numerous invitations to discussion forums, technical meetings and requests for preliminary information.

The project has documented various mortality cases across Portugal linked to power-lines. These incidents serve as primary data to identify mortality hotspots and, conversely, to inform lower-risk "go-to" areas. By integrating GPS tracking data with grid maps, several critical points have been identified where infrastructure could prevent the expansion or survival of Cinereous Vulture colonies. For instance, in Central Portugal, just two mega solar farms would require over 100 km of powerlines. In Southern Portugal, if all planned projects were approved, the recently established breeding colony of Vidigueira would be intersected by several lines, jeopardizing its viability. In response, LIFE Aegypius Return has engaged in extensive mediation with stakeholders and energy authorities to present science-based exclusion buffers and propose specific mitigation and compensation measures. These discussions highlight the vital importance of early-stage dialogue between conservationists and developers, emphasizing the need for precaution, policy integration, and proactive protective measures to safeguard Europe's landscapes and biodiversity.

From Data Silos to Shared Solutions: Collaboration for Bat-Smart Wind Energy

Dr. Mirna Mazija, President of Association for Bat Conservation Tragus, and Director at Supernatural Ltd.; Scientific Focal Point for Croatia for UNEP/EUROBATS

Wind energy and bat conservation do not need to be competing goals. When developers, researchers, consultants, NGOs and public authorities share data and experience, projects can be planned with confidence and an understanding of where risks may occur and how they can be avoided. Better understanding helps identify suitable locations, focus on monitoring where it is most needed and design mitigation measures that protect bats without placing unnecessary limits on energy production. Yet valuable information often remains within individual projects or organisations, preventing system from learning from it. Drawing on experience of working across science, industry and conservation, this presentation will explore how trust and openness can turn scattered knowledge into better decisions. Sharing both data and lessons learned creates opportunities for continuous improvement across projects. When collaboration begins early, it can reduce impacts, improve project success and support wind energy that contributes to both climate and biodiversity goals.

RKR model: From the spatial use of breeding birds to wind turbine-specific collision probability

Rainhard Raab, BSc, Deputy Managing Partner, TB Raab GmbH

Assessing collision risk for breeding birds at wind turbines requires modelling space use, as breeding place distance alone does not adequately describe turbine exposure. The Space Use Collision Risk Model (RKR model) integrates species-specific habitat use, flight heights, temporal flight activity, and meso- and micro-avoidance with site- and turbine-specific parameters in a probabilistic framework. It is based on GPS telemetry supplemented by camera, laser-rangefinder, breeding place, land-use and turbine data.

Originally developed for Red Kite, the methodology was extended to White-tailed Eagle, White Stork, Black Kite and European Honey-buzzard; an additional species-specific model was developed for Eastern Imperial Eagle. The RKR methodology covers six species. It enables turbine-specific risk estimates, quantifies uncertainty and supports comparisons among configurations e.g. in repowering projects. The documented calculation procedure makes the methodology transparent and comprehensible to third parties. Legal determination of a significant increase in mortality risk remains separate from the scientific risk calculation.

Keywords: Space Use Collision Risk Model; RKR model; wind energy; collision risk; GPS telemetry; space use; flight behaviour; avoidance behaviour; breeding birds

AVISTEP: Turning the Tool into Lessons and Practical Applications

Larissa Biasotto, Senior Science Officer – Birds & Energy, BirdLife International

This presentation shares practical experiences applying AVISTEP – The Avian Sensitivity Tool for Energy Planning, focusing on how to use, interpret, and translate the tool into meaningful insights for decision-making. Following a brief introduction to the tool and its purpose, the presentation will explore lessons learned from its practical application, including approaches to interpreting results and communicating findings to different stakeholders. Particular attention will be given to data availability and sharing, and how these challenges shaped the tool's application.

A joint TSO-Academia perspective from a decade of applied research and knowledge transfer on bird-power line interactions

Ricardo Martins, Researcher and coordinator of partnership with REN, BIOPOLIS/CIBIO; Margarida Almeida, Department of Quality, Environment and Safety, REN

The rapid expansion of electricity transmission grids driven by the energy transition is increasing the need to reconcile infrastructure development with biodiversity conservation. In Portugal, REN, the Transmission System Operator (TSO), has accumulated over last decades significant data from environmental impact assessment, including pre- and post-construction monitoring and voluntary initiatives on bird-power line interactions, including the long-term use of pylons by white storks for nesting.

