



SUSTAINABLE SOLAR — EUROPE 2024

Session 4: How Can Solar Deliver Biodiversity Net Gains

12 December 2024

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Rewarding and incentivising nature-inclusive solar through EU policy



solarpowereurope



Rewarding and incentivising nature-inclusive solar through EU policy

POLICY PAPER



How to define nature-inclusive PV?

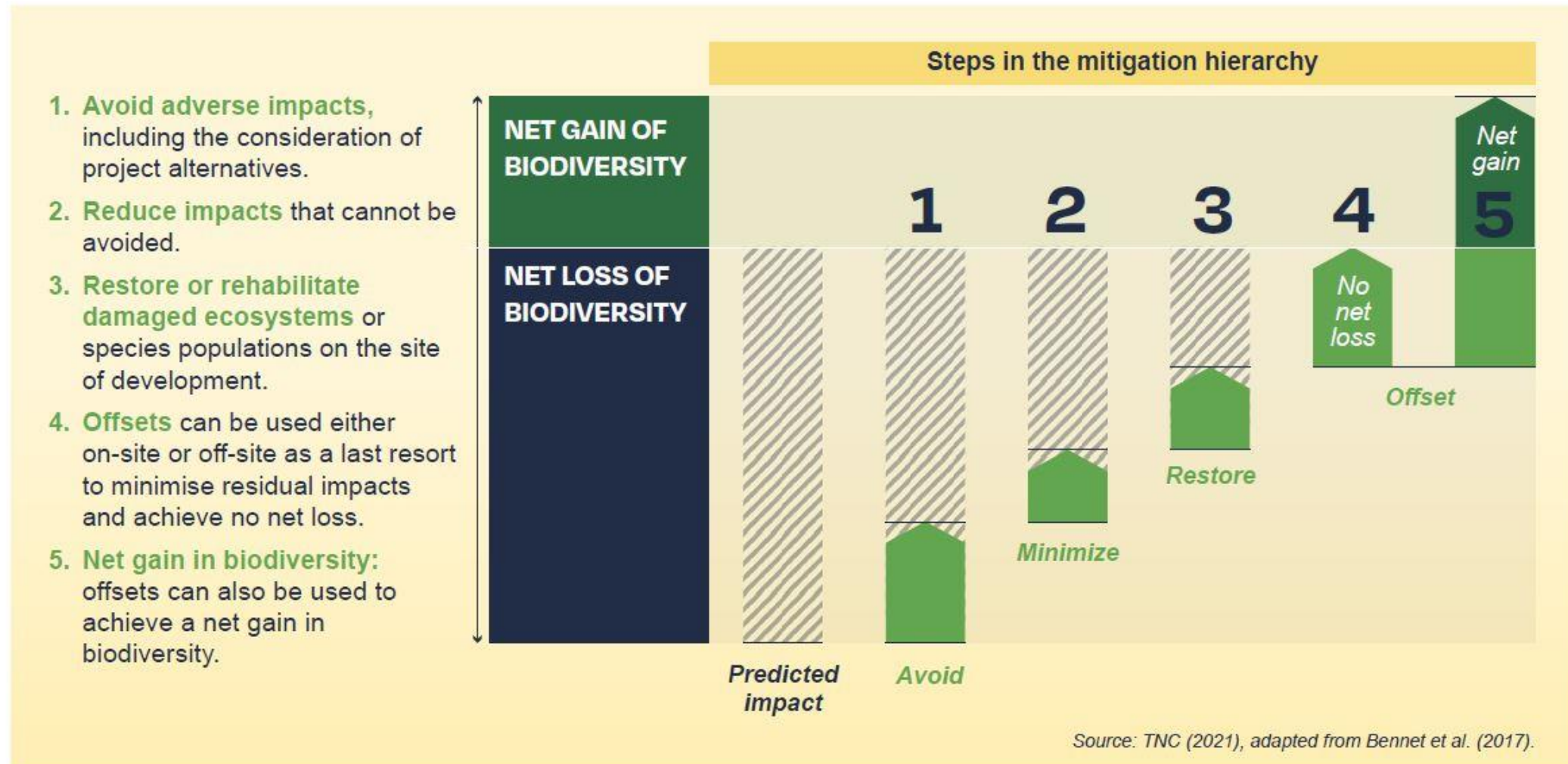


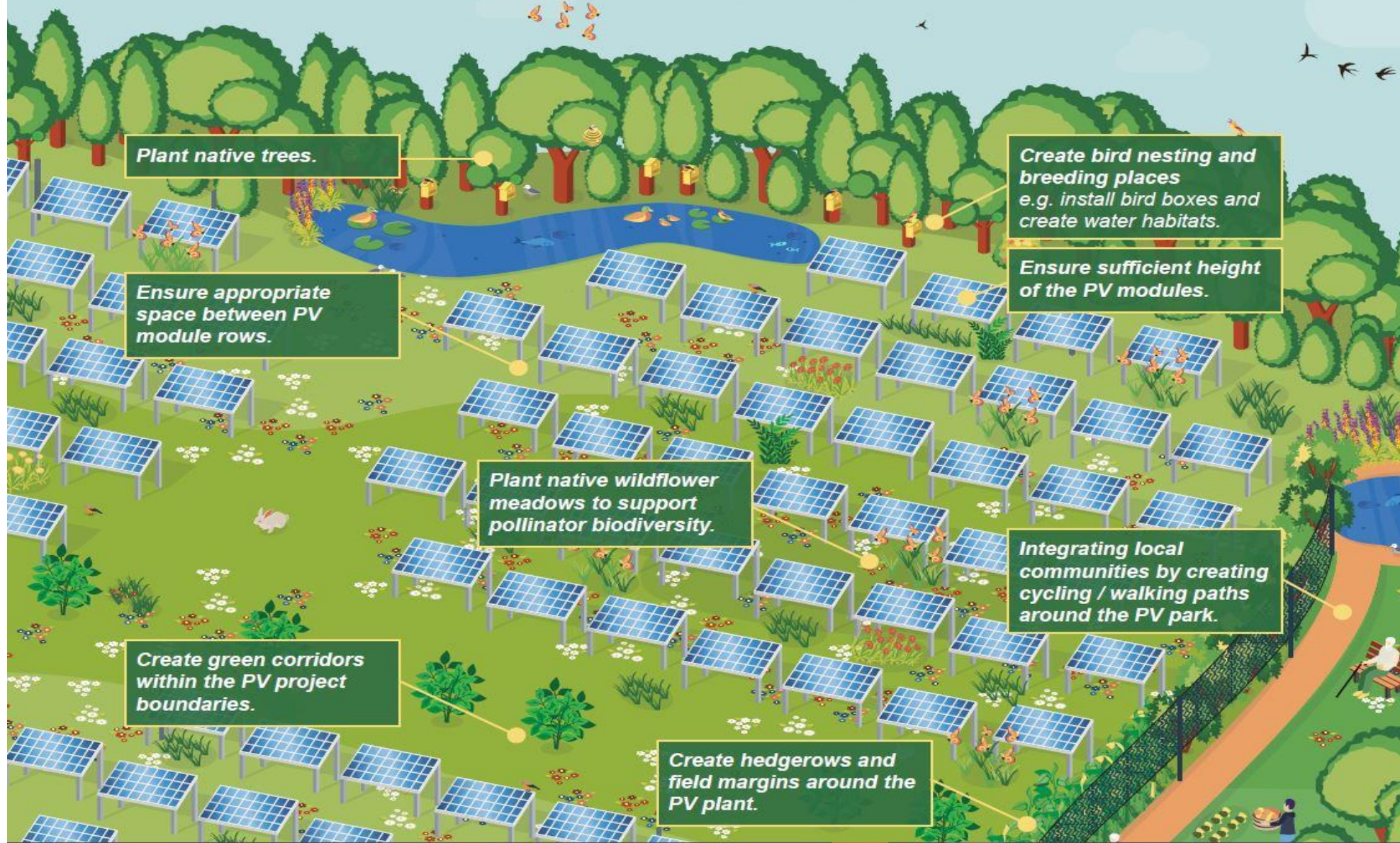
Figure 1: Mitigation hierarchy including biodiversity net gain. Source: TNC (2021).

