



Solar Ecosystems - Restoring nature alongside solar power

Carla Freund 23.02.2023

Content

- Policy Framework and Targets (Germany and Europe)
- How to reconcile nature with solar farms?
 - What are the risks?
 - What are the opportunities?
- Priorities moving forward



EU and German Policy Framework/ Targets

Council Regulation

- *Accelerating the permit-granting process for the installation of solar energy equipment*

RED IV

- *40 or 45% Renewable Energy Target*

Biodiversity Strategy: Europe's biodiversity on the path to recovery by 2030 for the benefit of people, climate and the planet.

- **Habitats Directive:** aims to promote the maintenance of biodiversity, taking account of economic, social, cultural, and regional requirements. Currently 26% of land are protected
- **Birds Directive:** aims to protect all of the 500 wild bird species naturally occurring in the European Union. **(At least 32 % of the EU's bird species are currently not in good conservation status.)**
- **Restoration Law:** Protecting areas will not be enough. We need to bring back nature.

Goal: 2050 at least 80% of electricity from renewable sources

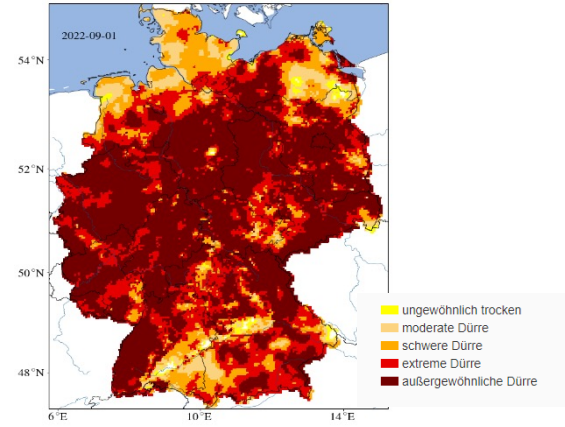
Solar PV goal was increased significantly :

- *Ensure 215 GW by 2030*
- *Currently about 60 GW → 155 GW installed*
- *If half rooftop/open spaces: still 77 GW on open spaces*
- *1 ha Solarpark about. 1 MW inst. power*
- *→ ~ 77.000 ha additional area for solar parks*

Tackling Climate and Biodiversity Crisis Together



Impacts on people and other species

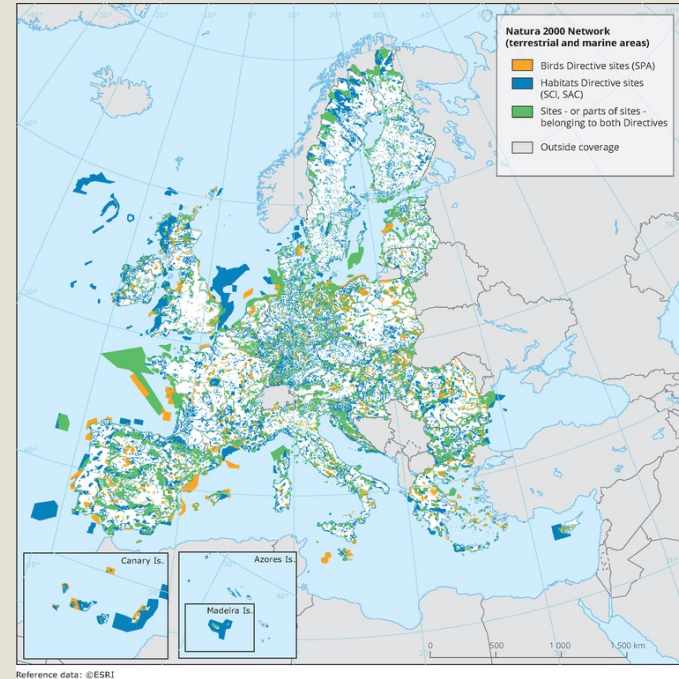


Habitat encroachment



What are the risks

- Destruction of habitats due to construction
- Deterioration of habitats and species due to operation (shading, and sealing of land)
- Barrier effects for mammals
- Confusion of solar modules with freshwater areas for insects and birds



Priority Areas for Solar

1

**Follow Mitigation Hierarchy:
Avoid impact, minimize, restore, offset
Avoid Nature 2000 sites (except for urbanized areas)**

2

Generally, look towards already urbanized environments (rooftops, parking lots, along highways, etc.)

