

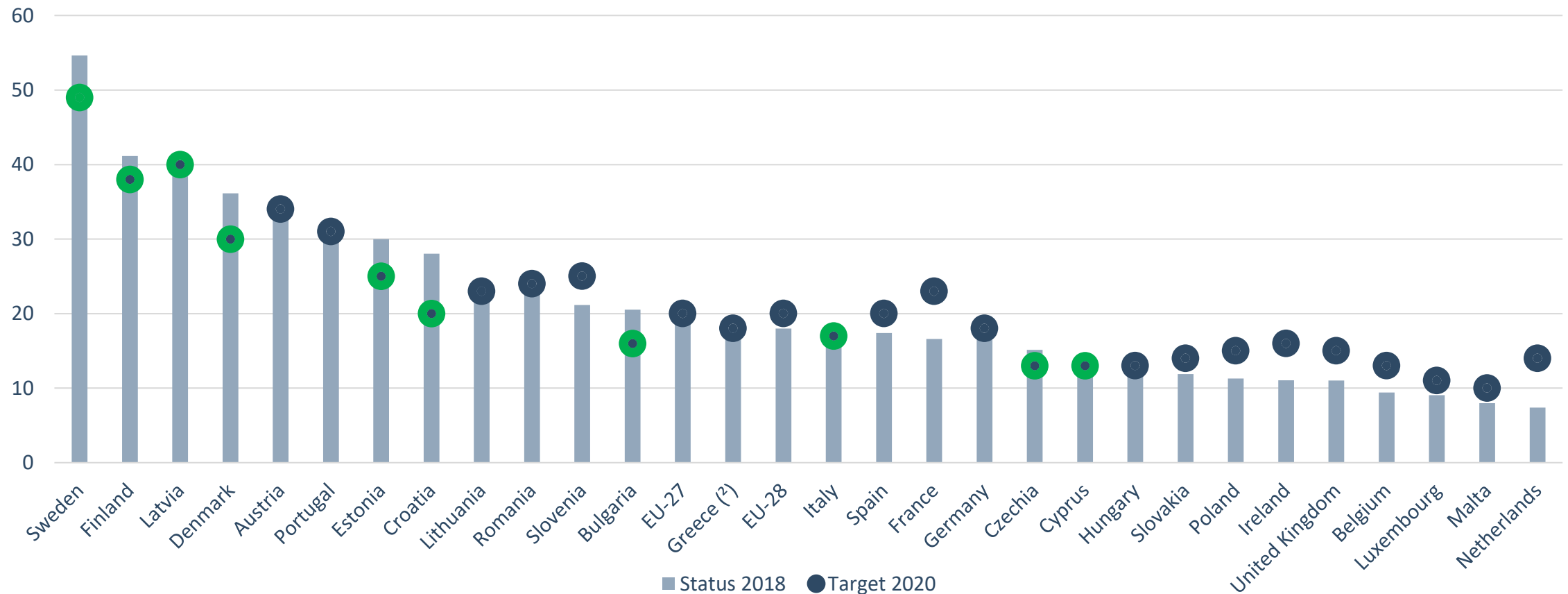
Kompendium 5.0

Section Electricity, Industry, Households



Renewable energies in 2018

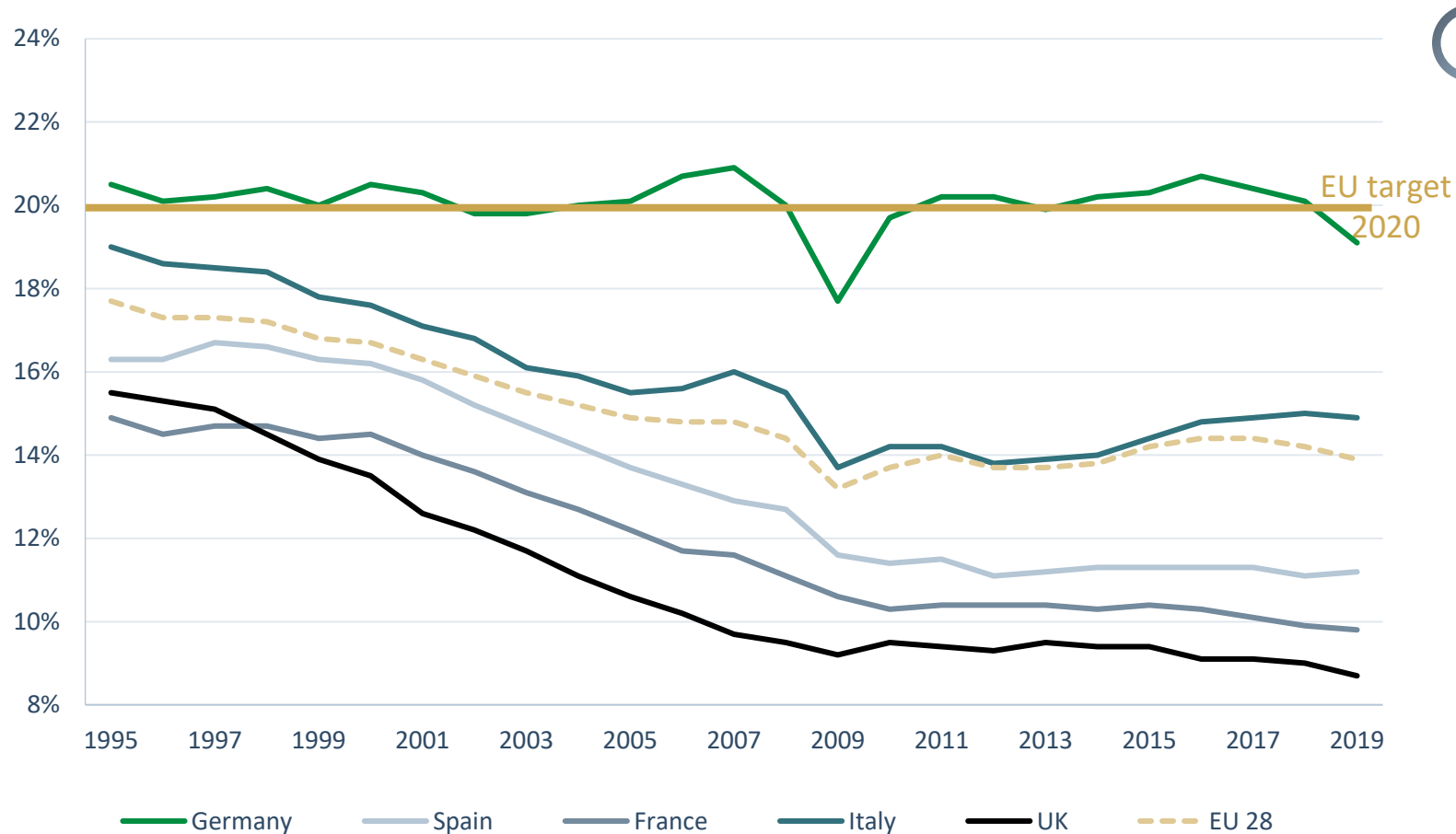
Share of renewable energies in national gross final energy consumption in percent



