Wind4Bio

Increasing the Social Acceptance of Wind Energy

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AIII.1: Code of Conduct for businesses in the wind energy sector to adopt ecosystem and biodiversity protection measures

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Code of Conduct for businesses in the wind energy sector to adopt ecosystem and biodiversity protection measures

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Executive Summary

This document is a Code of Conduct for businesses in the wind energy sector, which serves as a comprehensive guide for integrating ecosystem and biodiversity protection into wind energy projects. It aligns wind farms development with environmental sustainability principles and promotes responsible practices across all project phases. The Code of Conduct consists of the following:

- An introduction, describing the Wind4Bio project and its objectives.
- The guiding principles which are the environmental responsibility, sustainability, transparency and continuous improvement.
- The environmental impact assessment, which is essential to identify and mitigate potential impacts on air, water, soil, and biodiversity.
- A description on project design and planning, including site selection and mitigation measures from the project initiation, along with adaptive management, ensure minimal ecological disruption and long-term sustainability.
- Aspects that need to be considered during the construction phase to minimise wildlife disturbance and ensure habitat protection.
- The operation and maintenance phase, whereby continuous monitoring and adaptive management during operation addresses unforeseen impacts and ensures ongoing wildlife protection.
- Decommissioning and habitat restoration to return the site to its natural state and support biodiversity.
- Description of the reporting process to ensure transparency, and training programs to equip personnel with the knowledge to implement biodiversity protection measures effectively.
- A description of legal compliance, to adhere to legal standards through internal audits which ensure compliance with environmental regulations.
- An extensive summary, which includes the key principles and a commitment to continuous improvement.

1. Introduction

The social acceptance of wind energy in the EU is a critical factor in the successful deployment and expansion of renewable energy projects. Despite the broad consensus on the need for clean energy to combat climate change, wind energy projects often face significant resistance from local communities and stakeholders. The focus of local oppression ranges from aesthetic and noise impacts to concerns about potential environmental damage and economic disruption. Addressing these issues requires a comprehensive approach that includes transparent communication, community engagement, and demonstrable benefits to local populations. One of the EU major current challenges on wind energy exploitation is to demonstrate that the transition to this renewable energy source is not only technologically and economically viable but also socially sustainable.

1.1 Wind4Bio: Overview

Wind4Bio is an innovative project which aims at: a) the convergence of wind energy and biodiversity policies and practices, b) the enablement of dialogue mechanisms with the civil society and concerned stakeholders, and c) the improvement of collaboration with the wind energy sector at local level in Western Greece, Latvia, and Poland. Specifically, the project seeks to address the concerns of local communities regarding the impact of wind power installations on biodiversity by fostering a collaborative approach among public authorities, NGOs, civil society, and the wind energy sector.

The primary objectives of Wind4Bio are to increase the deployment rate of wind farms, thereby expanding wind power capacity and reducing carbon emissions in the participating countries. Additionally, the project aims to enhance the local implementation of national biodiversity strategies, support just transition efforts in regions heavily dependent on fossil fuels and improve public perception and political support for wind energy. Overall, Wind4Bio aspires to establish a balanced approach that supports both renewable energy growth and biodiversity preservation by addressing biodiversity concerns throughout the lifecycle of wind farms and involving civil society in identifying and mitigating biodiversity threats.

1.2 Activity A.III.1: Overview

Activity A.III.1 focuses on developing a comprehensive Code of Conduct for businesses in the wind energy sector, aimed at integrating ecosystem and biodiversity protection measures into the design, deployment, operation, and decommissioning stages of wind farm projects. The Code is designed according to the findings and results of the Wind4Bio project and prescribes specific actions to enhance biodiversity protection in compliance with EU and national legislation. Key components include stricter environmental impact assessments prior to farm deployment, more effective biodiversity monitoring, the implementation of threat mitigation measures, and detailed habitat rehabilitation plans post- decommissioning, such as rewilding constructed roads.

The developed Code of Conduct focuses on raising the businesses' awareness of environmental impacts and enhancing their

ability to mitigate biodiversity risks. In the long term, the widespread adoption of this Code is expected to significantly reduce the environmental and biodiversity impact of wind farms, thereby boosting public acceptance and support for wind energy initiatives.

> "One of the EU major current challenges on wind energy exploitation is to demonstrate that the transition to this renewable energy source is not only technologically and economically viable but also socially sustainable."

2. Guiding principles

There are four fundamental guiding principles for businesses operating at the wind farm deployment sector (i.e. wind farm developers) regarding biodiversity protection. These principles are environmental responsibility, sustainability, transparency, and continuous improvement.

2.1 Environmental responsibility

Environmental responsibility is a cornerstone of sustainable wind energy development. It encompasses the commitment to minimise negative impacts on the environment and prioritises the conservation of biodiversity. This principle is based on the implementation of practices that reduce habitat destruction, pollution, and carbon emissions. Wind energy projects should integrate environmental considerations into every phase of their lifecycle, from site selection to decommissioning.

