



POTSDAM-INSTITUT FÜR
KLIMAFOLGENFORSCHUNG

Better Communication of Scenarios

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International Forum on Long-term Energy Scenarios for the Clean
Energy Transition, Berlin, 10-12 April 2019

Member of

Leibniz
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Association

Climate scenarios are more relevant than ever

Implementation of the Paris Agreement

Putting nationally determined mitigation action (2030) and mid century strategies (2050) in the context of Paris climate goals



National and subnational (energy) transition planning

Putting (energy) roadmaps in the context of long term transition scenarios

Climate Change Assessment (IPCC 6th Assessment Cycle)

Integrating mitigation, adaptation and climate impact analysis



Climate-related financial risk

Task Force recommendations on financial disclosures



Business opportunities and alignment with the low-carbon and sustainability transformation

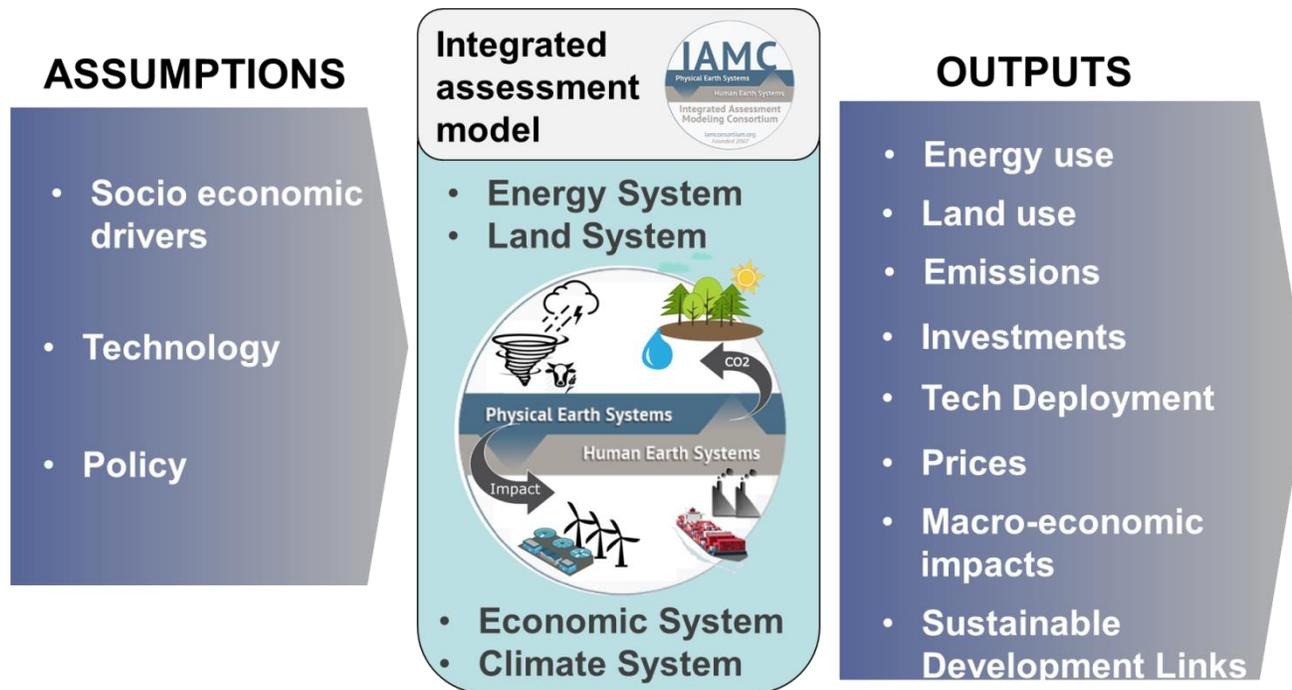
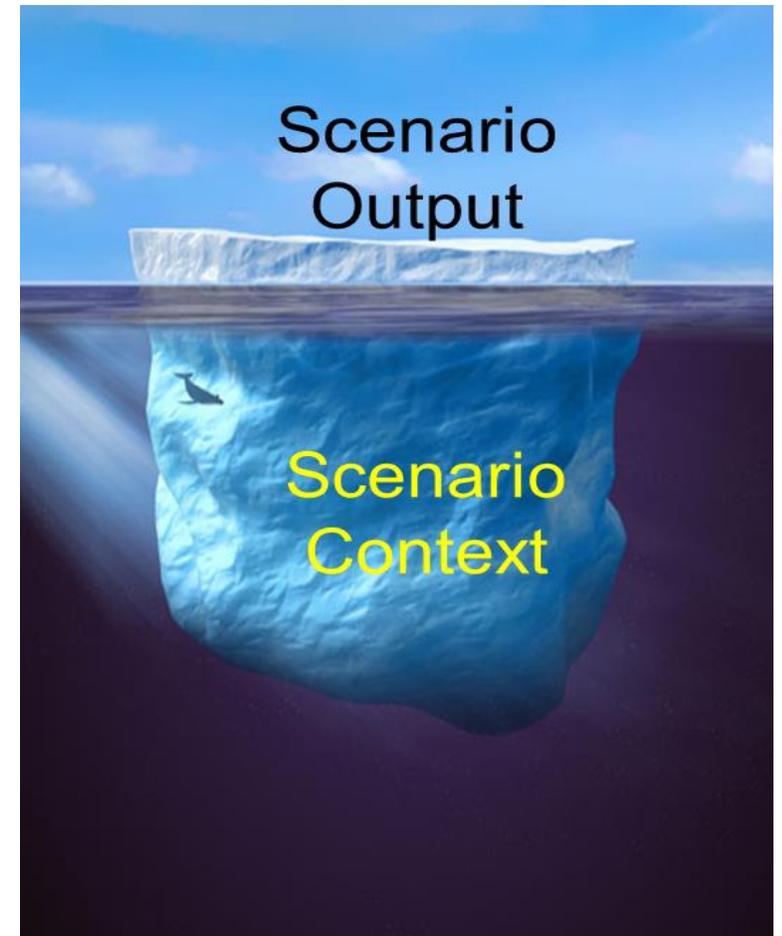