Source; Eurostat 2020

EU industry: crash instead of rebirth

Share of manufacturing in gross value added - in percent

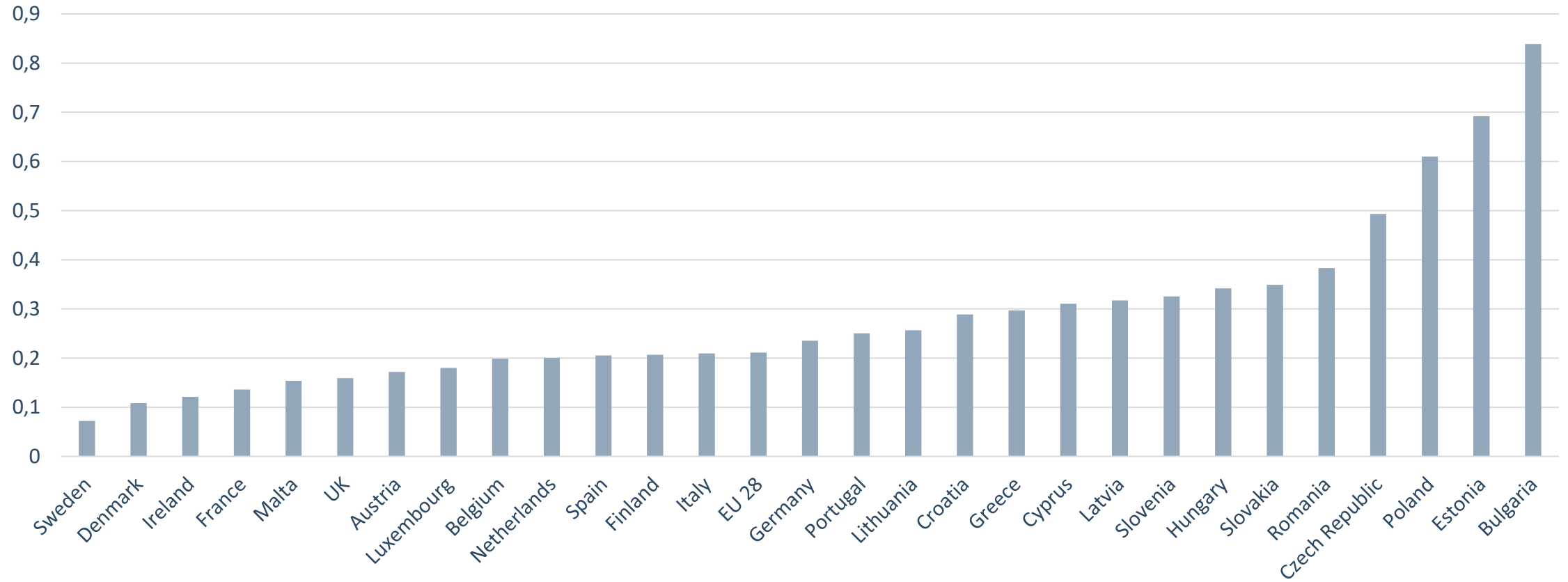


- ▶ EU target: The share of industry in GDP should be 20 percent in 2020.
- ▶ Germany reaches the target. UK, Italy and France give cause for concern.
- ▶ Non-European countries are improving rapidly. Europe must react to secure its position.

Source: Eurostat

Large differences in the EU

Emission intensity of European economies in 2018 - in kgCO₂/Euro GDP

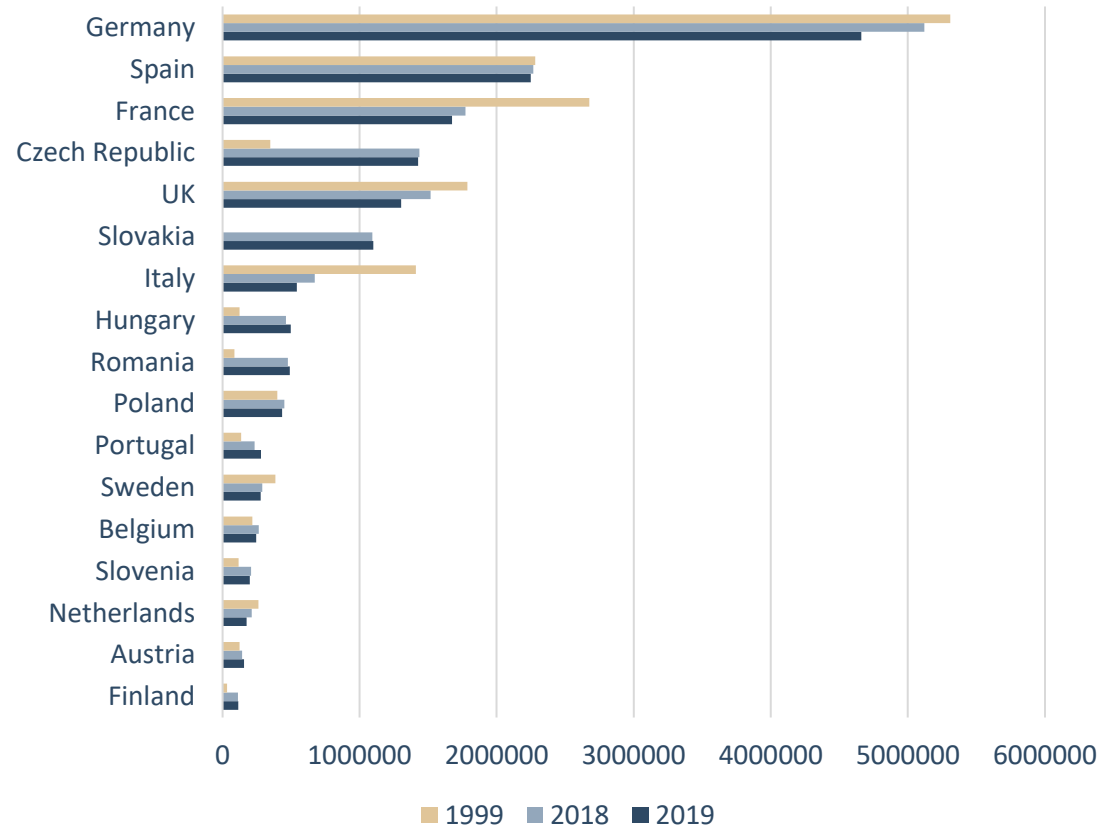


Source: Odyssee Database, 2020

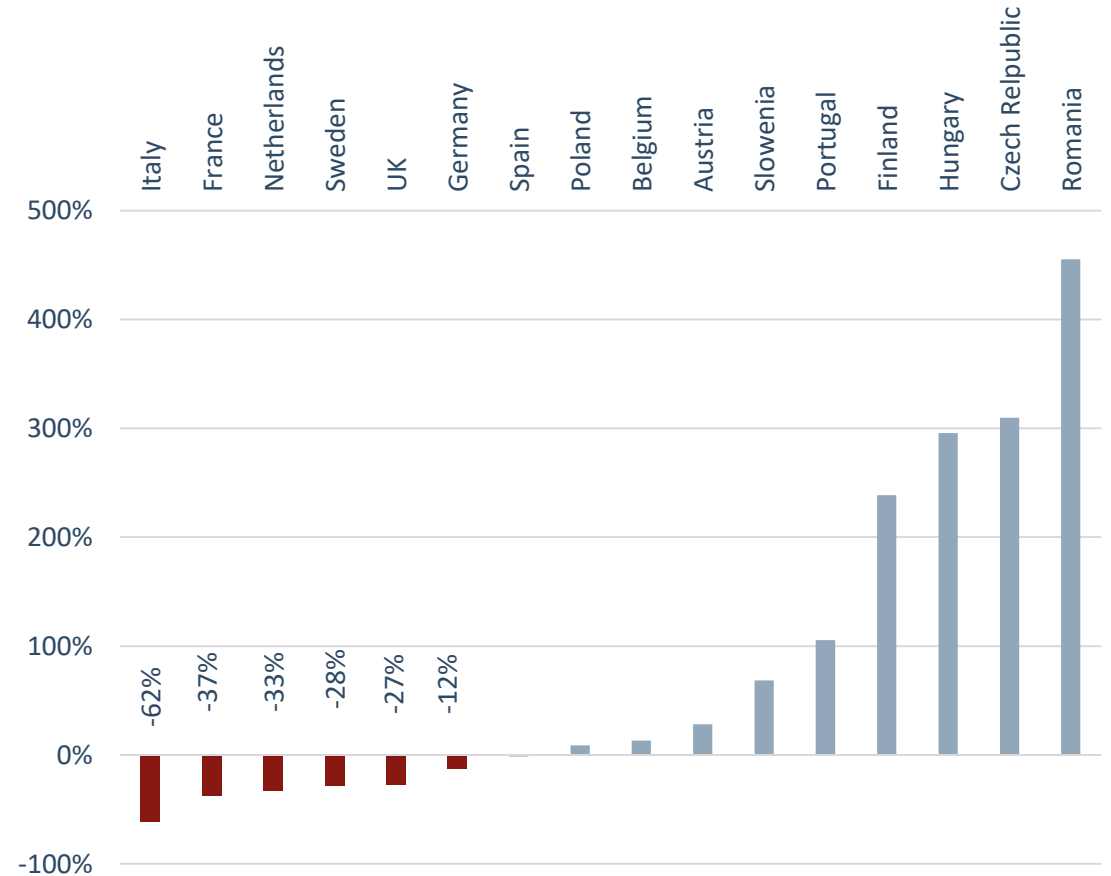
Passenger car production: sharp declines at traditional locations

