Czechia

IRENA
International Renewable Energy Agency

COUNTRY INDICATORS AND SDGS

GDP per capita ■ **8.1.1 Real GDP growth rate** ━

7.3.1 Energy intensity

7.1.1 Access to electricity (% population) ━
7.1.2 Access to clean cooking (% population) ━
7.2.1 Renewable energy (% TFEC) ━

7.a.1 Public flows to renewables

7.b.1 Per capita renewable capacity

11.6.2 Air particulate matter (PM$_{2.5}$)

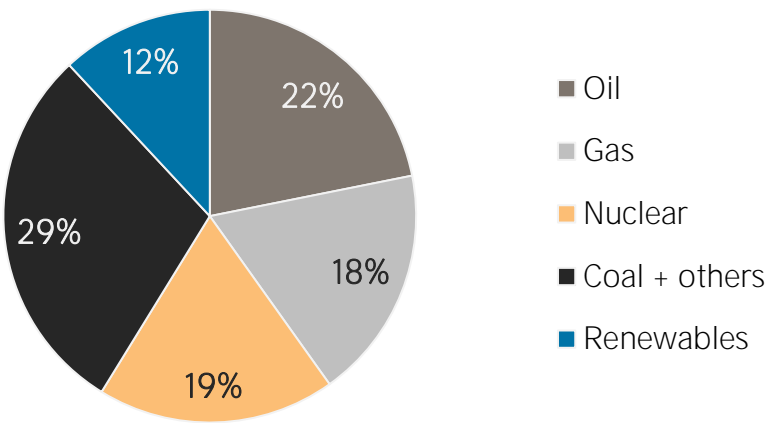■ Urban ■ Average ■ Rural ━ WHO safe
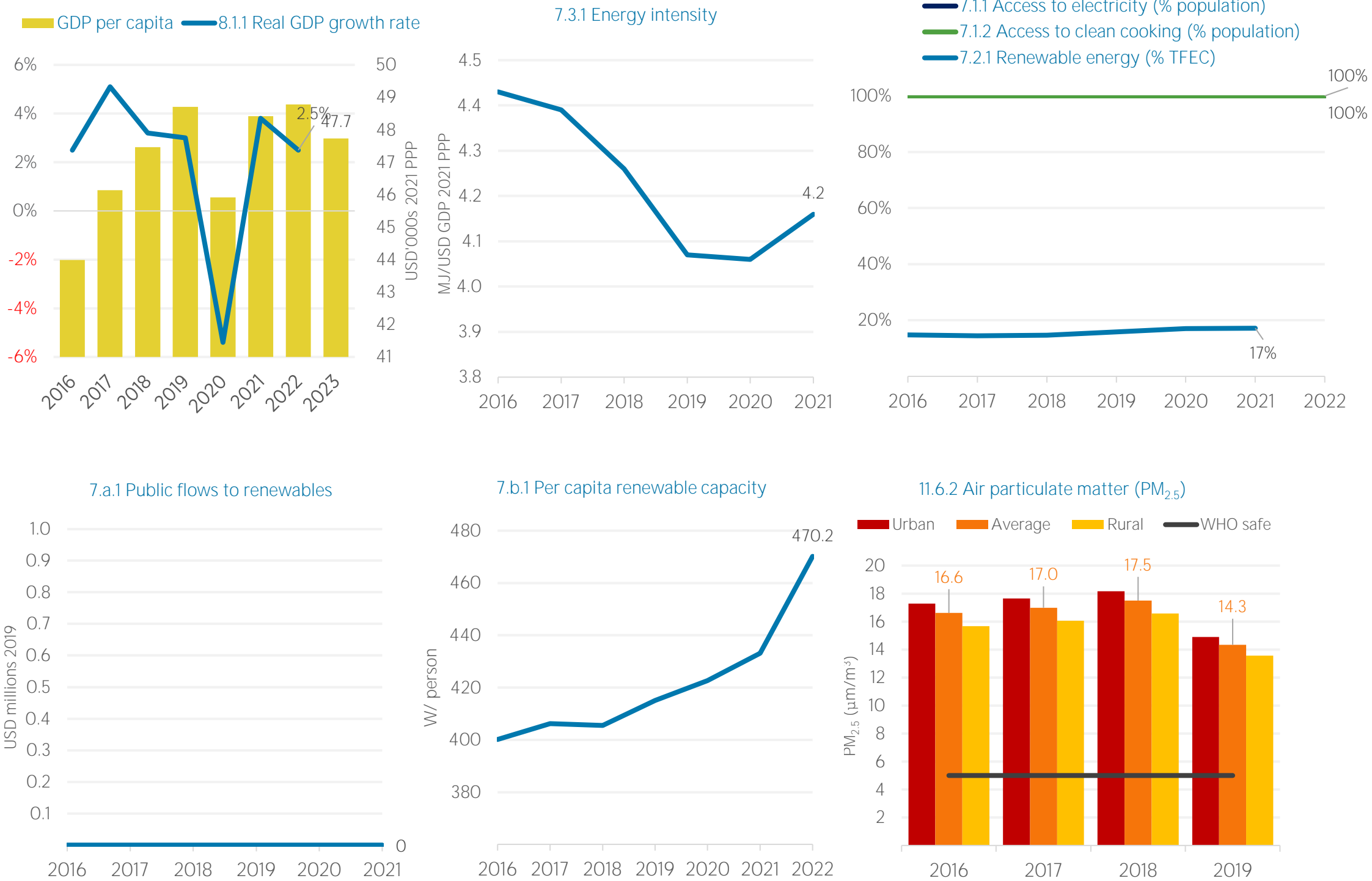
TOTAL ENERGY SUPPLY (TES)

