V ELEVATE INTERNATIONAL STAKEHOLDER WORKSHOP

The Compass for Net-Zero: Navigating Ambition, Justice and Development

Friday, 20th of June, 2025

10:30 – 16:00 CEST

Bonn Marriott Hotel

ELEVATE
supporting international climate policy

Funded by
the European Union

COMMITTED

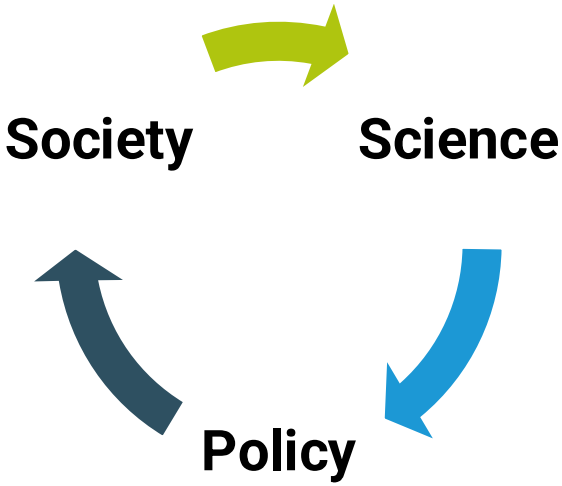
ELEVATE - ENABLING AND LEVERAGING CLIMATE ACTION TOWARDS NET ZERO EMISSIONS

Introduction

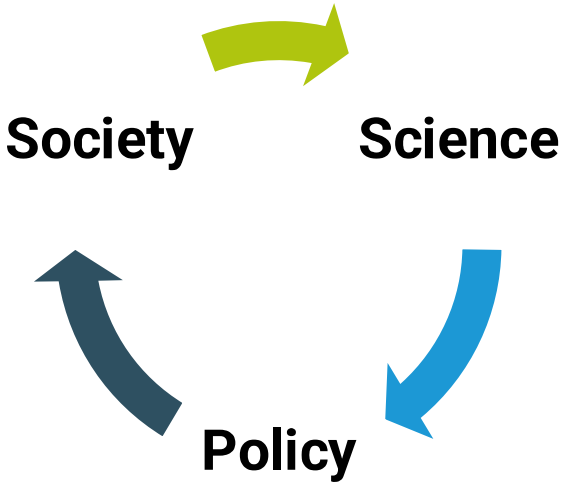
V ELEVATE International Stakeholder Workshop | Bonn, Germany | 20 June 2025

ELEVATE's Objective

To develop transformative new scientific insights to support the preparations of NDCs and national climate policies focused on achieving net-zero emissions mid-century in line with the Paris Agreement



Create long-term relationship between science, policymakers, society



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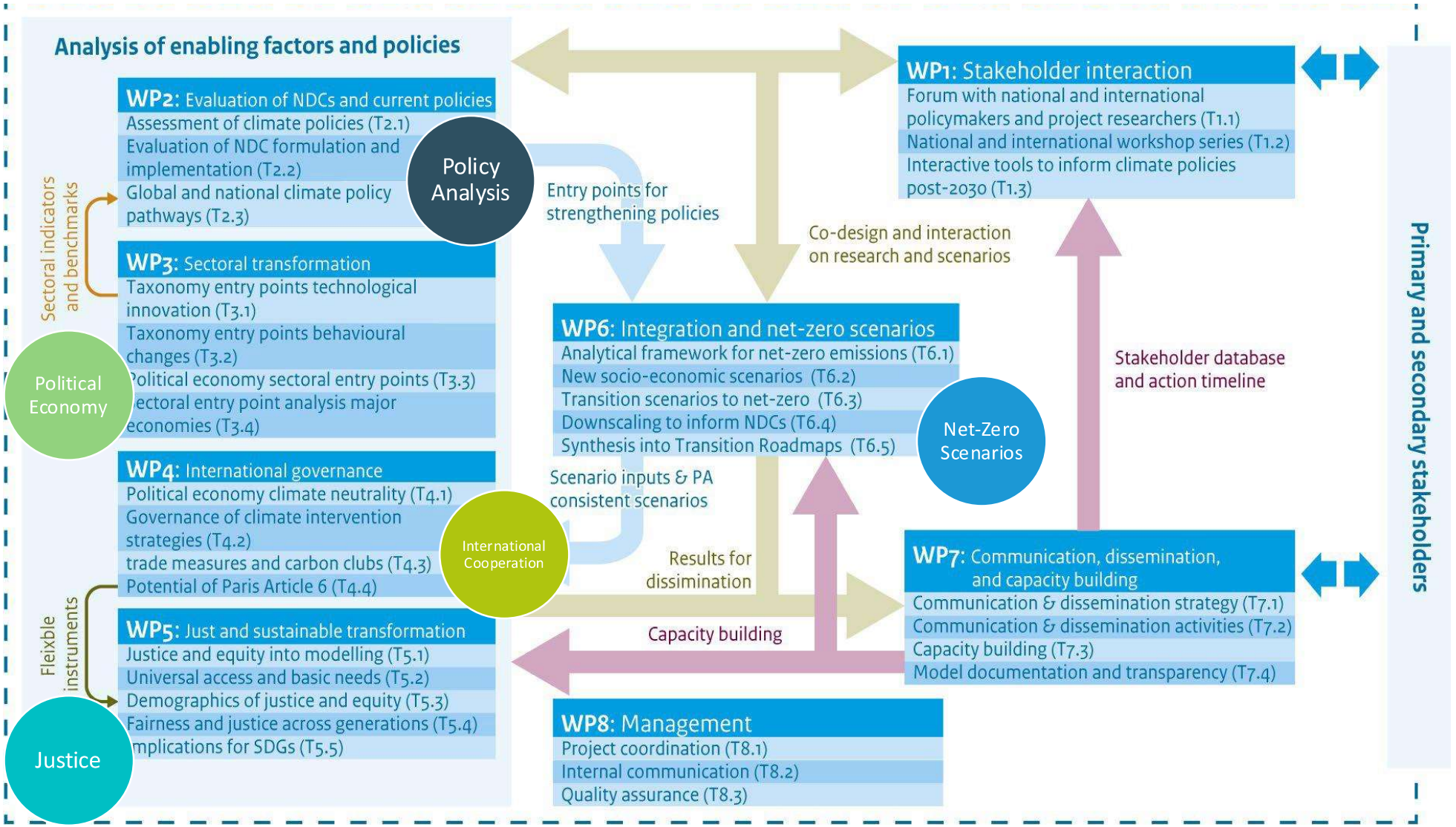
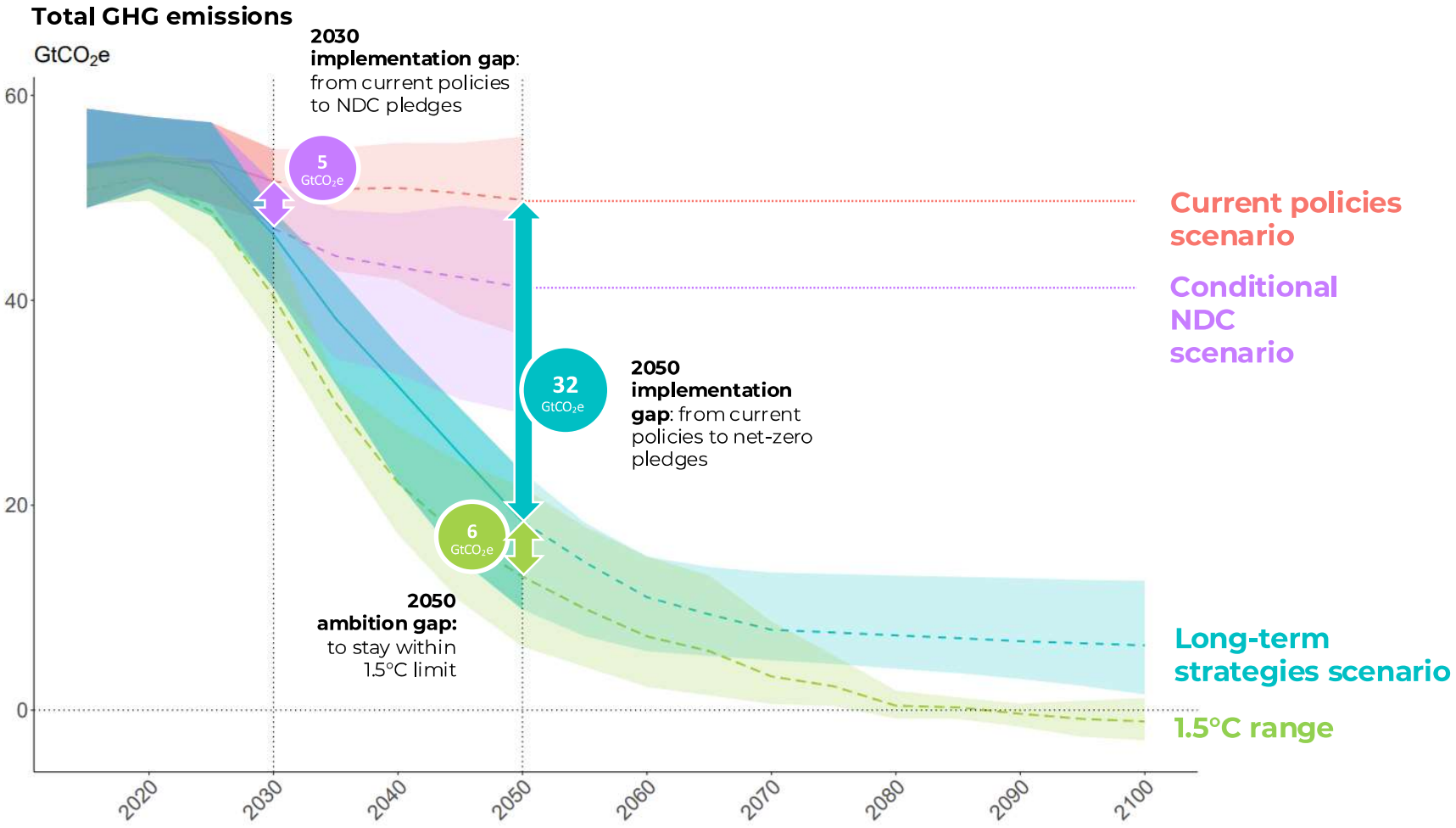
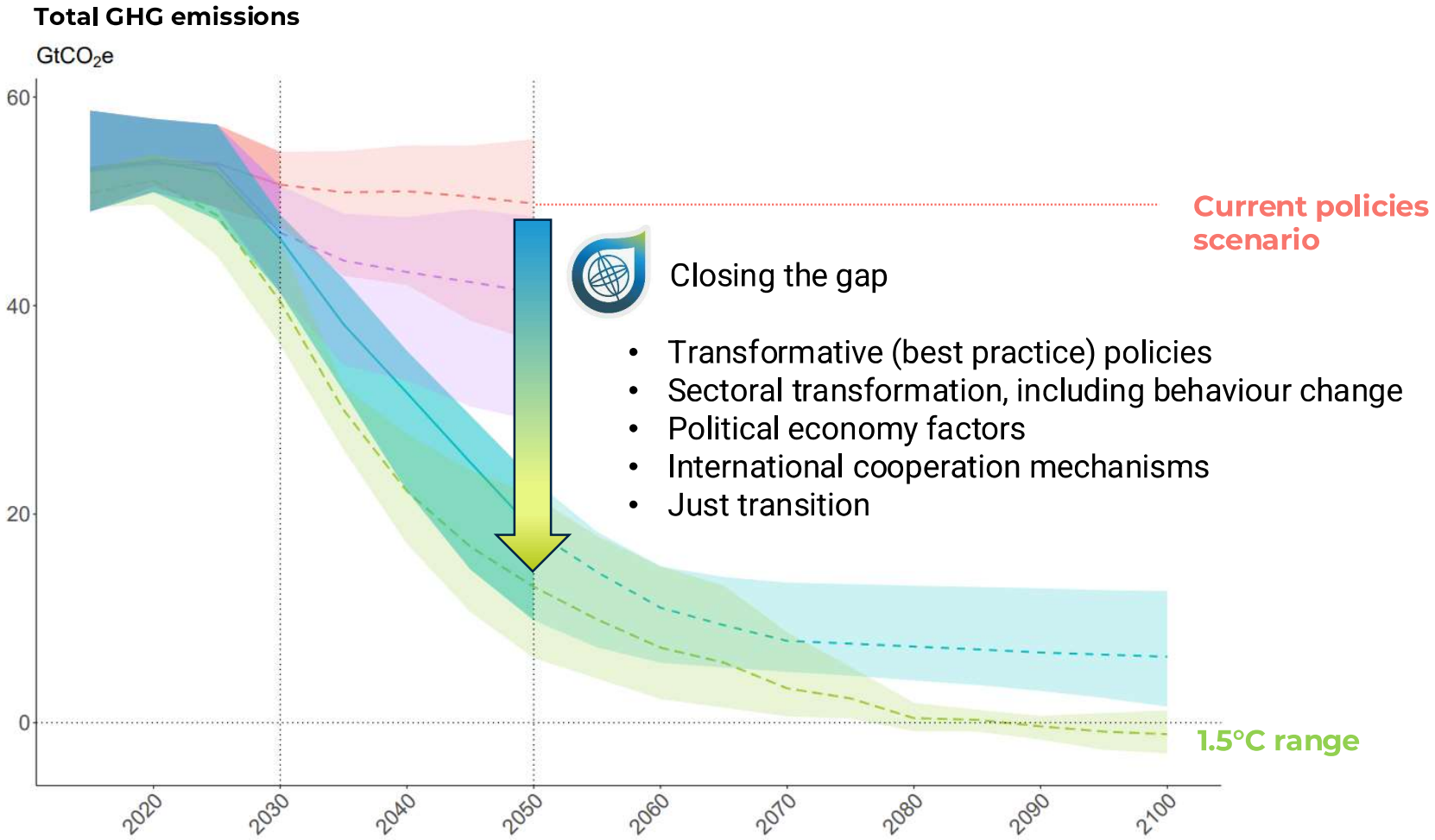

Analysis of enabling factors and policies
WP2: Evaluation of NDCs and current policies
Assessment of climate policies (T2.1)
Evaluation of NDC formulation and implementation (T2.2)
Global and national climate policy pathways (T2.3)
Policy Analysis
Sectoral indicators and benchmarks
WP3: Sectoral transformation
Taxonomy entry points technological innovation (T3.1)
Taxonomy entry points behavioural changes (T3.2)
Political economy sectoral entry points (T3.3)
ectoral entry point analysis major economies (T3.4)
Political Economy
WP4: International governance
Political economy climate neutrality (T4.1)
Governance of climate intervention strategies (T4.2)
trade measures and carbon clubs (T4.3)
Potential of Paris Article 6 (T4.4)
International Cooperation
Fleixble instruments
WP5: Just and sustainable transformation
Justice and equity into modelling (T5.1)
Universal access and basic needs (T5.2)
Demographics of justice and equity (T5.3)
Fairness and justice across generations (T5.4)
mplications for SDGs (T5.5)
Justice
Entry points for strengthening policies
Co-design and interaction on research and scenarios
WP1: Stakeholder interaction
Forum with national and international policymakers and project researchers (T1.1)
National and international workshop series (T1.2)
Interactive tools to inform climate policies post-2030 (T1.3)
Primary and secondary stakeholders
WP6: Integration and net-zero scenarios
Analytical framework for net-zero emissions (T6.1)
New socio-economic scenarios (T6.2)
Transition scenarios to net-zero (T6.3)
Downscaling to inform NDCs (T6.4)
Synthesis into Transition Roadmaps (T6.5)
Net-Zero Scenarios
Stakeholder database and action timeline
Scenario inputs & PA consistent scenarios
Results for dissimination
Capacity building
WP7: Communication, dissemination, and capacity building
Communication & dissemination strategy (T7.1)
Communication & dissemination activities (T7.2)
Capacity building (T7.3)
Model documentation and transparency (T7.4)
WP8: Management
Project coordination (T8.1)
Internal communication (T8.2)
Quality assurance (T8.3)

Climate policy scenarios

- ***Current policies scenario:*** assuming all climate policies that are already implemented (in law), with ambition levels remaining constant after that.
- ***NDC scenario:*** fully implementing all NDCs to 2030, with ambition levels remaining constant after that.
- ***NDC-LTS scenario:*** fully implementing NDCs to 2030 and the announced net-zero pledges around/after mid-century.
- ***1.5°C scenario:*** models calculate global cost-optimal ways of meeting the Paris Agreement temperature goals by 2100.


Total GHG emissions
GtCO2e
2030 implementation gap: from current policies to NDC pledges
5 GtCO2e
32 GtCO2e
2050 implementation gap: from current policies to net-zero pledges
6 GtCO2e
2050 ambition gap: to stay within 1.5°C limit
Current policies scenario
Conditional NDC scenario
Long-term strategies scenario
1.5°C range
60
40
20
0
2020
2030
2040
2050
2060
2070
2080
2090
2100


Total GHG emissions
GtCO2e
60
40
20
0
2020
2030
2040
2050
2060
2070
2080
2090
2100
Current policies scenario
Closing the gap
Transformative (best practice) policies
Sectoral transformation, including behaviour change
Political economy factors
International cooperation mechanisms
Just transition
1.5°C range

Annual net-zero reports

Annual Net-Zero Report 2025
will be published beginning of November 2025
in preparation for COP30,
in Belém, Brazil

https://www.elevate-climate.org/annual-net-zero-report

Call: Expression of Interest

Developing New Climate Change Mitigation Pathways
Based on Development-Focused Socio-Economic Projections

NEW PATHWAYS

Funded by the European Union

Grant agreement No. GAP-101183367. Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them.

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The Compass For Net Zero: Navigating Ambition, Justice and Development

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Welcome

Programme

10:30-11:00 Registration and Welcome Coffee

11:00-13:00 Advancing just and ambitious national commitments: evaluation of 2035 NDCs and expectations for future submissions

13:00-13:30 Lunch

13:30-15:30 Co-Creating Paris-Aligned Pathways: A Stakeholder Dialogue on Justice and Development

15:30-16:00 Networking Coffee

Session 1
Advancing just and ambitious national commitments: evaluation of 2035 NDCs and expectations for future submissions

Instrumentalization of energy autarchy for climate goals: a case for global cooperation

Lara Aleluia Reis and Matteo Calcaterra *RFF-CMCC EIEE

V workshop in Bonn, 20 June 2025, Bonn

Current geopolitical setting

Geopolitical tensions are pushing countries to **secure** their **energy** supply against potential disruptions from foreign entities:

- Russian-ukrainian conflict
- Tensions in the middle east (exporting region)

⇨ Increasing **self-sufficiency** is seen as a **strategic** move to enhance national **security** (Dieter & Biedermann 2022)

Climate policy and energy security

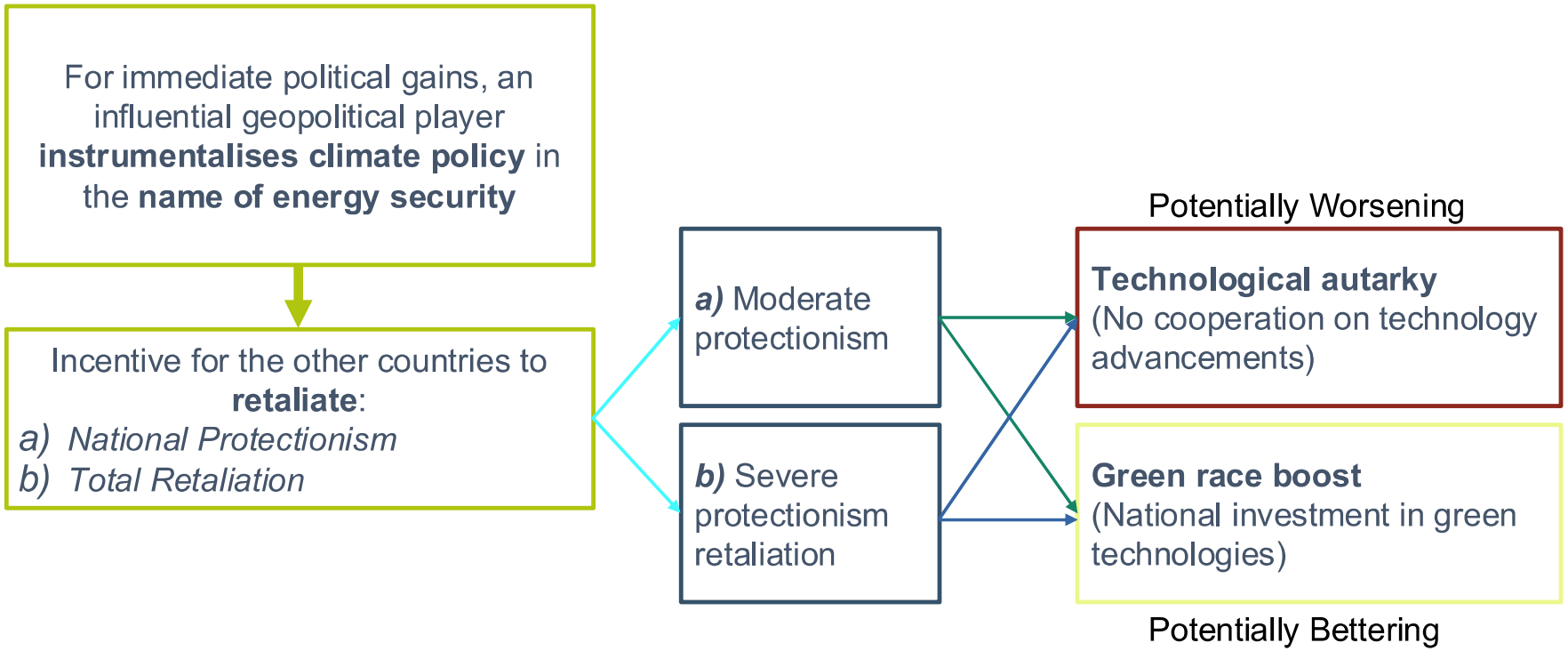
To **analyse jointly** the **long-term** development of the **economy, climate, and energy systems**, we employ an ensemble of 6 **detailed-process IAMs**.

