Jordan

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$_{2.5}$)
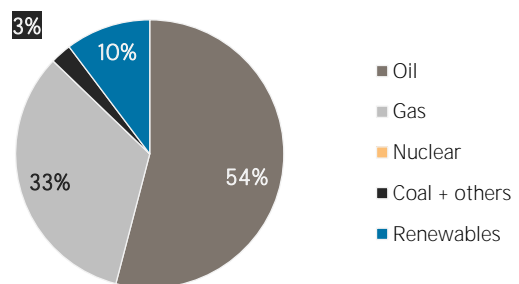
Urban Average Rural — WHO safe
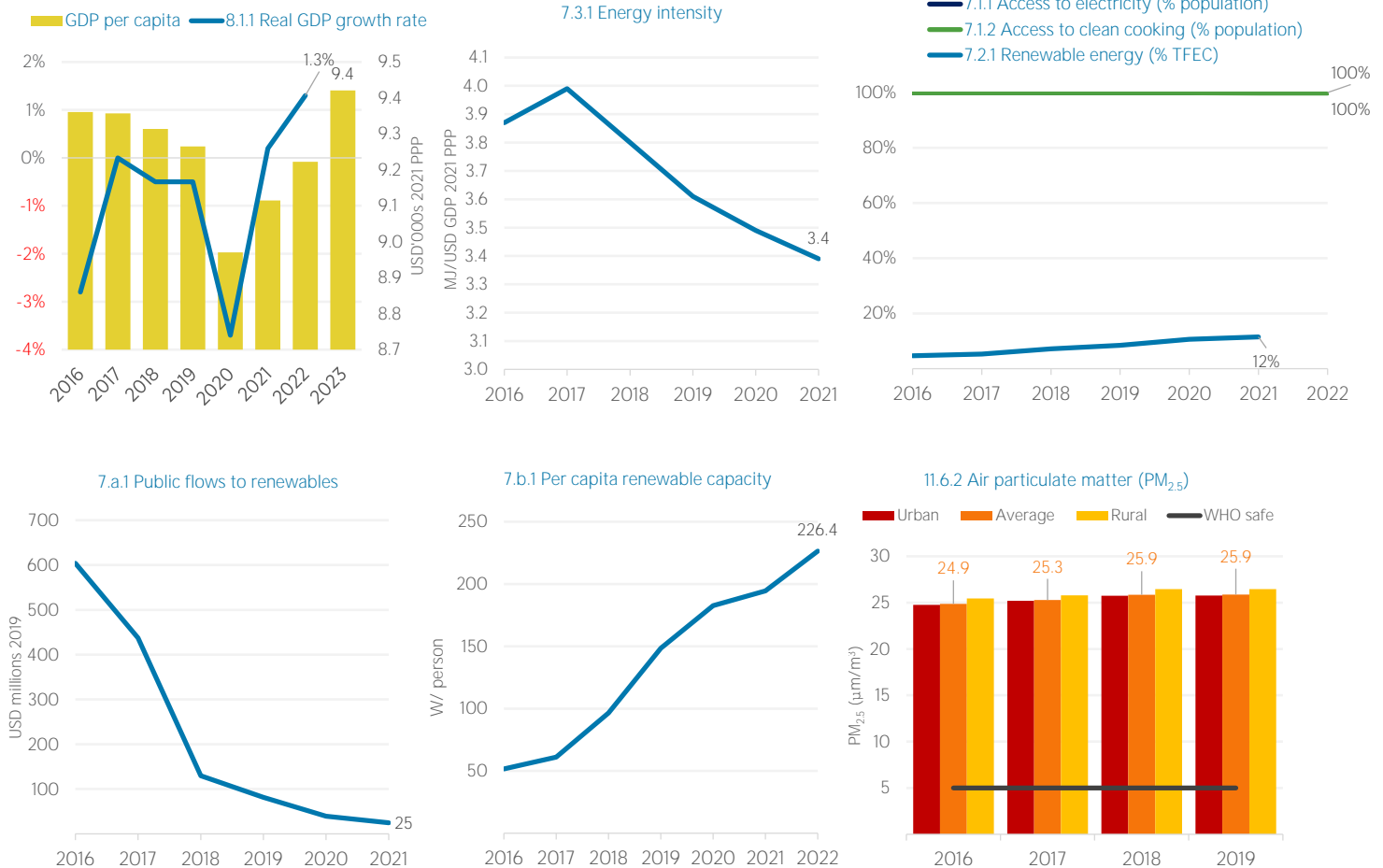
TOTAL ENERGY SUPPLY (TES)

