

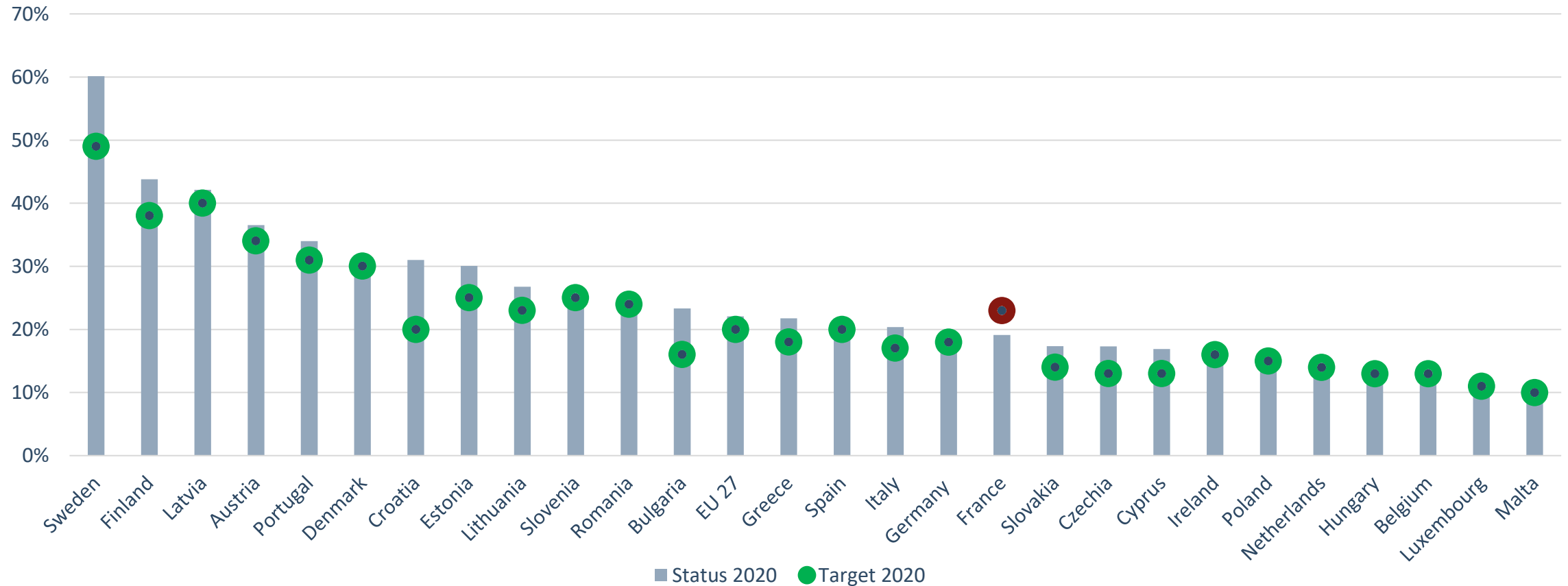
# Kompendium 5.2

## Section Electricity, Industry, Households



# Renewable energies in 2019

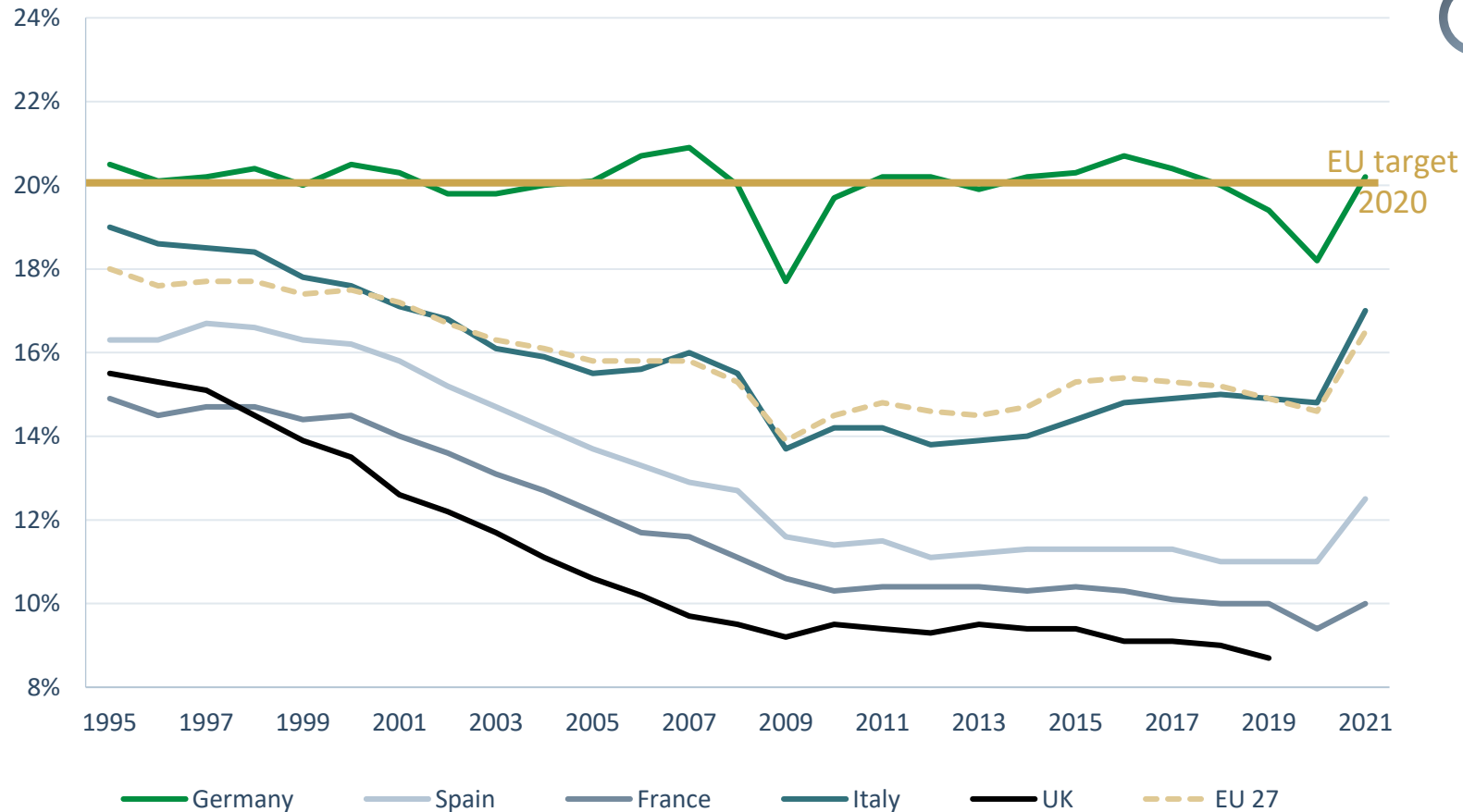
Share of renewable energies in national gross final energy consumption in percent