Sustainable Development Pathways for informing the UN SDG Agenda

Scenario services and communication

Challenges:

- Communication of high level insights from a large scenario set
- Visualization of multidimensional output spaces
- Communication of underlying scenario contexts
- Communication of uncertainty



SENSES Approach

Learn

Explanative, interactive modules on various topics



Primer



Explore

Open	Guided
 Scenario Explorer	 Policy
 Scenario Finder	 Finance
 1.5° DB	 Finance
 ISIMIP	 Finance
	

Share

Sharable graphics in various static formats



Key insights
Executive summaries



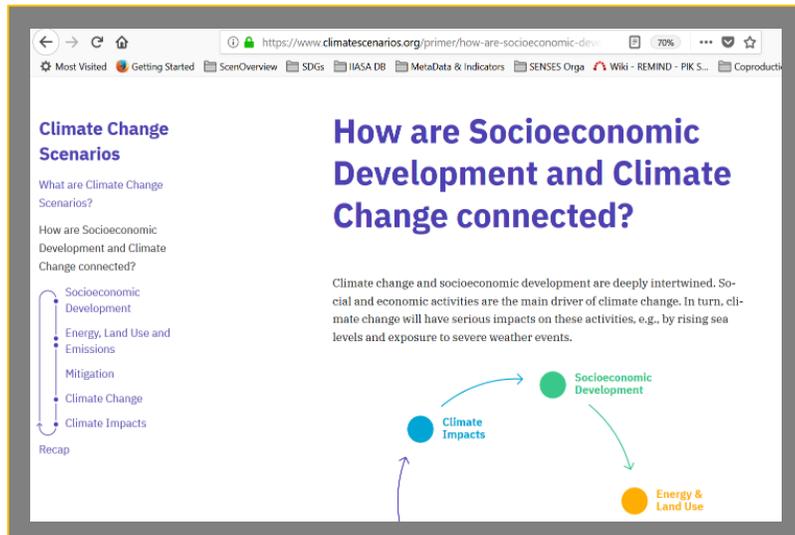
