Science-based assessment of international climate policy

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RoSE Side Event

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MCC
Mercator Research Institute on
Global Commons and Climate Change

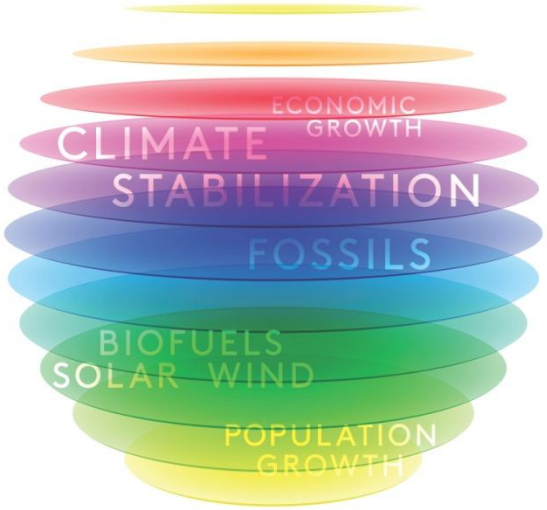
Roadmaps towards Sustainable Energy futures (RoSE) Project

- A collaborative research project with modeling teams from three important regions in international climate negotiations: **the EU, the USA, and China**.

- The first study to systematically explore the implications of **economic growth, population and fossil fuel scarcity** for climate policy, using a model ensemble.

RoSE

Roadmaps towards Sustainable Energy futures and climate protection: A synthesis of results from the RoSE project



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International climate policy context

Draft decision -/CP.17

Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action

Noting with grave concern the significant gap between the aggregate effect of Parties' mitigation pledges in terms of global annual emissions of greenhouse gases by 2020 and aggregate emission pathways consistent with having a likely chance of holding the increase in global average temperature below 2 °C or 1.5 °C above pre-industrial levels,

Recognizing that fulfilling the ultimate objective of the Convention will require strengthening the multilateral, rules-based regime under the Convention,

2. *Also decides* to launch a process to develop a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties, through

- EU consultation on 2015 international climate agreement.
- How to bridge the gap between long term aspiration and short term commitments in a pledge and review process?
- Mitigation scenarios will be of large value to draw the link between short term action and long term goals.

Scientific assessment can be broadly defined as:

Using scientific methods to
explore the relevant solution space

with a view toward making
underlying value judgments for evaluation explicit

in a form intended to be
relevant for decision making

Why use models?

- How would maps look like without *cartographers*? *Scientists* can play the role of cartographers for the exploration of the solution map.
- And would maps be of any use without *navigators*? *Policy makers* navigate through the maze of possible solutions in the solution map.