Source; Eurostat 2021

# EU industry: crash instead of rebirth

Share of manufacturing in gross value added - in percent

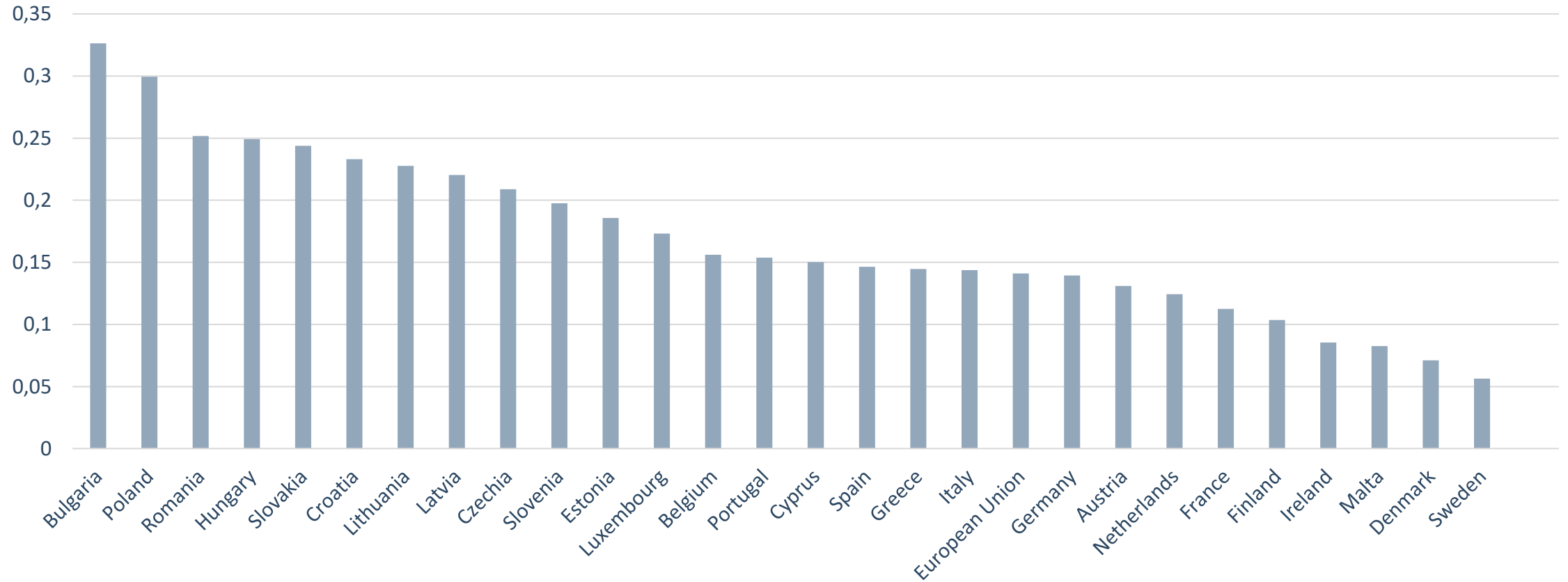


- ▶ EU target: The share of industry in GDP should be 20 percent in 2020.
- ▶ Germany reached the target till 2019. UK, Italy and France give cause for concern.
- ▶ Non-European countries are improving rapidly. Europe must react to secure its position.

