



POTSDAM INSTITUTE FOR
CLIMATE IMPACT RESEARCH

Transformation of energy and other sectoral systems to achieve the purpose and long-term goals of the Paris Agreement

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Input to SBSTA RD 11: Science for Transformation
SBSTA 50, 20th June 2019, Bonn

Theme 1 Q1:

Key challenges and approaches to achieve the transformation of energy and other systems to hold global warming to well below 2 degrees and pursue efforts to limit it to 1.5 degrees

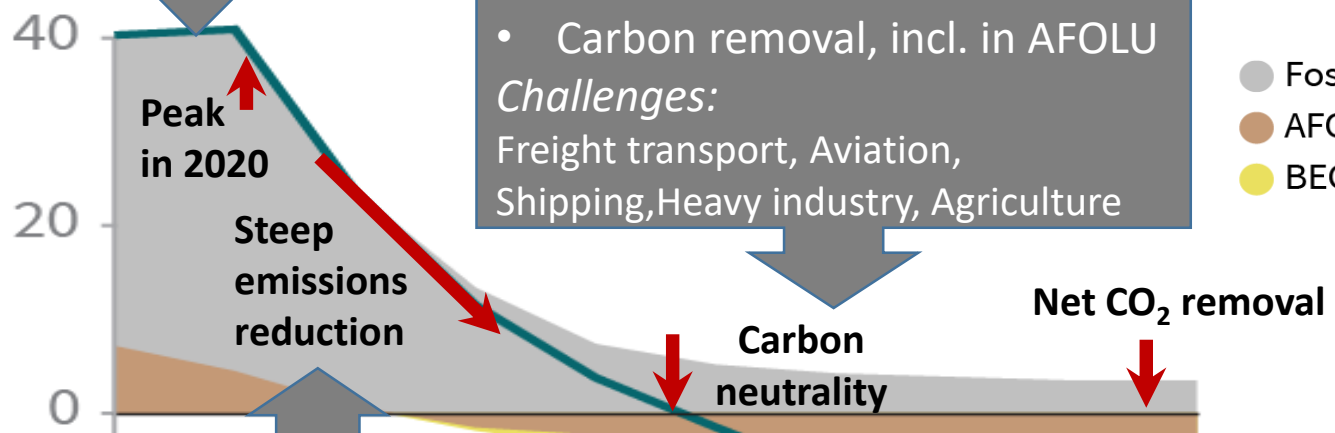
1. **Characterizing the scope of the challenge**
2. **Getting started:** Exploiting opportunities, Overcoming barriers, Linking with other goals
3. **Getting coordinated:** Actors, Sectors, Countries and Regions
4. **Scaling up:** Innovation, Investment, Deployment
5. **Taking everybody along:** Fair transition, Compensation of Losses,
Offering new perspectives, Reaching multiple goals

Re-directing investments from fossils to low carbon and efficiency solutions

Carbon neutral economy

- Zero carbon electricity
- Electrified end uses
- Low carbon fuels
- Carbon removal, incl. in AFOLU

