

Building national current policies, NDCs, and low-emission trajectories



Task 2.1(CMCC, TU)

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Objective



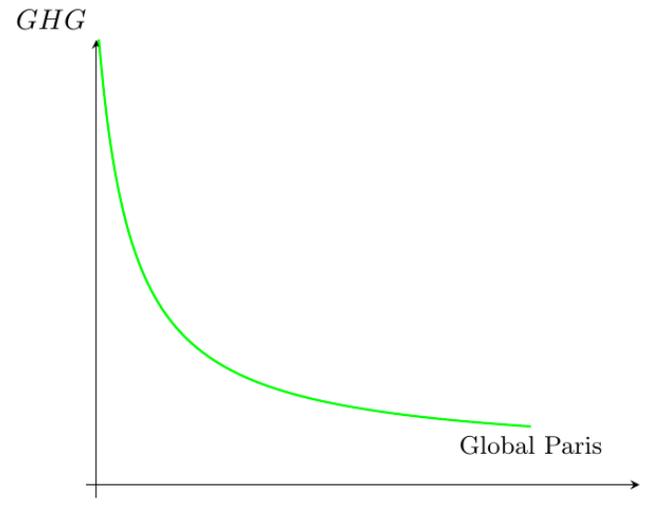
- Study different pathways that maximize national welfare using comprehensive and "fair" metrics.
- Use multi-criteria on the welfare metrics to identify the optimal national pathway, considering uncertainties between global and national models.
- Determine the global carbon budgets associated with the "best" national pathways and contrast them with scenarios aligned with the Paris.
- Assess the gap between national priorities and global Paris targets, its implications for overshoot, and its distance to the 'fair' effort-sharing considerations.

Research Questions



- How can we transition from NDCs to national net-zero commitment targets?
- What is the conflict gap between national and global targets
- What are the implications for Paris targets and overshooting?

What we call the Conflict gap between national and global targets



Global Priority

Effort-sharing

- Per capita convergence
- Ability to Pay
- GH Development rights
- Cost - effective (standard)

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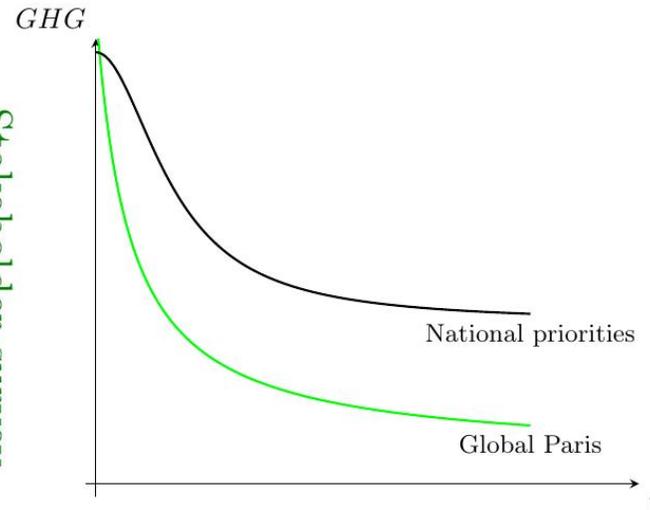


National Priorities

Multi-criteria

- GDP, consumption, electricity prices,
- Imports dependency, Carbon intensity of GDP,
- Forest Cover, Food Price index,
- Employment,
- Climate Damages, AP damages