Source: Eurostat, 2021

# Large differences in the EU

Emission intensity of European economies in 2019 - in kgCO<sub>2</sub>/Euro GDP

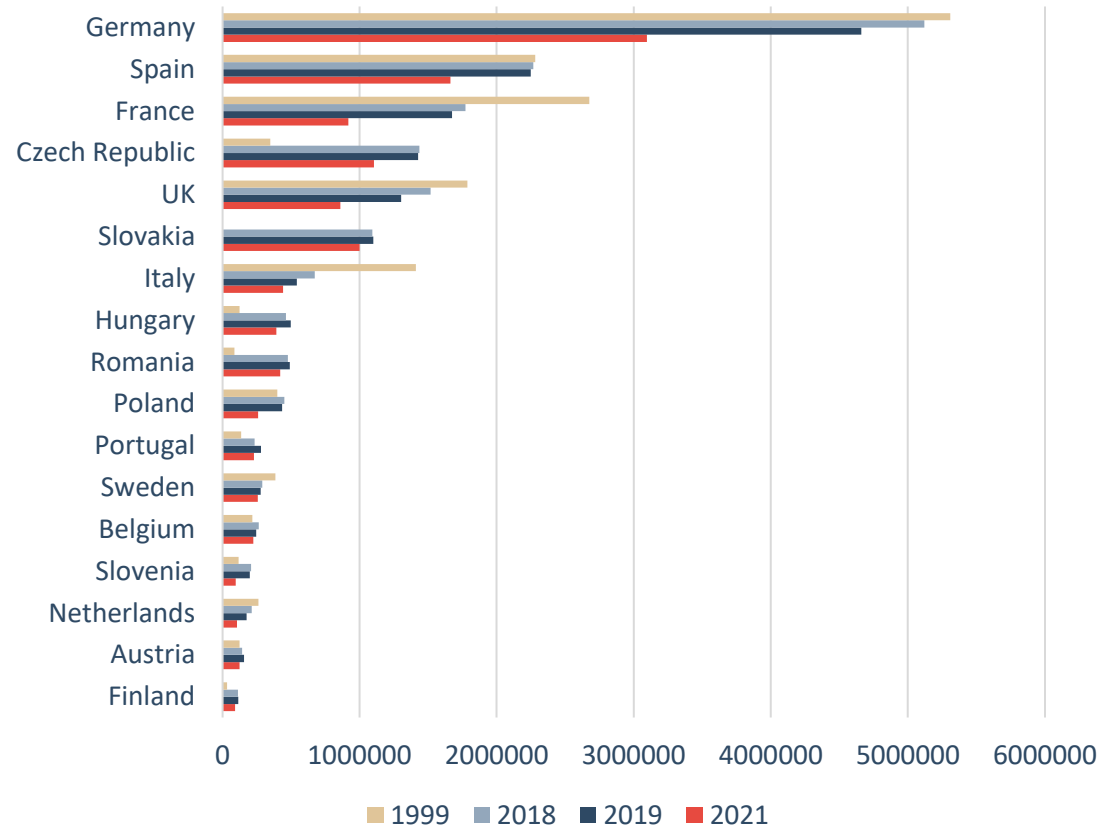


Source: Odyssee Database, 2021

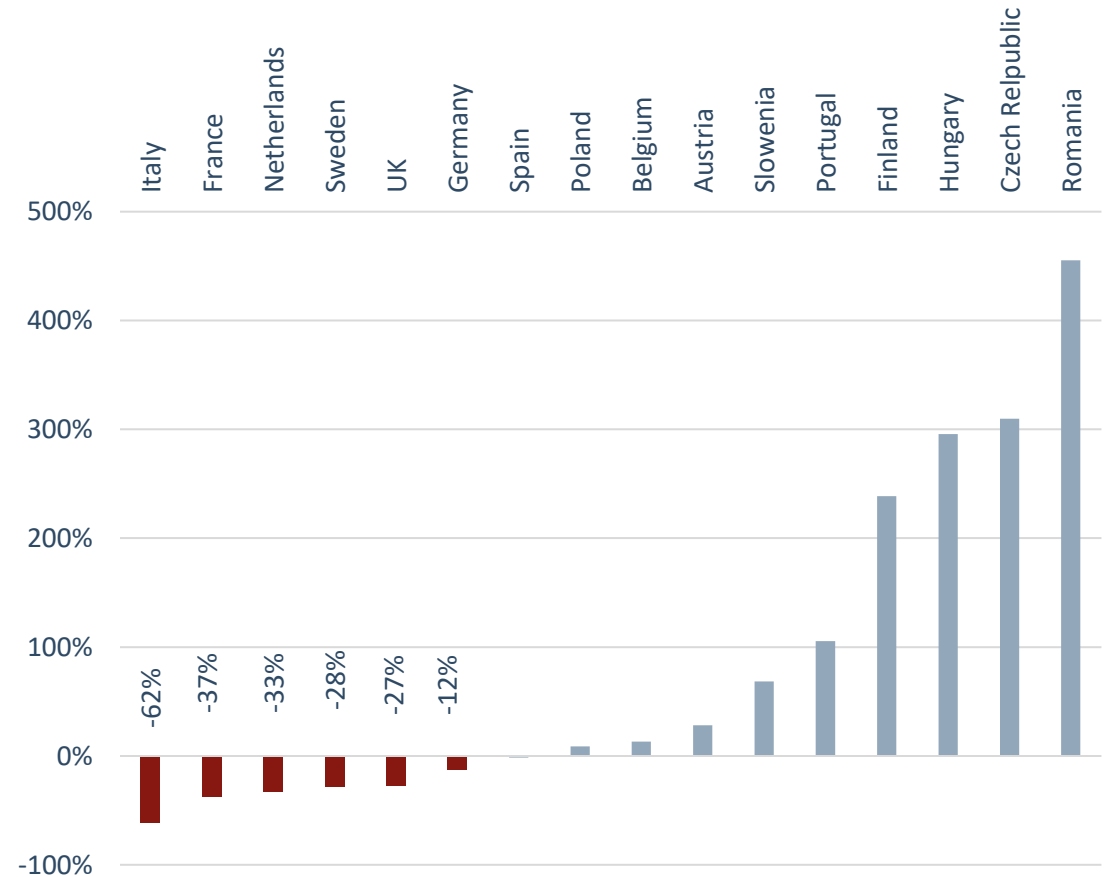
# Passenger car production: sharp declines at traditional locations

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

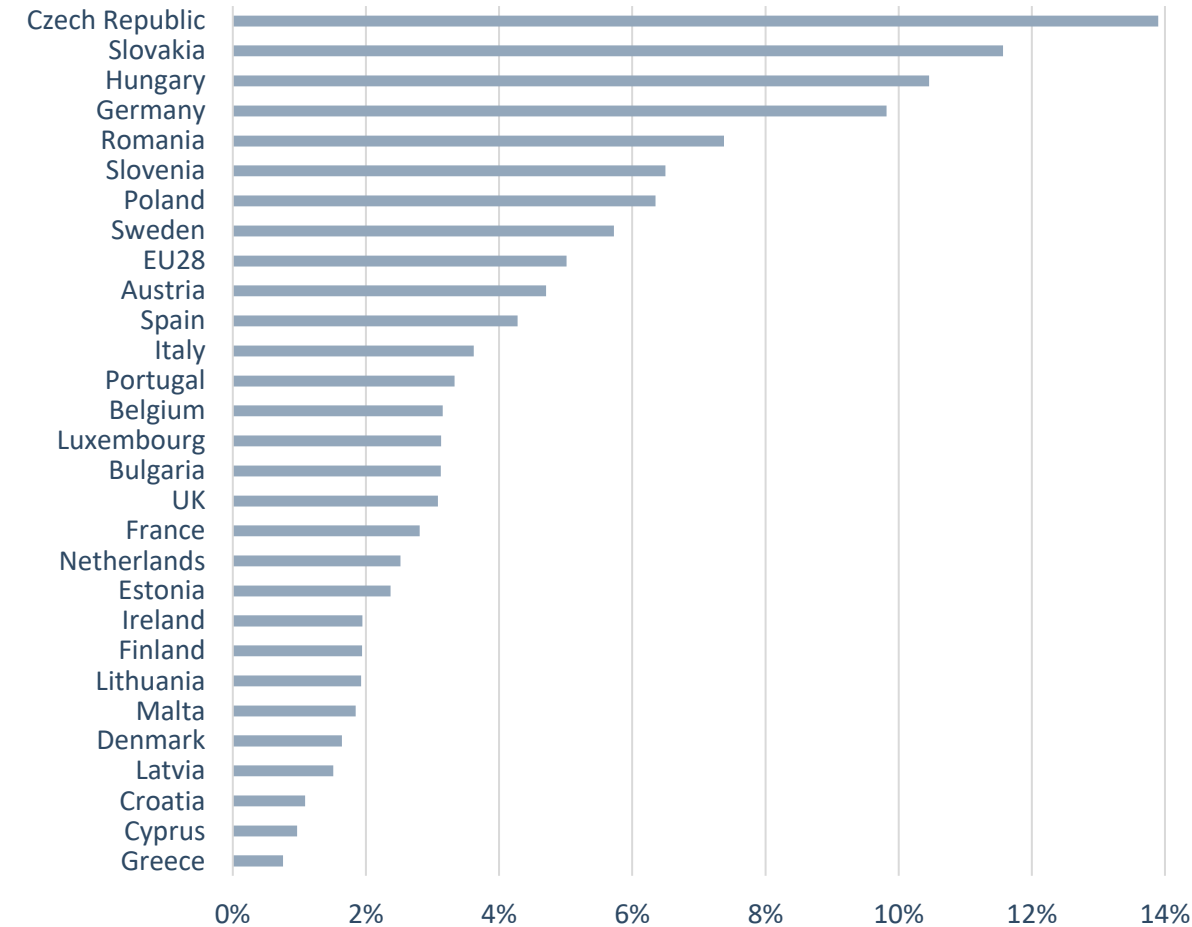


Quelle: OICA, 2020

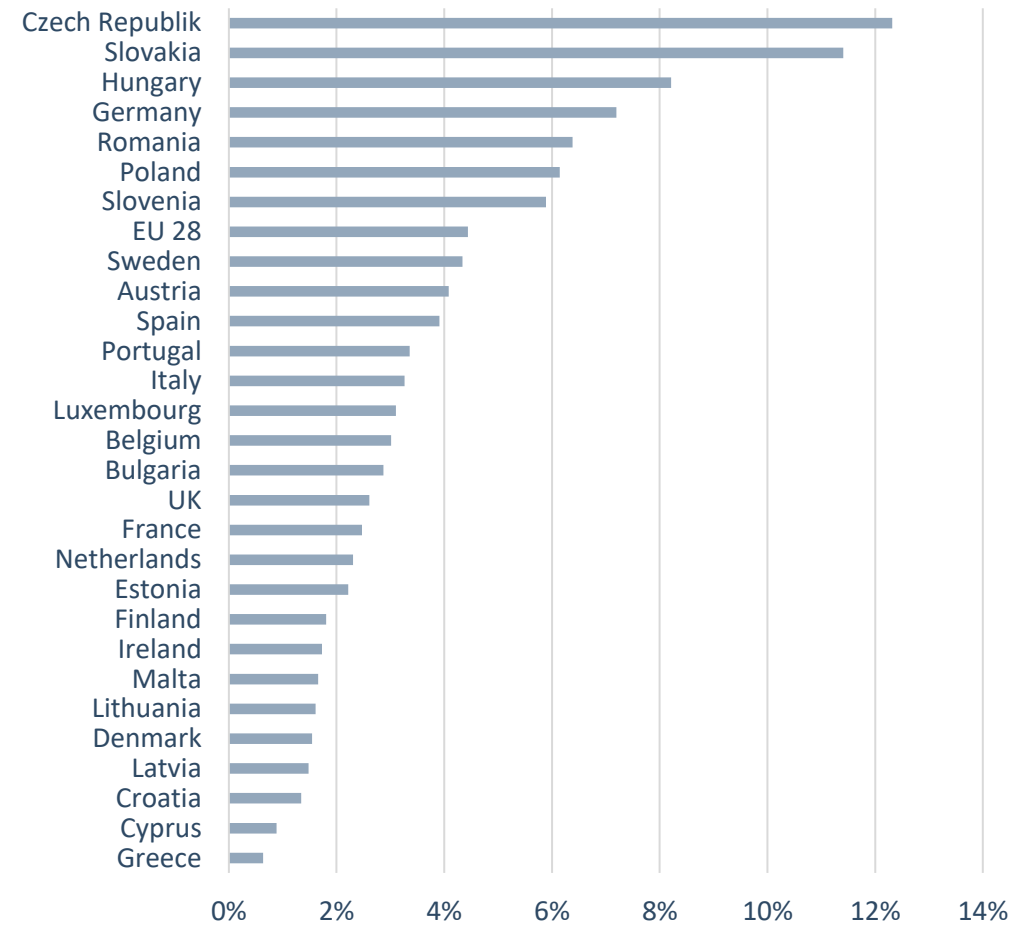
# Automobile manufacturing – the industrial heart of Eastern Europe

