Climate Recon 2050:
Dialogues on Pathways and Policy

Germany
Lukas Emele, Oeko-Institut

Climate protection scenario 2050

Results with focus on almost net zero emissions

Supported by:

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

based on a decision of the German Bundestag

European Climate Initiative EUKI

STIFTUNG MERCATOR

Project partners:

ecologic IDDRI Fraunhofer ISI ENERGIAKLUB CLIMATE POLICY INSTITUTE APPLIED COMMUNICATIONS WiseEuropa

Öko-Institut e.V. Institut für angewandte Ökologie Institute for Applied Ecology

ASSOCIATION négaWatt

DTU Technical University of Denmark

ENEA Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile

This project is part of the European Climate Initiative (EUKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).

Climate Recon 2050:
Dialogues on Pathways and Policy

Germany
Lukas Emele, Oeko-Institut

1. *Climate Protection Scenario 2050* for Germany – Overview

- Title: Climate Protection Scenario 2050
- Sponsor: Federal Ministery for the Environment, Nature Conservation and Nuclear Safety
- Publication: 2015 (German version) / 2016 (English summary)
- Institutes: Oeko-Institut and Fraunhofer ISI
- Three scenarios:
  - Existing Measures Scenario (2012) → Reference scenario
  - Climate Protection Scenario 80 → Aiming for 80% GHG emission reduction and fulfill all national energy targets
  - **Climate Protection Scenario 95** → Aiming for 95% GHG emission reduction including international transport and land use, land-use change and forestry (LULUCF)