To unlock the scientific value of this knowledge, REN established a partnership with BIOPOLIS/CIBIO since 2015, combining biodiversity research with its application in operation. Research has focused on three main areas: understanding infrastructure impacts, improving monitoring and mitigation practices, and assessing risks and opportunities associated with bird nesting on pylons. Scientific outputs have been translated into operational guidance, project-specific technical advice, monitoring and mitigation best practices, training, and biodiversity strategy development. This decade-long collaboration demonstrates how sustained TSO-Academia partnerships can bridge research and practice, supporting evidence-based decisions and more sustainable energy infrastructure.

Spotlight: Global Initiative for Nature, Grids and Renewables (GINGR)

Annika Lilliestam, Coordinator GINGR, Renewables Grid Initiative

To tackle climate change, we need to decarbonise fast. That means a rapid expansion of renewable energy and the grids that connect it. But decarbonisation alone is not enough. Nature is key for a successful energy transition. It is not a side issue, but part of the infrastructure of a sustainable energy system. Yet too often, energy, climate and biodiversity goals are treated as competing priorities. The Global Initiative for Nature, Grids and Renewables (GINGR) – a collaboration between (IUCN) and the Renewables Grid Initiative (RGI) - takes a different approach: nature and renewable energy infrastructure must be considered together, from the start.

At GINGR, we bring the energy and conservation communities together around a shared challenge: how do we build the infrastructure we urgently need while helping nature thrive? Starting with offshore wind and electricity grids, GINGR is turning Nature- and People-Positive ambition into practical approaches that can be measured, applied and tested as real-world projects are planned and delivered.

We know that none of this works without communities. A successful transition requires their knowledge, trust and support – and must deliver real benefits for them too. We help project developers and governments put Nature- and People-Positive approaches into practice with knowledge, guidance and examples of good practice. Join us to test and apply these approaches in real projects, learn what works, and help make Nature- and People-Positive infrastructure the global norm.

Presentations – From Vision to Action: Successful Nature-Positive Grid Infrastructure

From Voluntary Action to Lasting Impact – APG's Challenges in Nature-Positive Habitat Management

Karin Göglburger, MSc, team member Permitting Procedures and Sustainable Habitat Management at the Austrian TSO, Austrian Power Grid (APG)

The presentation highlights how APG creates and further enhances the ecological value of its infrastructure through targeted nature and habitat management and species conservation projects. Drawing on practical examples, it presents effective measures, lessons learned and current challenges. It also illustrates how voluntary ecological initiatives can sometimes lead to legal uncertainty or additional obligations in permitting procedures. To safeguard voluntary engagement in the long term, practical regulatory instruments such as "Natur auf Zeit" ("Temporary Nature") are therefore needed. Such approaches allow ecological improvements to be implemented without creating permanent legal obligations or disadvantages.

Nest Boxes on Electricity Pylons – A Conservation Success Story for the Saker Falcon in Slovakia

Lucia Deutschová, project manager at Raptor Protection of Slovakia

The population of saker falcon (*Falco cherrug*) in Slovakia underwent a fundamental shift from the 1990s onward, resettling from mountains and floodplain forests into agricultural landscapes. A decisive tool behind this change was the installation of nest boxes on electricity pylons, providing an alternative to declining natural nesting sites. Nest boxes on pylons achieved nearly twice the average breeding productivity of natural nests in trees. From 12 nesting pairs in western Slovakia in 2000, the population reached 49 pairs by 2025. By contrast, the eastern Slovak population peaked at 13 pairs in 2009–2010 and has since declined to 4 pairs by 2025. Nearly 400 nest boxes are now installed on transmission lines across western and eastern Slovakia. Since 2020, 20 nest boxes have been added on distribution pylons under the LIFE Danube Free Sky project. A key factor behind this success is the long-term cooperation with the relevant grid operators.

Spotlight Session – Innovations in monitoring: Enhancing conservation around energy infrastructure

Advancing environmental monitoring strategies for energy infrastructure

Dr. P.J. Stephenson, Conservation & Sustainability Consultant,
Chair, IUCN SSC Species Monitoring Specialist Group,
Research Fellow, University of Lausanne

In this presentation I explore the reasons why renewable energy actors collect environmental data during the planning, operation, maintenance, repowering and decommissioning of onshore wind farms and associated grid infrastructure. I look at business frameworks, standards and best practices that influence environmental monitoring strategies, and the key steps required to collect and use data; from defining spatial and temporal scales, to identifying target habitats and species, to choosing methods and tools. Case studies are presented to demonstrate the application of new technologies. By measuring positive and negative environmental impacts, well-designed monitoring schemes can facilitate adaptive management towards Nature-positive outcomes, as well as enhance sustainability reporting and disclosure.

