

Welcome!

Please find a seat and make yourself comfortable

We will start at 10:00



EXPERT WORKSHOP

EUROPEAN

CLIMATE-RESILIENT ENERGY SYSTEM

*Enhancing climate adaptation and system resilience
in the ENTSO-E TYNDP CBA Framework*



13 November 2025

09:30 - 15:45 CET



ENTSO-E premises

Rue de Spa 8, 1000 Brussels

CO-ORGANISED BY

Renewables
Grid Initiative



entsoe

SUPPORTED BY



Co-funded by
the European Union

Housekeeping rules



Chatham House Rules

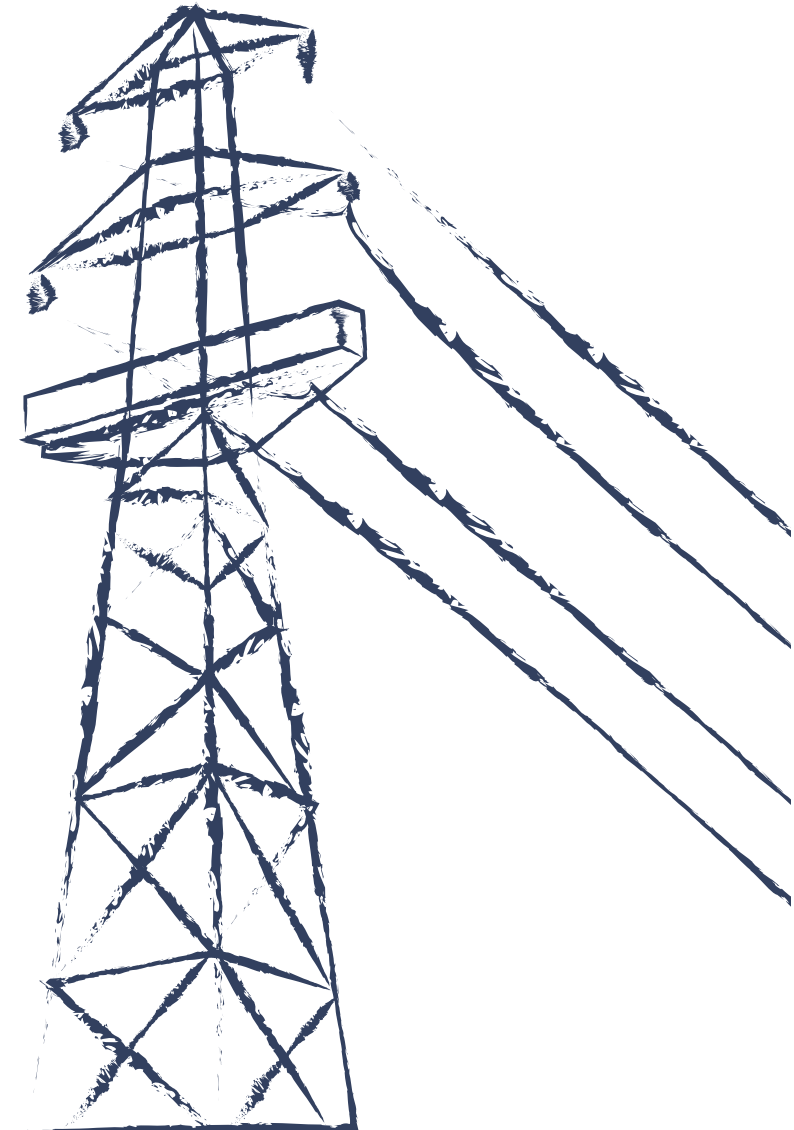


We **record** the workshop for internal purposes, and we **will take some photos**



