



SUSTAINABLE SOLAR — EUROPE 2025

Advancing nature-positive solar in Europe

Organised by
**inter
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**SUSTAINABLE
SOLAR**
EUROPE 2025



Jochen Hauff

Senior Advisory,
Global Solar Council

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Rebecca Humphries

Head of Climate Policy, Europe,
The Nature Conservancy

Nature and people inclusive renewables

Sustainable Solar Europe

3/12/2025

The Nature Conservancy in Europe



Global Crisis

Biodiversity
Loss

Renewable
Energy
Transition

Climate
Change

THE 3Cs

for a clean, green
and equitable
energy transition

Conservation

Avoid impacts to wildlife
and habitat and restore and
enhance nature's values



Climate

Maximize reductions
in greenhouse gas
emissions

Community

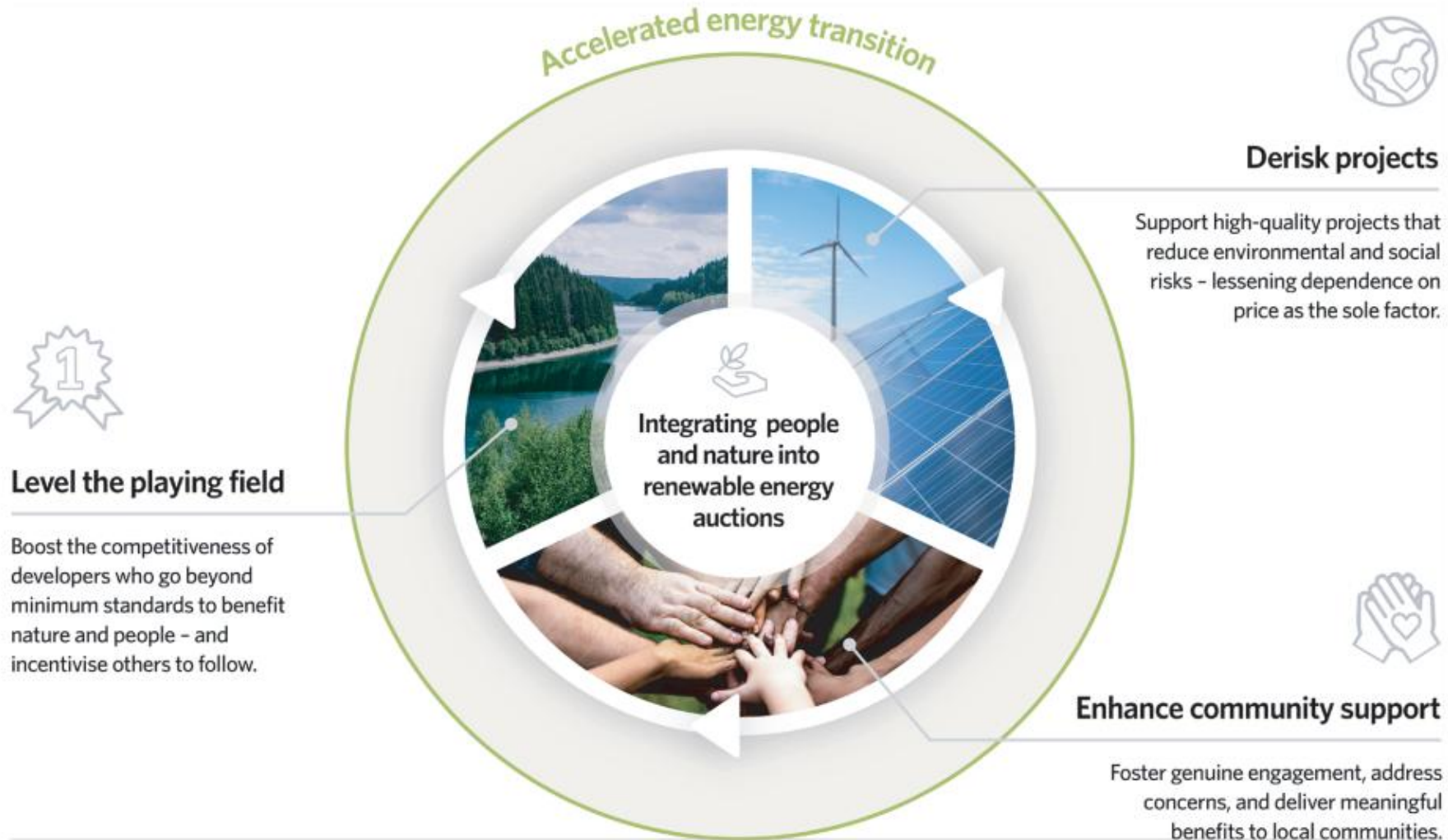
Center communities and indigenous
peoples, working in collaboration to
support shared benefits and an
equitable transition

Rewarding and incentivising nature-inclusive solar through EU policy



Go smart to go fast

Embedding environmental and social non-price criteria in RE auctions



Building support on the ground



Mockingbird Solar:
Support Conservation
and Research

© Sean Fitzgerald Photography



Cumberlands Solar and Battery Projects:
For Climate, Conservation, and Communities