Real-time monitoring of wildlife can also inform immediate mitigation action, such as on-demand shutdowns. I conclude by identifying key issues to address going forward, including the adoption of common biodiversity indicators, the use of counterfactuals, and enhanced collaboration and data sharing.

How AI is rapidly changing the way we monitor and mitigate wildlife and renewable energy conflicts.

Dr. Hendrik Reers, Managing Director of OekoFor GmbH

Artificial intelligence is reshaping how we detect and reduce the impact of renewable energy systems on wildlife. AI-supported acoustic and visual systems are increasingly used both before and after construction, in nacelle and ground-based monitoring. Automated systems can identify animals acoustically or visually and collect valuable data during the planning phase, as well as control how well compensatory measures work. During operation, real-time collision-avoidance approaches can shut down turbines on demand to mitigate conflicts. How well do these systems actually perform, where do they still fall short and what can we expect from them in the future?

Presentations – From Monitoring to Mitigation: Technical innovations for Nature Protection

Beyond Compliance: Lessons from France's Shutdown-on-Demand and Curtailment Measures for Onshore Wind

Robin Dixon, Head of Environmental Expertise, France renouvelables

France has pioneered operational mitigation measures for onshore wind farms, from curtailment protocols reducing bat mortality to real-time Shutdown-on-Demand systems protecting raptors and other sensitive species. This presentation shares field experience implementing these measures across French wind projects, examining what has worked, what hasn't, and why. It addresses the practical challenges developers face: the financial burden of monitoring and curtailment technology, the difficulty of coordinating between developers, environmental consultants and regulators, and the regulatory uncertainty that can discourage innovation beyond minimum compliance. Drawing on these lessons, the talk outlines emerging best practices that go beyond standard Avoid-Reduce-Compensate requirements, including adaptive management, data-sharing between projects, and closer collaboration with conservation stakeholders, to build a more effective and scalable model for reconciling wind energy development with nature protection.

Durability Matters: Building Grid Operator Trust Through Long-Term Avian Mitigation Effectiveness.

Brian McGowan, Founder Scientias-Energy

Avian mitigation measures are increasingly deployed on electricity networks to reduce collision, electrocution and wildlife-related outage risk. However, installation alone does not guarantee sustained performance. Grid operators must have confidence that mitigation systems will remain effective and without negative grid operational consequences throughout their intended service life under UV exposure, temperature cycling, wind, pollution, mechanical loading and routine maintenance conditions.

This presentation examines why durability and demonstrated long-term effectiveness are essential to building operator trust in avian mitigation technologies. It considers the relationship between materials selection, installation quality, environmental ageing, inspection, maintainability and end-of-life performance, and how premature degradation can undermine both biodiversity outcomes and utility confidence.

Drawing on international utility experience and materials-engineering principles, the paper poposes a lifecycle approach to mitigation specification, qualification and monitoring. The objective is to move beyond short-term installation metrics towards durable, auditable solutions that deliver measurable wildlife protection and network-risk reduction over decades.

Tracking juvenile Black Storks to identify powerline exposure hotspots along their migratory routes

Robin Gailly, Project officer – Ornithology, Natagora
Ingrid Marchand, SafeLines4Birds coordinator, LPO France

Black Storks are not born migrants: they become migrants. Their first journeys are a critical learning period, during which juveniles are particularly vulnerable to anthropogenic threats. Within LIFE SafeLines4Birds, 105 juvenile Black Storks (*Ciconia nigra*) were GPS-tagged at nests in France and Belgium and tracked to African wintering grounds and during subsequent migrations. GPS data were used to characterize flight behaviour and combined with power-line networks to identify exposure hotspots. Compared with second-year birds, first-year birds flew at lower altitudes and showed more fragmented autumn migrations, with more frequent and longer stopovers, highlighting a rapid improvement in migratory performance with age. Mortality was strongly concentrated in first-year birds: 39 of the 42 recorded deaths involved 1A individuals, with autumn migration accounting for over half of all mortality events.