Climate Recon 2050:
Dialogues on Pathways and Policy

Germany
Lukas Emele, Oeko-Institut

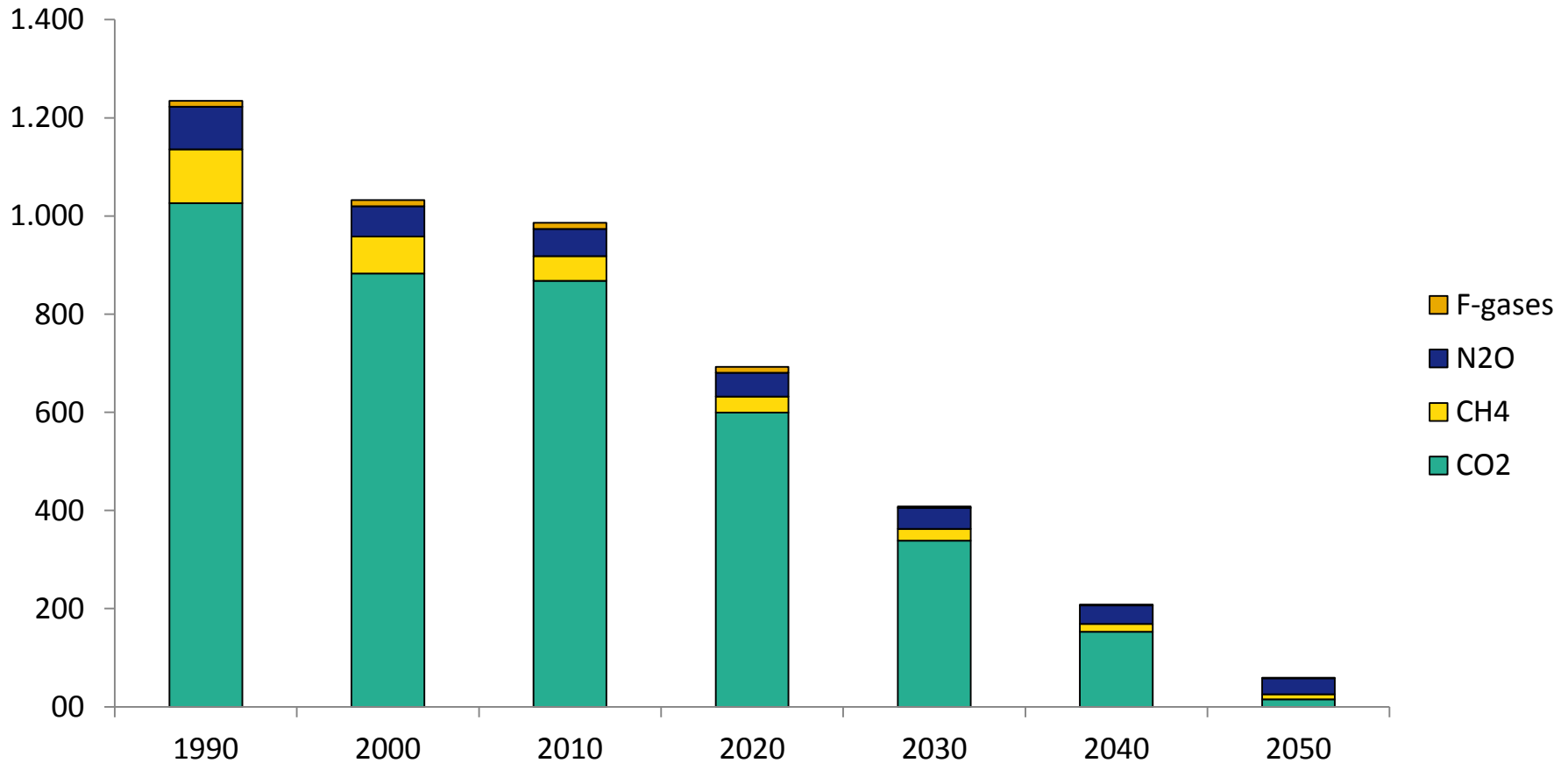
2. Key strategies

- Energy sectors:
  - Promotion of energy efficiency → **Halving energy consumption**
  - Strong deployment of renewable energies → **RES shares of approx. 90%**
  - Limited biomass use → **Electrification across all sectors** plus synthetic liquid fuels in transport
  - Bioenergy use and CCS (BECCS) in iron & steel industry and cement production → small CO_2 sink
- Non-energy sectors:
  - Industrial processes: **Carbon capture and storage** (CCS)
  - Agriculture: Reduction of meat export and domestic meat consumption → **reduction in animal numbers**
  - Land use and forestry: **Protection forests and of moor soils** → significant CO_2 sink
- Social and behavourial changes:
  - Reduced room temperatures in buildings
  - Transformation to compact cities