Total Energy Supply (TES)	2016	2021
Non-renewable (TJ)	1 566 491	1 572 087
Renewable (TJ)	175 066	212 894
Total (TJ)	1 741 557	1 784 981
Renewable share (%)	10	12

Growth in TES	2016-21	2020-21
Non-renewable (%)	+0.4	+6.1
Renewable (%)	+21.6	+6.9
Total (%)	+2.5	+6.2

Primary energy trade	2016	2021
Imports (TJ)	903 884	996 494
Exports (TJ)	326 037	279 211
Net trade (TJ)	- 577 847	- 717 283
Imports (% of supply)	52	56
Exports (% of production)	29	27
Energy self-sufficiency (%)	66	57

Total energy supply in 2021

■ Oil
■ Gas
■ Nuclear
■ Coal + others
■ Renewables

Renewable energy supply in 2021

■ Hydro/marine
■ Wind
■ Solar
■ Bioenergy
■ Geothermal
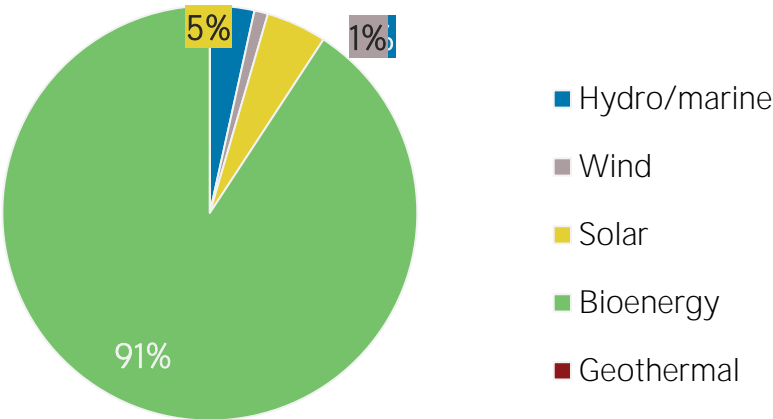
RENEWABLE ENERGY CONSUMPTION (TFEC)

Renewable TFEC trend

Legend: ■ Electricity ■ Commercial heat ■ Bioenergy

Petajoules (PJ)

300
250
200
150
100
50

221 224 226 241 251 267

2016 2017 2018 2019 2020 2021
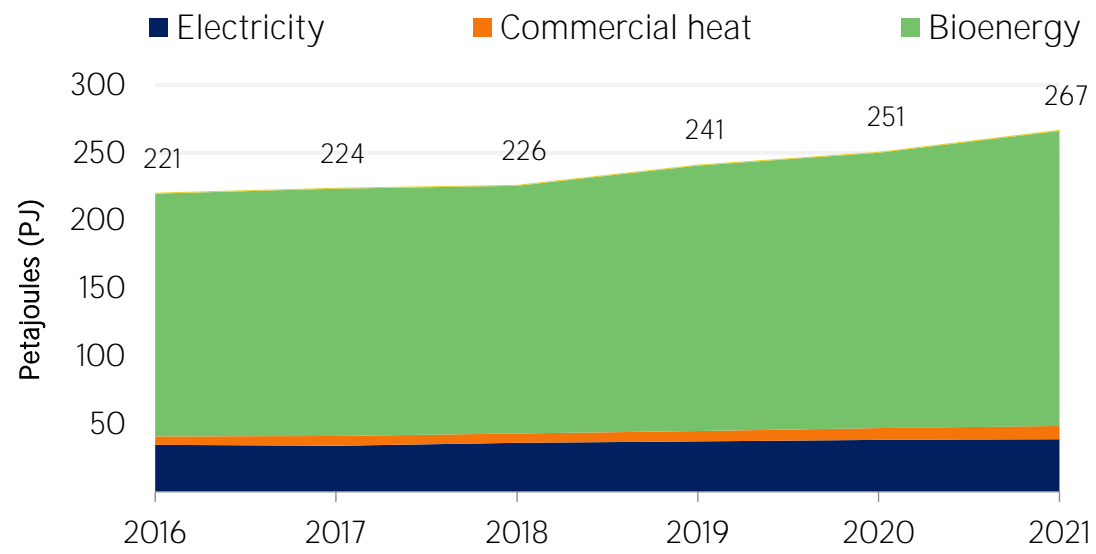
Consumption by sector	2016	2021
Industry (TJ)	36 080	40 202
Transport (TJ)	13 550	16 941
Households (TJ)	87 336	112 754
Other (TJ)	83 626	97 015

