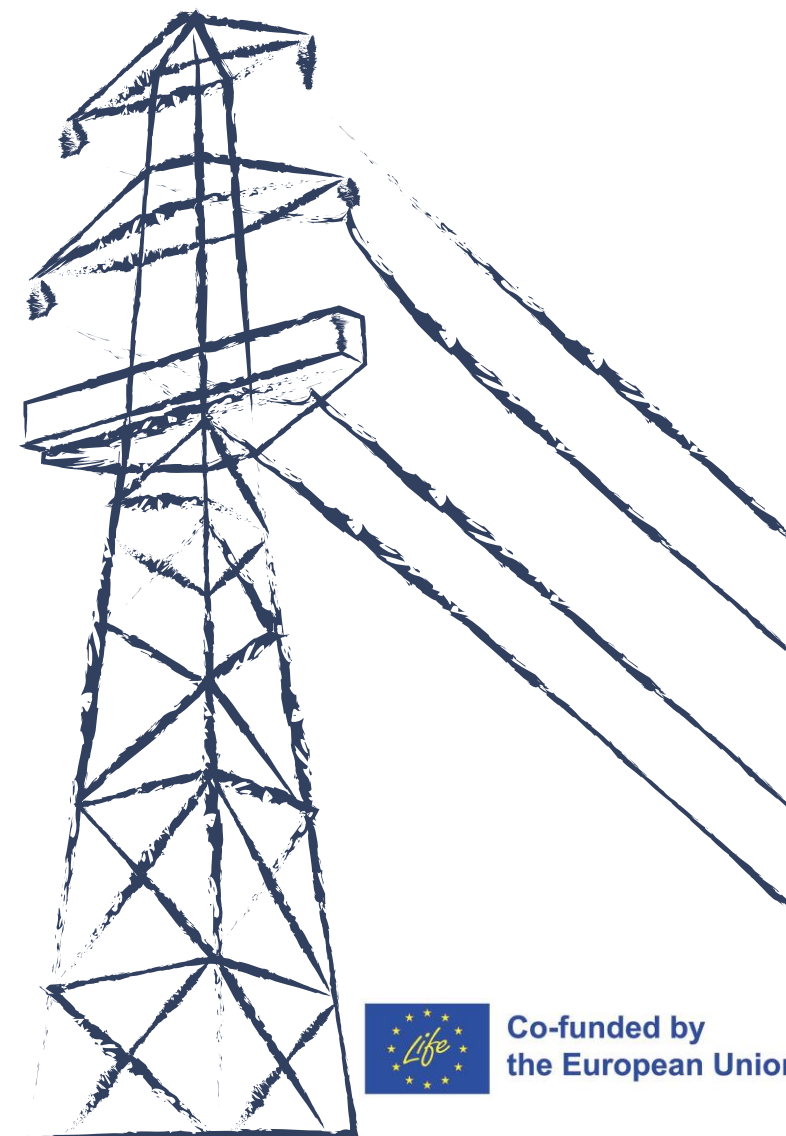


Planning for net-zero

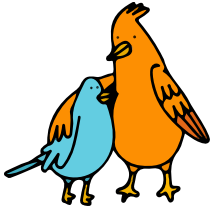
Aligning energy system modelling with policymaking and stakeholders' views

26 June 2025 – “Modeling and Optimization for Net Zero”

Anaïs Picart
Junior Manager – Socio & Energy Systems
Renewables Grid Initiative



About RGI



We engage in an energy transition ecosystem of actors and promote **fair, transparent, sustainable grid development** to enable the growth of renewables to achieve full decarbonisation in line with the Paris Agreement.

TRANSMISSION SYSTEM OPERATORS (TSOs)



Renewables
Grid Initiative

NON-GOVERNMENTAL ORGANISATIONS (NGOs)



SUPPORTING MEMBERS



Renewables Grid Initiative

RGI is a unique collaboration of NGOs and Transmission System Operators (TSOs) from **across Europe**