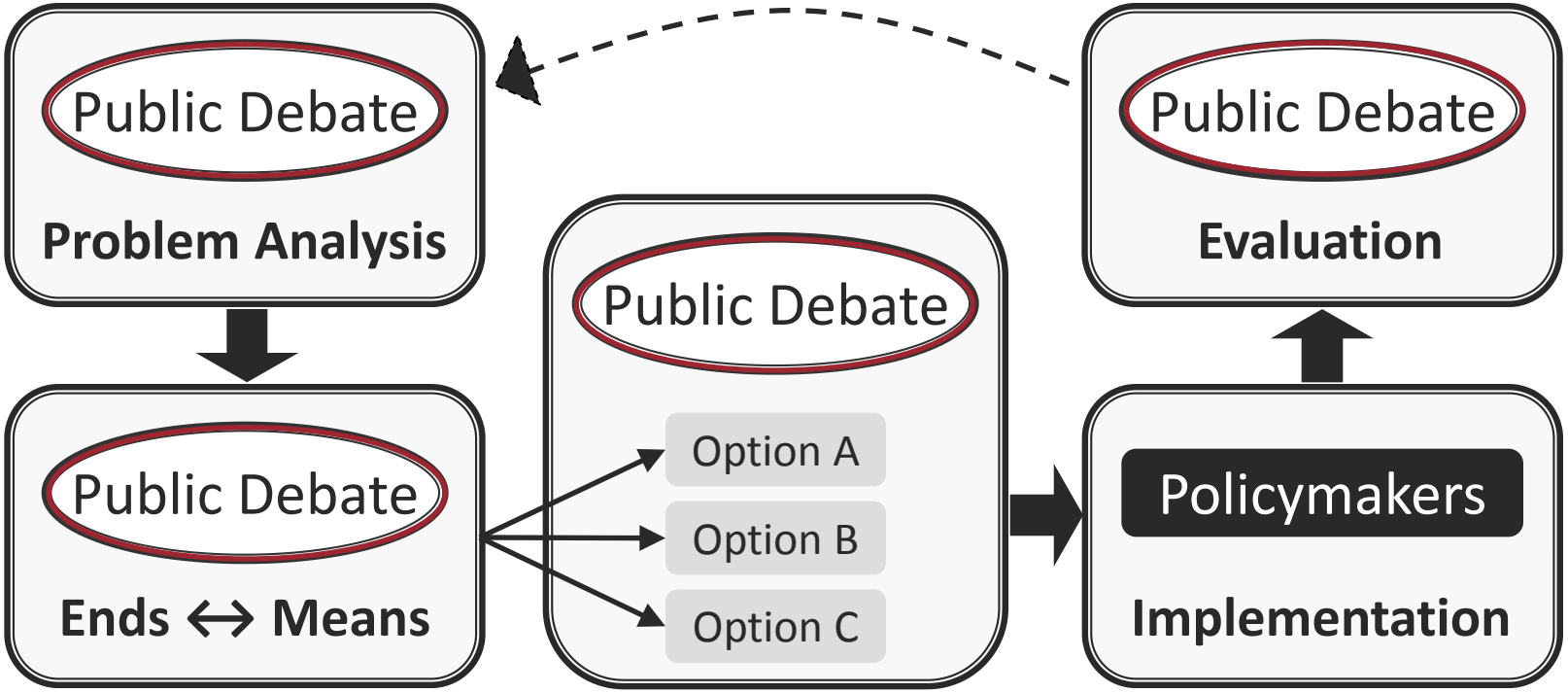
Keeping in mind that…

And so these men of Hindostan
Disputed loud and long,
Each of his own opinion
Exceeding stiff and strong,
Though each was partly in the right,
And all were in the wrong.

The Blind Men and the Elephant
John Godfrey Saxe

WG III AR5 assessment philosophy based on comprehensive public debate

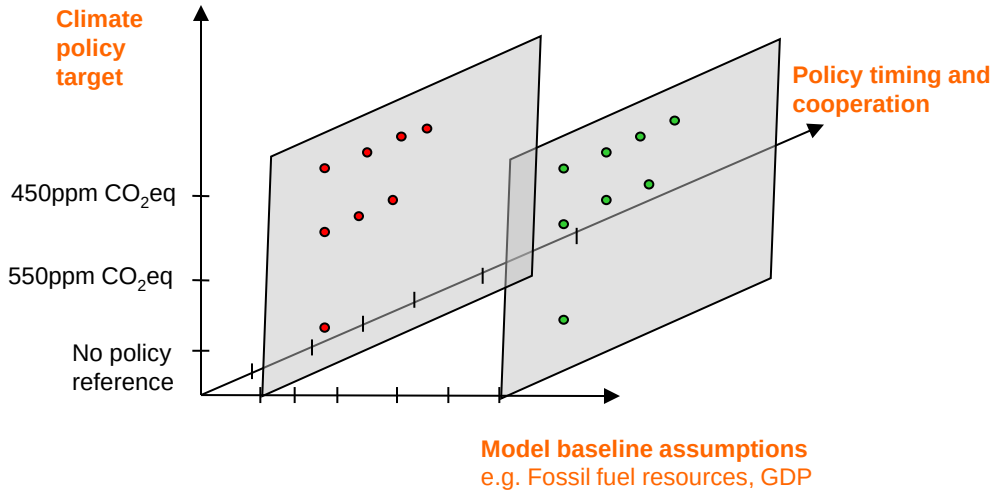
- The pragmatic-enlightened model (PEM) of scientific policy advice



Source: Edenhofer/Kowarsch, forthcoming

The concept of RoSE

- **Exploration of solution space**



- **Assessing „robustness“**

What are *robust* elements of scenarios for achieving a sustainable global energy future in compliance with ambitious climate protection goals w.r.t.

