For Our Environment

Umwelt Bundesamt

Energy Community
6th Energy and Climate Technical Working Group
Tuesday, 23 February 2021, Vienna (Virtual Meeting)

Institutional Framework for Scenario Modelling in Germany

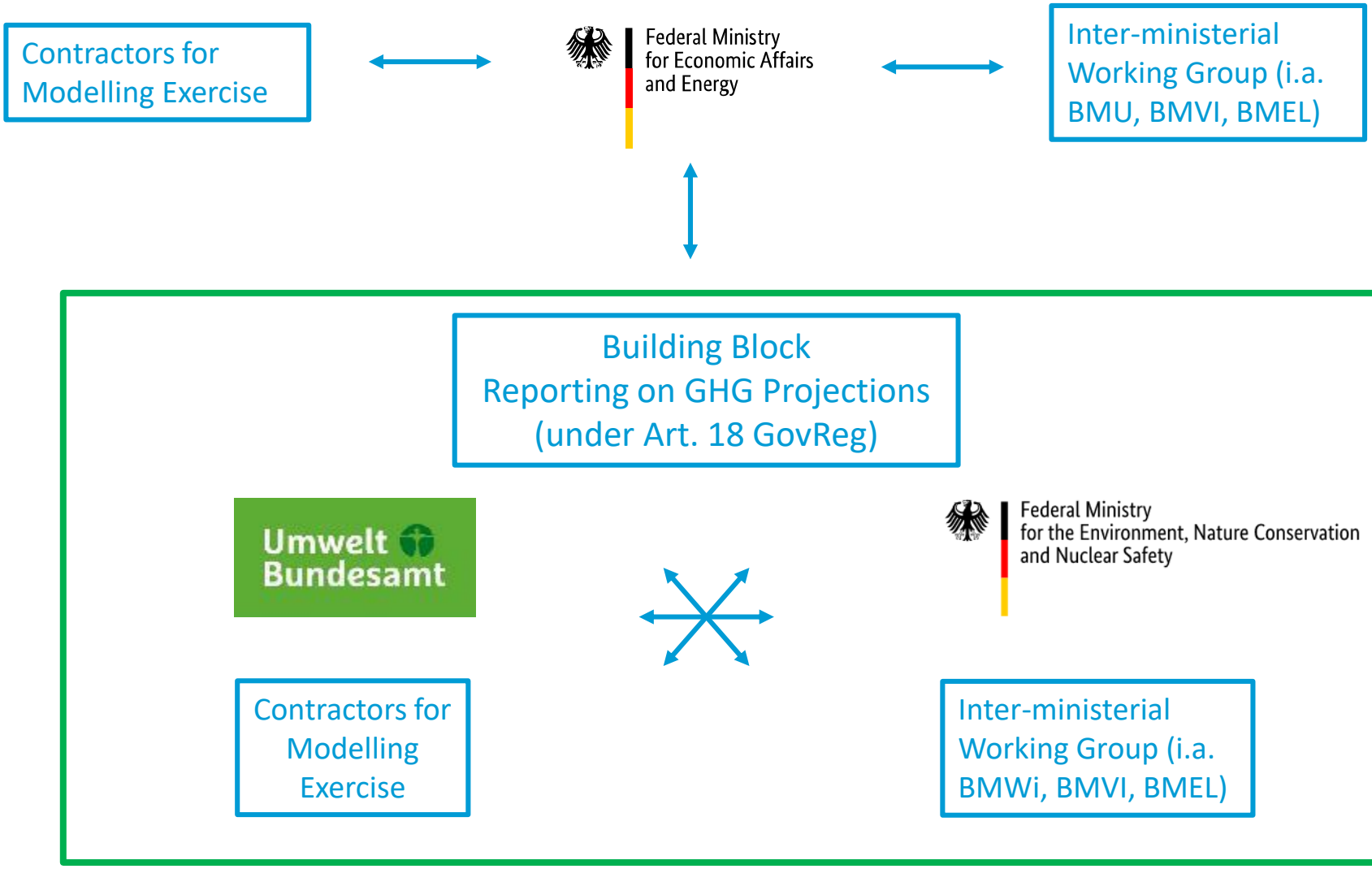
German NECP and Reporting on Projections
MMR (EU) 525/2013 and GovReg (EU) 2018/1999