Total Energy Supply (TES)	2016	2021
Non-renewable (TJ)	363 679	300 538
Renewable (TJ)	15 477	34 401
Total (TJ)	379 157	334 939
Renewable share (%)	4	10

Growth in TES	2016-21	2020-21
Non-renewable (%)	-17.4	-5.3
Renewable (%)	+122.3	+4.7
Total (%)	-11.7	-4.3

Primary energy trade	2016	2021
Imports (TJ)	395 928	303 433
Exports (TJ)	26 080	11 061
Net trade (TJ)	- 369 848	- 292 372
Imports (% of supply)	104	91
Exports (% of production)	142	28
Energy self-sufficiency (%)	5	12

Total energy supply in 2021

- Oil
- Gas
- Nuclear
- Coal + others
- Renewables

Renewable energy supply in 2021

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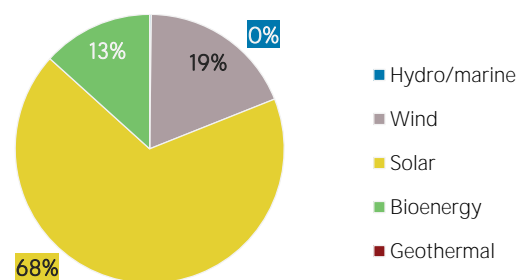
RENEWABLE ENERGY CONSUMPTION (TFEC)

Renewable TFEC trend

Legend: ■ Electricity ■ Commercial heat ■ Bioenergy

Petajoules (PJ)

Values labelled: 12 (2016), 17 (2017), 23 (2018), 30 (2019), 48 (2020), 53 (2021)

Years: 2016, 2017, 2018, 2019, 2020, 2021
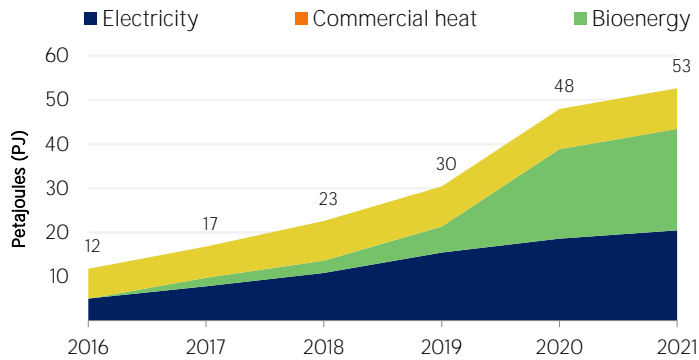
Consumption by sector	2016	2021
Industry (TJ)	1 124	4 377
Transport (TJ)	0	0
Households (TJ)	2 903	17 712
Other (TJ)	7 715	30 571

Renewable energy consumption in 2021

Legend: ■ Geothermal ■ Solar direct

Pie chart: 39%, 44%, 18%

Pie chart: Industry 8%, Transport, Households 34%, Other 58%

Legend: ■ Industry ■ Transport ■ Households ■ Other
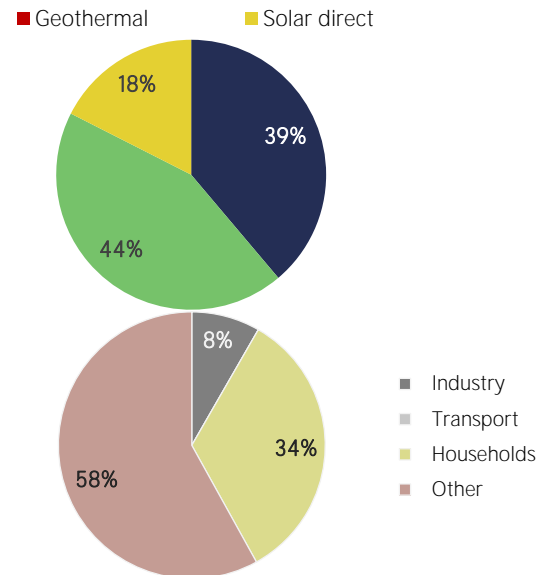
ELECTRICITY CAPACITY