Environmental responsibility is based on the conduction of thorough Environmental Impact Assessments (EIAs) by the wind farm developers. These assessments should identify potential adverse effects on local ecosystems and biodiversity, proposing measures to mitigate them. Developers are encouraged to use state-of-the-art technologies and practices, such as wildlife sensitivity mapping and the deployment of wildlife-friendly turbine designs, to minimise the environmental impact of wind farm installations.

Furthermore, continuous monitoring and adaptive management are essential components of environmental responsibility. This involves regular monitoring of the wind farm's impacts on local wildlife and habitats, and management practices' adaptation based on the findings. To this end, wind energy projects can ensure that they remain environmentally responsible throughout their operational life, contributing positively to both renewable energy goals and biodiversity conservation.

2.2 Sustainability

Sustainability in wind energy development is translated in meeting the current energy needs without compromising the ability of future generations to meet their own needs. This principle requires a balance between economic, social, and environmental goals, therefore wind energy projects should be designed and operated in ways that are economically viable, socially acceptable, and environmentally sound.

A sustainable wind energy project should incorporate life cycle thinking, considering the environmental impacts of all stages from construction to decommissioning. This includes using materials and technologies that have lower environmental footprints. Additionally, sustainability involves the restoration of sites post-decommissioning, ensuring that habitats are restored, and ecosystems are rehabilitated.

Sustainable practices also involve engaging with local communities and stakeholders throughout the project's lifecycle. Wind energy projects can build stronger community relations and support by awareness raising activities such as campaigns and info-days events. This approach enhances the project's social acceptance.

2.3 Transparency

Transparency is an essential principle for building trust and accountability in the wind energy sector. External transparency involves open communication with stakeholders, including local communities, regulatory bodies, and environmental groups, about the potential impacts and benefits of the project. Additionally, the internal transparency regards the organisation's employees. Transparent practices include sharing information about project plans, environmental assessments, and mitigation strategies.

The external transparency consists of regular updates and reports, highlighting both successes and areas needing improvement. External transparency also involves responsiveness to stakeholder inquiries and feedback, demonstrating a commitment to dialogue and collaboration.

In addition, internal transparency within the organisation is important. Employees should be informed about company policies, goals, and performance metrics. This internal clarity fosters a culture of accountability and ensures everyone is aligned with the company's environmental and sustainability objectives.

2.4 Continuous improvement

Continuous improvement is a dynamic principle that ensures wind energy projects remain effective and sustainable over time. It involves regularly evaluating and enhancing processes, technologies, and practices to achieve better environmental and operational outcomes. Wind farm developers should establish systems for ongoing assessment and feedback, identifying opportunities for innovation, operational efficiency and sustainability.

A key aspect of continuous improvement is learning from experience and adapting to new challenges and information. This can involve the conduction of regular audits, the participation in research, and staying updated on industry best practices. Companies should also encourage a culture of innovation, where employees are empowered to suggest improvements.

Collaboration and knowledge-sharing with other organisations, researchers, and stakeholders can also drive continuous improvement. To this end, wind farm developers can create and adopt new solutions that enhance biodiversity protection and sustainability. This principle ensures that wind energy projects evolve to meet changing environmental, social, and regulatory demands.

3. Environmental Impact Assessments (EIAs)

EIAs are critical tools for ensuring wind energy projects develop sustainably. These assessments analyse the project's impact on air, water, soil, and wildlife, and should involve both scientific rigor and public participation to reach informed decisions and minimise environmental pollution.

3.1 Scope of EIAs

Comprehensive EIAs, which assess the impacts of project proposals, are crucial for identifying and mitigating potential environmental impacts of wind energy projects. These assessments should cover all phases of the project, from site selection to decommissioning, and consider a wide range of environmental factors, including wildlife, water resources, soil stability, and air quality.

A thorough EIA involves baseline studies to understand the existing environmental conditions before any development begins. This includes mapping local biodiversity, assessing the presence of protected species and habitats, and identifying ecological corridors. Through this baseline data, potential impacts can be predicted, Key Performance Indicators (KPIs) can be set, and monitoring and mitigation strategies can be designed to minimise harm.

The effectiveness of EIAs depends on their scope and detail. Developers should engage multidisciplinary teams to conduct these assessments, ensuring that all relevant environmental aspects are considered. Public participation is also crucial. The involvement of local communities and stakeholders in the EIA process can provide valuable insights and enhance the legitimacy and acceptance of the project. Comprehensive EIAs not only help in avoiding environmental damage but also in gaining regulatory approvals and community support.

3.2 Biodiversity criteria of EIAs

Biodiversity criteria should be a central focus of EIAs for wind energy projects. The assessment of the potential impacts on local wildlife and habitats is essential to ensure the protection of biodiversity. This assessment should identify key biodiversity areas and species that are particularly sensitive to the impacts of wind energy development.