Challenges:
Freight transport, Aviation, Shipping, Heavy industry, Agriculture



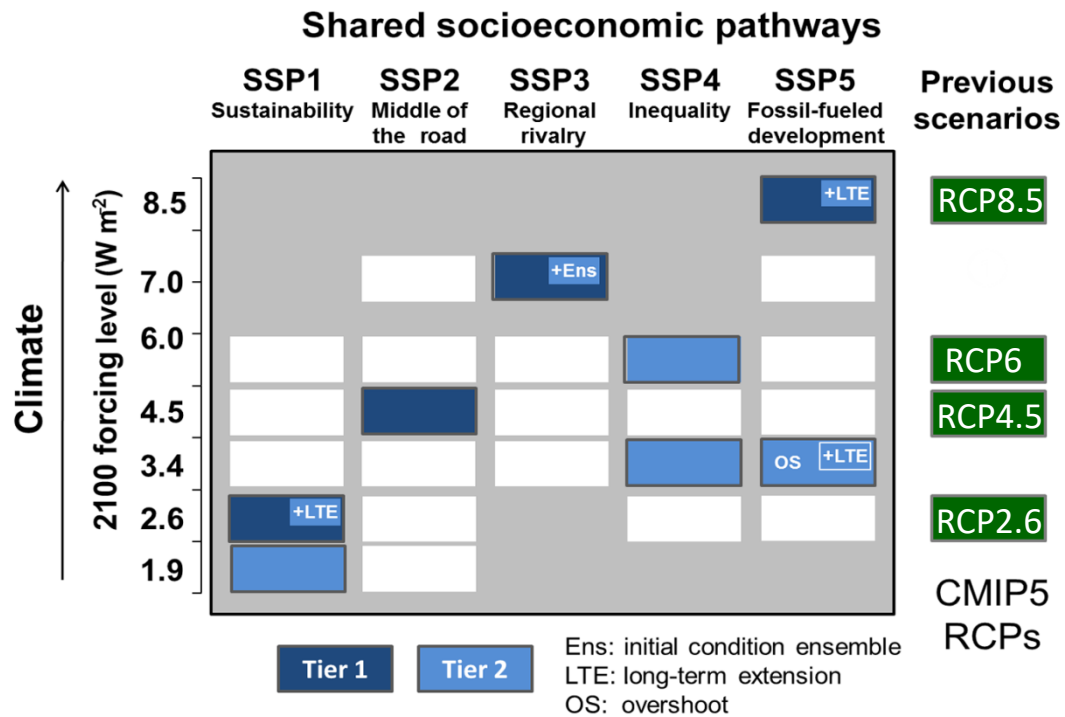
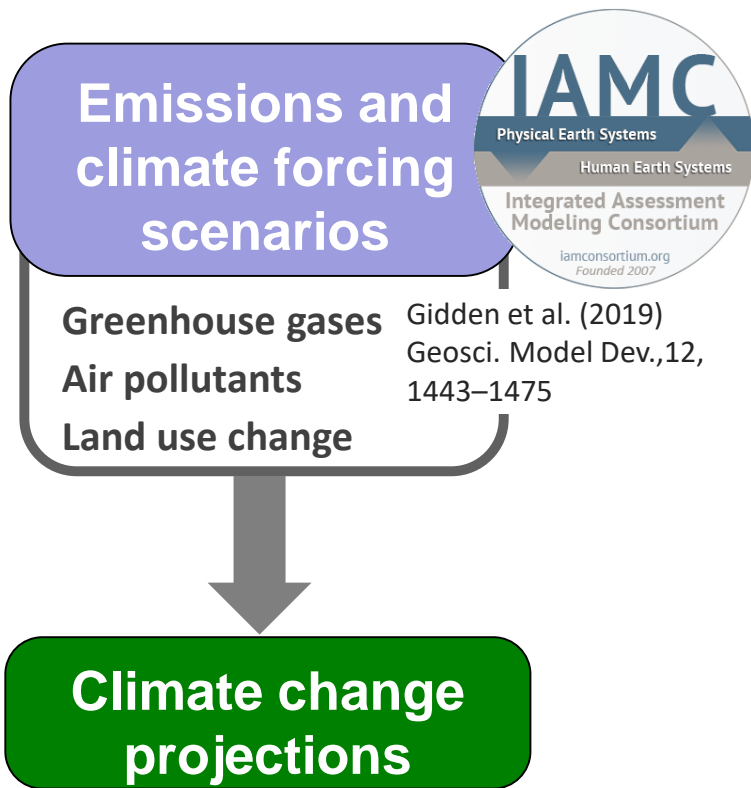
- Fossil fuel and industry
- AFOLU
- BECCS

- Power sector decarbonization
- Electrification of end uses
- Efficiency improvements
- REDD+

- Compensate residual long-lived emissions
- Safeguard 1.5°C / well below 2°C temperature limit

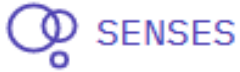
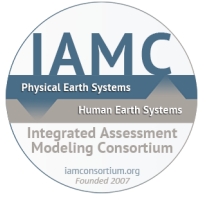
SR1.5 Fig. SPM3b

Connecting emissions scenarios to CMIP6



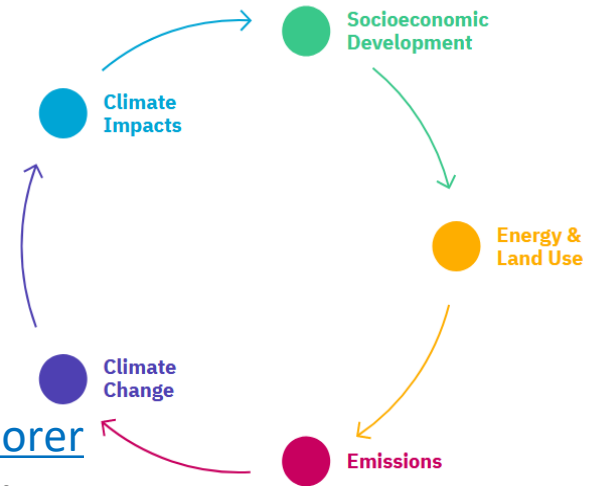
ScenarioMIP design, O'Neill et al. (2016) Geosci. Model Dev., 9, 3461–3482

Resources



Scenarios

- **Integrated Assessment Modelling Consortium:** iamconsortium.org
- **IAMC 1.5°C scenario explorer hosted by IIASA:** <https://data.ene.iiasa.ac.at/iamc-1.5c-explorer>
- **Climate change scenario primer (SENSES project):** <https://climatescenario.org/primer/>



Global stocktake, connecting national and global mitigation pathways, connecting mitigation and SDGs



- **CD-LINKS project:** www.cd-links.org
- **COMMIT project:** <https://themasites.pbl.nl/commit>

Visit Poster „Research on National and Global Mitigation Pathways to Keep the Paris Climate Goals in Reach: The Case for Enhanced Action“