Installed capacity trend

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

Gigawatts (GW) / Renewable share (%)

Values: 4.3 (2016), 4.3 (2017), 5.3 (2018), 5.6 (2019), 6.1 (2020), 6.4 (2021), 6.8 (2022), 7.1 (2023)

Renewable share: 37%

Years: 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023

Net capacity change in 2023 (MW)

Non-renewable	+ 235	Hydro and marine	0
Solar	+ 24	Wind	0
Bioenergy	0	Geothermal	0

Renewable capacity in 2023

0% (Bioenergy), 0% (Hydro/marine)

Pie chart: 23% (Wind), 76% (Solar)

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

Net capacity change (GW)

Legend: ■ Fossil fuels ■ Renewable

Year	Fossil fuels	Renewable
2018	0.6	0.4
2019	0.0	0.3
2020	- 0.2	0.7
2021	0.0	0.4
2022	0.2	0.1
2023	0.2	0.0
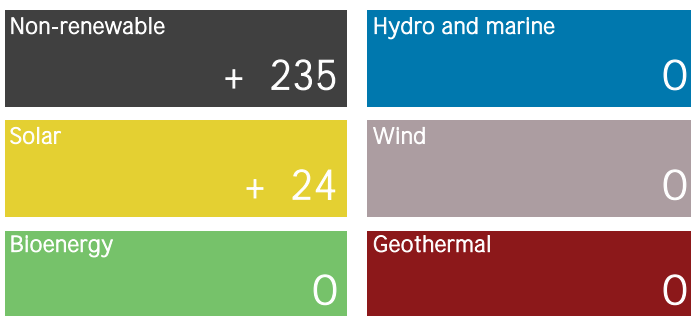
Capacity utilisation in 2022 (%)

Source	Value
Fossil fuels	50%
Nuclear	
Hydro/Marine	61%
Solar	23%
Wind	33%
Bioenergy	3%
Geothermal	
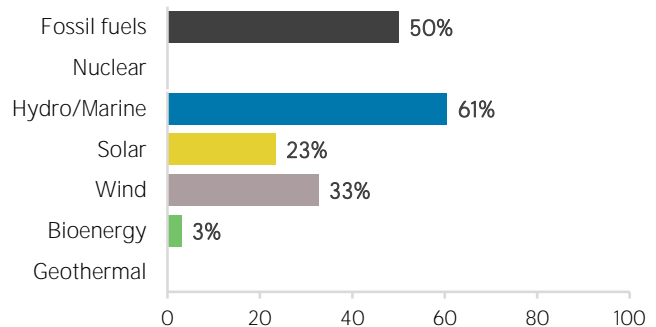
ELECTRICITY GENERATION

Generation in 2022	GWh	%
Non-renewable	17 975	76
Renewable	5 680	24
Hydro and marine	19	0
Solar	3 874	16
Wind	1 784	8
Bioenergy	4	0
Geothermal	0	0
Total	23 655	100

Per capita electricity generation (kWh)
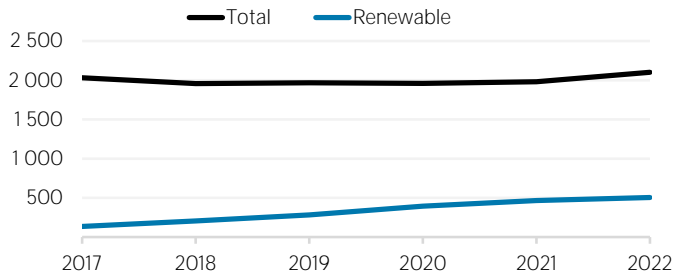
Electricity generation trend