Biodiversity criteria should include considerations for both terrestrial and aquatic ecosystems. For instance, the placement of wind turbines should avoid critical habitats for birds and bats, and offshore wind farms should consider impacts on marine life and migratory patterns. Effective mitigation strategies, such as creating buffer zones and using wildlife-friendly turbine designs, should be developed based on these criteria.

Developers should use advanced tools and methodologies, such as geographic information systems (GIS), remote sensing, and species distribution models to enhance the accuracy of biodiversity assessments. Regular monitoring should be conducted to track the actual impacts on biodiversity post-construction, and adaptive management strategies should be employed to address any unforeseen consequences.

3.3 Stakeholder consultation

Stakeholder consultation is a vital component of the EIA process. Engaging with local communities, environmental groups, and regulatory authorities helps to ensure

that all relevant perspectives are considered. This inclusive approach enhances the quality of the assessment and fosters broader acceptance of the project.

Effective stakeholder consultation involves clear and open communication, providing stakeholders with timely and accurate information about the project and its potential impacts. Wind farm developers should therefore organise public meetings, workshops, and information sessions to facilitate dialogue and gather input. Feedback from stakeholders should be documented and incorporated into the EIA process.

> "Wind energy projects can contribute to broader conservation goals and maintain ecological balance by prioritising biodiversity in the EIA process."

4. Project design and planning

Careful planning is crucial for wind energy projects to achieve a balance between clean energy production and environmental responsibility. This involves meticulous site selection that prioritises low-impact locations and integrates mitigation measures from the very beginning of the project.

4.1 Site selection

Site selection is a critical step in the planning of wind energy projects. The choice of an appropriate location can significantly reduce environmental and social impacts. Wind farm developers must conduct thorough site assessments, considering factors such as wind resources, land use, biodiversity, and proximity to communities. The appropriate location can be selected through a sensitivity assessment, which is the assessment of the sensitivity of the local ecosystem (i.e. fauna and flora) to exogenous disruptions, such as the establishment of wind farms (detailed description of the sensitivity assessment process can be found in DI.3.1).

Environmental considerations should be at the forefront of site selection. Areas with high ecological value, such as protected habitats or regions with endangered species, should be avoided. The potential for habitat fragmentation and the cumulative impacts of multiple wind farms in the area must also be considered.

In addition to environmental factors, socio-economic aspects are important in site selection. Projects should aim to minimise disruption to local communities and land users. Engaging with local stakeholders during the site selection process can provide valuable insights and help identify suitable locations.

4.2 Mitigation measures

Mitigation measures are strategies implemented to reduce the negative impacts of wind energy projects on the environment. These measures should be identified, set, and tailored during baseline studies established during EIAs, to address specific environmental concerns. Common mitigation strategies include adjusting the siting of turbines to avoid critical habitats, implementing wildlife monitoring programs, and using technology to deter wildlife from turbine areas.

Developers should adopt an adaptive management approach to effectively mitigate impacts. This involves continuously monitoring environmental conditions as well as the effectiveness of mitigation measures and adjusting as necessary. For instance, if bird collision rates are higher than anticipated, additional measures such as modifying turbine operations during peak migration periods can be implemented.

The incorporation of horizontal measures, such as maintaining natural vegetation buffers and managing construction activities to minimise habitat disturbance, can also be beneficial.

5. Construction phase

Wind farms can disrupt wildlife during their construction phase. Therefore, wind farm developers should plan carefully and avoid construction during sensitive times like breeding seasons. They should also use techniques that minimise disruption and protect nearby habitats. This includes creating buffer zones, controlling erosion to protect water quality, and communicating environmental protection measures to construction workers.

5.1 General considerations

During the construction phase of wind energy projects, minimising disturbance to the environment is paramount. Construction activities can have significant impacts on local ecosystems, including habitat destruction, noise pollution, and soil erosion. Therefore, developers should implement best practices and environmentally sensitive construction techniques.

Careful planning of construction activities can help reduce environmental disturbances. For example, the use of existing roads and minimising the creation of new access routes can reduce habitat fragmentation and soil compaction. Additionally, proper waste management practices should be in place to handle construction debris and prevent contamination of the environment. Overall, developers can ensure that the construction phase has minimal adverse effects on local ecosystems by adopting these strategies.

5.2 Seasonal considerations

Seasonal considerations are crucial during the construction phase to protect local biodiversity. Construction schedules should be aligned with the life cycles of local wildlife to avoid critical periods such as breeding, nesting, and migration. This requires detailed knowledge of the local ecology and careful planning.

In regions with significant seasonal variations, construction activities should be timed to minimise environmental impacts. For example, in areas with sensitive wetland habitats, construction should be avoided during the wet season to prevent soil erosion and water contamination.

Developers should also consider the impact of seasonal weather conditions on construction activities. Extreme weather events can exacerbate environmental impacts and pose risks to construction workers. Implementing flexible construction schedules and contingency plans can help manage these challenges and ensure that environmental protection measures are effective year-round.