Stakeholder survey



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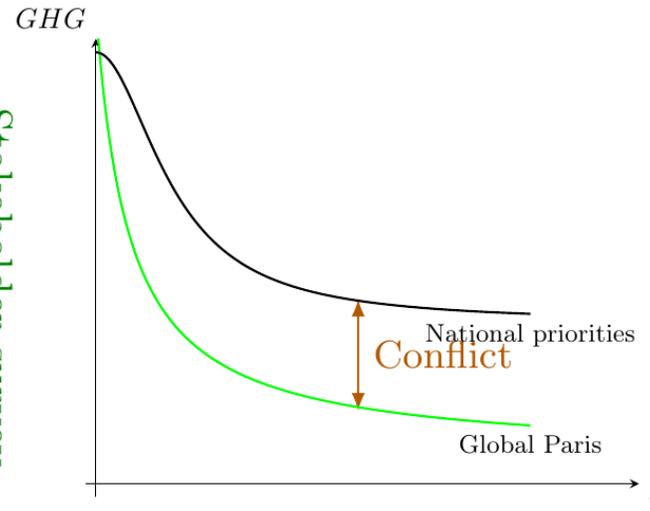


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- Different implications for Paris targets and overshooting

PROTOCOL Proposition



- **Step 1: Scenarios of WP2 ELEVATE (T2.3)** [Jun 2024]
- **Use the newly developed ELEVATE (T2.3) scenarios as baselines**
 - Updated current policies
 - Updated NDCs
 - Updated LTS
 - Focus on NDC-LTS
 - Paris aligned carbon budgets:
 - Use effort sharing from <https://carbonbudgetexplorer.eu/> (M. Dekker, PBL)

PROTOCOL Proposition



- **Step 2: To verify with teams what is feasible**
- **Defining metrics**, based on IAMC template-compatible tools:
 - GDP, consumption, electricity prices,
 - Imports dependency, Carbon intensity of GDP
 - Forest Cover, Food Price index
 - Employment
 - Climate Damages, AP damages

Metrics Proposition



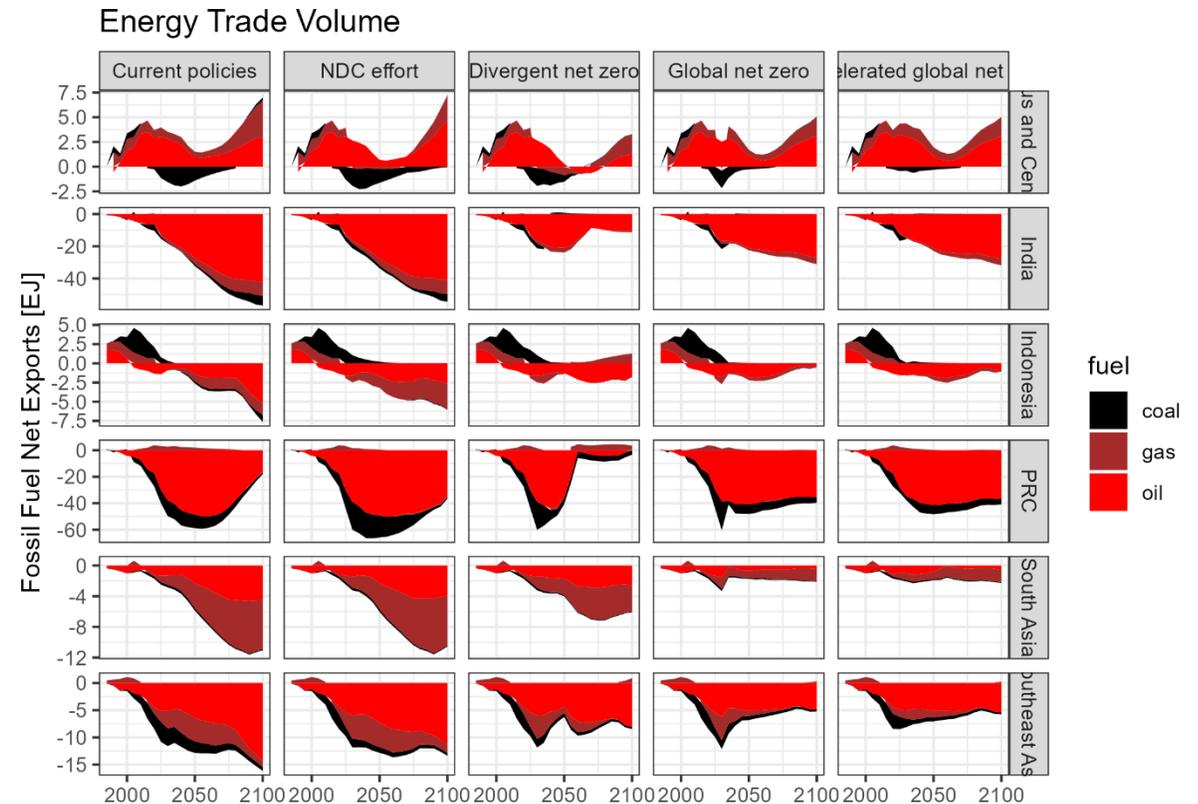
- [ADB, Asian Development Bank Economics Working Paper Series No. 709](#)
- Defining metrics, based on IAMC template-compatible tools:
- GDP, consumption



