

# Blog: Solar for Nature: Why Metrics Matter

[Laura Harrison<sup>a</sup>](#), [Sandra Dullau<sup>b</sup>](#) and [Quentin Lambert<sup>c</sup>](#)

Solar energy developments can have negative or positive impacts on biodiversity and ecosystem services, depending on their location, design and management. Organisations involved in the solar energy value chain need to be able to understand their nature-related impacts, dependencies, risks and opportunities for nature positive investment through new and emerging markets. Ensuring that there are genuine nature positive outcomes on solar farms requires the development and use of meaningful nature-related indicators and metrics.

How to develop these indicators was the topic of a recent workshop between renewable energy producers, the [OFB](#) (Office Français de la Biodiversité), and researchers in ecology and solar power from the UK, France and Germany. This was part of a wider project exploring the impacts of European solar energy infrastructure on biodiversity (ESEB), co-funded by the national research program [ITTECOP](#) (CILB, MTE, ADEME and OFB) and the [French Foundation for Research on Biodiversity \(FRB\)](#) through its [CESAB](#).

The workshop highlighted three key learning points and opportunities for development:

1) **Stakeholders have different needs and purposes when using indicators and metrics of biodiversity and ecosystem services on solar farms.** We introduced [work carried out in the UK](#) as part of the Finance and Investment in Nature positive Energy collaboration to understand various stakeholder needs relating to indicators, [define 'good indicator' criteria](#) and select metrics that are appropriate for monitoring nature positive investments. Metrics may be required for different purposes. For example, progress towards habitat management goals at a particular solar farm is best assessed using detailed metrics such as plant or invertebrate species richness, whereas investment opportunities in nature positive outcomes are best informed by more generalised metrics that can be aggregated across a portfolio of solar farms, such as areas of habitat created, or standardised measures of 'biodiversity units'.



---

**2) Nature-related metrics commonly used in solar farm monitoring are often not understandable by those without an ecological background.**

One of the key challenges around investing in nature is the complexity of measuring biodiversity and the difficulty in communicating biodiversity measurements to non-specialists. This is in contrast to carbon markets where the carbon dioxide equivalent serves as a single, standardised metric. The variability in biodiversity across space and over time provides an additional challenge to determining the appropriate scales for measurement and reporting. We ranked various biodiversity and ecosystem service metrics according to how understandable and relevant they are for people working in financial disclosures rather than ecological management and research.

**3) Differing ecological and regulatory contexts makes it challenging to develop standardised monitoring protocols across Europe for solar farms.**

The types of land prioritised for solar farm development vary between different countries. For example, in the UK, most solar farms [are on low grade agricultural land](#), whereas in France, agrivoltaic legislation requires that agricultural production [has to remain significant](#) where solar panels are installed on agricultural land, with solar contributing to [the sustainability of agricultural production](#). Regulatory environments and industry structures vary. In France, technical guides are produced by government organisations such as the OFB and there is a strong mandatory monitoring framework. In the UK, best practice and technical guides tend to be produced by industry trade associations such as SEUK, but in England there is now a requirement for [Biodiversity Net Gain](#) for all new developments, which specifies the use of a particular metric for evaluating 'biodiversity units' based on various aspects of habitat condition. A key strength is providing a standardised way of assessing opportunities for Nature Positive investment, although limitations include not measuring other aspects of species diversity on site and how to define reference states for solar farms.

**The wide range of stakeholder uses and the complexity of developing meaningful and understandable nature-related metrics that can be applied across various contexts certainly present a lot of challenges.**

However, potential benefits include supporting the implementation of environmental management plans at a site level to ensure genuine biodiversity net gain, while also allowing businesses and investors to understand nature-related impacts, dependencies, risks and opportunities across a portfolio of sites. Greater collaboration between ecological consultants, researchers and ESG professionals is allowing us to address these challenges, such as through improved sector specific guidance for TNFD aligned nature-related metrics and standardised but flexible approaches to monitoring and reporting.

a. Department of Environment and Geography, University of York, UK.

b. Department of Agriculture, Ecotrophology, and Landscape Development, Hochschule Anhalt University of Applied Sciences, Germany.

c. UMR 950 INRAE UCN Ecophysiologie Végétale Agronomie, Université de Caen Normandie, France