5.3 Erosion control

Erosion control is a critical aspect of environmental management during the construction phase. Construction activities can disturb soil and vegetation, leading to increased erosion and sedimentation in nearby water bodies. Effective erosion control measures are necessary to protect soil and water quality and prevent habitat degradation.

Erosion control measures include the installation of silt fences, sediment traps, and erosion control blankets to stabilise disturbed soil. Maintaining vegetation cover and promptly revegetating disturbed areas can also help prevent soil erosion.

Additionally, constructing temporary water diversion channels can manage runoff and reduce the potential for sediment transport.

Monitoring and maintenance of erosion control measures are essential to ensure their effectiveness throughout the construction phase. Regular inspections should be conducted to identify and address any failures or areas of concern.

6. Operation and maintenance phase

Wind energy projects require rigorous environmental monitoring during operation and maintenance. The use of advanced technologies together with stakeholder engagement allow to track ecological impacts (i.e. wildlife mortality and habitat health) and inform adaptive management strategies. This data-driven approach ensures wind farm sustainability and fosters trust through transparent reporting. Additionally, community involvement strengthens monitoring effectiveness by incorporating local knowledge.

6.1 Monitoring

Continuous monitoring is a fundamental component of the operation and maintenance phase of wind energy projects. This component is structured according to the baseline studies and KPIs set during EIAs. Monitoring provides valuable data on the environmental impacts of the project, such as wildlife interactions with turbines, habitat changes, and noise levels. This information is crucial for assessing the effectiveness of mitigation measures and making informed decisions about operational adjustments.

Monitoring procedures should be designed to track key environmental indicators and detect any adverse effects promptly. For instance, regular bird and bat surveys can help identify collision hotspots and inform turbine curtailment strategies. Acoustic monitoring can detect changes in noise levels that may affect local wildlife and communities.

The data collected through continuous monitoring should be analysed and reported transparently to stakeholders, including regulatory agencies and local communities. This fosters accountability and trust, ensuring that the project remains compliant with environmental standards and responsive to stakeholder concerns.

6.2 Adaptive management

Adaptive management during the operation and maintenance phase ensures that wind energy projects can respond effectively to new information and changing conditions. This approach involves regularly reviewing monitoring data, assessing the performance of mitigation measures, and making necessary adjustments to management practices. Adaptive management is particularly important for addressing unforeseen environmental impacts and improving operational efficiency. For example, if monitoring data indicates higher-than-expected bird or bat mortality rates, adaptive management might involve adjusting turbine operations, such as implementing temporary shutdowns during peak activity periods. Similarly, changes in habitat conditions might require modifications to land management practices to enhance habitat quality and biodiversity.

Successful adaptive management relies on a strong foundation of continuous monitoring, stakeholder engagement, and a willingness to learn and innovate. Overall, wind energy projects can maintain high environmental standards and adapt to emerging challenges by having a flexible and proactive management approach.

6.3 Wildlife protection

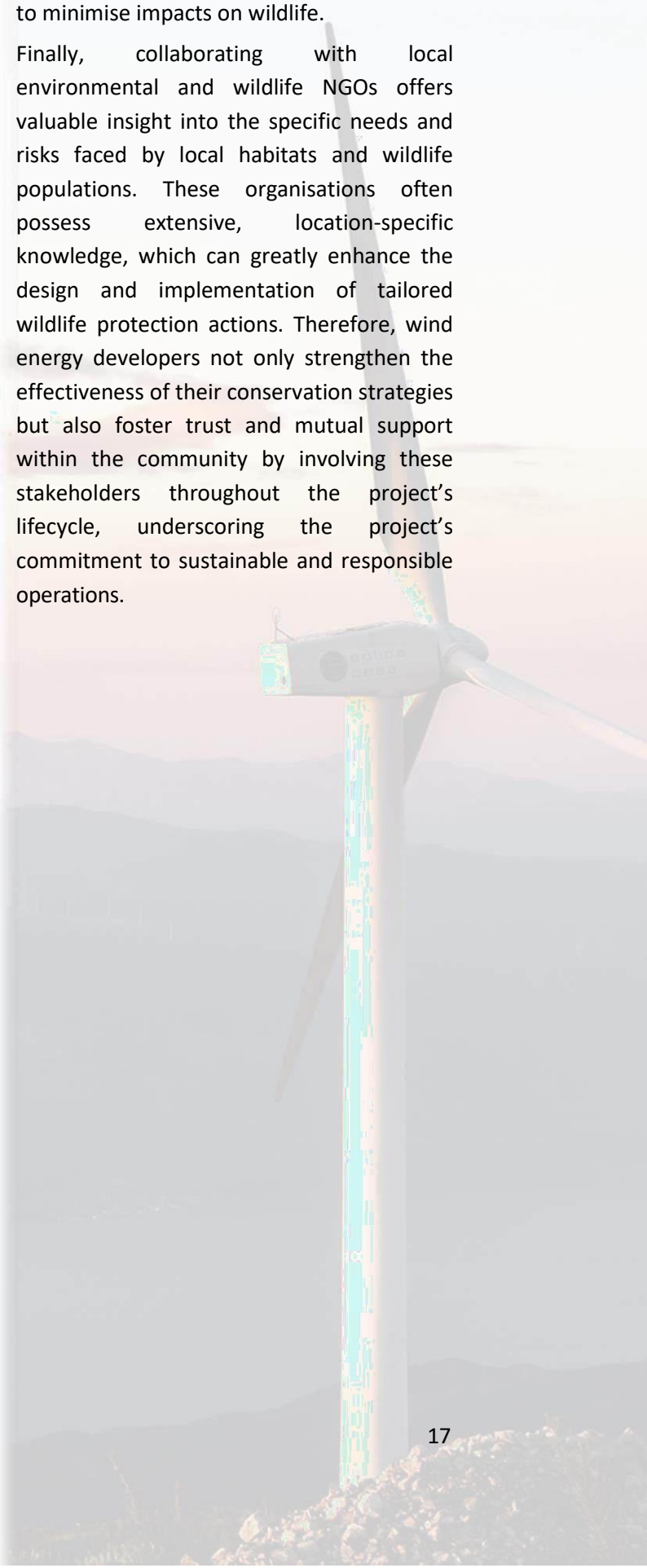
Wildlife protection strategies should be integrated into all aspects of project