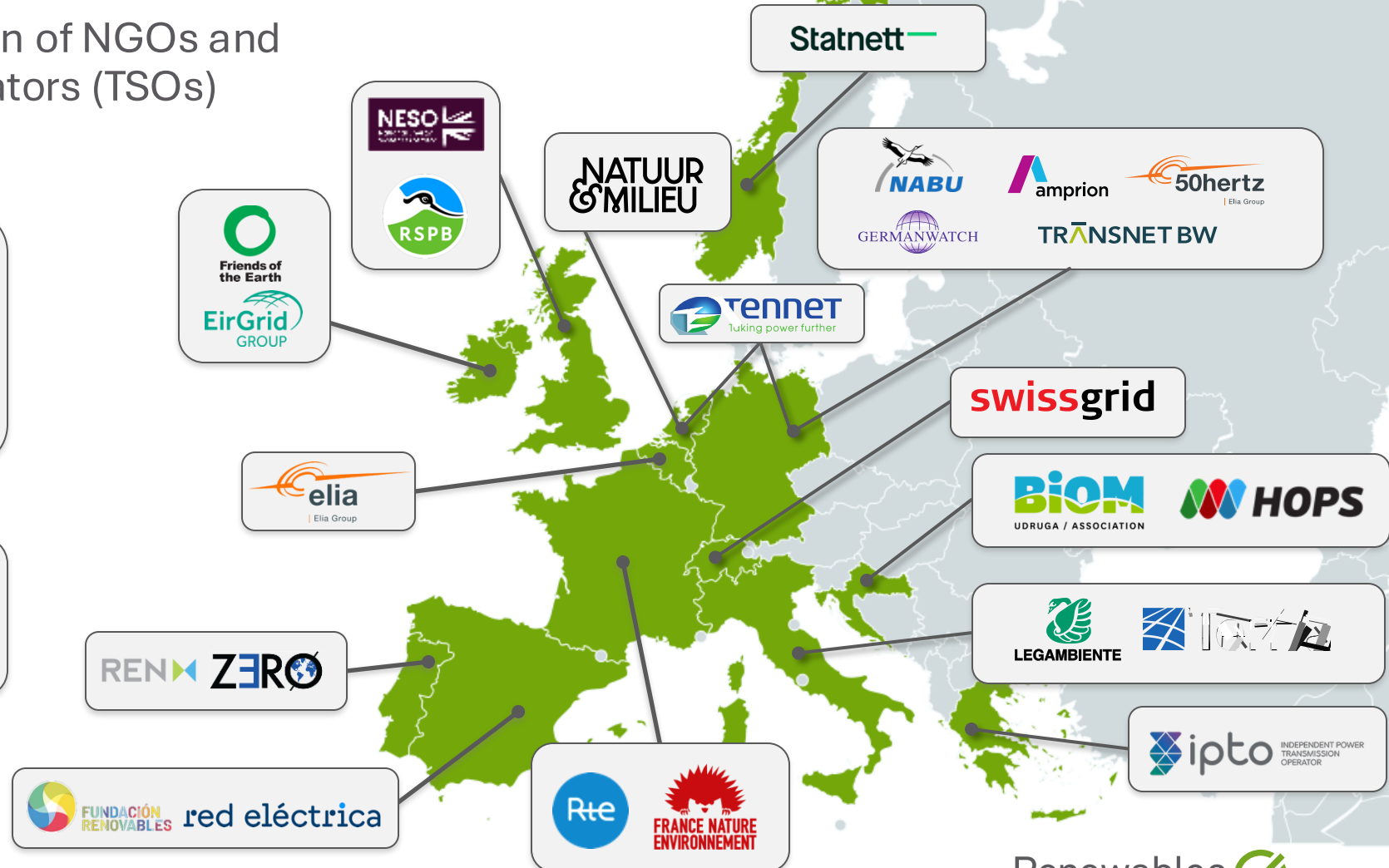
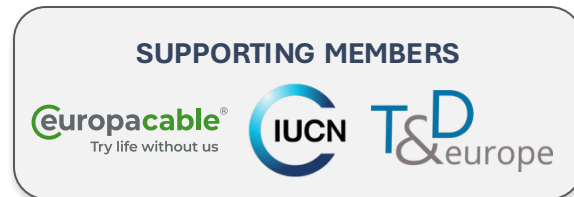
Please let us know if you **would not** like your name to be included on RGI's website and publications after the workshop

Introduction



Renewables Grid Initiative

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



Who is RGI?

RGI fosters 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.

Climate change and the electricity system



High winds



Cold & winter incident



Wildfires



Heat waves



Flooding

Changing climate and weather patterns as well as extreme weather events are already having an immediate **impacts on energy systems** and **physical infrastructure**



Source: Elia; 2025.

Source: Unsplash

Preparing European electricity grid for climate change

May '22

TEN-E Regulation revision – a need to incorporate climate change aspects in electricity grids planning, ensuring cost-effective solutions

Nov '22 /
March '23

ESABCC recommendations to assess climate adaptation costs, benefits and measures in TYNDP & the CBA Methodology

April '23

How to assess climate adaptation and resilience measures in a cost-effective way?