German Environment Agency
Section V1.2 Climate and Energy Strategies and Scenarios

Germany‘s Climate Policy Framework

- Since November 2016 – Climate Action Plan 2050: Germany‘s long-term low greenhouse gas emission development strategy
- Since October 2019 – Climate Protection Programme 2030: Defines Policies and Measures (PaMs) for achieving climate mitigation goals
- Since December 2019 - Federal Climate Change Act establishing an overarching climate policy framework with legally prescribed climate targets and emission allocations to the various sectors

Institutional Framework
Coordination and Compilation of the German NECP



Legal Bases of Reporting on Projections in the EU

Until 31 December 2020

- **Monitoring Mechanism Regulation (EU) 525/2013**
  - Article 14: Reporting on Projections
- **Implementing Regulation (EU) 749/2014**
  - Article 23: Reporting on Projections
  - Annex XII: Reporting on Projections pursuant Article 23

From 1 January 2021

- **Governance Regulation (EU) 2018/1999**
  - Article 18(1)(b): Integrated Reporting on Greenhouse Gas Policies and Measures and on Projections (see also Article 2, 3, and 4)
  - Annex VII: Projections Information in the Area of GHG Emissions
- **Implementing Regulation (EU) 2020/1208**
  - Article 38: Reporting on National Projections
  - Annex XXV: Reporting on National Projections pursuant to Article 38

- **Next Report:** 15 March 2021
- **Reporting Frequency:** every 24 months

Reporting on Projections – Main Actors

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

Umwelt Bundesamt

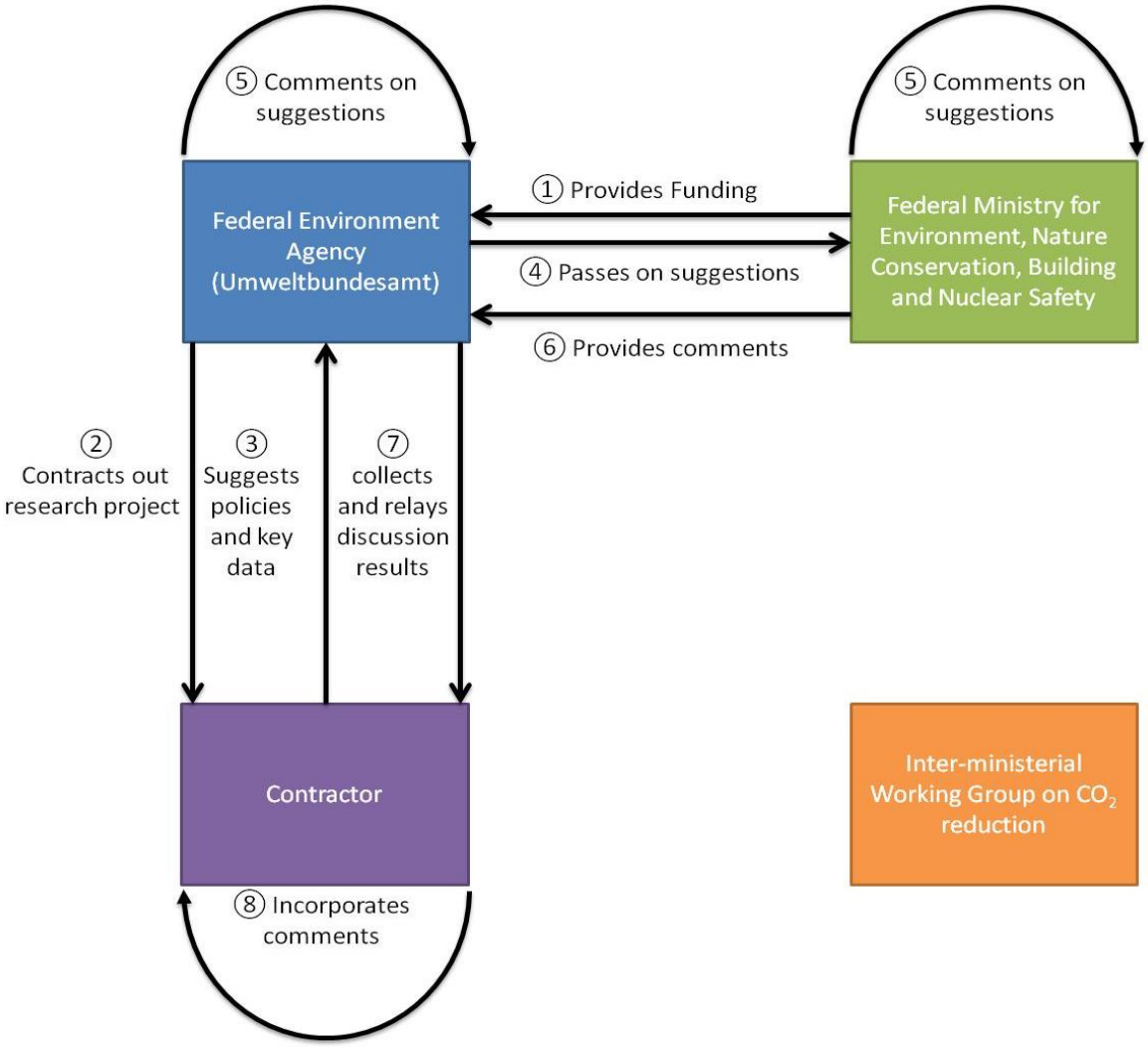
Coordination of Reporting
BMU IKIII1 & UBA V1.2