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**

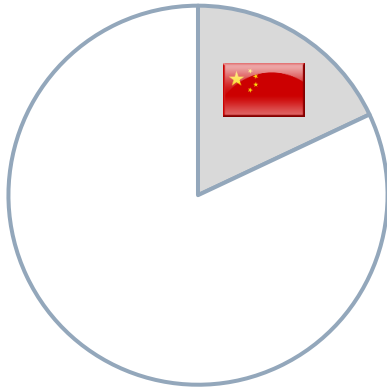


Source: OECD, 2019; own calculations

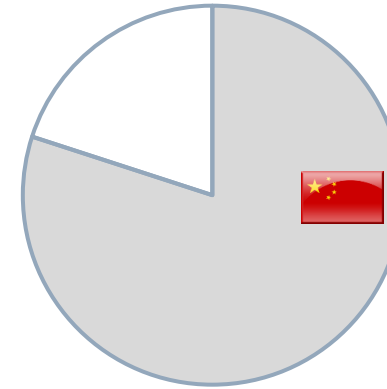
# China hat sich große Teile der Wertschöpfungskette gesichert

Anteil chinesischer Firmen an der Produktion von Rohstoffen und Vorprodukten in 2019

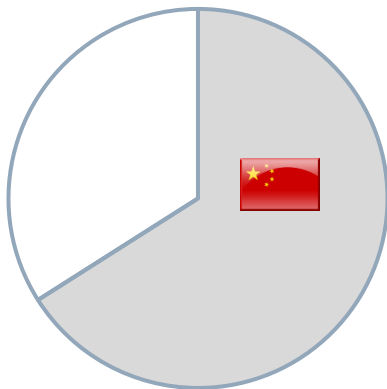
Rohstoffe (Lithium, Nickel, Cobalt, Mangan, Graphit)



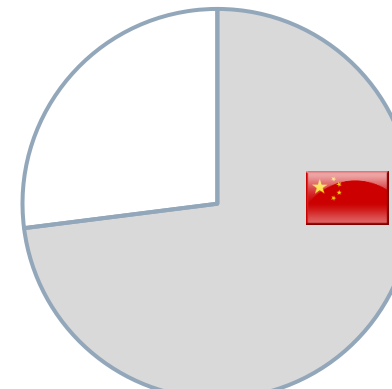
Raffinierung der Rohstoffe (Lithiumcarbonat, Kobaltsulfat, u. ä.)