Renewable energy consumption in 2021

Legend: ■ Geothermal ■ Solar direct

15% | 4% | 0% | 82%

■ Industry ■ Transport ■ Households ■ Other

15% | 6% | 42% | 36%
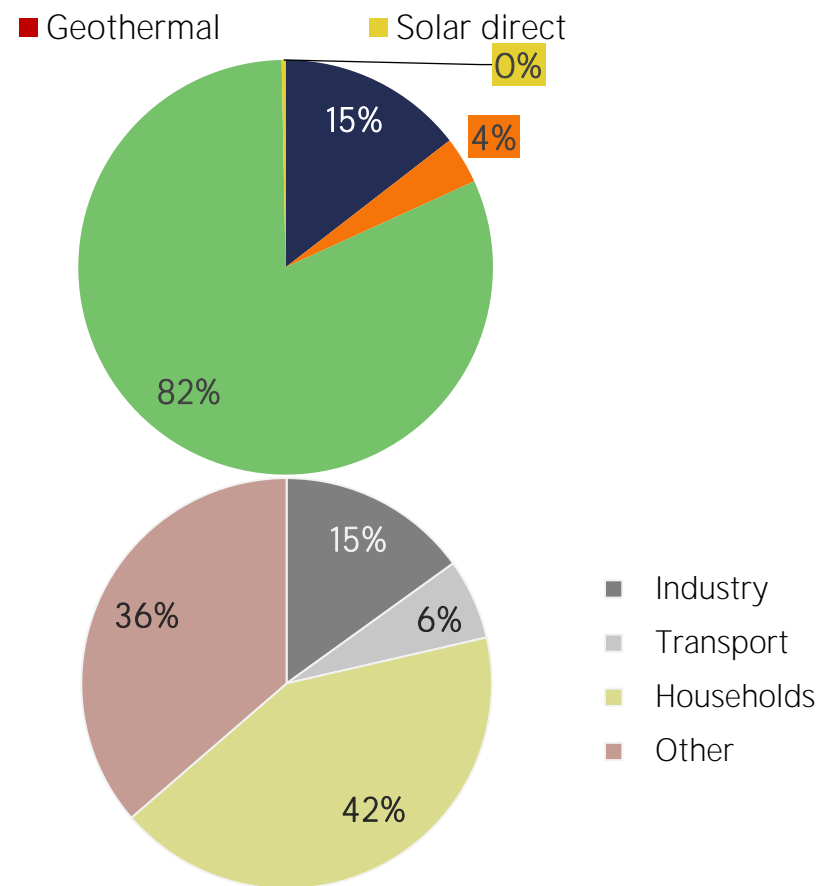
ELECTRICITY CAPACITY

Installed capacity trend

Legend: ■ Fossil fuels ■ Nuclear ▨ Other Non-RE ■ Hydro/marine ■ Wind ■ Solar ■ Bioenergy ■ Geothermal — Renewable share

Gigawatts (GW) / Renewable share (%)

25 — 100%
20 — 80%
15 — 60%
10 — 40%
5 — 20%

22 22 22 22 21 21 21 21

2016 2017 2018 2019 2020 2021 2022 2023

23%

Renewable capacity in 2023

Legend: ■ Hydro/marine ■ Solar ■ Wind ■ Bioenergy ■ Geothermal

23% | 52% | 7% | 18%
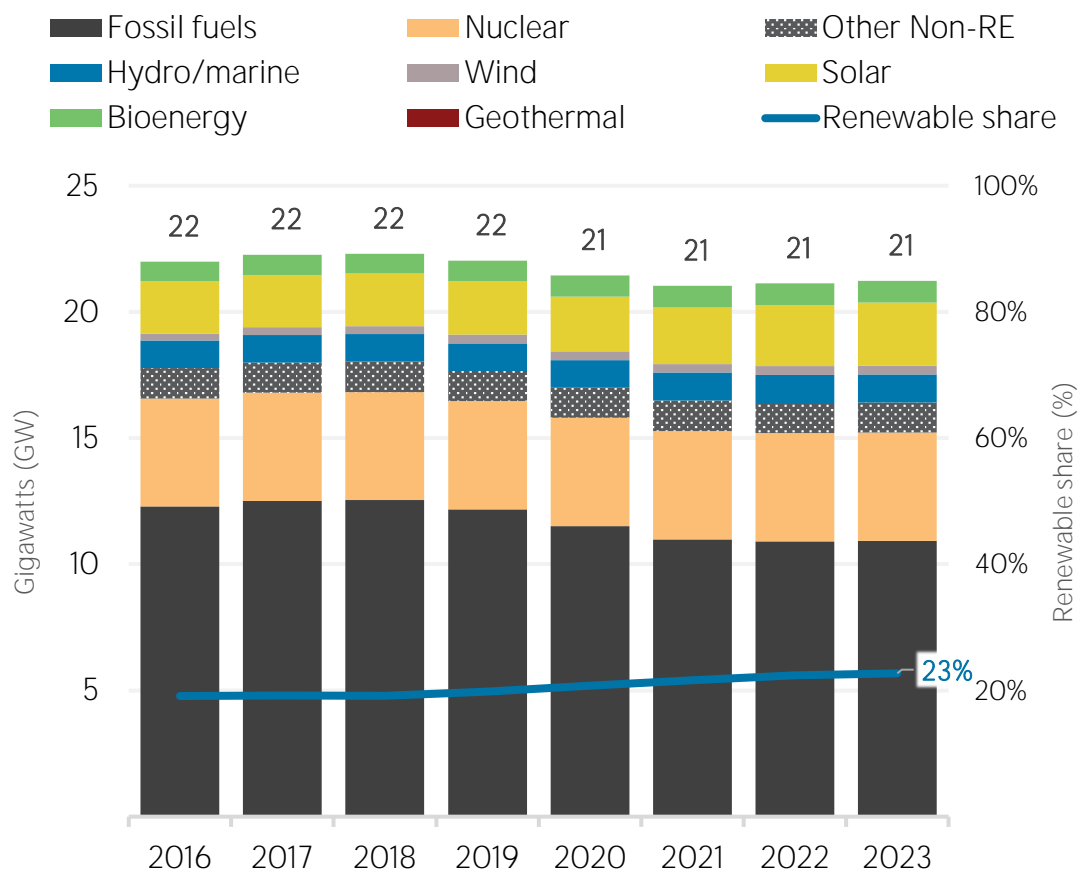
Net capacity change in 2023 (MW)