Production for the European market has shifted to Eastern Europe

Car production in the EU28 – number of units



Car production in the EU28 – Change 1999 to 2019

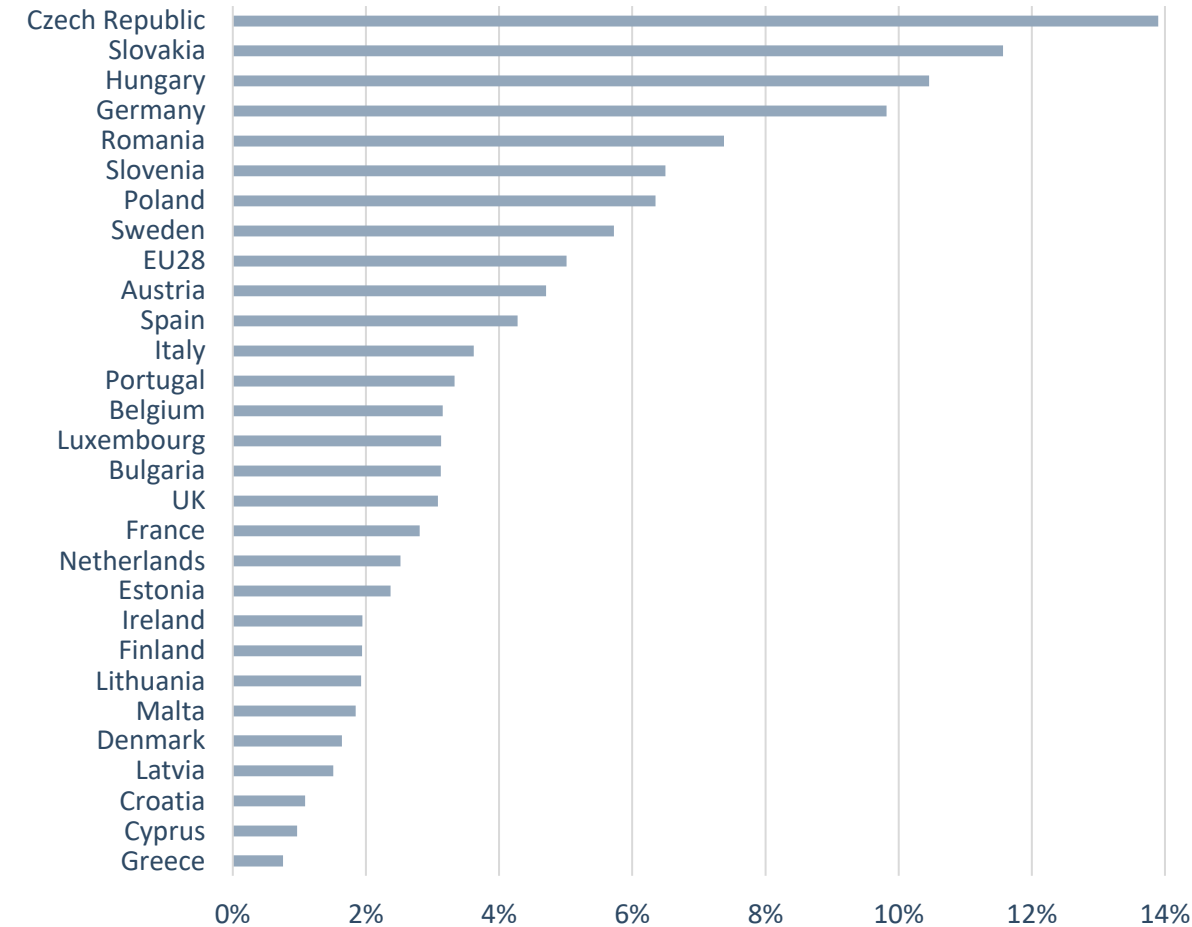


Quelle: OICA, 2020

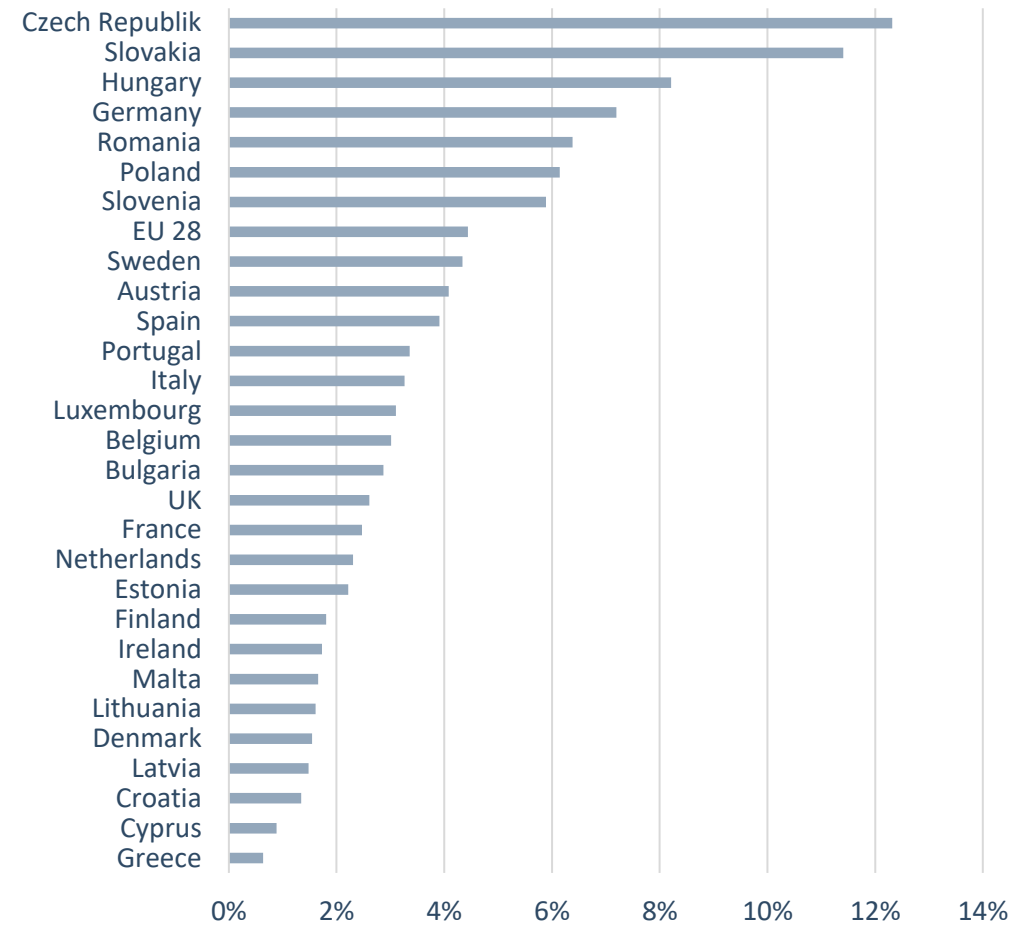
Automobile manufacturing – the industrial heart of Eastern Europe