3

When building in already urbanized environments still look towards NbS (for example green roofs, nesting boxes) and in green fields location and design are important

In green fields *(Including agriculture and natural habitats)*

Nature needs to be included in the **site selection, design, and maintenance process**

Benefits for biodiversity if

- Built in low biodiversity value area
- native vegetation is integrated, especially in intensive agriculture areas -> **site specific**
- No use of fertilizer or pesticides
- For example, pollinator-friendly solar farms (native vegetation)

Design of Solar Farms

Crossing opportunities for large mammals (caution: should not end near a street)

No barrier effect for small mammals and amphibians

- *Leave enough space between soil and fencing or around 20 cm gaps in fence mesh.*

The total sealed area should not exceed 1%

- *Sufficient infiltration of precipitation should be ensured*

Use native hedges to create a biotope and sight protection

- *Can be valuable as perching areas for individual bird species*

No more than 40% of the area should be covered

- *increases species densities. This is proven to enhance colonization by insects, reptiles and birds.*

Depending on the location consider adding a pond/wetland



Post Construction and Maintenance

After completion of the construction work, the area should be greened by using for example indigenous, low-growing, and site-appropriate wild plant species.

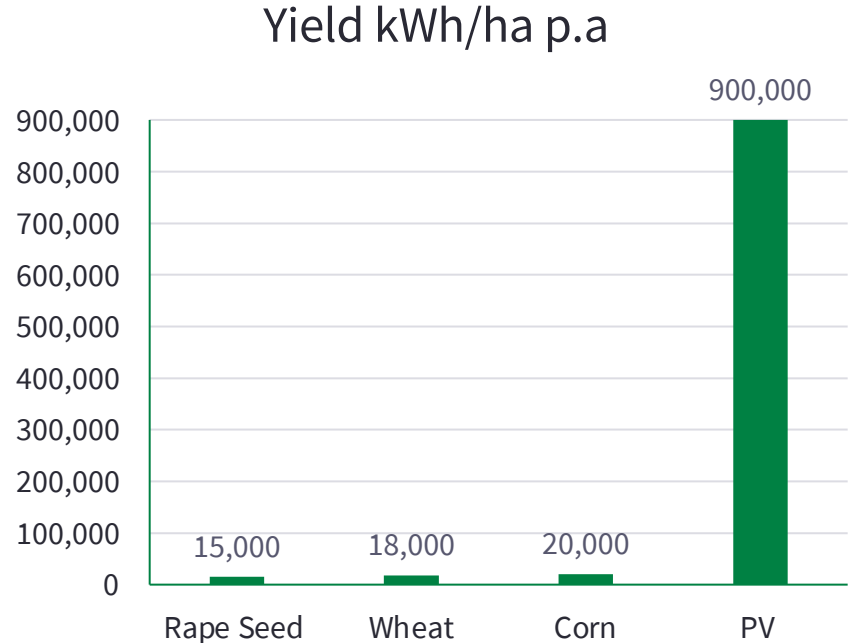
- Wild plant species lead to an increase in biodiversity and fulfill a wide range of ecosystem services
- Because of construction soil compaction limits plant growth. This should be considered during the greening phase.

Include site-adapted, diversified mowing or grazing management

- Depending on the vegetation two mowing cycles or a few grazing passes can be useful
 - Vegetation structure, nutrient balance, and breeding seasons of ground-nesting bird species
 - No use of fertilizer or pesticides

Advantages

- Regeneratively generated electricity
- Static plant
- Calming of the area through fencing
- Less intensive land use
 - No fertilization (nutrient input) and no pesticides
- Small-scale differences (microclimate, vegetation, snow cover, etc.)
- Higher energy yield per hectare



Sources: FNR (Fachagentur Nachwachsende Rohstoffe), Bundesverband Bioenergie, Universität Hohenheim, Umweltbundesam

General Asks

1. A massive reduction in our energy and resource consumption
2. Significant increase in energy efficiency
3. 100% coverage of the remaining energy demand by renewable energy
4. Nature protection and energy transition are not enemies
5. Binding criteria by municipalities and environmental authorities on achieving an increase in biodiversity
6. Identify degraded sights that are opportunities for restoration



Thank you for listening



NABU-Bundesgeschäftsstelle

Vorname Nachname

Charitéstraße 3

10117 Berlin

Tel. +49 (0)30.28 49 84-0

Fax +49 (0)30.28 49 84-20 00

NABU@NABU.de

www.NABU.de