operations, from turbine maintenance to land management practices. These strategies aim to reduce the risk of wildlife collisions, habitat disturbance, and other adverse effects.

One effective approach is the use of wildlife detection and deterrence technologies. For instance, radar and camera systems can detect the presence of birds and bats near turbines, triggering automatic shutdowns to prevent collisions. Acoustic deterrents can be used to discourage bats from approaching turbines. Additionally, maintaining vegetation buffers and managing land use around turbines can provide safe habitats for local wildlife.

Additionally, regular training for maintenance personnel on wildlife protection measures and protocols is essential. This ensures that all staff are aware of and can effectively implement strategies to minimise impacts on wildlife.

Finally, collaborating with local environmental and wildlife NGOs offers valuable insight into the specific needs and risks faced by local habitats and wildlife populations. These organisations often possess extensive, location-specific knowledge, which can greatly enhance the design and implementation of tailored wildlife protection actions. Therefore, wind energy developers not only strengthen the effectiveness of their conservation strategies but also foster trust and mutual support within the community by involving these stakeholders throughout the project's lifecycle, underscoring the project's commitment to sustainable and responsible operations.



> "Protecting wildlife during the operation and maintenance phase is crucial for minimising the ecological impact of wind energy projects."

7. Decommissioning phase

Responsible decommissioning is a critical aspect of the lifecycle of wind energy projects. It involves dismantling and removing infrastructure, such as turbines and foundations, and restoring the site to its natural state or to a condition agreed upon with stakeholders. Decommissioning plans should be developed early in the project lifecycle and updated regularly to reflect technological advances and environmental considerations.

Decommissioning should be conducted in a way that minimises environmental impact. This includes carefully dismantling structures to avoid unnecessary habitat destruction and managing waste materials responsibly. Recyclable materials should be separated and processed, and hazardous materials should be disposed of in accordance with environmental regulations.

The local communities and stakeholder engagement is essential during the decommissioning phase. This ensures that their concerns and preferences are considered, and that the site rehabilitation aligns with local land use plans and conservation goals. A responsible decommissioning plan and execution by the wind farm developers can result in fulfilling their environmental commitments and leaving a positive legacy.

7.1 Habitat restoration

Habitat restoration is a key component of site rehabilitation following the decommissioning of wind energy projects. The goal is to restore the site to its natural state or enhance its ecological value, while promoting biodiversity and ecosystem health. Restoration efforts should be guided by ecological principles and tailored to the specific conditions and needs of the site.

Restoration activities may include replanting native vegetation, restoring soil health, and re-establishing natural hydrological patterns. These actions help to recreate habitats that support local wildlife and contribute to broader conservation objectives. In areas where wind energy projects have created artificial habitats, such as ponds or wetlands, these features should be maintained or enhanced to support biodiversity.

