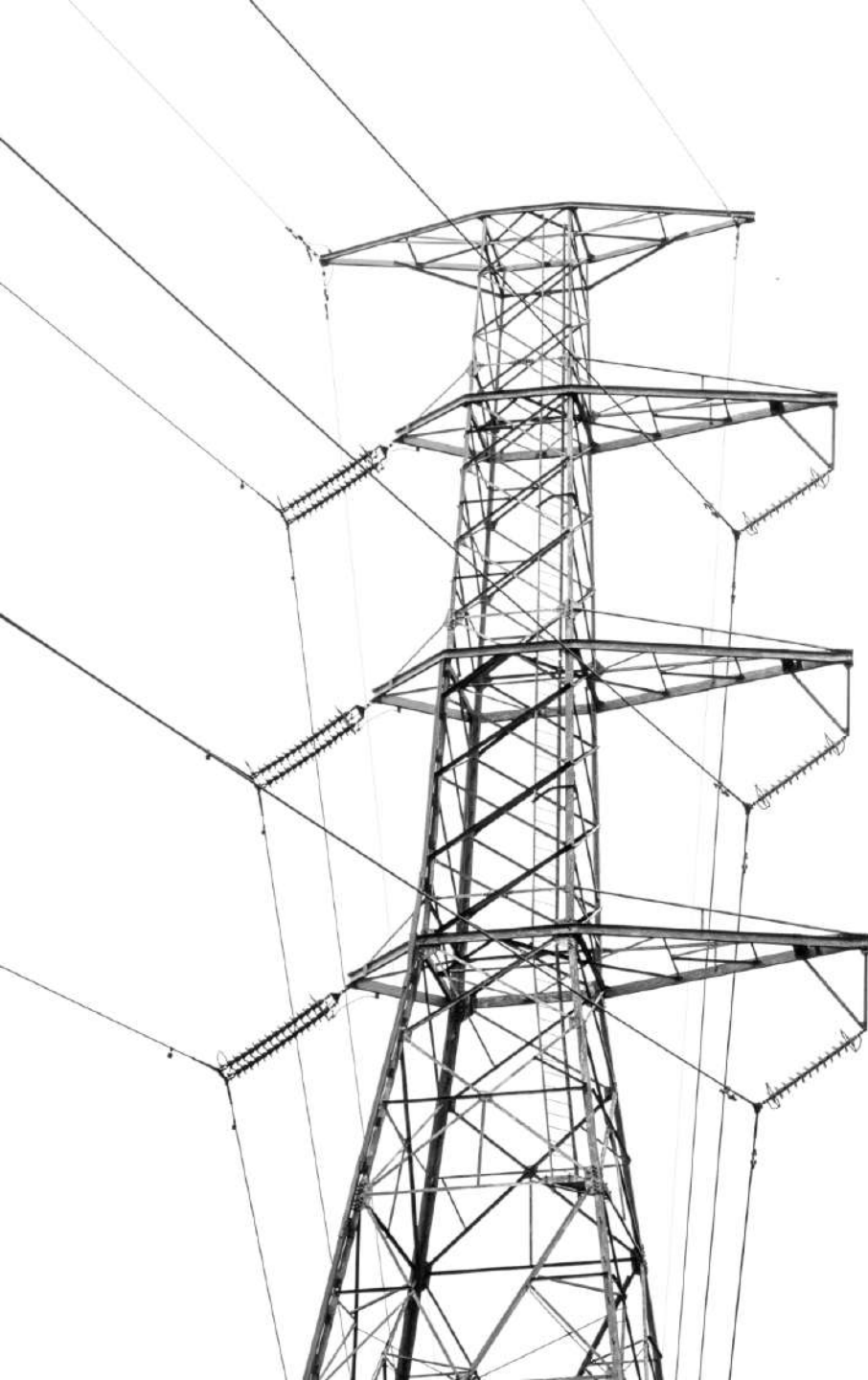




EXPERT WORKSHOP

EUROPEAN

CLIMATE-RESILIENT ENERGY SYSTEM **Part 2**

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



20 March 2025

10:00 - 16:00 CET



ENTSO-E premises

Rue de Spa 8, 1000 Brussels, Belgium

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 photos**



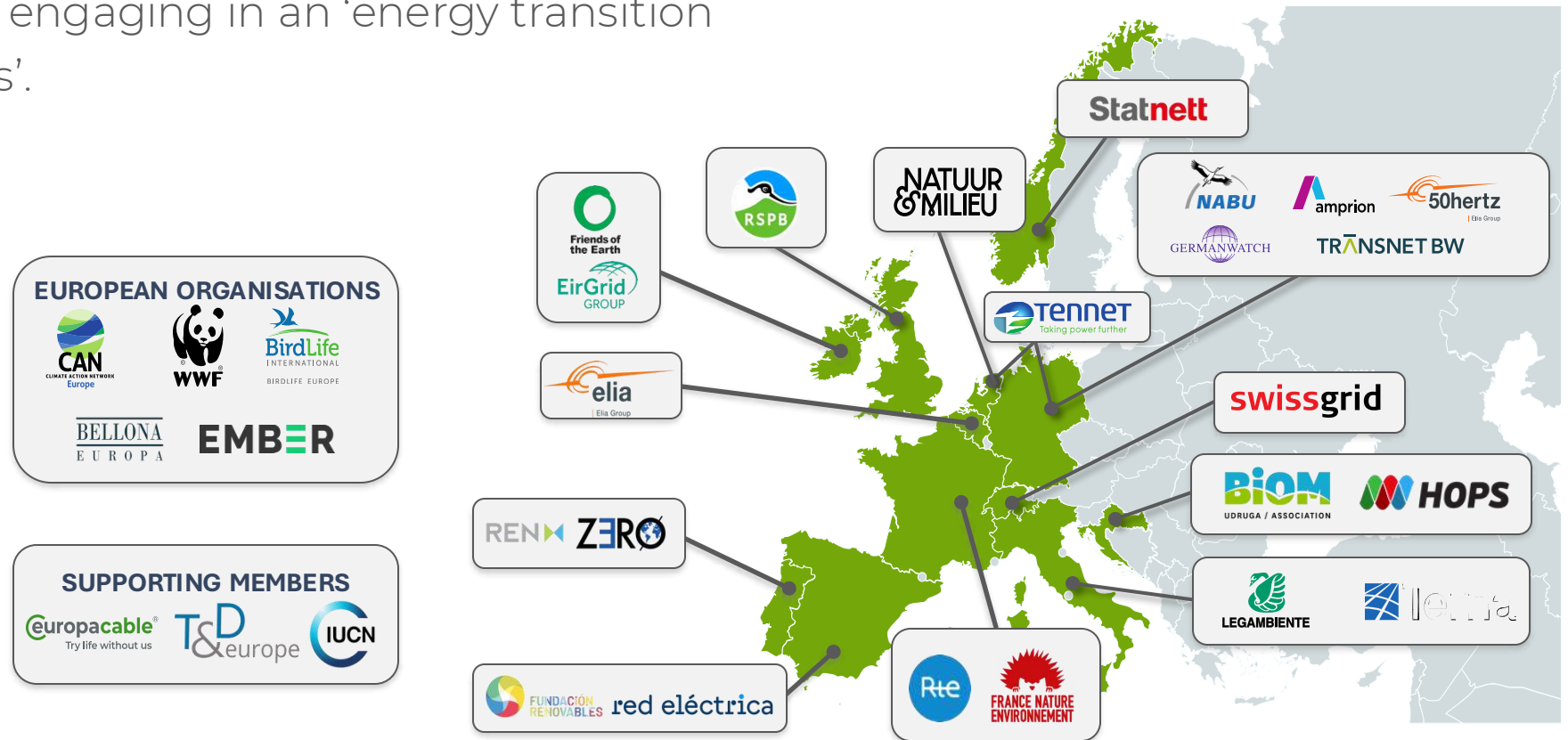
Please let us know if you **would not** like your name to be included on RGI's website and publications after the workshop

Introduction



Who is RGI?

RGI is a unique **collaboration of NGOs and TSOs** from across Europe engaging in an 'energy transition ecosystem-of-actors'.



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 extreme weather events

More **unstable** weather patterns & more **extreme** weather events than in previous decades (IPCC, 2023)



Flooded area in Spain, Autumn 2024
(Source: GNDR, 2024)

Studies of almost 750 events and trends reveal the impact of climate change on extreme weather.