Exploration of details



Material for user
to become a multiplier

LEARN module example

www.climatescenarios.org/primer



Learn

Explanative, interactive modules on various topics

- Primer
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Explore

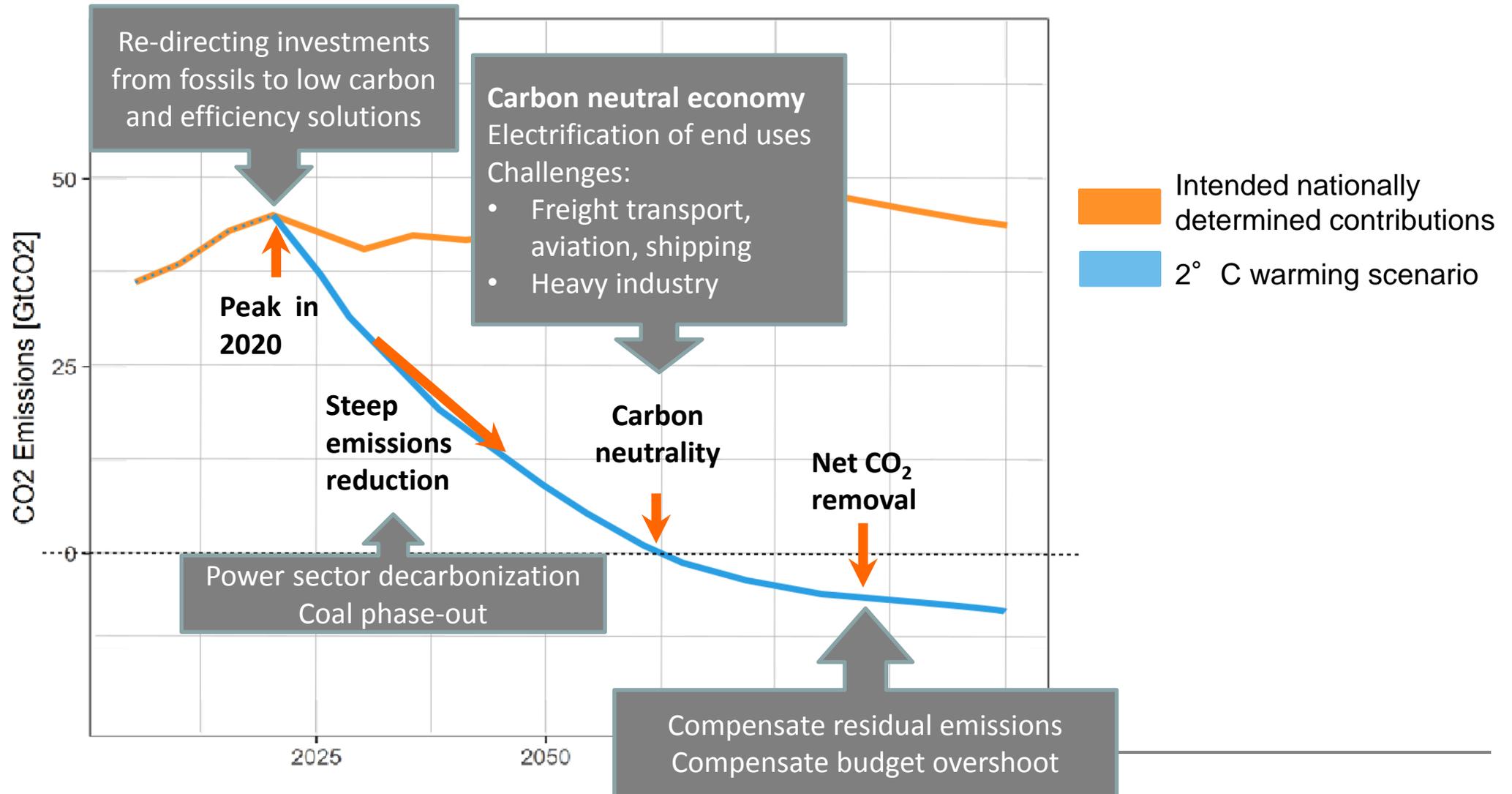
Open	Guided
Scenario Explorer	[Icon]
Scenario Finder	Policy
1.5° DB	[Icon]
ISIMIP	Finance
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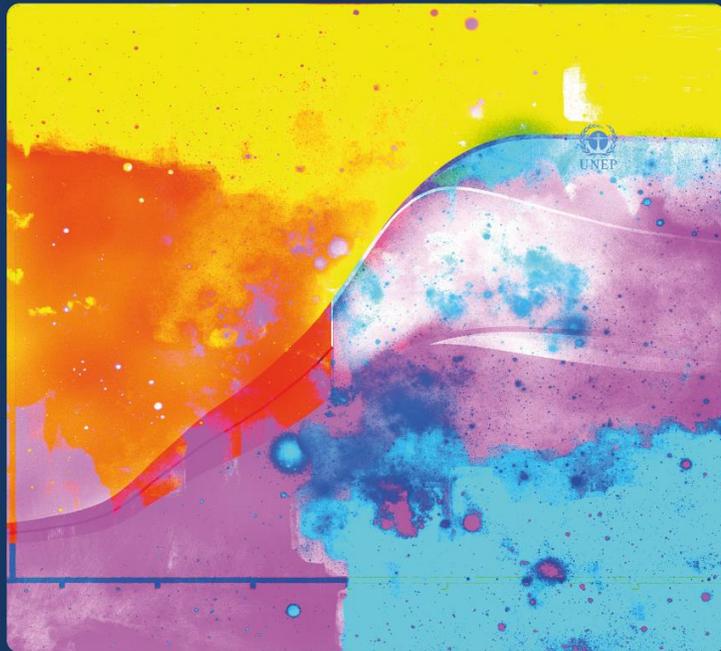
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Telling the story of mitigation pathways



Global Warming of 1.5°C

An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.



