

Role of energy production in an ambitious climate policy in Germany

Christoph Erdmenger

Federal Environment Agency

Section I 4.2 Energy Policy and Supply Technologies

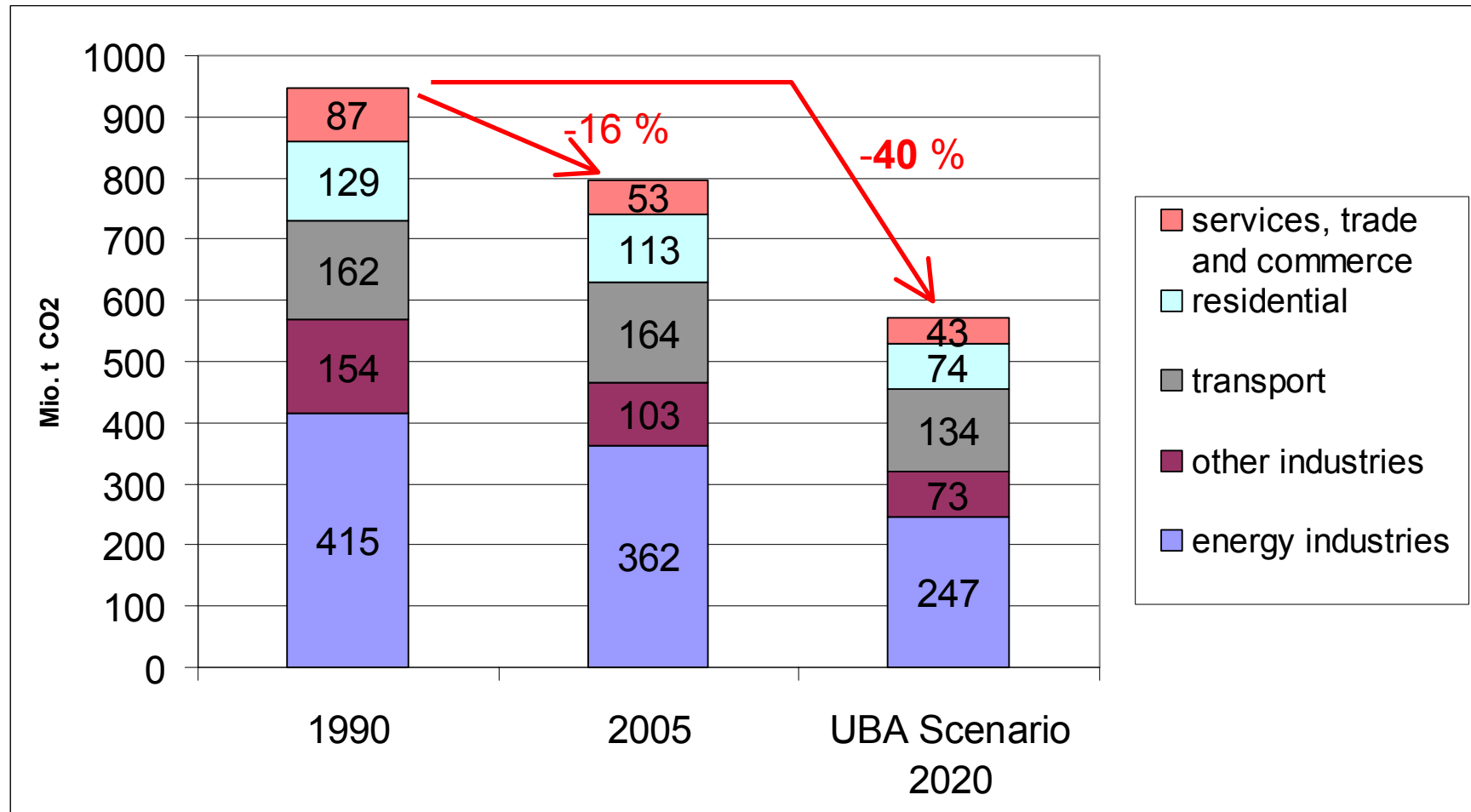
Structure

- Aims of climate policy for 2020
- Method for UBA Scenario
- Development of electricity supply in UBA Scenario

Aim

- Global stabilisation of GHG-Emissions necessary until 2020, industrial countries need to reduce by 30%
- EU reduction by 30% would mean higher reduction by Germany, e.g. 40%
- Achieving the 40% target means reduction of 224 Mio t CO₂ from 2005-2020

German CO₂-Emissions (energy-related)



Method

- Analysis at the UBA with scenarios based on Energy System Models
- Integrated approach across electricity, heat and transport needed to achieve full results
- Result: A 40% reduction is both technically possible and economically viable: max. cost difference to BAU: 2-11 Billion €/a (max. 0.5% of GDP)

