

Nature- and Environmentally Friendly Energy Transition (NEFET)

Background Paper for the Joint EPA/ENCA Online Workshop on 6 November 2023, including practical examples amended after the Workshop

At the informal **Meeting of Environment and Energy Ministers 10-12 July 2023**¹, a concept note was discussed: **Deployment of renewable energies - the necessary balance in its implementation with territorial management and the protection and conservation of biodiversity**. It discusses the deployment of renewable energies and the protection of biodiversity and the need to strike a balance with territorial management. It highlights the regulatory framework set forth by the EU Green Deal to achieve climate neutrality and preserve the environment. The paper stresses the urgency of addressing the energy crisis and increasing energy autonomy/security. Though, it emphasizes the importance of considering the preservation and restoration of natural ecosystems, as well as the social acceptance of renewable energy projects. It acknowledges that the EU's success in decarbonization hinges on having a coherent regulatory framework that includes active citizen and territorial participation. The paper suggests addressing the interrelationship of climate, biodiversity, health, and their impact on territories and peoples. Achieving a balance between renewable energy and preserving and developing natural and cultural heritage are expected to help garner greater social support. The European Union can meet its renewable energy and environmental goals, besides implementing regulatory frameworks, by fostering dialogue and collaboration between citizens and territories.

The **EPA Network Interest Group Sustainability Research and Solutions (IG EPAS)** facilitates strategic collaboration among EPAs, to support urgent, transformative sustainable changes in society and the economy. By capitalizing on capacities of EPAs, joint research will improve and facilitate knowledge on a systemic, actionable and transversal level and anticipate the research and innovations questions of tomorrow². In a workshop on 3rd July 2023, IG EPAS members and partners reflected that renewable energy production may conflict with the achievement of other environmental targets and human rights of indigenous people (e.g. zero pollution, biodiversity protection and restoration, circularity and sustainable consumption and production), although this is not necessarily always the case. A systematic approach, encompassing different geographic scales, can make all the difference. Yet, segmentation at the spatial, political and institutional level, which exists in most countries, often hinders a systemic approach and should be overcome. Accelerating the energy transition to achieve carbon neutrality may slow or undermine progress in biodiversity conservation, and therefore, potential conflicts need to be understood and resolved, whereas synergies are to be identified in order to enable co-benefits. Environmentally friendly, low impact and sustainable energy transition affects various sectors: biomass, solar, wind, hydropower energy systems and links to broader societal issues (energy consumption for food, transport, tourism etc.).

¹ <https://spanish-presidency.consilium.europa.eu/media/c1s1faf1/programme-energy-and-environment.pdf>

² <https://epanet.eea.europa.eu/reports-letters/epa-network-interest-group-on-citizen-science/interest-group-on-sustainability-research-and-solutions-epas>

The aim is to illustrate the NEFET paper with practical examples regarding nature and environment friendly energy transitions (NEFET). They are pivotal in addressing the various issues related to in a tangible manner. Further to the illustrative examples is a collection of links that were made available during the webinar. Provided actionable knowledge also aims to create a comprehensive understanding for natural resources benefits and implementing renewable energy programmes.

In addition, 2 recent papers related to the topic can be of further interest

<https://link.springer.com/article/10.1007/s13280-023-01923-3>

<https://helda.helsinki.fi/server/api/core/bitstreams/a857e097-b488-4fb1-bbff-dc322af51575/content>

GUIDING QUESTIONS FOR REFLECTIONS

1. Based on the current and ongoing regulatory package: How should the interaction of the deployment of renewable energy with the necessary environmental protection, including the preservation of biodiversity, be addressed?

- **Regulatory Framework:** Address the challenge of Nature- and Environmentally Friendly Energy Transition (NEFET) by considering the regulatory framework set forth by the European Green Deal, which emphasizes climate neutrality and the preservation of the environment. (Refer to European Green Deal and related policies, such as the European Climate Law, the Fit for 55 package, and the Nature Restoration Regulation). Renewable energy often receives government subsidies (e.g. directly as investment support but support schemes differ between the technologies). It is important to raise the issue: How do the terms of these national subsidies consider biodiversity impacts? Do they align with EU Taxonomy criteria?

Regulatory framework(s)

Another example relates to the importance of robust regulatory frameworks. This topic might be self-explanatory for those professionals working in that area, but it also matches with the experts involved in the science-for-policy interface:

- Translating and delivering EGD ambitions into policy- and lawmaking
- Climate Law, Fit for 55, Nature restoration law
- Transposing directives/ regulations
- In addition, regulatory instruments seek inspiration in the European Semester, European Implementation reviews, robust data, scientific evidence; thus, coping with reporting obligations

- **Positive Narratives and Win-Win Approaches:** Work on positive narratives and win-win approaches to achieve NEFET by considering practical solutions. (Link to practical solutions promoted by the European Commission's commitment to climate neutrality and growth strategy).