RGI & ENTSO-E joined forces to develop climate resilience and adaptation indicator for the CBA Methodology

Oct '23



EXPERT WORKSHOP
EUROPEAN CLIMATE-RESILIENT ENERGY SYSTEM
Enhancing climate adaptation and system resilience in the ENTSO-E TYNDP CBA Framework

🕒 **19 October 2023**
09:30 - 16:00 CET

📍 **ENTSO-E premises**
Rue de Spa 8, 1000 Brussels, Belgium

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March '25



EXPERT WORKSHOP
EUROPEAN CLIMATE-RESILIENT ENERGY SYSTEM
Enhancing climate adaptation and system resilience in the ENTSO-E TYNDP CBA Framework **Part 2**

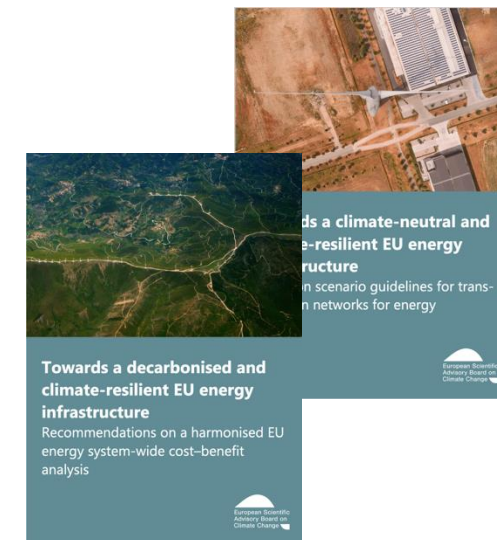
🕒 **20 March 2025**
10:00 - 16:00 CET

📍 **ENTSO-E premises**
Rue de Spa 8, 1000 Brussels, Belgium

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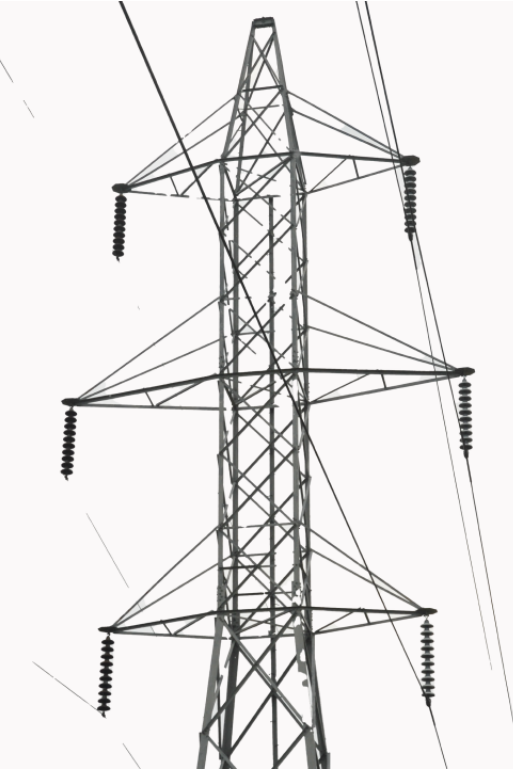
14/11/20



Developing a new climate adaptation The work done so far

- Kick-off workshop: **October 2023**
- **Collecting data** on climate impacts on electricity infrastructure & adaptation measures
- **Developing a methodological approach** to assess investments in adaptation measures
- **Facilitating collaborations** and synergies & developing expert community dedicated to the topic