Intergovernmental Panel on Climate Change

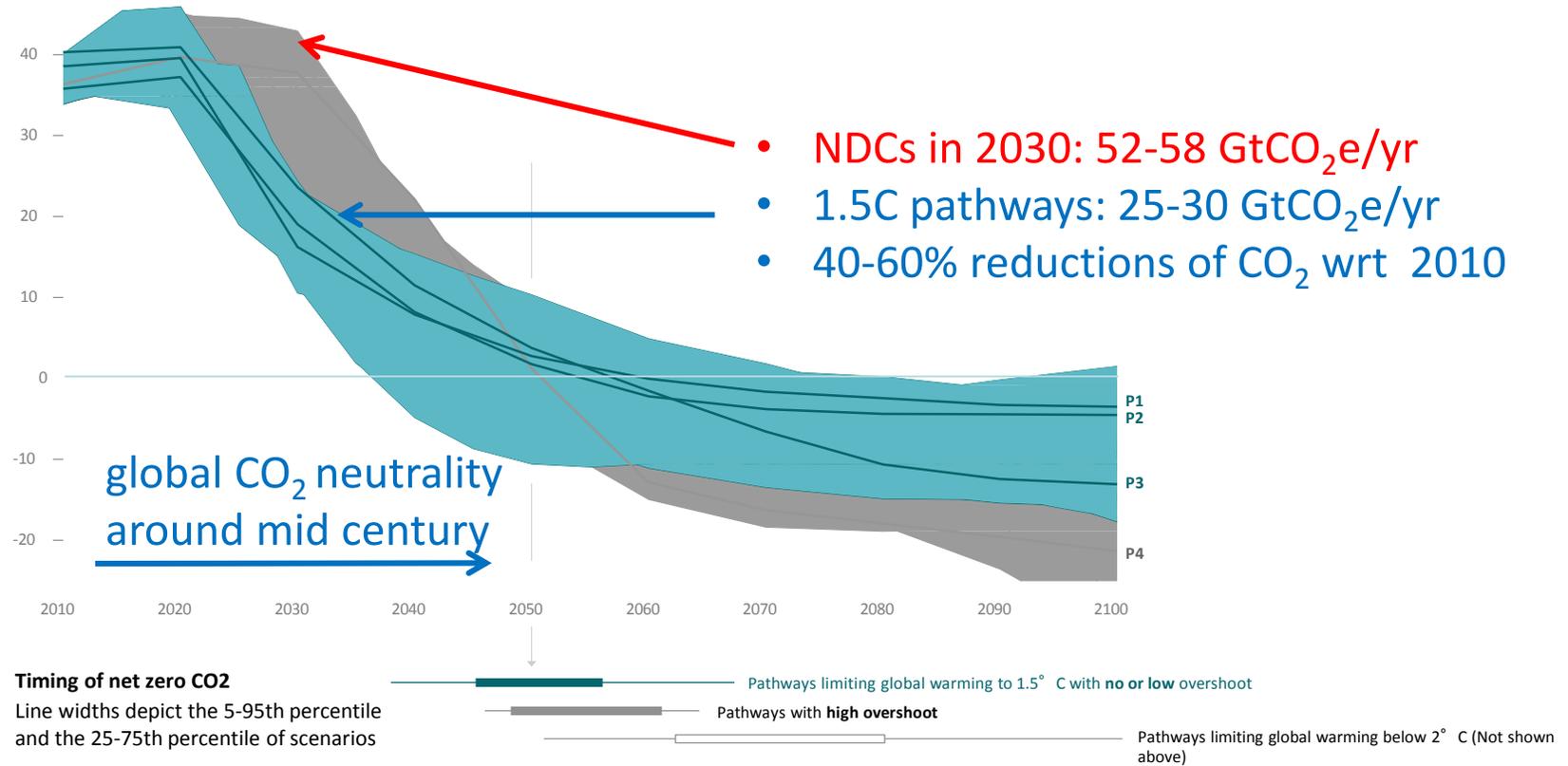
Special Report on Global Warming of 1.5°C (2018)
(SR15: www.ipcc.ch/report/sr15/)

SR1.5 robust findings on 1.5°C pathways

- 1.5°C requires substantial emissions reductions until 2030 and global net zero CO₂ emissions by mid century
- If action until 2030 is not strengthened beyond the NDCs, 1.5°C will be overshoot, even if supplemented by drastic emissions reductions thereafter.

Global total net CO₂ emissions

Billion tonnes of CO₂/yr



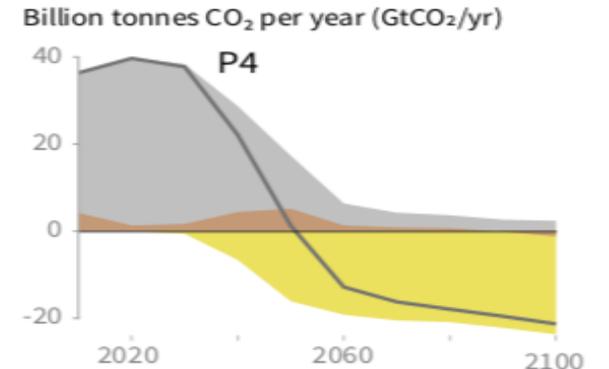
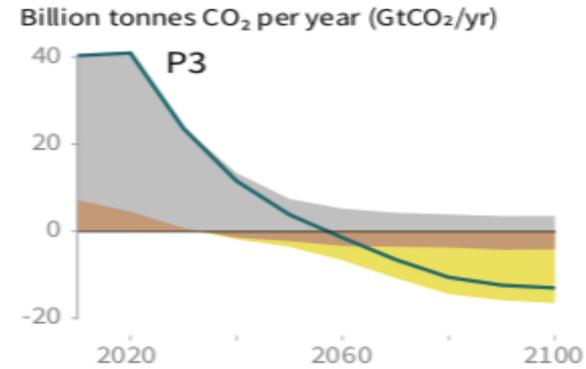
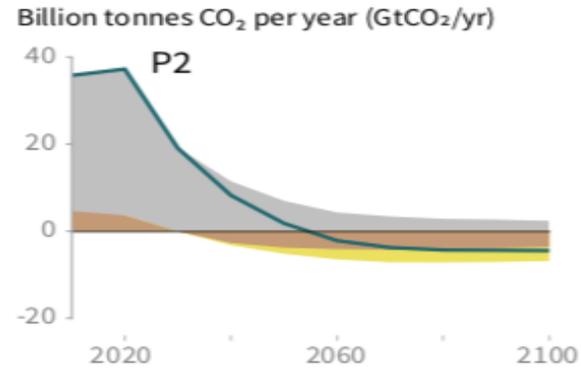
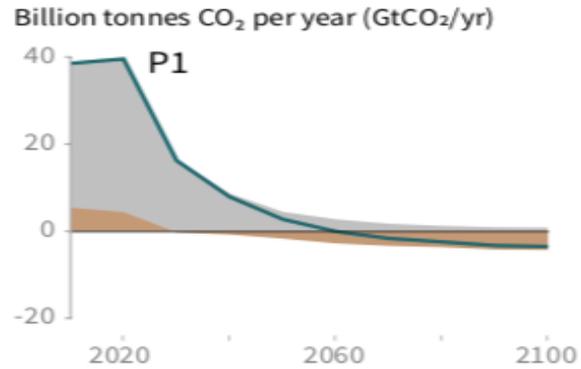
Source: IPCC Special Report on Global Warming of 1.5° C, Fig. SPM3a