Renewable electricity supply

- Currently in Germany 10% of electricity from renewable energy (appr. 4% wind, 3% water, 2% biomass, 1% solar)
- By 2020 at least 25% of electricity demand (140 TWh) can be covered by renewable energy
- Additional renewables mainly wind (offshore and onshore) and biomass
- This would save 44 Mio t CO₂
- Instruments: Feed-In-Tariffs (EEG), income tax benefits on investments, research and development, state grants

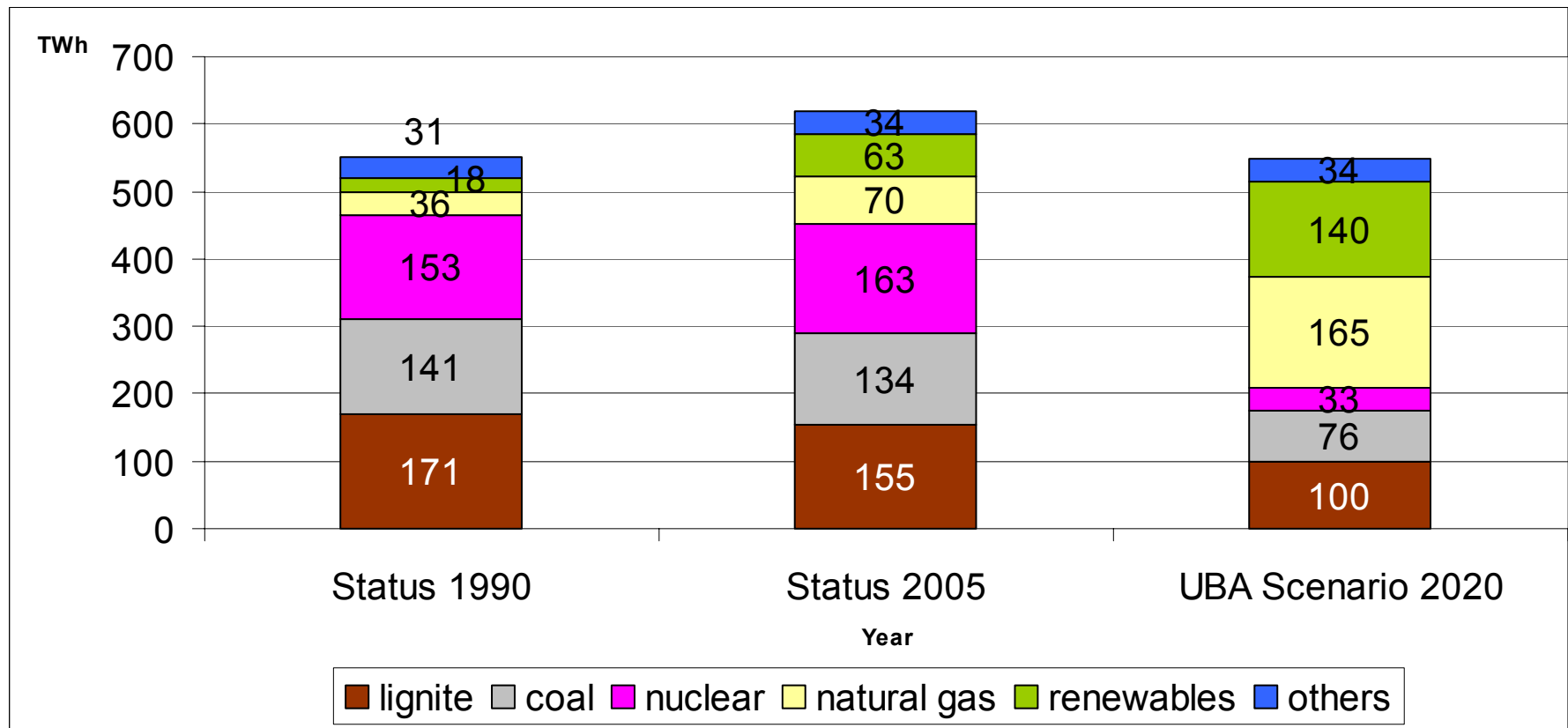
Efficiency and fuel switch in electricity

- Fuel Switch from Coal to Gas and higher efficiency can save 30 Mio t CO₂:
 - No additional gas imports needed because of saving in heat supply (Energy saving, replacement by)
 - Instrument: Auctioning or uniform benchmark for electricity in emission trading
- Doubling of cogeneration (from 10% to 20% of electricity) would contribute another 15 Mio t CO₂.
 - Instrument: Modernisation of existing feed-in-tariff (KWK-Gesetz)

Nuclear and CCS?

- Germany phases out operation of Nuclear Power Plants until 2023, no extension needed
- Carbon Capture and Storage (CCS) not included in this scenario, because it is unlikely to be available to a relevant extent before 2020.

Electricity Production in Germany



Benefits

- Independence from energy imports
- Independence from increasing energy cost
- no loss of comfort!

>> all mitigation with existing technologies!

Thank you
for your attention!

Christoph Erdmenger
christoph.erdmenger@uba.de

www.umweltbundesamt.de