Power-line electrocution represented 26% of first-year mortality. Exposure hotspots were concentrated along the western migration corridor through France and Spain.

Comprehensive Bird Protection Solutions for EG.D Czech Republic, Member of the E.ON Group

Ing. Jan Volek, Head of Grid Management, EG.D, s.r.o. – member of E.ON Group

EG.D in the Czech Republic uses an integrated approach to bird protection. Our activities focus on three main challenges: preventing bird electrocution on power lines, reducing bird collisions with overhead wires, and managing stork nests located on electricity infrastructure. To address these issues, we work closely with the Ministry of the Environment and other stakeholders. Together, we develop guidelines and practical methods to improve bird safety while maintaining a reliable electricity network.

Protective devices are installed on power poles and lines to reduce the risk of injury to birds. Special markers are also used to make wires more visible and help prevent collisions. For stork nests, we implement technical solutions that protect both the birds and the power system. Our goal is to support biodiversity and contribute to the long-term protection of bird populations across the Czech Republic.

Apple Airtags Reveal Post-Rehabilitation Outcomes for Great Horned Owls

James F. Dwyer, EDM International, Inc., Research Scientist and Front Range Community College, Ornithology Instructor

Tracking studies are foundational to raptor management, but sample sizes are often limited by cost. If less expensive trackers were available, sample sizes could increase. Tracking is rarely incorporated in assessing post-rehabilitation outcomes because resources are expended on care. We wondered whether Airtags might be effective tracking tools for urban raptors, and whether Airtags might help identify post-rehabilitation outcomes. We deployed Airtags on 5 rehabilitated hatch-year Great Horned Owls (*Bubo virginianus*) in Fort Collins, CO after treating injuries sustained falling from nests as nestlings (n = 4) and West Nile Virus (n = 1). We collected data three times daily, tracking three birds for one month each, and one bird for four months before those birds died. After 11 months, we are still tracking the previously West Nile-infected bird at the time of this writing. Airtags facilitated development of home range estimates, and prompt identification and recovery of mortalities.

Poster Abstracts

Incorporating biodiversity into LCA: quantifying the impacts of power lines on bird and mammal diversity with Norway as a case study

Dr. Dafna Gilad, Researcher, Norwegian Institute for Nature Research (NINA)
Dr. Roel May, Senior researcher, Norwegian Institute for Nature Research (NINA)
Norwegian Institute for Nature Research (NINA)
Prof. Dr. Francesca Verones, Professor, Norwegian University of Science and Technology (NTNU)

The rapid development of renewable energy and the promotion of electrification to decarbonise sectors require electricity networks to be upgraded and expanded to relieve bottlenecks and facilitate the energy transition. At the same time, countries have committed to conserving and restoring biodiversity. Power lines fragment habitats, reduce habitat size, and can cause collisions and electrocutions of flying species, resulting in the death or injury of hundreds of millions of birds worldwide. Life cycle assessment (LCA) is a common tool to support the energy transition. It evaluates the environmental impacts of a product or service across its life cycle. Its holistic approach enables LCA to identify hotspots across life cycle stages and reveal trade-offs among environmental impacts. Although LCA has been widely applied to energy systems, biodiversity impacts have often been overlooked because of a lack of methodologies, particularly for power lines.

We developed LCA models to quantify three main impacts of overhead power lines on biodiversity: collision, electrocution, and habitat conversion and fragmentation. These models incorporate species-area and species-habitat relationships to evaluate the effects of power lines on species richness, using species distribution maps and species-specific data. The spatially explicit models were demonstrated in Norway as a case study. The results showed that mammal diversity, especially of smaller mammals, was mostly affected by habitat conversion and fragmentation, whereas bird diversity was mainly affected by collisions. Overall, the distribution network had a greater impact on species richness than the transmission grid because of its larger extent. Impacts were highest in forested regions, particularly in southeastern Norway.

The models introduce the first methodology to quantify species richness loss associated with electricity transmission. As LCA is a comparative tool, the models can be used to compare alternative routing options and support strategic planning. Although

the study was designed for Norway, the methodology can be adapted to any region if sufficient data are available.