These models are particularly valuable due to the **strong interconnection between climate change and energy security**:

- Policies on enegy security are linked with climate change:
  - Empirical correlation between higher share of low-carbon energy and reduced energy imports (Cevik 2022)
  - Climate policy can reduce energy security concerns, due to (i) higher diversity of energy options, (ii) lower dependence on fossil fuel imports (Jewell et al. 2013)

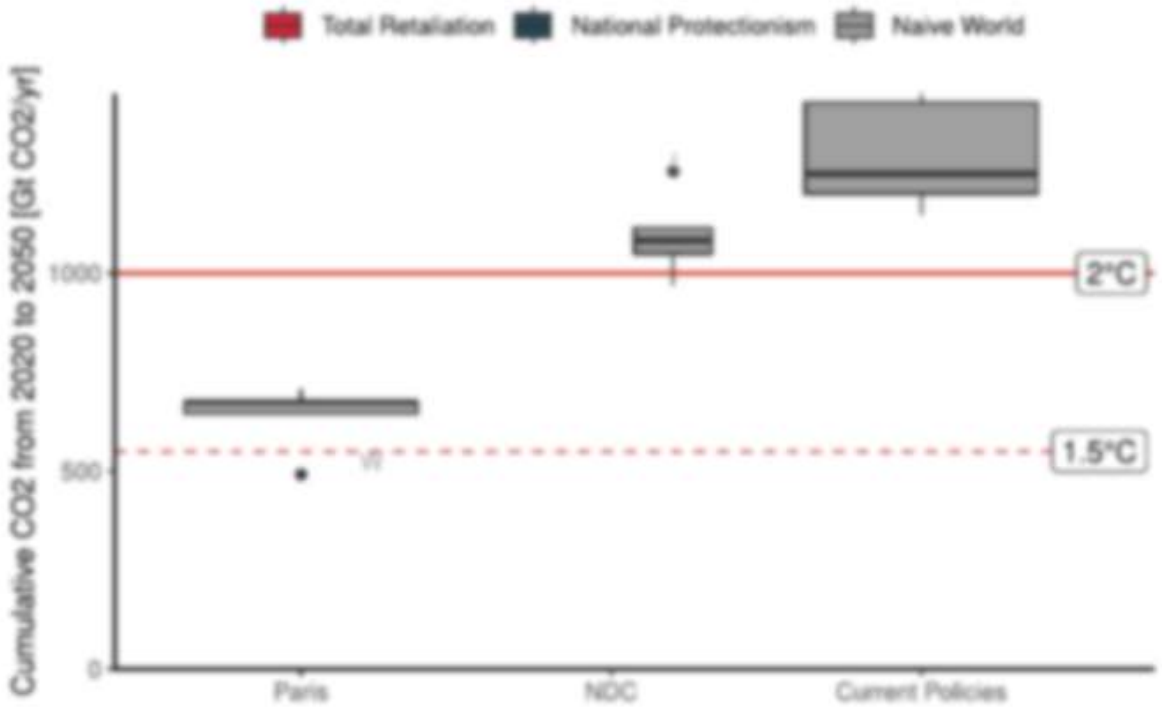
However, **energy independence *per se* is not guaranteed to solve climate problems** (Jewell et al. 2016)

Main scenarios (NDC) – narrative



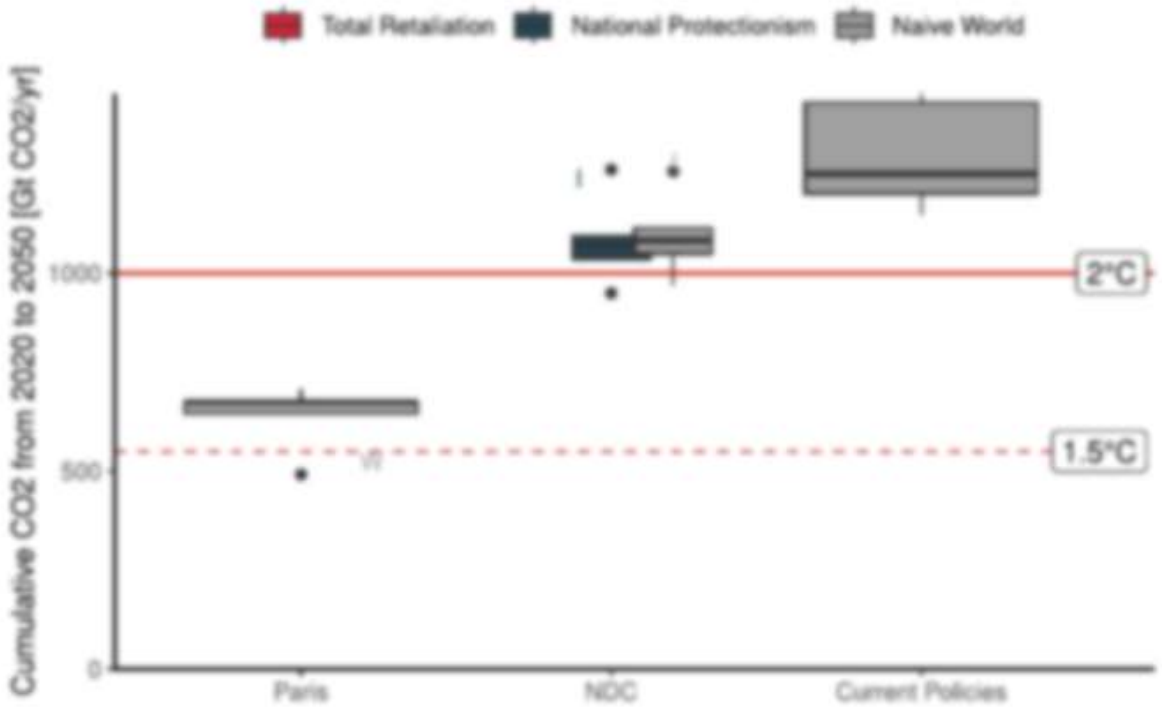
Results!

Does it help Climate?



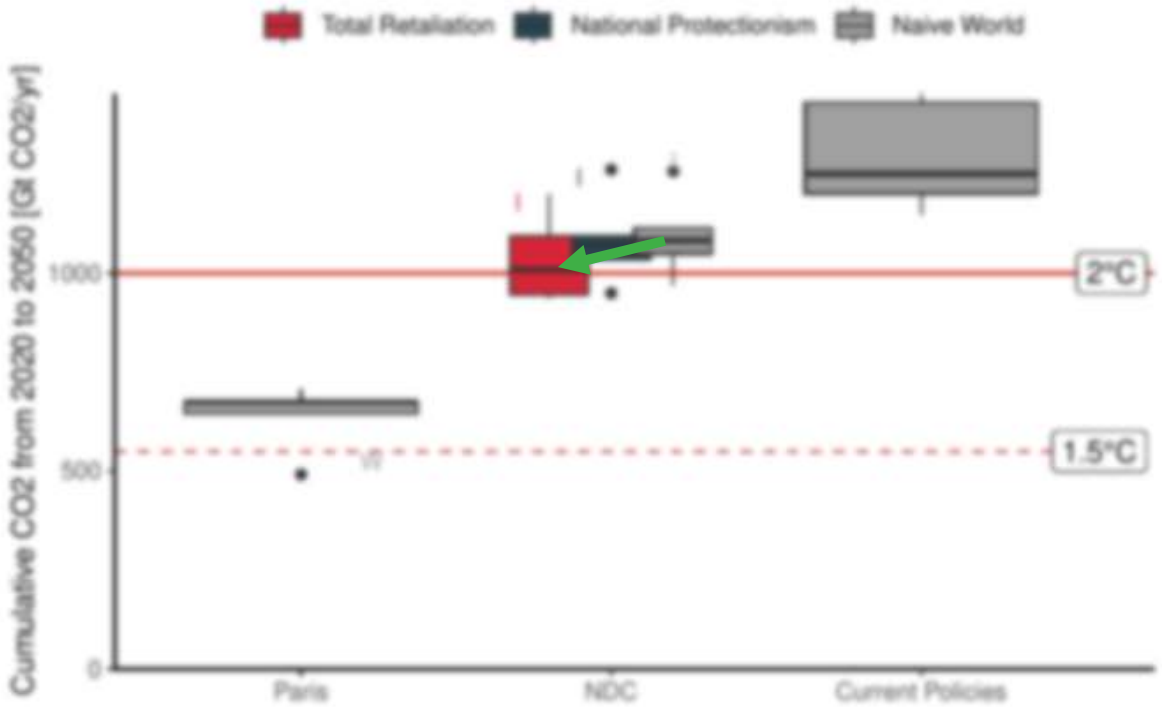
(Full paper coming soon)

Does it help Climate?



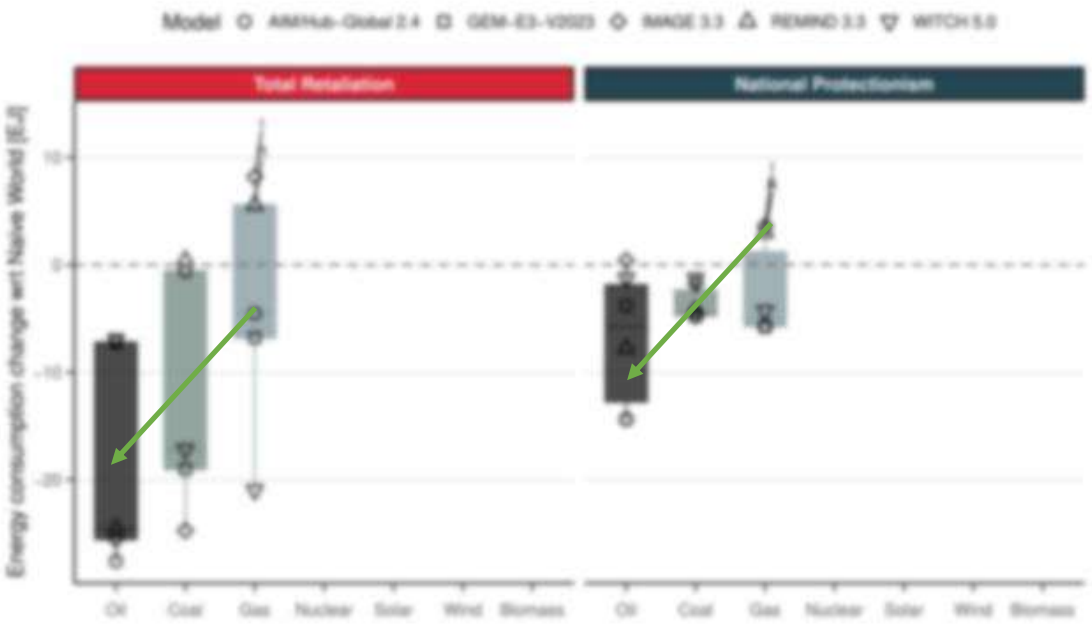
- In mild climate commitments (NDC) National protectionism emission reductions are very shy

Does it help Climate?



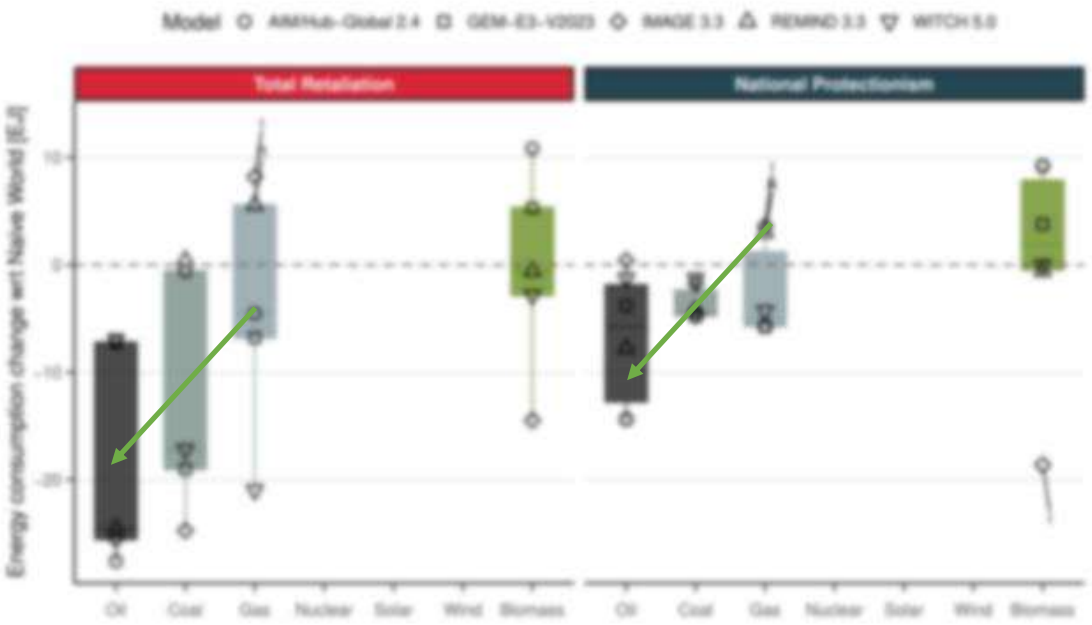
- In mild climate commitments (NDC) National protectionism emission reductions are very shy
- Total retaliation sees a bigger reduction effect
- Emissions remain above the 1000Gt CO2 by mid century
- Far away from Paris compliant mid-century budgets

Does it help the energy transition?



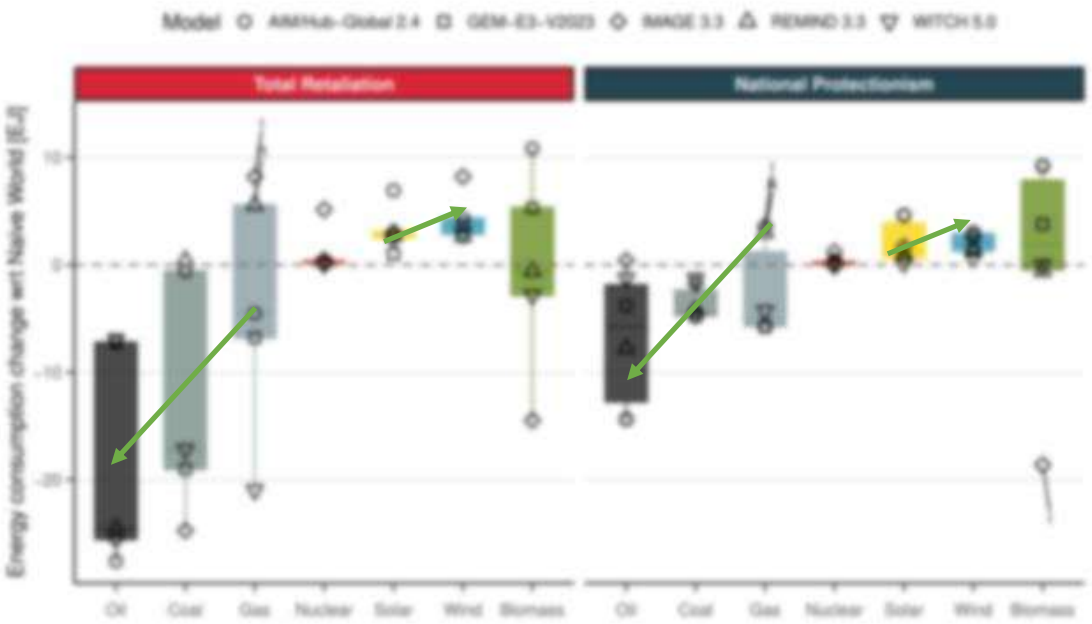
- YES
- Decreases Fossil fuel use, especially:
  - Coal
  - Oil

Does it help the energy transition?



- YES
- Decreases Fossil fuel use, especially:
  - Coal
  - Oil
- Biomass often replaces fossil

Does it help the energy transition?

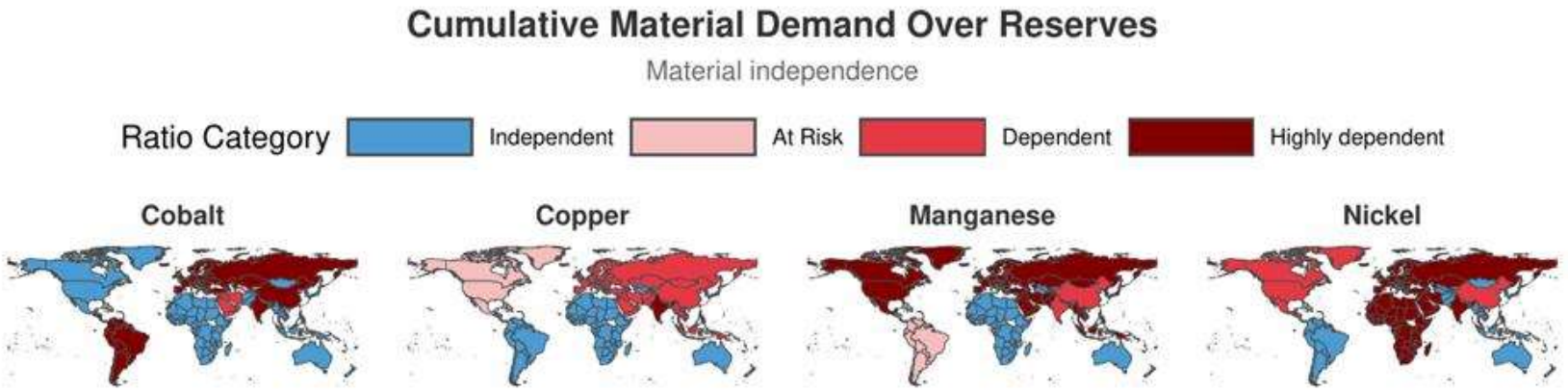


- YES
- Decreases Fossil fue use, especially:
  - Coal
  - Oil
- Biomass often replaces fossil
- Fosters energy renewable use

Nationalism is Costly: Who are the biggest losers?

- Generally, all regions lose
- In Retaliation even countries with very low **NDC** targets, such as India, may bare high losses
- North America and **major exporters** bear the highest losses

Can energy autarchy really be achieved?

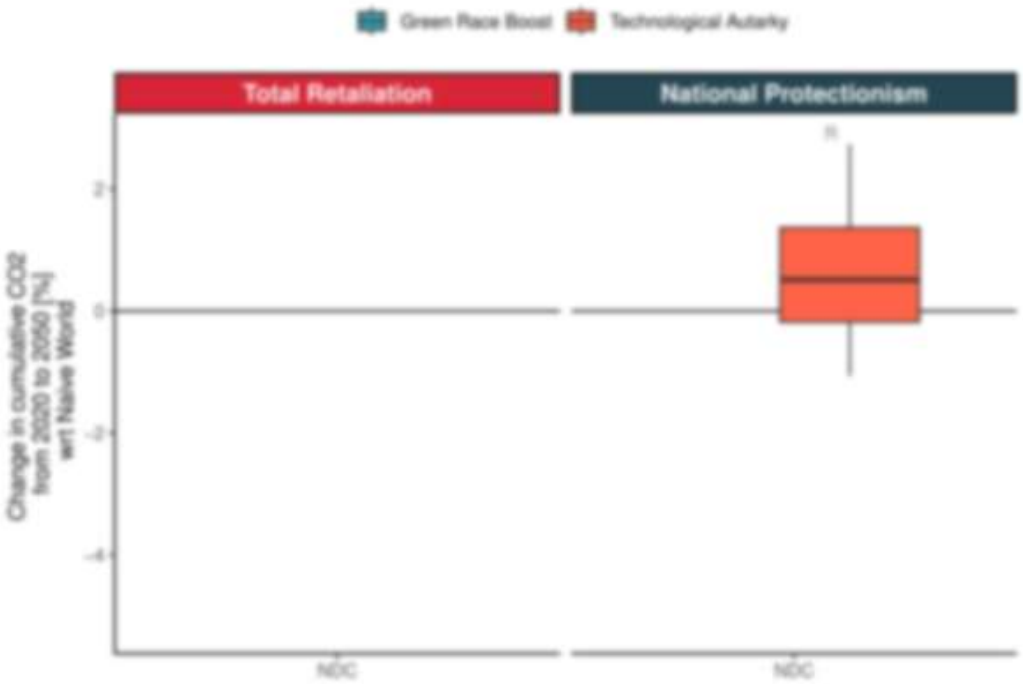


- World reserves are never exhausted for any of these Materials
- However, except Australia, no single region alone has transition materials independence

Can we turn this situation around?