Direct and indirect effects calculated on the basis of input-output tables

Automobile manufacturing – Share in gross value added



Automobile manufacturing – Share of total employment

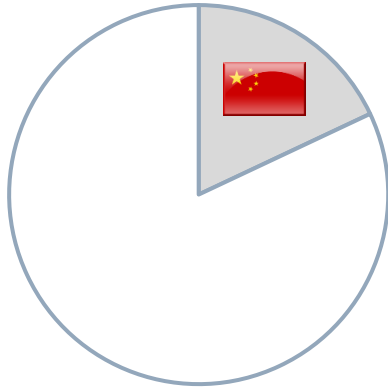


Source: OECD, 2019; own calculations

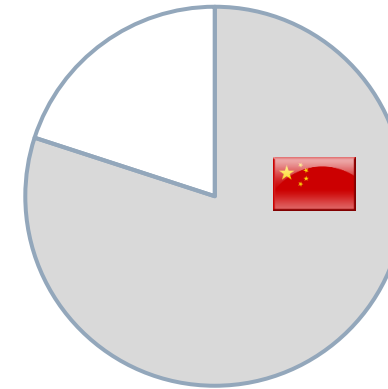
China has secured large parts of the value chain

Share of chinese companies in 2019

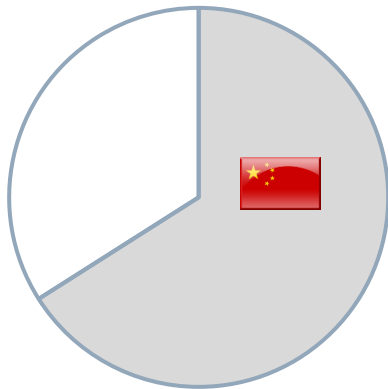
Raw materials (lithium, nickel, cobalt, etc.)



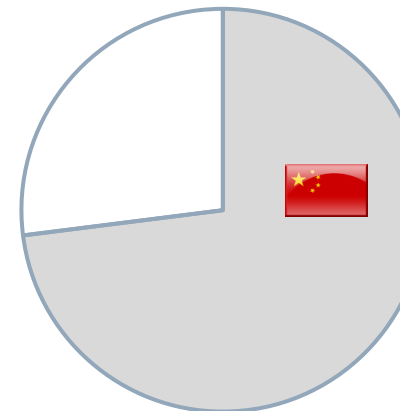
Refining of raw materials (lithium carbonate, cobalt sulphat, etc.)



