Azerbaijan

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$_{2.5}$)

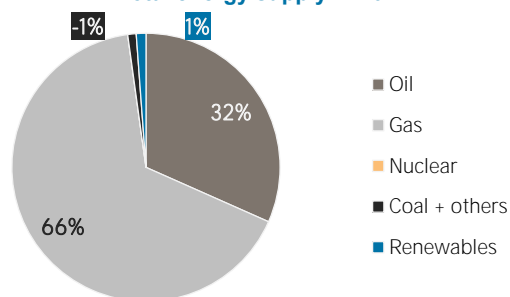Urban | Average | Rural | WHO safe
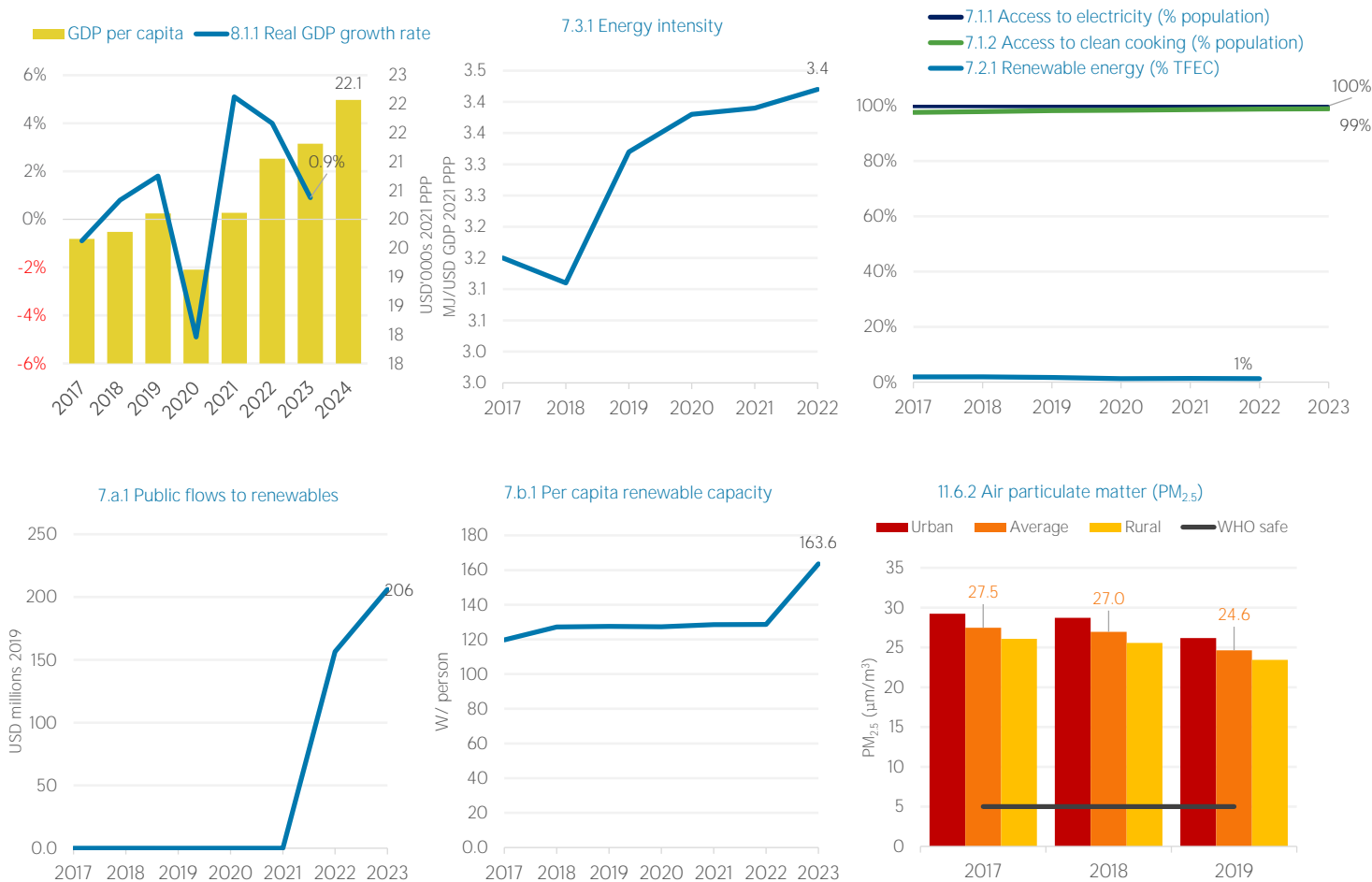
TOTAL ENERGY SUPPLY (TES)