Metrics Proposition



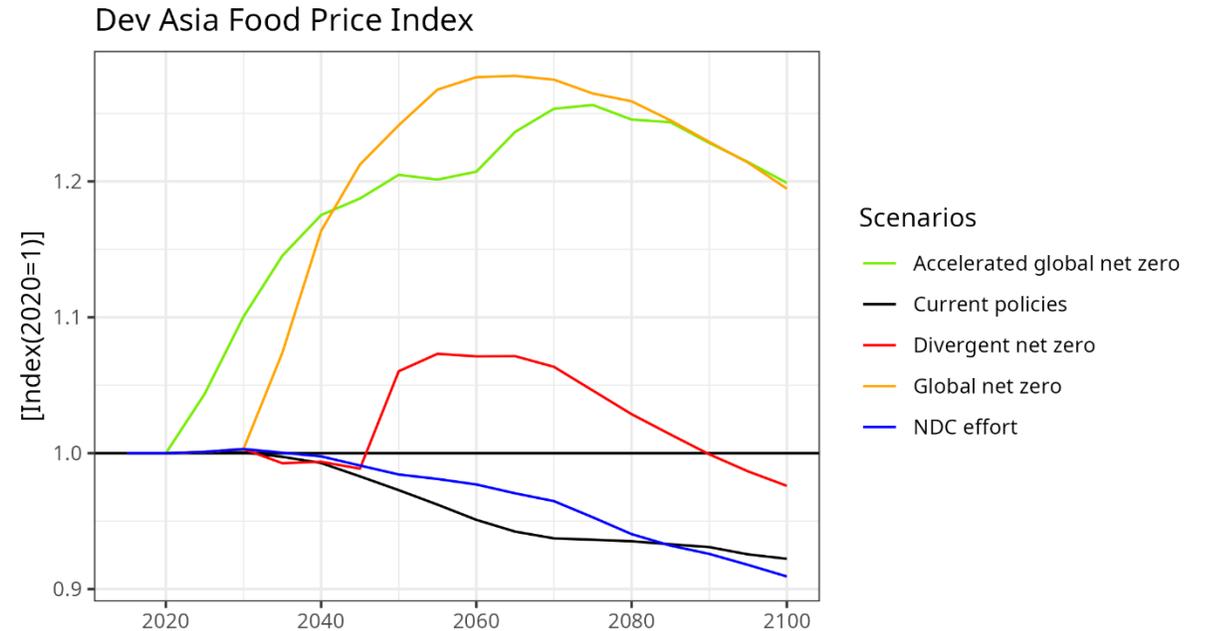
- [ADB, Asian Development Bank Economics Working Paper Series No. 709](#)
- Defining metrics, based on IAMC template-compatible tools:
 - Imports dependency