Herstellung von Anoden und Kathoden



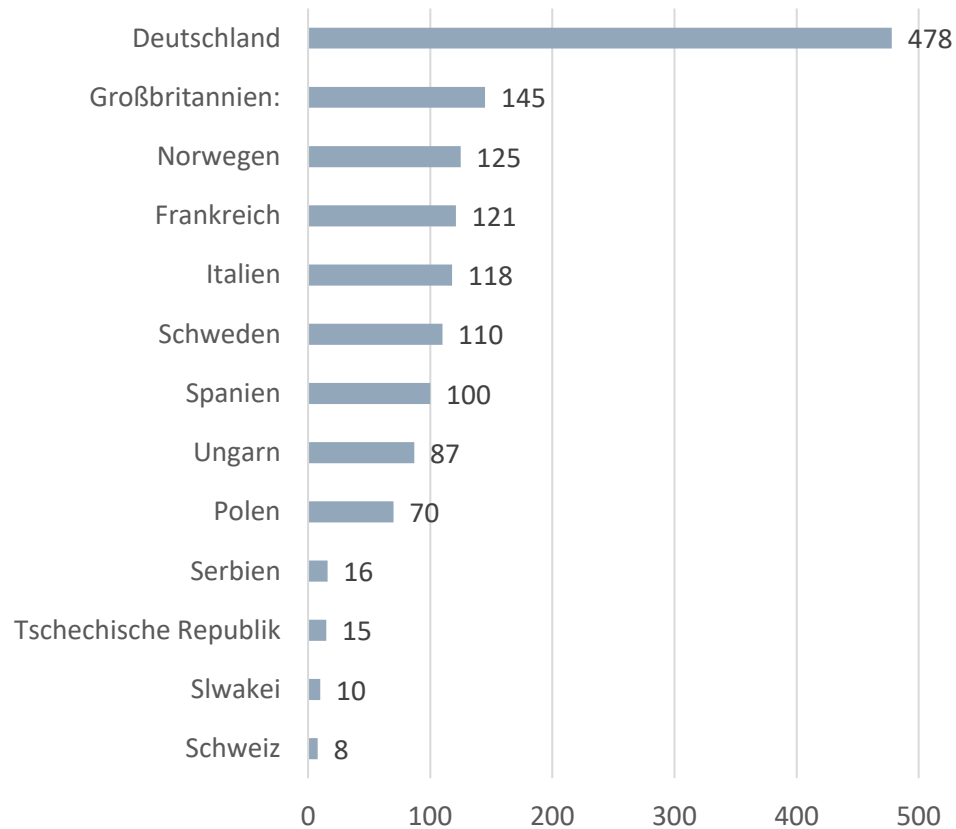
Herstellung von Batteriezellen



Quelle: Deutsche Rohstoffagentur, 2020; Automobilwoche, 2020

# Massiver Ausbau: Geplante Batteriezellfertigung in Europa

Angaben in Gigawattstunden installierter oder geplanter Kapazität

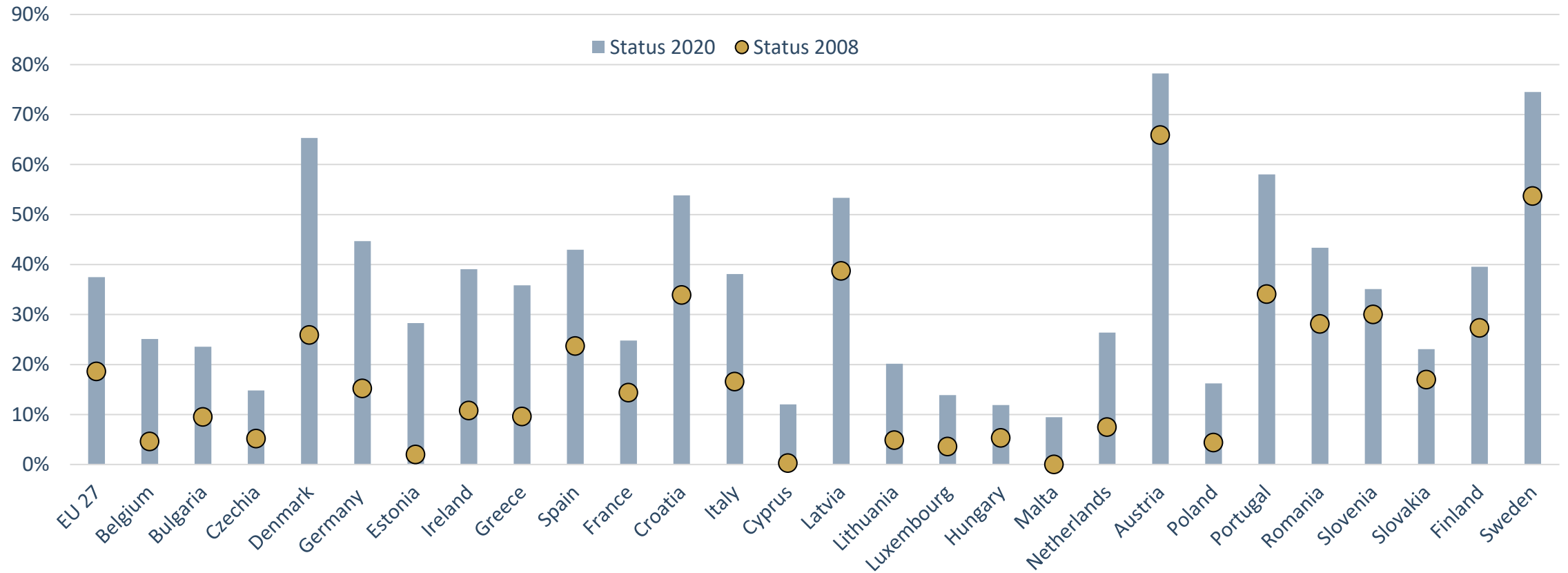


Quelle: Battery-news.de, 2022 (Stand Juli 2022)



# Renewable energies in electricity generation in the year 2020

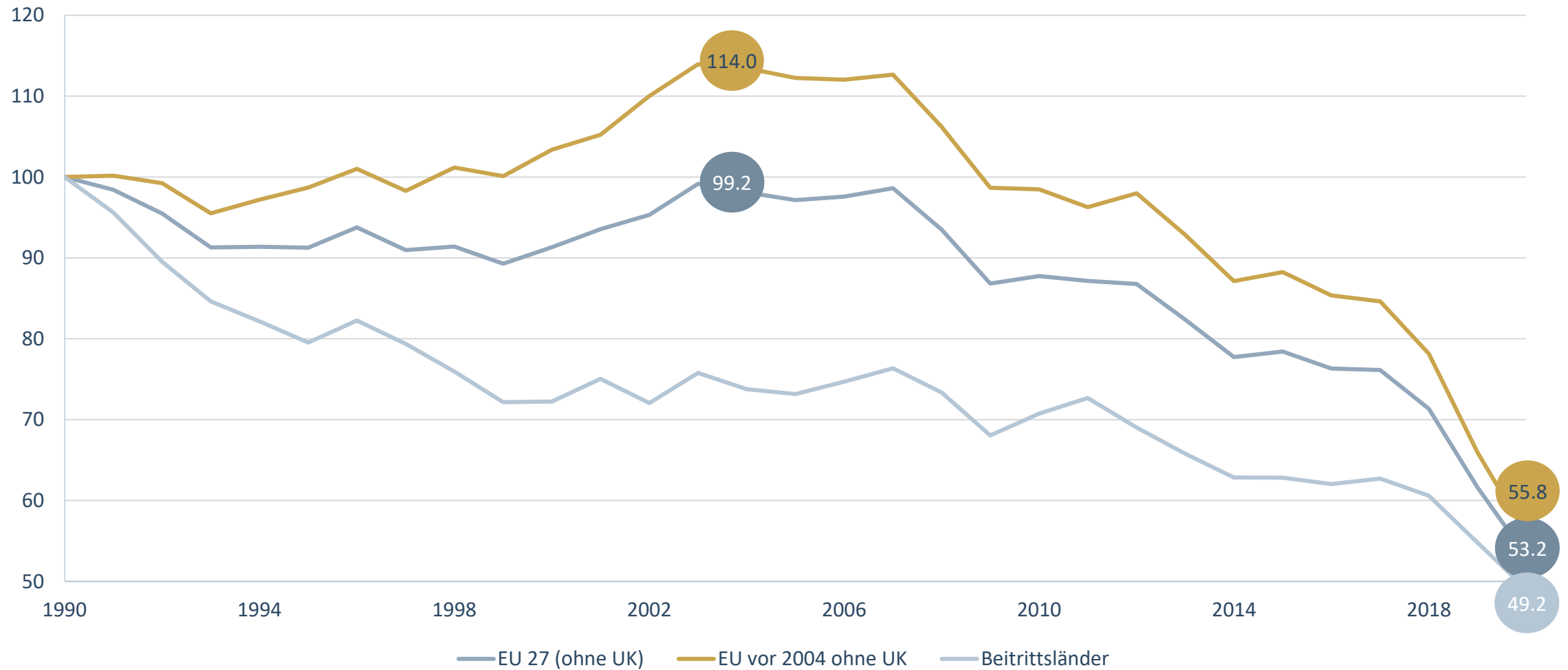
Share of renewable energies in gross final energy consumption in percent