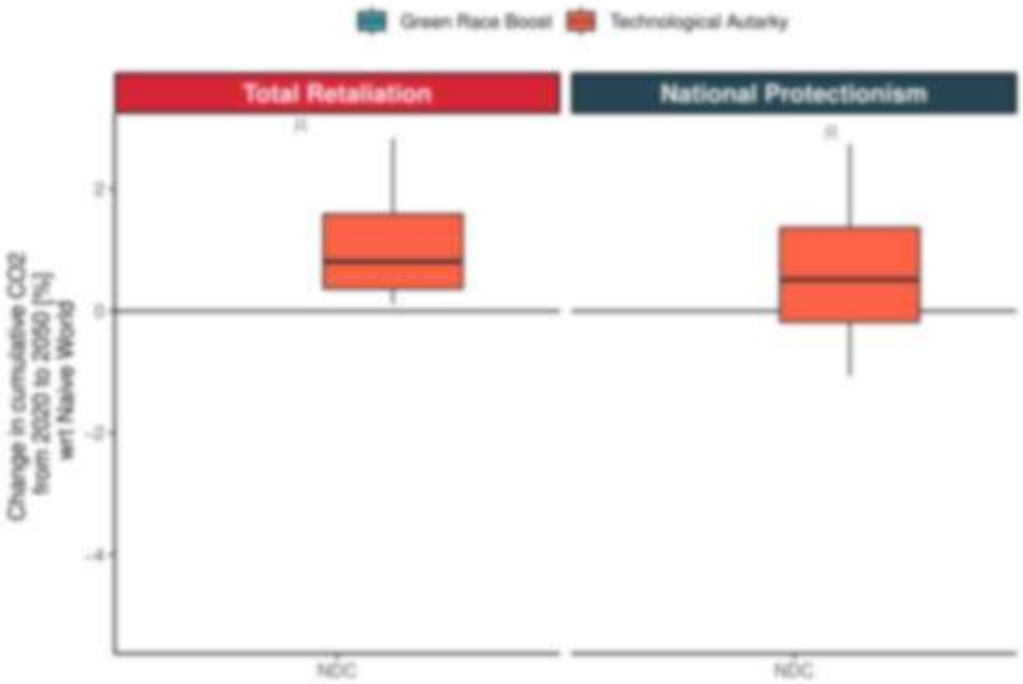
(scenario variants)

Task 4.4: How can we instrumentalize energy autarchy for climate?



- It can get worse:
  - Emissions increase
  - Technological autarchy
- It can get better:

Task 4.4: How can we instrumentalize energy autarchy for climate?



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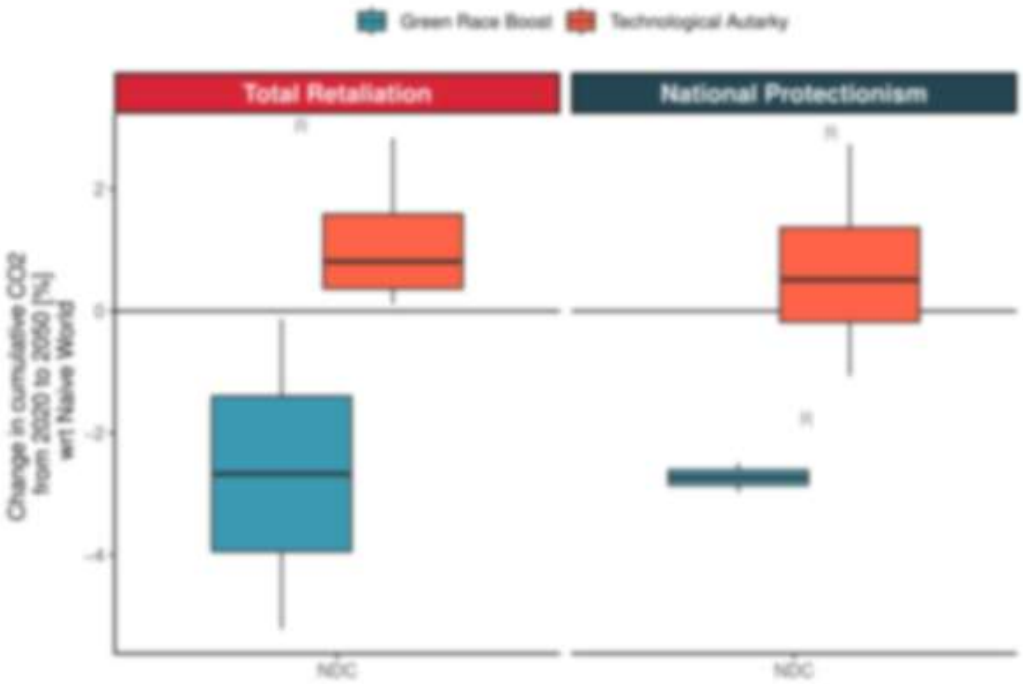
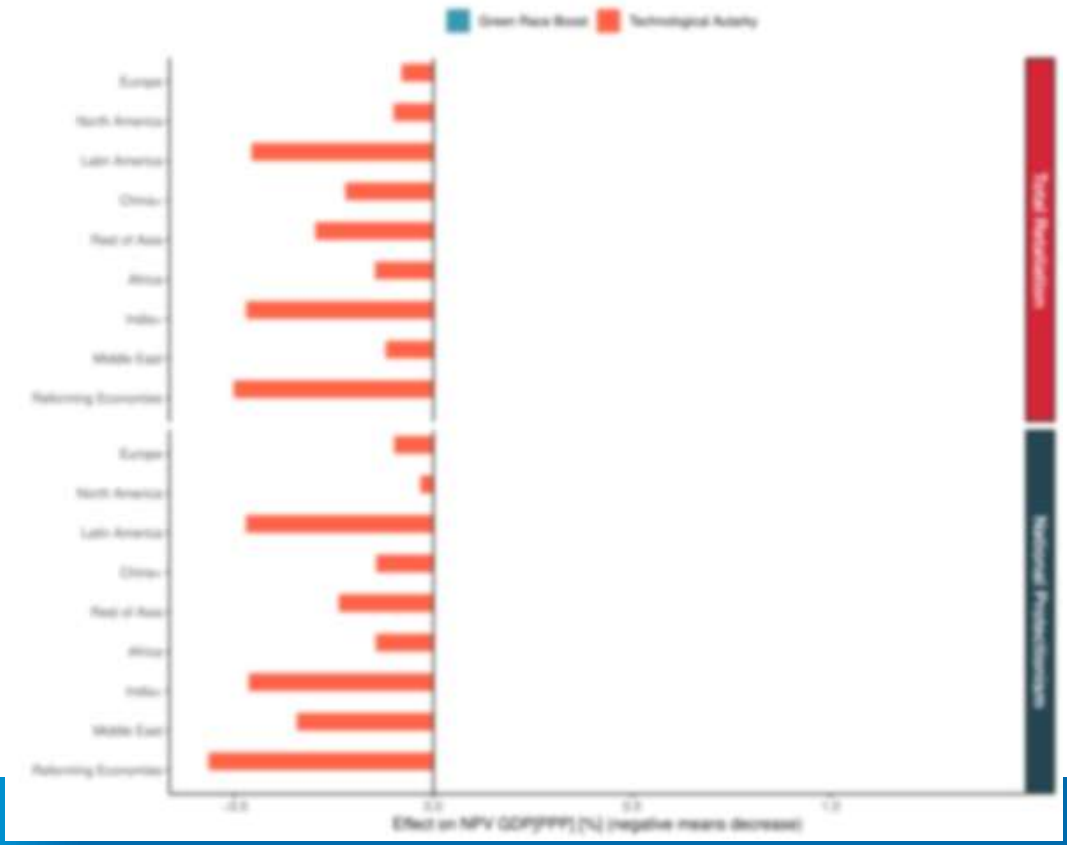


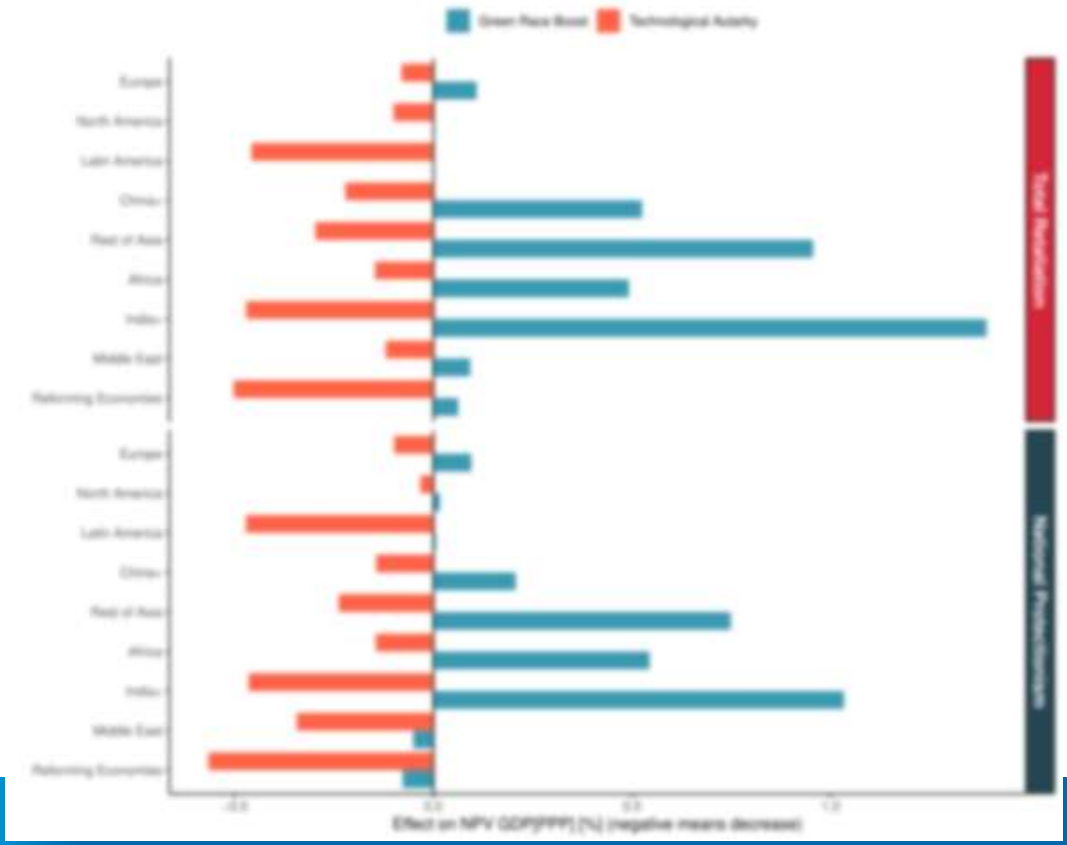
- It can get worse:
  - Emissions increase
  - Technological autarchy
- It can get better:
  - Green race decreases emissions
  - approx. 3% reduction

Task 4.4: Who are the biggest losers?



- Technological autarchy is detrimental for all

Task 4.4: Who are the biggest losers?



- Technological autarchy is detrimental for all
- Big fossil exporters lose under national protectionism, no matter what variant may be followed

Conclusions:

Incentive for the other countries to **retaliate**:

a) *National Protectionism*
b) *Total Retaliation*

- None to shy emission reductions in mild climate scenarios (NDC)
- Costly: consumption losses and short-term sharp increases in electricity prices
- Critical material dependence!

Retaliate …

a) *But re-invest in green infrastructure (green race)*
b) *Full technological shut down*

A technological cooperation shutdown serves no other goal then energy independence

It is possible to instrumentalize energy autarchy back to support climate (Green race)

Thanks!

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Analysis of the emissions impact and ambition of the new NDCs

Ioannis Dafnomilis, Michel den Elzen, Elena Hooijschuur, Arthur Beusen, **Isabela Schmidt Tagomori**

June 2025

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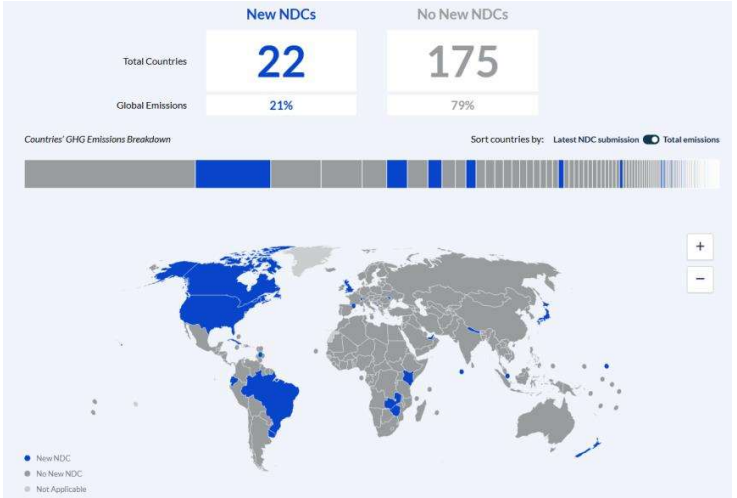
Introduction

- Context:
  - In 2025 countries will submit new NDC targets
    - So far only 22 new NDC submissions, 21% of global GHG emissions
  - NDC analysis with the IMAGE model (regularly updated in 2025)
    - Extended to 2035 - include current policies, new NDC and net-zero targets and their impact
- Research questions:

1. What is the impact of the new NDCs on the 2030 and 2035 global & national GHG emissions?
2. How ambitious are the new & current NDCs following different criteria?



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GHG impact of NDCs:

What is the impact of the new NDCs on the 2030 and 2035 global and national GHG emissions?

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Methodology of GHG impact

- Existing method*
  - Major choices: greenhouse gas and sector coverage, land use accounting, type of targets (e.g., energy supply targets)
  - Address issue of difference in historical GHG emissions of national inventories vs. models (Grassi)
  - Input from Climate Watch and countries' experts

* den Elzen, M.G.J. , Dafnomilis, I., Forsell, N., Fragkos, P., Fragkiadakis, K., Höhne, N., ... & Sperling, F. (2022). Updated nationally determined contributions collectively raise ambition levels but need strengthening further to keep Paris goals within reach. *Mitigation and Adaptation Strategies for Global Change*, *27*(5), 33.

Updated website
www.pbl.nl/ndc

RESULTS NDCs PLEDGES PROGRESS TOOL

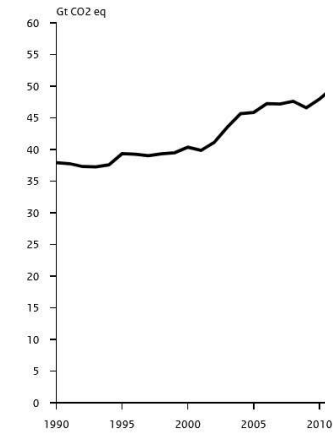
PBL Climate Pledge NDC tool

The Paris Agreement aims to limit global mean temperature increase to well below 2 °C
°C. To achieve this, more tha
post-2020 climate action. A
about 50% of global greenh

Global

Share of global emissions in 2019: **100%**

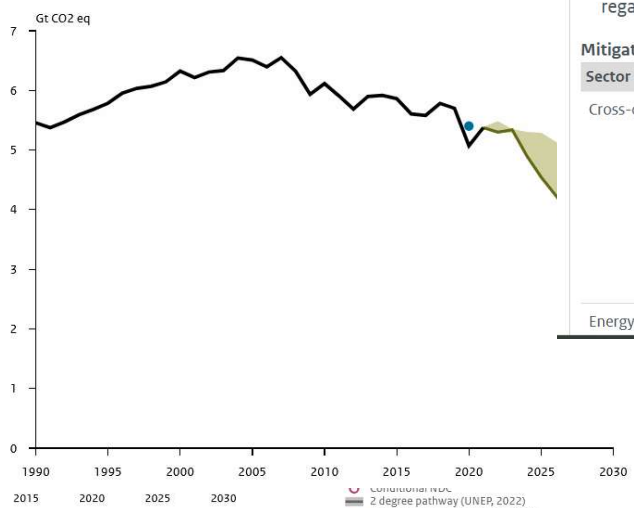
Total emissions | Emissions per capita



United States

Share of global emissions in 2019: **10.7 %**

Total emissions | Emissions per capita | Emissions per income



Details of United States

Unconditional pledge(s) 2020
- None

Conditional pledge(s) 2020
- Reduce greenhouse gas emissions to 17% below 2005 levels, by 2020

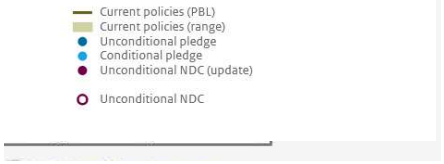
Unconditional NDC(s)
- Reduce greenhouse gas emissions to between 26% and 28% below 2005 levels by 2025

Update: Unconditional NDC(s)
- Reduce greenhouse gas emissions to between 50% and 52% below 2005 levels by 2030

Result(s)
- The United States (US) is likely to miss but could meet its NDC targets based on the lower end of the current policy range.
- Emissions under current policies in the US are projected to decrease in the period towards 2030, but there is uncertainty regarding the rate of decline.

Mitigation measure(s) with highest impact

Sector	Policies	Description
Cross-cutting	Inflation Reduction Act (2022)	This act provides tax credits, grants, and loans (between USD 800bn and USD 1.2tn) to develop and deploy clean energy technologies and investments that are critical for decarbonising the economy. Renewable energy, energy storage, electric vehicles, energy efficiency upgrades, advanced manufacturing, and large-scale zero-emissions demonstration projects are investment foci of the act.
	Infrastructure Investment and Jobs Act (or Bipartisan Infrastructure Law) (2021)	This act comprises investments in a wide range of areas (totalling USD 1.2tn) that can indirectly enable the transition to a low-carbon economy, including the development of EV charging infrastructure, upgrading the power grid, and improving energy efficiency and electrification in buildings.
Energy	Methane waste prevention rule (2016)	This policy sets out specific standards for oil and gas production to reduce CH4 emissions by



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2030 & 2035 emissions reduction targets - G20 economies

- Brazil: large range in emission reductions. Also launched seven sectoral mitigation plans
- UK: included a Clean Power Action plan, to achieve clean electricity by 2030
- US: when the Paris withdrawal takes effect (January 27, 2026), the NDC will no longer be operative

Country	Reference year	2030 Emissions Reduction Target	2035 Emissions Reduction Target	Net-Zero Target Year
Brazil	**2005**	53.1%	**59-66%**	2050
Canada	**2005**	40-45%	**45-50%**	2050
Japan	**2013**	46%	**60%**	2050
United Kingdom	**1990**	68%	**81%**	2050
United States of America	**2005**	50-52%	**61-66%**	2050

Date: June 2025

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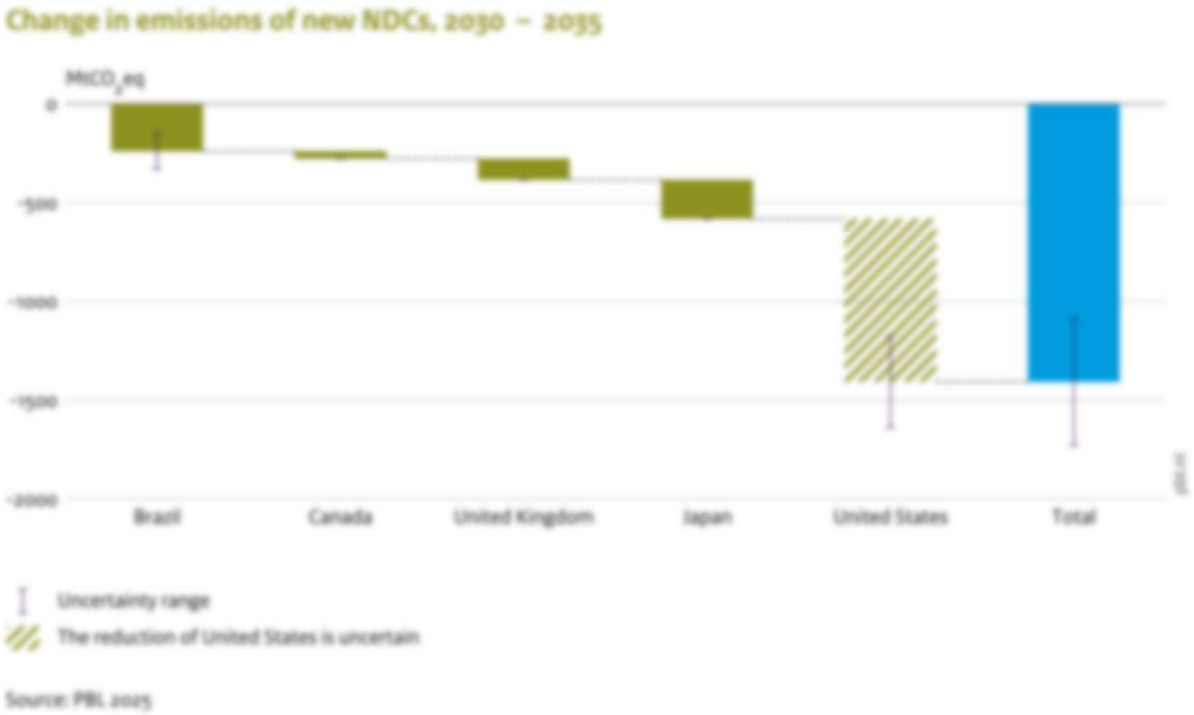
Impact of NDCs on 2035 global emissions: 1.4 $GtCO_2e$ - highly dependent on US



- For countries with no new NDC submission, emissions are held constant at 2030 NDC levels
- Large uncertainties due to range: 1.4 $GtCO_2e$ [1.1;1.7] $GtCO_2e$
- Without the contribution of the US, the additional emission reductions considerably drop

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Ambition of NDCs:

How ambitious are the new NDCs? Are the new targets aligned with net-zero targets?