- differences across models,
- key scenario assumptions in models,
- effects neglected in models.

Funding and Consortium

International consortium made possible by funds from Stiftung Mercator

Funding of the Mercator Research Institute on Global Commons and Climate Change as vehicle for a new science policy interface

REMIND model

IPAC model

WITCH model

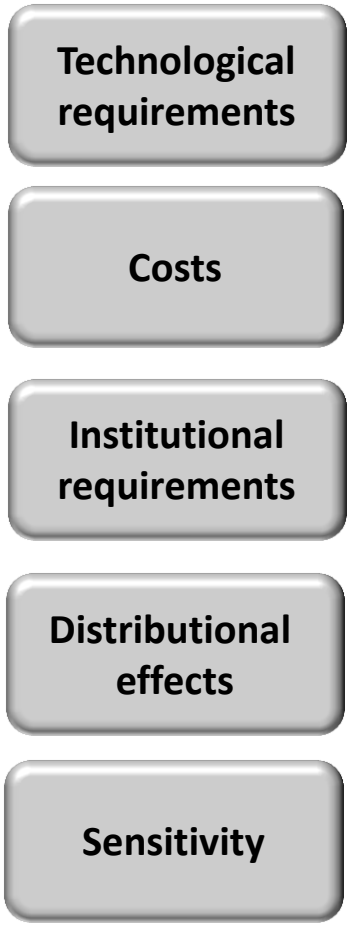
China TIMES model

GCAM model

Domain Experts: Participation of domain experts on energy access, energy security, and fossil resources

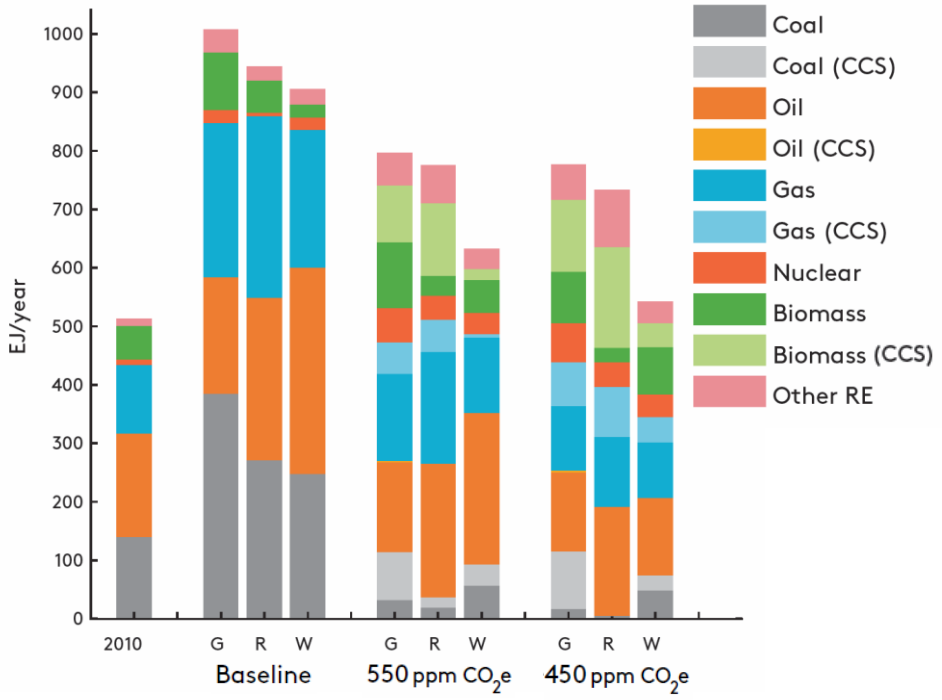
Elements of a comprehensive assessment framework for low stabilization scenarios

- What are the technological requirements?
- What are the mitigation costs?
- What are the institutional requirements?
- What are the distributional effects?
- What is the sensitivity of the system?

