



POTSDAM INSTITUTE FOR
CLIMATE IMPACT RESEARCH

Umsetzung klimaneutraler Gesellschaftsstrukturen

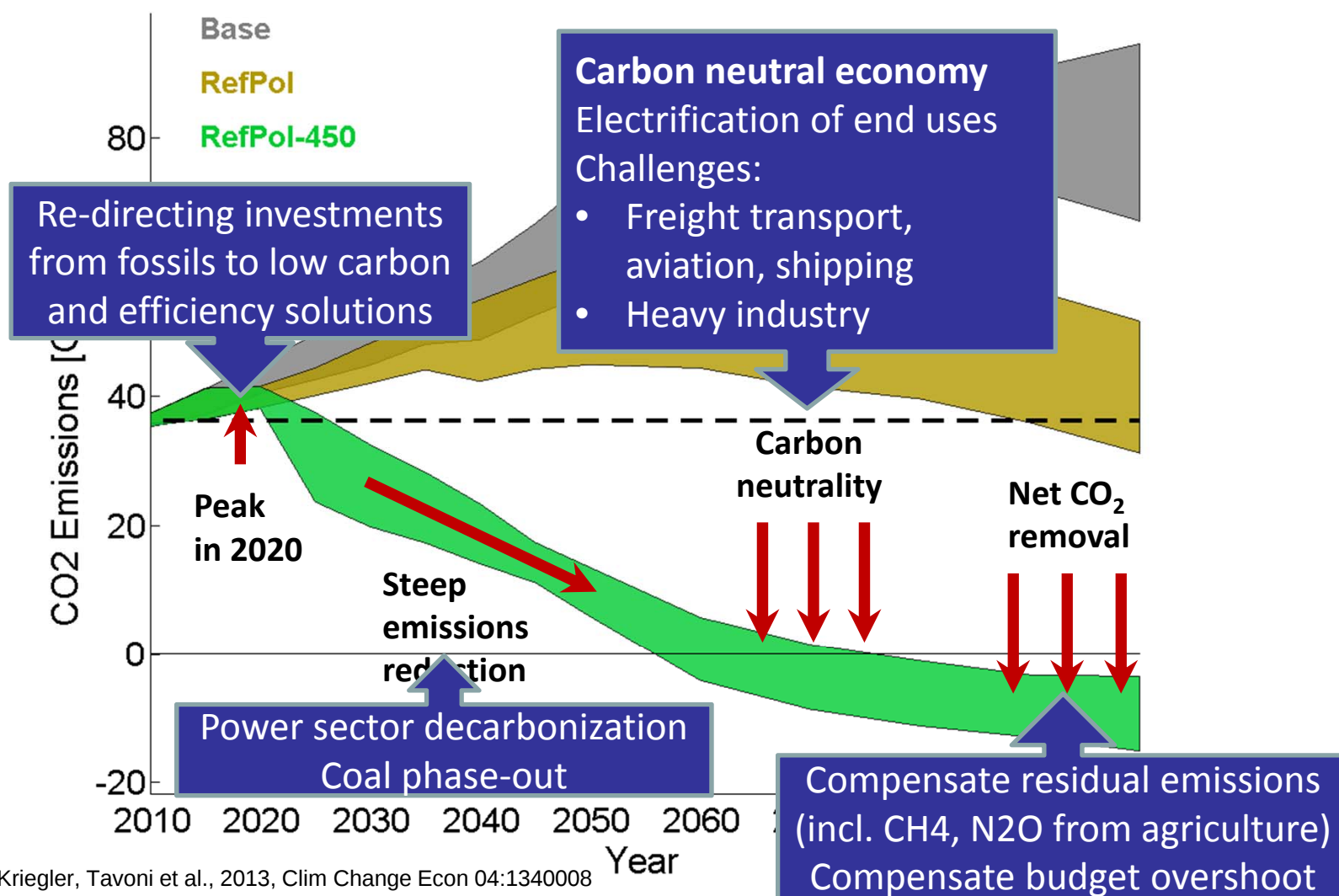
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12. CO2 Lernnetzwerk-Treffen, Hessisches Ministerium der Finanzen,
Wiesbaden, 16. November 2017