Black Stork Tag (BST) Project: Investigating Black Stork (Ciconia nigra) ecology and wind farm interactions using high-resolution GPS telemetry

Louise De Neyer, project manager, Ecofirst SC
Ophelia Noël, project manager, Ecofirst SC

Understanding the movements of large soaring birds and their interactions with infrastructure related to the energy transition is a major challenge, both for improving knowledge of their ecology and for guiding conservation strategies. For the Black Stork (*Ciconia nigra*), knowledge regarding movement patterns, spatial use, and interactions with human-made infrastructure – particularly wind farms – remains limited, mainly due to the limited availability of high-resolution tracking data.

The Black Stork Tag (BST) project, coordinated by Ecofirst in partnership with Renner Energies Belgium and Luminus, aims to fill this gap by equipping twelve adult breeding Black Storks with GPS-GSM transmitters by the end of 2027. These trackers record high-frequency GPS positions together with several variables, including altitude, speed, heading, and accelerometry data, providing an unprecedented level of detail on the species' movements and behaviour. So far, eight individuals have been equipped, accumulating approximately 159,000 locations between Europe and West Africa.

With additional support from France Renouvelables, we aim to address two complementary research questions by the end of 2026. The first focuses on migration and aims to characterize migratory strategies and interactions between the birds and human-made infrastructure, particularly wind farms. With a total of 114 wind farms crossed during the 2025–2026 migration, a key objective is to assess barrier effects and avoidance behaviours through analyses of flight trajectories, altitude, and speed using Generalized Linear Mixed Models (GLMM), Integrated Step Selection Functions (iSSF), and Hidden Markov Models (HMM).

The second research area concerns the breeding season. It will characterize home ranges, the selection of nesting and foraging habitats, and movement patterns throughout the breeding cycle. The presence of individuals nesting near existing wind farms – up to 134 turbines for one breeding individual close to the German border – or planned developments also provides a rare opportunity to assess, using a Before-After (BA) approach, Hidden Markov Models (HMM), Resource Selection Functions

(RSF), Integrated Step Selection Functions (iSSF), and hierarchical Generalized Linear Mixed Models (GLMM) – the potential interactions and effects of these infrastructure projects on space use and potential habitat loss.

Beyond advancing fundamental knowledge of Black Stork spatial ecology, this project aims to improve our understanding of the species' movement ecology and provide robust scientific evidence for assessing interactions with human-made infrastructure, thereby helping reconcile biodiversity conservation with renewable energy development.

Practical Insights from RWE's Onshore Biodiversity Positive Pilots

Peter Jones, Sustainability Manager, RWE

This paper presents insights from RWE's efforts to integrate voluntary biodiversity positive actions into onshore wind farms. The objective of our efforts was to determine the approach to deliver RWE's Biodiversity Policy which requires new assets to aim for biodiversity positive outcomes at new assets by 2030.

RWE undertook a series of pilot projects to identify the most practical, cost-effective approach to deliver biodiversity positive outcomes across Europe and Australia, focusing on 12 development projects and 8 operational assets. All pilot s used RWE's Biodiversity Enhancement Catalogue to select positive actions appropriate to each site, after application of the mitigation hierarchy.

Two approaches were tested: (1) a positive contribution where additional voluntary measures are taken after regulatory requirements are finalised and tracked through the number and type of actions delivered; and, (2) a net-positive impact approach, based on metric-led assessment of percentage biodiversity change (i.e. 1%, 10% and 50%), analogous to the UK Biodiversity Net Gain (BNG) methodology.

Results demonstrate that implementing voluntary enhancement measures at operational assets represents a practical and cost-effective pathway to delivering a measurable net-positive contribution, with over 100 measures deployed across 8 assets within 12 months of piloting. An additional benefit of this approach is it enables clear differentiation between regulatory requirements and the additional actions which RWE volunteers. Monitoring of the biodiversity impact achieved is ongoing and includes the use of AI tools that assess ecological outcomes over time.

In contrast, net-positive impact approaches were associated with higher projected capital costs at increased net-gain targets (notably at 10% and 50%). They also highlighted practical challenges related to input data requirements and sensitivity of results to baseline assumptions.

The findings have informed, in part, RWE's strategic approach to delivering voluntary biodiversity net-positive outcomes, including a practical target for a net-positive contribution approach by 2030 that can be measured and disclosed.

Red Kite (*Milvus milvus*) protection in the EUROKITE LIFE project in Hungary

Előd Győrig BirdLife Hungary
Péter Spakovszky, BirdLife Hungary, andTB Raab GmbH (Technisches Büro für Biologie)
László Haraszthy, BirdLife Hungary, and Pro Vértes Nonprofit Zrt.