Metrics Proposition



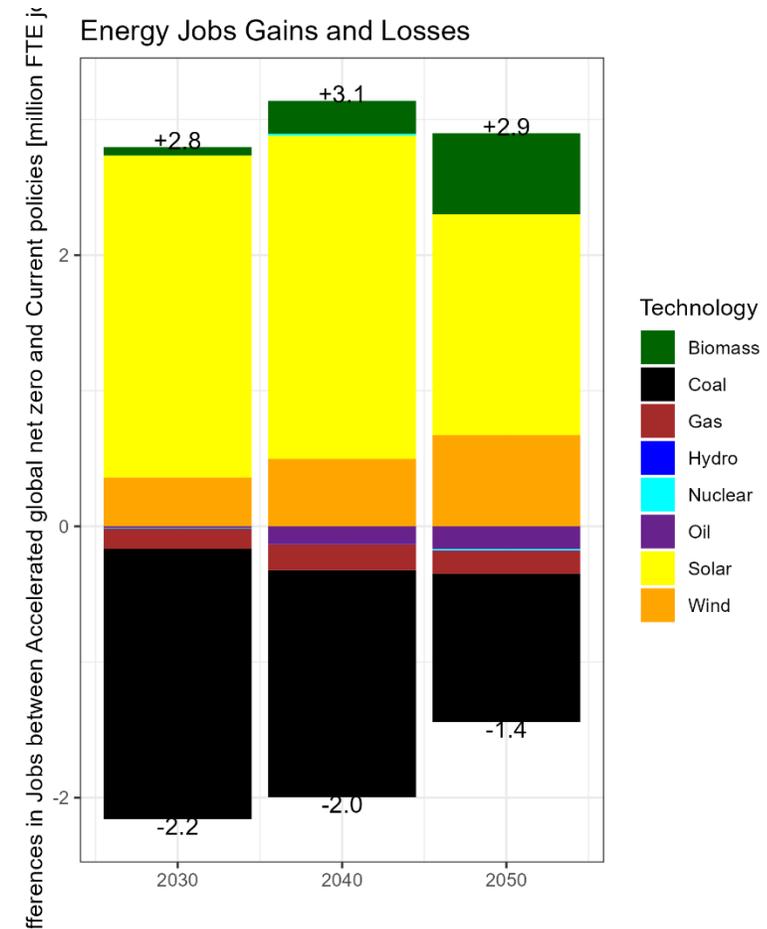
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 - Food Price index



Metrics Proposition



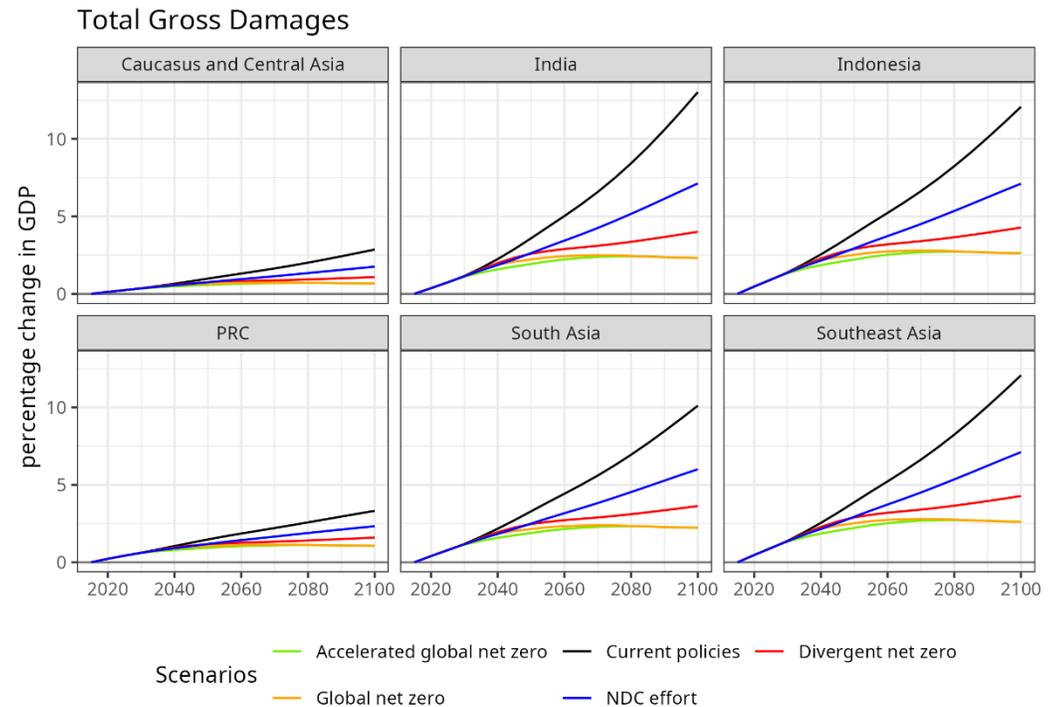
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Metrics Proposition