Legend: Fossil fuels, Nuclear, Other Non-RE, Hydro/marine, Wind, Solar, Bioenergy, Geothermal, Renewable share
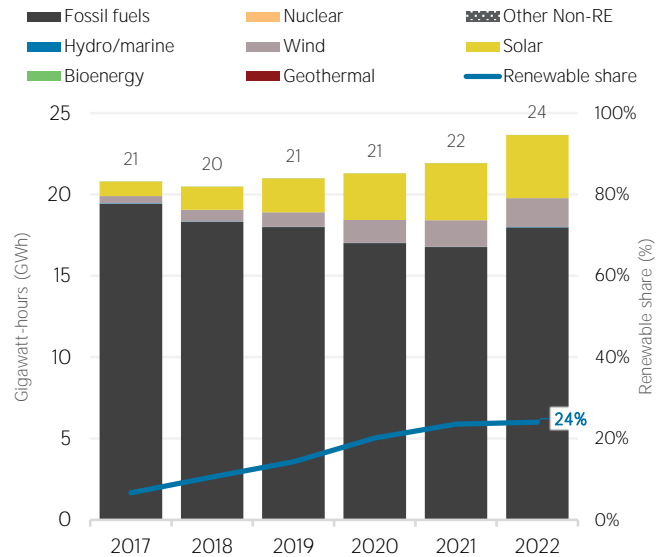
LATEST POLICIES, PROGRAMMES AND LEGISLATION

1 Energy Academy in Germany and Jordan — 2017

2 JS 2108:2013 - Energy efficiency labeling of air conditioners — 2014

3 Jordan 20 000 subsidised solar water heaters programme — 2013

4 JS 2095:2013 Technical regulation on eco-design requirements for Glandless standalone circulators and glandless circulators integrated in products — 2013

5 JS 2106 Technical Regulation on eco-design requirements for televisions — 2013

ENERGY AND EMISSIONS

CO$_2$ emissions by sector

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

-11%

Elec. & heat generation CO$_2$ emissions in

9 Mt CO$_2$

0%
14%
86%

Legend: Coal + others, Gas, Oil
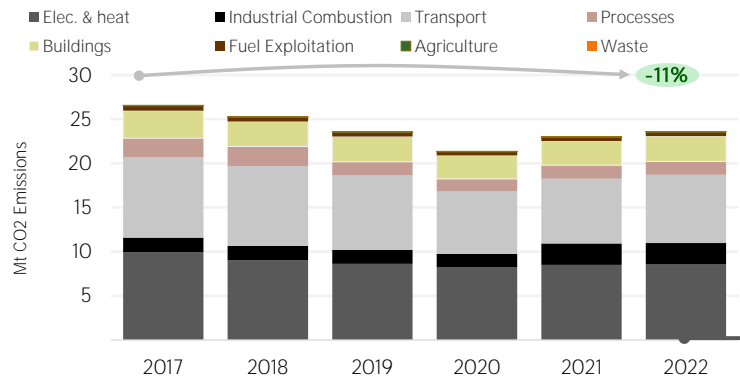
Avoided emissions from renewable elec. & heat

Legend: Emitted CO2, RE Avoided CO2
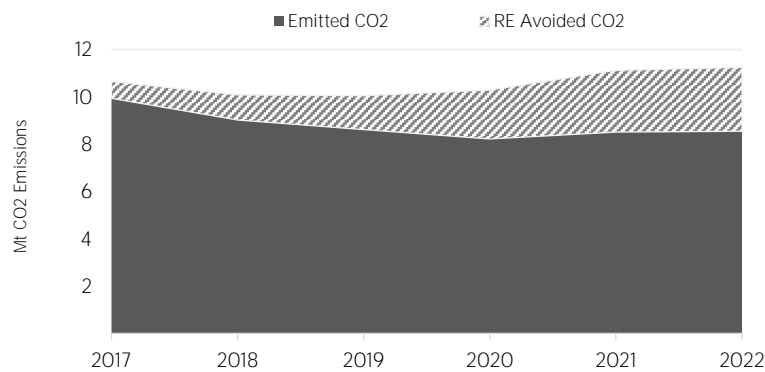
Avoided emissions based on fossil fuel mix used for power
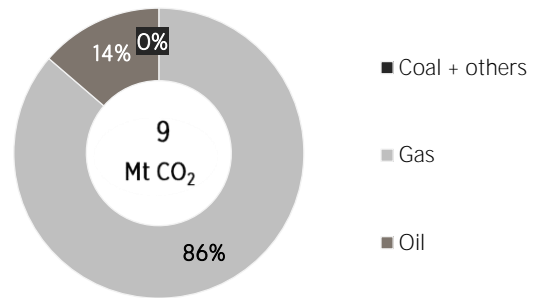
CO$_2$ emission factor for elec. & heat generation