Agrivoltaics:
Increase Revenue and
Reduce Land Pressure

© L. McIntyre / iStockphoto 2017/4

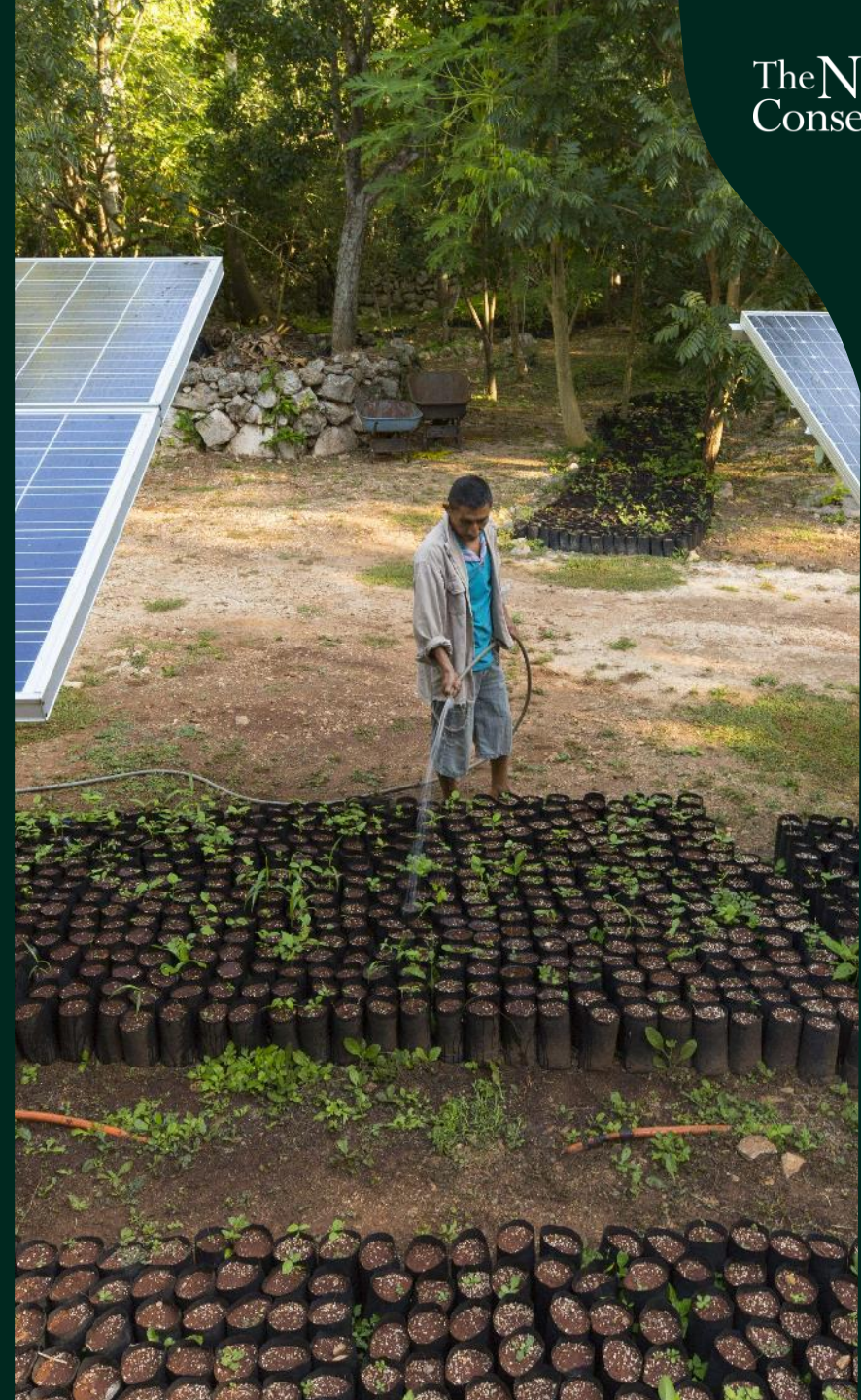
Scaling up

Enhance synergies between energy transition and nature restoration, spread knowledge, fuel implementation

Drive deployment on degraded lands

European Siting Technicians' Community of Practice: Deliver for both renewables and nature (net gain)

Showcasing how nature-inclusive renewables can help protect and restore biodiversity





Mihai Coroi

Technical Director – Renewables,
The Biodiversity Consultancy

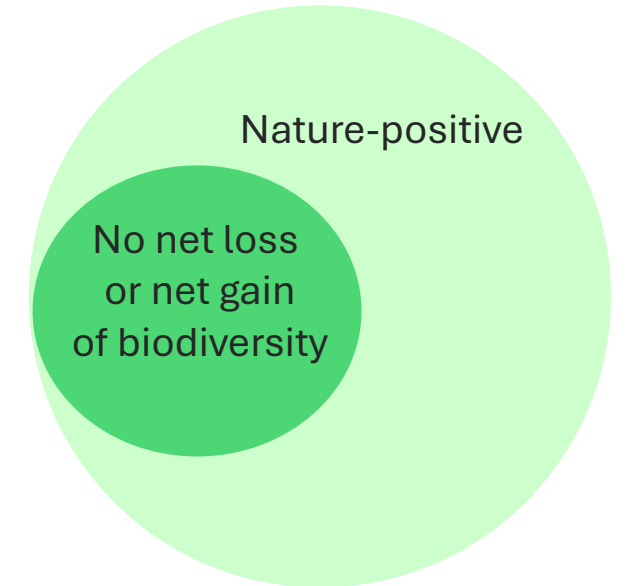
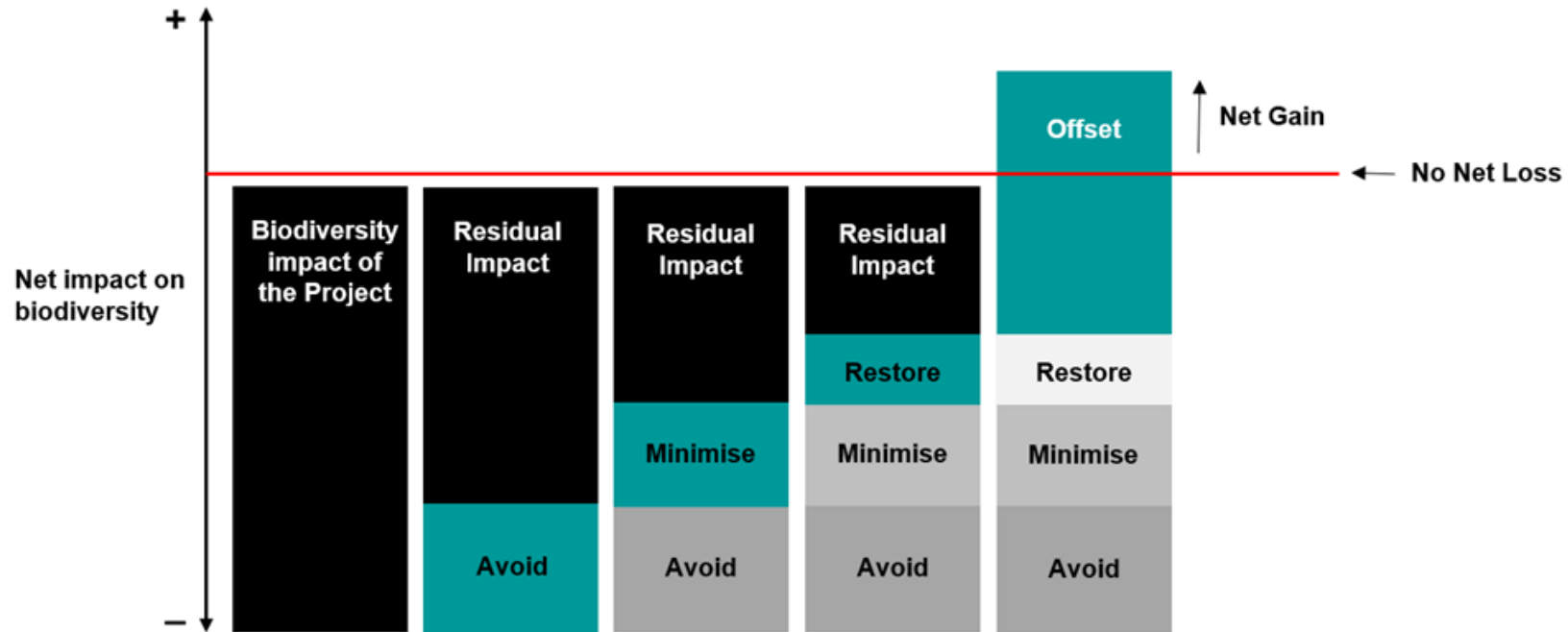
Achieving no net loss or net gain of biodiversity on solar PV projects