- **Strategic Approach and Energy-Based Spatial Planning:** Shift from an installation-based approach to a strategic approach like energy-based spatial planning. This requires participation, involvement, and dialogue to gain support from people and society. A coherent regulatory framework is needed to ensure compatibility with territorial management and biodiversity conservation. Where should we build large infrastructures to “feed the grid”, where should we promote local small-scale energy production (and use existing potentials, such as roofs for PV)? The concept of Energy-Based Spatial Planning is an interesting opening and could be clarified by some concrete examples from different contexts and scales of planning. It might have larger potential than is initially understood (especially in the nexus of citizen participation and biodiversity impacts and nature-based solutions).
- **Robust, Inclusive and full-cycle Assessment Methods:** Implement renewable energy installations (incl. transport, conversion, distribution, etc.) with robust and inclusive assessment methods, leading to relevant data considering both environmental and socio-economic impacts along all the stages of the life cycle of the infrastructures. This means evaluating the potential effects on biodiversity and ecosystem services in the region and links to the EU Strategy on Biodiversity by 2030 and the need to ensure compatibility with biodiversity conservation and restoration.
- **Addressing Land Use conflicts and opportunities:** Tackle conflicts arising from land use and the development of renewable energy installations by considering at the regional level the contradictions between nature conservation policies and net-zero emissions’ policies. Identify possible synergies in land use or sea use, where investments in energy (infrastructure) can leverage the development of natural habitats. (Refer to the potential conflicts and opportunities between renewable energy deployment and the preservation, restoration and sustainable use of natural and semi-natural ecosystems, including croplands, especially when these installations overlap geographically with sites of the Natura 2000 Network or, despite being external to them, may still have significant impacts on habitats and species or compromise the integrity of the areas). This requires both a habitat-food web approach in biodiversity mapping and a more strategic framework for energy infrastructure development.
- **Considering broader infrastructure issues:** Look into broader issues of infrastructure accompanying the NEFET. This includes exploring the challenges and opportunities in the development of renewable energy projects and relates to the consideration of the necessary increase in clean technologies production on European soil and waters and potential social responses to such installations while respecting environmental imperatives.

2. Replicability and learning: Which good practices already demonstrate the reconciliation of renewable energies with the protection and conservation of biodiversity and its inclusion in the territory?

· **Good Practices for Reconciliation:**

- Develop and compile guidelines for participatory integrated biodiversity-inclusive spatial planning and effective management processes at local and regional levels. This approach aligns with the need to guarantee proactive citizen and territorial participation in the design and development of renewable energy projects and plans. (Corresponding to the emphasis on the importance of involving citizens and territories, especially those affected by aging and depopulation).
- Promote nature-based solutions (NbS), as defined by UNEA³ centered on primary production, considering scalability and benefits for biodiversity, based on solid economic assessments. NbS can be valuable in climate change mitigation and adaptation, mitigating environmental impacts and promoting co-benefits between renewable energy projects and biodiversity conservation. (Link to the EU Strategy on Biodiversity by 2030, which emphasizes the restoration of ecosystems through an EU Nature Recovery Plan).
- Identify good practices in different member states, countries, institutions, communities, and cities to address the challenge of NEFET. Learn from successful cases that have effectively integrated renewable energy projects with biodiversity conservation and environmental protection measures. (Related to the need for replicability and learning from existing experiences). The INTOSAI WGEA project by SYKE may be a good practice example in this respect.⁴
- Use innovative methods to assess and monitor impacts on biodiversity, ecosystem services, and possible conflicts. The main need is to obtain relevant well-designed case studies/demonstration cases for as many settings as possible, such as ecosystems/habitats, installation type and specific installation design, and investigated groups of species. By employing advanced tools and techniques for impact assessment, policymakers can make well-informed decisions about renewable energy deployment, taking into account potential environmental consequences. Feedback from monitoring can help better understand the long-term effects. (In line with the call for robust and inclusive assessment methods)

³ NbS are 'actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits.'

⁴ The project aims to strengthen the capacity of government auditors to identify biodiversity impacts when evaluating climate policies (inc. Renewable energy). Nexus Area: Biodiversity and Climate (environmental-auditing.org). Syke has been a VTV partner in this project.

- Develop methodologies and standards for the economic valuation of environmental protection and nature conservation, to allow for explicit consideration for in the evaluation of renewable energy projects.
- Share experiences and knowledge among Environmental Agencies to tackle conflicts of interest and derive research questions. Collaboration and information exchange between environmental agencies can facilitate the development of effective strategies and research agendas to address NEFET challenges. (Aligned with the suggestion for a broader exchange among Environmental Agencies).