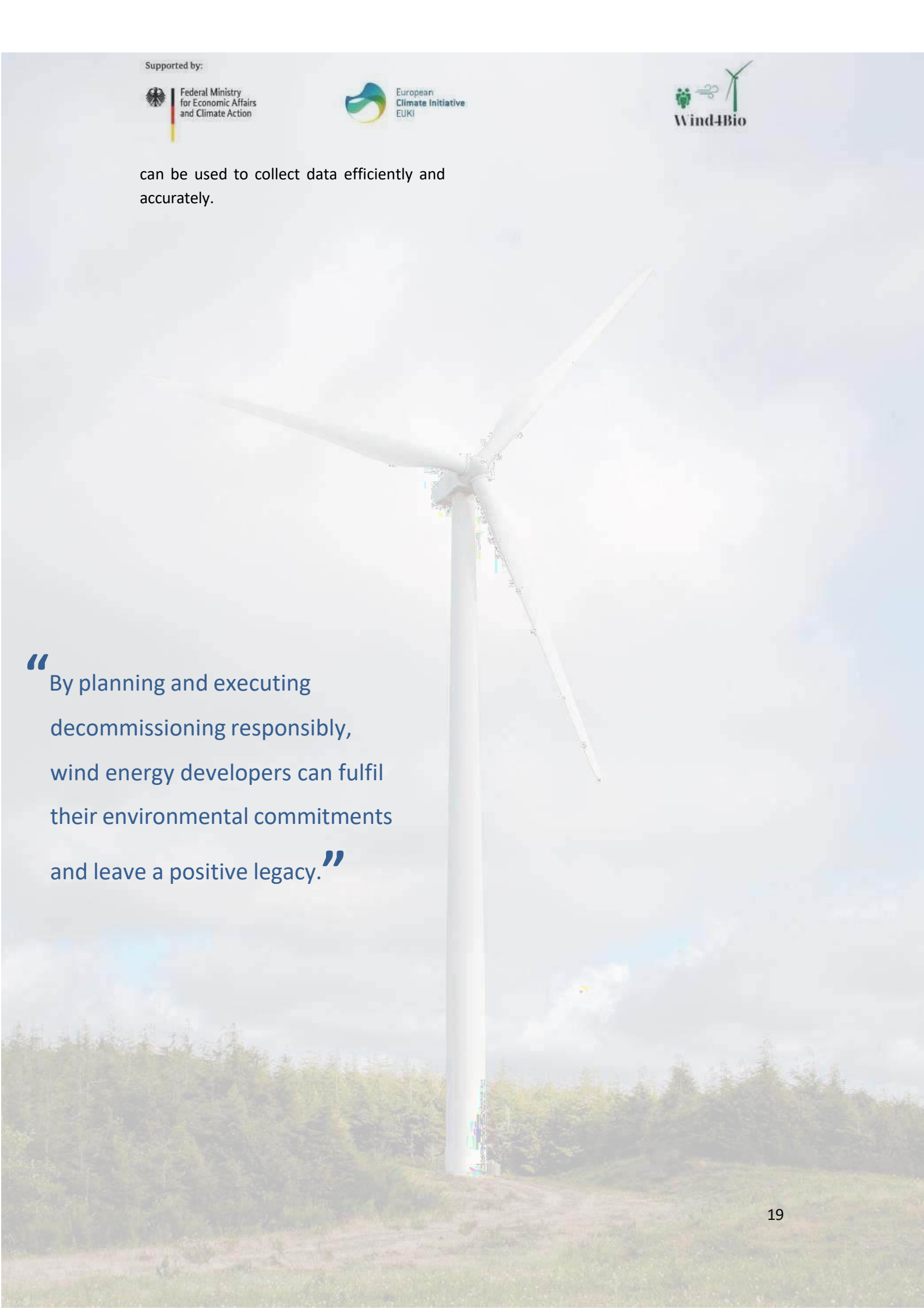
Monitoring the success of habitat restoration efforts is crucial to ensure long-term ecological recovery. Regular assessments should be conducted to evaluate vegetation growth, soil stability, and wildlife presence. Adaptive management strategies should be employed to address any challenges and improve restoration outcomes.

7.2 Long-term monitoring

Long-term monitoring is crucial for assessing the success of decommissioning and habitat restoration efforts, and is based on the baseline conditions and restoration outcomes established during the EIA phase. Continuous monitoring provides valuable data on the recovery of the site and the effectiveness of restoration measures. This information can be used as a lessons-learnt data for future projects and improve decommissioning practices.

Monitoring programs should be designed to track key environmental indicators in the long run, such as vegetation cover, soil health, and wildlife presence. To this end, advanced technologies such as remote sensing and automated monitoring systems,

can be used to collect data efficiently and accurately.



> "By planning and executing decommissioning responsibly, wind energy developers can fulfil their environmental commitments and leave a positive legacy."

8. Reporting

Regular reporting is a critical component of transparency and accountability in wind energy projects. It involves the systematic documentation and communication of environmental performance, mitigation measures, and monitoring results. Regular reports provide stakeholders with up-to-date information on the project's impacts and the effectiveness of its environmental management strategies.

These reports should be comprehensive and accessible, covering key aspects such as wildlife monitoring data, habitat restoration progress, and compliance with environmental regulations. Regular reporting not only enhances accountability but also helps build trust with stakeholders, including local communities, regulatory bodies, and environmental organisations.