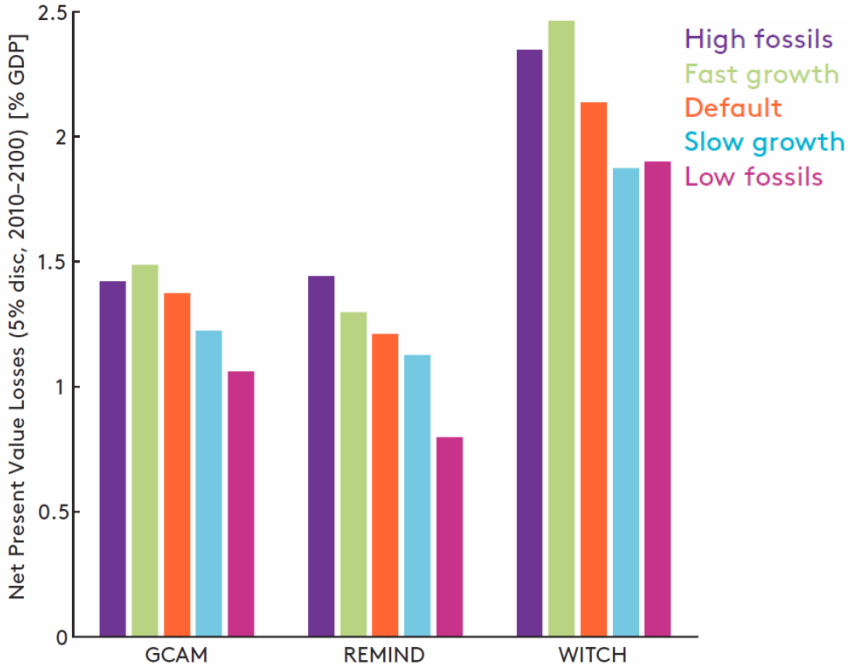


Technological and economic requirements

- Energy system requirements

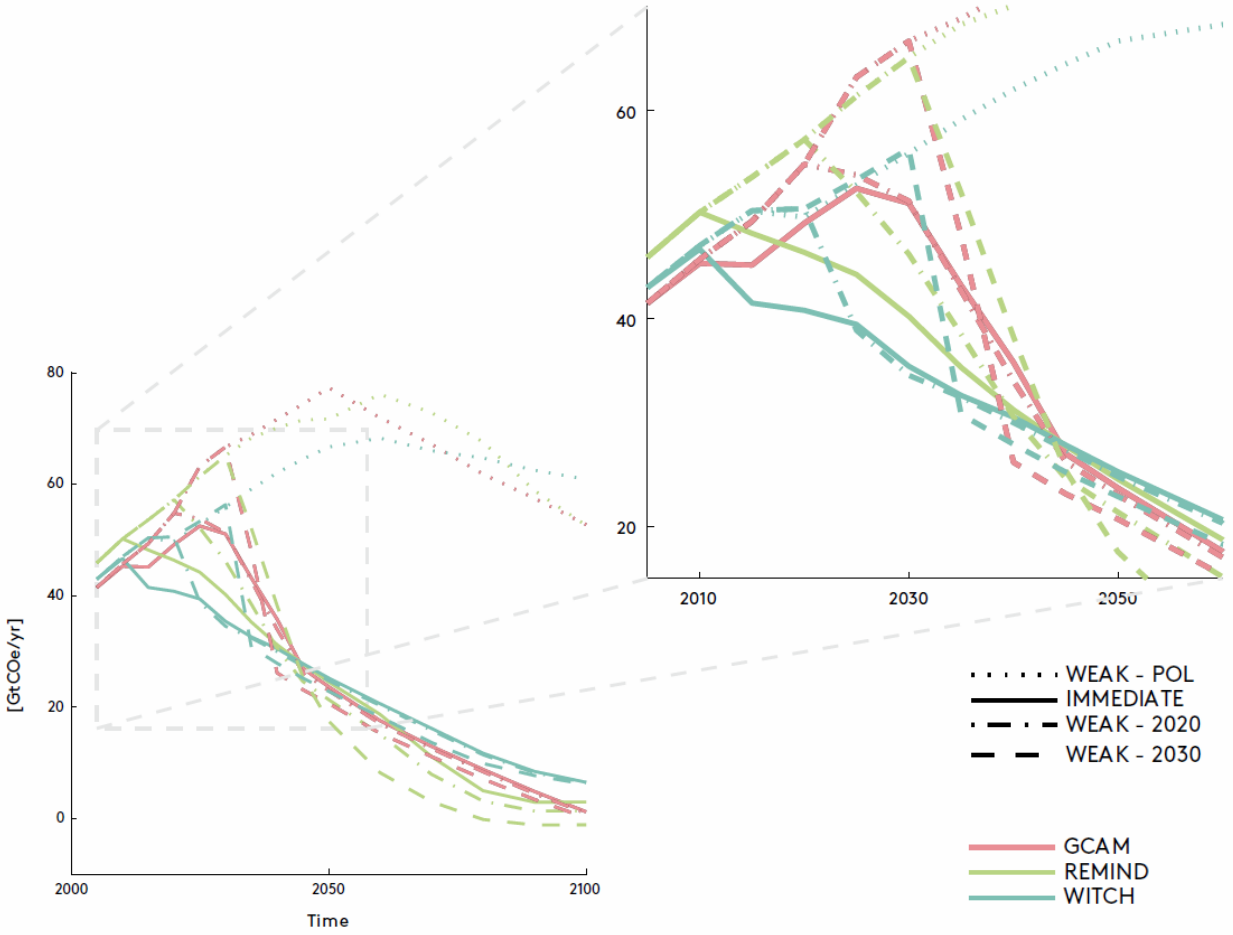


- Costs of climate stabilization