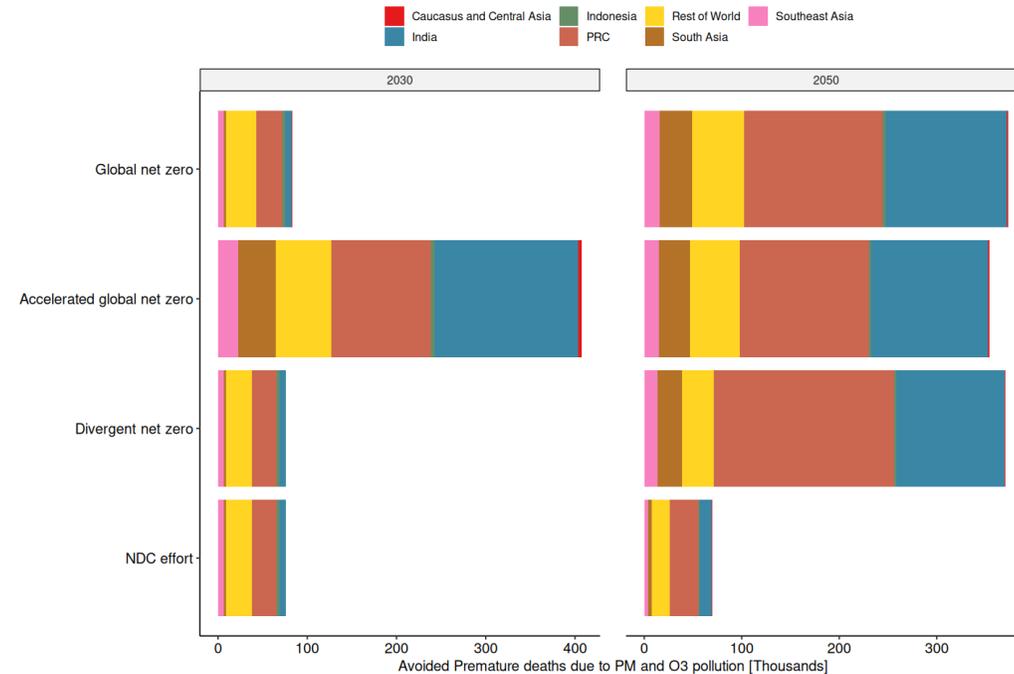
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Metrics Proposition



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PROTOCOL Proposition



- **Step 2: Please fill in this survey**
- Survey stakeholders on the metrics: Weights to the multi-criteria analysis
- Please do let us know according to you what are the main priorities in your country
- <https://shorturl.at/hyBJ8>
- or
- <https://laleluia.limesurvey.net/758169?lang=en>