Global Mitigation Pathways staying well below 2°C



LIMITS Study: Kriegler, Tavoni et al., 2013, Clim Change Econ 04:1340008

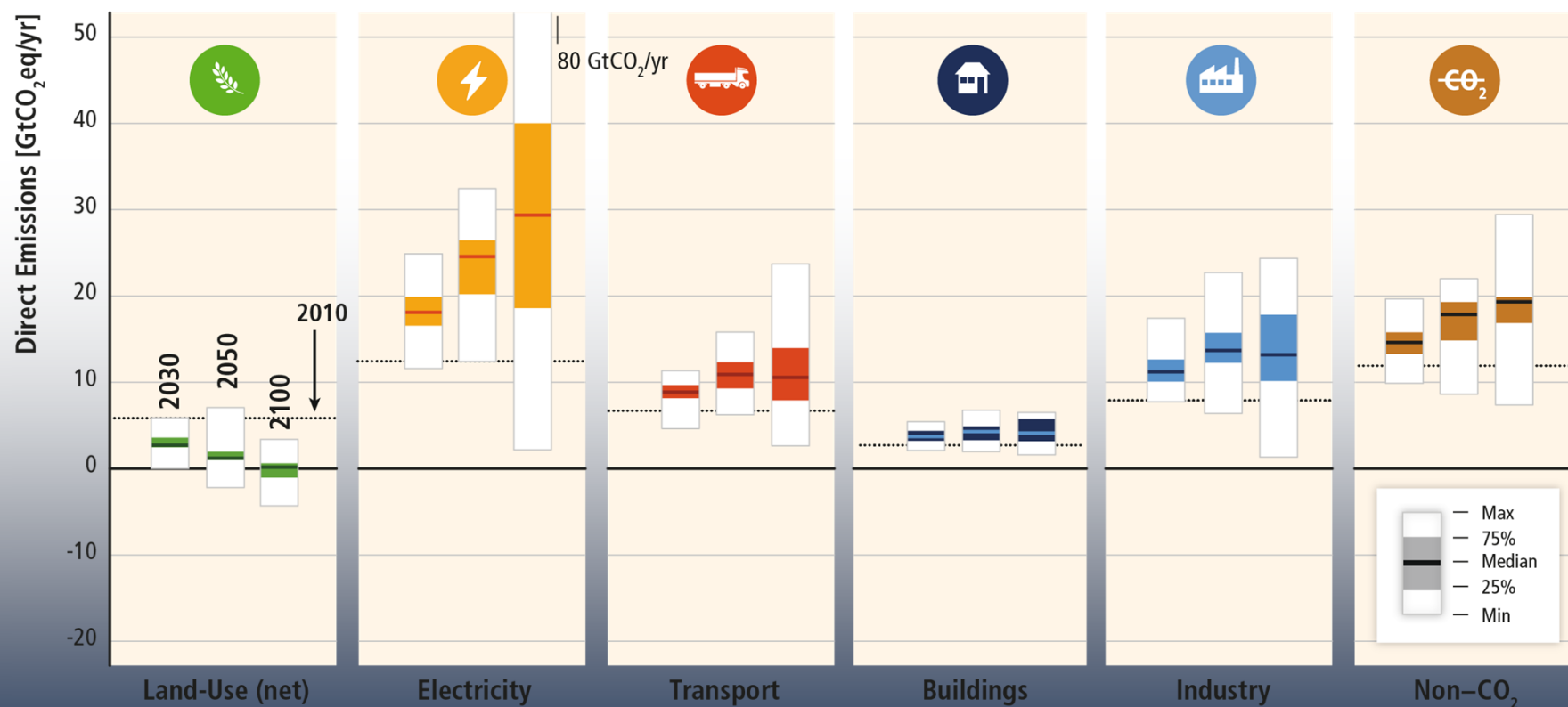