Non-renewable **+ 22**	Hydro and marine **+ 1**
Solar **+ 79**	Wind **+ 4**
Bioenergy **+ 4**	Geothermal **0**

Net capacity change (GW)

Legend: ■ Fossil fuels ■ Renewable

0.0 | 0.0 | -0.4 | 0.1 | -0.7 | 0.1 | -0.5 | 0.1 | -0.1 | 0.2 | 0.0 | 0.1

2018 2019 2020 2021 2022 2023
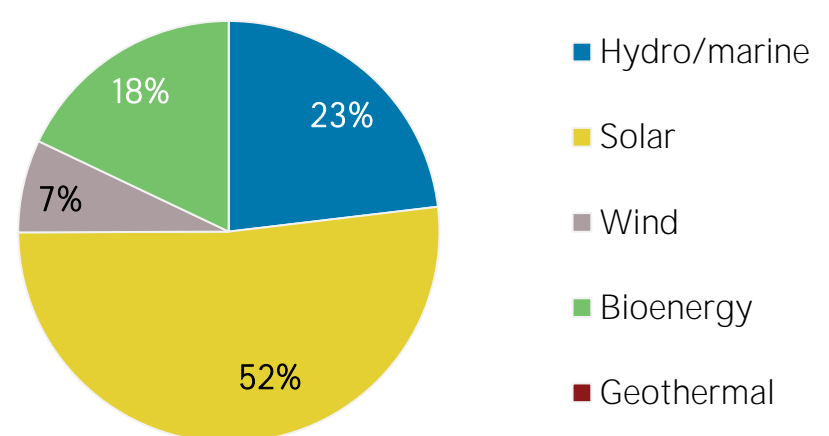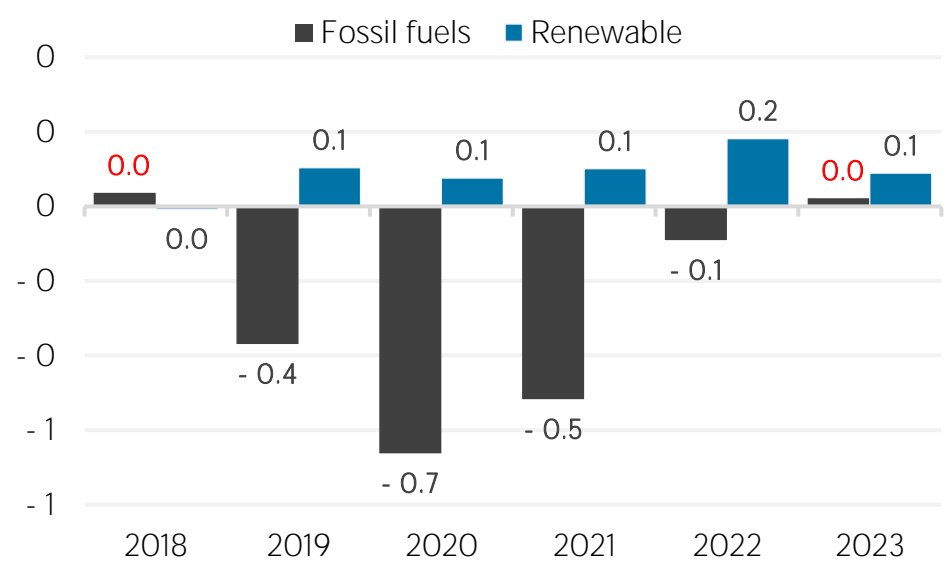
Capacity utilisation in 2022 (%)

Fossil fuels	44%
Nuclear	83%
Hydro/Marine	21%
Solar	13%
Wind	22%
Bioenergy	72%
Geothermal	

0 20 40 60 80 100
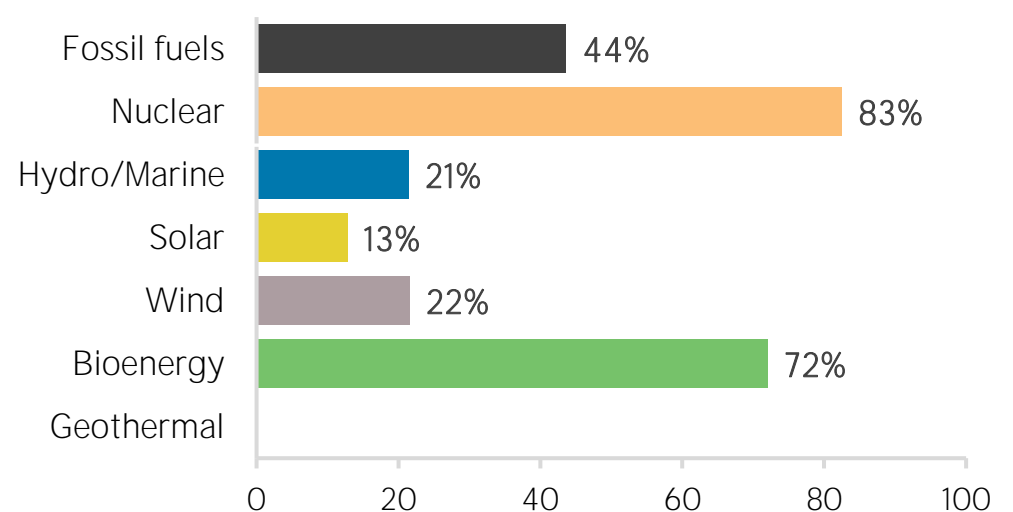
ELECTRICITY GENERATION