Total Energy Supply (TES)	2017	2022
Non-renewable (TJ)	595 475	717 066
Renewable (TJ)	9 218	8 633
Total (TJ)	604 693	725 699
Renewable share (%)	2	1

Growth in TES	2017-22	2021-22
Non-renewable (%)	+20.4	+6.8
Renewable (%)	-6.3	-1.2
Total (%)	+20.0	+6.7

Primary energy trade	2017	2022
Imports (TJ)	96 919	114 800
Exports (TJ)	1 770 397	1 976 851
Net trade (TJ)	1 673 478	1 862 051
Imports (% of supply)	16	16
Exports (% of production)	77	75
Energy self-sufficiency (%)	382	362

Total energy supply in 2022

- Oil — 32%
- Gas — 66%
- Nuclear
- Coal + others — -1%
- Renewables — 1%

Renewable energy supply in 2022

- Hydro/marine — 68%
- Wind — 2%
- Solar — 3%
- Bioenergy — 27%
- Geothermal
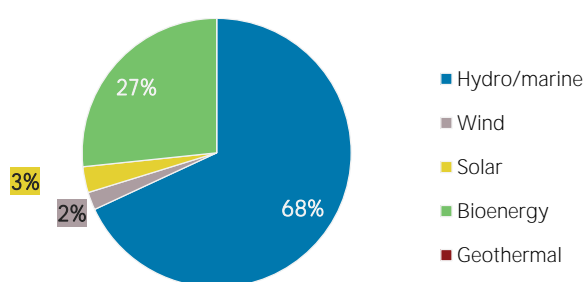
RENEWABLE ENERGY CONSUMPTION (TFEC)

Renewable TFEC trend

Legend: Electricity · Commercial heat · Bioenergy · Geothermal · Solar direct

Terajoules (TJ)

16 647 | 16 696 | 14 454 | 13 154 | 14 928 | 16 393

Years: 2017, 2018, 2019, 2020, 2021, 2022
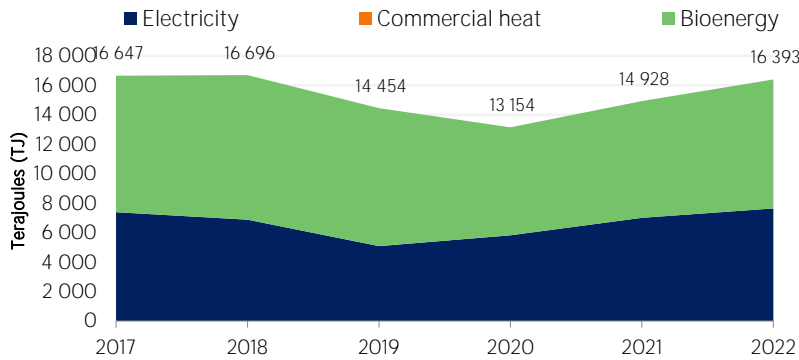
Consumption by sector	2017	2022
Industry (TJ)	1 617	2 143
Transport (TJ)	174	126
Households (TJ)	3 587	2 674
Other (TJ)	11 269	11 450

Renewable energy consumption in 2022

Legend: Geothermal · Solar direct

47% · 53%

13% · 1% · 16% · 70%

Industry · Transport · Households · Other
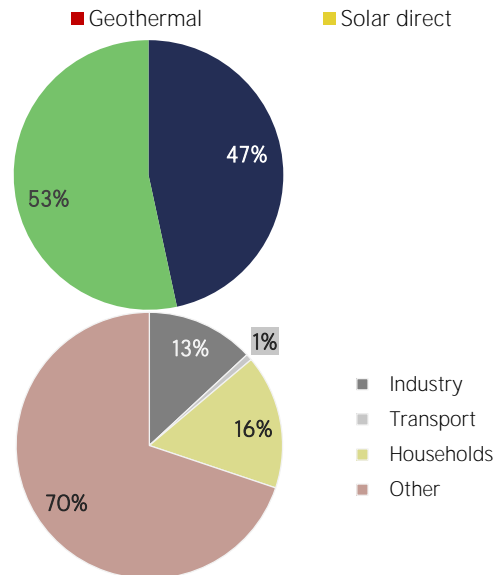
ELECTRICITY CAPACITY

Installed capacity trend

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

Megawatts (MW) / Renewable share (%)