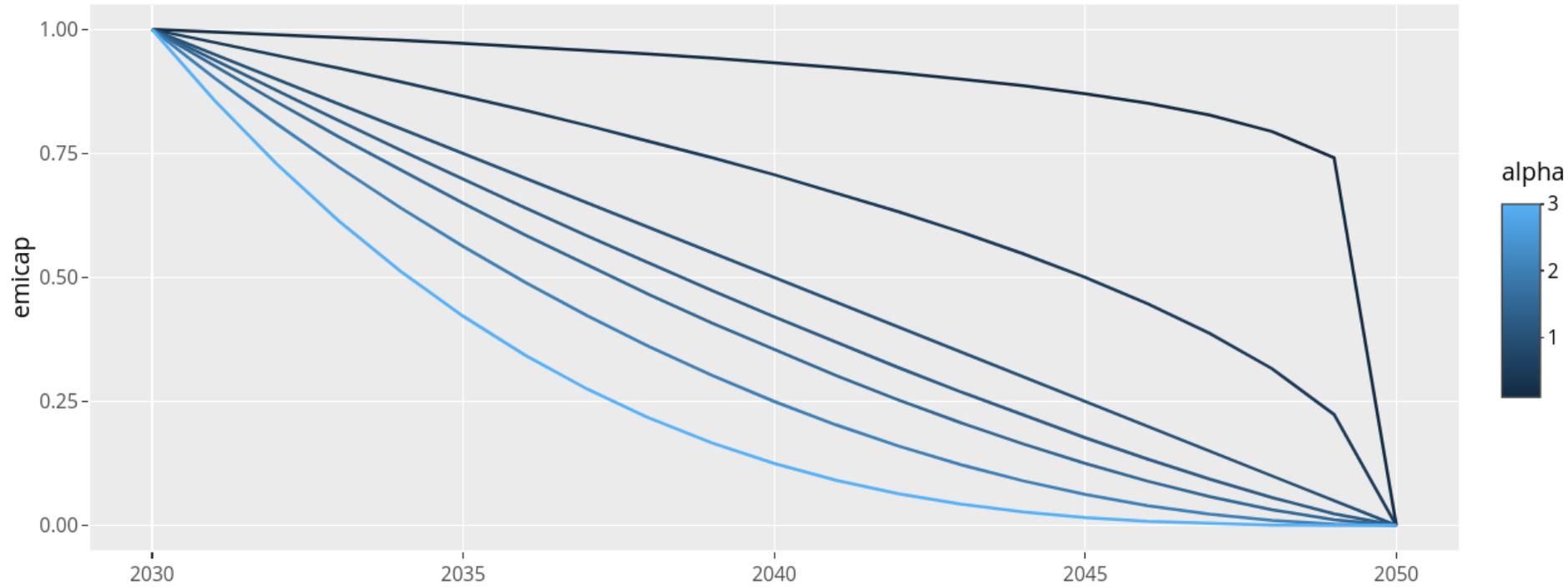


Proposition



- So far, pledges implemented as **linear** trends ($\alpha = 1$).

$$emicap_y = (E_{2030} - E_{NZY}) \left(1 - \frac{y - 2030}{NZY - 2030} \right)^\alpha$$