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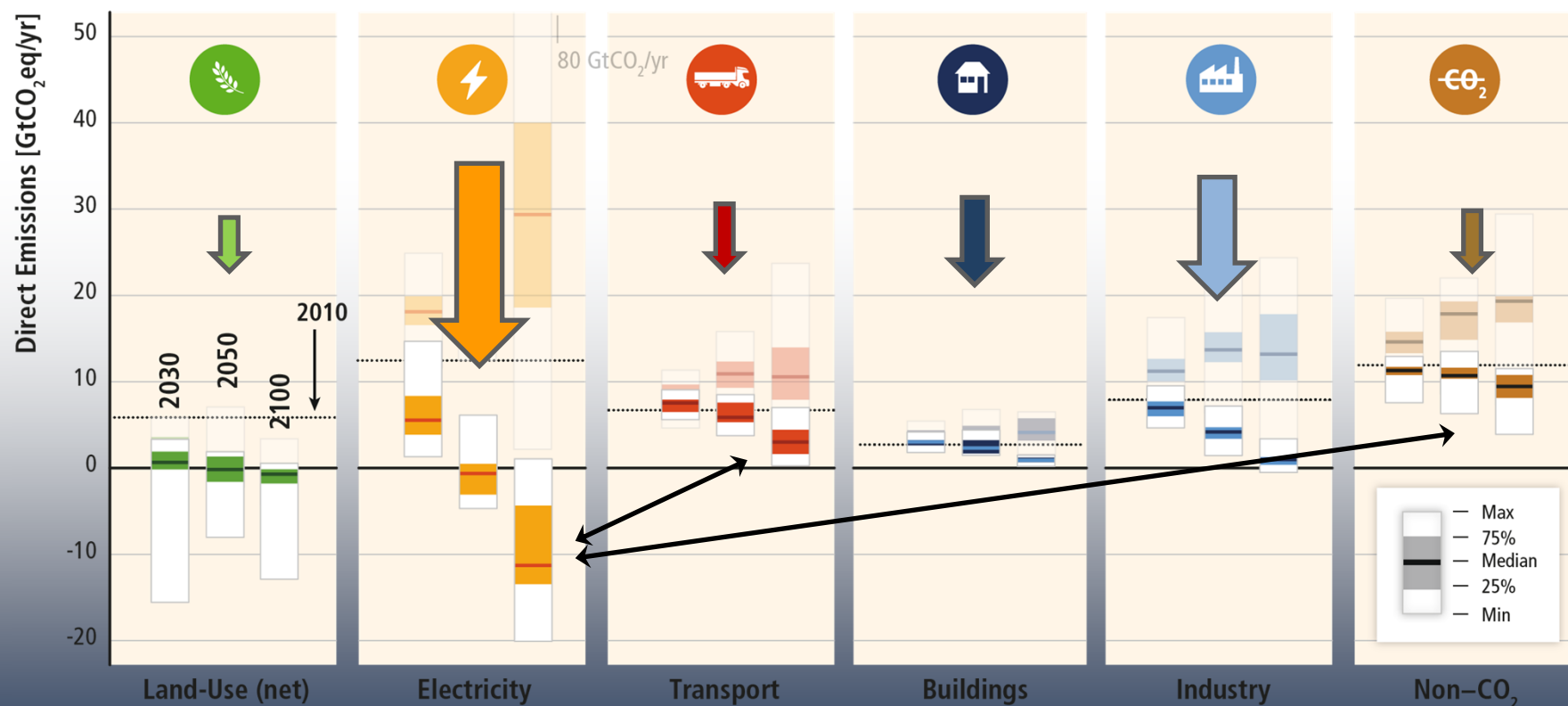
Mitigation requires changes throughout the economy. Efforts in one sector determine mitigation efforts in others.