Legend: JOR, Middle East, World

478
361
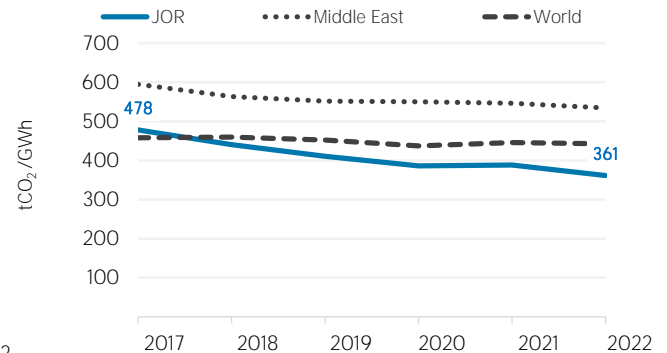
Calculated by dividing power sector emissions by elec. + heat gen.

Distribution of solar potential

Legend: World, Jordan

Y-axis: Proportion of land area (0% to 100%)

X-axis: Annual generation per unit of installed PV capacity (MWh/kWp)
Categories: <1.2, 1.2 - 1.4, 1.4 - 1.6, 1.6 - 1.8, 1.8 - 1.9, 1.9 - 2.0, >2.0
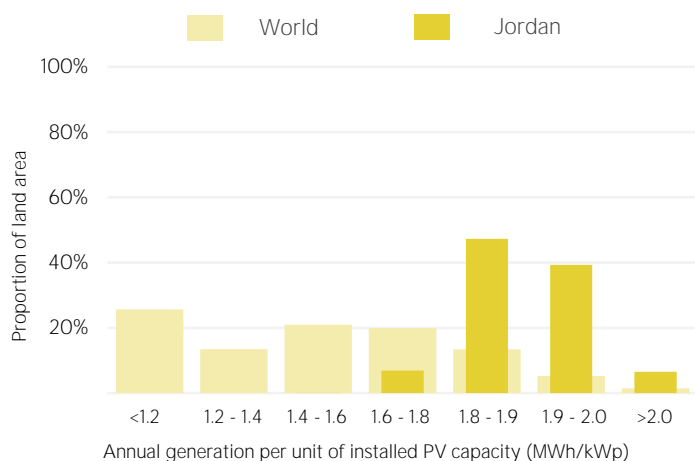
Distribution of wind potential

Legend: World, Jordan

Y-axis: Proportion of land area (0% to 100%)

X-axis: Wind power density at 100m height (W/m^2)
Categories: <260, 260-420, 420-560, 560-670, 670-820, 820-1060, >1060
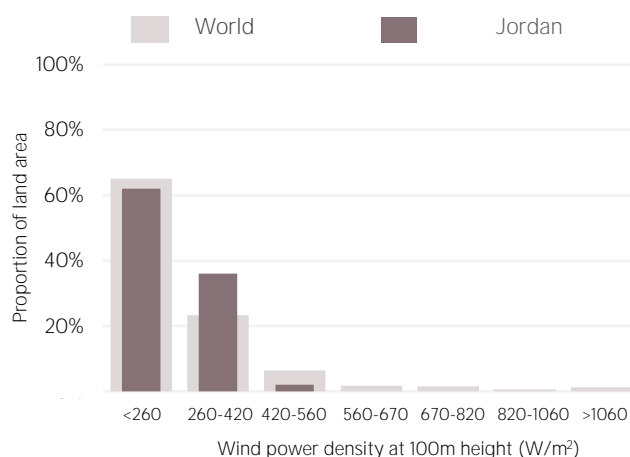
Biomass potential: net primary production

Gauge reading: 0.5 tC/ha/yr

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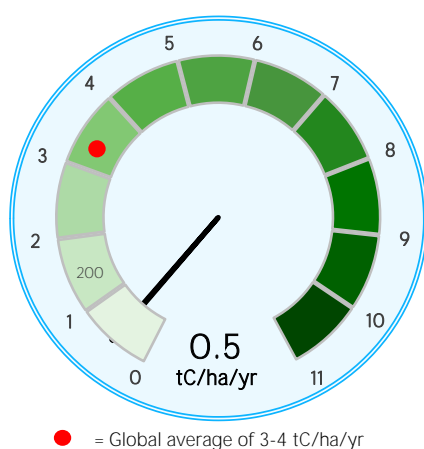
Indicators of renewable resource potential

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/m^2) 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

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