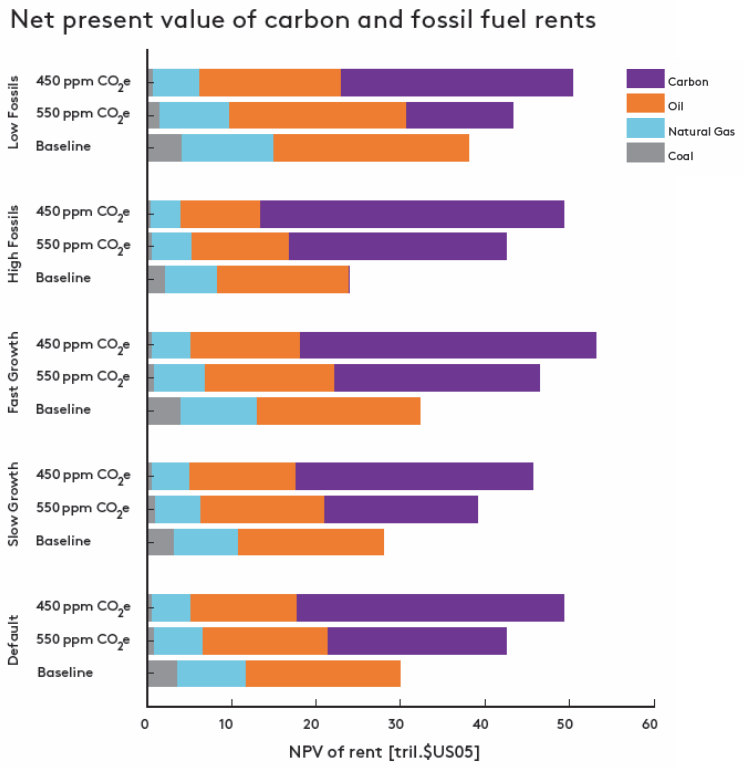
Institutional requirements

- Fragmented and delayed climate action vs immediate action and international co-operation

