Managing the impact energy sources on biodiversity and ecosystems

Quantifying ecosystem and biodiversity in energy systems
An energy source creates a direct and indirect impact on biodiversity and ecosystems. This impact can be measured by defining a relevant and representative biodiversity indicator and an energy indicator on a specific energy source. In the case of offshore energy systems, this leads to an increase of the number of species (

Managing the impact through the life of the project

It is essential to identify and understand all negative effects on the marine environment. The potential impact of the development of renewable energy systems on the marine environment is often underestimated due to the complexity of the site surveys needed to assess the environmental effects. However, various mitigation measures can be implemented during the construction phase, such as avoiding sensitive areas, reducing noise, and protecting habitats and the highest priority. For the initial project phase, a biodiversity impact assessment (BIA) is carried out. This BIA assesses the potential environmental impacts and identifies possible mitigation measures. In the following phases, the project leads to the establishment of a management plan to ensure the conservation and protection of biodiversity and ecosystems.

Greening Blue Energy: IDENTIFYING AND MANAGING THE BIODIVERSITY RISK AND OPPORTUNITIES OF OFFSHORE MARINE RENEWABLE ENERGY

Greening Blue Energy

There is a need to improve the integration of offshore renewable energy systems into the marine environment. This requires understanding the potential environmental impacts and developing effective mitigation strategies. The development of green energy systems should take into account the environmental impacts and design measures that minimize negative effects. This includes evaluating the potential environmental risks and benefits, and designing appropriate mitigation strategies. The development of offshore renewable energy systems should also consider local and regional socio-economic aspects, such as the potential for job creation and economic benefits. This requires effective stakeholder engagement and collaborative planning.

A solution: Raise awareness of energy actors about biodiversity issues

Funding schemes are needed to promote a transition toward more sustainable energy systems. The European Union is committed to achieving the 2030 targets, and one of the key strategies is the development of offshore renewable energy systems. However, the implementation of these systems has faced challenges related to biodiversity conservation. This requires a comprehensive approach that integrates biodiversity considerations into the development process. The European Union has established funding schemes to support the development of offshore renewable energy systems, with a focus on biodiversity conservation. These schemes aim to promote the development of offshore renewable energy systems while ensuring that biodiversity is not negatively impacted. The European Union has also established monitoring and evaluation frameworks to assess the effectiveness of these schemes and ensure that biodiversity conservation goals are met.

Strategy and governance issues

Key strategies include integrating biodiversity considerations into the development process, ensuring effective stakeholder engagement, and establishing monitoring and evaluation frameworks. This requires a collaborative approach that involves all stakeholders, including energy developers, policymakers, and environmental organizations. The development of offshore renewable energy systems should be guided by clear and comprehensive strategies that prioritize biodiversity conservation. The European Union has established funding schemes to support the development of offshore renewable energy systems, with a focus on biodiversity conservation. These schemes aim to promote the development of offshore renewable energy systems while ensuring that biodiversity is not negatively impacted. The European Union has also established monitoring and evaluation frameworks to assess the effectiveness of these schemes and ensure that biodiversity conservation goals are met.

Uncertainties, research needs and necessary improvement of the impact studies

Research efforts are needed to develop and disseminate operational scenarios for specific systems, on the scale and nature of impacts of the different energy systems. Research could benefit from the development of spatially explicit scenarios for specific systems, which could help identify potential areas of concern. This requires the development of comprehensive research frameworks that integrate biodiversity considerations into the development process. The European Union has established funding schemes to support the development of offshore renewable energy systems, with a focus on biodiversity conservation. These schemes aim to promote the development of offshore renewable energy systems while ensuring that biodiversity is not negatively impacted. The European Union has also established monitoring and evaluation frameworks to assess the effectiveness of these schemes and ensure that biodiversity conservation goals are met.

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