Dr. Mihai Coroi

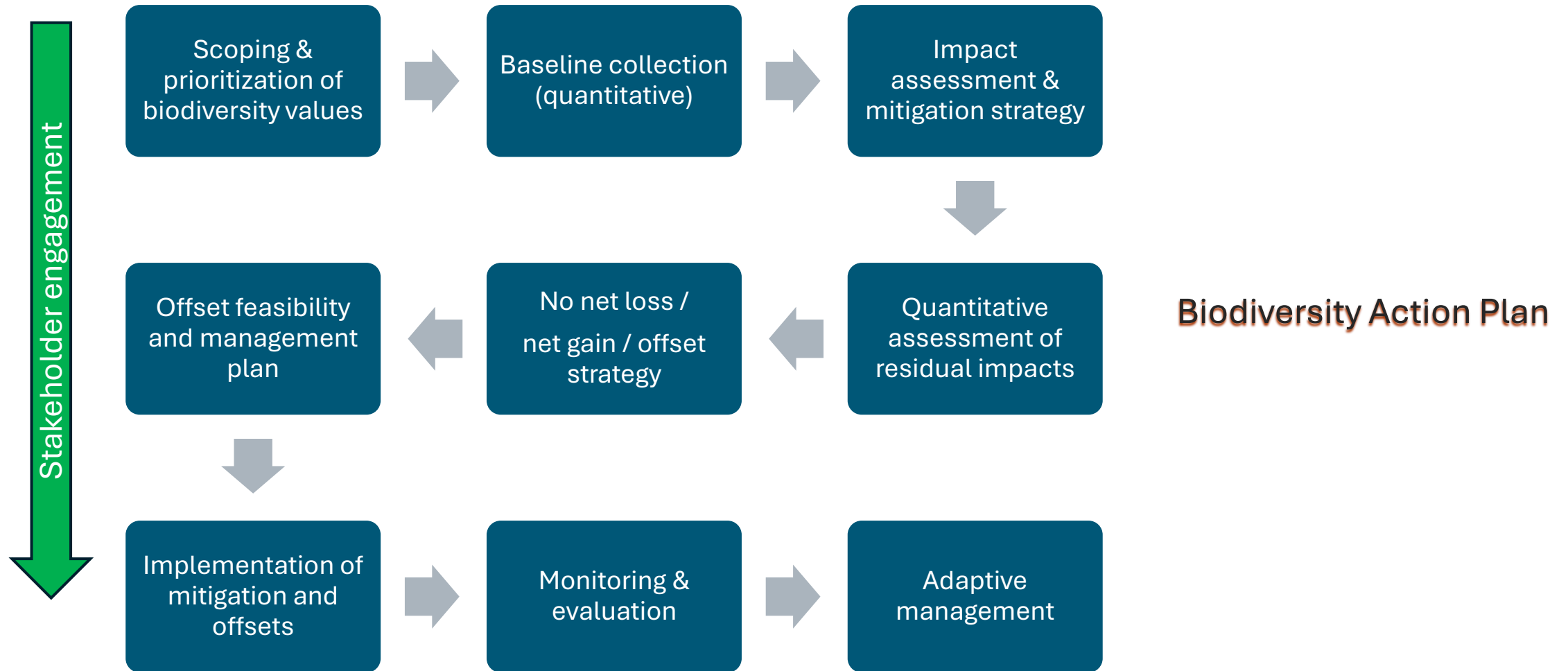
3rd December 2025



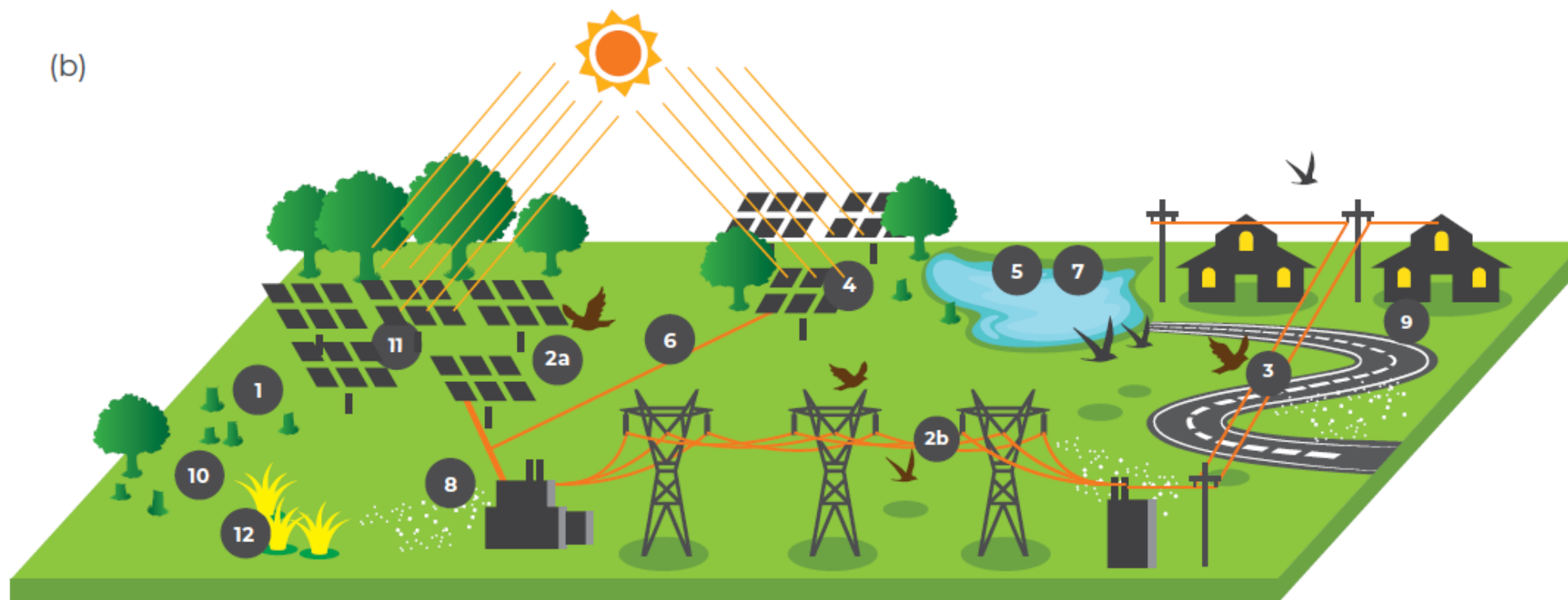
The Mitigation Hierarchy



Process of demonstrating no net loss or net gain of biodiversity at project level