Sector Experts Energy	Sector Experts Buildings	Sector Experts Transport	Sector Experts Industry

Sector Experts Agriculture	Sector Experts LULUCF	Experts Economics

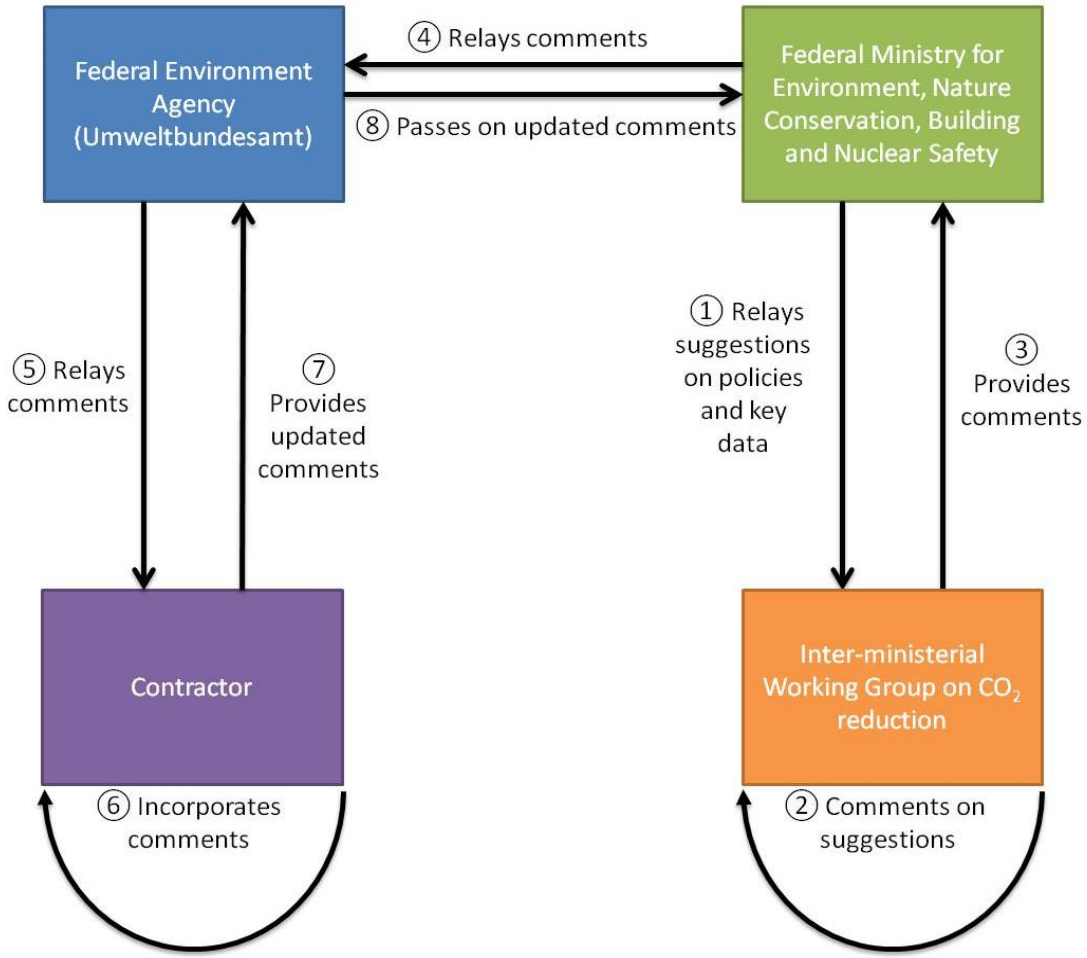
Reporting on Projections – Compilation Process: Phase 1