Various pathways towards the goal with different implications

Breakdown of contributions to global net CO₂ emissions in four illustrative model pathways

● Fossil fuel and industry ● AFOLU ● BECCS

Source: IPCC SR1.5 SPM Fig. SPM3b



P1: A scenario in which social, business, and technological innovations result in lower energy demand up to 2050 while living standards rise, especially in the global South. A down-sized energy system enables rapid decarbonisation of energy supply. Afforestation is the only CDR option considered; neither fossil fuels with CCS nor BECCS are used.

P2: A scenario with a broad focus on sustainability including energy intensity, human development, economic convergence and international cooperation, as well as shifts towards sustainable and healthy consumption patterns, low-carbon technology innovation, and well-managed land systems with limited societal acceptability for BECCS.

P3: A middle-of-the-road scenario in which societal as well as technological development follows historical patterns. Emissions reductions are mainly achieved by changing the way in which energy and products are produced, and to a lesser degree by reductions in demand.

P4: A resource and energy-intensive scenario in which economic growth and globalization lead to widespread adoption of greenhouse-gas intensive lifestyles, including high demand for transportation fuels and livestock products. Emissions reductions are mainly achieved through technological means, making strong use of CDR through the deployment of BECCS.

Demand-side measures (energy, diets) shape the emissions profile

- reduce overshoot and reliance on net negative emissions
- improve environmental sustainability

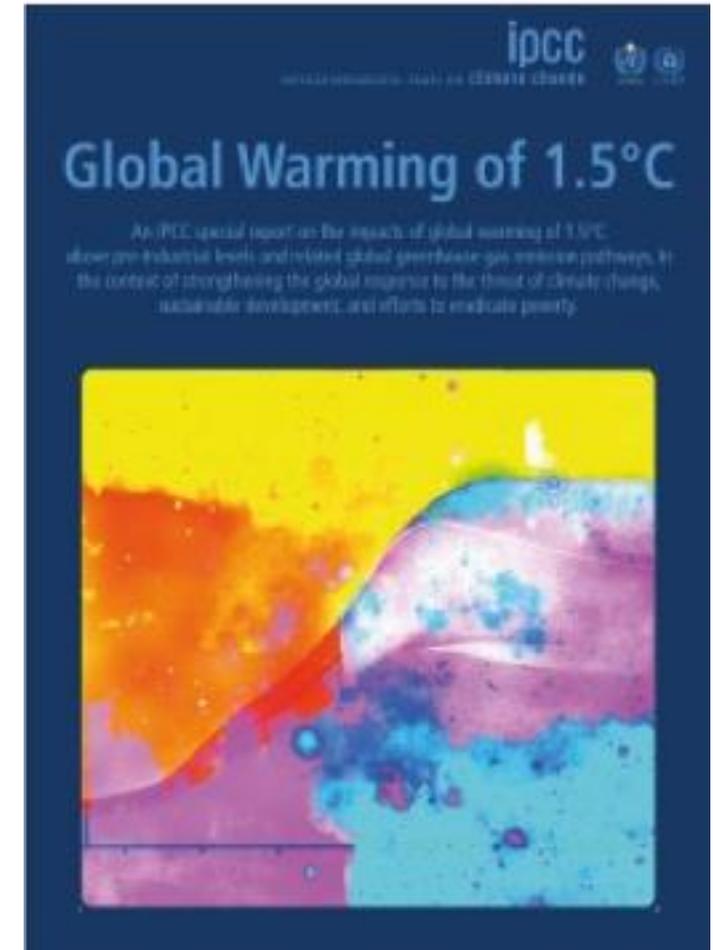
The scenario explorer presents an ensemble of ca. 400 quantitative, model-based climate change mitigation scenarios underpinning the IPCC Special Report on 1.5°C Global Warming

Public website: data.ene.iiasa.ac.at/iamc-1.5c-explorer

High-level description of the scenario ensemble

A new scenario resource for integrated 1.5 °C research.