EUROPEAN ORGANISATIONS



CAN
CLIMATE ACTION NETWORK
Europe

WWF

BirdLife
INTERNATIONAL
BIRDLIFE EUROPE

BELLONA
EUROPA

EMBER

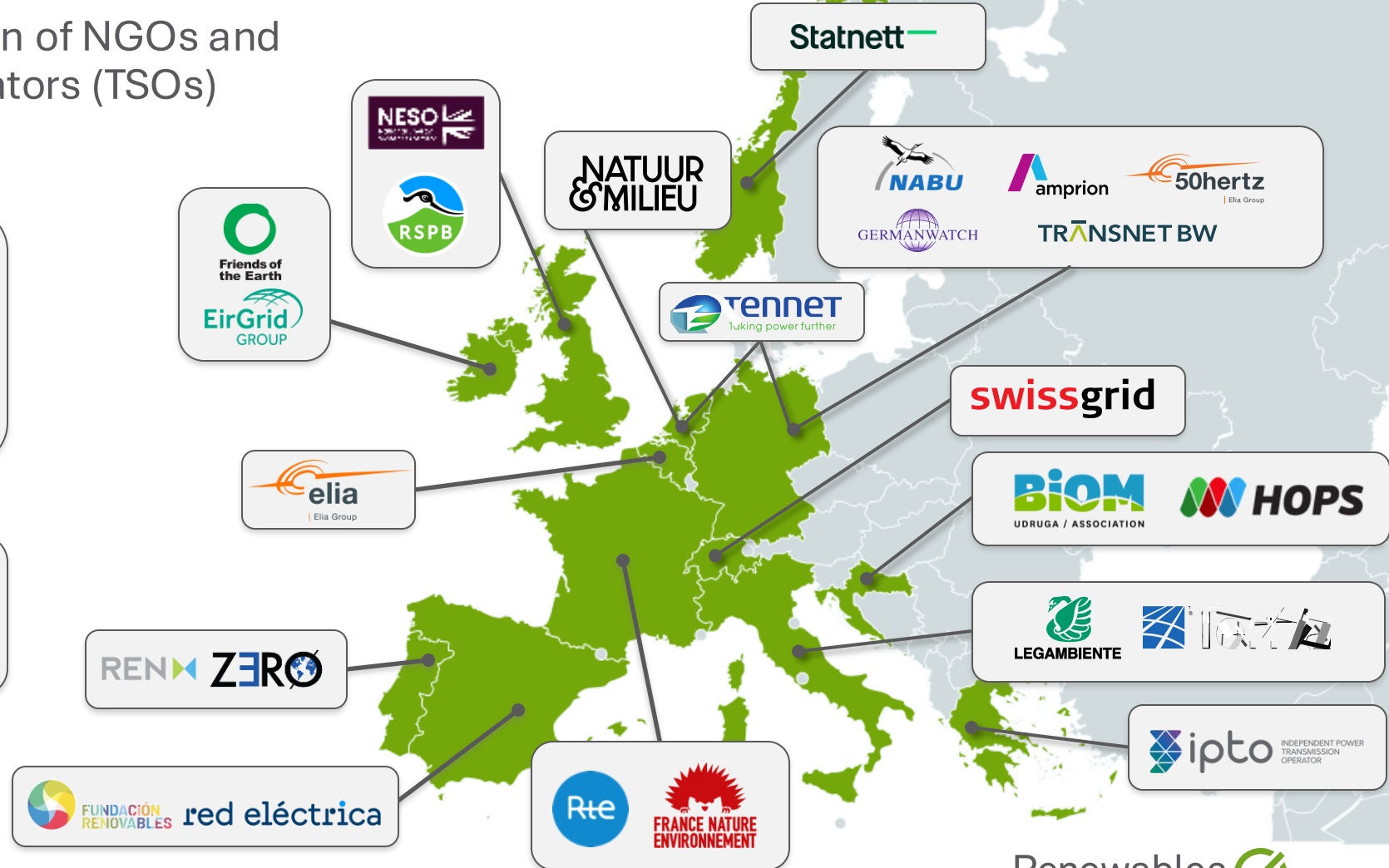
SUPPORTING MEMBERS



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How is our work structured?

We foster knowledge exchange, discussions on the grid infrastructure needs, and the implementation of best practices within **three dimensions**:

GRIDS & ENERGY SYSTEMS

We enable discussions on how to **model, plan and implement** decarbonised and optimised clean energy systems, including different voices in the process.

ENERGY & NATURE

We ensure energy systems both onshore and offshore are developed in **coherence with nature and biodiversity**, promoting mitigation, enhancement and restoration measures.

ENERGY & SOCIETY

We include and engage **citizens, civil society and policymakers** on strategies towards full decarbonisation, building capacity on the role of grids within the energy transition.

Grids for net-zero

EU Climate Targets

-55% in 2030

? in 2040

-100% in 2050

Grids are a critical enabler to reach these objectives because they **physically connect** new renewable capacity and electrified energy demand.

Grids need to adapt to profound changes

- Grid development will need to adapt to **profound transformations**, especially regarding:

Renewables integration

- At least 42.5% renewable energy target by 2030 (REDIII), aiming for 45%

Electrification

- 32% electrification rate by 2030 (Clean Industrial Deal)



Challenges to grid development



Complex and **time-consuming** planning processes



Insufficient financing **grid investments**



Permitting **delays**



Public opposition



Supply chain constraints



Climate change effects



Impacts on **nature**

A need for holistic planning

The EU has a comprehensive set of policies to address these challenges. In order to make sure all are considered in planning the electricity system, we need a **holistic and optimised** planning approach reflecting the diversity of factors.