How to define nature-inclusive PV?

A solar park that **follows the mitigation hierarchy** - by avoiding the conversion of protected nature areas and rather **developing on land with low-biodiversity value** - and **contributes to biodiversity net gain**, by managing the land to create a net increase in native biodiversity relative to the assessed level prior to solar development.



Nature-inclusive solar park



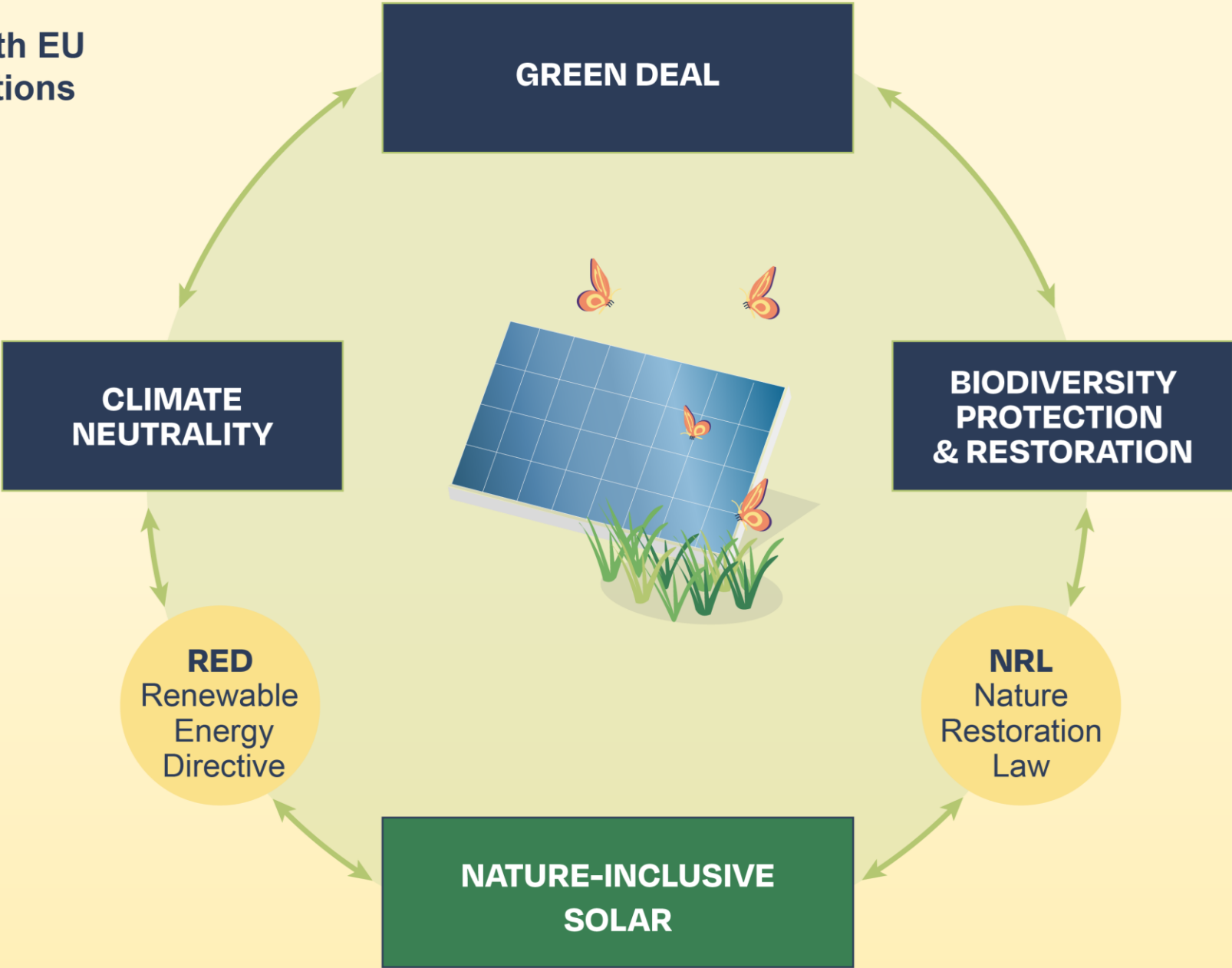
Nature-inclusive solar and existing policies

- There are a number of existing policies which are relevant for nature-inclusive solar, at EU, national, and local level
- At EU level, this includes the recently adopted Nature Restoration Law (NRL) and Fit for 55 legislation
- There are also existing national level policies which are relevant examples, such as the Biodiversity Net Gain concept in England
- However, there is a need to coherently define nature-inclusive solar practices, to better incentivize and support them

How nature-inclusive solar connects with EU policy objectives, strategies and regulations

POLICY RECOMMENDATIONS

-  Provide clear definitions, development guidance, and robust monitoring and evaluation frameworks for determining biodiversity contributions.
-  Create an enabling environment for nature-inclusive solar park development.
-  Enhance integration into local legal frameworks and spatial planning.
-  Stimulate further research.