Source; Eurostat 2022

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

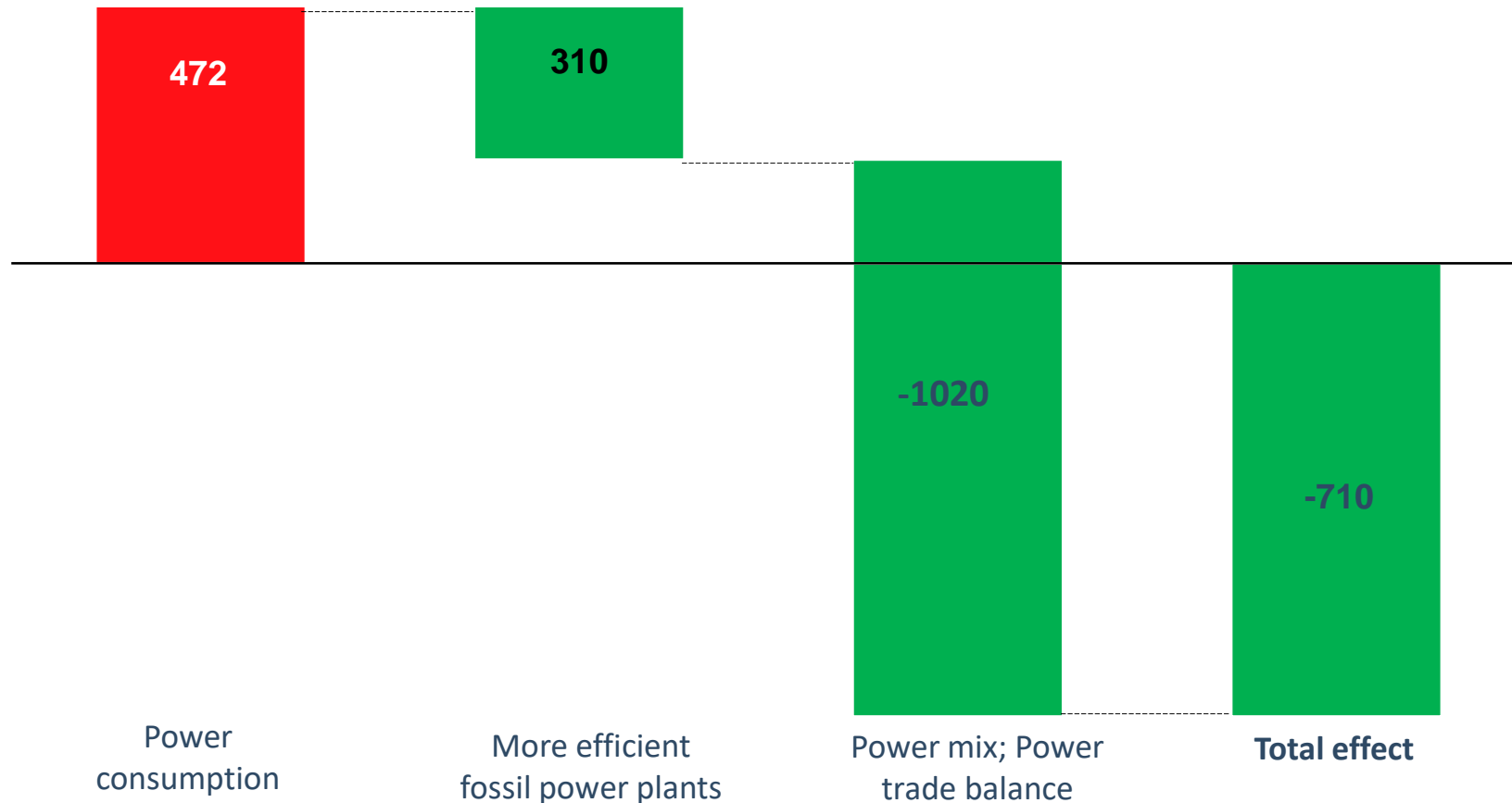
CO<sub>2EQ</sub>- emissions from public electricity and heat generation, 1990 = 100



Source: EEA, 2021 (v24)

# Power generation – Consumption of fossil primary energy decreases

in terawatt hours (TWh) primary energy use, change 2000 – 2019



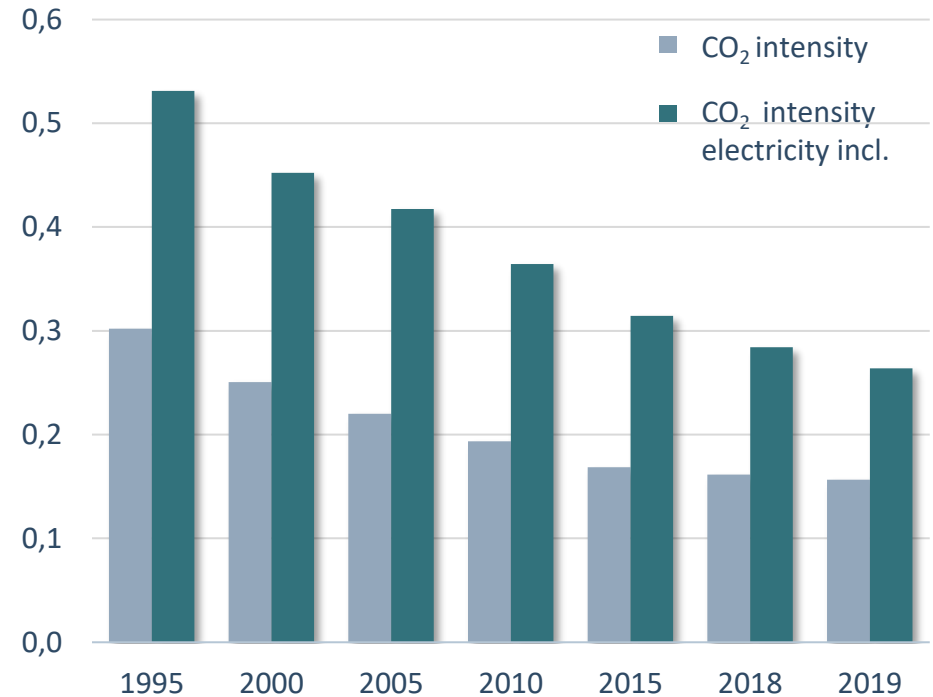
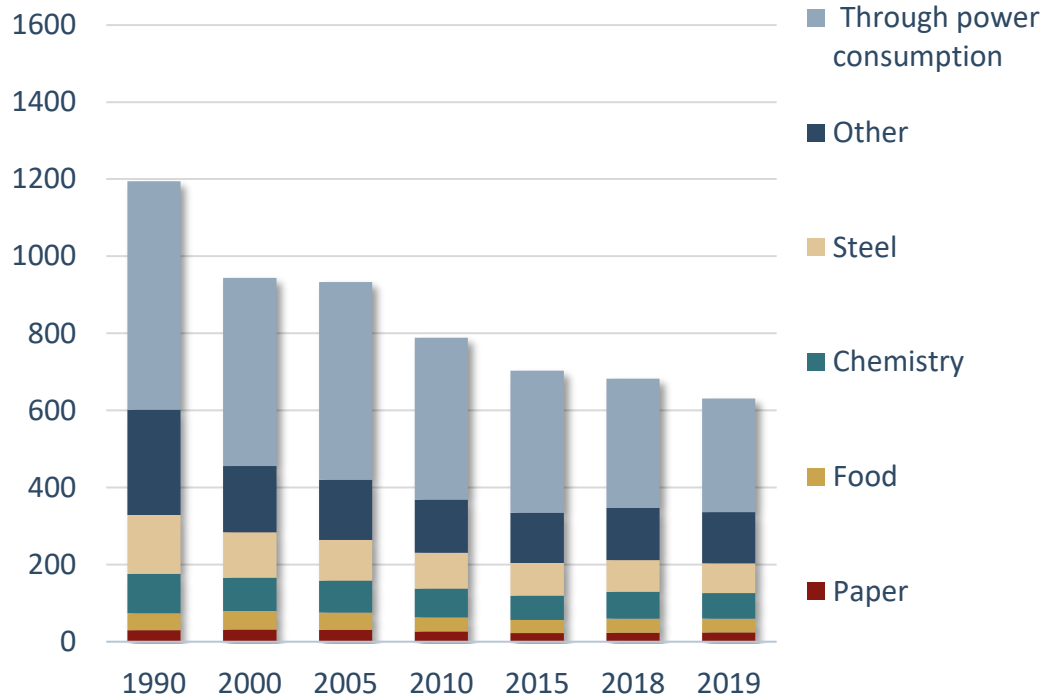
- ▶ In Europe, electricity consumption is growing.
- ▶ Nevertheless, fewer fossil primary energy sources are consumed.
- ▶ Power generation is not an end in itself, but enables production and consumption in industry and households.