Climate Recon 2050:
Dialogues on Pathways and Policy

Germany
Lukas Emele, Oeko-Institut

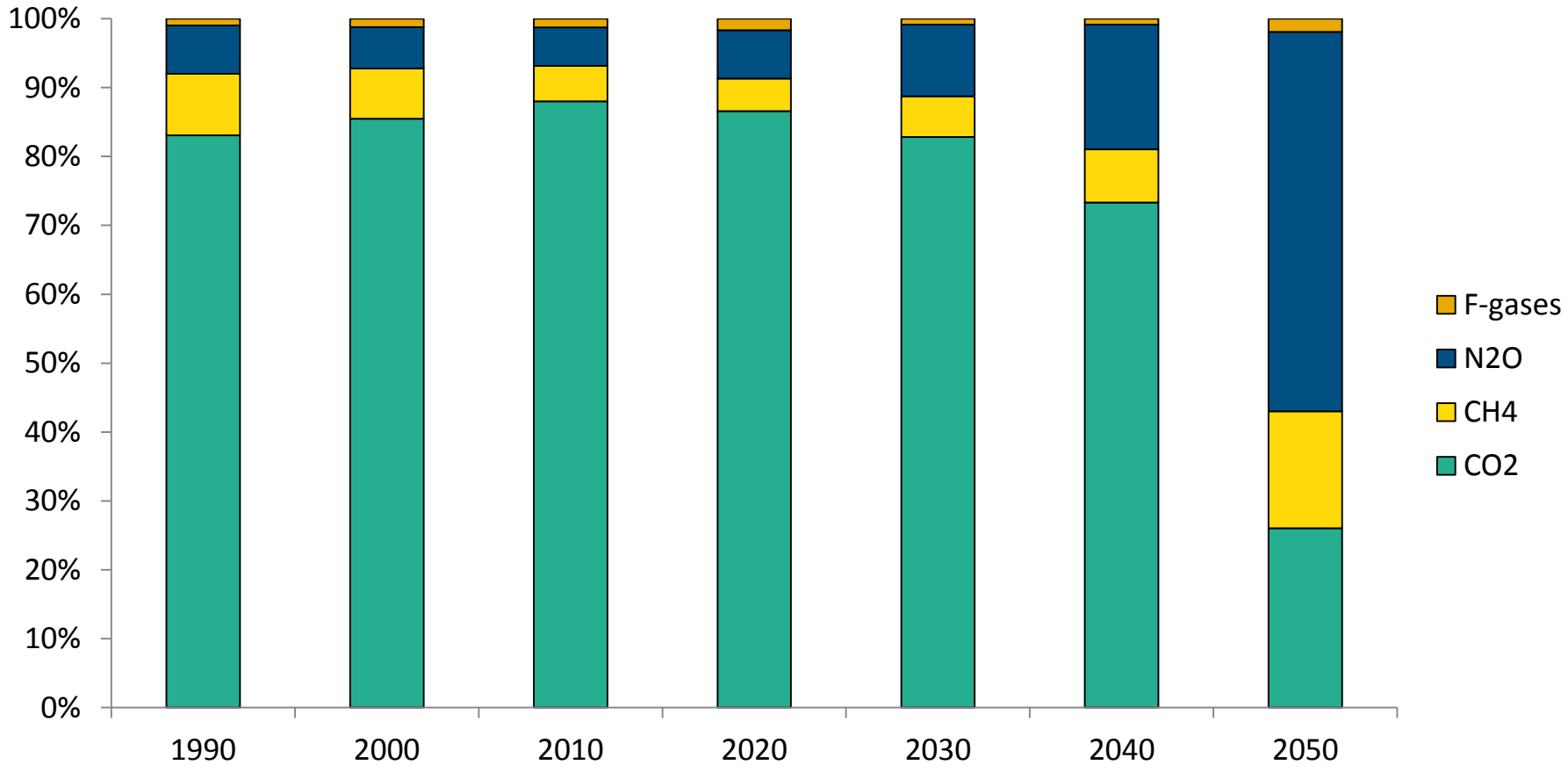
3. Reduction of net GHG emissions



Climate Recon 2050:
Dialogues on Pathways and Policy

Germany
Lukas Emele, Oeko-Institut

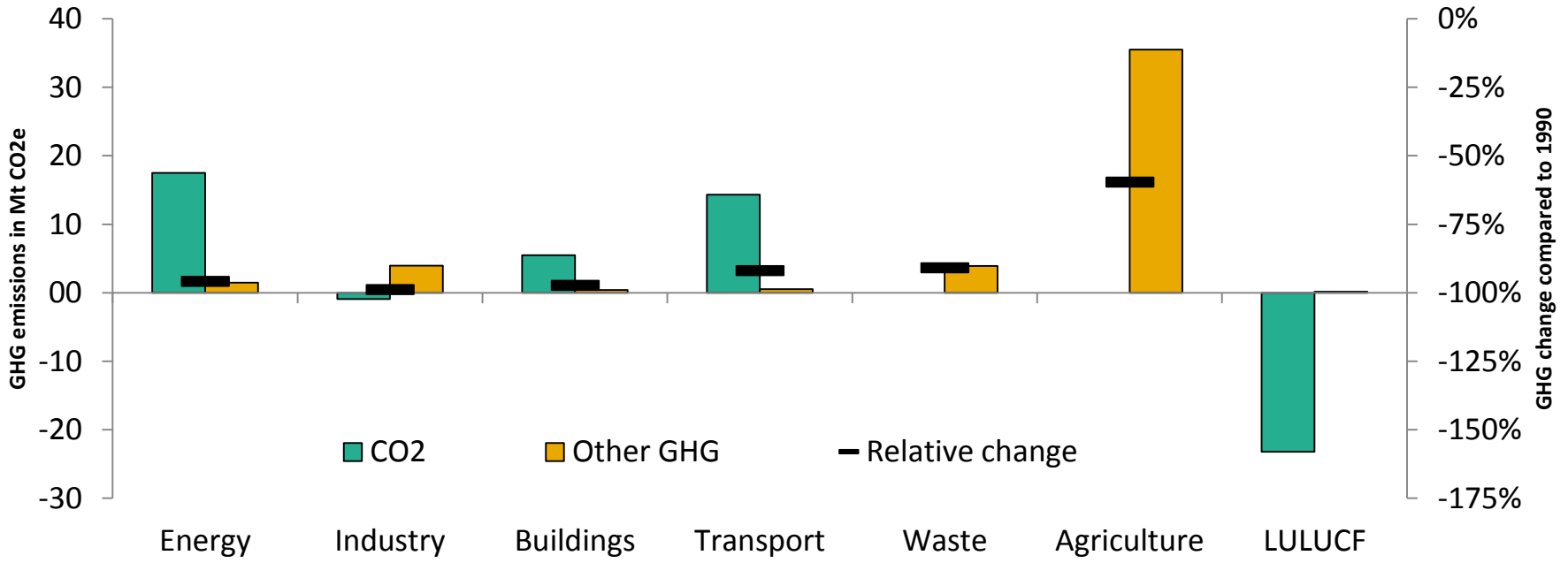
4. Relative importance of gases



Climate Recon 2050:
Dialogues on Pathways and Policy

Germany
Lukas Emele, Oeko-Institut

5. Net emissions per sector



- GHG emission reduction potential differs significantly between different sectors
- Almost CO_2 neutral, most net emissions are from non-CO_2 gases
- More than half of remaining emissions from agriculture
  → mainly CH_4 from enteric fermentation and N_2O from agricultural soils