„No climate policy“ scenario



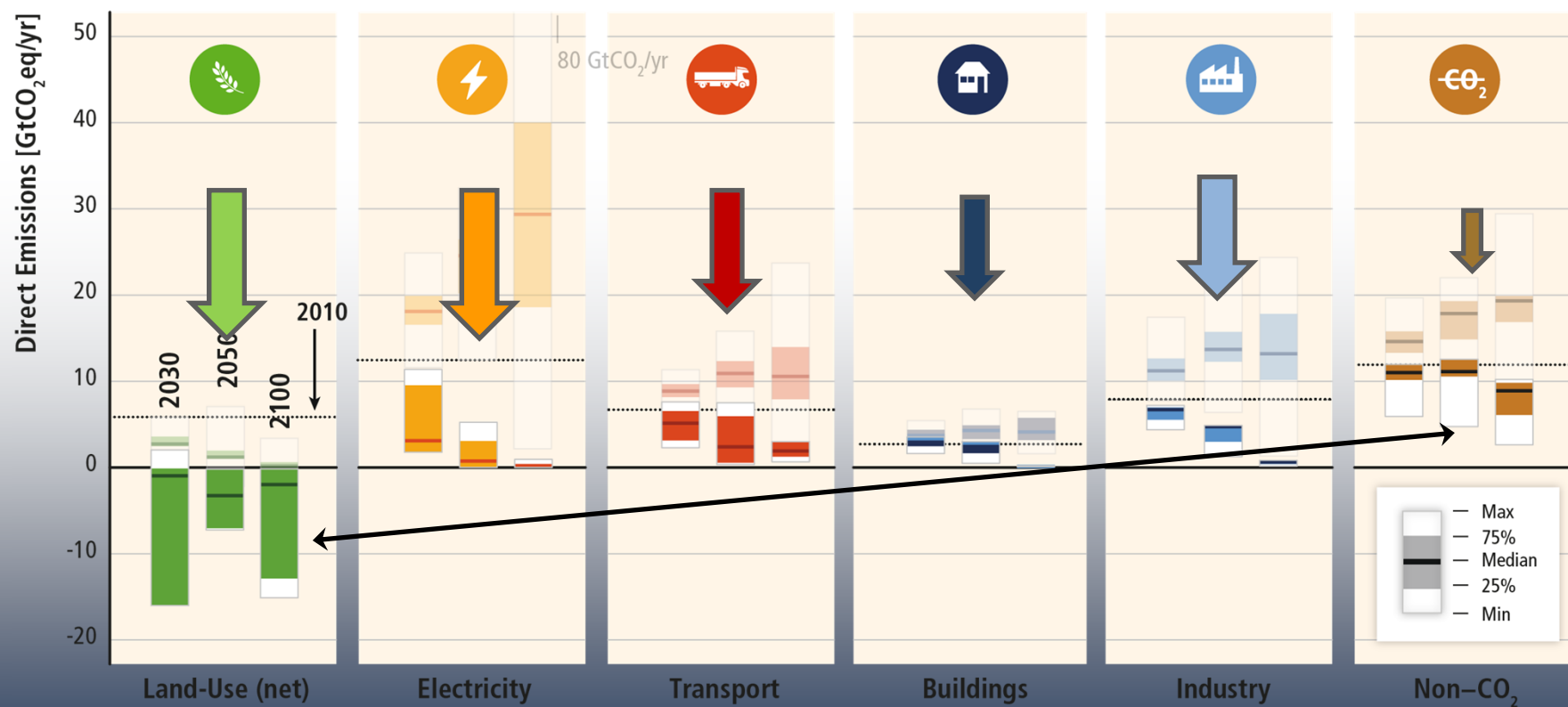
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2° scenario with CCS