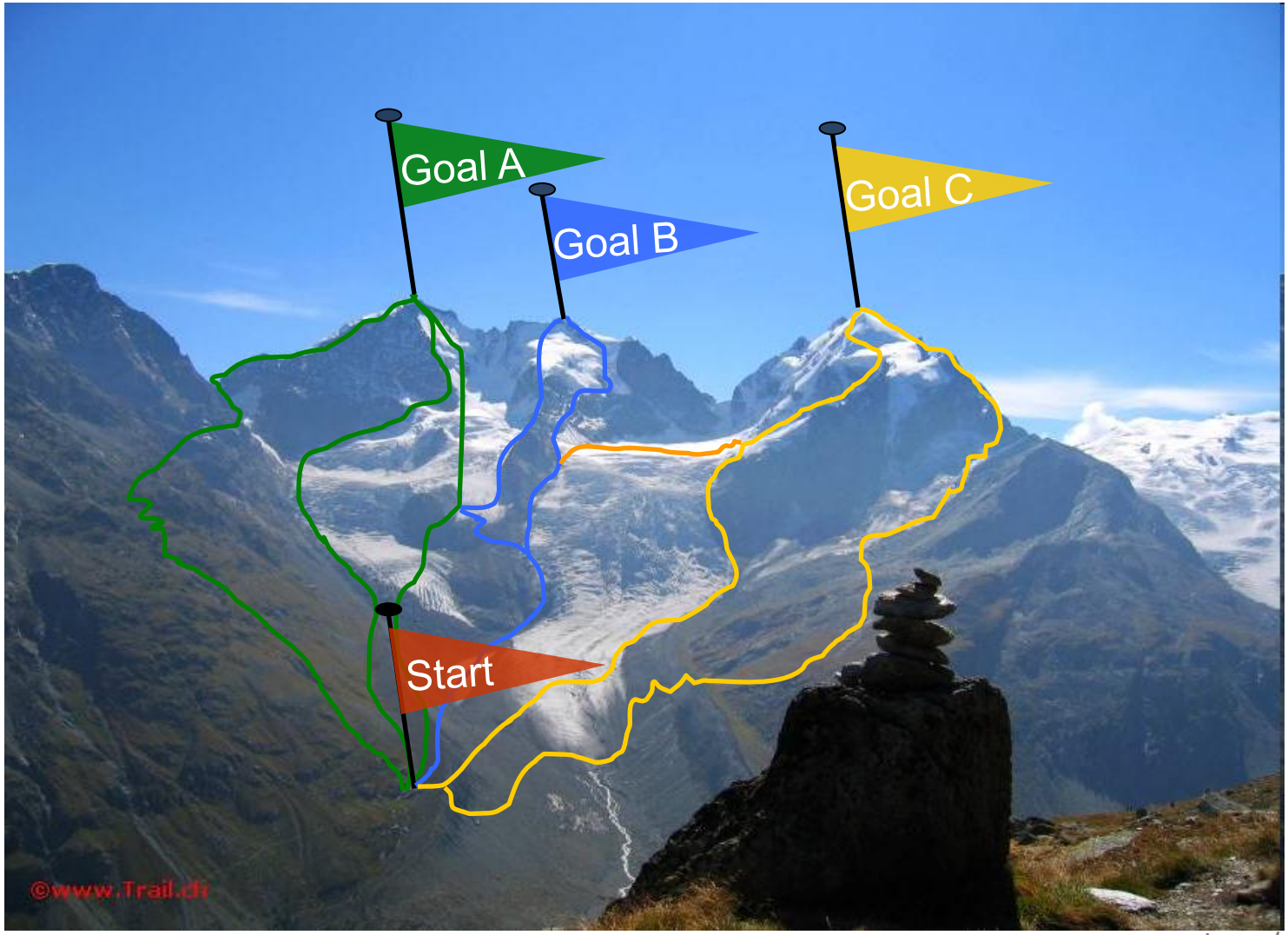


Distributional effects and regional implications

- Fossil fuel markets and rent reallocation
- Fossils trade and energy security
- Regional implications of climate stabilization



There is always more than one way…



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