Adding the effort sharing trajectories on top of the stylized ones

PROTOCOL Proposition



- **Step 3: The new model runs**

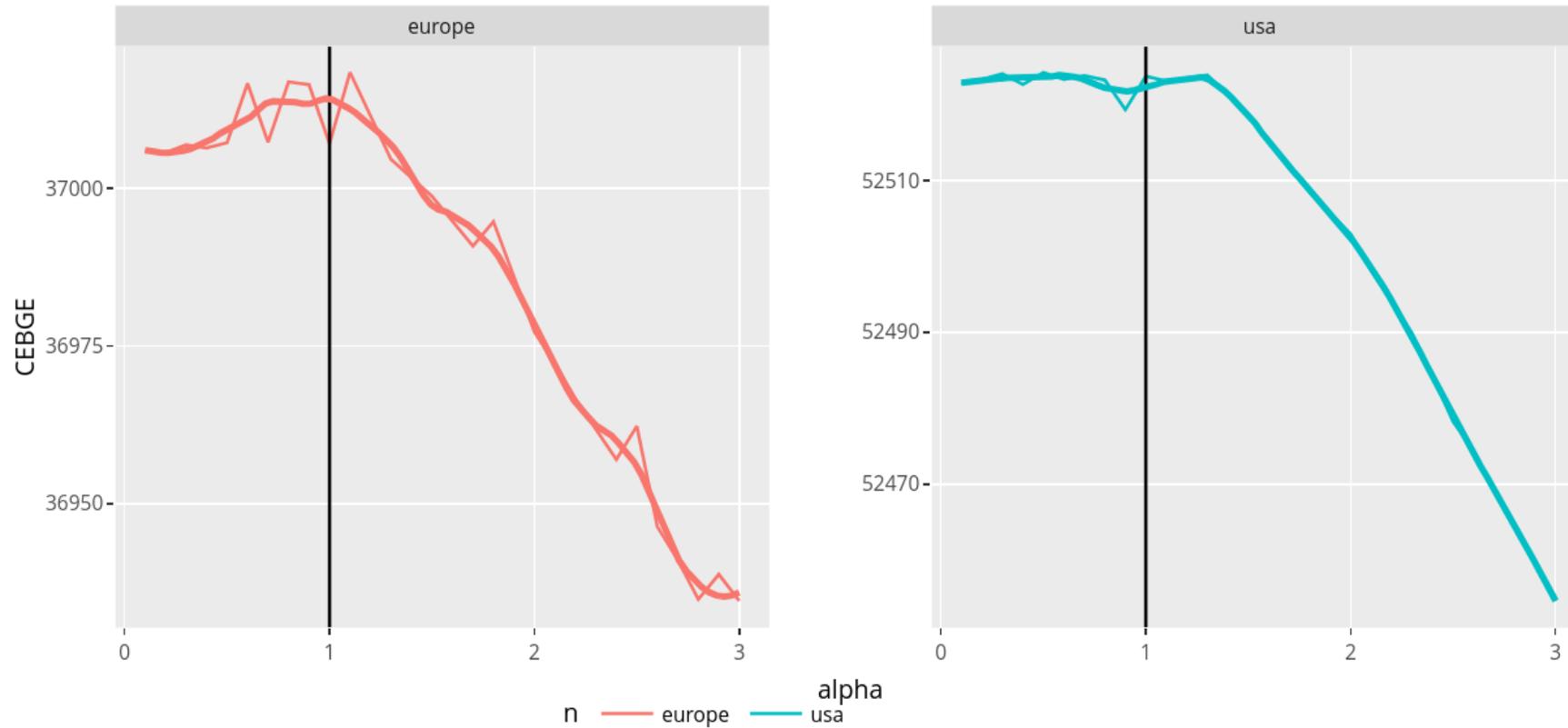
- **Implement the trajectories**

- carried out by national and global models $E(t) = E_{NDC} + (E_{NDC} - E_{LTS}) * \left(\frac{t - t_{NDC}}{t_{LTS} - t_{NDC}} \right)^\alpha$
- Where α can take the following values:
- $\alpha \in \{0.1, 0.3, 0.5, 0.8, 1, 1.5, 2, 3\}$. Only 3 would be mandatory $\alpha \in \{0.3, 1, 3\}$?
- Paris aligned carbon Budget (as in ELEVATE): using 3(4) different effort-sharing considerations :
 - Per capita convergence
 - Ability to Pay
 - GH Development rights
 - Cost-effective (standard)

Example of optimization of one criteria trajectory



- Which speed is optimal?



PROTOCOL Proposition



- **Step 4: Analysis**

- **Implement the trajectories**

- Use multi-criteria to assess the best national trajectory. This can entail different criteria (e.g. use of a stakeholder survey).
- Take stock of the national 'best' pathways and compare those with the Paris global targets with different effort-sharing schemes and the existing scenario databases → Assess the conflict gap between national and global targets:
 - **Its consequences for overshooting**
 - **How do national 'best' pathways compare with different effort-sharing allocations**
- Example: for high-income countries, the linear pathway is the one that maximizes the metric CEBGE.

Questions?



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