7 942 | 7 829 | 7 639 | 7 622 | 7 965 | 7 977 | 8 321 | 8 415

Years: 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024

21%
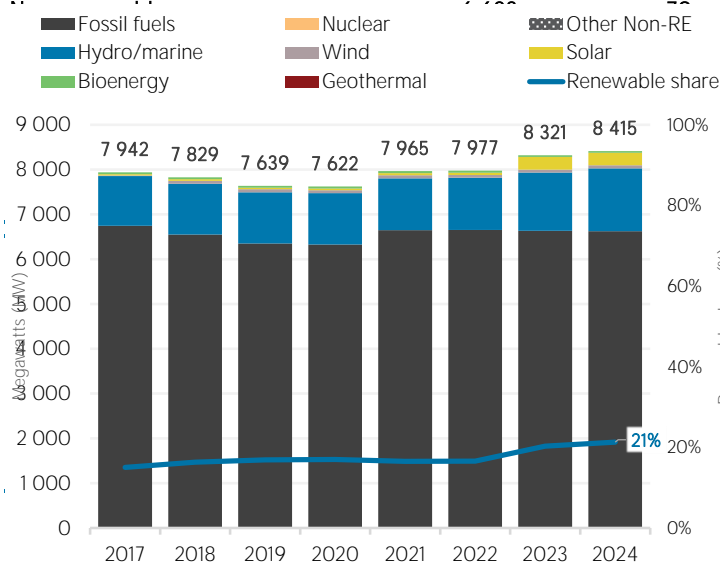
Renewable capacity in 2024

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

2% · 4% · 16% · 78%
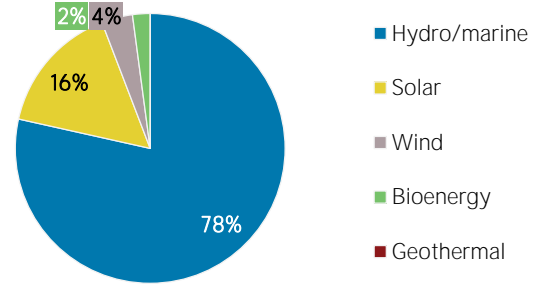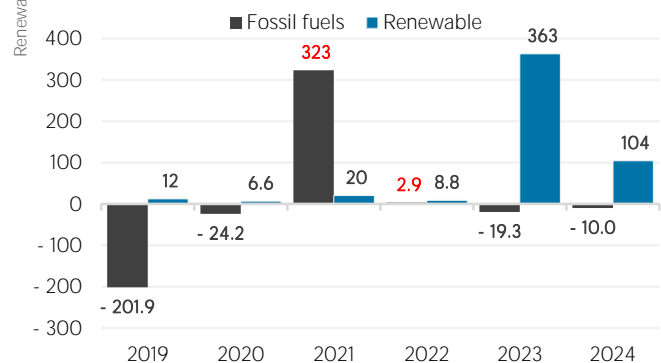
Net capacity change in 2024 (MW)

Non-renewable	Hydro and marine
− 10	+ 105
Solar	**Wind**
− 1	+ 0
Bioenergy	**Geothermal**
0	0

Net capacity change (MW)

Legend: Fossil fuels · Renewable

Year	Fossil fuels	Renewable
2019	− 201.9	12
2020	− 24.2	6.6
2021	323	20
2022	2.9	8.8
2023	− 19.3	363
2024	− 10.0	104
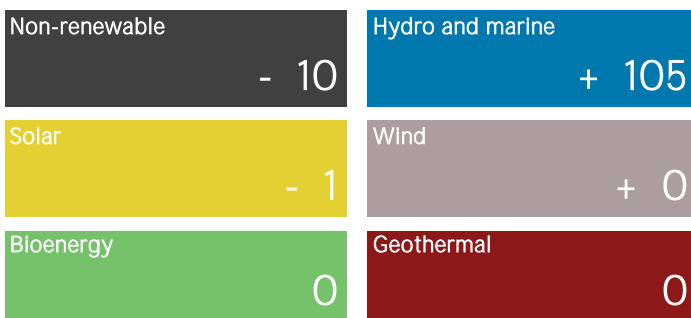
Capacity utilisation in 2023 (%)

Fossil fuels	47%
Nuclear	
Hydro/Marine	16%
Solar	6%
Wind	10%
Bioenergy	62%
Geothermal	
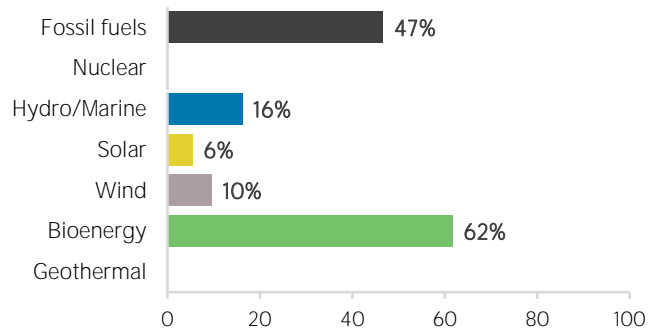
ELECTRICITY GENERATION