To ensure the credibility of the reports, independent audits and third-party evaluations should be conducted periodically. This provides an objective assessment of the project's environmental performance and adherence to best practices. Overall, wind farm developers can demonstrate their dedication to environmental responsibility and foster positive relationships with stakeholders, by committing to regular and transparent reporting.

8.1 Stakeholder engagement

Stakeholder engagement is essential for ensuring that wind energy projects are socially and environmentally responsible. Effective engagement involves regular communication and consultation with all relevant stakeholders, including local communities, government agencies, environmental organisations, and other interested parties. This process helps to identify and address stakeholder concerns and incorporate their input into regular reporting.

Stakeholder engagement should be an ongoing process throughout the project's lifecycle, from planning and construction to operation and decommissioning. Methods for engagement can include public meetings, workshops, surveys, and information sessions.

8.2 Public accessibility

Public access to the report data and other information is crucial for maintaining transparency and accountability in the wind energy sector. Wind energy developers should make environmental reports, monitoring data, and other relevant information readily available to the public. This openness builds trust and demonstrates a genuine commitment to environmental stewardship.

Providing public access to information involves using various communication channels, such as websites, social media, and public information centres. Developers should also consider using interactive tools and platforms that allow the public to access and explore data. Transparency in reporting helps to build public support and trust.

In addition to providing access to information, wind energy developers should encourage public participation and feedback. This can involve organising public consultations, surveys, and community meetings to gather input and address concerns. Engaging with the public in a

meaningful way helps to ensure that wind energy projects are developed and operated in a manner that is responsive to local needs and values.

> "Public access to information is crucial for maintaining transparency and accountability in the wind energy sector."

9. Training and awareness

Effective biodiversity protection within the wind energy sector hinges upon a two-pronged approach: training and awareness. This section outlines these crucial elements. Capacity building programs target employees and stakeholders, equipping them with the requisite knowledge and skills to implement biodiversity protection measures. Awareness programs serve to educate a broader audience, including employees, stakeholders, and the public, on the significance of biodiversity and the ongoing efforts to safeguard it. Through this comprehensive approach, the wind farm developers can foster a culture of environmental responsibility and ensure the sustainable implementation of biodiversity protection initiatives.

9.1 Capacity building

Capacity building is essential for ensuring that all stakeholders, including project staff and local communities, have the knowledge and skills needed to effectively manage and support wind energy projects. This involves providing training and resources on environmental management practices, monitoring techniques, and sustainable development principles.

Training programs should be tailored to the specific needs of different stakeholder groups. For instance, project staff might receive training on wildlife monitoring and mitigation strategies, while local communities could benefit from workshops on the environmental and economic benefits of wind energy.

Overall, wind farm developers can enhance the effectiveness and sustainability of their projects by investing in capacity building. Well-informed and skilled stakeholders are better equipped to support and implement environmental management strategies.

9.2 Awareness programs

Raising awareness about biodiversity and environmental issues is crucial for fostering a culture of sustainability within the wind energy sector. Wind farm developers should implement awareness programs that educate employees, stakeholders, and the public about the importance of biodiversity protection and the measures being taken to achieve it.

Awareness programs can include educational campaigns, public information sessions, and community outreach activities. Developers should use a variety of communication channels, such as social media, websites, and printed materials, to reach a broad audience. The inclusion of storytelling and visual content in such channels can help make complex information more accessible and engaging.

In addition to external awareness programs, internal awareness and engagement should be promoted. This can involve organising environmental events, such as biodiversity-themed workshops, to raise awareness and encourage participation. Internal communication channels, such as newsletters and intranet sites, can also be used to share information and highlight success stories.

10. Legal compliance

Legal compliance is a fundamental requirement for wind energy projects, ensuring that all activities adhere to national and international environmental laws and regulations. Compliance involves meeting the standards and requirements set forth by regulatory bodies, including those related to environmental impact assessments, wildlife protection, and habitat conservation.

Developers must stay informed about relevant legal frameworks and ensure that all project activities comply with applicable regulations. This includes obtaining necessary permits and licenses, conducting required environmental assessments, and implementing mitigation measures as mandated by law. Regular audits and inspections should be conducted to verify compliance and identify any areas of non-compliance.

Failure to comply with legal requirements can result in significant penalties, project delays, and damage to the developer's reputation. Therefore, a proactive approach to legal compliance, including continuous monitoring and engagement with regulatory agencies, is essential for the successful and responsible development of wind energy projects.

10.1 National and EU regulations

Compliance with national regulations involves adhering to EIA procedures, obtaining necessary permits, and ensuring that project activities do not endanger local biodiversity. Each country within the EU may have specific requirements that need to be addressed at the planning stage to prevent delays and additional costs. For example, projects must navigate zoning laws, conservation directives, and renewable energy targets specific to their jurisdiction. Early and thorough engagement with national regulatory bodies can streamline the permitting process and identify potential legal hurdles before they become significant issues.