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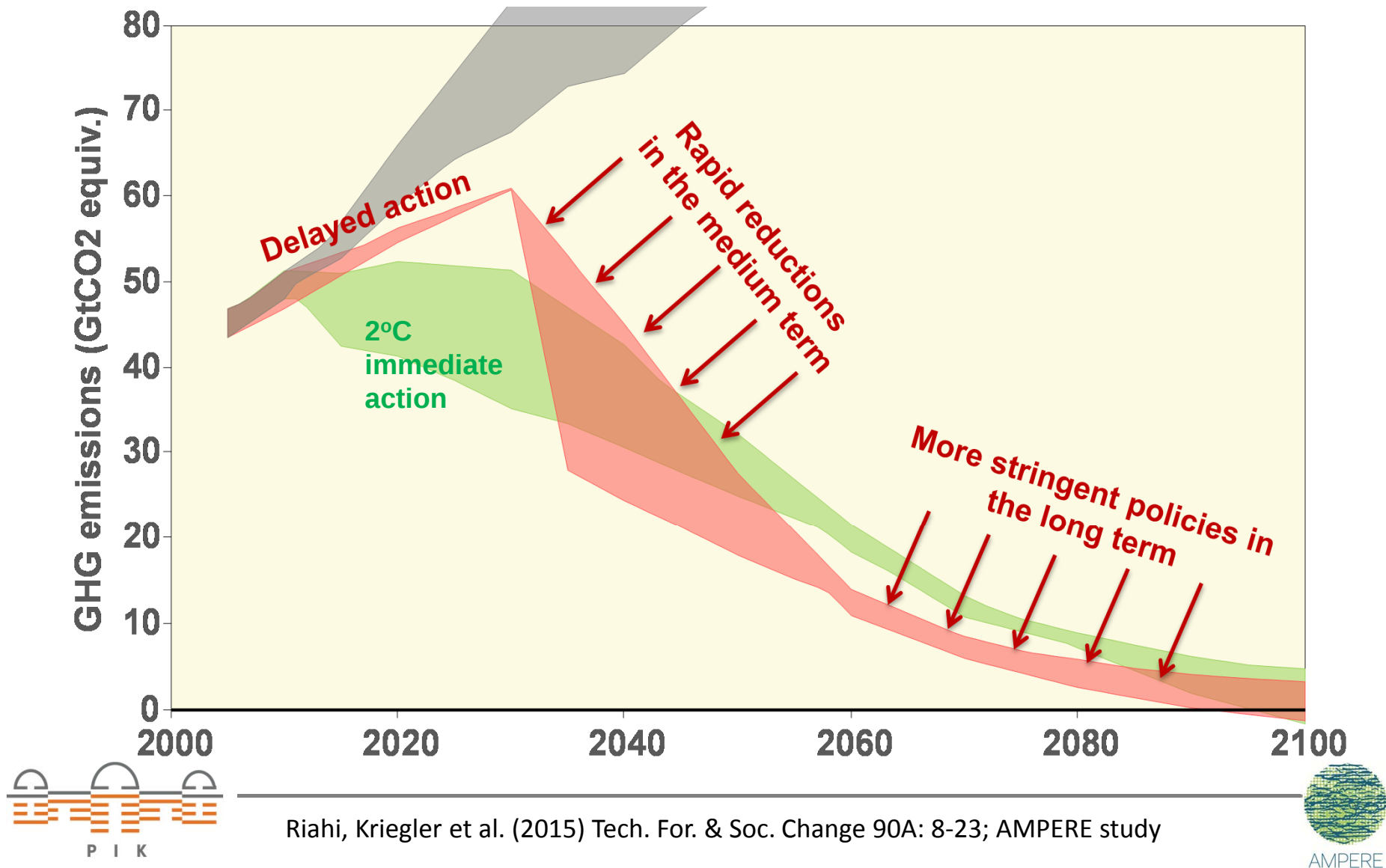
2° scenario **without** CCS



Key Technology Options

- Solar PV (in some countries wind energy, CSP)
- Energy storage
- Electric mobility
- Electrification of industry
- Carbon-neutral fuels: algae biofuels, synthetic solar fuels (H₂ + CO₂), hydrogen
- Industry Carbon Capture and Storage (CCS)
- Carbon dioxide removal: Bioenergy + CCS, Direct Air Capture + CCS
- Carbon capture and use (chemicals, carbon fiber)
- Dietary changes
- Synthetic feed and meat