- Provision of Funding
- Contracting
- Discussion of framework data, Policies and Measures (PaMs)



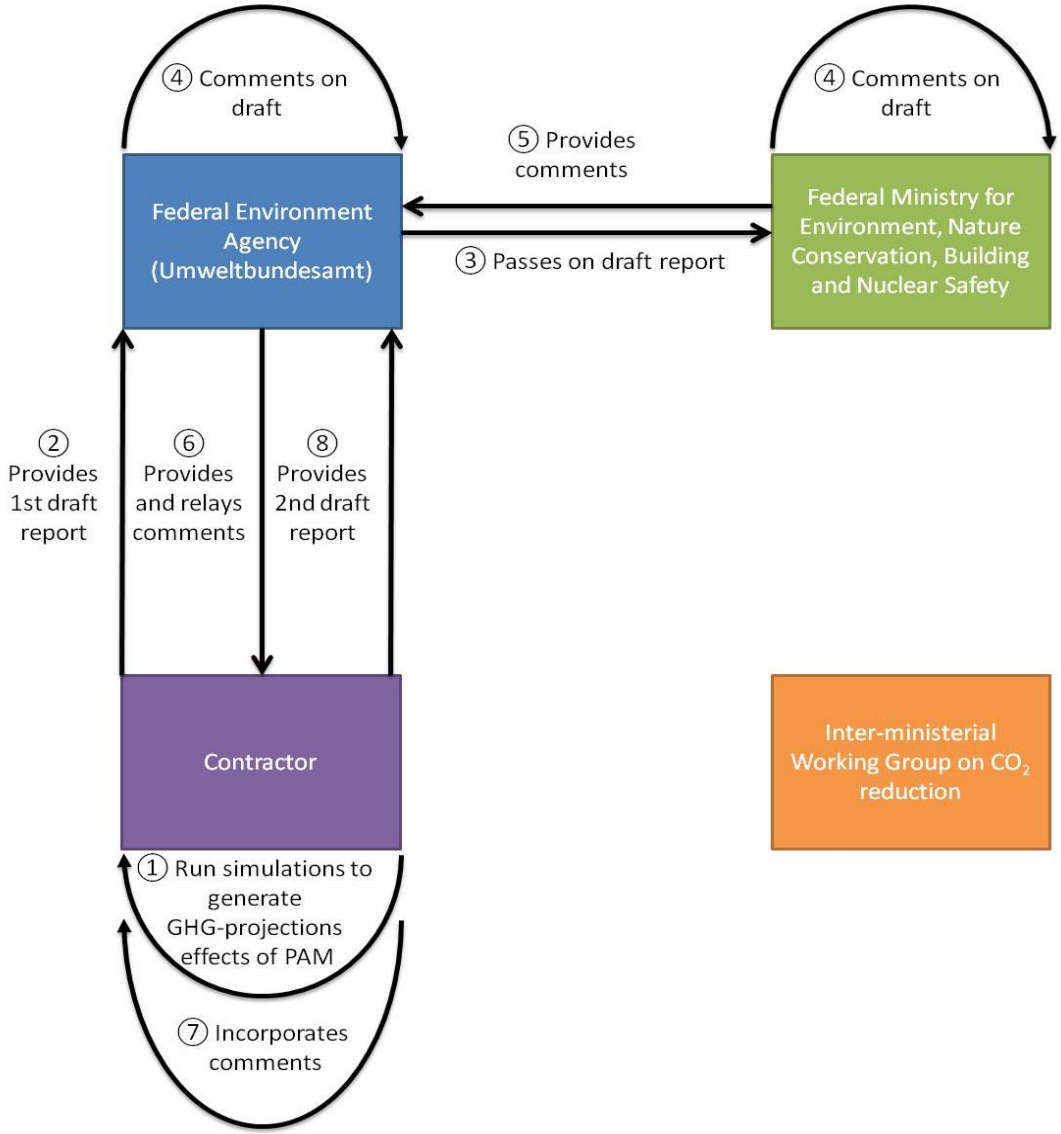
Reporting on Projections – Compilation Process: Phase 2