Production of anodes und cathodes

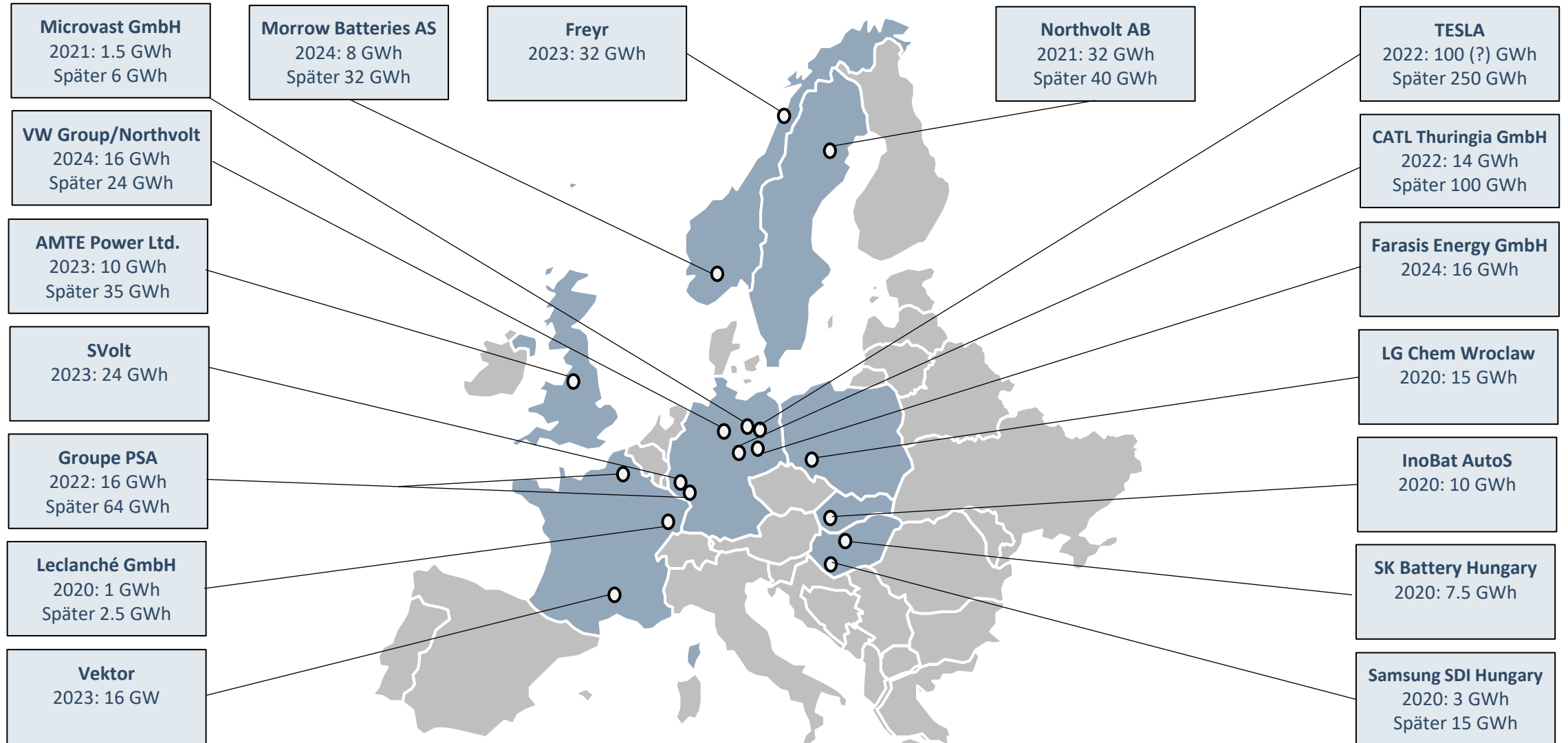


Battery cell production



Quelle: Deutsche Rohstoffagentur, 2020; Automobilwoche, 2020

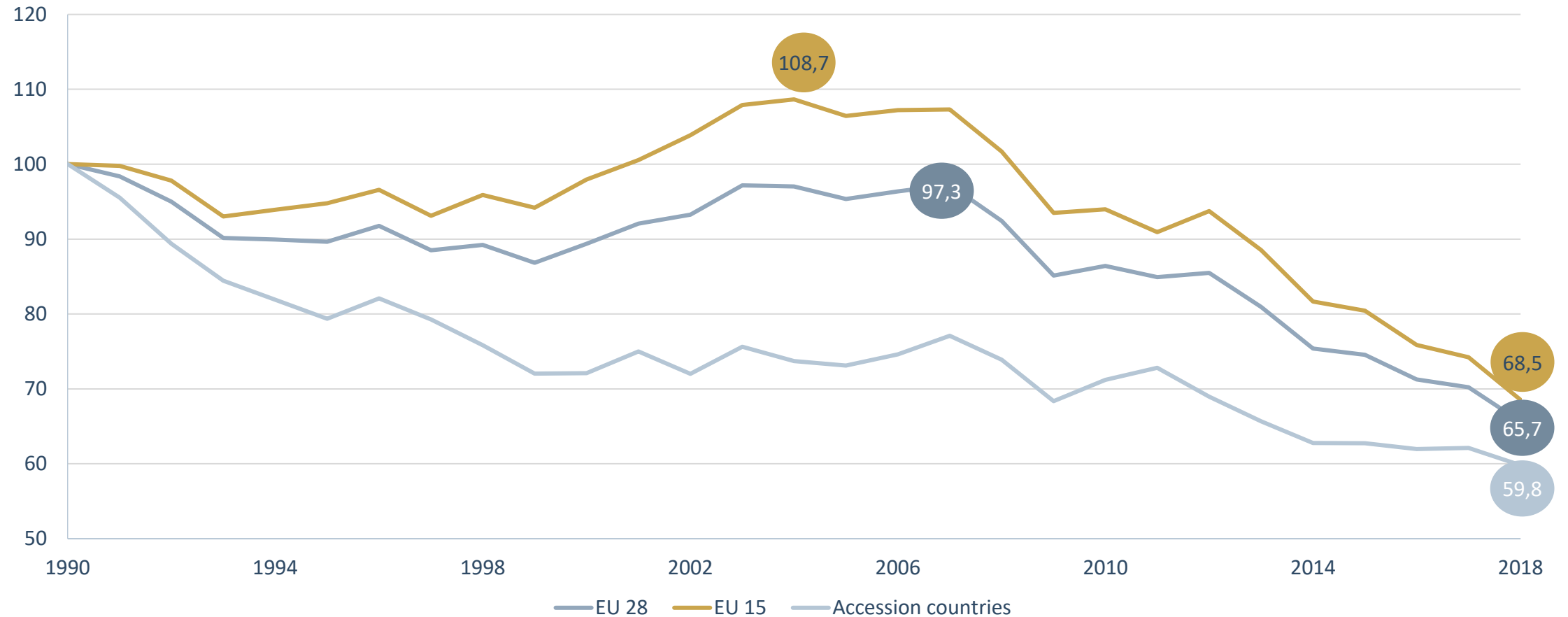
Massive expansion: battery cell production planned in Europe



Quelle: Solar Promotion GmbH, 2020; Battery-News, 2020; Eigener Entwurf; Stand 24 November 2020

Stronger declines in the East, but the West is catching up fast

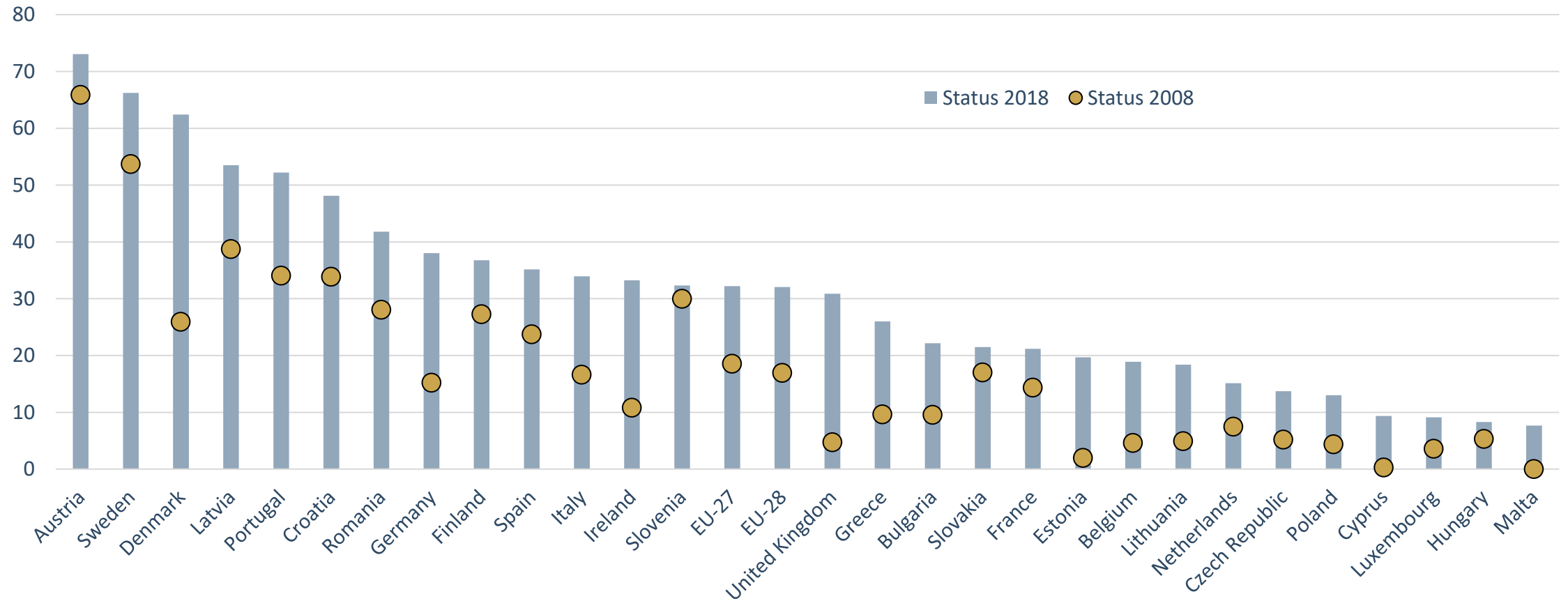
CO_{2EQ}- emissions from public electricity and heat generation, 1990 = 100



Source: EEA, 2020 (v23)