Generation in 2023	GWh	%
Non-renewable	27 183	93
Renewable	2 123	7
Hydro and marine	1 763	6
Solar	81	0
Wind	55	0
Bioenergy	223	1
Geothermal	0	0
Total	29 306	100

Electricity generation trend

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

Per capita electricity generation (kWh)

Total — Renewable
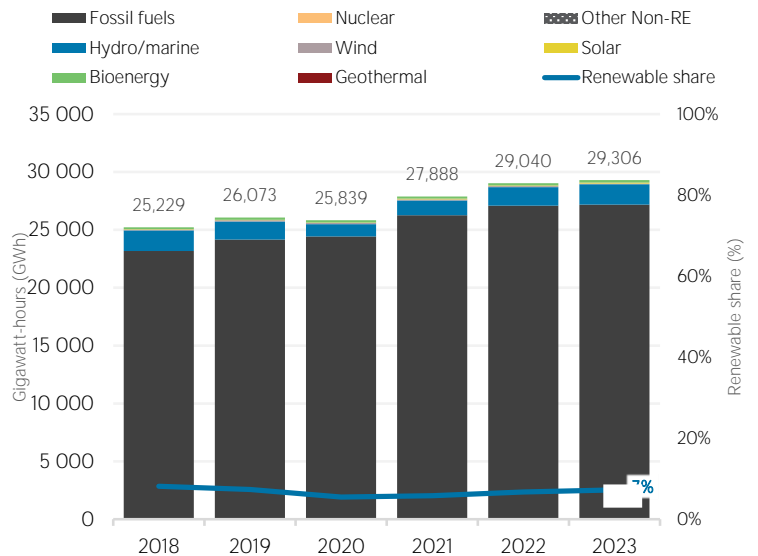
LATEST POLICIES, PROGRAMMES AND LEGISLATION

1 2023 Nationally Determined Contribution — **2023**

2 Law on Energy — **2023**

3 Azerbaijan and European Bank for Reconstruction and Development MoU — **2022**

4 European Union and Azerbaijan MoU to increase energy cooperation — **2022**

5 Methane Alert and Response System — **2022**

ENERGY AND EMISSIONS

CO_2 emissions by sector

Legend: Elec. & heat, Industrial Combustion, Transport, Processes, Buildings, Fuel Exploitation, Agriculture, Waste

+23%

Elec. & heat generation CO_2 emissions in

15 Mt CO_2

Coal + others, Gas, Oil

(1%), 99%
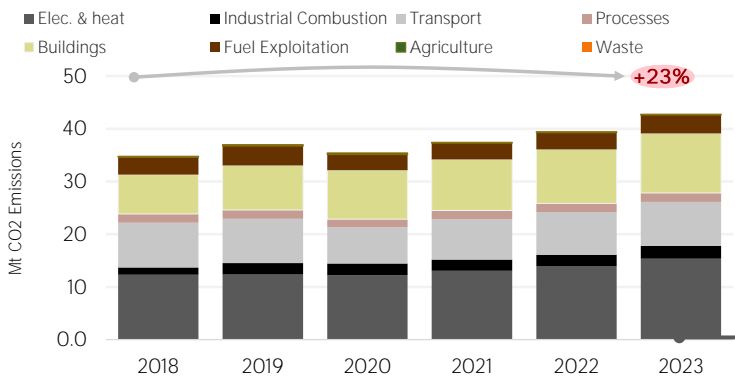
Avoided emissions from renewable elec. & heat

Emitted CO2 — RE Avoided CO2
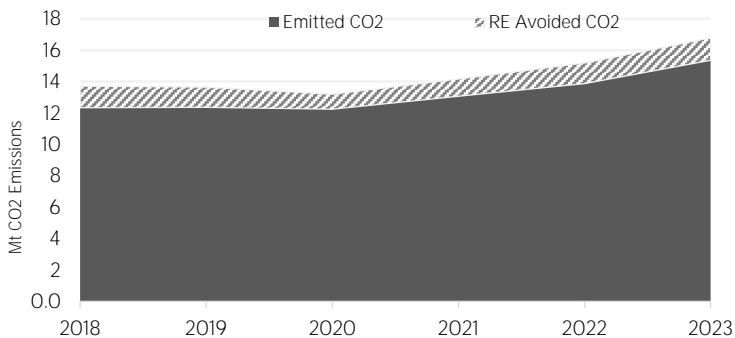
Avoided emissions based on fossil fuel mix used for power
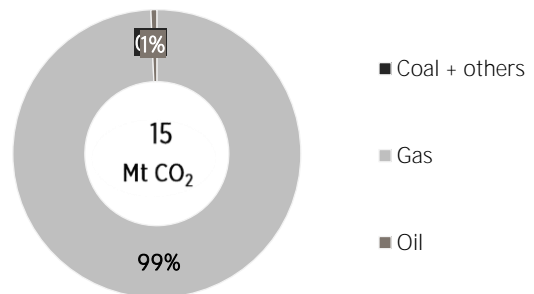
CO_2 emission factor for elec. & heat generation

