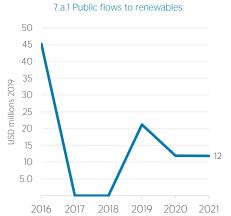
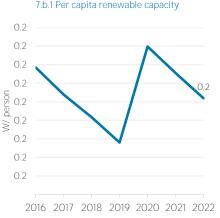
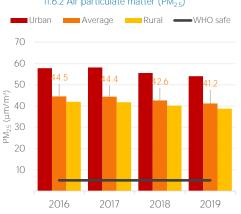
Chad



COUNTRY INDICATORS AND SDGS ■7.1.1 Access to electricity (% population) 7.3.1 Energy intensity GDP per capita —8.1.1 Real GDP growth rate -7.1.2 Access to clean cooking (% population) ■7.2.1 Renewable energy (% TFEC) 4.4 2.2 4% 4.3 100% 4.3 2.1 2% 0.2% 2.0 싎 MJ/USD GDP 2021 PPP 4.2 80% 0% USD'000s 2021 1.9 4.1 70% 60% 1.8 4.0 40% 1.7 3.9 -6% 20% 3.8 1.5 -8% 10% 2018 3.7 2020 202 202 202 2016 2018 2019 2020 2021 2016 2017 2018 2019 2020 2021 2022 2017 7.b.1 Per capita renewable capacity 7.a.1 Public flows to renewables 11.6.2 Air particulate matter (PM_{2.5}) Average Rural 50 0.2







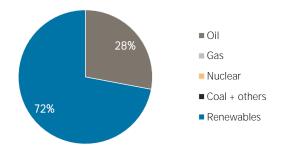
TOTAL ENERGY SUPPLY (TES)

Total Energy Supply (TES)	2016	2021
Non-renewable (TJ)	19 648	29 875
Renewable (TJ)	71 857	76 974
Total (TJ)	91 505	106 849
Renewable share (%)	79	72

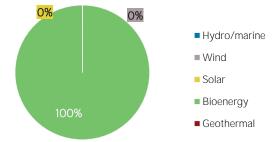
Growth in TES	2016-21	2020-21
Non-renewable (%)	+52.1	+15.3
Renewable (%)	+7.1	+1.4
Total (%)	+16.8	+4.9

Primary energy trade	2016	2021
Imports (TJ)	6 957	106
Exports (TJ)	261 212	250 893
Net trade (TJ)	254 255	250 787
Imports (% of supply)	8	0
Exports (% of production)	75	70
Energy self-sufficiency (%)	379	336

Total energy supply in 2021



Renewable energy supply in 2021

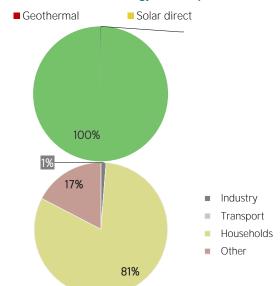


RENEWABLE ENERGY CONSUMPTION (TFEC)

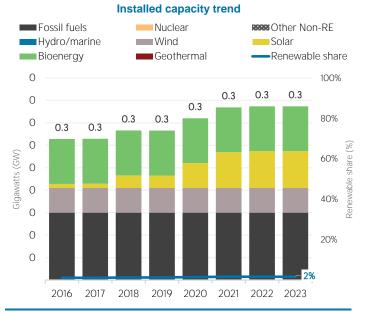
Renewable TFEC trend

■ Electricity ■ Commercial heat ■ Bioenergy 90 77 75 74 80 72 73 70 Petajoules (PJ) 60 50 40 30 20 10 2016 2017 2018 2019 2020 2021 Consumption by sector 2016 2021 Industry (TJ) 903 967 Transport (TJ) 0 0 Households (TJ) 59 127 62 690 Other (TJ) 11 858 13 383

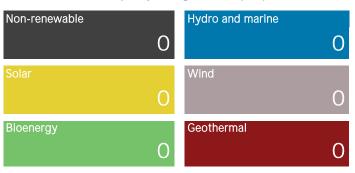
Renewable energy consumption in 2021



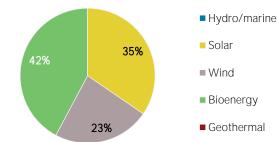
ELECTRICITY CAPACITY



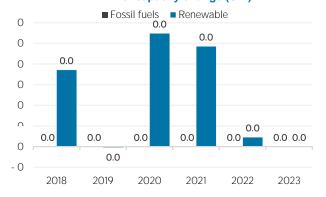




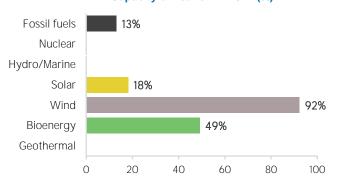
Renewable capacity in 2023



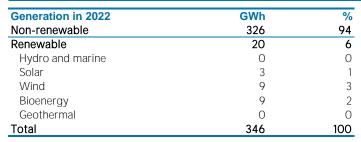
Net capacity change (GW)