Renewable energies in electricity generation in the year 2018

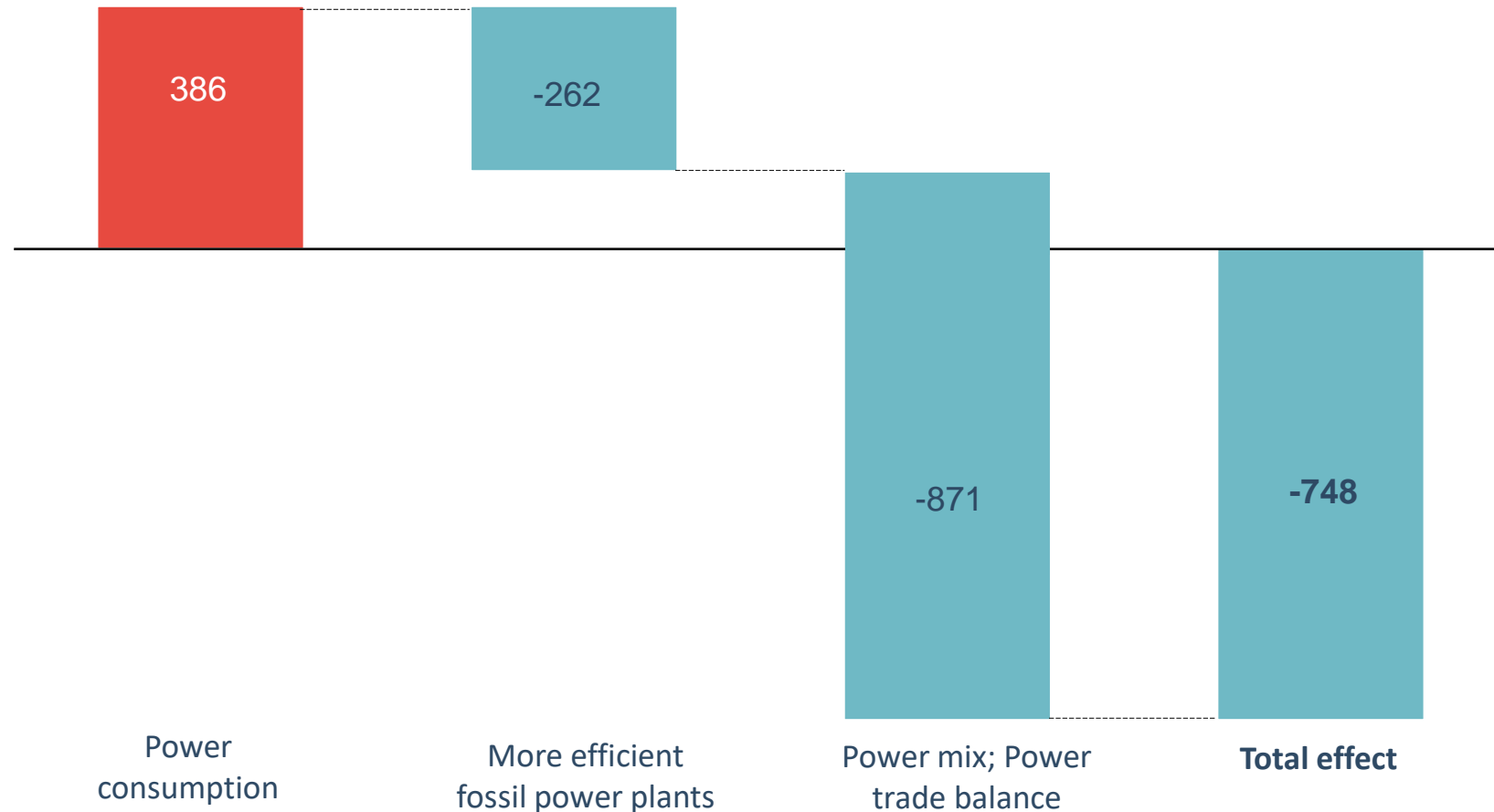
Share of renewable energies in gross final energy consumption in percent



Source; Eurostat 2020

Power generation – Consumption of fossil primary energy decreases

in terawatt hours (TWh) primary energy use, change 2000 – 2017



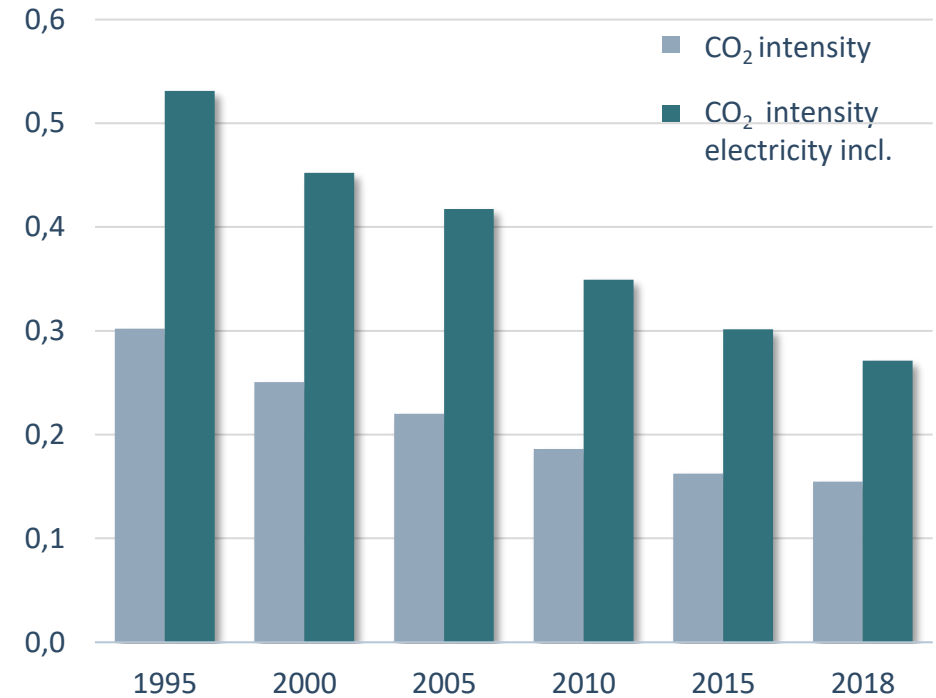
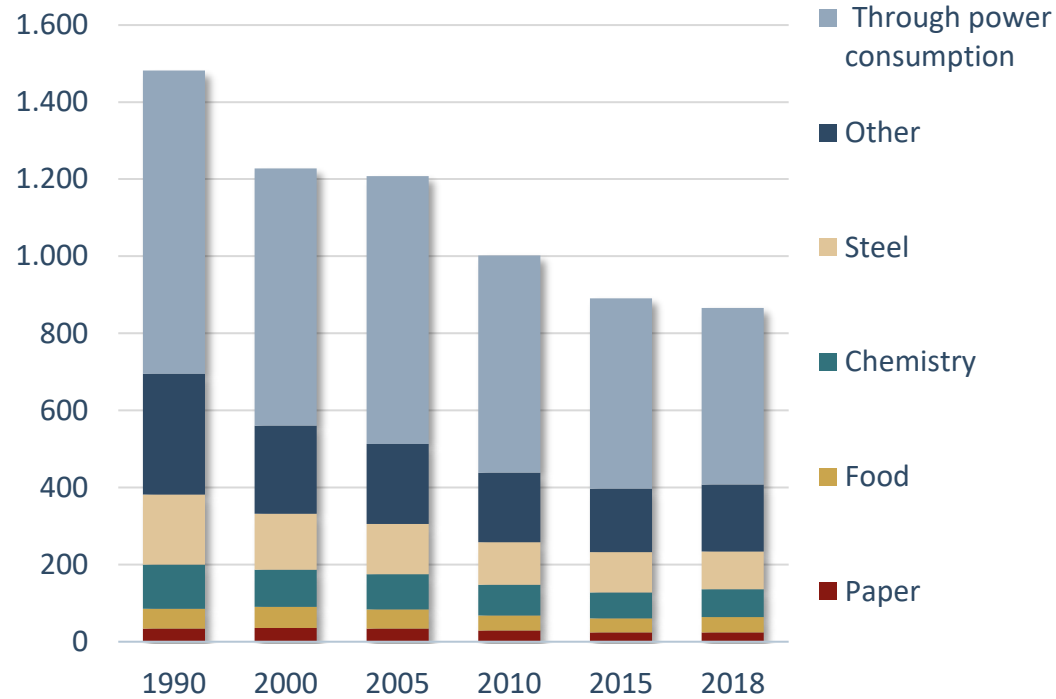
- ▶ In Europe, electricity consumption is growing.
- ▶ Nevertheless, fewer fossil primary energy sources are consumed.
- ▶ Power generation is not an end in itself, but enables production and consumption in industry and households.