AZE ···· Eurasia --- World

431 ... 458
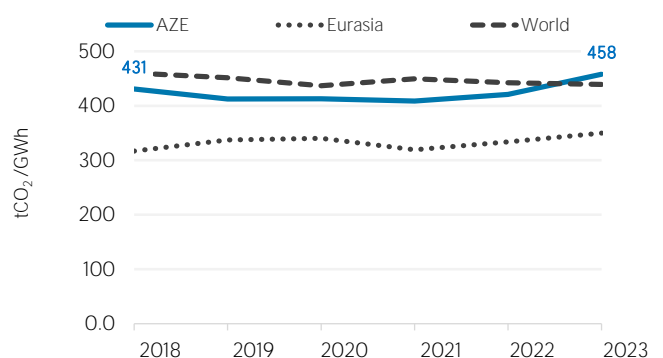
Calculated by dividing power sector emissions by elec. + heat gen.

Distribution of solar potential

World Azerbaijan

Proportion of land area

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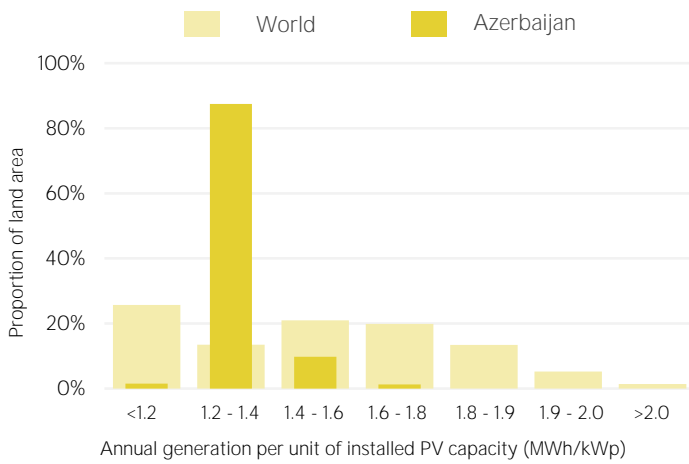
Distribution of wind potential

World Azerbaijan

Proportion of land area

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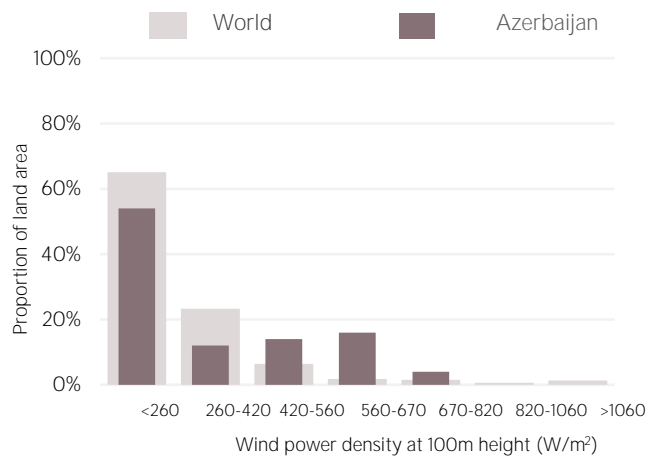
Biomass potential: net primary production

4.5 tC/ha/yr

🔴 = Global average of 3-4 tC/ha/yr
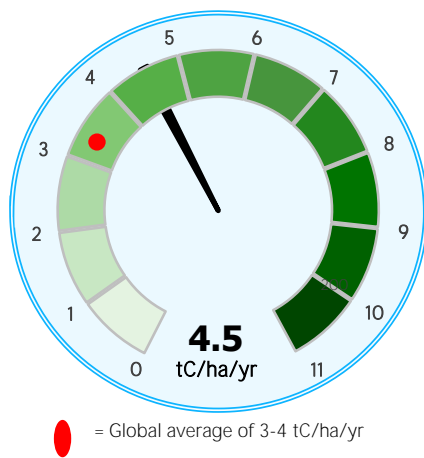
Indicators of renewable resource potential

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