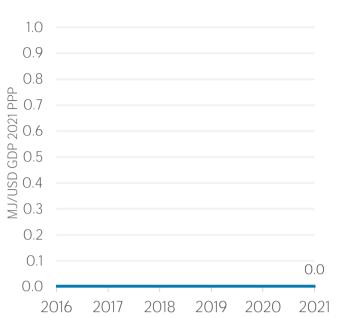
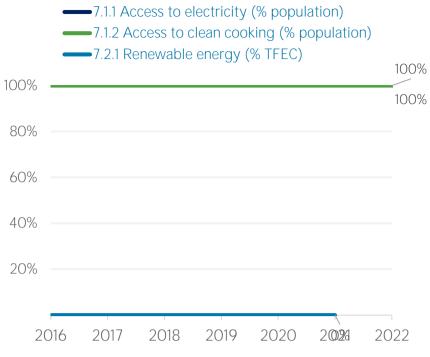
ENERGY PROFILE

Monaco

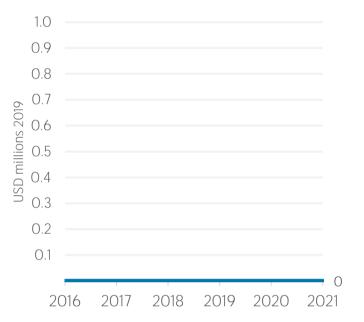
GDP per capita —8.1.1 Real GDP growth rate 25% 1.0 0.9 20% 0.8 11.8% 15% 10% 5% 0% -5% 0.2 -10% 0.1 0.0 -15% 0.0 2016 2011 2018 2019 2020 202 2022 2023



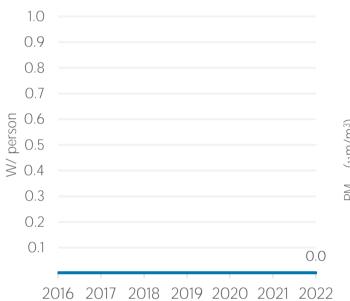
7.3.1 Energy intensity



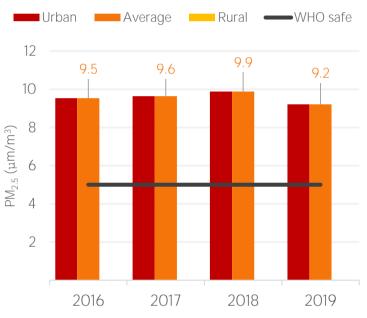
7.a.1 Public flows to renewables



7.b.1 Per capita renewable capacity



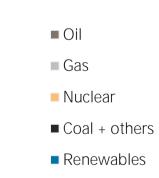
11.6.2 Air particulate matter (PM_{2.5})



TOTAL ENERGY SUPPLY (TES)

Total Energy Supply (TES)	2016	2021
Non-renewable (TJ)	n.a.	n.a.
Renewable (TJ)	n.a.	n.a.
Total (TJ)	n.a.	n.a.
Renewable share (%)	n.a.	n.a.
Growth in TES	2016-21	2020-21
Non-renewable (%)	n.a.	n.a.

Total energy supply in 2021



International Renewable Energy Agency

COUNTRY INDICATORS AND SDGS

Renewable (%)	n.a.	n.a.
Total (%)	n.a.	n.a.

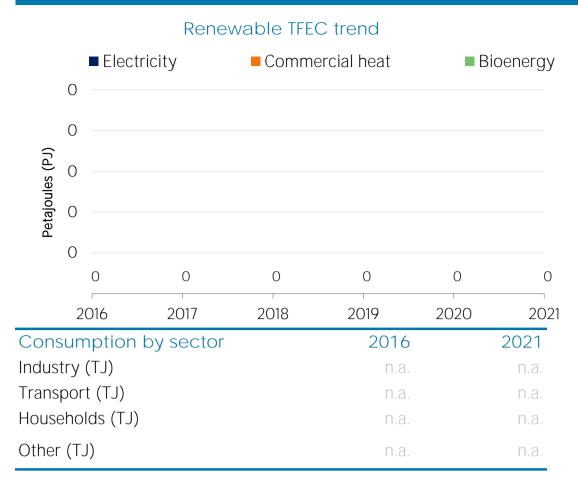
Primary energy trade	2016	2021	
Imports (TJ)	0	0	
Exports (TJ)	0	0	
Net trade (TJ)	0	0	
Imports (% of supply)	n.a.	n.a.	
Exports (% of production)	n.a.	n.a.	
Energy self-sufficiency (%)	n.a.	n.a.	