Scan me!



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Solarparks: Benefits for the energy transition and biodiversity

Solarpark: construction methods and potential for biodiversity



Solarparks on agricultural land

- Extensive (agricultural) area use
- Synergies with agriculture
- **Agriculture** 🤝 **Biodiversity**

Agri-PV

Biodiversity-PV

Light & water in the solarpark

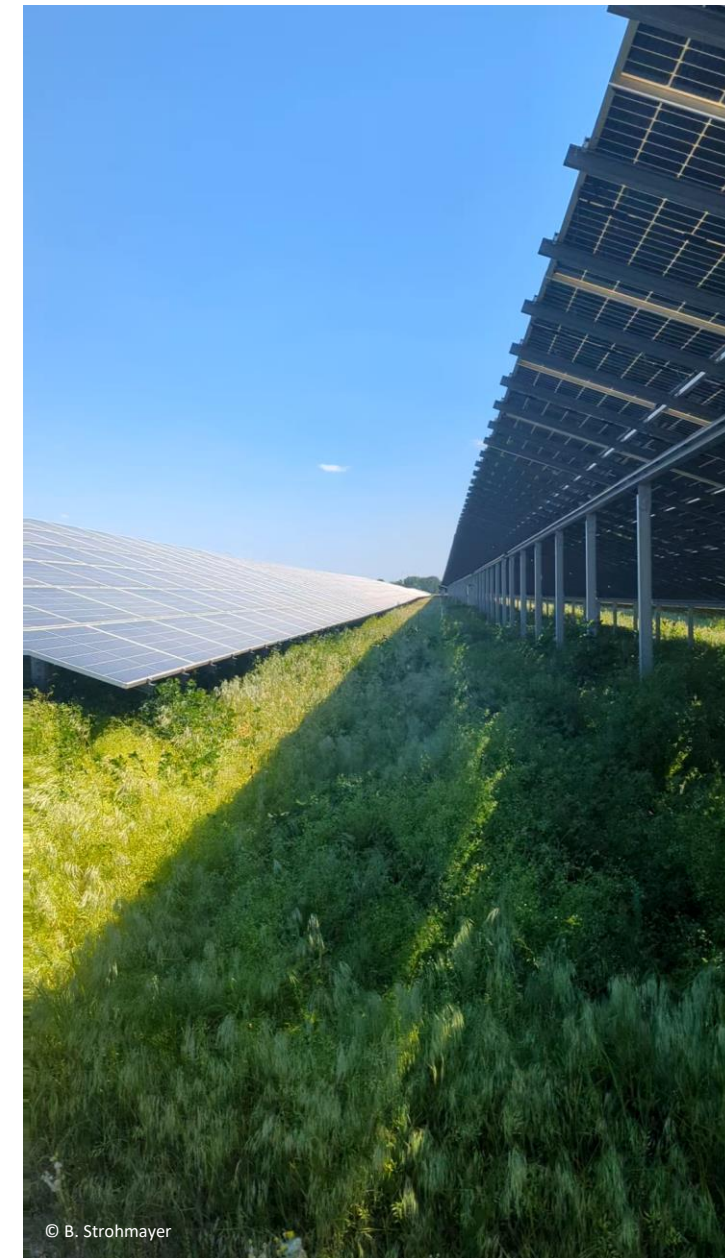


Rain in the solar park

**Install bifacial modules at a distance:
Rainwater also gets under module tables**



Solar parks do not seal any surfaces and there is light and nature under the modules



Racks, transformers and inverters, battery storage, auxiliary systems: generally around 1-2 % of the surface area.

Solar parks are managed



Grazing
(e.g. with sheep)



**Extensive mowing,
removal of mowed
material** (high biodiversity)



Mulch mowing
(lower biodiversity)