Source: Odyssee Database November 2020

Industry in the EU 28: Falling emissions, rising efficiency

CO₂ emissions from industry are falling: -25% since 1995
in millions of tons CO₂

Halved since 1995: Emissions per euro of value added
kg CO₂/Euro2010

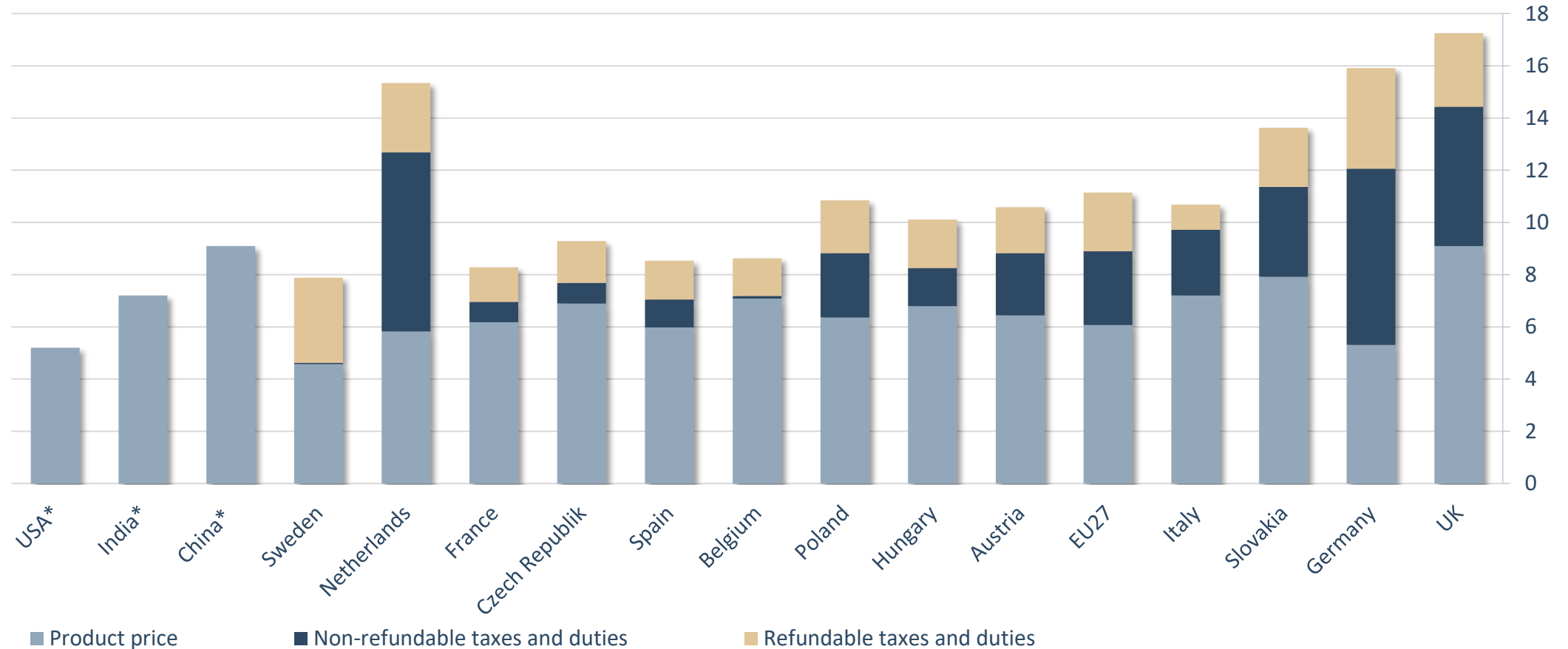


- ▶ Regulation: Most of the CO₂ emissions caused by industrial activities fall under emissions trading.
- ▶ Increased efficiency: Emissions per unit of gross value added have fallen by a good 40 percent since 1995.
- ▶ Deindustrialisation: The migration of industry from many European states reduced CO₂ emissions in the EU.