The Hungarian red kite population occurs at the periphery of the species' geographical range. During the 1970s, the species became extinct throughout Hungary, as it did in several neighbouring countries. The first breeding pair was recorded again in 1990. Since then, breeding-season monitoring has been coordinated by the Raptor Conservation Section of BirdLife Hungary. Following an initially slow recovery, 44 breeding pairs or clearly defined territories had been documented by 2025. Between 1990 and 2025, at least 319 young successfully fledged.

The first survey of wintering red kites was conducted as part of the project in 2018, following the discovery of a large communal roost at which 39 individuals were counted. In January 2025, surveys were carried out at 36 locations. No red kites were recorded at eight of these sites, whereas a total of 556 individuals was confirmed at the remaining 28 sites. By July 2026, 44 red kites had been fitted with tracking devices in Hungary within the framework of the EuroKite project. Telemetry data indicate that red kites tagged in Hungary exhibit partial migration and generally undertake short-distance movements.

Documented causes of mortality and injury among red kites in Hungary include shooting, poisoning, capture in traps used for game management, electrocution, and predation by northern goshawks. A major focus of the project was the systematic monitoring of the medium-voltage electricity distribution network and the identification of high-risk sections. Public awareness of the red kite and the broader conservation of birds of prey was promoted through several publications. In addition, 105 outreach and information events were organised for wildlife managers, students, and other interested stakeholders. In response to the occurrence of red kites at

landfill sites in Hungary, a dedicated conference was organised to address the associated conservation issues. A national species conservation action plan for the red kite has also been prepared.

Electrocution on Medium-Voltage Power Poles as a Major Threat to the Reintroduced Northern Bald Ibis Population

Bernhard Gönner, BSc, Project Administrator LIFE Northern Bald Ibis, Schönbrunn Zoo
Dr. Johannes Fritz, Project Manager LIFE Northern Bald Ibis, Waldrappteam Conservation & Research

Electrocution on medium-voltage power lines is a leading cause of human-induced mortality for large birds globally and poses a critical threat to the ongoing reintroduction of the Northern Bald Ibis (*Geronticus eremita*) in central Europe, a species classified as Endangered on the IUCN Red List.

Since 2002, hand-reared birds have been trained via human-led migration to establish a self-sustaining migratory population breeding in Austria and Germany and wintering in Italy and, since 2023, also in Spain. Population viability analyses show the reintroduced population, currently around 320 individuals, is not yet self-sustaining without active management, making the reduction of anthropogenic mortality a priority for the EU-funded 'LIFE Northern Bald Ibis' project (LIFE20 NAT/AT/000049 – LIFE NBI).

Between 2014 and 2024, 103 electrocution deaths were recorded, accounting for 31.2% of all mortality events with a known cause, consistent with flyway-scale findings that electrocution is one of the leading human-induced cause of death for large migratory birds in Europe. Most incidents occurred in Italy and Austria, where no mandatory bird-safe power pole legislation exists, in stark contrast to Germany, where such requirements have reduced electrocution rates substantially.

High-risk poles were identified by combining GPS-derived habitat-use data from the reintroduced population with structural risk assessments, focusing on poles bearing horizontal insulators and complex branching configurations that allow large-bodied birds to bridge live and earthed components. A five-step workflow guided the selection and retrofitting of power poles across three Austrian federal states, surrounding the breeding colonies of Kuchl, Rosegg and Burghausen. In collaboration with local grid operators and the government of Salzburg, 170 high-risk poles were retrofitted using cover caps, insulation tubes, insulated cages and insulation tape, exceeding the project's target of 160 poles. No electrocution incidents have been recorded at secured

poles to date, although the full population-level impact of these measures requires further monitoring.

These findings highlight the need for harmonised, legally binding standards requiring bird-safe power infrastructure. The growing risk of vegetation fires caused by avian electrocution adds further urgency. As an indicator species, the Northern Bald Ibis illustrates a much broader conservation problem. We therefore call on policymakers and network operators to pursue the ultimate goal of systematically securing power poles across entire landscapes for the benefit of bird conservation.