Key factors for biodiversity

- **Light / sun exposure**
- **Low disturbance**
- **Correct area management**

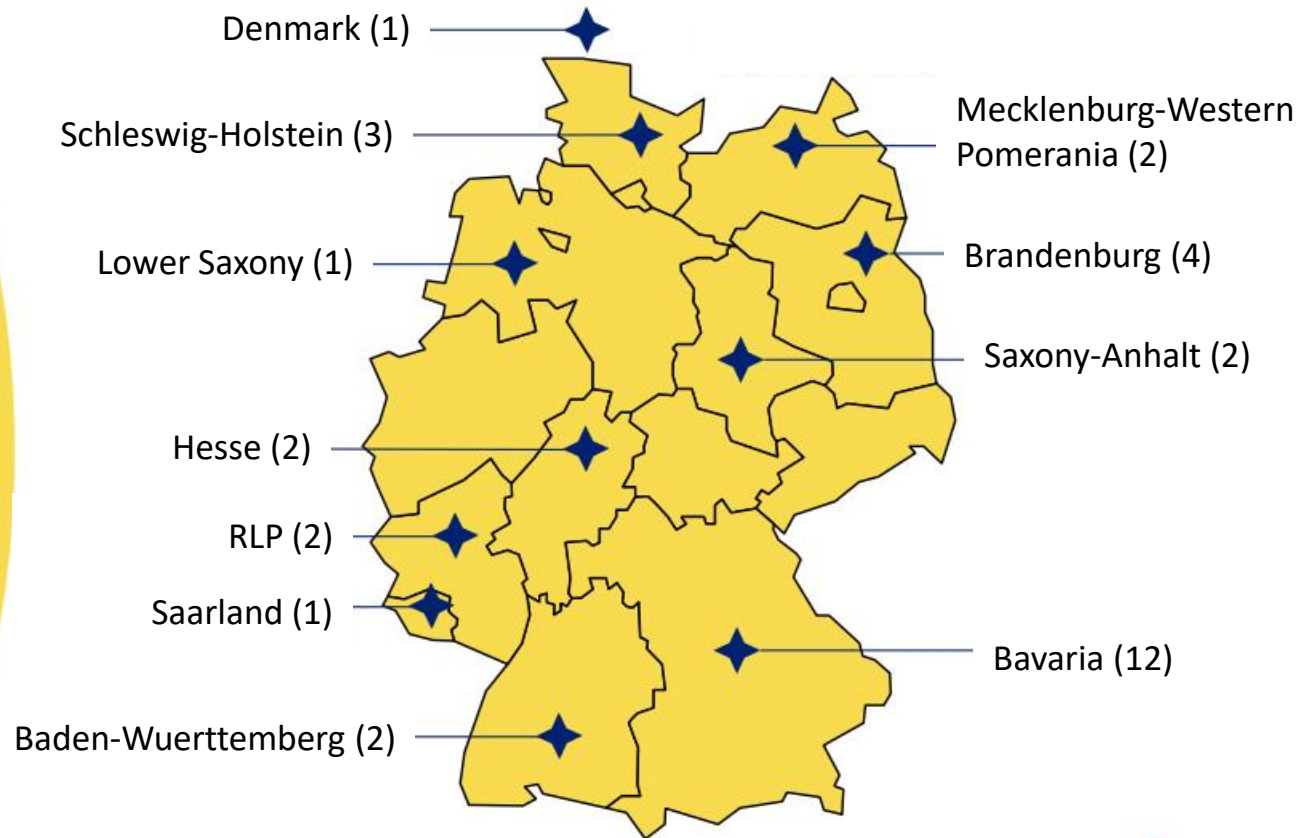


Key factors for biodiversity → Mechanism for biodiversity

- **Light / sun exposure**
- **Low disturbance**
- **Correct area management**
- **Plants & insect diversity** 
- **Food source (e.g. birds)**
- **Feeding habitats (e.g. mammals)**



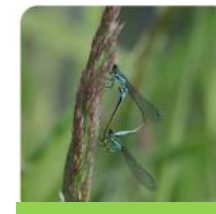
New study: Biodiversity in solarparks



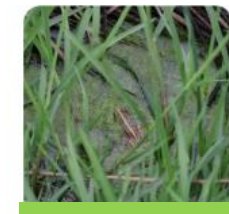
■ 30 modern solar parks (Publication 03/2025)



plants



dragonflies



amphibians



reptiles



butterflies



grasshoppers



bird life



(+++)



Thank you for
your attention!

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Devoted to Natural Energy

Biodiversity Revolution in Solar Parks



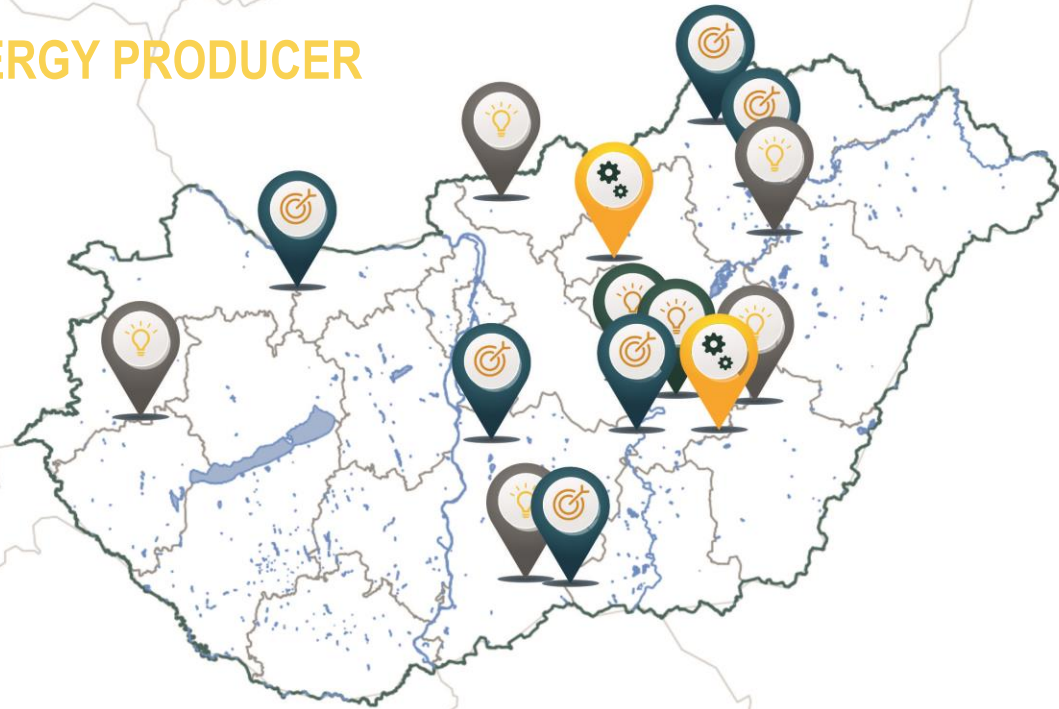
SOLSERVICES

Agnes Takacs, PhD

Project Development & Sustainability Manager

Introduction

LEADING GREEN ENERGY PRODUCER



+ Creator of nature-friendly solar parks



206 MWp
Developed, constructed
& operate



88 MWp
Under construction



226 MWp
Under development



1000+ MWp
Developed

+ complementary wind & BESS
capacities under development



SOLSERVICES



PROFESSIONAL GUIDE

FOR THE DEVELOPMENT
OF NEXT-GENERATION
SOLAR PARKS

Principles

#NATUREFRIENDLYSOLARPARKS

- Maximum energy production efficiency
- Environmental protection principles
- Rules for organic farming



TOP 10
Sustainable Solutions in Europe 2023
Applied Technology Review Magazine, Europe Special



scan & go
green



Sustainability Award, 2024
Conservation & restoration of biodiversity category
Business Council for Sustainable Development in Hungary