Weitere Faktoren: Klimapolitik



Unterschiedliche mögliche Weltzukünfte



Klimaneutralität von Organisationen

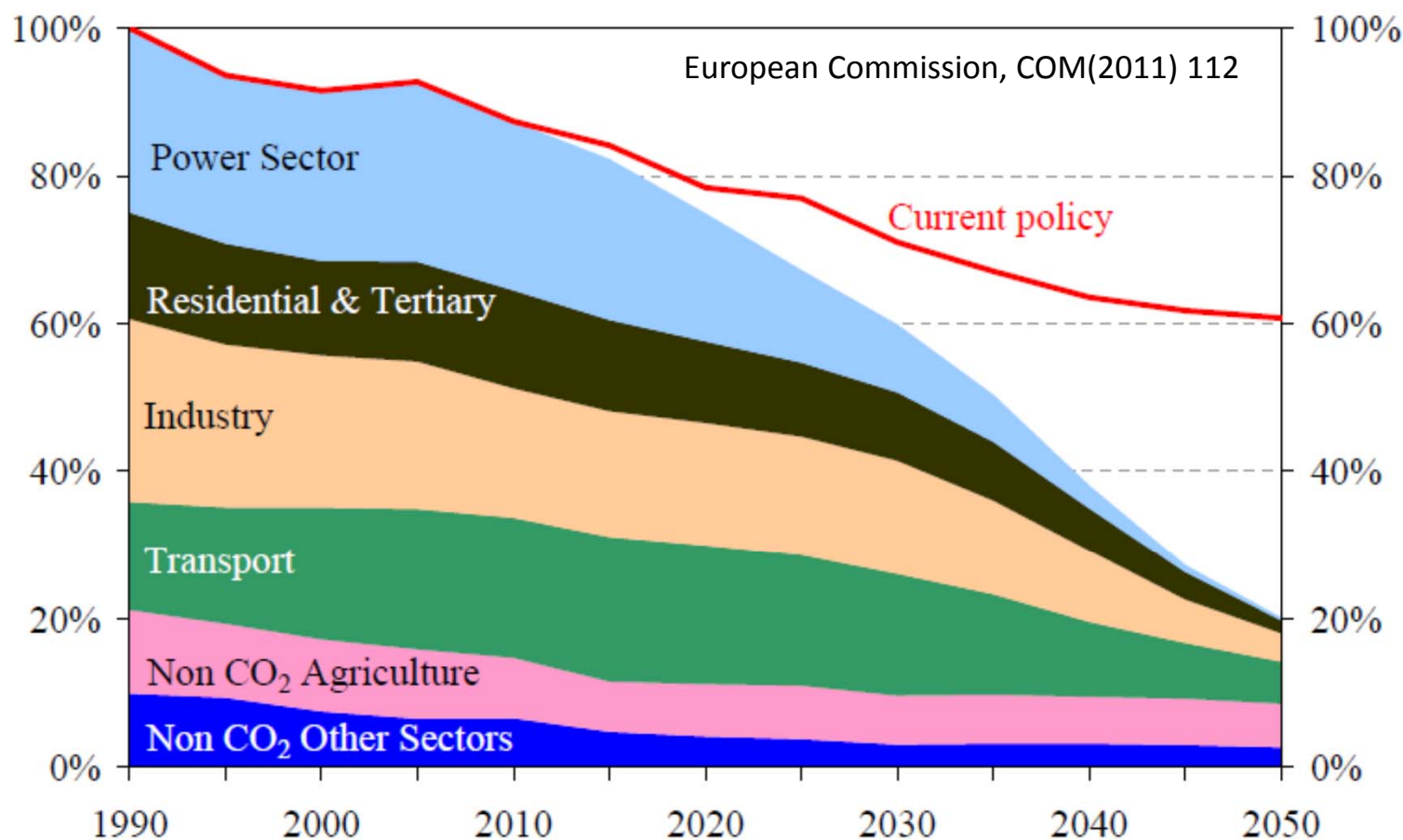
- **Offsets in einer CO2 neutralen Welt können nur durch aktive Bindung von CO2 aus der Atmosphäre generiert werden**
- **Offsets durch Verringerung von Emissionen an andere Stelle widersprechen globaler CO2 Neutralität.**

ENERGIEWENDE IN DEUTSCHLAND UND DER EU

EU Regulatory Framework for Climate & Energy

- Long-term **aspirational climate goal**: GHG emission reduction of -80% to -95% until 2050 r.t. 1990