Explore the studies either via the map or by the panel of controls below.

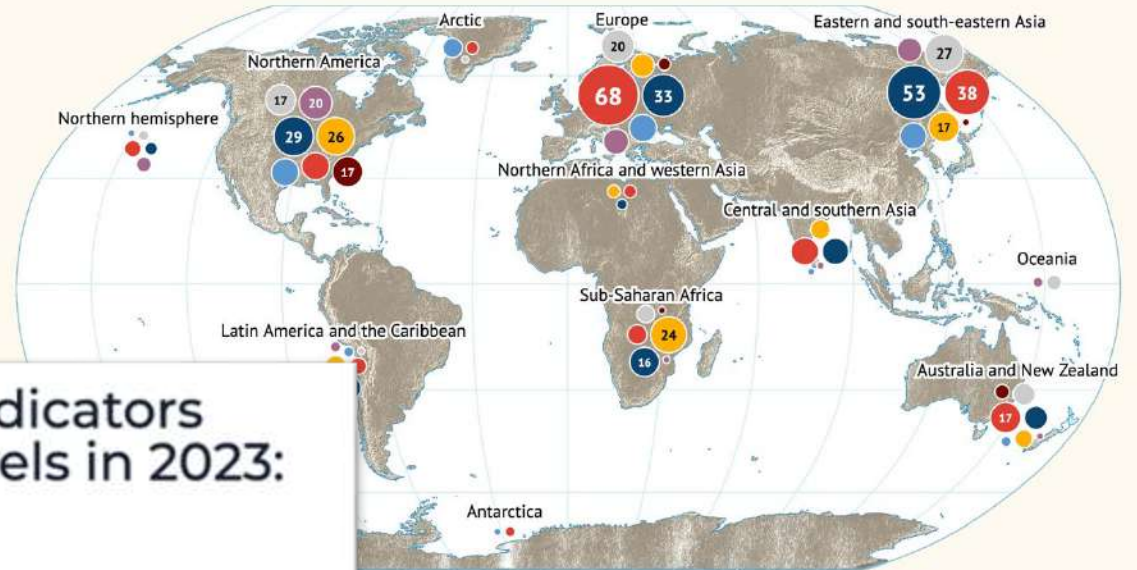
Switch view:

Finding ☐ Event type

Type of extreme weather event:

Heat	205
Rain & flooding	178
Drought	103
Storm	58
Cold, snow & ice	57
Wildfire	31
Other	103

Explore further:



Climate change indicators
reached record levels in 2023:
WMO

PRESS RELEASE

19 March 2024

The state of the climate in 2023 gave ominous new significance to the phrase "off the charts."

Source: Carbon Brief (2024)

Energy systems and grids under changing climate

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



Sources: Unsplash; REN.

25/03/2025

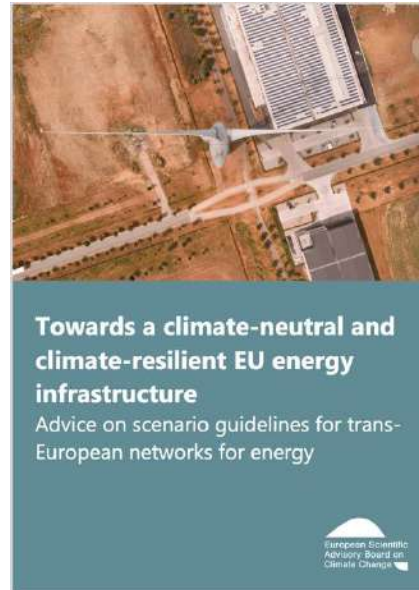
Preparing European electricity grid for climate change

May 2022

Revision of the TEN-E Regulation pointing out to the need to incorporate climate change aspects in electricity grids planning, ensuring cost-effective solutions