Impacts of solar PV projects on biodiversity

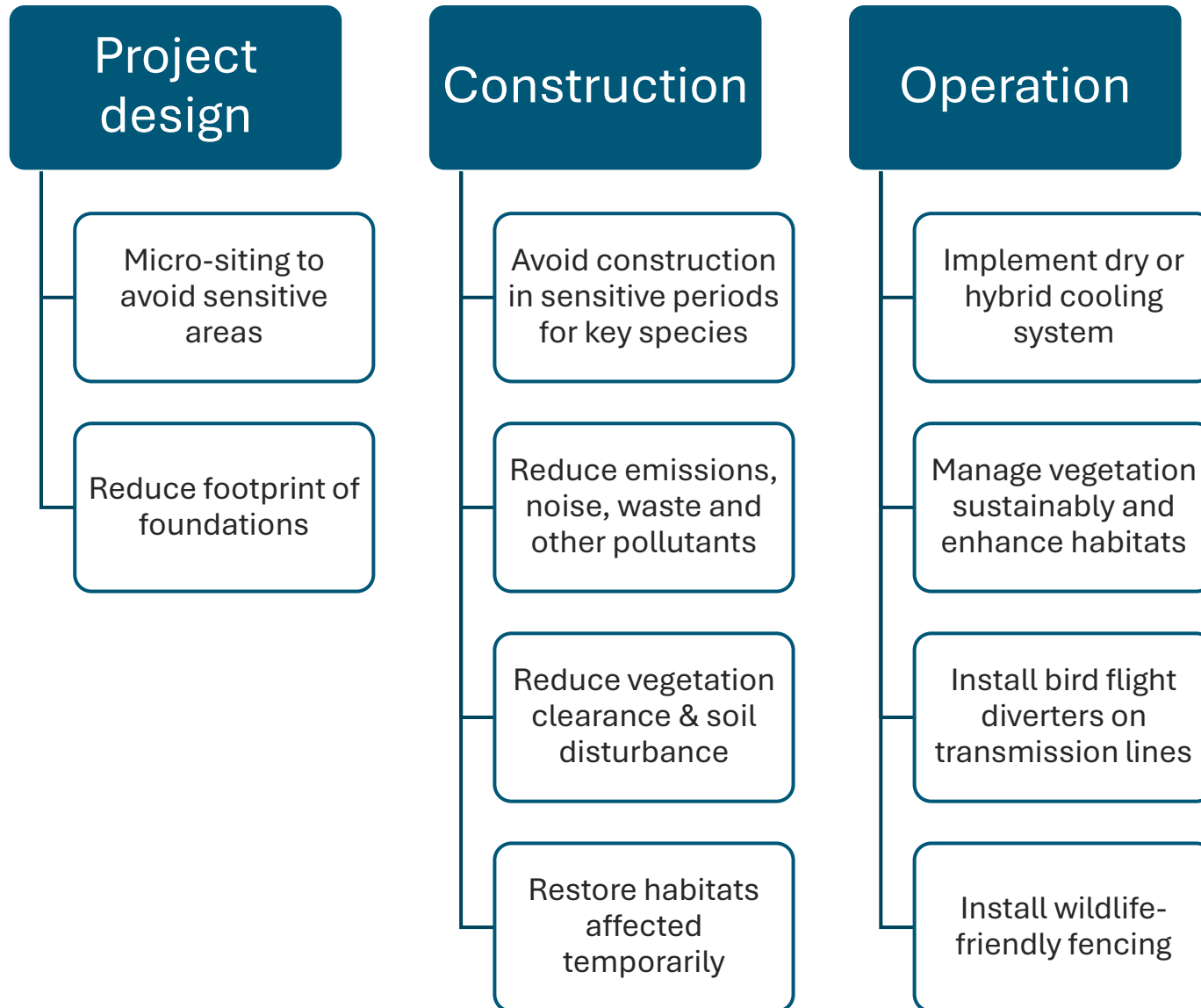


1. Loss of habitat through clearance or displacement of land
2. Bird collision with (a) solar panels, and (b) transmission lines
3. Bird and bat mortality through electrocution on distribution lines
4. Displacement due to attraction to reflective surface of solar panels
5. Wildlife mortality due to attraction to evaporation ponds
6. Barrier effects to terrestrial biodiversity movement
7. Habitat degradation due to changes in hydrology and water availability and quality

8. Pollution (e.g. dust, light, noise and vibration, solid/liquid waste)
9. Indirect impacts from displaced land-uses, induced access or increased economic activity
10. Associated ecosystem service impacts
11. Habitat alteration due to changes in microclimatic effect of solar panels
12. Introduction of alien species

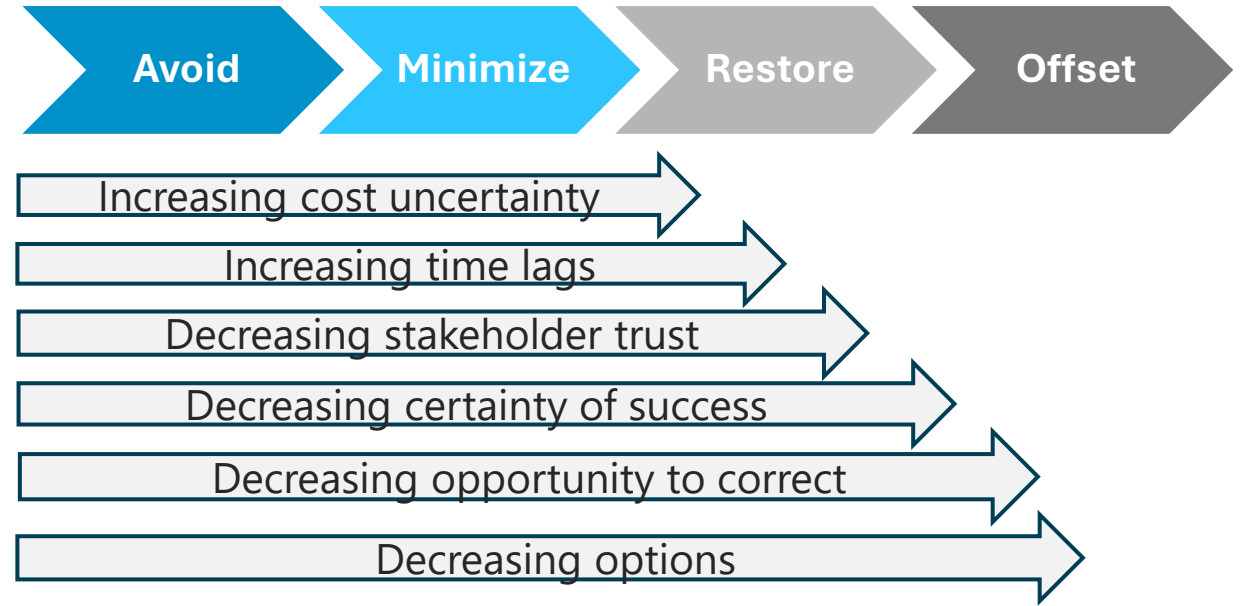
IUCN and TBC, 2021

Key mitigation measures for solar power projects



Biodiversity offsets

- Creation or expansion of new protected areas
- Creation or restoration of habitat that is not affected by project
- Reducing hunting pressure
- Provision of artificial nests
- Control of invasive species
- Retrofitting existing power lines (bird flight diverters & insulators)



Biodiversity set-asides

- Within the project site
- Designed to avoid key impacts AND to achieve biodiversity gains
- Cheaper and easier to manage than offsets

Parque Solar Fotovoltaico Cabreto 1 (Dominican Republic)

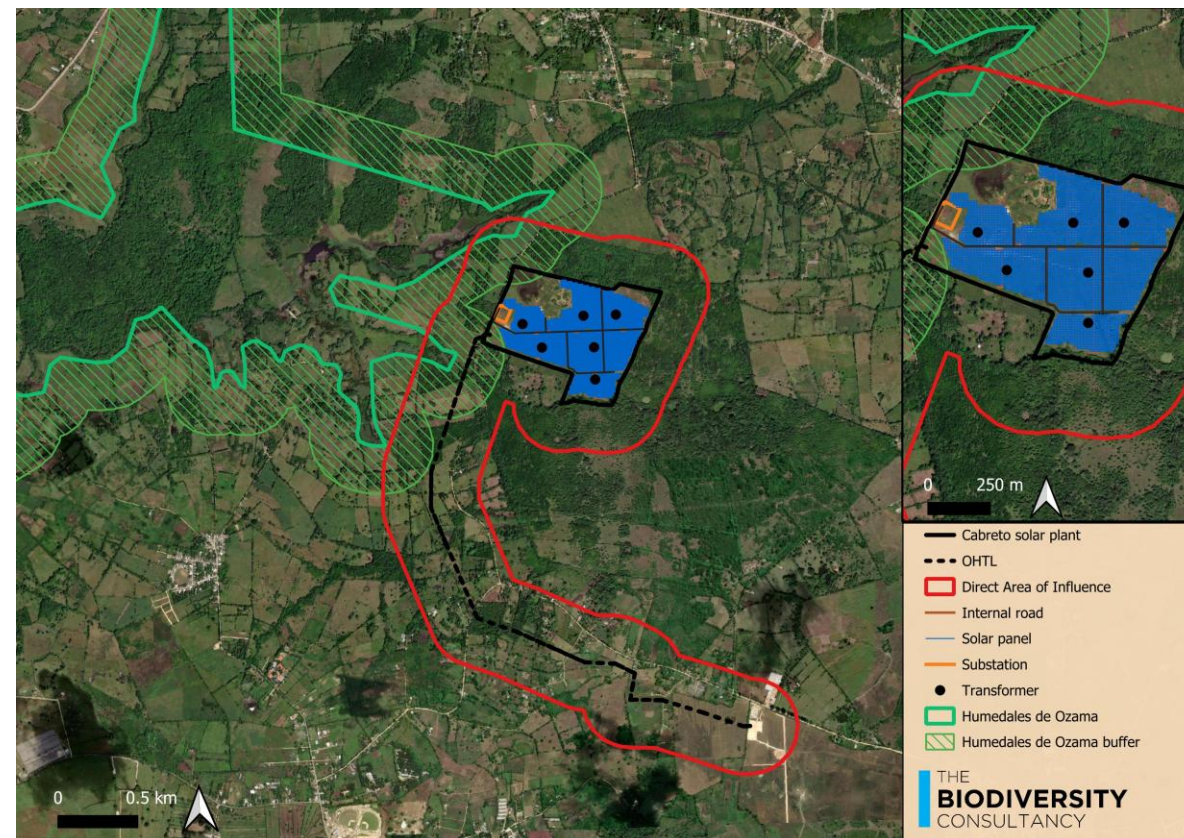
- 55.4 MW PV plant on a 57 ha site in the Santo Domingo province, near Humadales de Ozama National Park
- Electrical substation
- 4 km 138 kV Overhead Transmission Line (OHTL)
- Road upgrades