14/11/2025



EXPERT WORKSHOP
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*Enhancing climate adaptation and system resilience
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 **19 October 2023**
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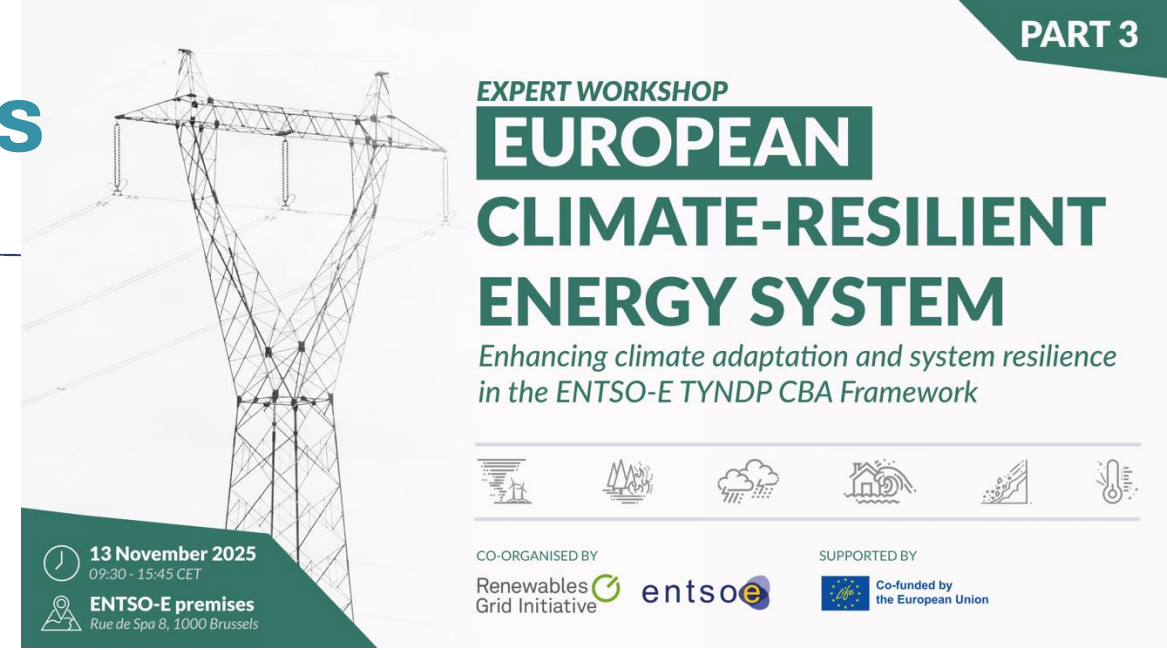
Developing a new climate adaptation indicator: The work done so far

- Mid-process workshop: **March 2025**
- **Assessing** the methodological approach developed by that time
- **Presenting and discussing** different perspectives on climate adaptation qualitative assessments from industry and research
- **Facilitating collaborations** and synergies & enhancing the expert community dedicated to the topic



Today's workshop objectives

- **Receiving feedback** on the final version of the framework
- **Identifying knowledge gaps** and examining perspectives to assess **combinations of probabilities** under the new indicator, including assumptions on costs and duration of impacts
- **Considerations of inputs** from RGI – ENTSO-E's survey on climate adaptation as well as from the expert community
- **Exploring further implications** in the context of future European climate resilience and adaptation needs and policies



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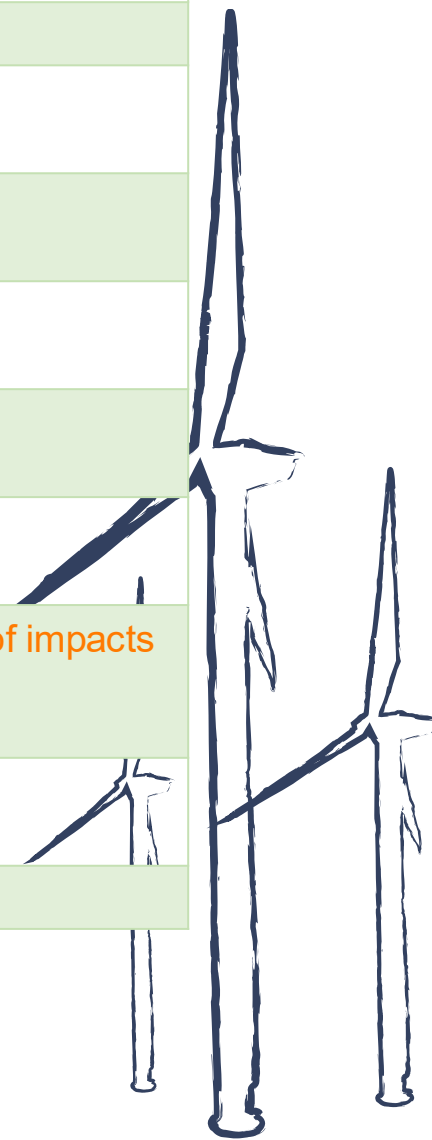
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Agenda