L U M E N

P A R K

S Z O L N O K

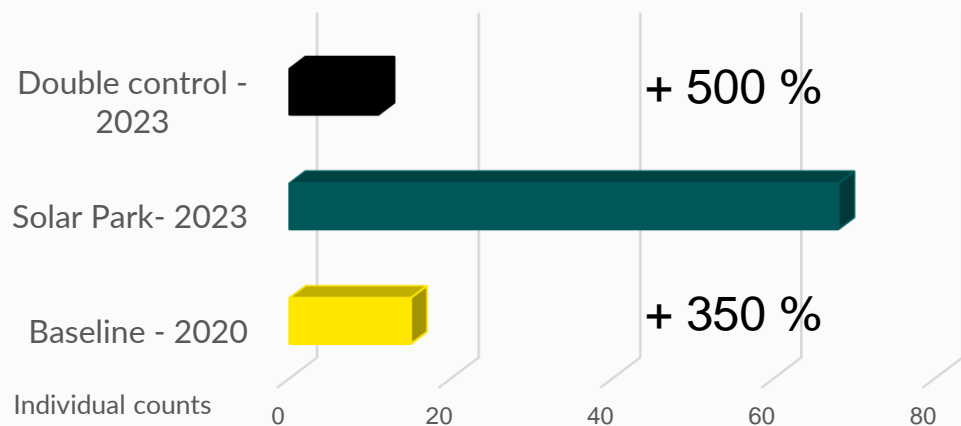
Independent ecological survey

- Habitat environmental parameter survey (temperature & humidity of soil surface)
- Vegetation survey (coverage & diversity)
- Bird survey
- Insect survey with a special focus on polarotactic insects