ESIA & Environmental License obtained by another developer in 2021

Project acquired by Akuo Energy in 2023

Additional studies to meet lenders' requirements: baseline surveys, Critical Habitat Assessment, Biodiversity Impact Assessment, Biodiversity Mitigation Strategy

Biodiversity Action Plan with actions to demonstrate no net loss of biodiversity



Project alignment with national regulations, IFC Performance Standards, Equator Principles, Akuo's Biodiversity Policy, and good international industry practice

Parque Solar Fotovoltaico Cabreto 1

Predicted project impacts:

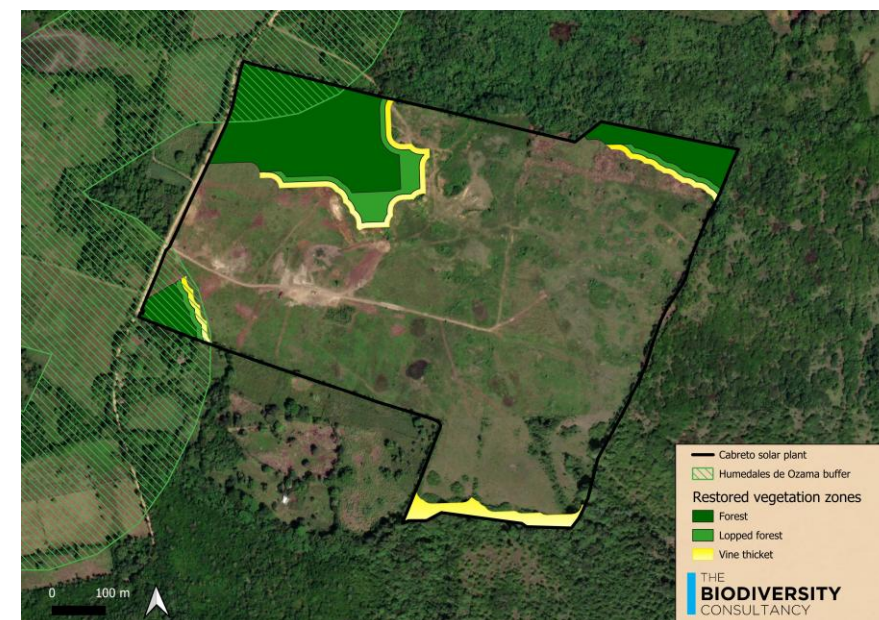
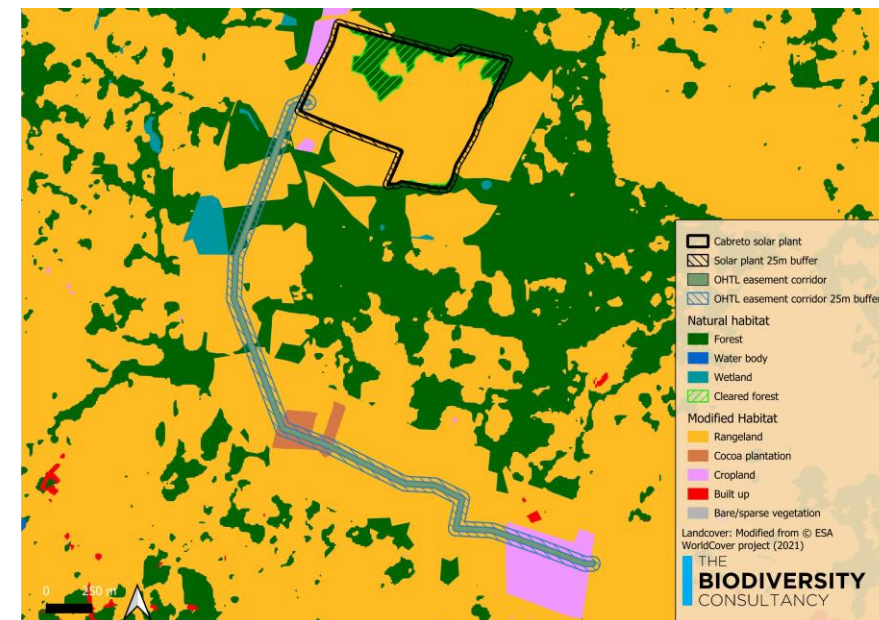
- Loss of 9.8 ha of secondary very humid forest (non-critical, degraded natural habitat), loss of threatened flora and fauna, fauna disturbance (noise, vibration, light), and spread of invasive species
- Potential bird collisions with OHTL (Double-striped Thick-knee), minor risk of bird collision with solar panels, fauna disturbance from human activity

Actions to demonstrate no net loss of biodiversity:

- Design changes to avoid impacts on the National Park and to minimise forest loss
- Good practice mitigation to reduce impacts during construction and operation
- Restoration of grassland within the solar park
- **Set-aside area** of 10.5 ha within project site
- Installation of Bird Flight Diverters on an existing OHTL in the National Park
- Biodiversity monitoring and evaluation with adaptive management

Additional conservation actions:

- Restore habitats in the National Park
- Support biodiversity research and awareness raising



Conclusions

Demonstrating no net loss or net gain of biodiversity on a solar project requires:

- Careful siting of project to avoid sensitive habitats and protected areas
- Quantitative baseline collection and assessment of losses & gains
- Systematic implementation of the mitigation hierarchy
- On-site habitat restoration, biodiversity set-asides and/or offsets
- Monitoring, regular performance reviews, and adaptive management throughout project's life cycle





Where Business and Nature Thrive

+44 (0) 1223 366238

mihai.coroi@thebiodiversityconsultancy.com

The Biodiversity Consultancy Ltd

Newnham Mill, First Floor, Newnham Road, Cambridge, CB3 9EY, UK

www.thebiodiversityconsultancy.com

William van der Heiden

Senior Environmental Planner, EMEA,
Lightsource bp



Nature Positive at Lightsource bp

Perspective from a developer

William van der Heiden, Senior Environmental Planner, EMEA

03/12/25



Contents

1. Nature Positive at LSbp
2. UK: Biodiversity Net Gain
3. Iberia: Species Led Mitigation
4. Final Thoughts



Nature Positive at Lightsource bp

Lightsource bp's BNG Aim:

Adhere

to the mitigation hierarchy

Prepare

a site-specific Biodiversity Management Plan

**Measure and
Record**

the anticipated Biodiversity Net Gain 5 years
post construction

Assess

at 5 years post construction whether net gain
has been achieved

Spatial Data

is used to capture the evolution of the Site



UK: Biodiversity Net Gain (BNG)

The UK Environment Act 2021 introduced mandatory BNG for all development.

UK BNG Metric considers **four** criteria

- 1. Type** of habitat
- 2. Size** (area)
- 3. Condition**
- 4. Distinctiveness**

UK Operational Sites: BNG Assessment, 2023

FINDINGS

- Survey of sites with landscaping and biodiversity enhancements.
- **8 out of 10** demonstrated a quantitative improvement in habitat.
- On **3 of the 8**, “like-for-like” habitat replacement was not achieved, causing a penalty and resulting in no BNG.

ACTION

- Projects following this study designed in line with BNG Guidelines
- Potential to deliver **20-150% BNG** outcomes 5 years post development.