Source: Odyssee Database November 2020

Industrial electricity prices in the first half of 2020

in cents per kWh for companies with a consumption of 20 to 70 gigawatt hours

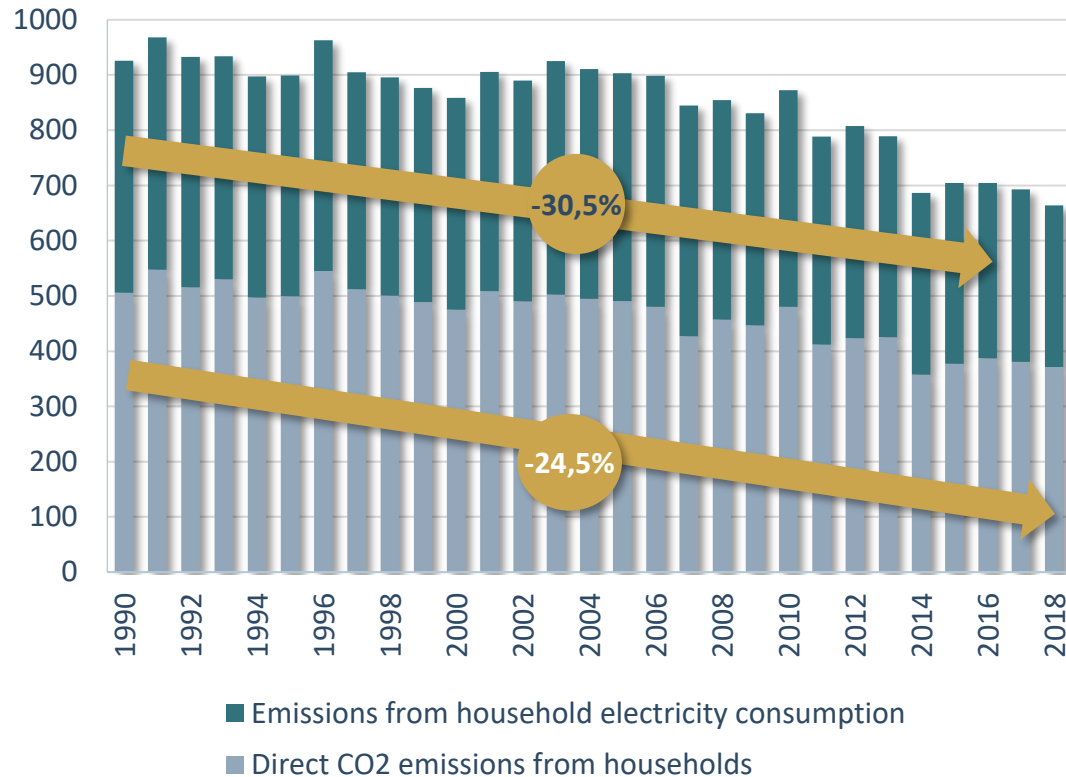


* For information only
Sources: Eurostat 2020, BDI

Households: Falling CO₂ emissions despite higher demands on living space

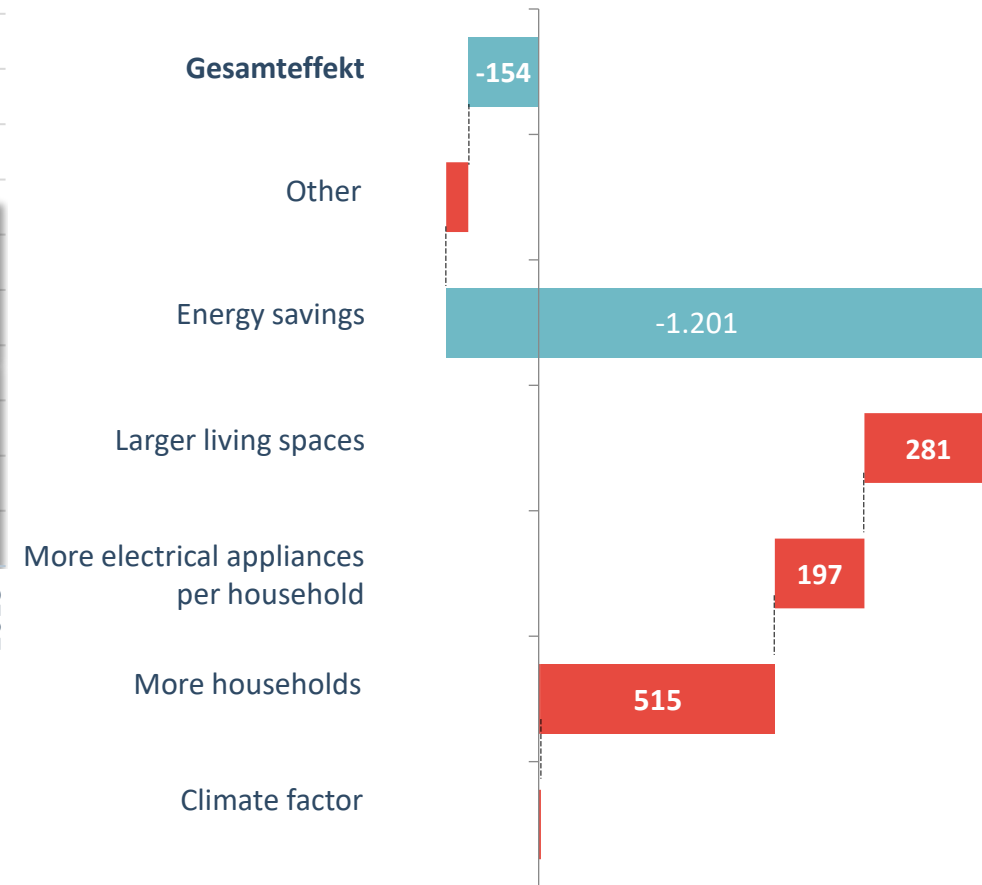
CO₂ emissions from households in the EU28 since 1990

measured in millions of tonnes CO₂



Change in energy consumption from 2000 to 2018

Component decomposition, in terawatt hours (TWh)

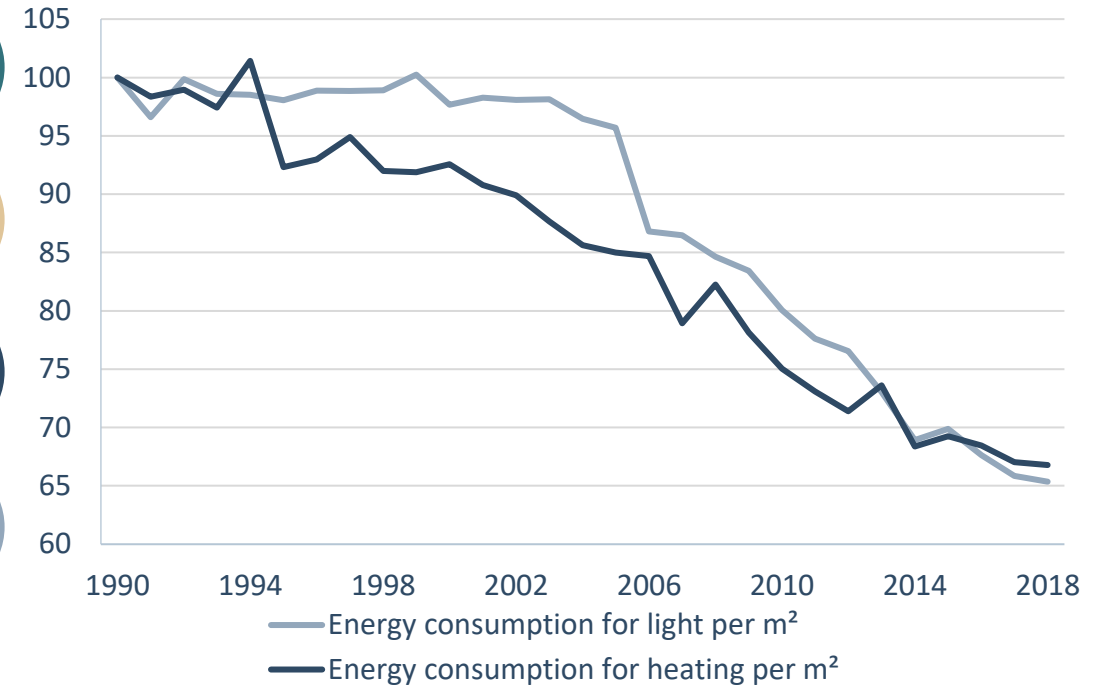
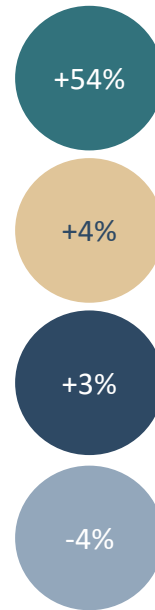
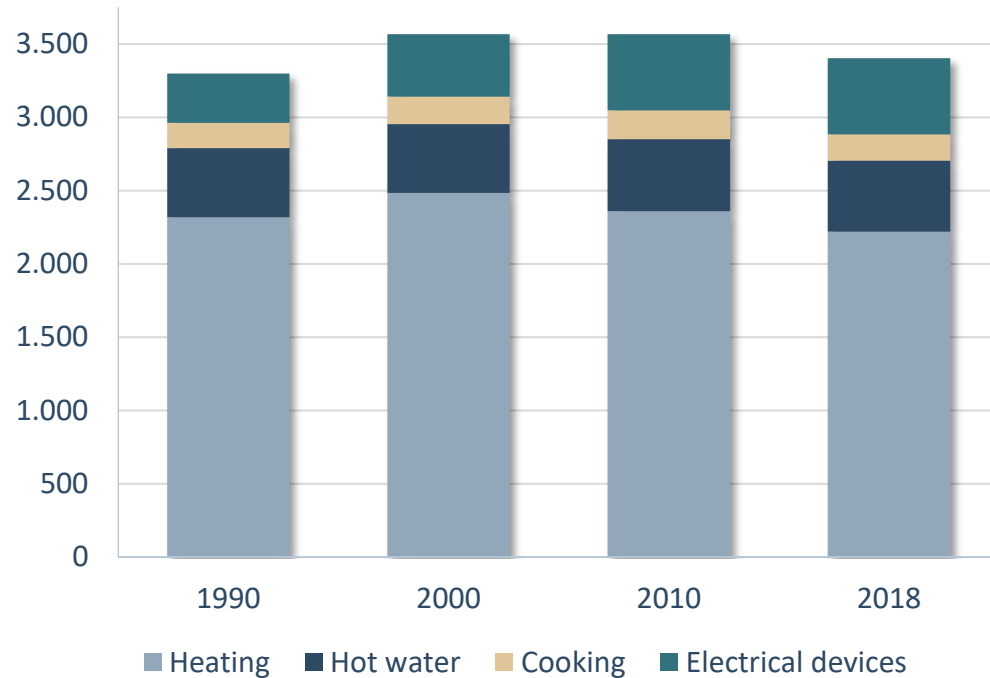


Source: Odyssee Database November 2020

Energy consumption: The potential lies in the heating market

The key to lower emissions is heating in Terawattstunden (TWh)

Significant progress per square meter of living space 1990 = 100



- ▶ Heating systems consume about 70 per cent of the final energy in households.
- ▶ Efficiency gains in heating are almost completely eaten up by more living space.
- ▶ Electrical appliances only play a minor role, but due to more and more appliances per household, total energy consumption has increased by a good 45 percent since 1990.

Source: Odyssee Database November 2020