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Methodology of NDC ambition assessment

Comparison with linear pathways to net-zero targets, i.e. the alignment with net-zero targets

Comparison with 1.5 and 2°C-aligned least costs pathways (IPCC AR6 scenario database)

Comparison with national GHG indicators (historical levels, timing and level of peaking)

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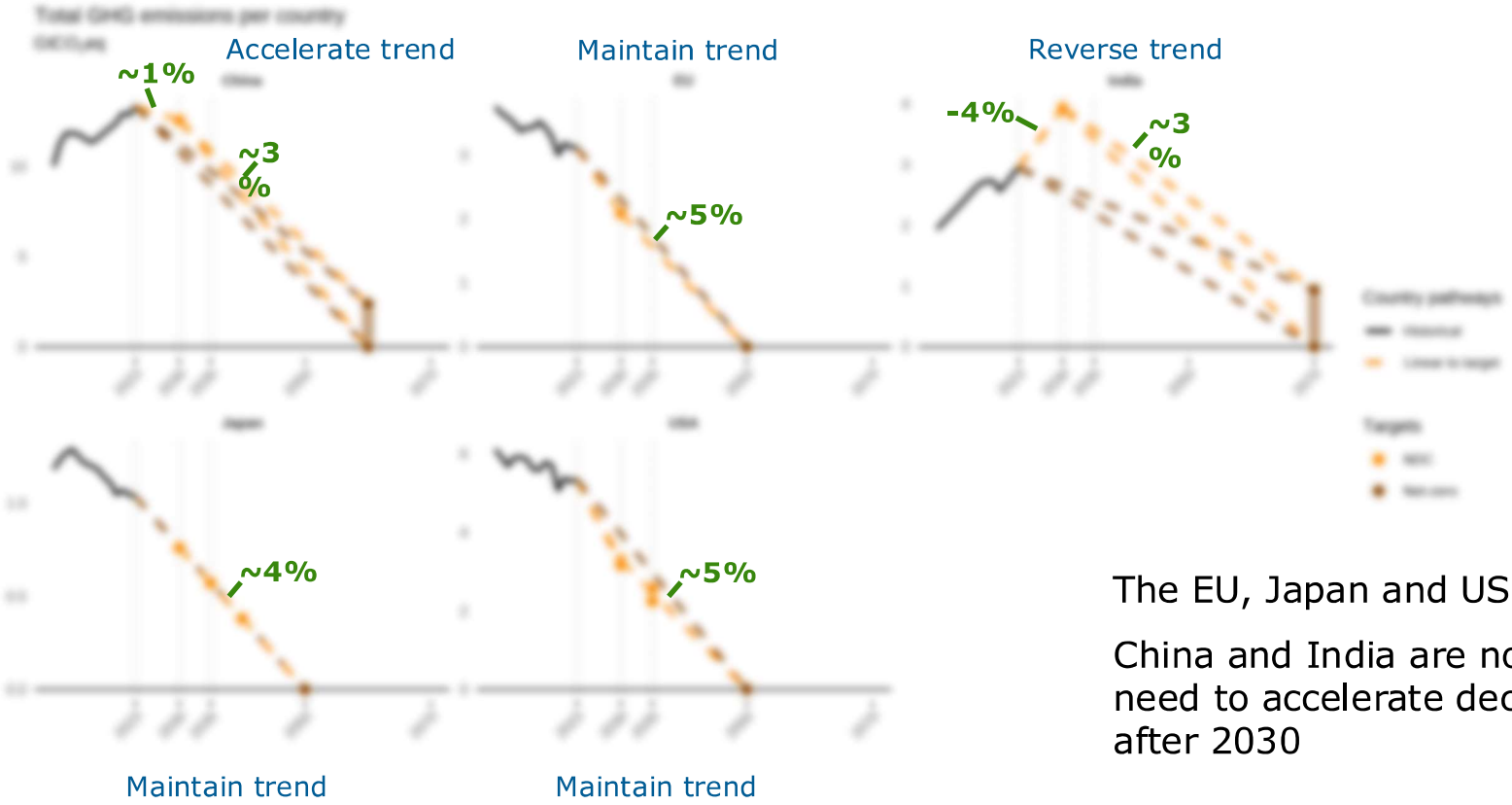
(1) Alignment with net-zero targets



The EU, Japan and US are well aligned

China and India are not aligned and need to accelerate decarbonization after 2030

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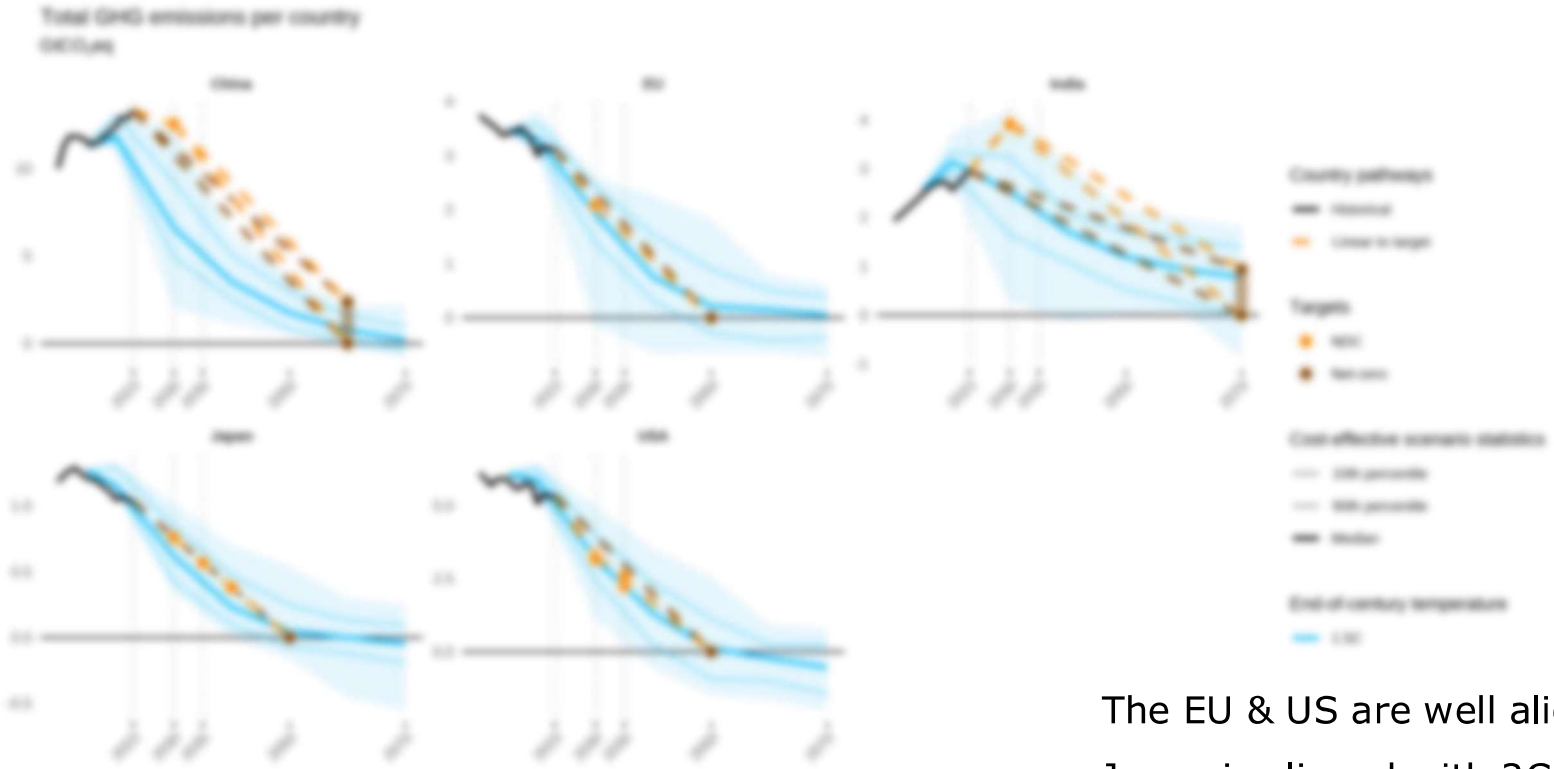
(2) Comparison with 1.5 & 2°C-aligned least costs pathways



The EU & US are well aligned with 1.5C

Japan is aligned with 2C

China & India are not aligned with 1.5/2C

Hooijschuur, E. et al. (2025). Analysis of cost-effective reduction pathways for major emitting countries to achieve the Paris Agreement climate goal. *Global Environmental Change Advances*, *4*, 100014.

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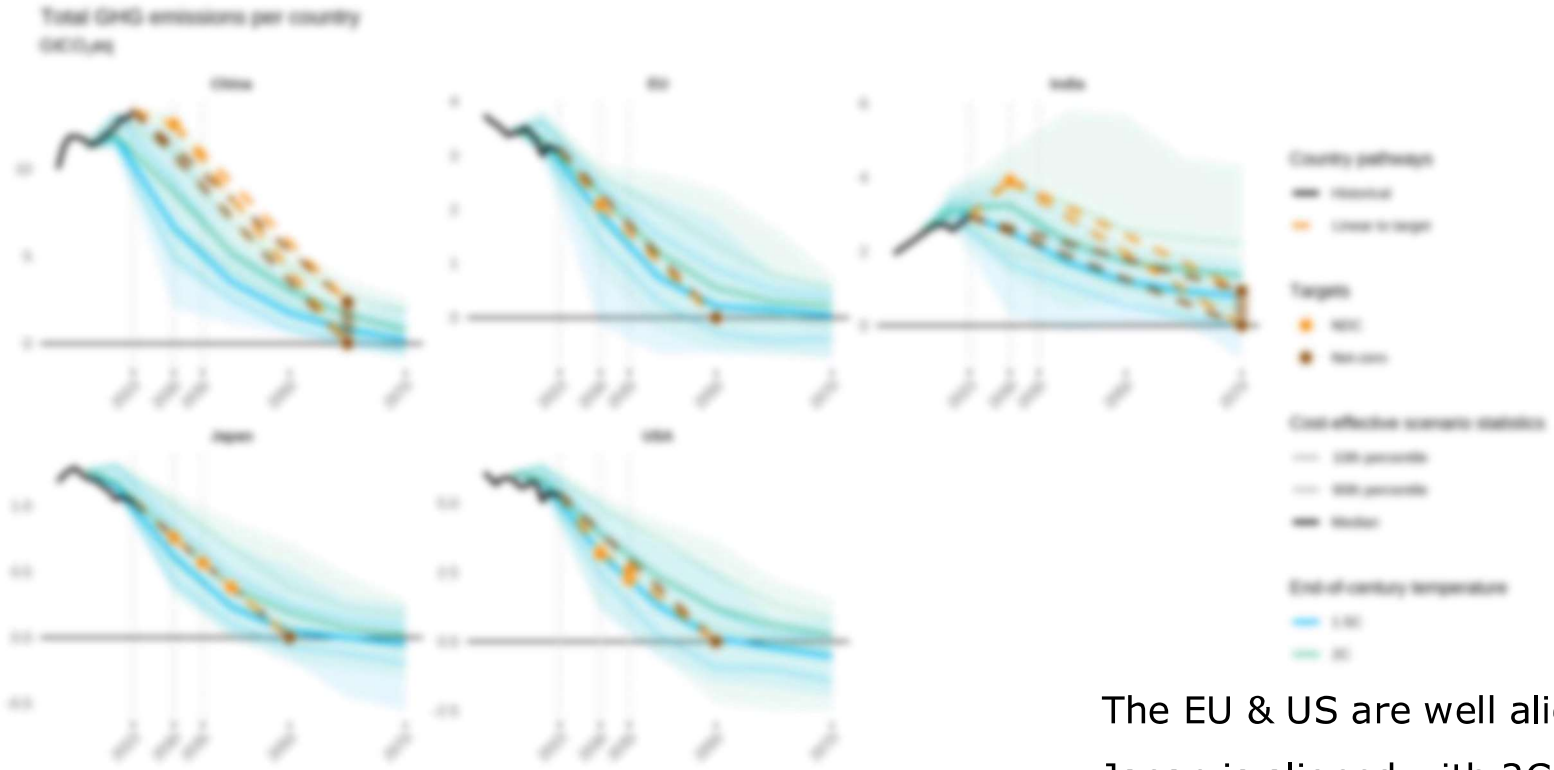
(2) Comparison with 1.5 & 2°C-aligned least costs pathways



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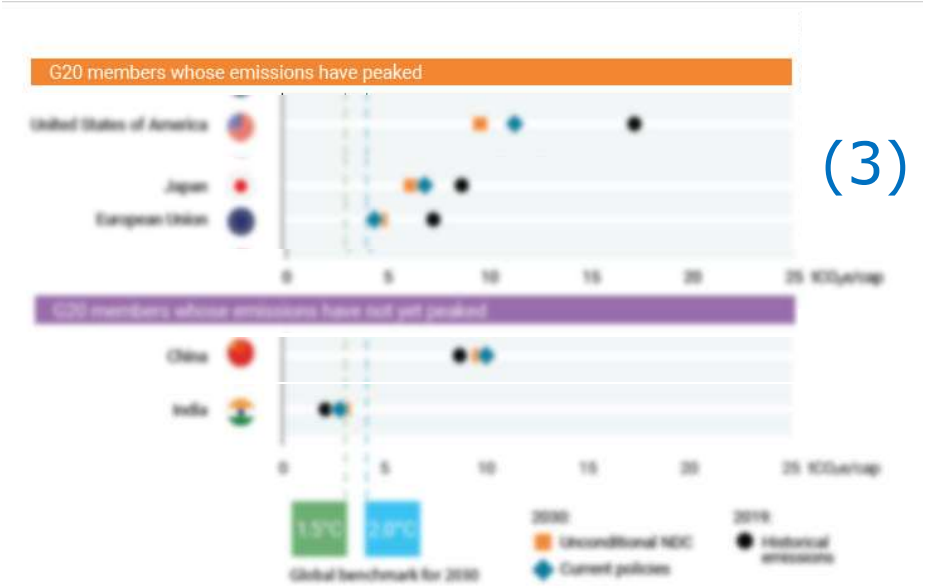
(3) Comparison with national indicators



	Peak year	Net-zero target year	Years from peak to net-zero	Likely to achieve NDC under current policies?
European Union	≤1990	2050	≥60	More likely
Japan	2013	2050	37	Less likely
United States of America	2007	2050	43	Less likely
China	<2030	<2060	38	More likely
India	>2030	2070	<40	More likely

- Per capita emissions of China NDC 2030 reaches 50% above G20 average, ~2xEU, and ~US
- The EU reduces its per capita emissions by 45% between 2015 and 2030, 35% below G20 average
- India per capita emissions increases by 40% between 2015 and 2030, still ~60% below G20 average
- The EU is likely to meet its NDC target, whereas Japan and US are likely to miss it.
- China and India have short time from peak to net-zero. China and India were on track to meet their NDC target (but already at time of submission)

Source: UNEP Emissions Gap report (2024)

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How ambitious are the major emitters' NDC targets?

- **China** needs to increase decarbonization rate. The GHG coverage of the net-zero target is unclear (GHG?). In the past, China's efforts to raise ambition have only leveled off its emissions growth.
- **EU** needs to maintain decarbonization rate. The EU has raised its ambition, which has been followed by sufficient policy adoption.
- **USA** and **Japan** need to maintain decarbonization rate. They have raised their ambition, but sufficient policy adoption is needed to fully meet their NDC.
- **India** needs to reverse decarbonization rate. The GHG coverage of the net-zero target is unclear. India's low per capita emissions and low historical responsibility allow for emissions growth.

PBL Netherlands Environmental Assessment Agency

Methodology of NDC ambition assessment: the equity lens

Comparison with linear pathways to net-zero targets, i.e. alignment with net-zero targets

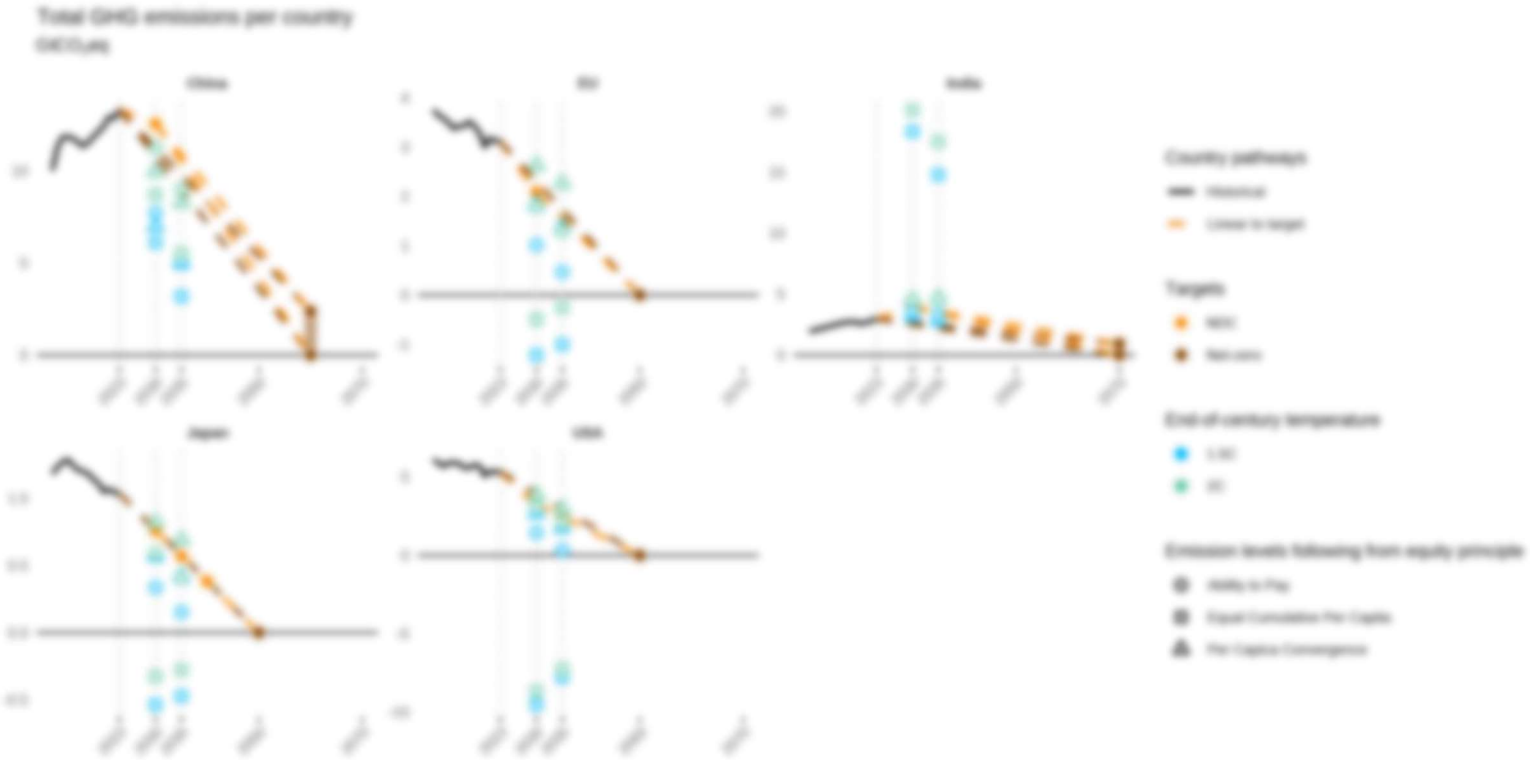
Comparison with 1.5 and 2°C-aligned least costs pathways (IPCC AR6 scenario database)

Comparison with national GHG indicators (historical levels, timing and level of peaking)

Comparison with 1.5 and 2°C-aligned equity outcomes (under different fairness principles)

PBL Netherlands Environmental Assessment Agency

Comparison with 1.5 and 2°C-aligned equity outcomes



Source: https://www.carbonbudgetexplorer.eu/
Mark Dekker, Andries Hof, Yann Robiou du Pont et al. Navigating the black box of fair national emissions targets (2025), Nature Climate Change [https://doi.org/10.5281/zenodo.13640303].

PBL Netherlands Environmental Assessment Agency

Thank you!