In addition to national regulations, wind energy projects within the EU must also comply with overarching EU directives and regulations. The EU has established a comprehensive legal framework to promote sustainable energy development and environmental protection, including the Birds and Habitats Directives[1], the Renewable Energy Directive[2], and the Environmental Impact Assessment Directive[3]. These regulations require member states to implement measures that protect biodiversity and promote renewable energy sources. Compliance with these EU directives often involves detailed documentation, regular reporting, and periodic reviews to demonstrate adherence to environmental and social commitments.

The alignment with EU regulations ensures legal compliance as well as it contributes to

1 https://op.europa.eu/en/publication-detail/-/publication/7230759d-f136-44ae-9715-1eacc26a11af

2 https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-directive_en

3 https://environment.ec.europa.eu/law-and-governance/environmental-assessments/environmental-impact-assessment_en

achieving the EU's broader sustainability goals. The integration of EU best practices and standards can enhance the project's reputation and acceptance across member states. Additionally, being proactive in meeting EU regulatory requirements can facilitate smoother project approvals and reduce the risk of legal challenges, thereby supporting the long-term success and sustainability of wind energy projects.

10.2 Community engagement

Engaging with local communities and stakeholders is not only a legal necessity in many EU Member States but also a best practice that can lead to smoother project implementation. Legal frameworks often mandate public consultations and the inclusion of community feedback in the project planning process. This approach fulfils legal obligations and fosters a sense of ownership and support among the community members. Effective stakeholder engagement involves transparent communication, addressing concerns, and incorporating feedback into project plans. Developers can mitigate opposition and enhance the social acceptance of wind energy projects by building strong relationships with local communities.

Policy recommendations emphasise the importance of establishing mechanisms for effective communication and cooperation between public authorities and civil society. This includes setting up local advisory groups and community decision-making panels to ensure that community interests are represented throughout the project lifecycle. Such mechanisms facilitate continuous dialogue, helping to identify and resolve issues early. Proactive engagement can lead to innovative solutions that balance project goals with community needs, ultimately contributing to the project's long-term success and sustainability.

10.3 Internal audits

Internal audits are a critical tool for ensuring compliance with environmental policies and regulations within wind energy projects. These audits involve systematic reviews of project operations, environmental management practices, and compliance with legal requirements. Internal audits help identify areas of improvement and thus support adaptive management practices.

Internal audits should be conducted regularly by designated staff members who have ideally undergone certified training in audit procedures. This process includes reviewing documentation, inspecting project sites, and interviewing project staff to ensure adherence to protocols. The findings from these internal audits should be documented in detailed reports that identify any areas of non-compliance and recommend corrective actions. These audits function as preparatory reviews, helping to maintain standards and readiness for external assessments.

10.4 Corrective actions

Corrective actions are necessary to address any non-compliance or deficiencies identified during internal audits or monitoring activities. These actions involve implementing measures to rectify issues, prevent recurrence, and enhance overall environmental performance. Effective corrective action processes are essential for maintaining compliance and improving the sustainability of wind energy projects.

The first step in the corrective action process is to identify the root cause of the issue. This

involves a thorough investigation and analysis of the factors contributing to non-compliance or environmental harm. Once the root cause is identified, appropriate measures should be implemented to address the issue and prevent future occurrences.

Corrective actions should be documented and monitored to ensure their effectiveness. Regular follow-up and evaluation are necessary to confirm that the actions taken have resolved the issue and achieved the desired outcomes.

11. Summary

The development and operation of wind energy projects present a unique opportunity to contribute to sustainable energy goals while preserving and enhancing biodiversity. This Code of Conduct for biodiversity protection in wind energy provides comprehensive guidelines to ensure that wind farm developments are environmentally responsible, transparent, and aligned with best practices for biodiversity conservation.

11.1 Summary of key principles

Throughout this document, key principles such as environmental responsibility, sustainability, transparency, and continuous improvement have been emphasised. These guiding principles form the foundation of a robust environmental management framework that integrates rigorous environmental impact assessments, thoughtful project design and planning, and adaptive management practices. The adhesion to these principles allows wind farm developers to minimise adverse environmental impacts and contribute positively to biodiversity conservation.

11.2 Commitment to continuous improvement

The wind energy sector is dynamic, with ongoing advancements in technology and environmental science. This Code of Conduct highlights the importance of continuous review and stakeholder feedback to adapt to new knowledge and changing conditions. A commitment to continuous improvement allows wind farm developers to ensure that their practices remain effective and relevant, addressing emerging environmental challenges and incorporating innovative solutions.

11.3 The path forward

As the global community increasingly turns to renewable energy sources to combat climate change, the responsibility to protect and enhance biodiversity becomes ever more critical. Wind farm developers, regulators, and stakeholders must work collaboratively to ensure that wind energy projects are not only sources of clean energy but also stewards of the natural environment. Through adherence to this Code of Conduct, the wind energy sector can set a benchmark for environmental stewardship, demonstrating that renewable energy and biodiversity conservation can go hand in hand.