Source: Odyssee Database November 2020

# Industry in the EU 27: Falling emissions, rising efficiency

CO<sub>2</sub> emissions from industry are falling: -25% since 1995  
in millions of tons CO<sub>2</sub>

Halved since 1995: Emissions per euro of value added  
kg CO<sub>2</sub>/Euro2010

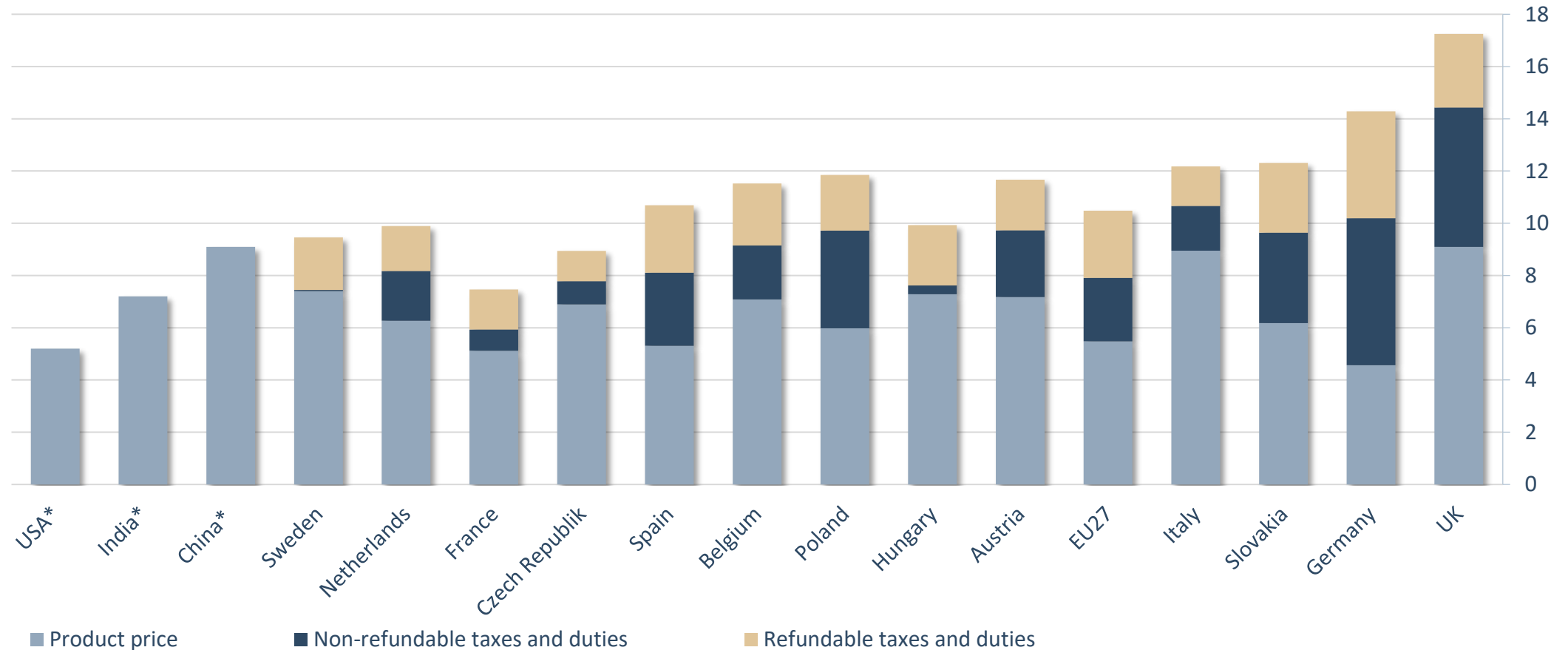


- ▶ Regulation: Most of the CO<sub>2</sub> emissions caused by industrial activities fall under emissions trading.
- ▶ Increased efficiency: Emissions per unit of gross value added have fallen by a good 40 percent since 1995.
- ▶ Deindustrialisation: The migration of industry from many European states reduced CO<sub>2</sub> emissions in the EU.