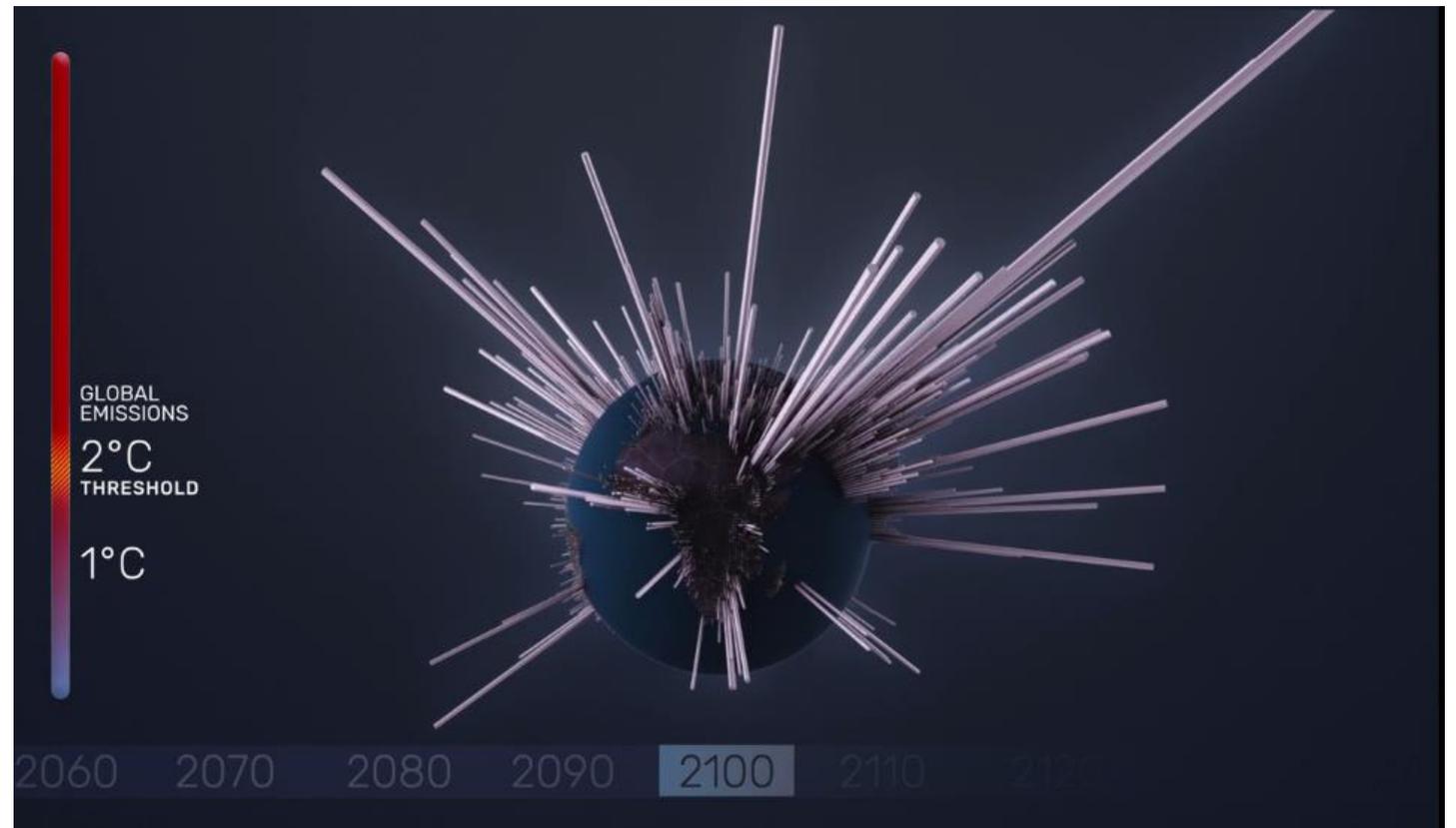
Nature Climate Change, 2018. doi: [10.1038/s41558-018-0317-4](https://doi.org/10.1038/s41558-018-0317-4)



A short movie about the build-up of historic emissions and the Paris Agreement.

www.youtube.com Search for “history of CO2 emissions”