Nov 2022 /
March 2023

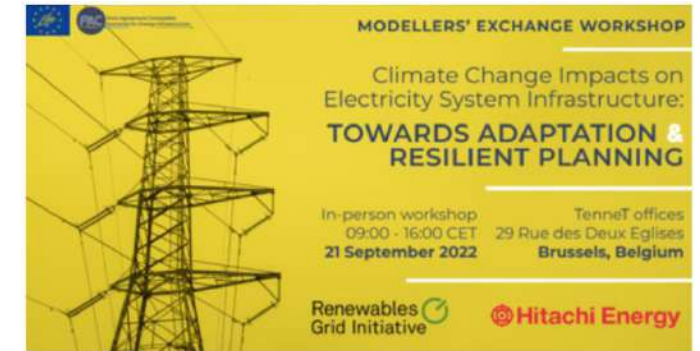
ESABCC publications strengthening this message, pointing out to the TYNDP process and the CBA Methodology and recommending to assess climate adaptation costs, benefits and measures



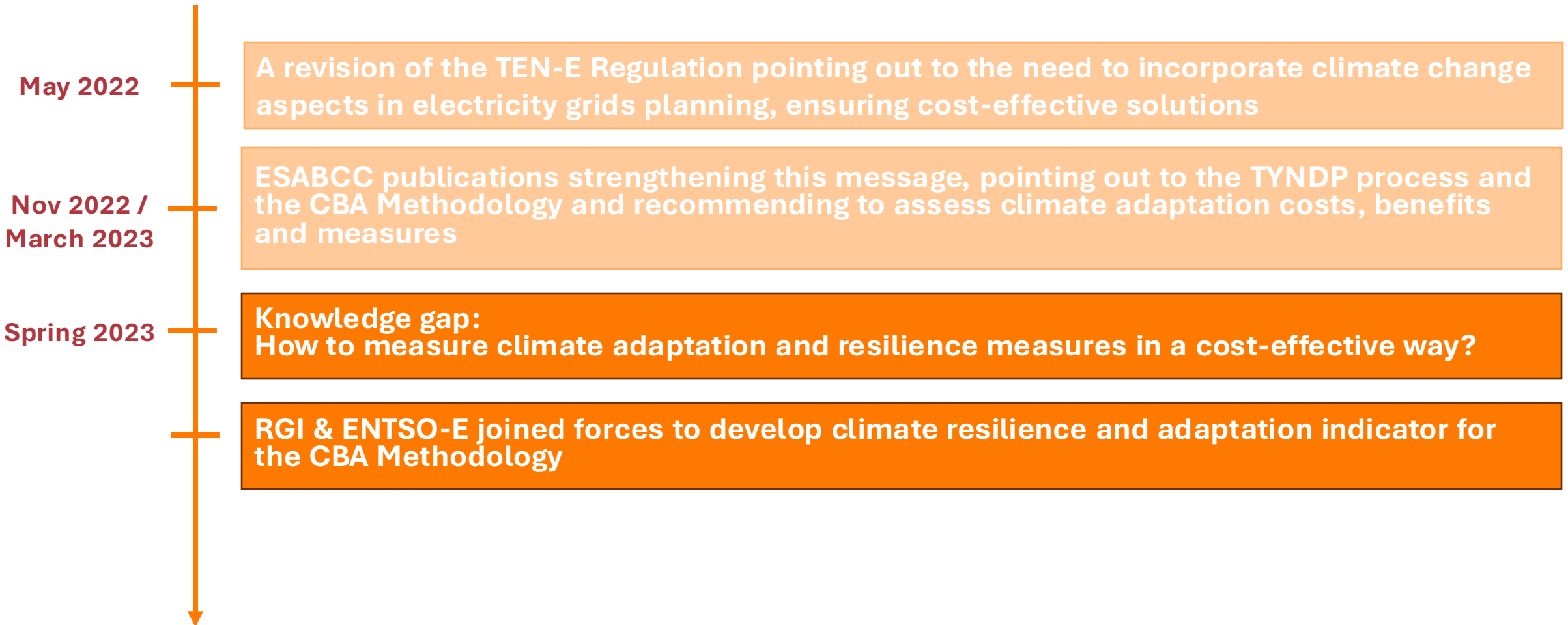
25/03/2025

RGI workstream on climate adaptation and resilient grids

- Modellers' Exchange Workshop (Sept '22)
- Destination Earth (DestinE) (with German Aerospace Centre): since 2023
- CBA Methodology (with ENTSO-E): since 2023
- Key activities:
 - Research
 - Facilitating knowledge exchange and dissemination
 - Involving relevant stakeholders