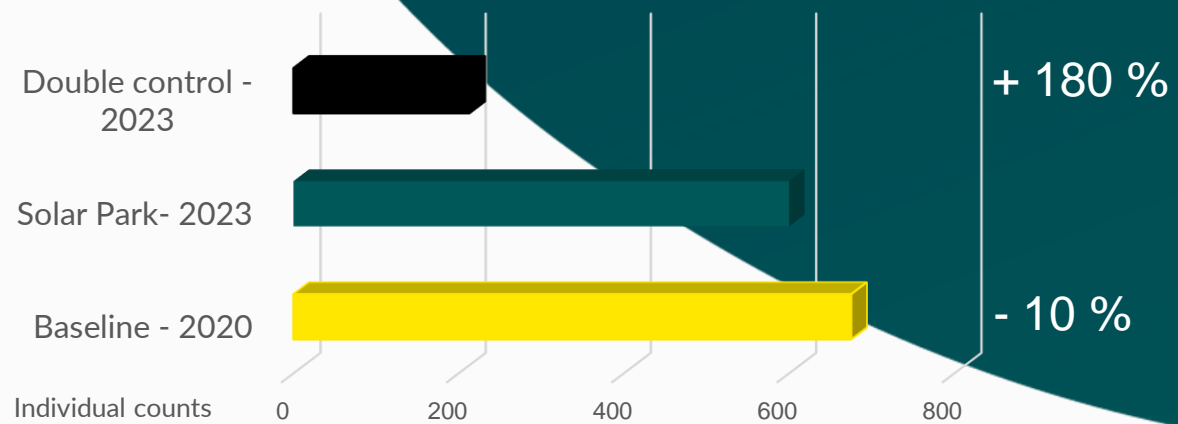
Baseline – 1st control

Nearby agricultural site – 2nd control

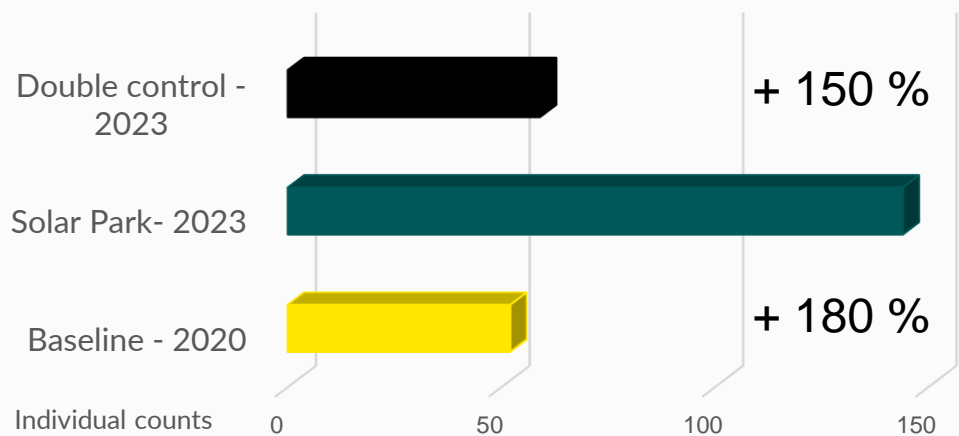
Butterflies



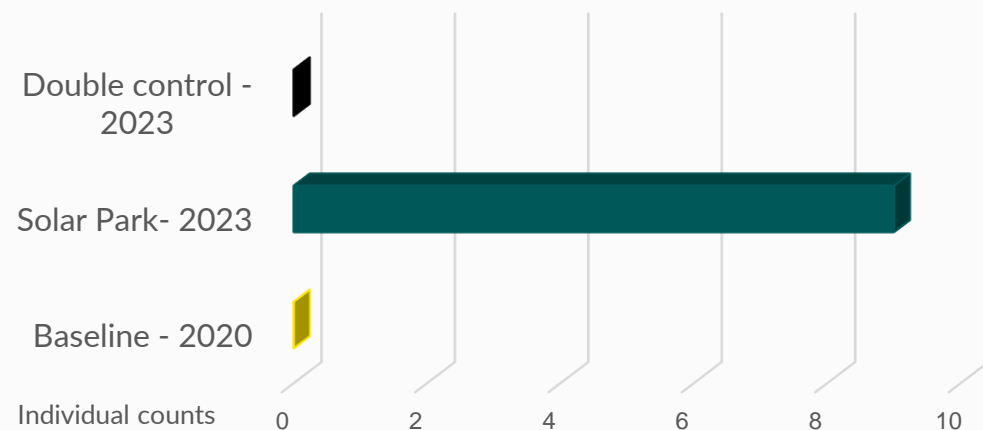
Bees and wasp



Cicadas and relatives



Spiders

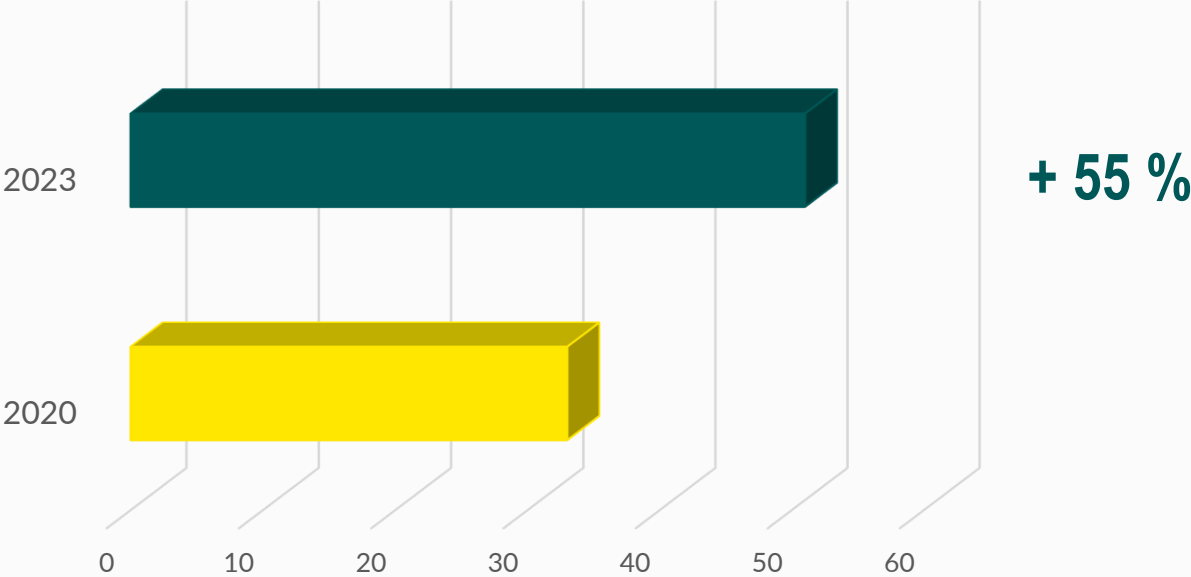


IS THERE ANY EFFECT ON POLAROTACTIC INSECTS?

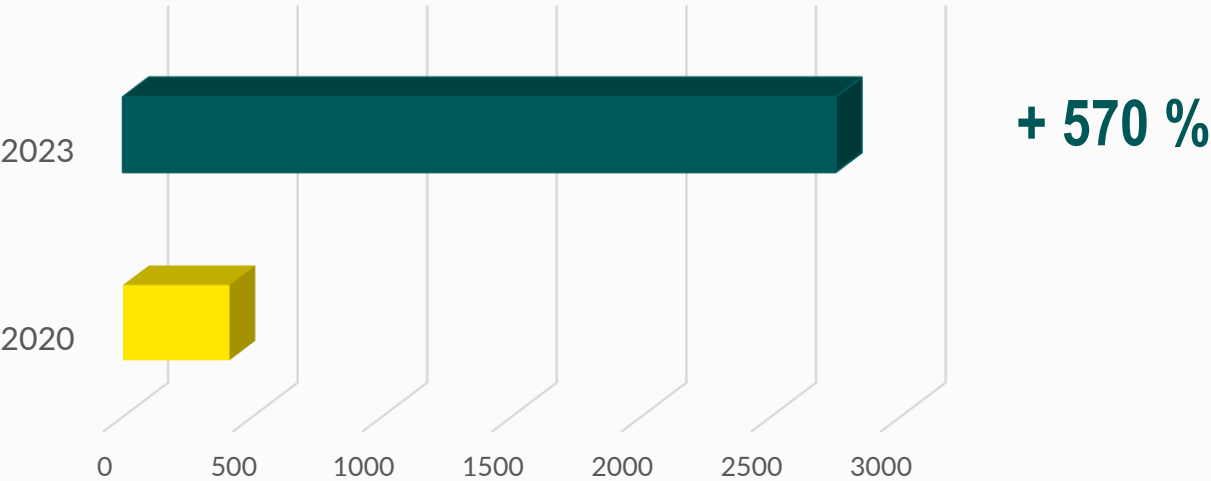
	Ratio of non polarotactic insects	Ratio of polarotactic insects
Baseline - 2020	99.92%	0.08%
Solar Park - 2023	98.53%	1.47%
Double control - 2023	99.85%	0.15%

- No significant difference in insect composition between the solar park and the control area