Key Considerations

Application of BNG to BESS is not without challenges

Opportunities to monetise BNG uplift through BNG Credits.

Land for solar in UK is typically intensive agricultural use.
Well designed mitigation can be deliver significant benefits.

Spain & Portugal: Species Led Mitigation

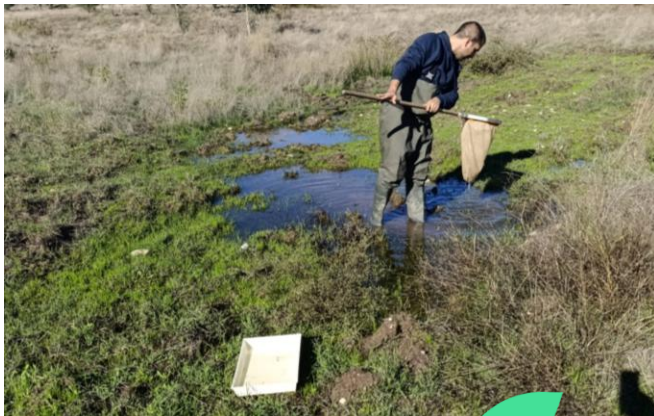
Portugal



Expert led adaptation of LSbp's BNG approach to reflect the ecological context of the country



Robust ecological monitoring to develop an evidence-base for engagement with authorities.



Spain



Study to better understand the lesser kestrel's relationship with solar farms in Andalusia



Findings inform LSbp project design to optimise the sites for the conservation of the species.



Final Thoughts



Strategies for nature positive renewables need to be regionally applicable but nationally mandated.



We need to “walk the walk” on nature positive renewables.
Delivery is key.



Without legislative requirements for nature positive renewables, appetite for application is limited in the market.

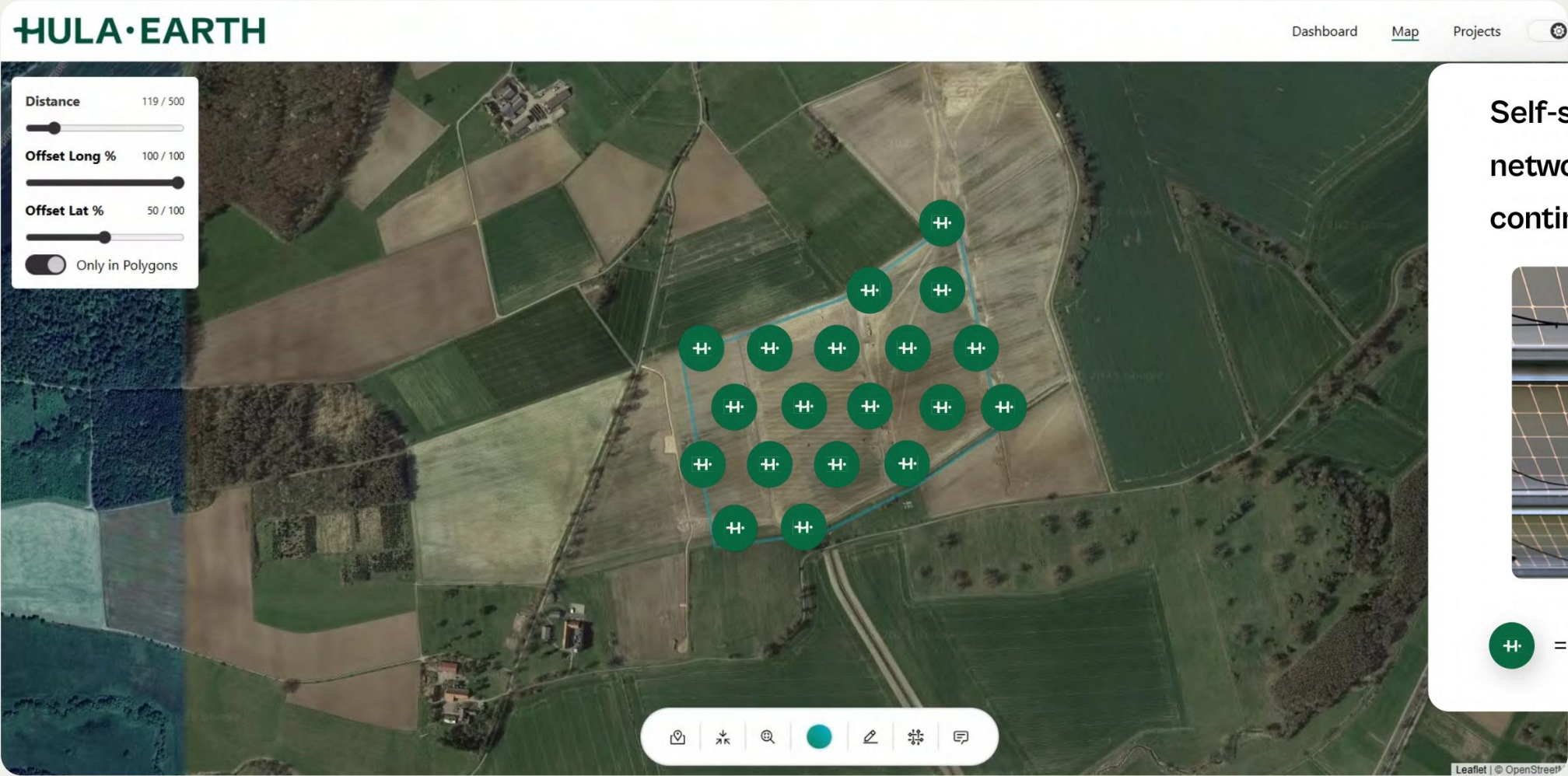


Florian Geiser

Co-founder & CEO,
Hula Earth

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Passive acoustic monitoring: BioTs for locating breeding birds.