Ioannis Dafnomilis (ioannis.dafnomilis@pbl.nl)

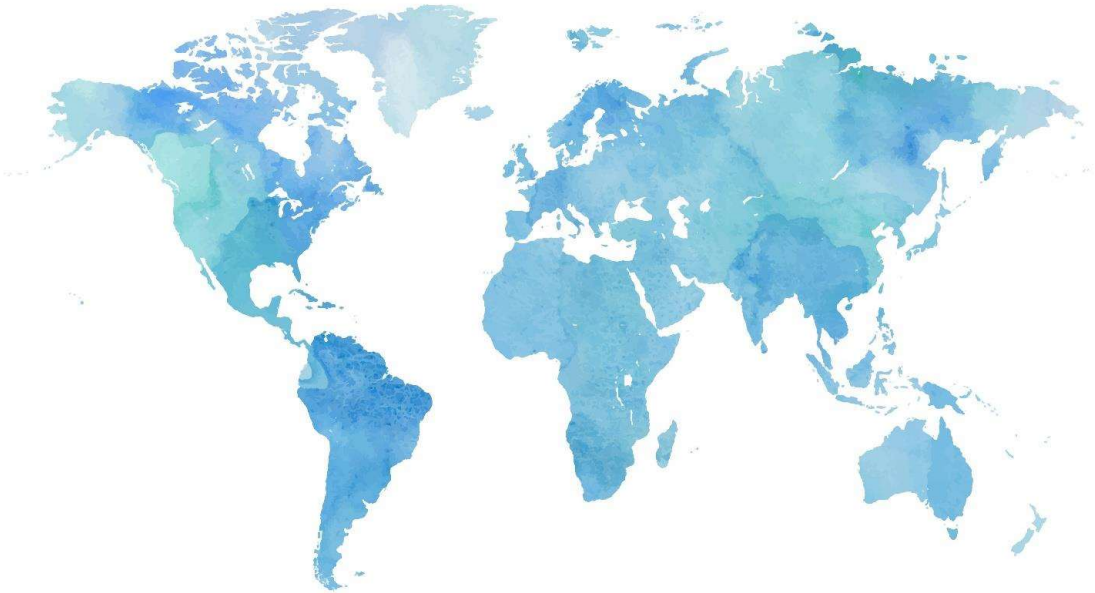
ELEVATE - ENABLING AND LEVERAGING CLIMATE ACTION TOWARDS NET ZERO EMISSIONS

The Good Practice Policies Scenario

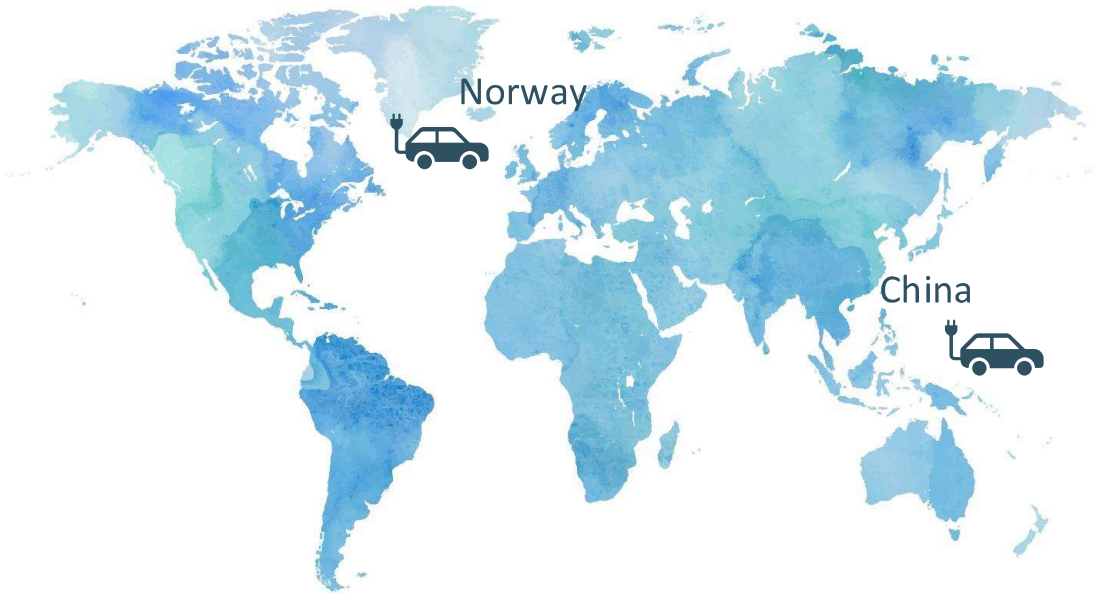
Elena Hooijschuur, Isabela Schmidt Tagomori, Ioannis Dafnomilis, Detlef van Vuuren

Bonn | ELEVATE V International Stakeholder Workshop | June 20th 2025

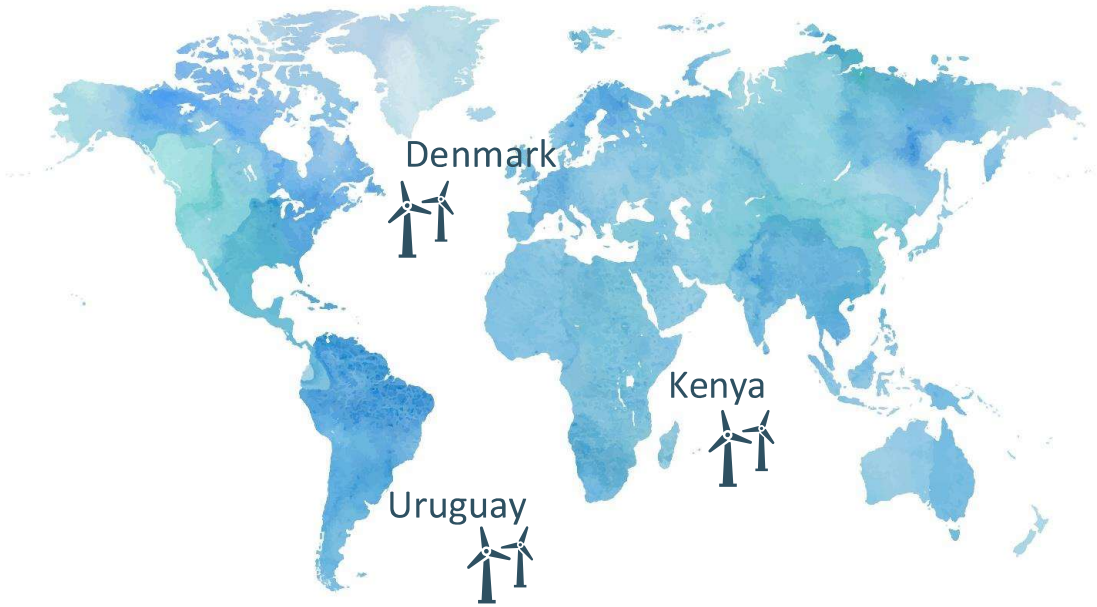
Good practice policies around the world



Good practice policies around the world



Good practice policies around the world



Ambitious goals…

- What if good practice policies could be implemented in all countries?
- Would this be sufficient to reach national and global climate goals?
- Which successful policies can we learn from?

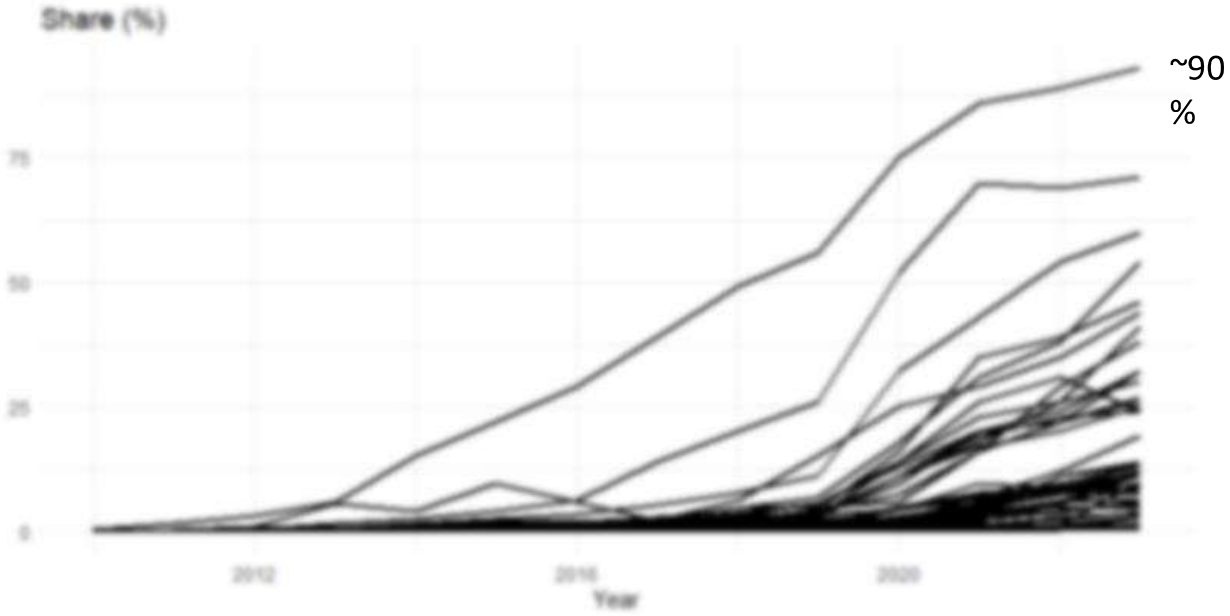
- New approach based on historical analysis

Step 1: Historical analysis

- What **examples** of **good performance** are available?
- How **deep** and how **fast** could improvement go?
- Are they dependent on **context** (e.g. **limiting** or **enabling** factors, **regional** characteristics, etc.)?

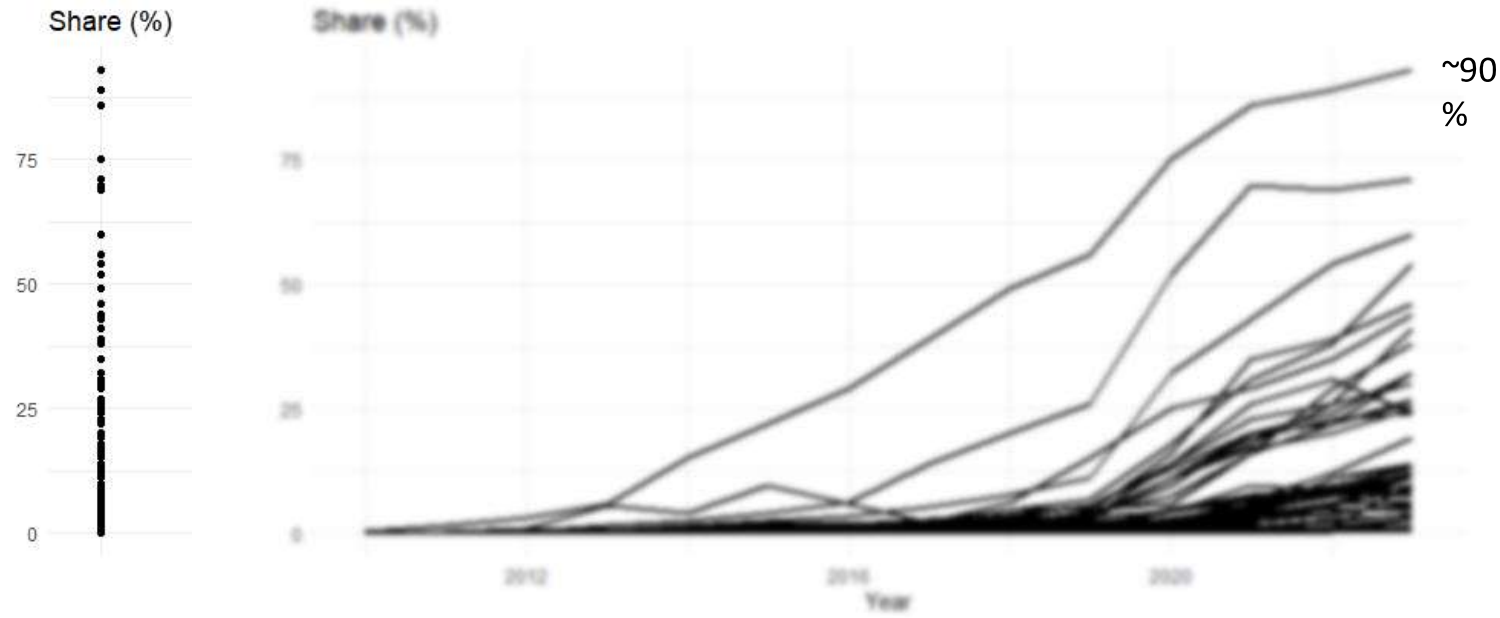
- Electric vehicles, electricity from wind and solar, reduction in emissions from venting and flaring, management of manure from the livestock sector, etc …

Share of electric vehicles in sales: how deep can improvement go?



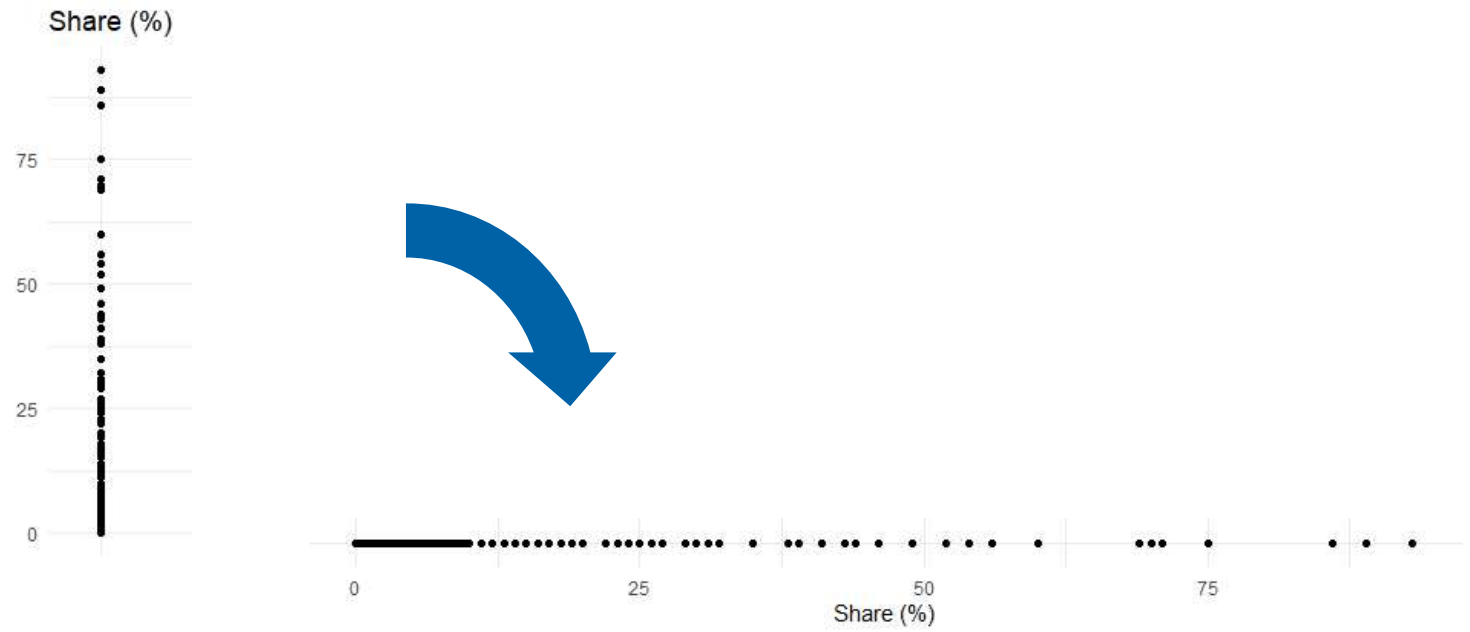
~90 %

Share of electric vehicles in sales: how fast analysed in relation to how deep

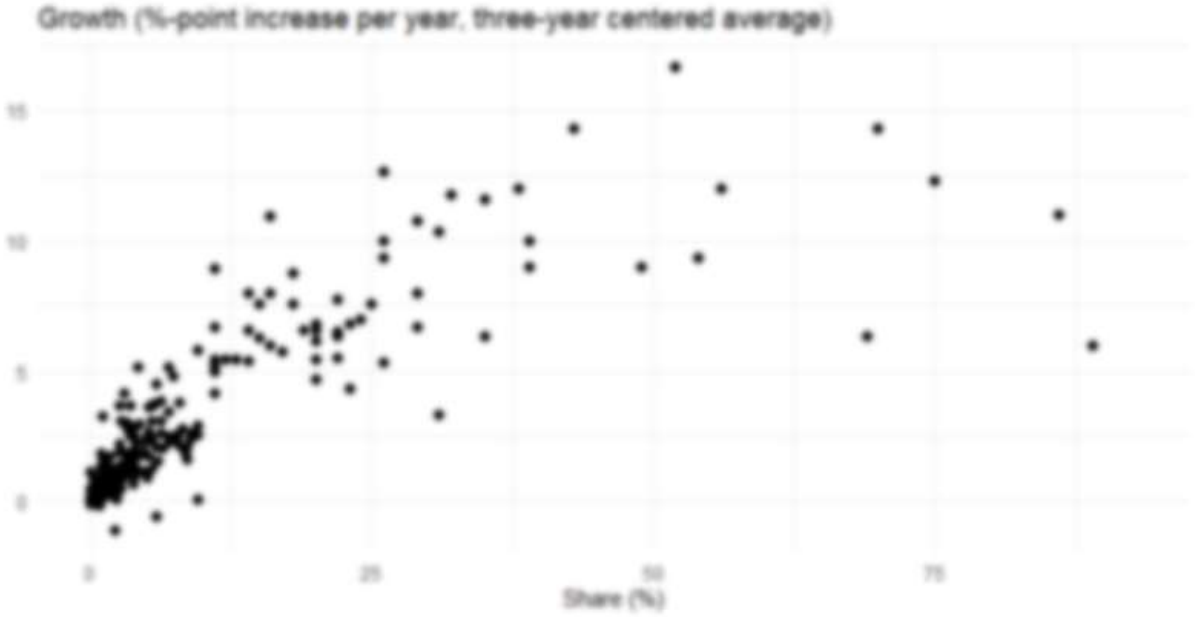


~90 %

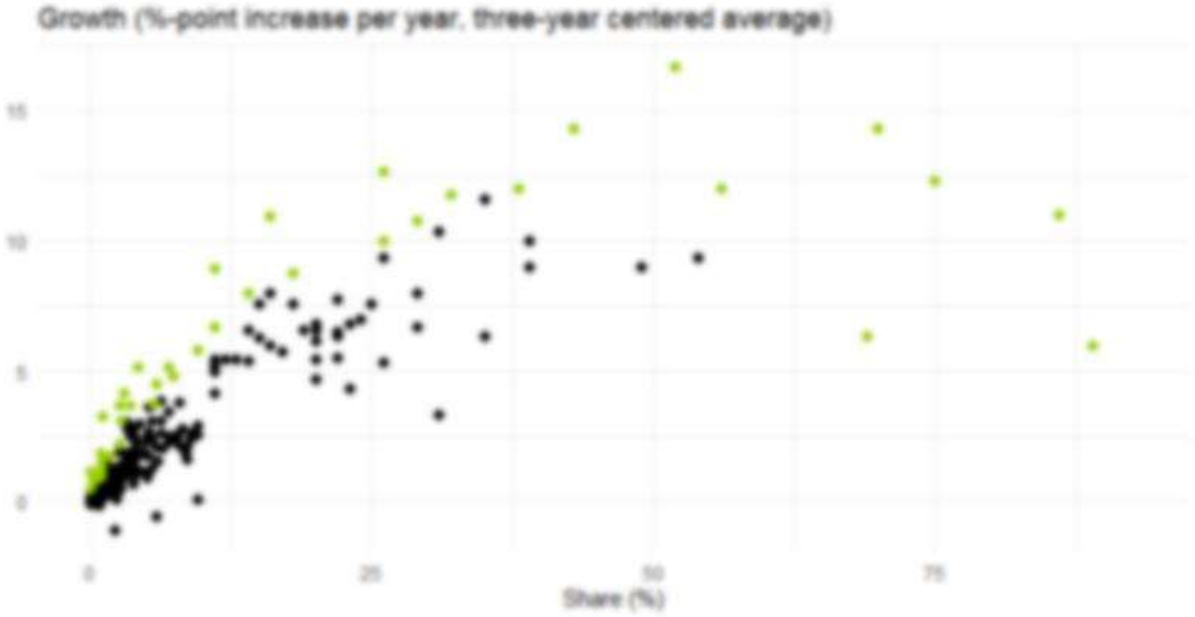
Share of electric vehicles in sales: how fast analysed in relation to how deep



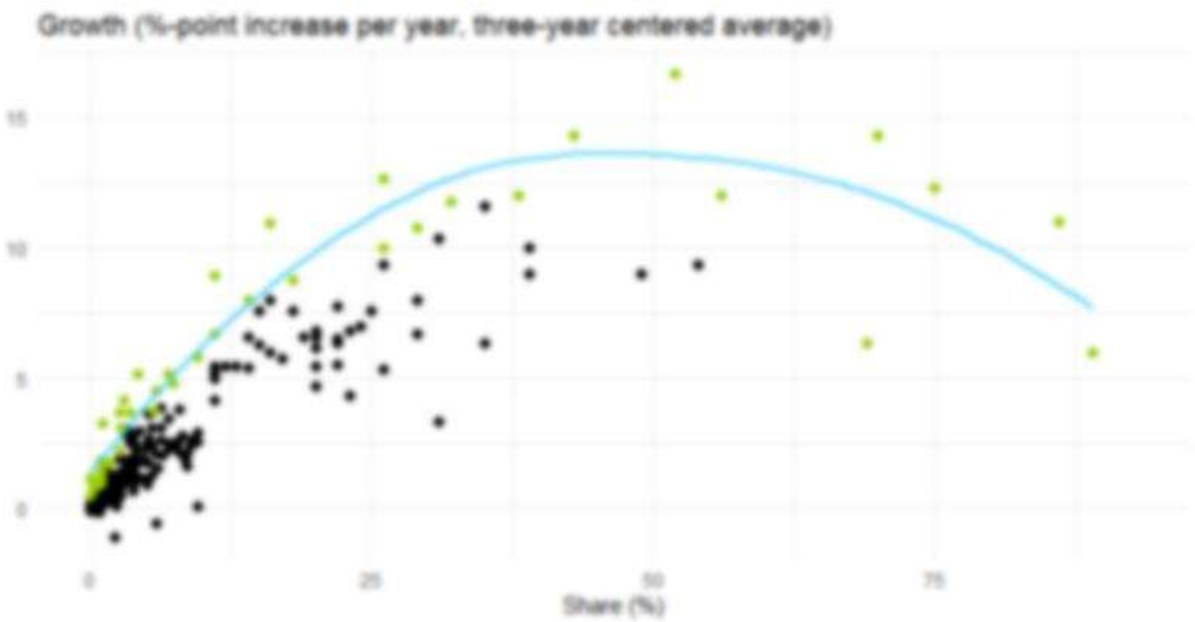
Share of electric vehicles in sales: how fast analysed in relation to how deep



