

Solar & Biodiversity

Introduction

In comparison to other sources of energy such as coal and natural gas, solar PV projects exert minimal impact on biodiversity but rather support biodiversity, an important environmental goal for Ireland. The key is responsible management of solar PV projects, such that environmental benefits are maximized alongside the production of valuable clean energy (EPIA).

Biodiversity

Biodiversity both is all life on earth and supports all life on earth; as humans we depend on biodiversity for clean air and water, healthy soils, food, building materials, and medicines. – Bord Na Mona¹



Protecting biodiversity is a high priority across the European Union. In Ireland, where the local biodiversity in terms of flora and fauna is lower than the rest of Europe, conservation of sensitive ecosystems that support large populations of internationally significant bird and marine species is critical. The Irish landscape possesses habitats of peat, limestone, turlough, and machair, which is specific to Ireland and Scotland; it has been given special protection under the Habitats Directive². Machair, however, is losing its biodiversity due to farming practices, which initially managed its growth³. Grazing in particular has reduced its flora diversity. Given Ireland's size and highly valuable ecosystems to local and international flora and fauna, protection is vital, and land-use that poses a potential threat is scrutinized.

Solar PV Environmental Impacts

Turney and Fthenakis⁴ conducted an extensive assessment of the impacts of large scale solar PV on the 32 impacts pertaining to land-use, human health and well-being, wildlife and habitat, geohydrological resources and climate. Their primary

conclusion was that solar PV exerts a net benefit on all 32 impacts. Key lessons from their research to assess the impact of solar projects on biodiversity at all stages are:

1. The duration of a project allows for soil to regenerate its micronutrients and micro-organisms, restoring and enhancing biodiversity
2. Consideration of land type where the project is being constructed (grassland, forest etc) to maximise benefits to biodiversity.
3. Interaction of species with project installation, namely that solar PV farms are incorporated into the landscape and promote species migration
4. Land recovery time after project is decommissioned is negligible.

Solar PV Benefits for Biodiversity in Ireland

For Ireland, solar PV is a benefit to the promotion and protection of biodiversity. Particularly, in the context of agricultural land regeneration and possibly, with significant research, peat-land regeneration in the future. By their nature of being long term energy generation solutions they add value by giving land the time regenerate. The land on which the panels are installed can be used, not only for sheep grazing but for bee keeping. Bumble bees are a critical species in the production of food, solar PV farms can be planted with wild flowers increasing the available habitat vital to the lifecycle of bees. Further, wildflowers and grasslands provide valuable nesting sites for endangered birds species, like the curlew and corncrake, two species who's nesting habitats have been degraded due to land changes. Lastly, increased biodiversity brings opportunities for recreation leading to improved health and well-being.



¹ <http://www.bordnamona.ie/our-company/biodiversity/>

² http://www.epa.ie/pubs/reports/indicators/epa_factsheet_biodiversity_v2.pdf

³ <http://www.teagasc.ie/environment/Publications/BirdWatch/MachairSandyGrassland-TeagascBirdWatchIrelandleaflet.pdf>

⁴ Turney, D. and Fthenakis, V. (2011). "Environmental impacts from the installation and operation of large-scale solar power plants". *Renewable and Sustainable Energy Review* 15:3261-3270.