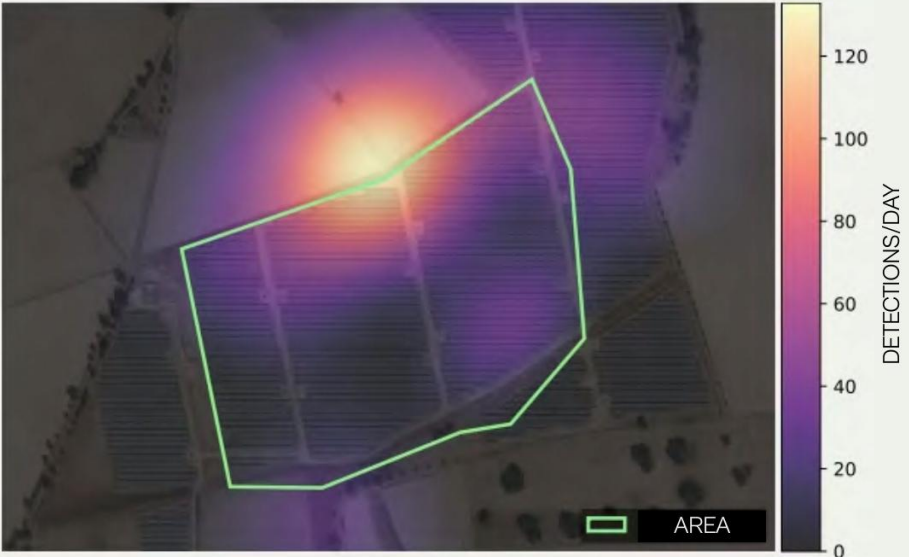
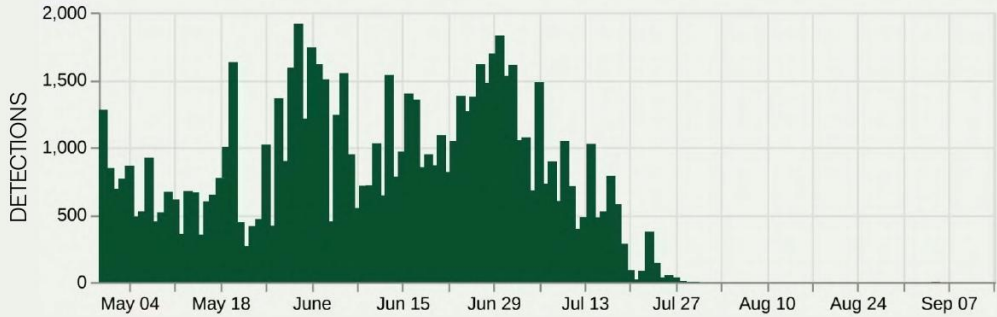
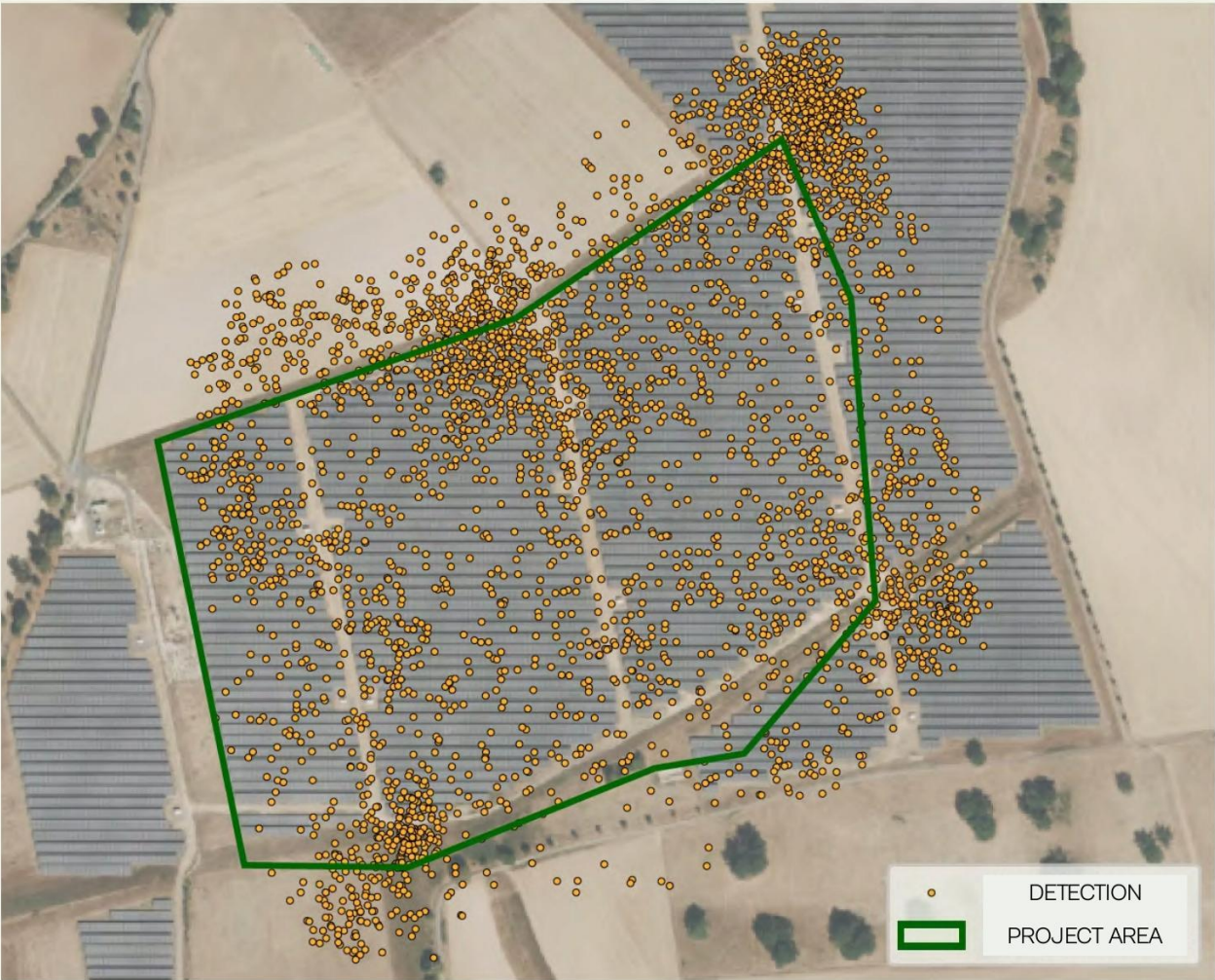
Self-sufficient sensor network, unlocking continuous monitoring



 = Hula BioT Device

RESULTS: MAY UNTIL SEPTEMBER

Skylarks? Present with 77.052 detections.



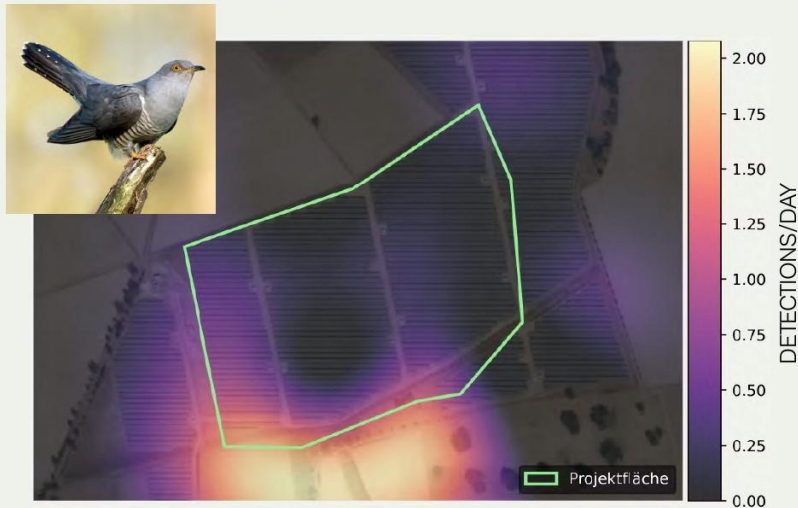
Flowering strips act as a driver for some species, but not for all.



Whitethroat



Yellowhammer



Cuckoo







Skylark

Passive Acoustic Monitoring Standard

Eurasian Skylark

Alauda arvensis



| Recording Periods | |
|-------------------|---|
| Time of Year | Early April – Early August |
| Dawn |  – 4 h –  |
| Dusk |  – 2 h –  |

| Technical Requirements | |
|------------------------|------------------|
| Frequency Range | 0.5 kHz – 10 kHz |
| Grid Distance | max. 200 m |

Monitoring Criteria

| | |
|--|---|
| A2 – Territorial Behaviour | <i>Repeated song detections at the same location</i> |
| <ul style="list-style-type: none">• Song detections on at least 3 out of 7 consecutive days• At least 1 detection in April/May (first brood) or June/July (second brood)• Maximum distance of 100 m between detections | |
| B4 – Range Behaviour | <i>Regular singing activity over a longer period</i> |
| <ul style="list-style-type: none">• Song detections on at least 5 out of 14 consecutive days• Peak activity at dawn• Maximum distance of 100 m between detections | |
| B6 – Breeding Consistency | <i>Continuous territoriality over both breeding periods</i> |
| <ul style="list-style-type: none">• Song detections in both breeding periods (April–May and June–July)• At least 10 detections per breeding period• Maximum distance of 100 m during brood, shift up to 300 m between broods | |
| C13 – Breeding Behaviour | <i>Typical changes in song patterns during breeding</i> |
| <ul style="list-style-type: none">• Shorter song episodes with regular singing pauses of at least 15 min• At least 2 singing pauses per 2 h window• Observations of these patterns on at least 5 out of 10 consecutive days• Maximum distance of 100 m during brood | |

Unfair advantage: "Nature-Positive Energy Companies" refinance portfolios cheaper.