Wind energy development and the conservation of the greater mouse-eared bat (*Myotis myotis*): integrating movement ecology, habitat modelling and population dynamics for evidence-based planning

Pierrette Nyssen, Head of department, Ecofirst SC
Jean-François Godeau, project manager, Ecofirst SC
Arnaud Beckers, project manager, CSD Ingénieurs
Julien Otoul, Head of department, CSD Ingénieurs

The acceleration of wind energy development across Europe has increased the need for robust scientific evidence to support environmental planning and permitting while ensuring effective biodiversity conservation. Among forest bat species, the greater mouse-eared bat (*Myotis myotis*) occupies a particular position. Although the species is generally considered to have low collision susceptibility, concerns remain regarding potential indirect effects of wind farms through habitat disturbance and the loss of suitable foraging areas. These concerns are especially pronounced in Belgium, where M. myotis receives considerably greater attention during environmental assessments than in most other European countries.

To address these knowledge gaps, we conducted 3 complementary studies in Belgium between 2023 and 2026, linking individual behaviour, habitat suitability and long-term population dynamics.

The first study investigated the spatial ecology and flight behaviour of lactating females equipped with miniaturised GPS loggers. Individuals typically foraged in forests within 10 km of their roosts. Their transit flights occurred at a median altitude of approximately 15 m above ground, while hunting flights within or below the forest canopy to the ground. Overall, less than 10% of individuals reached an altitude of more than 36 m above the vegetation, providing quantitative guidance for forest wind-energy projects.

Second, species distribution models were developed using existing acoustic monitoring data to predict the distribution of M. myotis and other forest bat species throughout Wallonia. Ensemble modelling combing multiple algorithms allowed to produce regional maps supporting strategic planning.

The third study assessed whether wind-energy development has influenced the demographic trajectories of M. myotis at the European scale. Long-term monitoring data from maternity colonies in 6 countries were combined with spatial information on wind turbines and analysed using population models.

Despite increasing turbine density over recent decades, no significant relationship was detected between wind farm development and colony trends. Instead, landscape changes, particularly the progressive conversion of agricultural land into urban areas, emerged as stronger predictors of population dynamics.

Together, these studies indicate that current concerns regarding M. myotis should shift from direct turbine impacts towards habitat quality and landscape management. While there could be good arguments in favour to a cautious approach for this species during wind-energy permitting, our results suggest that conservation measures would benefit from being based on quantitative evidence of habitat use, spatial habitat suitability and long-term demographic responses of more bat species.

Mapping artificial land surfaces to accelerate nature-positive renewable energy deployment: a spatial decision support framework from the LIFE REALS project

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LIFE REALS is a LIFE Programme project supporting the implementation of the revised Renewable Energy Directive (RED III) by strengthening the capacity of public authorities to facilitate renewable energy deployment on artificial land surfaces. Working across Bulgaria, Hungary, Romania, Spain and Ukraine, the project addresses permitting, spatial planning, social and financial challenges through improved knowledge, geospatial evidence and policy recommendations that promote low-conflict renewable (solar and wind) energy development.

The poster will present the methodology and first results of the spatial analysis of the LIFE REALS project, which develops harmonised national maps of Artificial Land Surfaces (ALS) across five target countries - Bulgaria, Hungary, Romania, Spain and Ukraine. Using Copernicus and Corine Land Cover datasets, complemented by national spatial information, the spatial analysis identifies and categorises artificial

surfaces with potential for utility-scale solar and onshore wind development, focusing on former mining and extraction sites, industrial areas, landfills and transport infrastructure.

The maps will provide a spatial evidence base that can support permit-granting authorities, investors, local administrators and policymakers in implementing Article 15c of the RED III in prioritising renewable energy development on artificial and built surfaces. By directing investments towards artificial land, the approach can help reduce pressure on natural and semi-natural ecosystems, limit land-use conflicts and contribute to reconciling climate mitigation with biodiversity conservation.

Beyond identifying potential sites, the mapping framework forms part of a broader decision-support system that integrates policy analysis, permitting barriers and socio-economic considerations. The resulting knowledge base will support the designation and governance of renewable acceleration areas, required under the RED III Directive, improve transparency during site selection, and inform recommendations for overcoming administrative and market barriers that currently discourage investments on artificial land despite their environmental advantages.

The poster will showcase the comparative ALS maps produced for the participating countries and associated quantitative indicators describing the extent, distribution, and typology of identified artificial land surfaces. The presented work will illustrate how integrated geospatial analysis can translate European policy objectives into practical planning tools, supporting a faster, lower-conflict and more sustainable energy transition, while promoting nature-positive renewable energy deployment.