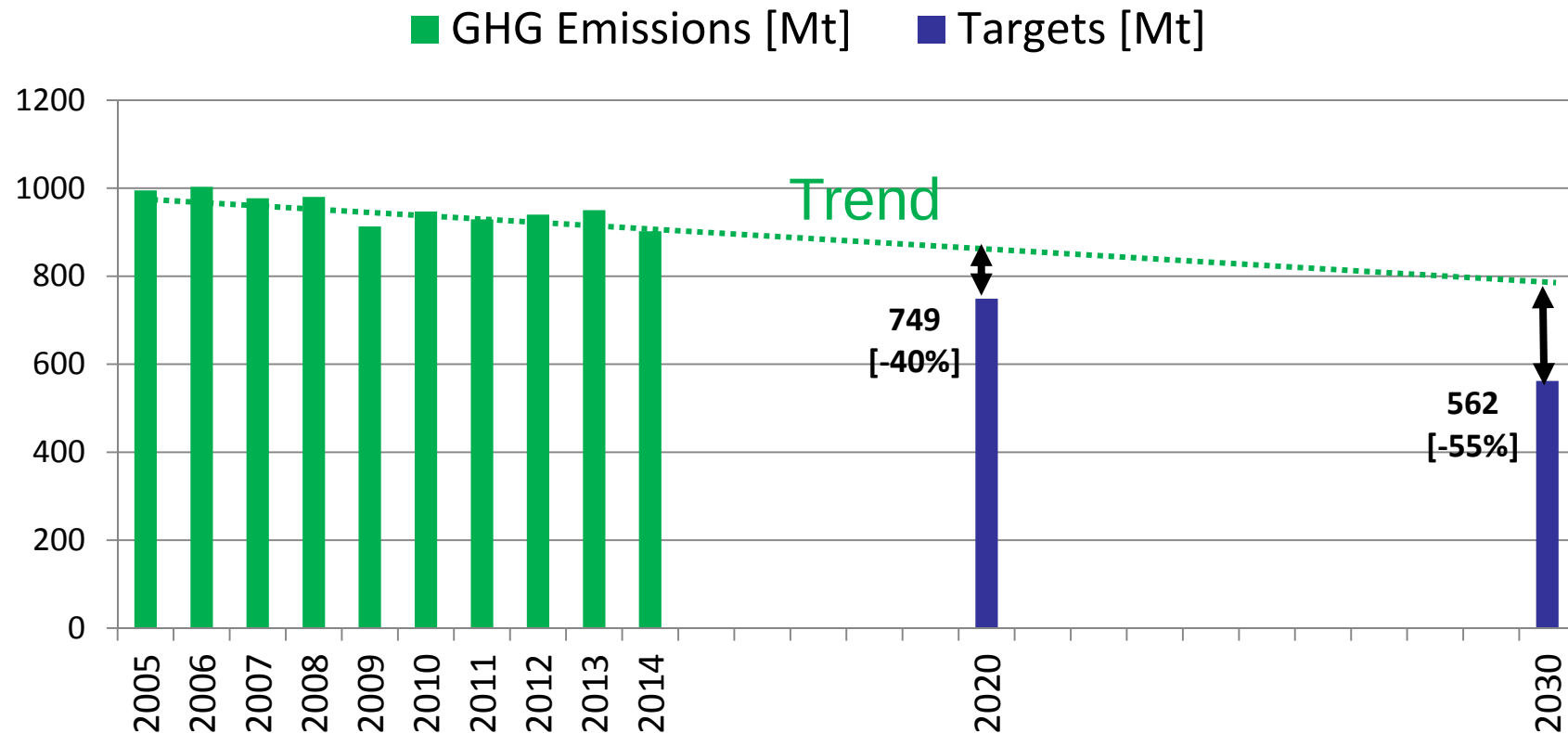
Figure 1: EU GHG emissions towards an 80% domestic reduction (100% = 1990)



EU Regulatory Framework for Climate & Energy

- Long-term **aspirational climate goal**: GHG emission reduction of -80% to -95% until 2050 r.t. 1990
- **Climate & energy package** (2008) in place, defines targets for **2020** and is **well on track**:
 - Climate: -20% GHG emission reduction r.t. 1990
 - Renewables: 20% in final energy consumption
 - Efficiency: 20% primary energy savings
- **2030 climate & energy framework** upcoming (2014 Council decision), **increases ambition** of 2020 package:
 - Climate: -40% GHG emission reduction r.t. 1990
 - Renewables: 27% in final energy consumption
 - Efficiency: 27% / 30% primary energy savings
- **Mid century strategy (2050) under discussion**

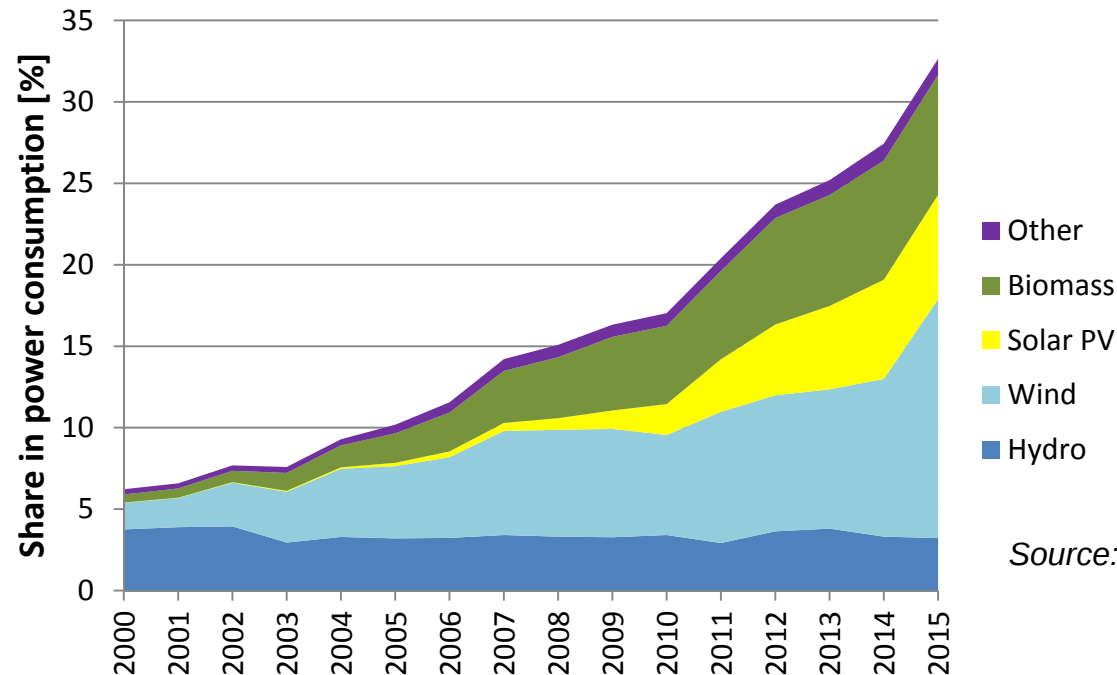
Germany: Not on track with climate targets