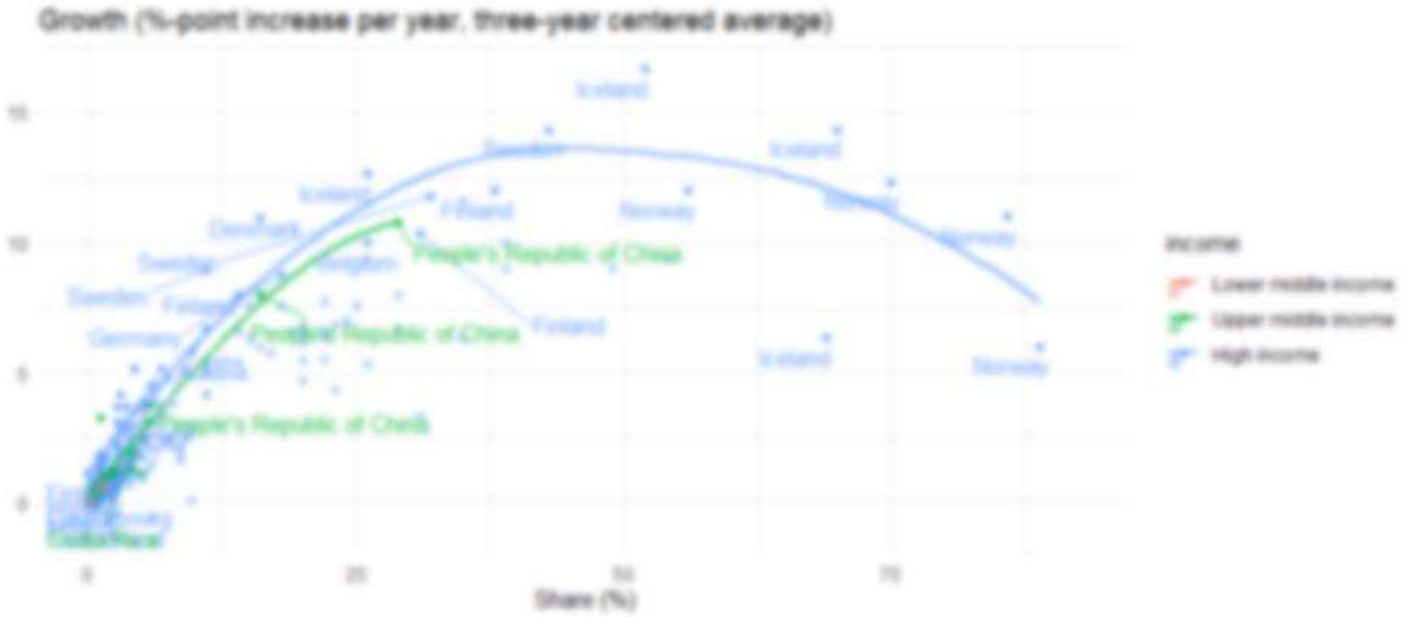
Share of electric vehicles in sales: highest growth rates per share selected as good practice



Share of electric vehicles in sales: highest growth rates per share selected as good practice



Increase in sales share of electric vehicles: per income group



Step 2: Review of good performance

Given the analysis of historical performances:

1. Map the **policies** that are connected to observed good performances by countries
2. **Review** with experts and stakeholders
   - Questionnaire

Step 3: Scenario development

- 2025-2028: current policies
- 2028-2050: implement good practice policies trajectories
  - At good practice speed towards good practice depth
- 2050-2100:
  a) Towards long-term strategies (net-zero)
  b) Towards Paris (1.5 °C)

The “Good Practice Policies” Scenario

Can good practice policies bridge the gap to:

- 2035 NDCs
- 2050 LTS
- Paris climate goals

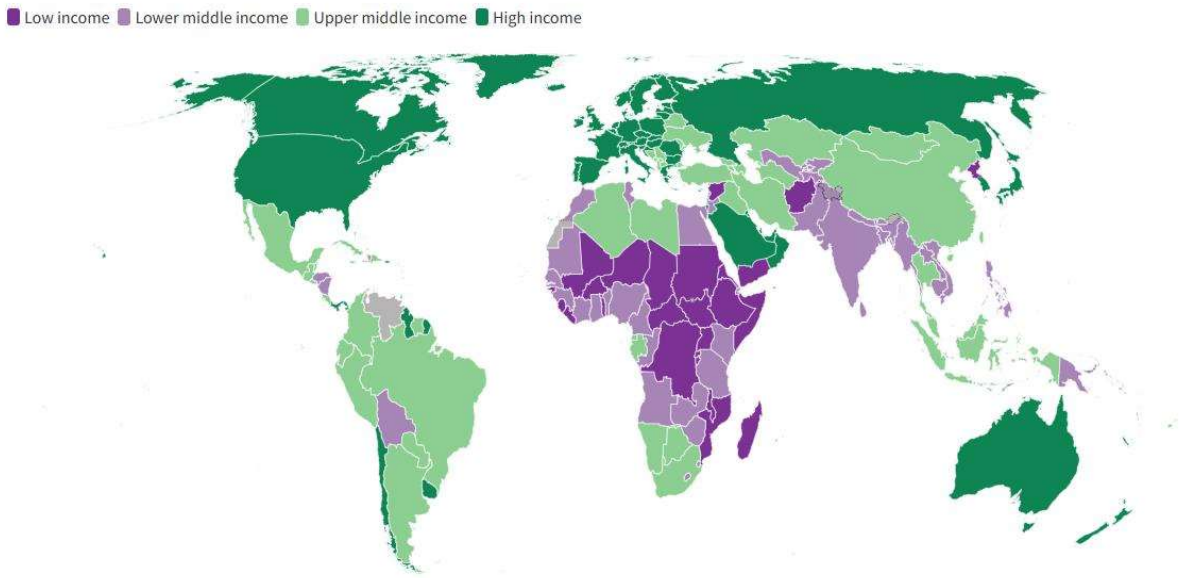
!

- Not prediction, indication of potential benefit
- Although we try to capture transferability, policies and progress might not be transferable

Do you have any first reflections?

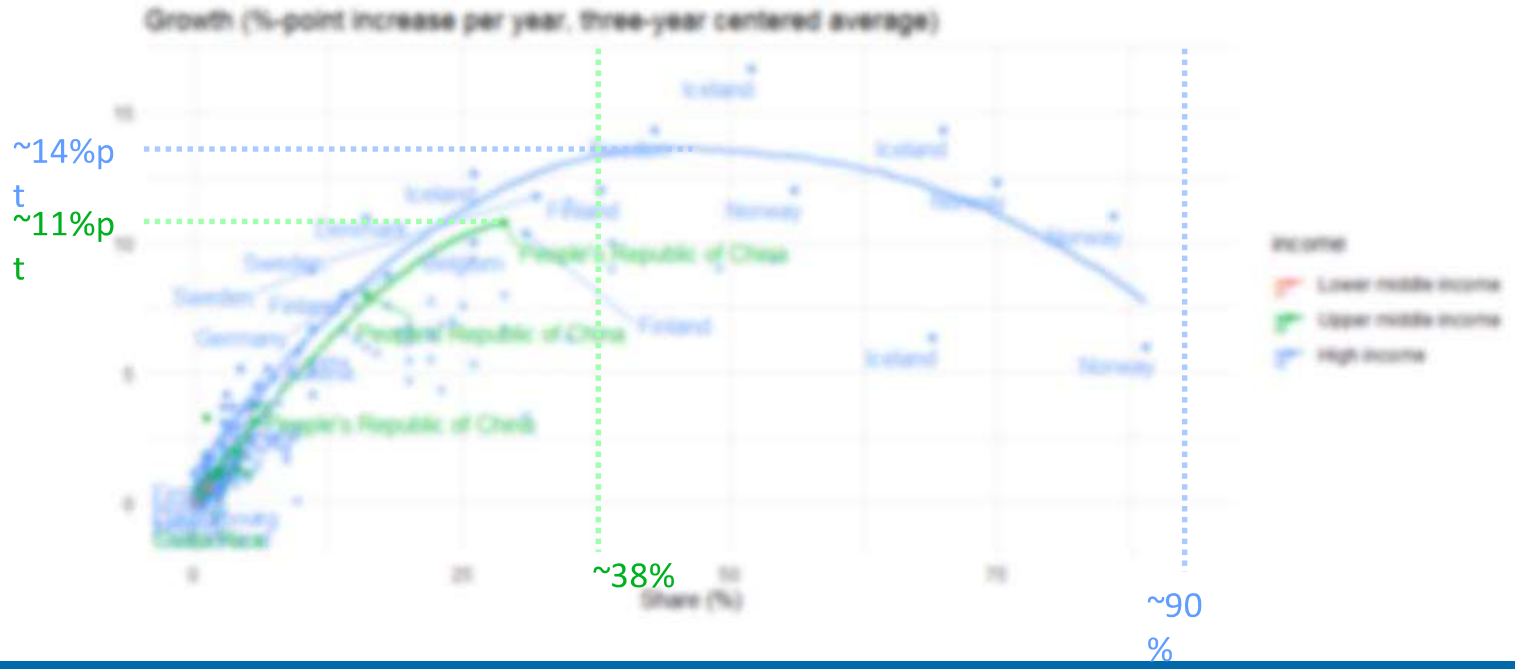
- Questions?
- Comments?
- How would you use results?

World bank income group classification

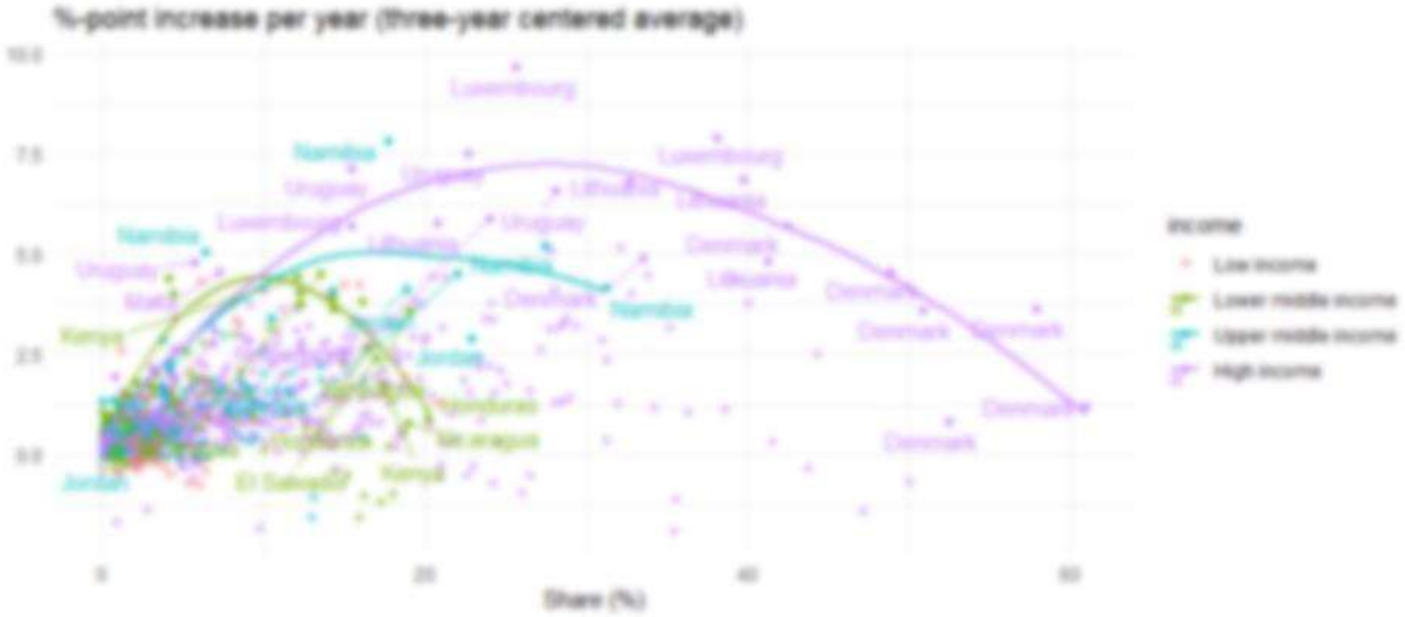


Source: World Bank Group

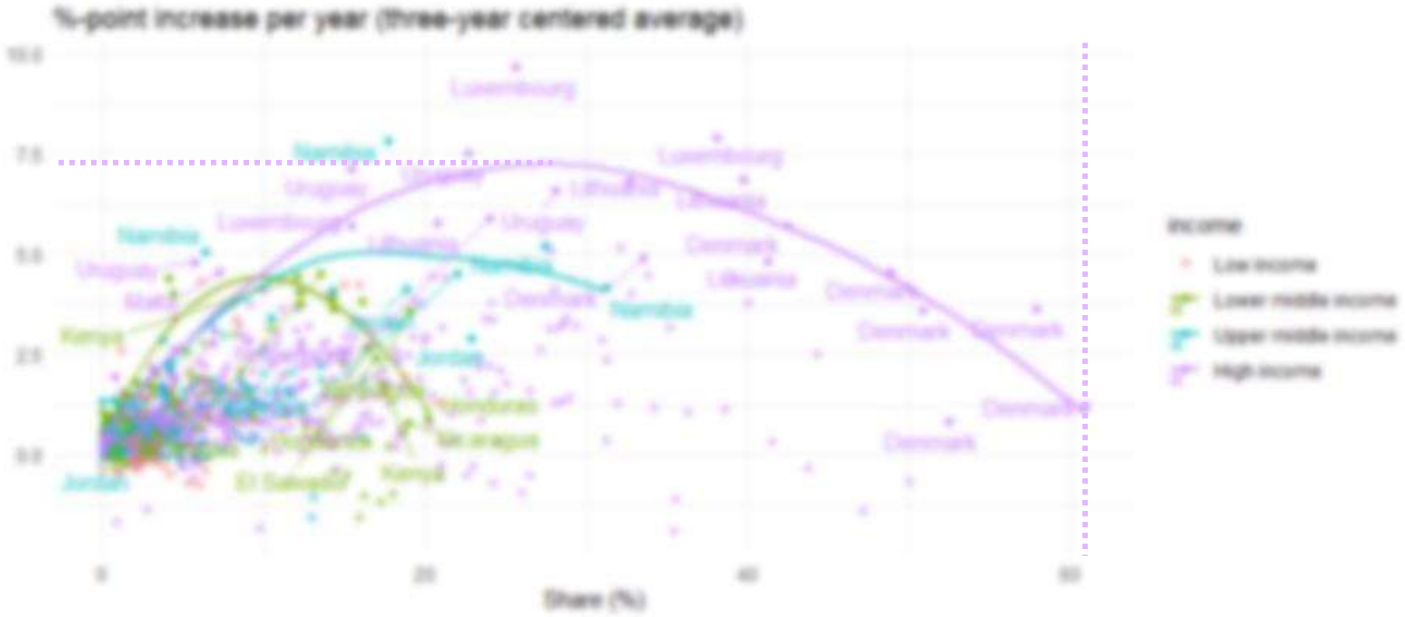
Is your country able to follow the trajectory of the example countries for electric vehicles?



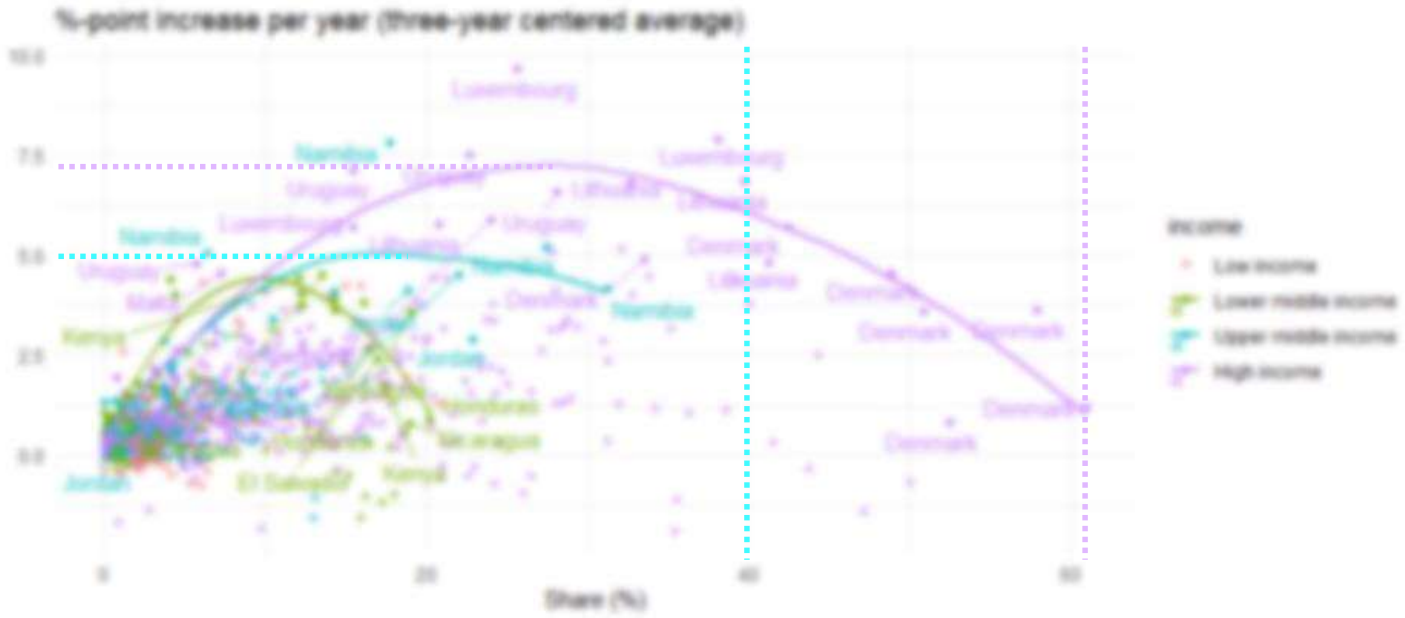
Increase in share of wind and solar in electricity output



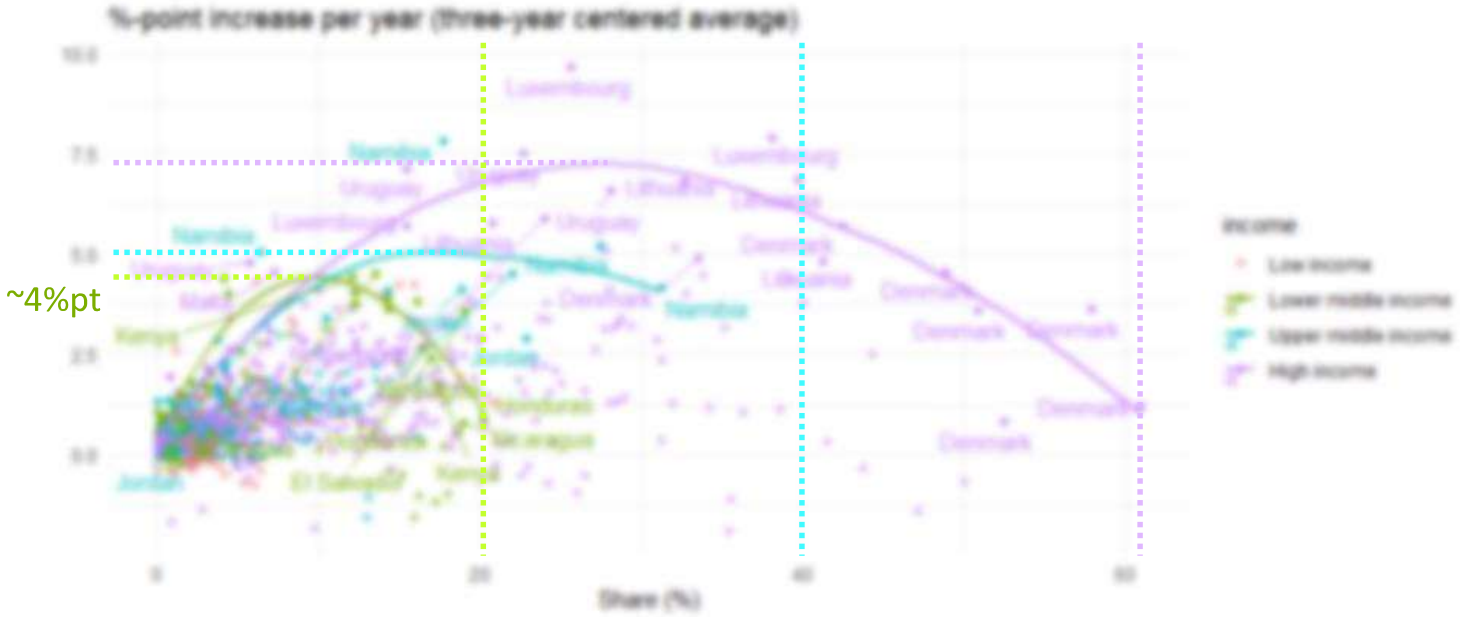
Increase in share of wind and solar in electricity output



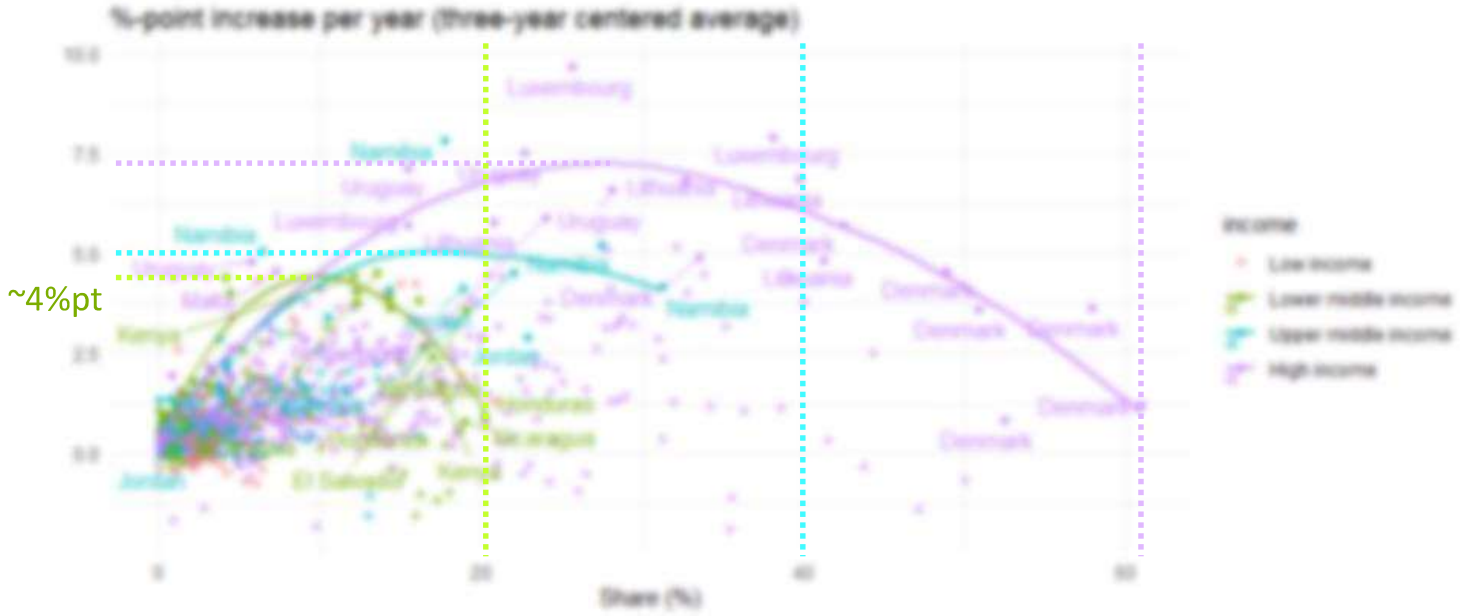
Increase in share of wind and solar in electricity output



Increase in share of wind and solar in electricity output

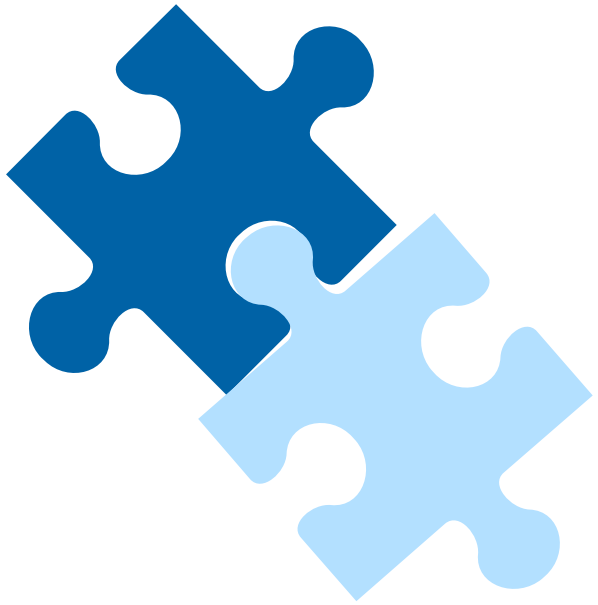


Is your country able to follow the trajectory of the example countries?