- Interative consulation regarding PaMs, assumptions, parameters, data etc.



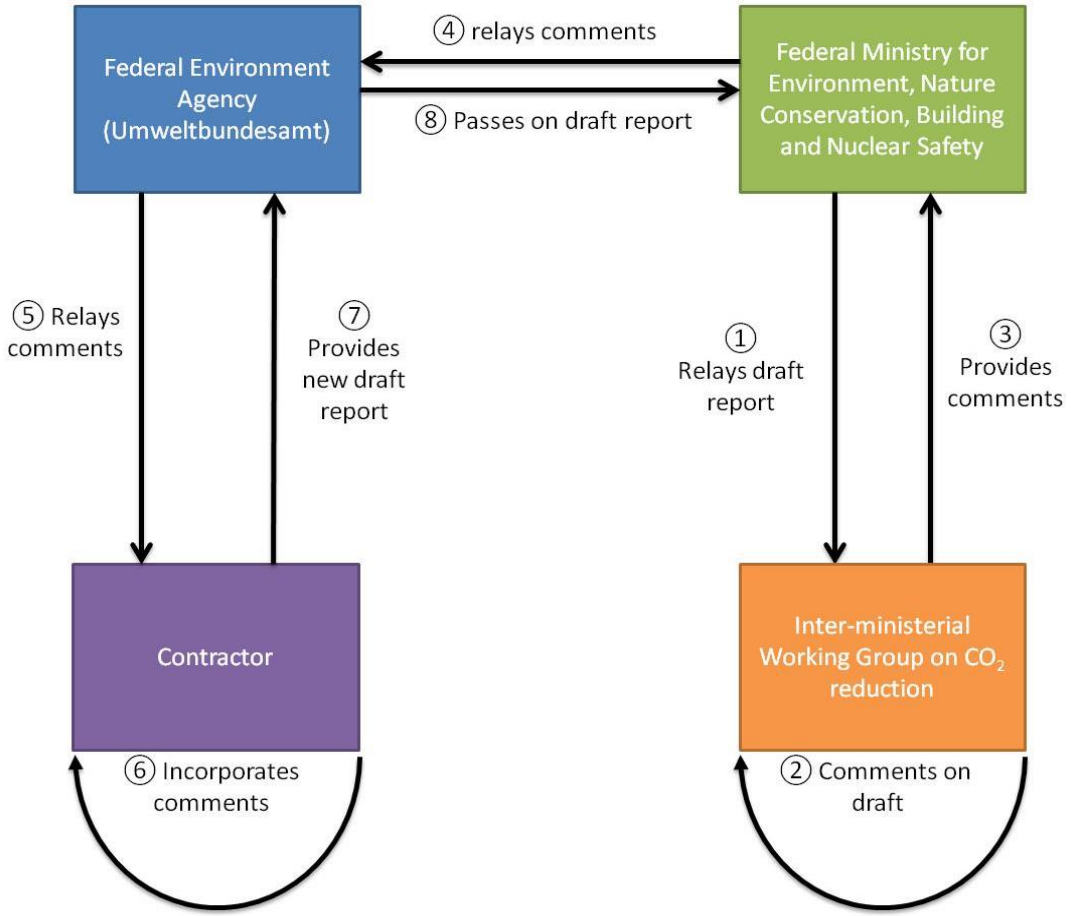
Reporting on Projections – Compilation Process: Phase 3 & 4