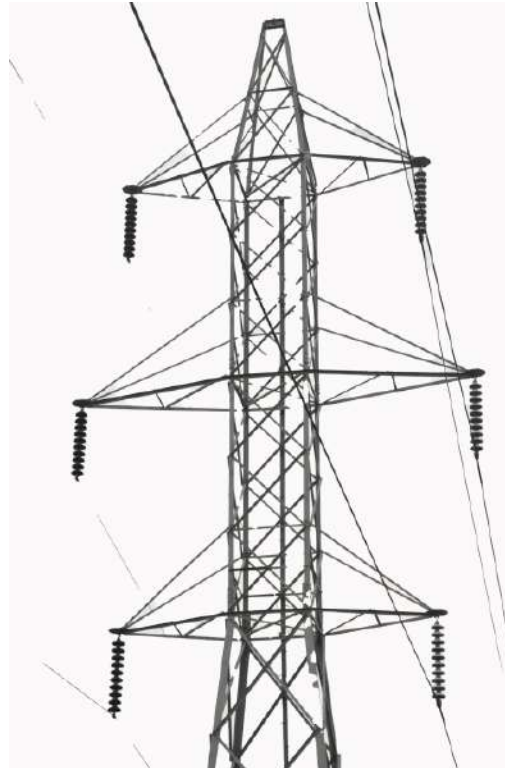


Preparing European electricity grid for climate change



Developing a new climate adaptation indicator: 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



EXPERT WORKSHOP
EUROPEAN
CLIMATE-RESILIENT
ENERGY SYSTEM

*Enhancing climate adaptation and system resilience
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 **19 October 2023**
09:30 - 16:00 CET

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

CO-ORGANISED BY
Renewables
Grid Initiative 

 **entsoe**

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Today's workshop objectives



Presenting experts **a concept of a framework** to guide the development of the new indicator for climate adaptation under ENTSO-E's CBA methodology, towards implementation in the TYNDP process



Collecting **feedback and inputs** to increase the framework's relevance and usability



Enabling **knowledge sharing** and mutual learning



Discussing parallel works, **facilitating** expert community and **exploring** potential collaborations



End goal: *incorporating the new indicator into the 2026 TYNDP updated and the 5th CBA Guideline*

Agenda

Time	Activity
10:00	Welcome remarks and introduction to the workshop Franck Dia Wagoum (ENTSO-E) & Andrzej Ceglarz (RGI)
Session 1: The framework	
10:15	Climate resilience and adaptation framework in the CBA methodology: Background, concept and developments so far Philipp Fortenbacher (Amprion)
10:30	Climate Impacts and Related Costs on Electricity Infrastructure in Europe – proposing Climate Hazards Dataset + Q&A Ira Shefer (RGI)
11:00	A new indicator of climate adaptation and resilience measures: Development status and potential usability + open discussion Nils Schindzielorz (TenneT)



Agenda

Time	Activity
12:00	Lunch Break
Session 2: Sectors' perspectives	
13:00	Towards climate neutral and resilient energy networks: Insight from the European Scientific Advisory Board on Climate Change (presentation + Q&A) Prof. Lena Kitzing (European Scientific Advisory Board on Climate Change)
13:25	Climate Adaptation in Grid Financing: The European Investment Bank Perspective (presentation + Q&A) John Sinner (European Investment Bank)
13:50	Resilience of energy infrastructure to climate extremes (presentation + Q&A) Pieter Smet (Elia)



Agenda

Time	Activity
14:15	Climate Stress Testing and Adaptation: Experiences Across Different Sectors (presentation + Q&A) Alois Thiant (Marsh McLennan)
14:40	Coffee Break
14:50	Open discussion with all participants: Identifying gaps and knowledge needs, and the future collaboration potentials
15:50	Discussing the next steps + concluding remarks Andrzej Ceglarz (RGI), Franck Dia Wagoum (ENTSO-E), Philipp Fortenbacher (Amprion)



Session 3: Moving forward



Food for thought



- 1. What are other initiatives / projects/ data sources you are aware of, which would be useful for us to improve the framework (especially the dataset)?**
- 2. Which of these (projects/initiatives) could benefit from our work?**
- 3. What would recommend towards the next steps / what would you like to see as outcomes of this work?**
- 4. Which other experts/ actors we should reach out to, and why?**

Concluding remarks and the next steps



THANK YOU FOR YOUR PARTICIPATION!