Thank you

Stay tuned for the full questionnaire!



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Disclaimer

Funded by the European Union. Views and opinions expressed are, however, those of the author(s) only and do not necessarily reflect those of the European Union or the European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them.

Funded by
the European Union

References

Earlier studies exploring impact of successful national policies implemented broadly:

- Roelfsema et al. 2018
- Kriegler et al. 2018
- Fekete et al. 2020
- Van Soest et al. 2021
- Stechemesser et al. 2024

Contribution of this study

- Quantitative approach in determining good practice
- Model Intercomparison Project
- Comparing potential to reach national and global targets
- Analysing remaining emissions

Panel Discussion

Insights from ELEVATE Stakeholders

ELEVATE
supporting international climate policy

Bastiaan Hassing, Ministry of Climate and Green Growth, Netherlands

Beatriz Mattos, Plataforma CIPÓ, Brazil

Ritu Mathur, TERI, India

Lorenzo Travella Barrios, Ministry of Foreign Affairs Chile

Mara Ghilan, YOUNGO

Andrea Santos, COPPE/UFJ Brazil

Moderates: Elmar Kriegler, PIK

V ELEVATE INTERNATIONAL STAKEHOLDER WORKSHOP

The Compass for Net-Zero: Navigating Ambition, Justice and Development

Friday, 20th of June, 2025

10:30 – 16:00 CEST

Bonn Marriott Hotel

Lunch Break
Workshop will resume at 13:30

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Session 2
Co-Creating Paris-Aligned Pathways: A Stakeholder Dialogue on Justice and Development

V ELEVATE INTERNATIONAL STAKEHOLDER WORKSHOP

The Compass for Net-Zero: Navigating Ambition, Justice and Development

Friday, 20th of June, 2025

10:30 – 16:00 CEST

Bonn Marriott Hotel

Thank you for your attention!

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International Institute for Applied Systems Analysis
IIASA www.iiasa.ac.at

ELEVATE supporting international climate policy

Mentimeter

Co-Creating Paris-Aligned Pathways: A Stakeholder Dialogue on Justice and Development

Stakeholder meeting| Bonn, June 20

Presented by Elina Brutschin on behalf of ELEVATE and IIASA colleagues

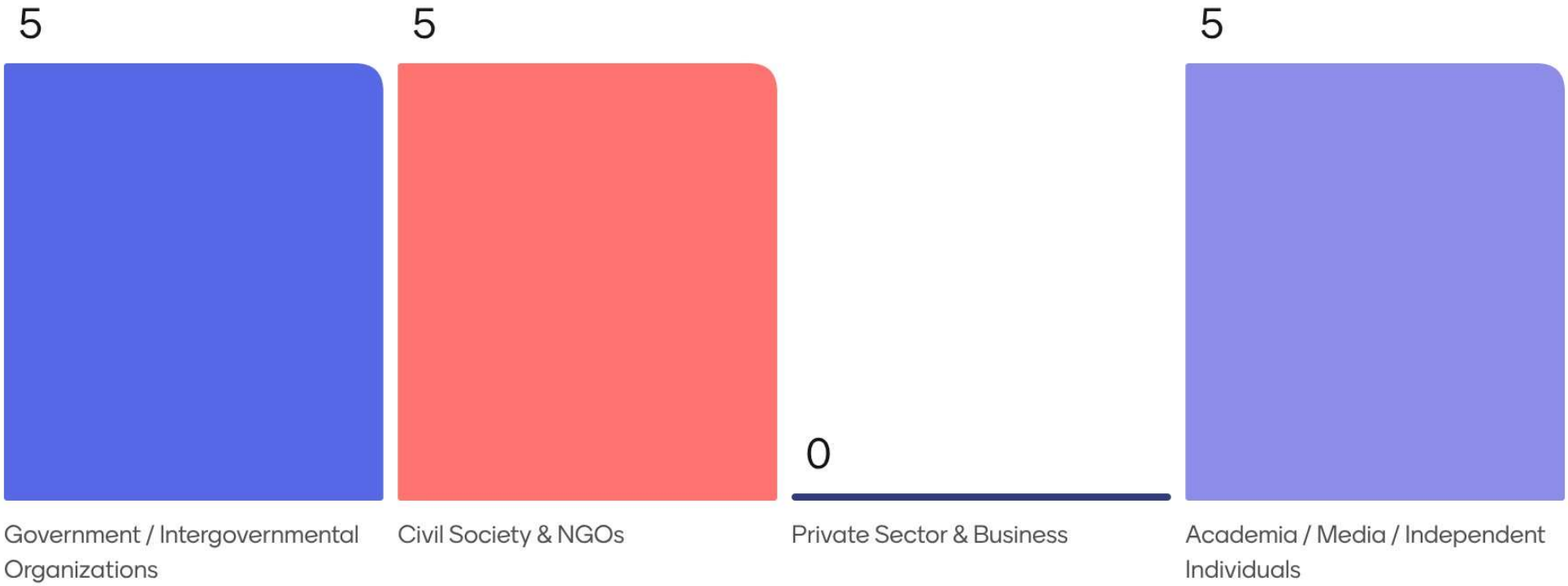
This project has received funding from the European Union's Horizon Europe Research and Innovation Programme under grant agreement No 101056873.

Mentimeter

Instructions

Mentimeter

Please indicate the stakeholder group you see yourself belonging to:



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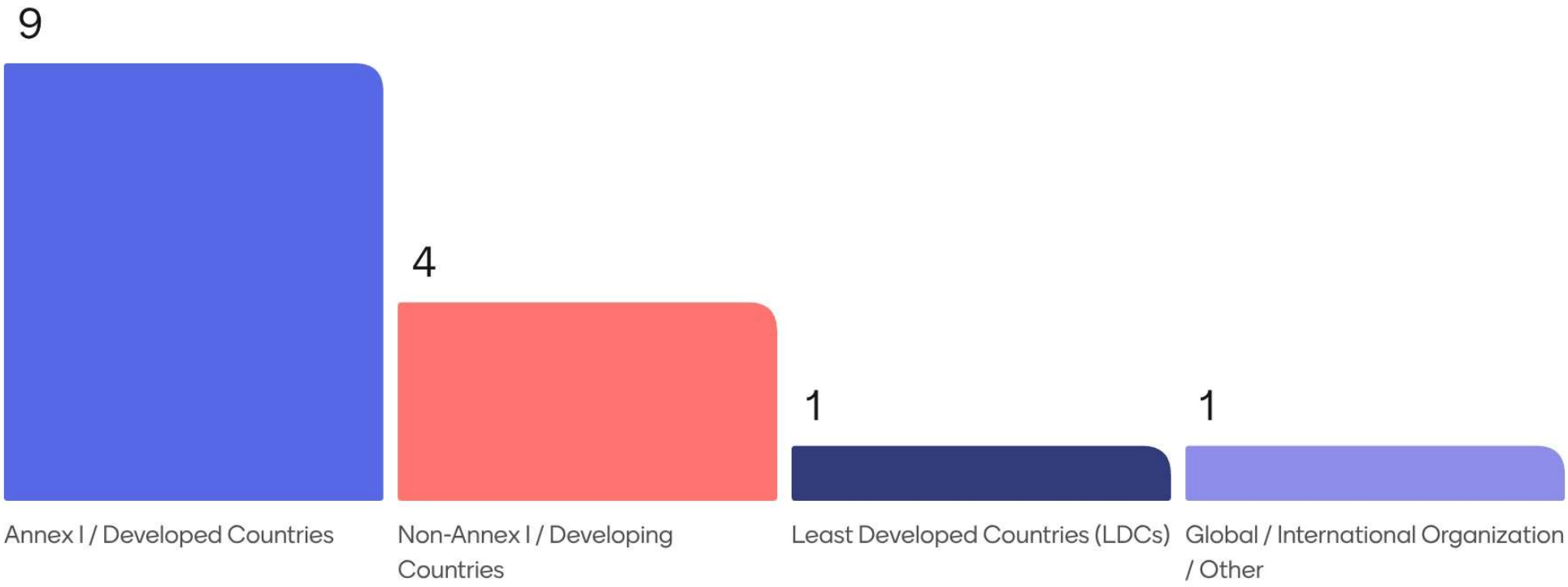
Which UNFCCC negotiating group best represents your country or organization?



15

Group discussion (5 min):

Please introduce yourself, the reason why you are in Bonn and share a unique fact about your hometown or place of origin...

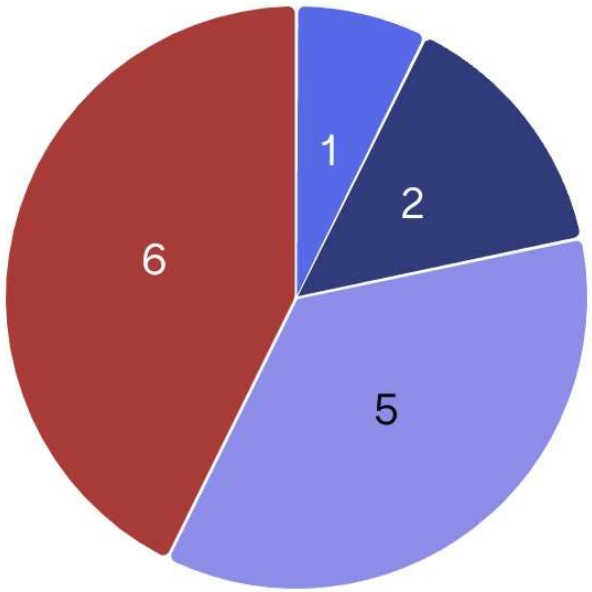
Mentimeter

Which aspects of justice are currently overlooked in climate policy and science discussions?

2 10

Mentimeter

Which justice dimensions do you think should be prioritized in the development of mitigation strategies?



1	Intergenerational
0	Intragenerational
2	Interspecies justice (no harm to nature and non-human speciese)
5	All equally important
6	Mostly intergenerational and intragenerational
0	Other

14

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Group discussion (5 min):
Please briefly discuss the submitted answers

Introduction to climate mitigation scenarios and the efforts to incorporate more justice considerations into integrated assessment models (JustMIP)

Key terminology

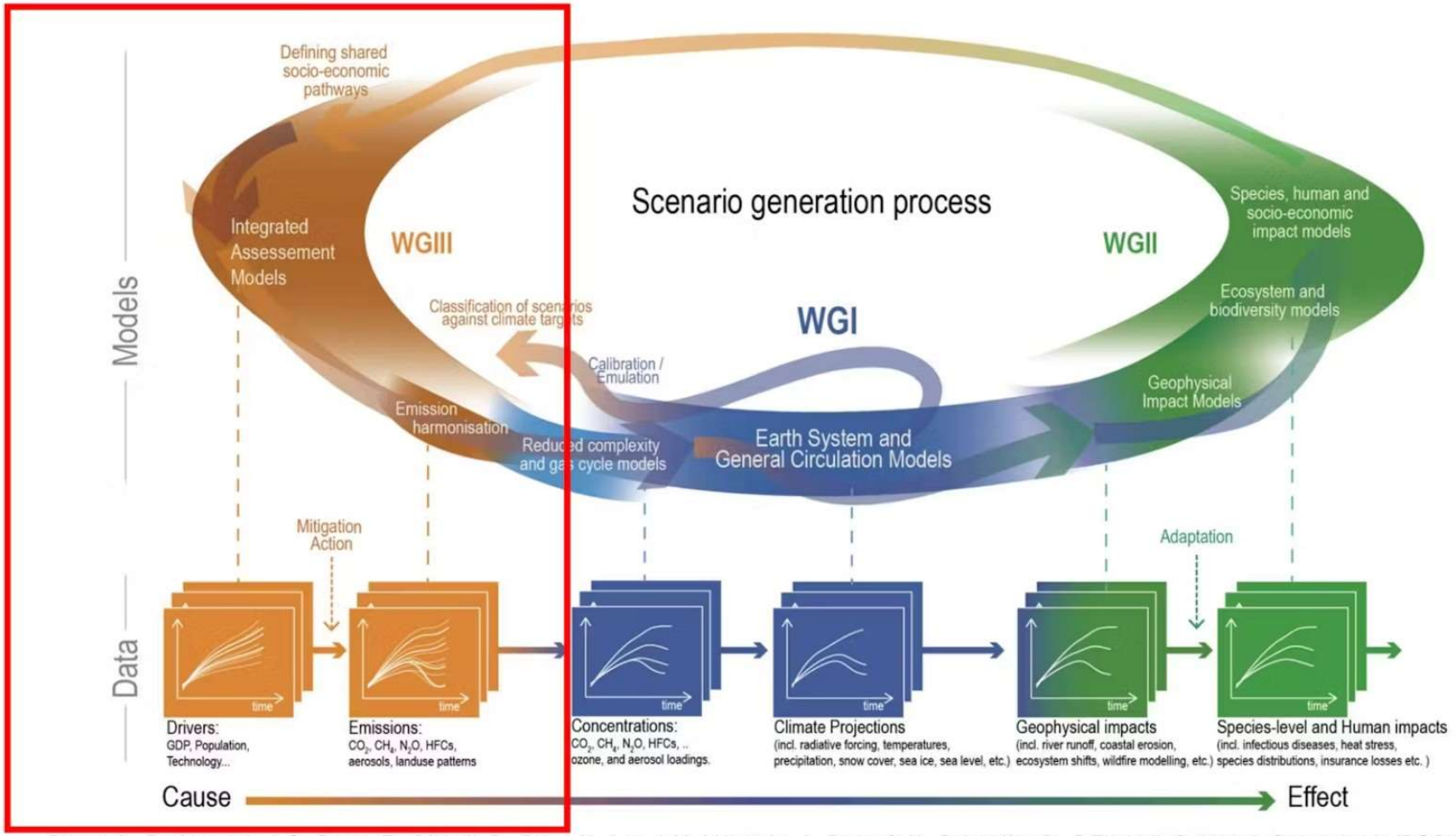
Forecast	Based on **extrapolation** of past trends (e.g., energy prices)	Predictive, trend-driven
Projection/Scenario	Explores **possible futures** under consistent assumptions	**Exploratory**, assumption-driven
Pathway	A **narrative scenario** aimed at achieving a certain **goal** (e.g., net zero)	Prescriptive, goal-oriented

What is a possible future?

"The idea that something which has hitherto been unsuccessful will therefore never be successful does not justify anyone in abandoning even a pragmatic or technical aim. This applies even more to moral aims, which, so long as it is not demonstrably impossible to fulfil them, amount to duties."

***Immanuel Kant**, On the Common Saying: "This May Be True in Theory, but It Does Not Apply in Practice" (1793)*

Model landscape



Pirani, A., Fuglestvedt, J. S., Byers, E., O'Neill, B., Riahi, K., Lee, J.-Y., Marotzke, J., Rose, S. K., Schaeffer, R., & Tebaldi, C. (2024). *Scenarios in IPCC assessments: Lessons from AR6 and opportunities for AR7*. npj Climate Action, 3, Article 1. https://doi.org/10.1038/s44168-023-00001-4

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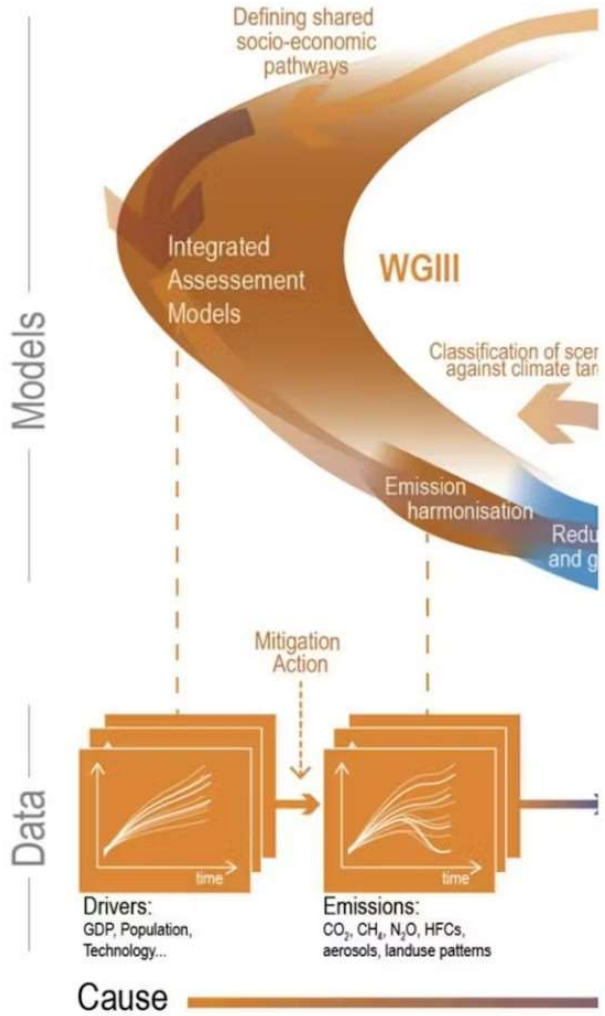
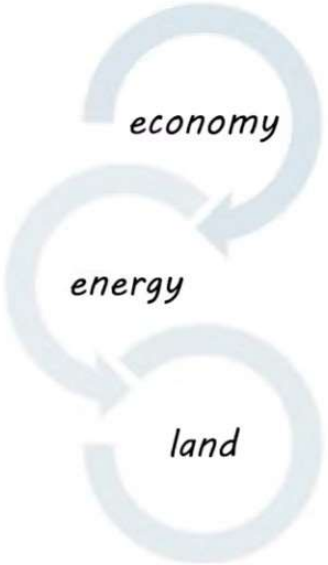
Focus IAMs

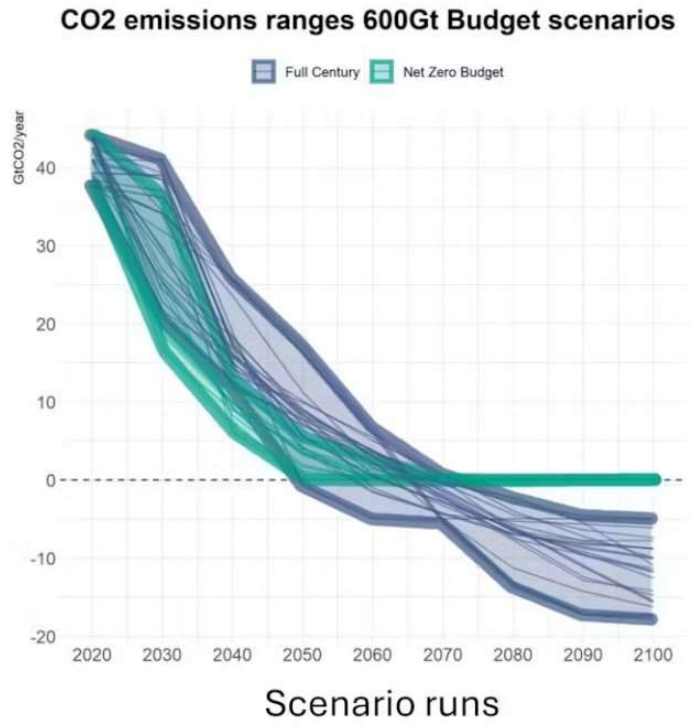


Pirani, A., Fuglestvedt, J. S., Byers, E., O'Neill, B., Riahi, K., Lee, J.-Y., Marotzke, J., Rose, S. K., Schaeffer, R., & Tebaldi, C. (2024). *Scenarios in IPCC assessments: Lessons from AR6 and opportunities for AR7*. npj Climate Action, 3, Article 1. https://doi.org/10.1038/s44168-023-00001-4

Input data

Integrated Assessment Models





Explore "what-if" questions:

- What if carbon prices vary by region?
- What if renewable energy is deployed faster than expected?
- What if we ensure that key development goals are met?

