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

Elmar Kriegler
Acting Head, Research Department „Transformation Pathways“

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**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

**Peak in 2020**

**Steep emissions reduction**

**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

**Net CO₂ removal**

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

**Carbon neutrality**

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

**Fossil fuel and industry**

**AFOLU**

**BECCS**

SR1.5 Fig. SPM3b
Connecting emissions scenarios to CMIP6

Emissions and climate forcing scenarios

- Greenhouse gases
- Air pollutants
- Land use change

Climate change projections

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

Gidden et al. (2019) Geosci. Model Dev., 12, 1443–1475

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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”