Generation in 2022	GWh	%
Non-renewable	74 081	87
Renewable	10 767	13
Hydro and marine	2 093	2
Solar	2 626	3
Wind	641	1
Bioenergy	5 406	6
Geothermal	0	0
Total	84 848	100

Per capita electricity generation (kWh)
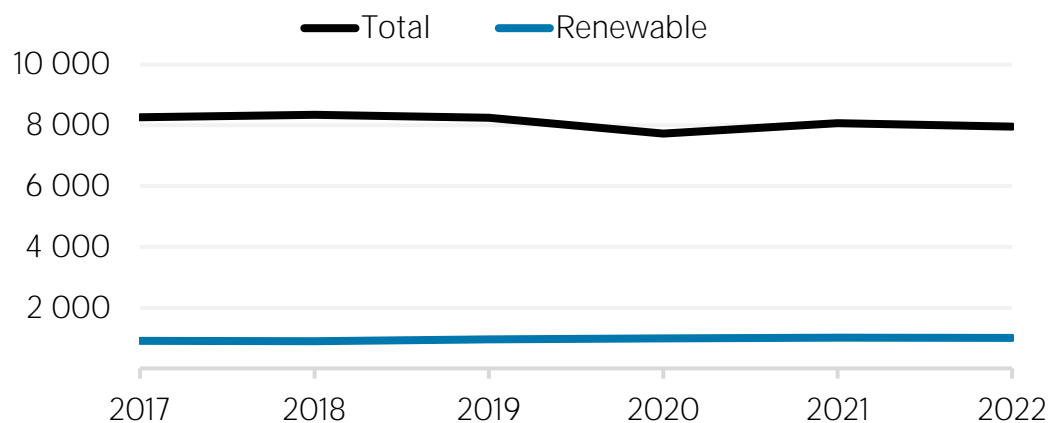
Electricity generation trend
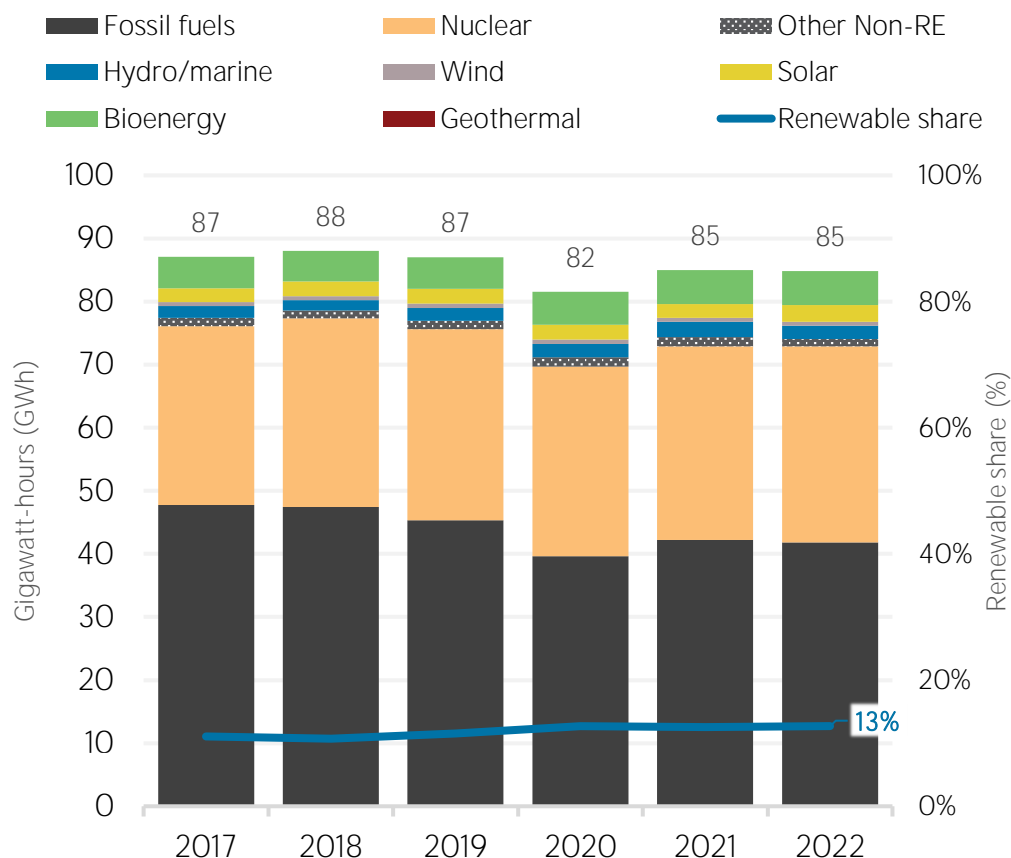