Capacity utilisation in 2022 (%)



ELECTRICITY GENERATION



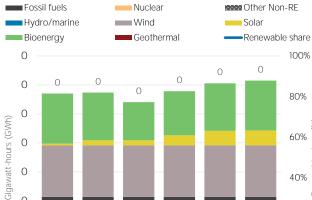


60%

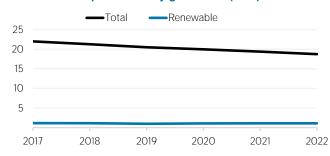
40%

20%

0%



Per capita electricity generation (kWh)



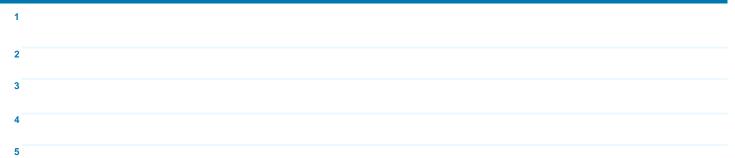


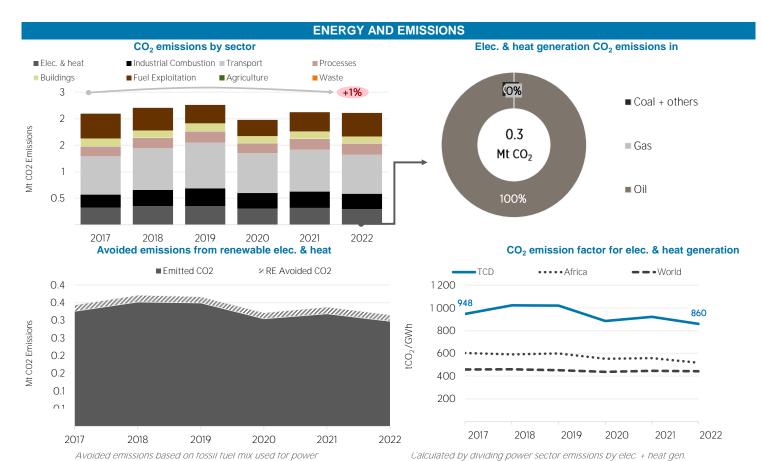
LATEST POLICIES, PROGRAMMES AND LEGISLATION

0

0

0

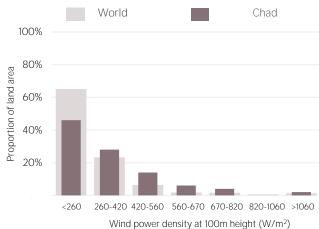




RENEWABLE RESOURCE POTENTIAL

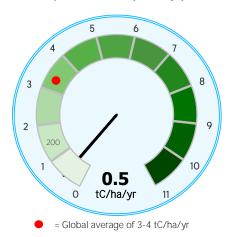
Distribution of solar potential World Chad 100% 80% Proportion of land area 60% 40% 20% <12 12 - 14 1.4 - 1.6 1.6 - 1.8 18 - 19 19 - 20 >20

Distribution of wind potential



Biomass potential: net primary production

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



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



Additional notes: Capacity per capita and public investments SDGs only apply to developing areas. Energy self-sufficiency has been defined as total primary energy production divided by total primary energy supply. Energy trade includes all commodities in Chapter 27 of the Harmonised System (H5). Capacity utilisation is calculated as annual generation divided by year-end capacity x 8,760h/year. Avoided emissions from renewable power is calculated as renewable generation divided by fossil fuel generation multiplied by reported emissions from the power sector. This assumes that, if renewable power did not exist, fossil fuels would be used in its place to generate the same amount of power and using the same mix of fossil fuels. In countries and years where no fossil fuel generation occurs, an average fossil fuel emission factor has been used to calculate the avoided emissions.

These profiles have been produced to provide an overview of developments in renewable energy in different countries and areas. The IRENA statistics team would welcome comments and feedback on its structure and content, which can be sent to statistics@irena.org.

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