- Detailed modelling of energy sector
- Generation of GHG projections and mitigation effects of PaMs
- Discussion/Com-menting of draft results



Reporting on Projections – Compilation Process: Phase 5

- Further discussion/co-mmenting of draft results
- Compilation of final report



Reporting on Projections – Methodical Approach I

- **Assumptions for framework data (European Commission provides recommendations)**
  - Demographic development (e.g. population, private households)
  - Development of the economy and economical structure (e.g. GDP, GVA of manufacturing, trade, employees in the service sector)
  - Development of energy prices and CO_2 certificates
- **Policies and Measures (PaMs)**

Reporting on Projections – Methodical Approach II

- **2 Scenarios for Policies and Measures**
  - With Existing Measures (WEM)
    - All PaMs that are in place by a certain deadline
    - WEM development and effects are compared to a hypothetical sector specific Without Measure (WOM) scenario
  - With Additional Measures (WAM)
    - Further PaMs that are underway (ambitious implementation)
    - Effects are compared to WEM

Reporting on Projections - Methodical Approach III

- **Different approaches for modelling projections** for each sector with different models
- Models are **harmonised and interlinked** with each other
- Model calculations depend largely on the **national GHG inventory** which is provided by UBA to ensure consistency with energy balance and inventory numbers in reference year.
- **Sensitivity analyses** with respect to demographic, economic development, fuel prices and electricity export proportion

- **Example:** Analysis of energy related GHG emissions from combustion proscesses is based on a complex system of different models.
  - Integration of electricity generation, energy consumption, transport, buildings, industry, trade, and services

Reporting on Projections - Results

- Full 2019 report containing WEM and comprises 230 pages
- WAM was not elaborated because there were no additional measures
- No costs are reported.
- Results from Projections Report are used for
  - NDC, Biennial Report and National Communication to UNFCCC
  - NECP.

- **Additionally, we projected the impacts of the Climate Protection Programme 2030 of the Federal Government**

Impact Assessment - Climate Protection Programme 2030 and NECP I

BMU/UBA	BMWi
Contractor's modelling set: energy models (i.a. electricity market and investments, transmission grids), **economic models** (i.a. competition, carbon leakage, distributional effects of energy efficiency measures, input-out-models)	**Contractor's modelling set: socio-economic models** (i.a. population, trade, labour), **energy models** (i.a. energy price, buildings, supply, electricity and gas market, load profiles), **transport models** (i.a. passenger cars, goods vehicles)