LATEST POLICIES, PROGRAMMES AND LEGISLATION

1 2023 cap on electricity and gas prices — 2023

2 Cap on electricity and gas prices for large companies — 2023

3 Compensation mechanism for electricity suppliers affected by the electricity price cap — 2023

4 Subsidy for Czech electricity TSO ČEPS — 2023

5 Cost of living package [Amendment to Energy Act] — 2022

ENERGY AND EMISSIONS

CO$_2$ emissions by sector

Elec. & heat generation CO$_2$ emissions in

245 Mt CO$_2$

- Coal + others
- Gas
- Oil
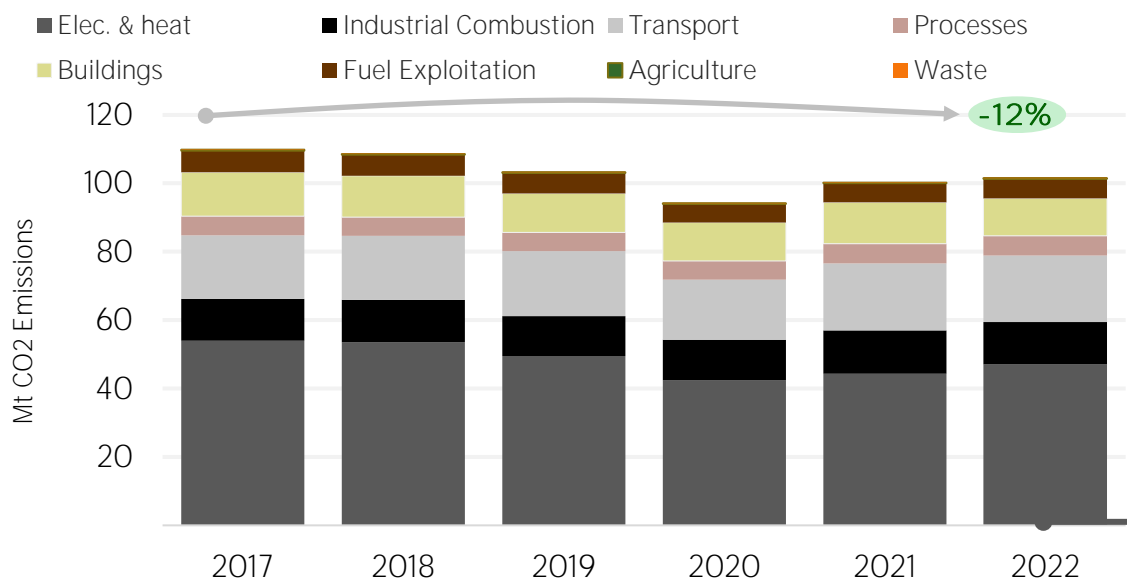
Avoided emissions from renewable elec. & heat
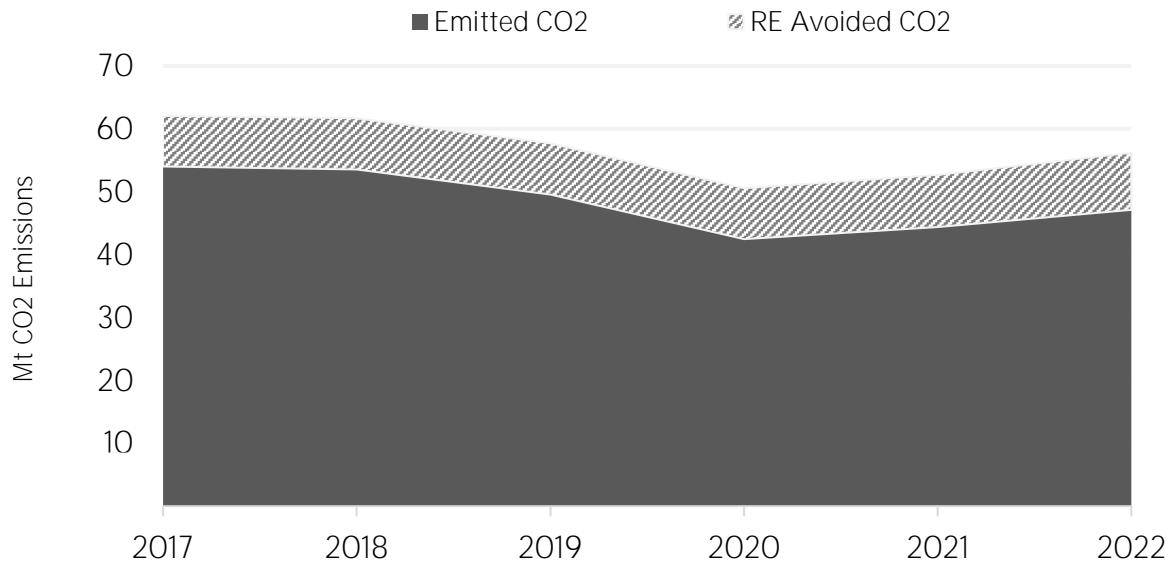
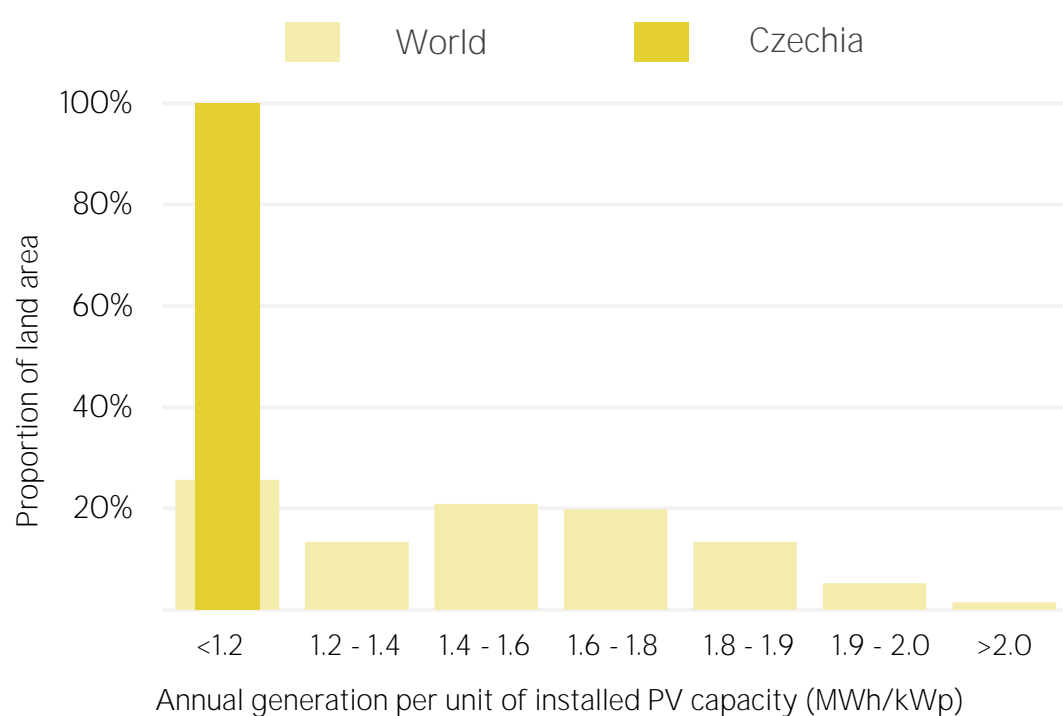*Avoided emissions based on fossil fuel mix used for power*
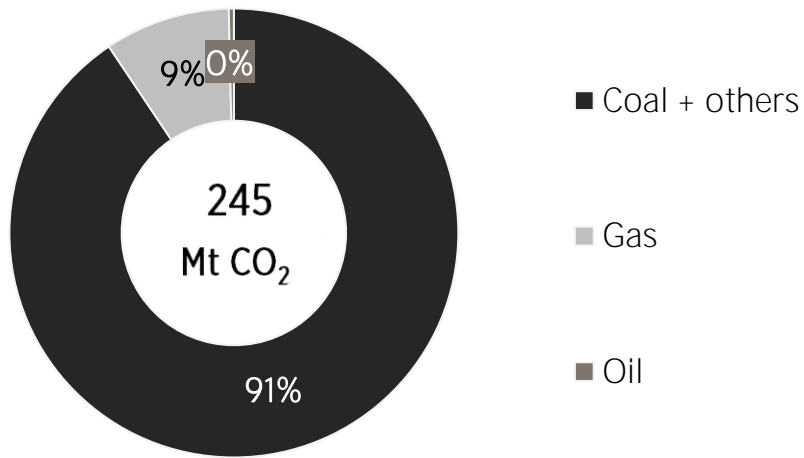
CO$_2$ emission factor for elec. & heat generation
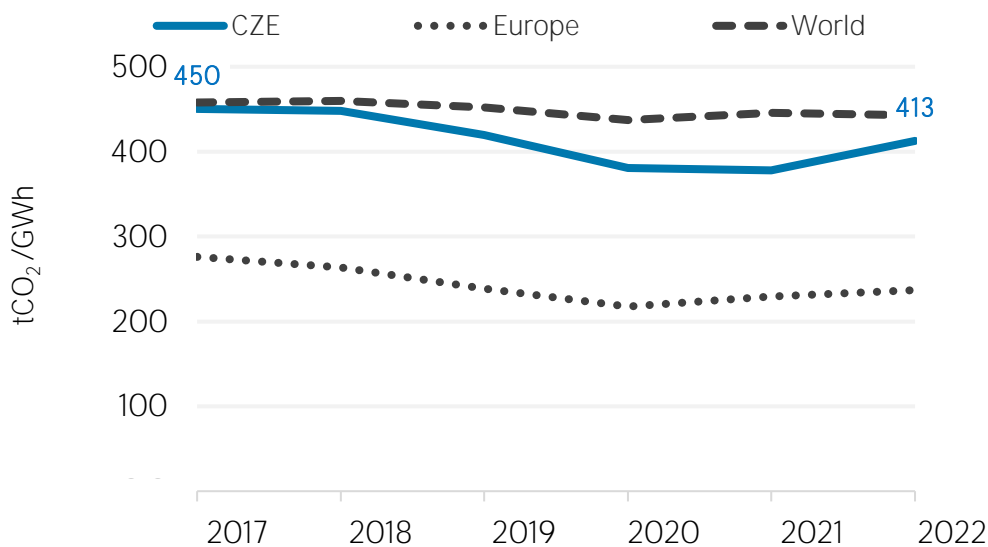
Calculated by dividing power sector emissions by elec. + heat gen.