Time	Activity
09:30 – 10:00	Registration and coffee
Session 1: Background and setting the scene	
10:00 – 10:15	Welcome notes and introduction to the workshop Andrzej Ceglarz, RGI and Benedict Englisch, ENTSO-E
10:15 – 10:25	Current policy developments at the EU level: the European Climate Adaptation Plan Andras Toth, DG-CLIMA
10:25 – 10:40	Understanding and quantifying climate risks in the EU – EUCRA 2 Hans-Martin Füssel, European Environment Agency (EEA)
10:40 – 10:50	Recap: developing a framework to guide the new indicator Benedict Englisch, ENTSO-E
10:50 – 11:10	RGI – ENTSO-E adaptation survey and database: relevant insights to the framework Ira Shefer, RGI
11:10 – 11:35	Knowledge gaps: assessing combinations of probabilities and assumptions of cost and duration of impacts on grid assets Philipp Fortenbacher and Benedict Englisch, ENTSO-E
11:35 – 12:15	Open discussion: addressing knowledge gaps toward completing the framework Philipp Fortenbacher, ENTSO-E
12:15 - 13:15	Lunch break



Agenda

Time	Activity
Session 2: Deep dive session – experts' inputs	
13:15 – 13:40	Research perspective: CBA Methodology and multi-climate hazards scenarios Elco Koks, Vrije Universiteit Amsterdam
13:40 – 14:05	Global perspective Christine Brandstatt, International Energy Agency (IEA)
14:05 – 14:30	Industry perspective Valerie Van der Wal, TenneT / Innovation Alliance
14:30 – 14:50	Coffee break
Session 3: The next steps	
14:50 – 15:30	Open discussion: lessons learned from the CBA methodology and its applications towards future adaptation needs Andrzej Ceglarz, RGI and Philipp Fortenbacher, ENTSO-E
15:30 – 15:45	Announcing next steps and wrapping up Andrzej Ceglarz, RGI and Benedict Englisch, ENTSO-E



NOW LET'S EAT!!

WE WILL CONTINUE AT 13:45. BON APETIT!



COFFEE BREAK

WE WILL CONTINUE AT 14:50



Session 3: Open discussion

Lessons learned from the CBA methodology and its applications toward future adaptation needs



Interactive (online) activity

≡ **miro**  Climate adaptation and resilience workshop - RGI / ENTSO-E ⋮

Step 1:

→ Think individually and provide your input (5’):

- What are your main takeaways from this workshop?
- What surprised you the most?
- How does this connect to your current work?

→ 3-4 participants presenting their inputs (10’)

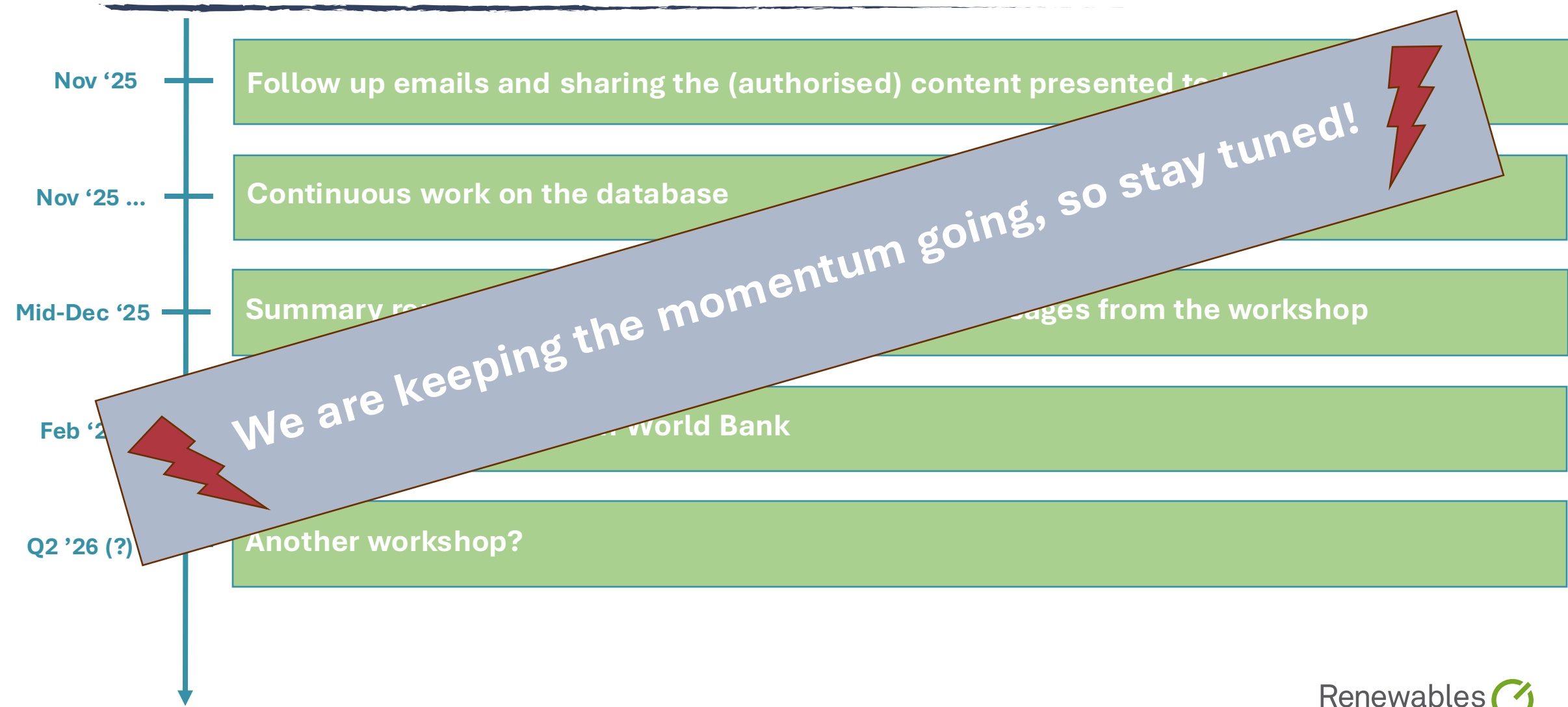
Step 2:

→ Think individually and provide your input (5’):

- What would you be interested in seeing as the next steps of this work?
- What specific actions should be taken next?

→ 3-4 participants presenting their inputs (10’)

Concluding remarks and next steps



Let's stay in touch!



Dr. Nils
Schindzielorz,
TenneT
Policy advisor



Franck Dia Wagoum,
ENTSO-E
Long term planning
specialist



Dr. Philipp
Fortenbacher, Amprion
Senior Energy System
Modelling expert



Bjørn Slettan, Statnett
Advisor, Regulatory and
international affairs



Benedict Englisch,
ENTSO-E
System development analyst



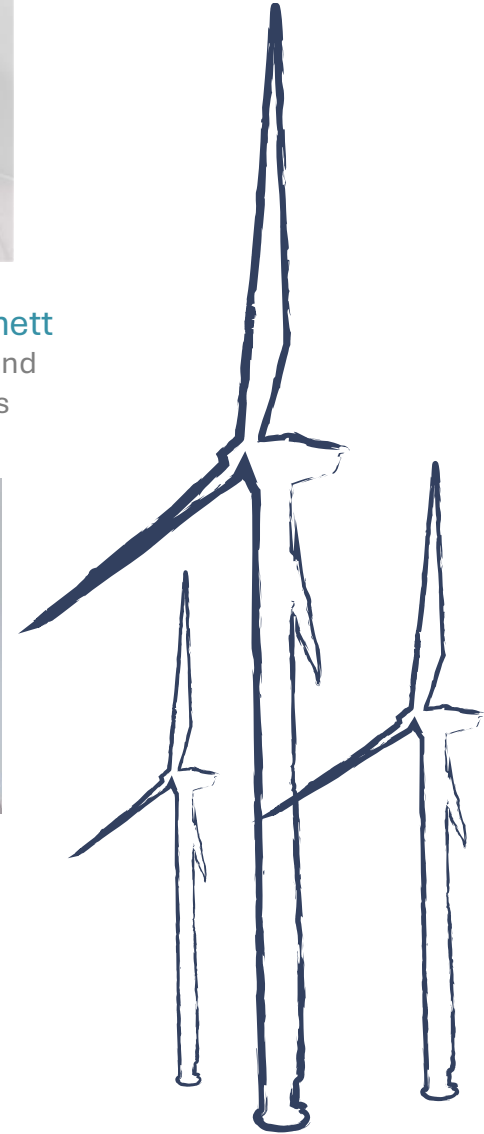
Dr. Andrzej Ceglarz, RGI
Director – Energy Systems



Dr. Ira Shefer, RGI
Manager – Energy Systems



Sara Gace, RGI
Junior Consultant -
Energy Systems



THANK YOU FOR YOUR PARTICIPATION!

