

Fifteenth session of the IRENA Assembly

Environmental Impacts and Benefits of Renewables

11 January 2025, 14:30-16:00 GST
St. Regis Hotel, Saadiyat Island, Abu Dhabi

Background

The global energy transition aligning with Paris Climate goals requires a rapid acceleration of renewables deployment. This deployment and the associated infrastructure involve interactions with the local environment, including biodiversity. Whether these interactions result in positive or negative outcomes depends on the local context and how renewable energy technologies/projects are designed, constructed and maintained. With the UAE consensus agreed at COP28 in 2023 calling for a tripling of renewable energy capacity by 2030, it is essential for policymakers and stakeholders to be aware of and understand the potential impacts and benefits of renewables. Measures should be adopted to avoid, minimise and mitigate negative impacts and promote practices that enhance environmental benefits, ensuring a sustainable energy transition.

Renewable energy's impacts and benefits on local environment span its entire life cycle, from product manufacturing and project siting to end-of-life management. Growing material demand for renewables and grid infrastructures indicates more mining activities and environmental footprints. Siting of renewable projects may overlap with ecologically sensitive areas leading to potential environmental conflicts. Moreover, the operation and maintenance of renewable plants can impact local ecosystems. At the same time, there can also be local environmental benefits.

Solutions are available to identify, assess, and avoid, minimise and mitigate the potential impacts of renewables on the local environment. Sustainable design of renewable products and project planning taking into consideration environmental impacts, can avoid most negative effects from the outset. Digital-based platforms and mapping tools can assist in identifying optimal project sites and assessing possible conflicts. Adopting circular economy-based measures can ensure sustainable end-of-life management of renewable technologies, and generate secondary raw materials, addressing both environmental challenges associated with mining activities and waste treatment.

However, institutional, financial, technical and informational barriers impede the widespread adoption of these solutions. Inconsistency of government regulations and lack of coordination between different authorities can be a significant challenge.

Environment-friendly design, operation of renewable energy projects and circularity-based recycling can involve additional costs and specialised expertise and not all technologies are ready for commercialisation.

Furthermore, policymakers, stakeholders, and the general public may not be fully aware of the possible environmental impacts and benefits and existing solutions to address these challenges.

Policies and measures are needed to address these barriers. Some policies can help address overall barriers while others can be specific, such as accessible wildlife sensitivity mapping for renewables siting, incentives for combining solar PV with agricultural activities, and government regulations and mandates for the collection and treatment of decommissioned solar PV and wind turbine equipment. Notably, policies and measures should be tailored based on local context and engage environmental stakeholders and local communities from the beginning to ensure an inclusive and just transition process.

International collaboration is necessary to bridge the knowledge gap and support all markets in developing sustainable renewable energy projects that are in harmony with the environment and biodiversity. Knowledge, skills and best practices should be facilitated from leading renewable energy markets to other emerging and developing markets lacking the needed expertise or resources. The establishment of international standards and guidelines can further encourage the adoption of sustainable practices in various contexts.

Objectives

This event will discuss the local environmental impacts and benefits of renewables. It aims to convene policymakers, experts and industry stakeholders to discuss the available solutions, experience and examples to address potential environmental issues and maximise benefits, as well as the policies and measures needed to address barriers. Participants will be engaged in the exchange of policy experience and best practices from diverse market contexts. Additionally, feedback will also be sought on the Agency's work concerning the environmental impacts and benefits of renewables.

Guiding questions

- What are the possible impacts and benefits of different renewable energy projects, such as solar PV, wind farms and others?
- How can any negative impacts on the local environment be assessed, avoided and minimised?
- How can we harness the co-benefits between renewable energy projects and the local environment?
- What are the major barriers to further adoption of existing solutions? What are the policies and measures needed to address these barriers?
- How can international collaboration help further promote widespread solutions, measures and best practices?

For more information, please contact

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