



MAINSTREAMING OF BIODIVERSITY IN THE ENERGY SECTOR

The Case of Solar Parks in Germany

Case highlights

Solar (or Photo-Voltaic = PV) Power parks are suitable for promoting biodiversity! By planning solar parks on degraded areas and areas of low biodiversity value, there are opportunities to enhance biodiversity within the boundaries of solar parks but also in surrounding areas. Moreover, these areas are suitable also for agricultural activities, such as beekeeping, grazing, cultivation of crops by nurseries, etc.

Issue addressed

The usual impacts of solar parks on biodiversity are related to habitat loss through land clearance, habitat alteration due to changes in microclimatic condition, habitat fragmentation and disruption of wildlife migration by fences, bird collision with solar panels (mistakenly seen as water bodies) and power lines, etc. These impacts are usually considered in an environmental impact assessment procedure in which mitigation measures and adequate monitoring are prescribed accordingly.

However, in addition to standard mitigation measures, there are also opportunities in developing solar parks to enrich biodiversity and preserve, restore or establish new ecosystem services at the site if biodiversity concerns are considered early in the process - starting from site selection and avoidance of high-value biodiversity sites, taking into account local environmental conditions and land use, continuing with nature conservation/enhancement measures during construction and operation.

Approach followed

In a number of cases in Germany, the development of solar parks was coupled with biodiversity enhancement measures. Although these measures resulted from strategic environmental assessment at planning stage and environmental impact assessment at design stage, they did go beyond the standards mitigation measures, such as minimisation of the sealed area, requirements for a chain-link fence that allows small wild animals to pass, etc.

The solar plant in **Salmdorf** near Munich was planned on an area with a history of gravel pits, landfills, and agriculture. During construction of the solar plant, a species-rich meadow was developed, which is mown twice a year. This already led to a significant improvement in the environmental quality of what used to be a field with few animal or plant species. In addition, numerous other measures were implemented to enable an additional improvement in environmental quality. For example, a wide belt of grassland bordered by hedges and trees was created to surround the solar plant and two ponds were dug on the site serving as stepping-stone biotope for the threatened green toad.



At the **Fürth-Atzenhof** solar plant, the grassland is maintained and conserved by a shepherd, who grazes sheep on the site twice a year. Grazing is a natural means of avoiding regrowth of shrubs and trees (which are obviously incompatible with solar panels) and leads to a larger variety of herbal plant species. The 1 hectare solar plant was built in 2003 on the southern slope of the former municipal landfill site. Investigations in 2009 revealed an astonishing diversity of plant species. A total of 254 types of ferns and flowering plants and 30 types of moss were found, 23 species being included on red lists at regional, national or international levels.



Solar parks can also help conserve the **regional genetic diversity of plant** by using native seeds and plants that are suitable for the site and that have been obtained from within a defined source region. Depending on the project objectives, it may be desirable to leave an area unsown. If it is left to form its own ground cover, species will establish themselves over the years. This type of ground cover can be encouraged by sowing hay flowers or by spreading suitable grass cuttings containing seeds.



Benefits obtained

The most significant benefits for biodiversity can be obtained by planning the solar parks on degraded land and brownfield sites. Further benefits include regional genetic plant diversity and productive benefits such as grazing and beekeeping. Surrounding agricultural land benefits from the enhanced biodiversity, for example by enriching species for pollination and pest control.

Best practice lessons

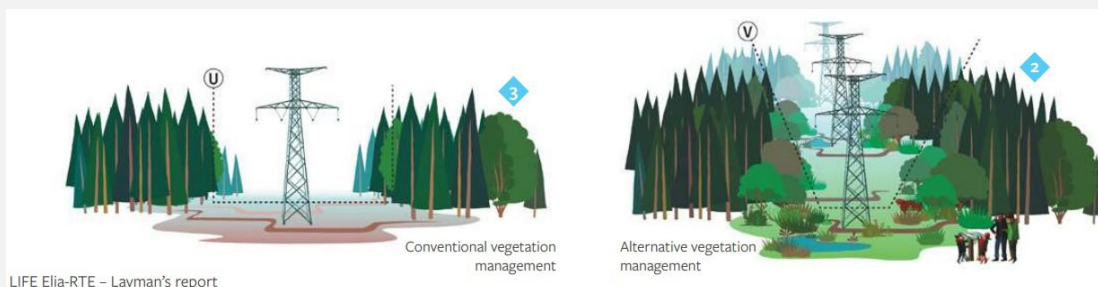
Strategic planning – Plan the location of solar parks in the areas that are unproblematic from the aspect of nature conservation, such as degraded land and brownfield sites with opportunities for enhancing biodiversity. Involving environmental experts and applying SEA can help in identifying appropriate sites. Take into consideration local environmental conditions and land use in the surrounding area. In case of agriculture activities in surrounding area, connect with local people to seek for opportunities to enhance biodiversity on solar parks but also in the wider area.

Designing and operation – Envisage appropriate design, seating of the solar panels and use of the remaining area. Integrate nature conservation and enhancement measures and extensive maintenance measures into design. Use native species for seeding. Regularly and properly maintain the area.



Elsewhere: *Creation of green corridors for biodiversity under high-voltage lines, BELGIUM and FRANCE.*

Nantes The aim of the project was to create green corridors under overhead electrical lines in wooded areas in Belgium and France. The idea was to replace conventional vegetation management (“U” shaped corridor) by the alternative one (“V” shaped corridor).



LIFE Elia-RTE – Layman’s report

Various innovative actions took place in order to enhance biodiversity and to raise people awareness concerning natural habitats and species linked to this linear context. The actions included planting and restoration of forest edges, fruit trees of wild and local species, restoration of natural habitats protected by the EU Habitats Directive (bogs, moors, chalky grasslands and lean meadows), digging of ponds, establishment of a pasture or mowing, combating invasive plant species, and harvesting seeds, sowing and mowing of flower meadows.

The project showed that with proper management, the land under powerlines can enable and support greater biodiversity.

Source: LIFE Elia, <http://www.life-elia.eu/en/The-project>

Additional information

- *Solar parks – profits for biodiversity*
- *EC, Wind & solar energy and nature conservation, 2014*
- *Opportunities to enhance pollinator biodiversity in solar parks, 2021*
- *Solar parks – Opportunities for Biodiversity, 2010*
- *IUCN, Mitigating biodiversity impacts associated with solar and wind energy development*