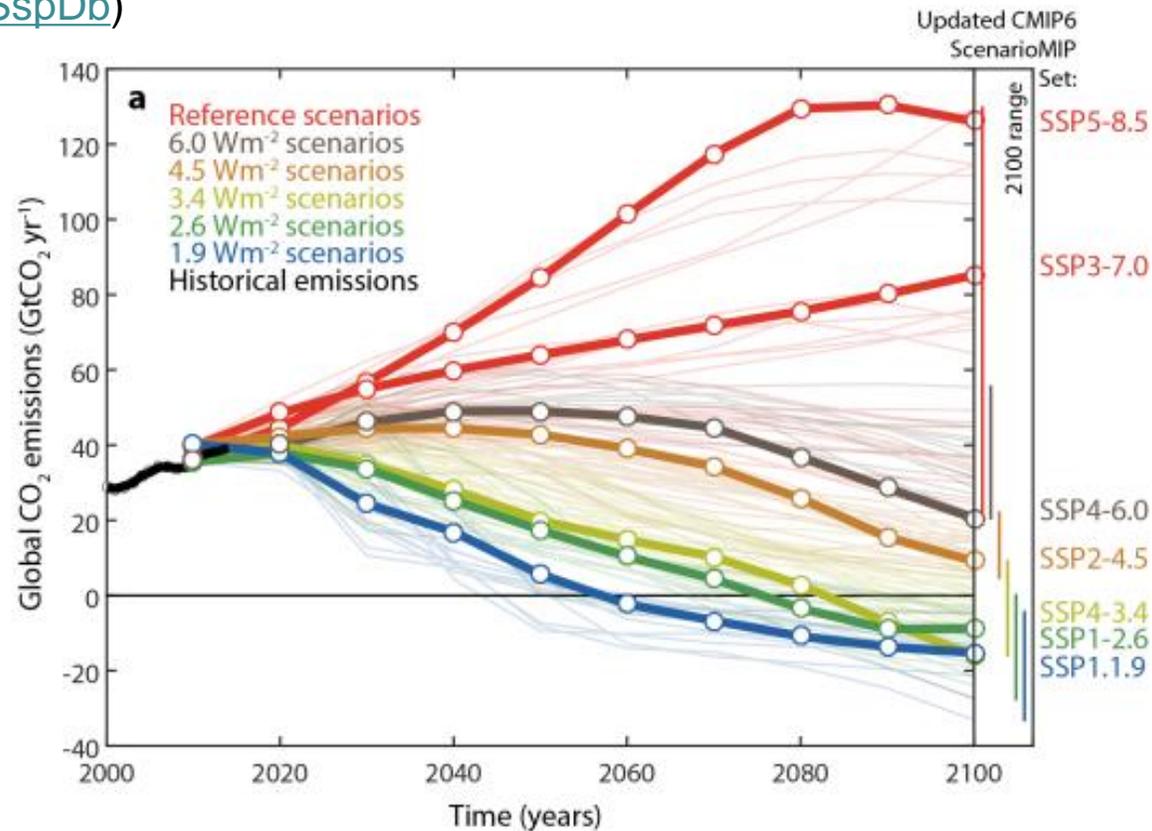
Discussion



Relevance of socio-economic assumptions

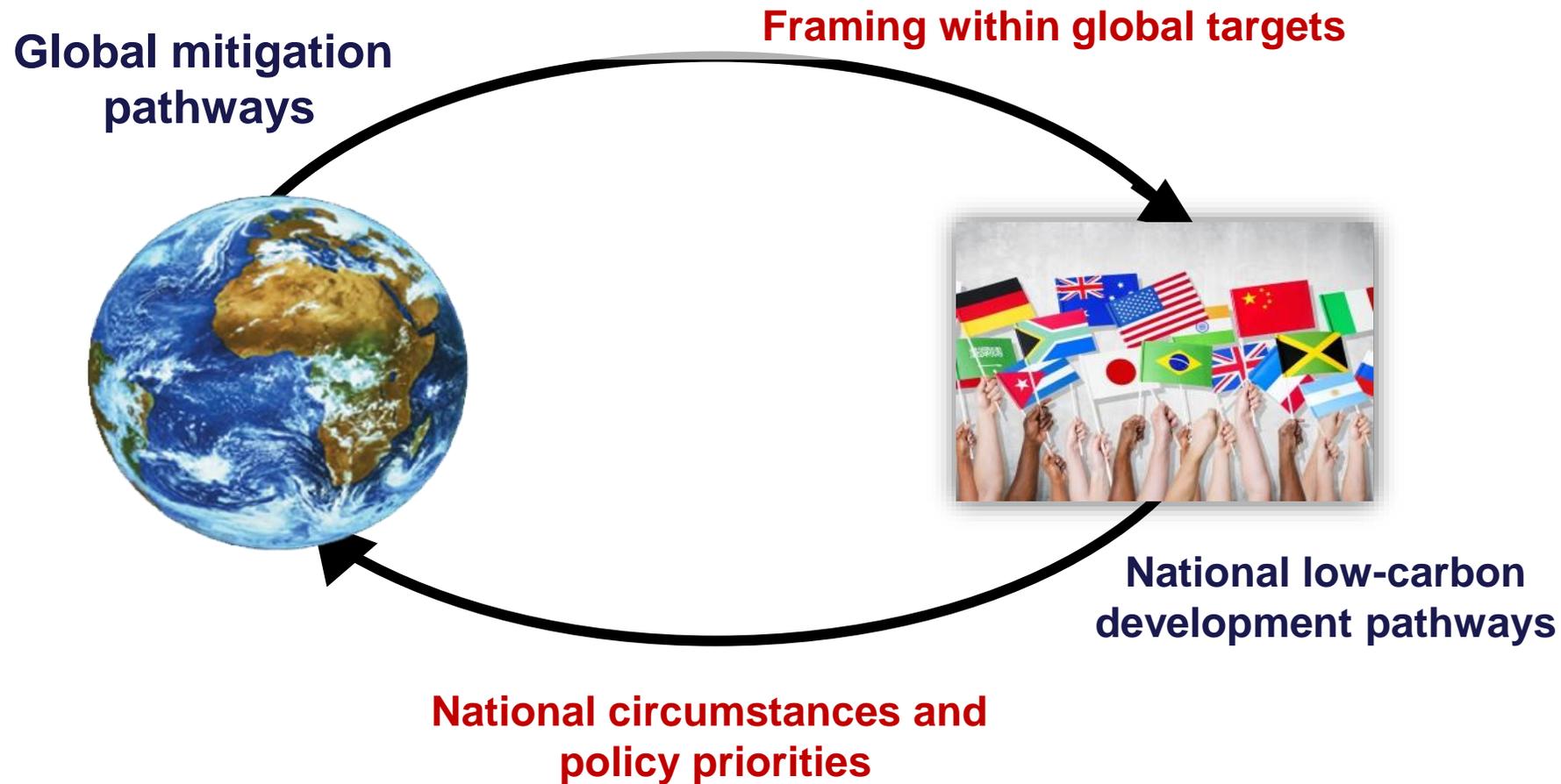
Shared socioeconomic pathways (SSPs):