Actionable Knowledge:

- A target-oriented research and innovation program (see under point 3 below) to tackle research questions related to NEFET should have a clear consideration and ambition to contribute to actionable outcomes and impacts. The objectives are:
 - Create a Code of Conduct for dealing with topics such as "Nature- and Environmentally Friendly Energy Transition" involving conflicts of interest (process- and content-wise). Such a code can provide clear guidelines for consultants providing information, and decision-making, balancing environmental protection and renewable energy objectives. (Relating to the call for a coherent regulatory framework to address challenges).
 - Development of impact scenarios of NEFET on the adequate spatial level. By considering regional contexts, policy and decision makers can tailor their approaches to balance renewable energy objectives with biodiversity conservation and regional / local needs.

Knowledge as a key enabler – knowledge for action

Comprehensively matching European sustainability ambitions need to be based on the best available scientific knowledge, strengthening the environmental knowledge base as well as its uptake and understanding. This is particularly important in the context of the European Green Deal and 8th Environment Action Programme.

Knowledge for action requires a transdisciplinary approach: Boundary organizations like EEA have an important role to play in bridging the gap between science-policy-society and shaping a future knowledge system and its key elements can be described as follows:

- generally perceived as an enabler, , systemic / holistic
- Strengthening knowledge uptake and use
- Influencing policymakers, creating platforms, networks

The examples described in the following illustrate knowledge for action

(<https://www.eea.europa.eu/publications/knowledge-for-action>).

<https://www.eea.europa.eu/highlights/europes-sustainability-agenda-needs-knowledge>

3. Thinking in the future: What territorial planning models would be a priority in order to optimize the integration of energy objectives with those of sectorial and environmental policies?

For this purpose, it is important to distinguish between the different pathways of energy transition (e.g., centralized renewable energy production vs. community-based solutions) that have different biodiversity impacts. In practice, the transitions emerge in parallel and diverse complementary ways. This has also impacts on how planning in different contexts will be approached.

- Develop a target-oriented research and innovation program to address research questions and formulate solutions pathways related to nature- and environmentally friendly energy transition (including those that would mitigate or compensate for the impacts on wild species and habitats due to the inclusion of plans and projects for renewable energy). This program should focus on assessing impacts, developing foresight approaches, and exploring methods for characterizing different scenarios, including a Europe wide 'realistic best case'-scenario, so policy makers have a measure for their relative success. (Link to the emphasis on having a coherent regulatory framework and the need for research to address challenges).
- Tools and Processes that will facilitate the implementation of the Code of Conduct for dealing with NEFET topics (cf. point on actionable knowledge above) involving conflicts of interest (process- and content-wise). This code can guide territorial planning models by providing clear guidelines for decision-making, balancing environmental protection, and renewable energy objectives. (Connected to the call for a coherent regulatory framework).
- Development of impact scenarios of nature-friendly energy transition on the regional level. By considering regional contexts, policymakers can tailor territorial planning models to balance renewable energy objectives with biodiversity conservation and local needs. (Relevant to the emphasis on of coherent regulatory framework and the importance of considering territorial planning models).
- Consider broader issues of infrastructure accompanying the NEFET. Territorial planning models should account for the necessary infrastructure development to support renewable energy projects while minimizing environmental impacts. (Relating to the concept note's call for addressing broader infrastructure issues).

Geoportal Living Wales

Make better use of geoportal information to highlight the interconnectivity of themes, data etc. in a tangible manner, retrieve data, compare, and create (if one is knowledgeable for retrieving geodata).

- Living Wales is providing capability for routinely generating national 10-25 m land cover and evidence-based change maps from environmental descriptors retrieved from Earth observation (primarily satellite sensor) data.

Link: <https://visual.pml.ac.uk/livingwales/>

- Foster a systemic approach and overcome barriers in institutional responsibility to ensure successful integration of energy objectives with sectorial and environmental policies. This means promoting collaboration and coordination between different sectors and institutions involved in territorial planning to achieve a holistic approach. (Connected to the emphasis on having a coherent regulatory framework to address challenges and ensure proactive citizen and territorial participation).

Links

Knowledge

<https://i2insights.org/2021/02/11/three-types-of-knowledge/amp/>

<https://www.turing.ac.uk/research/environment-and-sustainability>

<https://www.turing.ac.uk/blog/importance-reproducibility-environmental-science>

Connectivity and use of land

<https://naturaconnect.eu/>

<https://cdn.cyfoethnaturiol.cymru/media/696279/ecosystem-resilience-in-a-nutshell-1-what-is-ecosystem-resilience.pdf>

[Coherent at face value: Integration of forest carbon targets in Finnish policy strategies | Ambio \(springer.com\)](#)

practical examples

<https://www.gov.scot/publications/onshore-wind-sector-deal-scotland/>

<https://wales.livingearth.online/>

<https://visual.pml.ac.uk/livingwales/>

Papers / strategies

<https://link.springer.com/article/10.1007/s13280-023-01923-3>

[DRAFT Syke Policy Brief 23.3.2023: Preventing biodiversity loss with ecological restoration \(helsinki.fi\)](#)