Source: Odyssee Database November 2021

# Industrial electricity prices in the second half of 2021

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

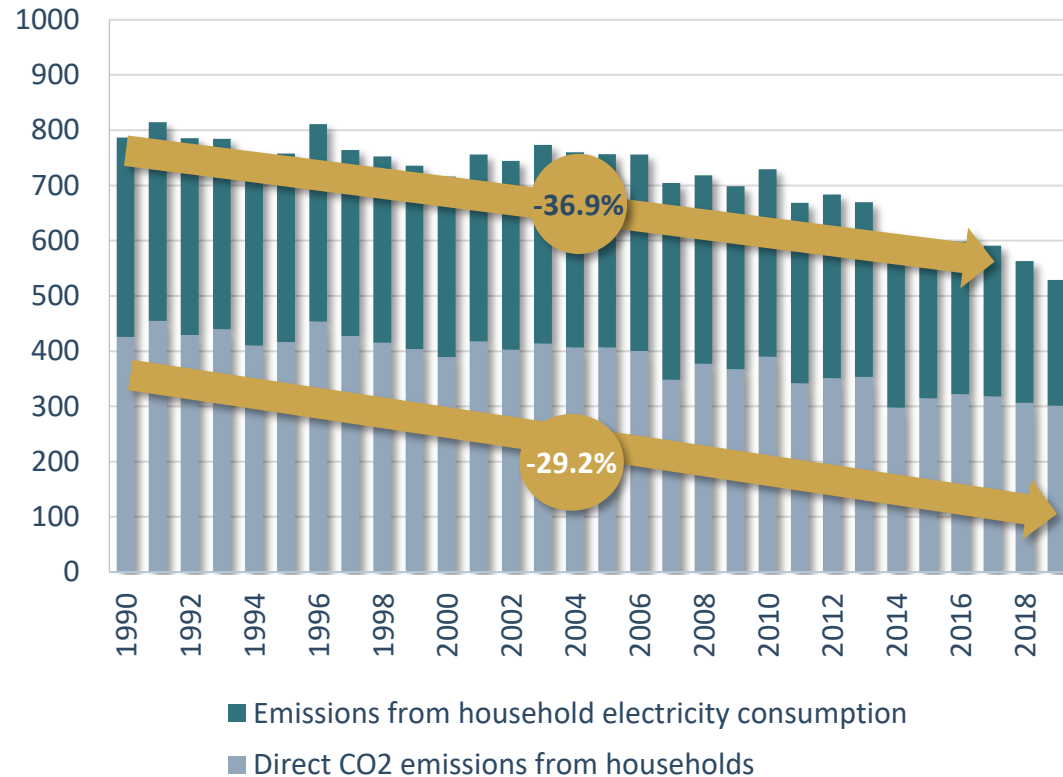


\* For information only; UK Q1 / 2020  
Sources: Eurostat 2022, BDI

# Households: Falling CO<sub>2</sub> emissions despite higher demands on living space

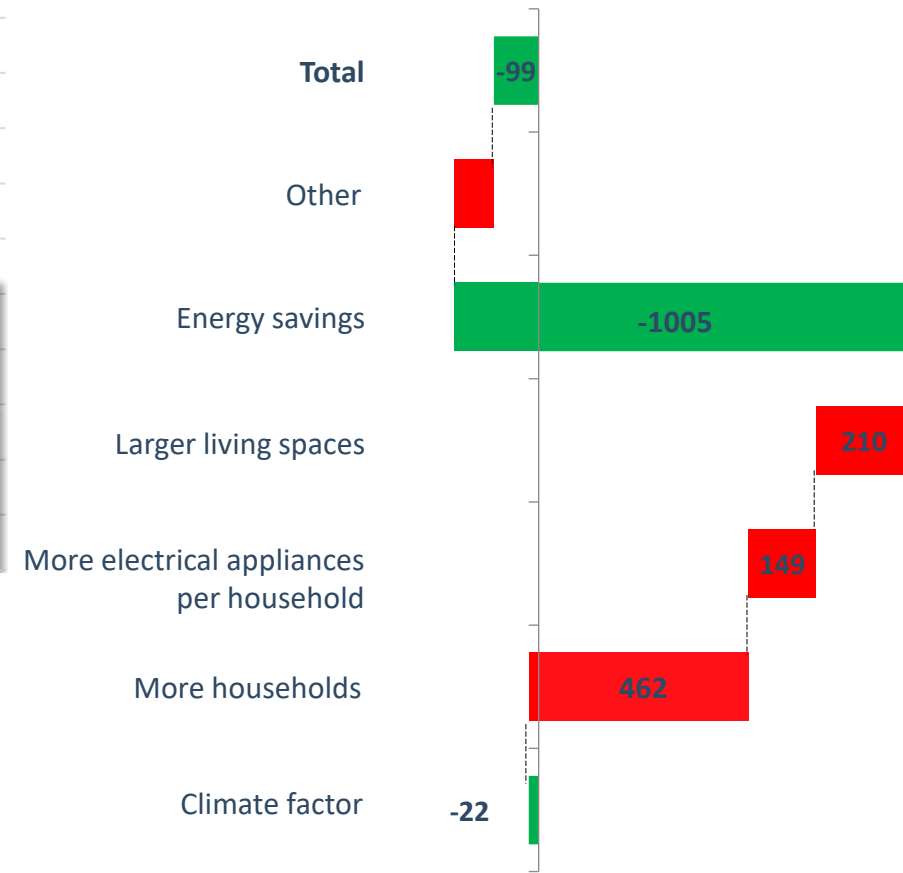
CO<sub>2</sub> emissions from households in the EU27 since 1990

measured in millions of tonnes CO<sub>2</sub>



Change in energy consumption from 2000 to 2018

Component decomposition, in terawatt hours (TWh)

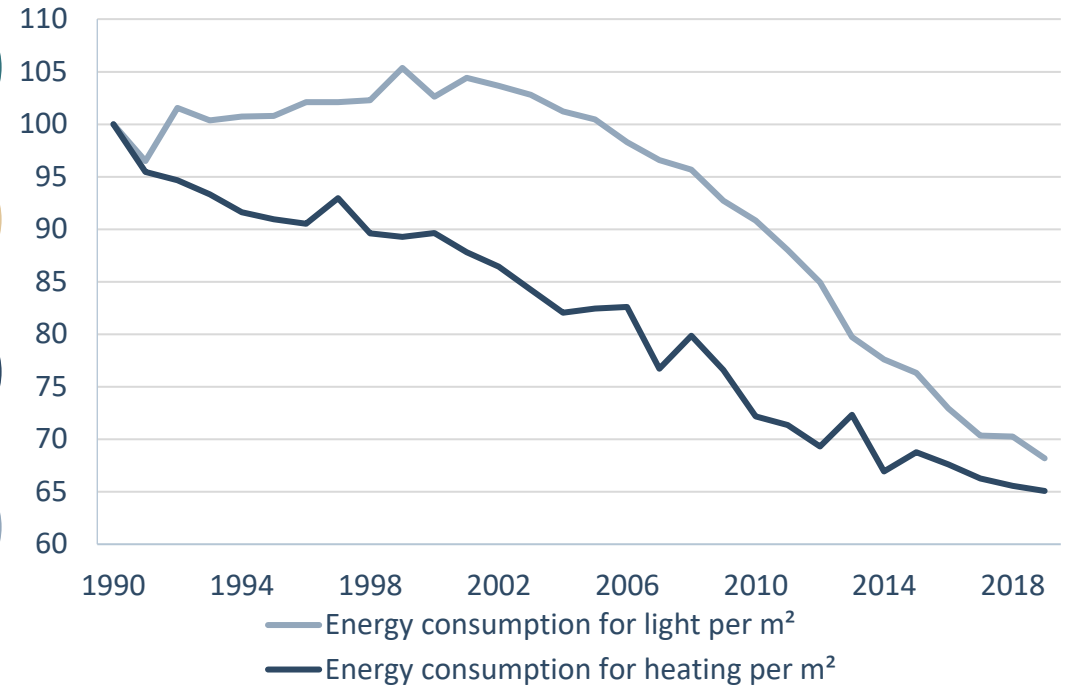
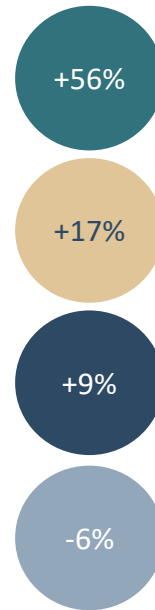
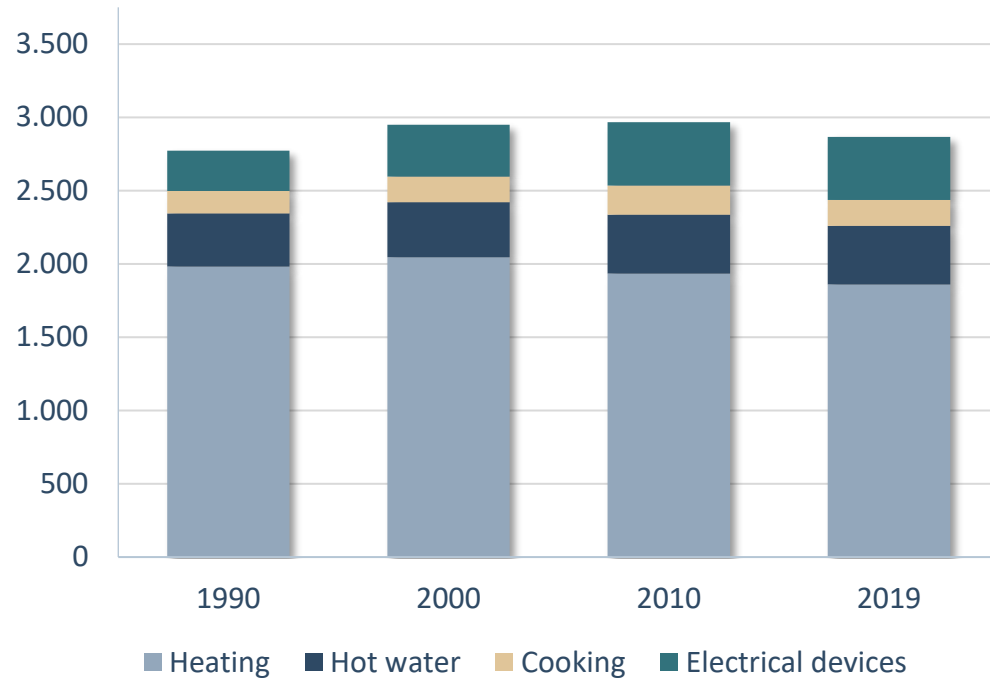


Source: Odyssee Database November 2021

# 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