- Statistically insignificant increase like reflects the overall biodiversity growth within the solar park
- Solar parks has no negative impact on polarotactic insects

Birds, species richness



Birds, abundance



2020. Baseline Survey



- Ecologically barren
- Ecological brownfield site

2023. Operation Survey – 1st year



- Distinct positive influence on biodiversity
- Significant nature restoration potential



LUMEN PARK

— SZOLNOK —



scan & go green

Monica Oviedo Cespedes

Head of Sustainability Management &
2030 Agenda
Iberdrola



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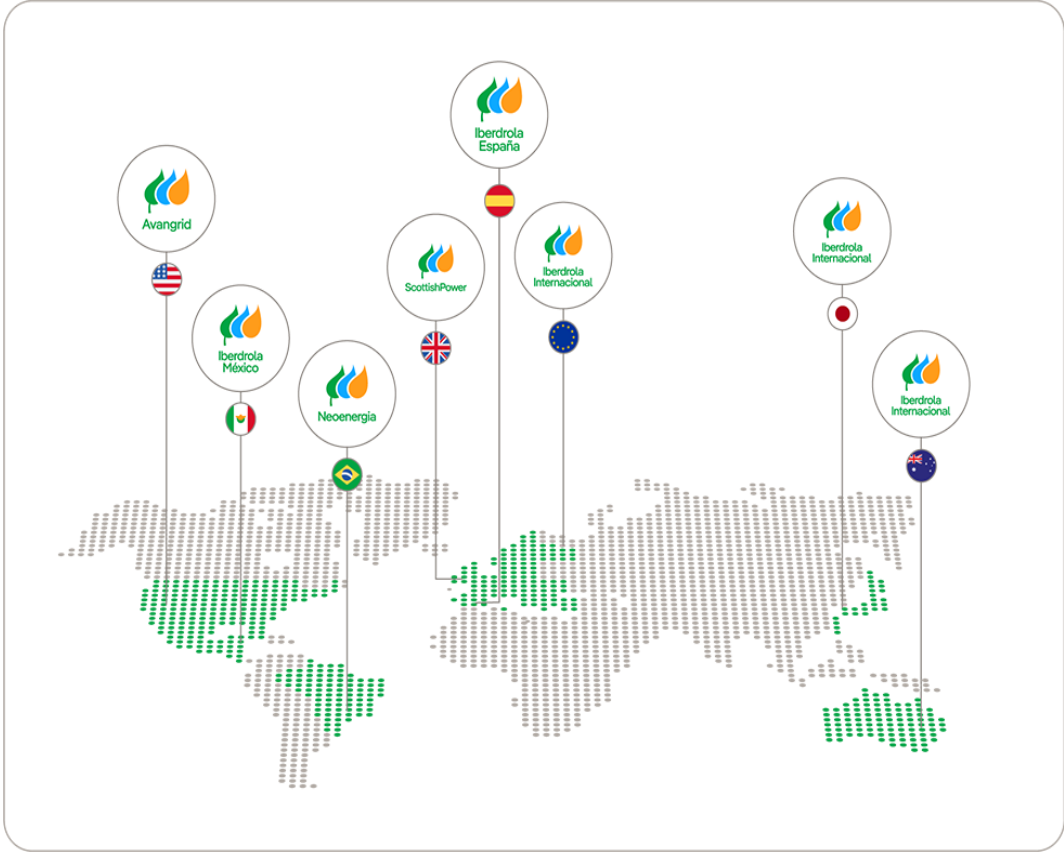
Session 4: How Can Solar Deliver Biodiversity Net Gains