- According to Government projections (BMUB 2014) GHG emission reduction in 2020 only ~33% (target: -40% / 740 Mt)
- Even larger gap for 2030 target (-55% / 562 Mt)
- Klimaschutzplan 2050 important for long term perspective (70% in 2040 and 85% (80-95%) reduction of GHGs by 2050)

Power Sector: A very different picture

- Considerable increase of renewables in power consumption over last 15 years
- From 6% in 2000 up to 33% in 2015, 27 percentage points



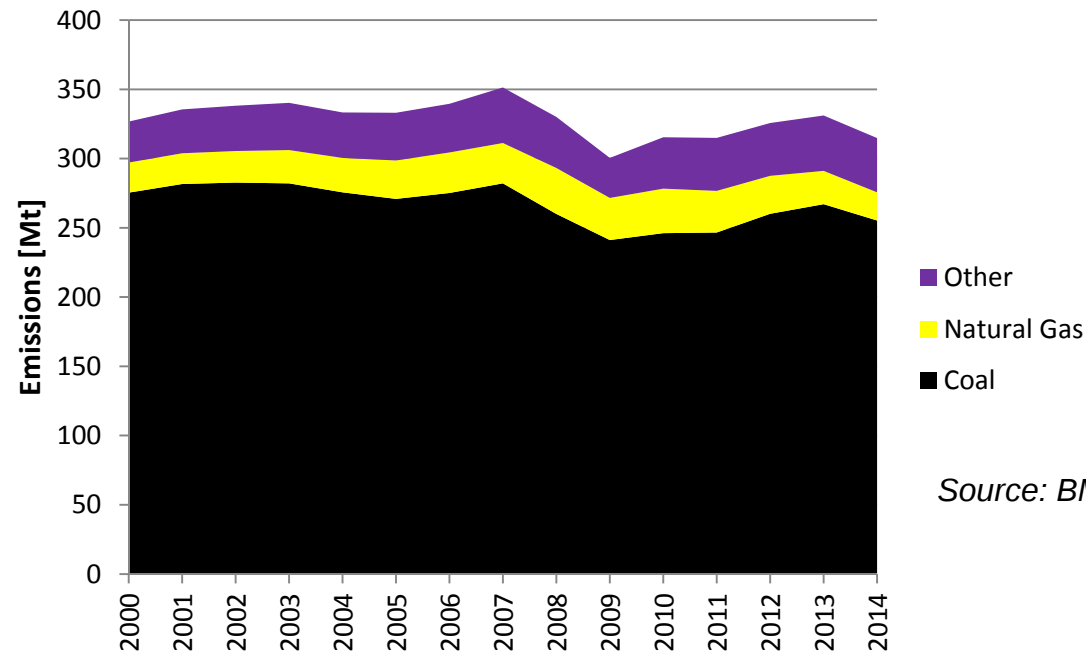
Source: BMWi (T20)

→ Major driver: **RE feed-in tariff (EEG)** implemented in 2000



But more RE without coal phase out does not help climate

While RE share increased, emission remained at basically the same level because **no switch from coal to gas occurred**



Source: BMWi (T11)

Diskussion