Distribution of solar potential
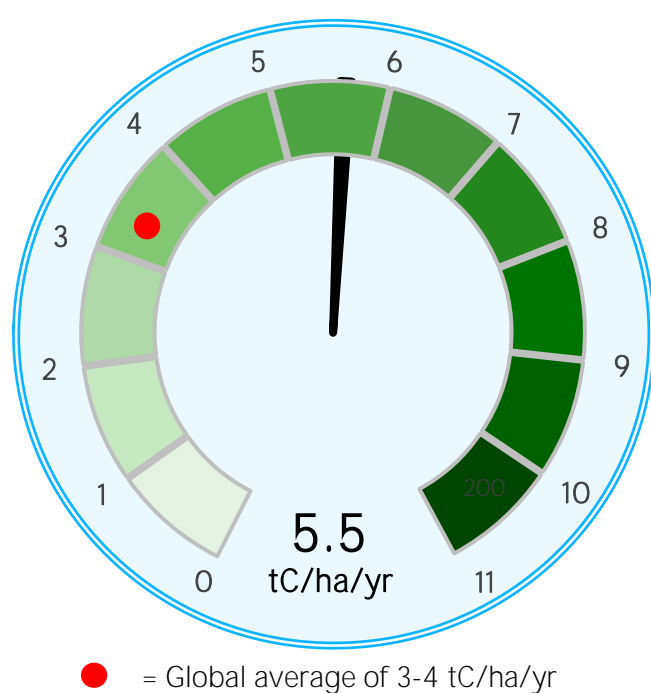
World — Czechia

Proportion of land area

100%
80%
60%
40%
20%

<1.2 | 1.2 - 1.4 | 1.4 - 1.6 | 1.6 - 1.8 | 1.8 - 1.9 | 1.9 - 2.0 | >2.0

Annual generation per unit of installed PV capacity (MWh/kWp)

Distribution of wind potential

World — Czechia

Proportion of land area

100%
80%
60%
40%
20%

<260 | 260-420 | 420-560 | 560-670 | 670-820 | 820-1060 | >1060

Wind power density at 100m height (W/m²)
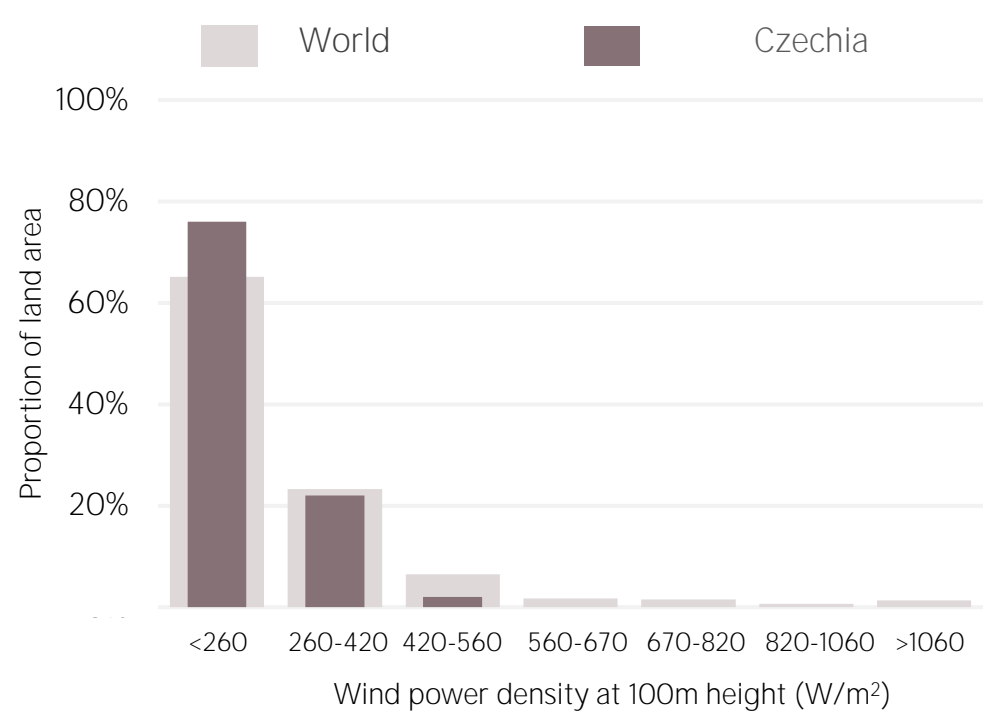
Biomass potential: net primary production

5.5
tC/ha/yr

0 1 2 3 4 5 6 7 8 9 10 11

● = Global average of 3-4 tC/ha/yr

Indicators of renewable resource potential

Solar PV: Solar resource potential has been divided into seven classes, each representing a range of annual PV output per unit of capacity (kWh/kWp/yr). The bar chart shows the proportion of a country's land area in each of these classes and the global distribution of land area across the classes (for comparison).

Onshore wind: Potential wind power density (W/m²) is shown in the seven classes used by NREL, measured at a height of 100m. The bar chart shows the distribution of the country's land area in each of these classes compared to the global distribution of wind resources. Areas in the third class or above are considered to be a good wind resource.

Biomass: Net primary production (NPP) is the amount of carbon fixed by plants and accumulated as biomass each year. It is a basic measure of biomass productivity. The chart shows the average NPP in the country (tC/ha/yr), compared to the global average NPP of 3-4 tonnes of carbon