Dual-Revenue Asset

- Clean Energy + Verified Biodiversity Gains. Qualify with **climate & nature solutions** for impact funds.
- Refinance projects with **lower interest rate**, potentially saving millions (e.g. 50-100bps).
- **Premium PPAs**: "Nature-Positive Electricity" sold to CSRD-compliant corporates with premium (e.g. 5%).



Steven Kamerling

Projects & Methodology Development
Manager,
NL Greenlabel

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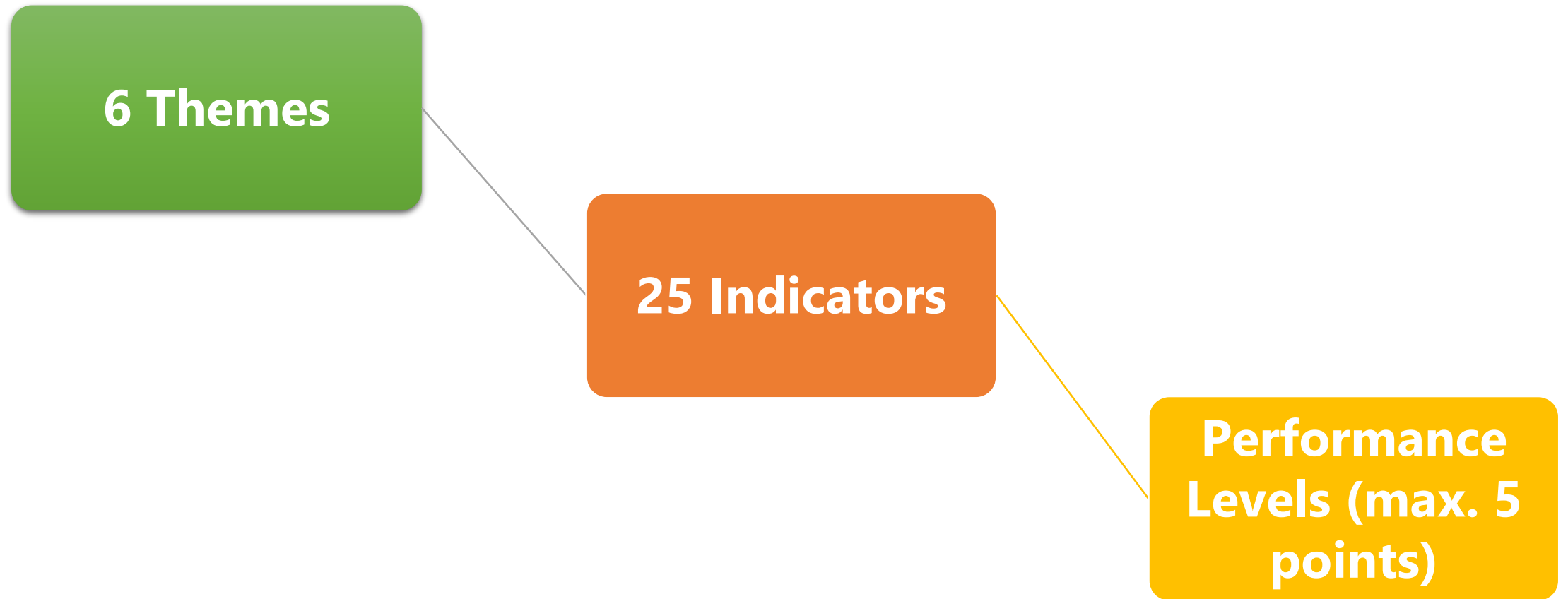
Goal EcoCertified Solar parks-label



Efficient development of solar parks, with positive impacts on local flora and fauna while preserving soil health.

We achieve this through scientific research and a dedicated certification label.

Structure



Framework

- A framework aimed at safeguarding biodiversity at every stage of the project
- Starting point: added value for biodiversity
- With the right expertise and knowledge throughout the process
- Focus on above- and below-ground biodiversity, with clear action perspectives
- Attention to maintaining healthy soils also during construction
- Secured for the future through management and monitoring

INDICATORS OF THE ECOCERTIFIED SOLAR PARKS-LABEL



| HEALTHY SOIL | (RESTORATION OF) BIODIVERSITY | SAFEGUARDING LONG-TERM MANAGEMENT & BIODIVERSITY |
|-------------------------------------|--|--|
| Soil irradiance | Flora and fauna information | Core area management regime |
| Rainwater distribution | Connection to local ecological network | Ecological management plan |
| Soil management during construction | Indicator species | Management monitoring |
| Soil balance (earthworks balance) | Variety of natural elements | Biodiversity monitoring |
| Water level management | Wildlife facilities (fauna provisions) | Implementation of monitoring |
| DEVELOPMENT PRINCIPLES | LANDSCAPE INTEGRATION & STAKEHOLDER ENGAGEMENT | LAYOUT & SUSTAINABLE USE OF MATERIALS |
| Previous land use | Landscape integration | Origin of plant material |
| Nature connectivity opportunities | Local stakeholder engagement | Space for natural elements |
| | Open access to ecological inventories | Solar table row spacing |
| | | Solar panel orientation |



Threshold

- Soil irradiance
- Soil management during construction
- Previous land use
- Connection to the local ecological network
- Indicator species
- Variety of natural elements
- Wildlife facilities
- Landscape integration
- Core area management regime
- Ecological management plan
- Financing of ecological management
- Origin of plant material

INDICATORS OF THE ECOCERTIFIED SOLAR PARKS-LABEL



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| | | Solar panel orientation |
| Threshold | | |



Process for applying the ECSP label

- The EcoCertified Solar Parks (ECSP) label can be applied in the following phases: the ambition phase, the design phase and the implementation phase.
- **Ambition phase (screening)**
The land for the development of a solar park has been acquired, but there are no concrete plans yet. Through a screening with relevant stakeholders, the ambition level for the solar park to be developed is determined.
- **Design phase**
For the solar park, a concept design, preliminary design or final design is available. This design is assessed against the themes and indicators of the label, providing insight into how the design scores against the label's principles.
- **Implementation phase**
The solar park has been constructed. Using the EcoCertified Solar Parks label methodology, the final score achieved by the project is determined.



How the label is used in practice

By developers

- Developers use the ECSP assessment framework to demonstrate to municipalities that biodiversity is structurally integrated into the design and realisation of their solar parks.
- The label provides a transparent, science-based way to show how above- and below-ground biodiversity and soil health are taken into account.

By municipalities

- An increasing number of municipalities use the ECSP label as a condition in their permitting process for new solar parks.
- Developers are asked to demonstrate that they can meet the minimum thresholds and are on track to obtain the ECSP certificate.

Towards national subsidy schemes (SDE++)

- Discussions are currently ongoing in the Netherlands to link the ECSP label to the SDE++ subsidy scheme as a recognised compliance route for “nature-inclusive” solar.



Questions?



Steven Kamerling

s.kamerling@nlgreenlabel.nl

0653816295



Panel discussion



**Will
van der Heiden**

Senior
Environmental
Planner,
Lightsource bp



**Rebecca
Humphries**

Head of Climate
Policy, Europe,
TNC



**Mihai
Coroi**

Technical Director –
Renewables,
The Biodiversity
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Thank You!



Solar Promotion GmbH

Kiehnlestraße 16
75172 Pforzheim, Germany
Phone: + 49 7231 58598-0
info@TheSmarterE.de
www.TheSmarterE.de



SolarPower Europe

Rond-Point Robert Schuman 3
Brussels 1040, Belgium
info@solarpowereurope.org
www.solarpowereurope.org