Spotlight regarding assumptions and results

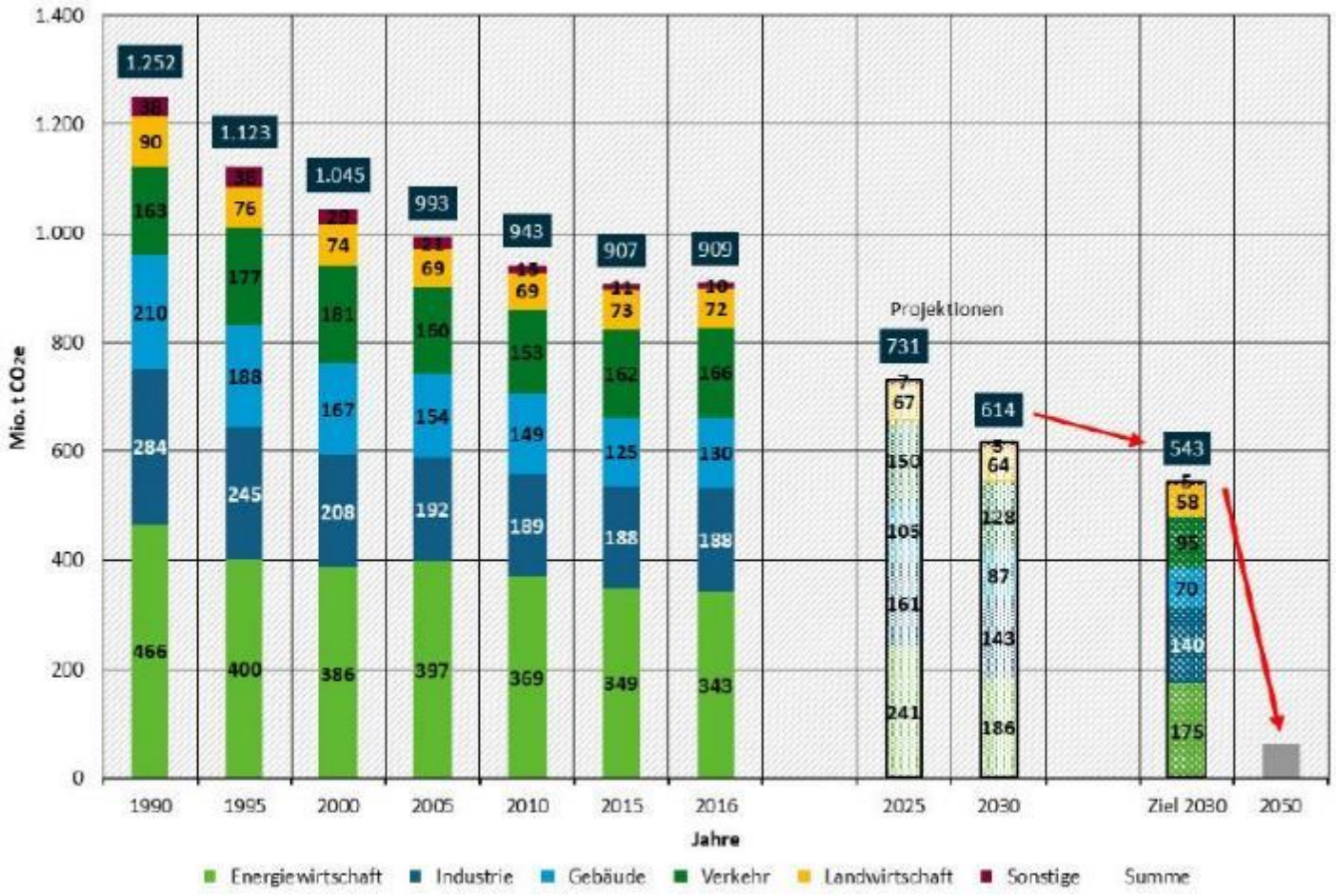
- **CO_2 price:** identical CO_2 price projections between 2021 and 2026 (afterwards different assumptions), different price elasticities
- **Transport sector:** models provide different results regarding number of electric vehicles until 2030
- **Building sector:** models provide different results regarding reduction of CO_2 emissions because of different CO_2 price assumptions; BMWi contractor's building sector model: perfect foresight regarding CO_2 price development; modelling sets show similar results regarding effects of financial support programmes
- **Energy sector:** BMU/UBA contractor considers higher generation from hard coal and lignite power plants and higher GHG emissions; BMWi contractor's results show a higher gross electricity consumption in 2030 because of a higher number of electric vehicles

Impact Assessment - Climate Protection Programme 2030 and NECP II – CO_2e Emissions

Sector	CO_2e Emissions (Mio. t) in 2030 (BMU/UBA)	CO_2e Emissions (Mio. t) in 2030 (BMWi)	**CO_2e Emissions (Mio. t) in 2030 (CPP 2030)**
Energy	186.1	182.5	**175**
Building	86.8	78.1	**70**
Transport	128.4	125.1	**95**
Industry	143.4	143	**140**
Agriculture	64.1	63.8	**58**
Waste	4.9	4.9	**5**
Sum	**613.7**	**597.4**	**543**

Climate Protection Programme 2030
Projected Greenhouse Gas Emissions

Abbildung 1: Treibhausgasemissionen im Szenario Klimaschutzprogramm 2030 (KSPr (Jan 2020)), 1990-2035



Quelle: Berechnungen Öko-Institut, Fraunhofer ISI, IREES

Thank you for your attention

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