(Scenario data: <https://secure.iiasa.ac.at/web-apps/ene/SspDb>)



O'Neill, Kriegler et al., Global Env. Change 42: 169-180, 2017

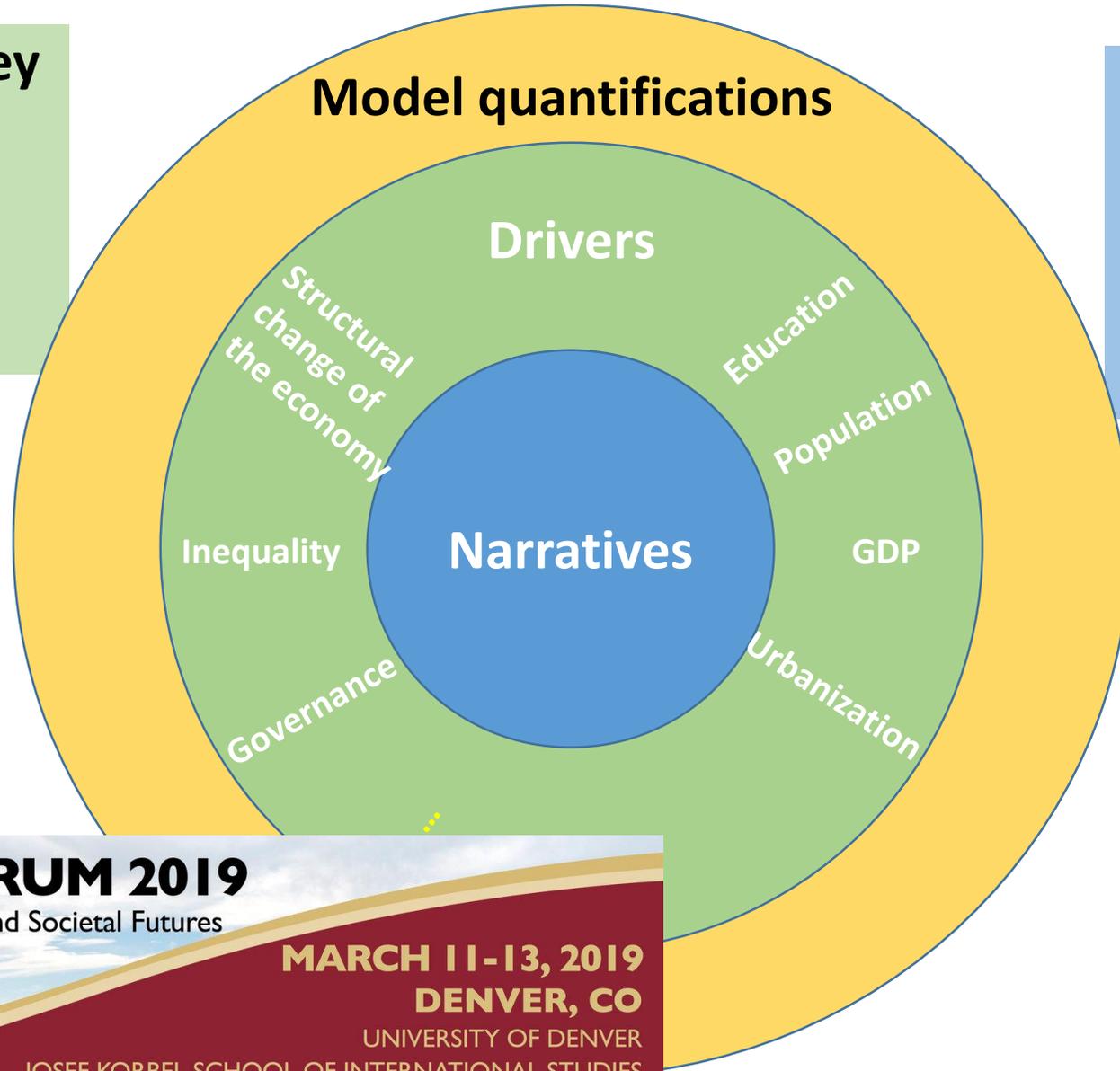
Connecting global and regional transformation pathways



Building scenarios

Projections of key socio-economic drivers needed

for coverage of socio-economic dimensions



Narratives play central role

- bridging scales
- establishing basic consistency
- co-designing scenarios with users
- communicating scenario insights

Granularity and output metrics matter for usefulness of scenarios

- Regionally specific
- People oriented
- ...

SCENARIOS FORUM 2019

Forum on Scenarios for Climate and Societal Futures

MARCH 11-13, 2019

DENVER, CO

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JOSEF KORBEL SCHOOL OF INTERNATIONAL STUDIES