12/12/2024

Iberdrola group is today a global energy leader, leading renewable producer and one of the largest electricity companies by market capitalization in the world.



Construction – Operation and maintenance – Decommissioning



An energy model in harmony with nature and people



CLIMATE ACTION PLAN

- Carbon neutral by 2030 (generation and distribution activities)
- Net-zero emissions by 2040 (all activities)

BIODIVERSITY PLAN

- Net Positive Impact on Biodiversity by 2030
- No net deforestation by 2025

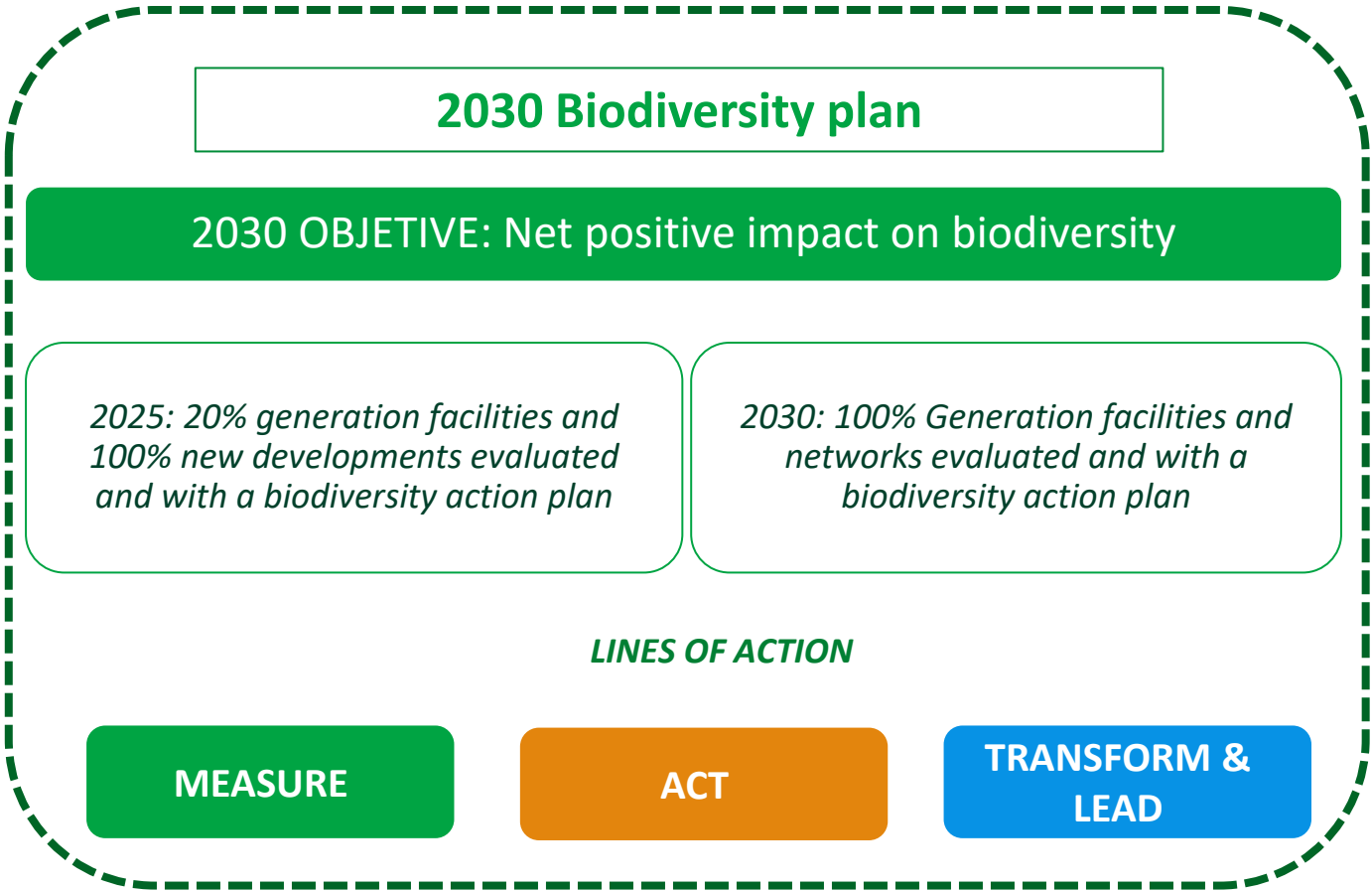
CIRCULAR ECONOMY PLAN

- 50% reduction of raw materials
- Blade and panels recycling targets

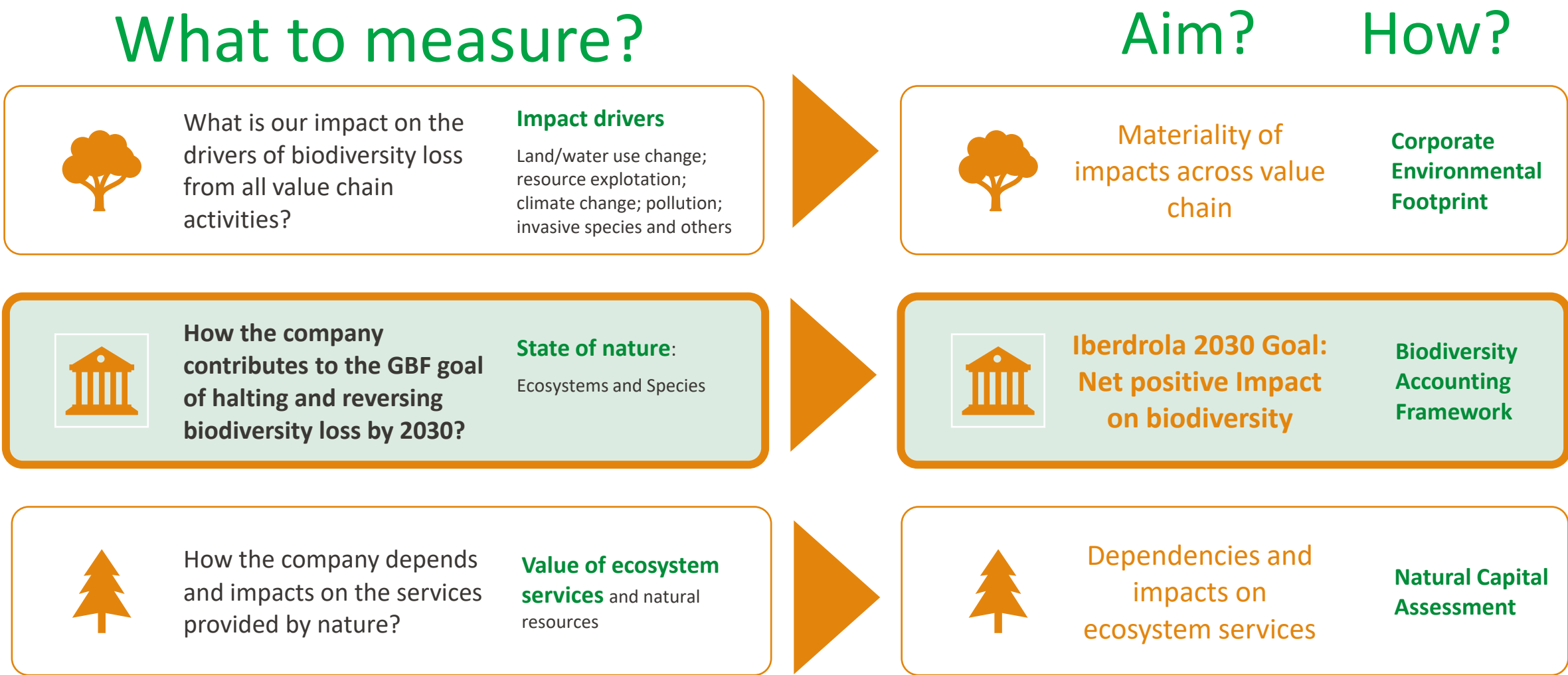
Our model: Renewables & Networks



High interaction with the territory and its biodiversity due to its location in the natural environment.



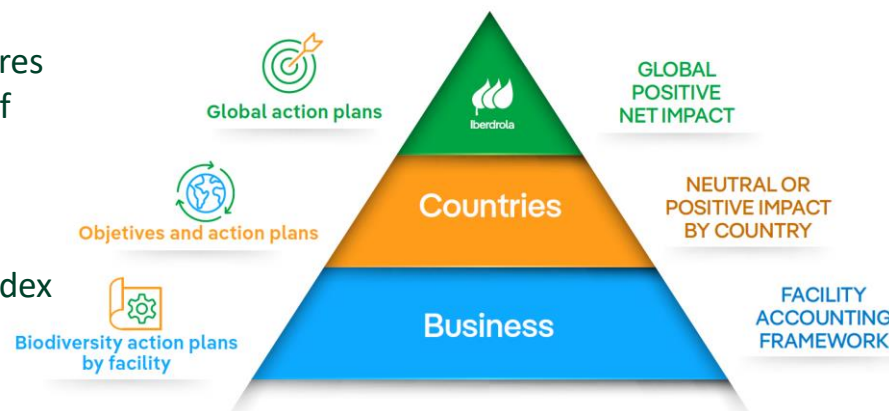
SCIENCE BASED TARGETS NETWORK
GLOBAL COMMONS ALLIANCE



Measuring Iberdrola group's net impact on biodiversity

Two metrics:

- ✓ **Ecosystems** - new developments. Measures the change in the condition and extent of the affected ecosystem
- ✓ **Species** - operation and maintenance
Balance of impacts on species. Species index to prioritize activities



2025 OBJECTIVE: 20% generation facilities and 100% new developments evaluated and with a biodiversity action plan

Iberdrola Biodiversity Accounting Framework (BAF)

The BAF allows Iberdrola to:

Systematically record and **consolidate negative and positive impacts** on biodiversity

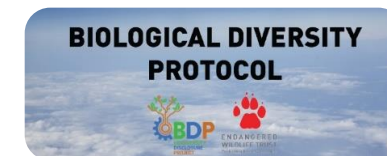
Identify facilities where actions must be prioritized

Find synergies between businesses and establishing common plans

Identify compensation measures on ecosystems and species

Improve the company's reporting on biodiversity

Achieve the corporate objective on biodiversity

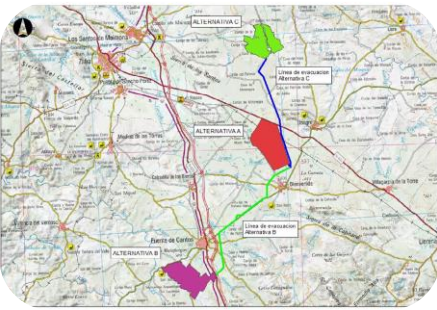


MEASURE - ECOSYSTEM METRIC

Ecosystem type	Extent (ha)	Extent adjusted by condition before construction (ha. eq.)	Extent adjusted by condition after corrective measures (ha. eq.)	Net balance (ha. eq.)
Meso-Mediterranean Basophilic Holm Oak woodland	860	186	318	+ 133
Thermo-Mediterranean Riparian Galleries and Thickets	8	1,6	3,2	+ 1,6

Balance:
Net positive
impact on
ecosystems

BIODIVERSITY ACTION PLAN – MITIGATION / CONSERVATION HIERACHY



AVOID

Sites outside protected areas



CONSERVATION OBJECTIVES:

Flora reserve



REDUCE:

Sheep for vegetation management

Internal Use



RESTORE & REGENERATE:

Ecosystem restoration measures



Panel discussion



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THANK YOU



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