Why do we need more justice considerations?

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So far **limited explicit justice considerations** in IAMs and mostly through financial transfers

ELSEVIER

Energy Research & Social Science

Volume 92, October 2022, 102781

Review

(In)justice in modelled climate futures: A review of integrated assessment modelling critiques through a justice lens

Natalia Rubiano Rivadeneira, Wim Carton

The social construction of sustainable futures: how models and scenarios limit climate mitigation possibilities

Ben Clift & Caroline Kuzemko

Pages 755-769 | Received 05 Sep 2023, Accepted 05 Apr 2024, Published online: 25 Apr 2024

Cite this article https://doi.org/10.1080/13563467.2024.2342302 Check for updates

Equity assessment of global mitigation pathways in the IPCC Sixth Assessment Report

Tejal Kanitkar, Akhil Mythri & T. Jayaraman

Pages 1129-1148 | Received 21 Apr 2023, Accepted 09 Feb 2024, Published online: 04 Mar 2024

Cite this article https://doi.org/10.1080/14693062.2024.2319029 Check for updates

What is justice?

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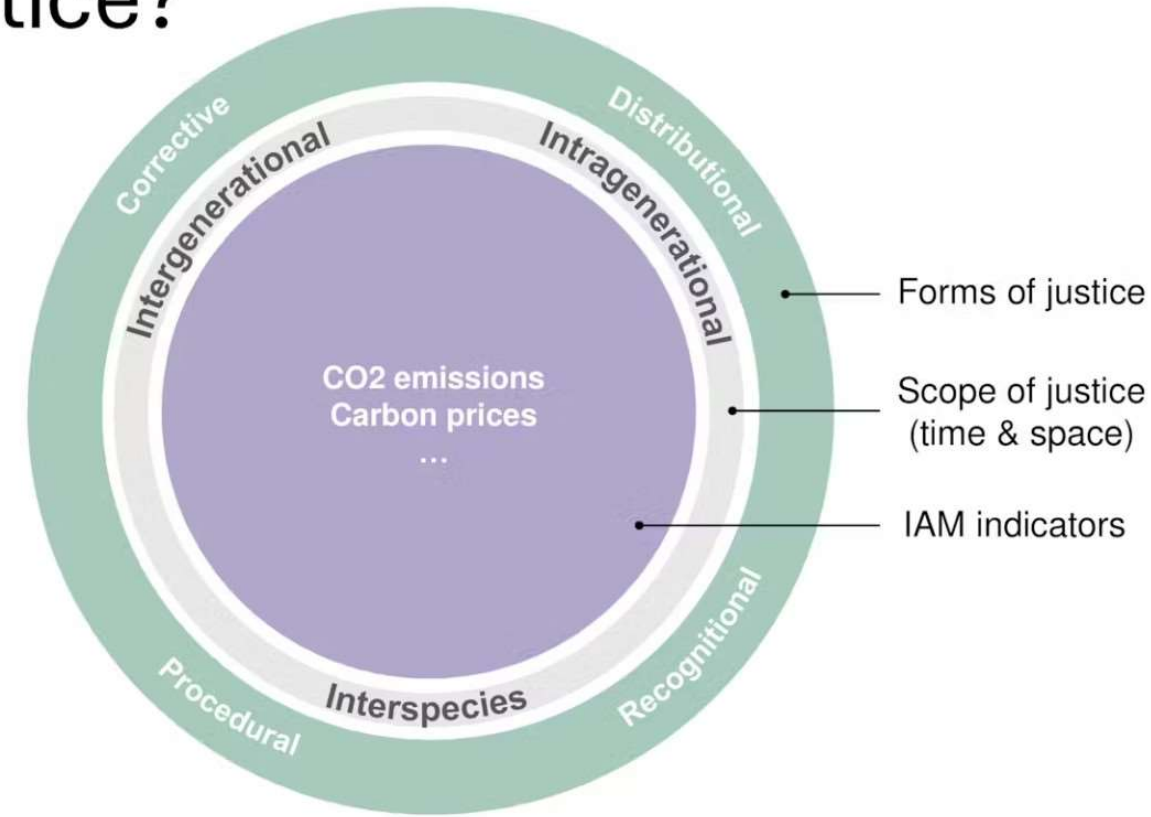

Gupta, J. et al. (2023). Earth system justice needed to identify and live within Earth system boundaries. *Nature Sustainability*, *6*(6), 630–638. https://doi.org/10.1038/s41893-023-01064-1

Zimm, C., et al. (2024). Justice considerations in climate research. *Nature Climate Change*, *14*(1), 22–30. https://doi.org/10.1038/s41558-023-01869-0

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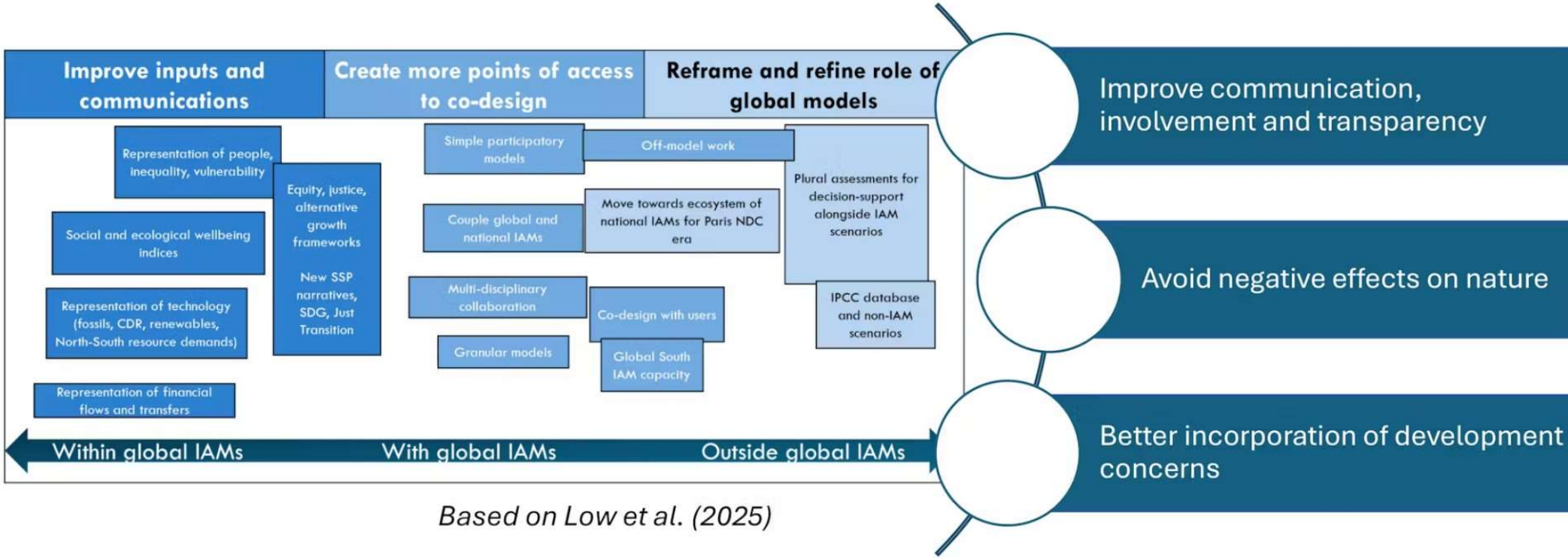
What should we explore in the models?

Main agreement: Create more points of co-creation in the models



Based on Low et al. (2025)

Insights based on 39 expert interviews

1

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What is JustMIP?

- ✓ a **model intercomparison effort** initiated under the ELEVATE project
- ✓ open to **external partners** (global, national, sub-national models)
- ✓ **protocol will be published for community review in June**
- ✓ first scenario runs planned in fall 2025

Our goal and key research question

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What are the implications of linking different justice considerations?

Key points

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✓We have identified which areas should be prioritized (regional differentiation, development and avoiding adverse effects on nature)

✓**Proposed scenarios** will be the first to explore **the combination** of the proposed dimensions

✓The **proposed scenarios are tools to explore interpretations of justice and their implications**, not inherently equitable solutions themselves

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Goals of the subsequent discussions:

- ✓**Key Assumptions:** Identify critical assumptions and suggest additional sensitivities to explore.
- ✓**Focus Areas:** Highlight what insights to emphasize and what is most useful.
- ✓**Clarity & Transparency:** Point out unclear aspects and recommend ways to improve transparency.

Financing for mitigation and development

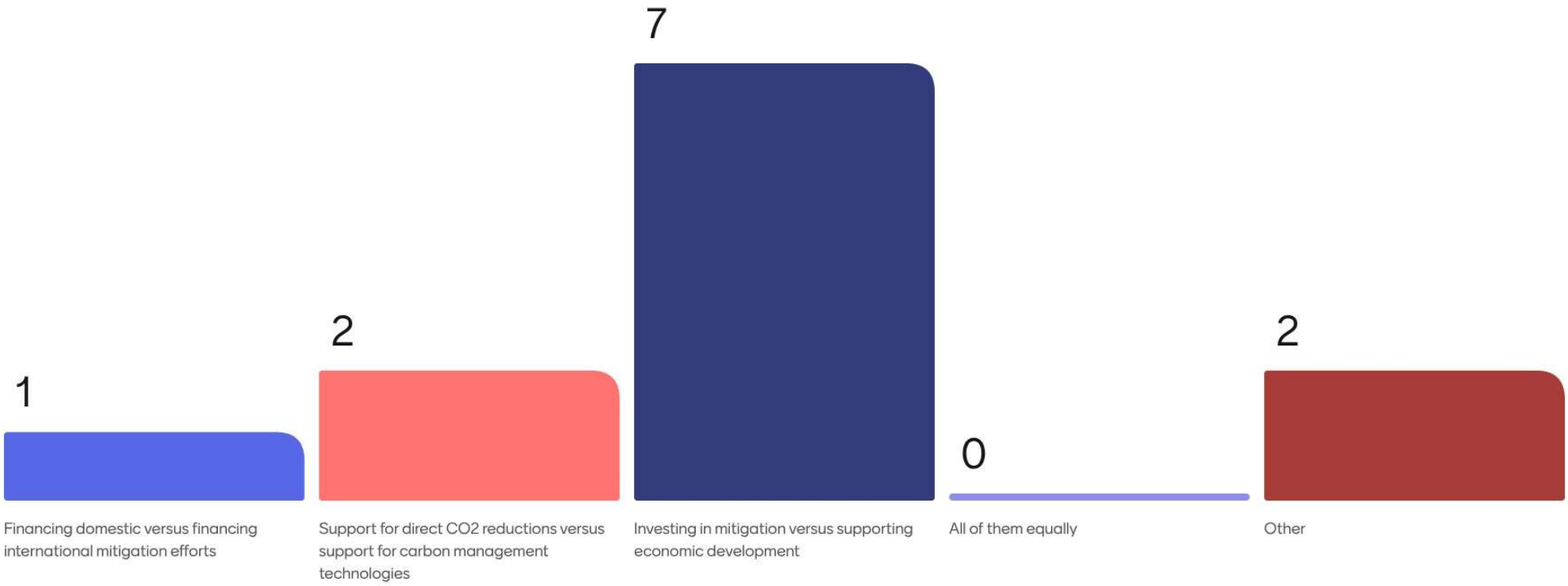
Financing for mitigation and development

- **Where?** A key trade-off exists between allocating mitigation finance internationally or focusing on domestic efforts.

- **What?** Additionally, decisions must be made about whether funding should prioritize direct CO_2 emissions reductions, investment in carbon management technologies, or compensation to mitigate adverse economic effects.

Mentimeter

Which lines of conflict do you think dominate the current discussions in your country/region?



12

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What other lines of conflict do you currently observe in your country/region in the context of finance for climate and development?

Other issues are deemed of higher importance

Conflict in phasing out of fossil fuels (big oil and gas producer)

Interest in Article 6 instead of direct climate finance

Other priorities, general pushback on climate policies

Role of country is estimated as negligible so not enough focus on climate

Social inequality within the country, disinformation

Using lamd meant for agriculture for mitigation versus expansions of f farms

6

Reflection discussion (10 min)

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What do you think could be proposed as solutions to some of those conflicts?

Combat entrenched interests

1

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How much political or public support do you think there would be for the following *approaches to raising and allocating international climate finance*?

12

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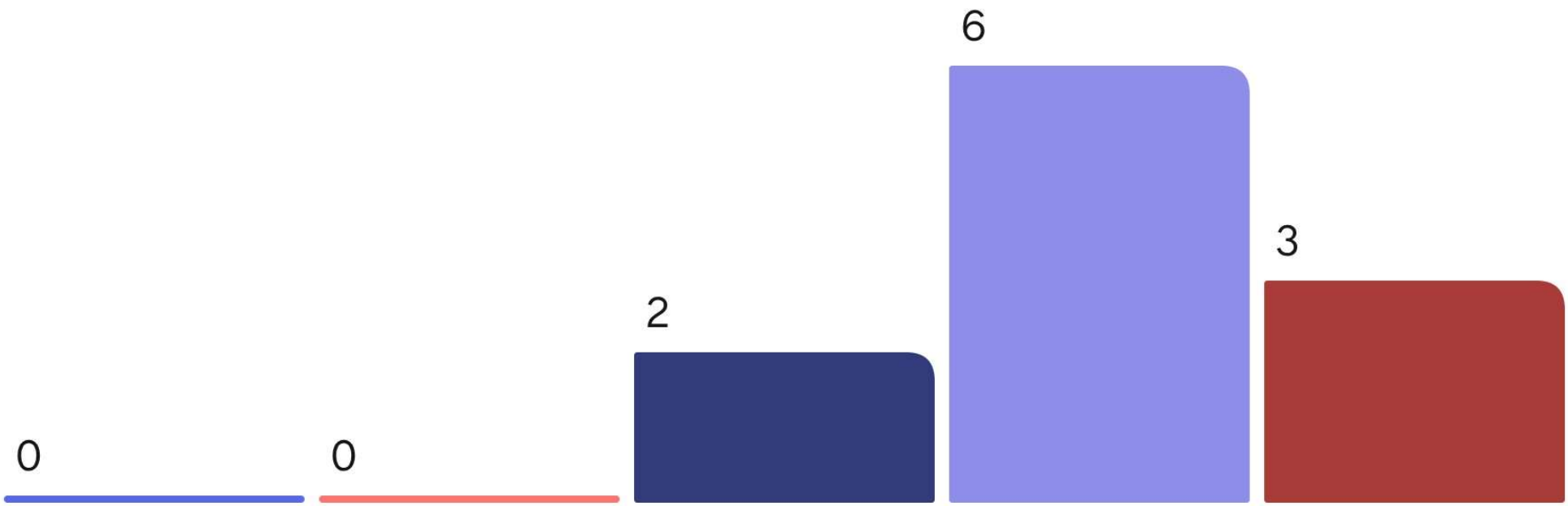
If a benchmark were to be developed, what share of **global GDP** should be allocated **annually** to support global mitigation efforts ?



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Reflections (10 min)

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Energy demand part

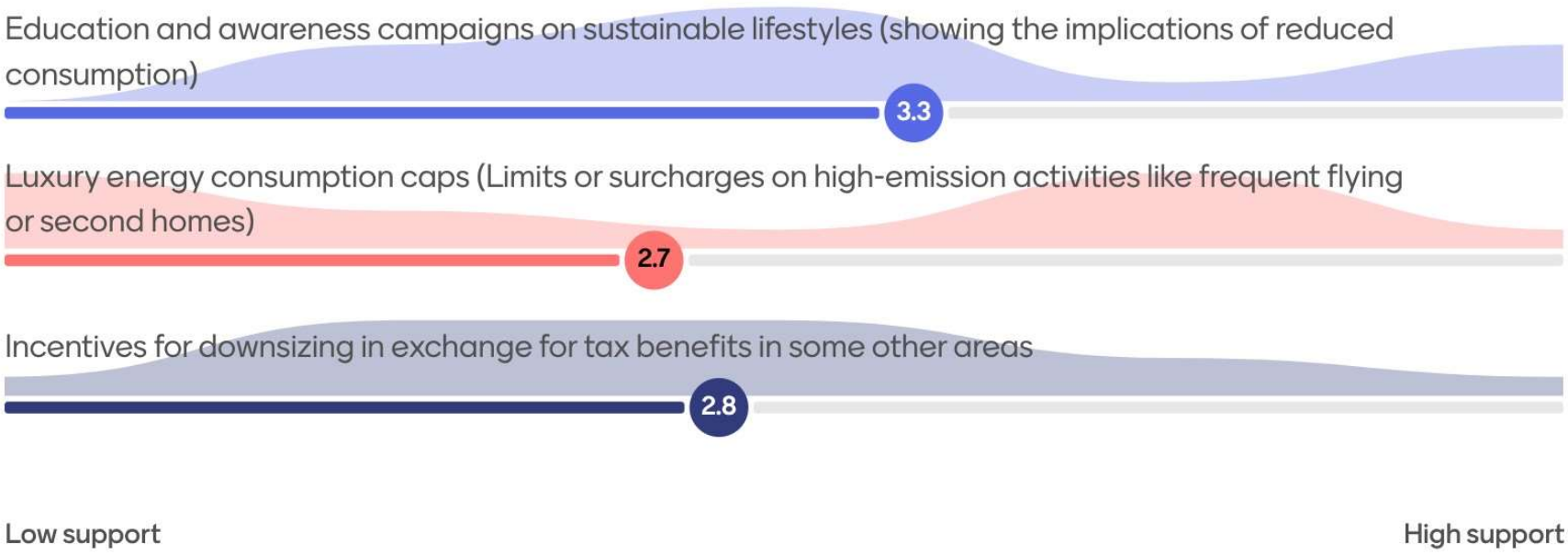
Energy demand related lines of conflicts

- Lifting everyone from poverty implies higher final global energy demand
- **Energy demand related emissions reductions** can be achieved through:
  - Efficiency improvements
  - Adoption of clean technologies
- However, **high consumption lifestyles** (e.g. frequent air travel, large homes) continue to place significant material and environmental pressures
- A **complete clean tech transition** in all demand sectors is **not feasible in the near term**
- This raises a critical equity issue:

How can we reduce overall individual emission footprints while also addressing inequality in energy service consumption—both within and between countries?

Mentimeter

How much support do you think there would be in your country for policies aimed at reducing energy consumption among the highest-consuming households?



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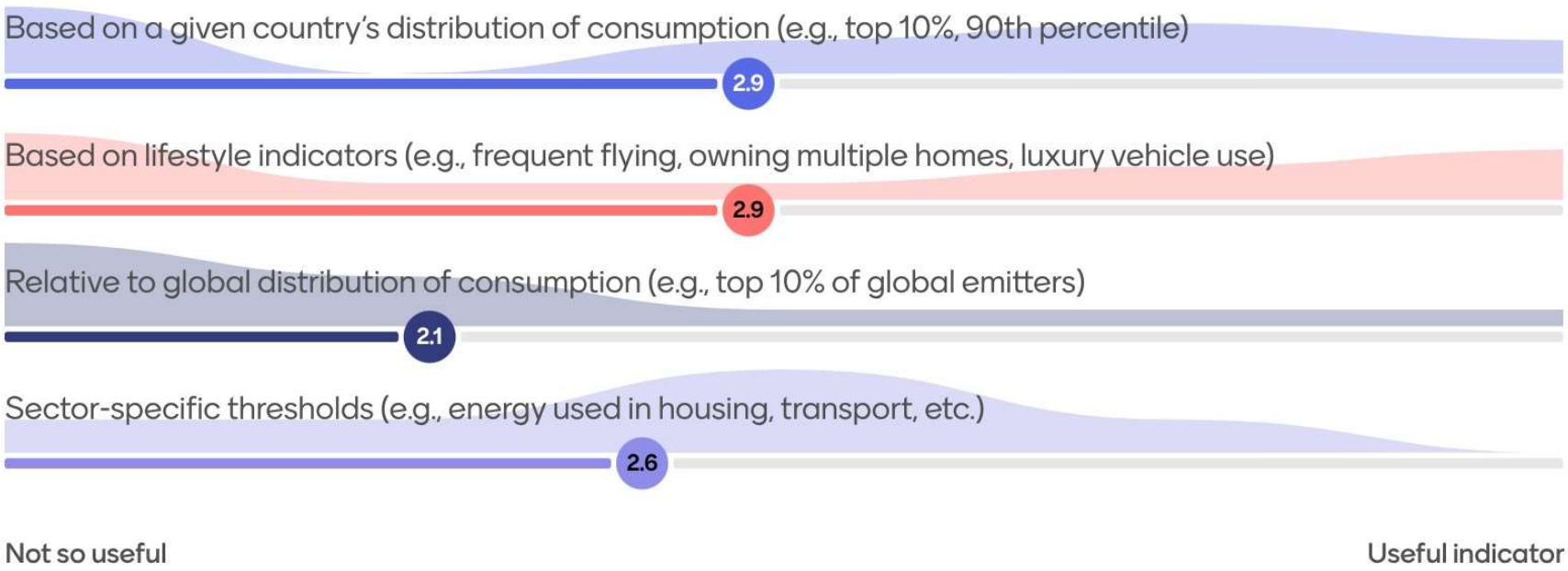
Mentimeter

What criteria could be used to define luxurious consumption?



11

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Reflection (10 min)

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What other issues are important to explore in scenarios?

co-benefits

more nature impacts

land conflicts re energy

2