How do RGI and other actors work to consider diverse aspects in system planning and modelling?

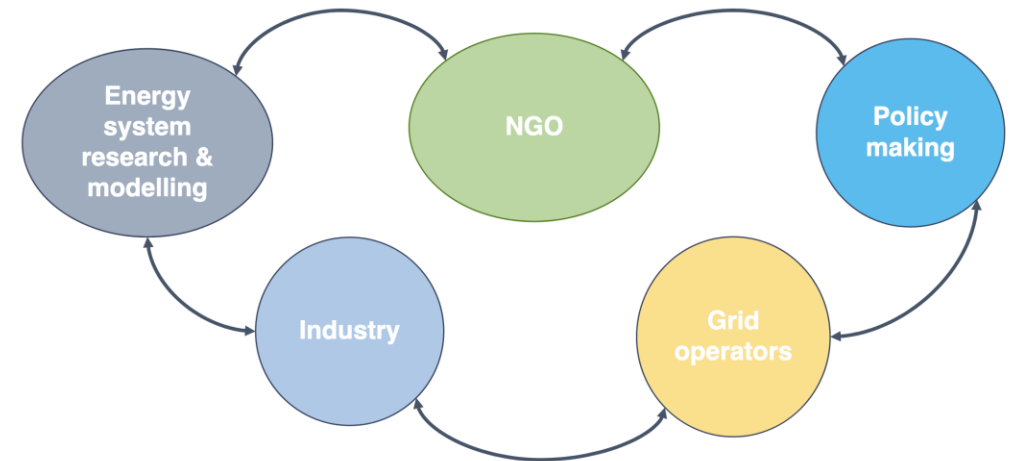
Integrating diverse stakeholders in the discussion

OBJECTIVES

- Enable exchanges and knowledge transfer within and beyond the modelling and system planning community
- Bring together different expertise, tools, datasets to improve models and allow modellers to consider other constraints for their models
- Leverage RGI's diverse membership (TSOs and NGOs). Bring NGOs on board to inform modelling and for capacity building

RGI Modellers'
Exchange Workshops

RGI Expert Workshops



In action: Workshop ‘Flexing EU’s pathway to net-zero’



July 2024

- Experts from across the value chain of the energy system explored **strategies, technologies, modelling approaches and policies** that have the potential to unlock flexibility and lead to system optimisation.
- Discussing the EU’s **Flexibility Needs Assessment process** (Electricity Market Design Reform)



In action: Workshop 'Flexing EU's pathway to net-zero'



July 2024

- Ensure a better inclusion of the demand-side in flexibility modelling
 - Identify future needs
 - Demand as a flexibility resource

- Difficulties to integrate demand in modelling exercises



In action: Workshop ‘Climate Change impacts’

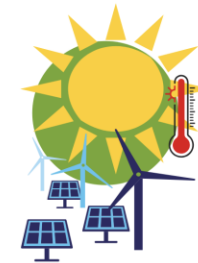


September 2022

- A Modellers’ Exchange workshop dedicated to the inclusion of climate change impacts into energy modelling and system planning.

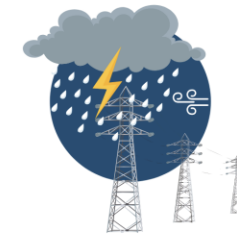
- **Takeaways**

- Considering a wide range of climate scenarios in energy system planning tools to address different uncertainties.
- Need to reinforce policies to include climate impacts in electricity infrastructure planning.



POWER PLANTS

Efficiency and potential of generation assets can be affected.



POWER LINES

Transmission and distribution electricity grids can be disrupted.



CONSUMERS

Heating and cooling demands are directly affected by extreme temperatures.

In action: Workshop 'Climate Change impacts'



September 2022

- How does it work?
- There are challenges to embedding climate data in energy planning:
 - Alignment of climate data with the energy modellers' needs
 - Availability of granular data
 - Complexity of long-term climate projections

Contributing to different policy processes

- Grids Acceleration Areas (REDIII) are an **opportunity to optimise grid development and minimise impacts on nature and people**

RGI's contribution

- Ensuring a successful implementation of GAA
- Calling for more alignment between modelling and different policy processes
- Contributing to the available knowledge on grids' spatial requirements

Takeaways

- Developing the future grid is a complex task and requires a **holistic approach** that includes technical, economic, social, climate and environmental considerations.
- Relevant **policies** exist to contribute to such a holistic approach, but they require further refinement and better implementation.
- Strengthening **collaboration between different sectors and stakeholders** allows to consider a diversity of factors when planning and modelling the energy system, allowing for a faster and future-proof grid development.

Next steps

2 RGI Expert Workshops in Autumn 2025



Flexibility



TSO-DSO cooperation

Stay tuned!

THANK YOU!

Any questions? Contact me at anais@renewables-grid.eu