Renewable energy supply in 2021



Geothermal

RENEWABLE ENERGY CONSUMPTION (TFEC)



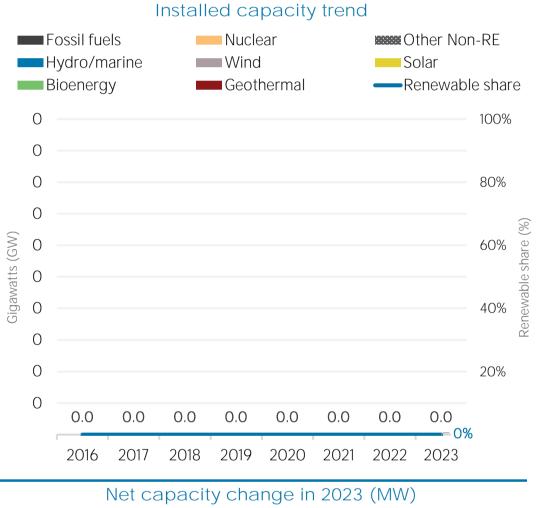
Renewable energy consumption in 2021

Geothermal

Solar direct



ELECTRICITY CAPACITY



Renewable capacity in 2023



Net capacity change (GW)

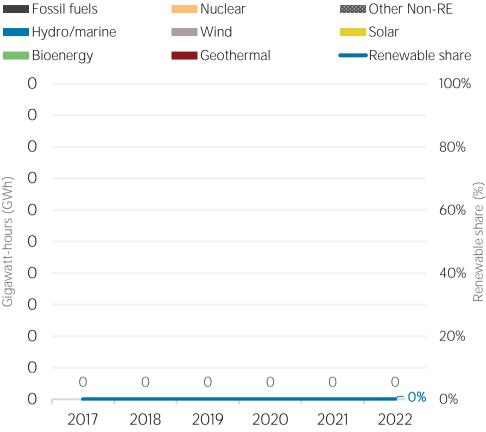


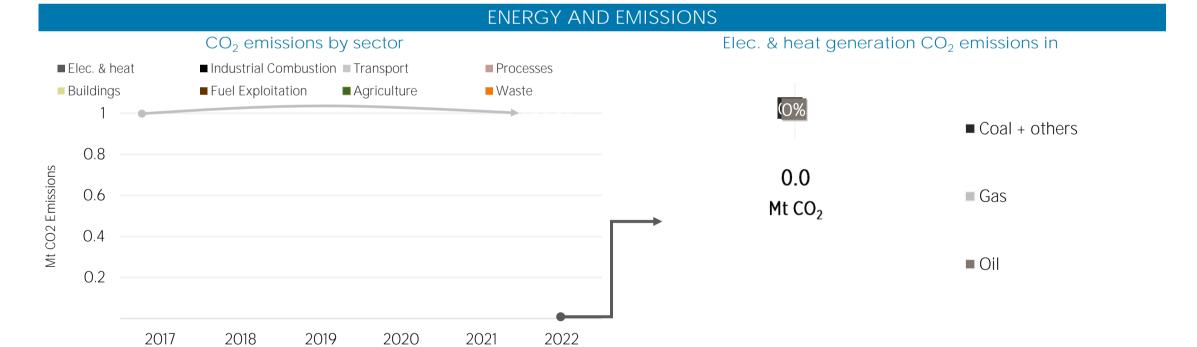
ELECTRICITY GENERATION

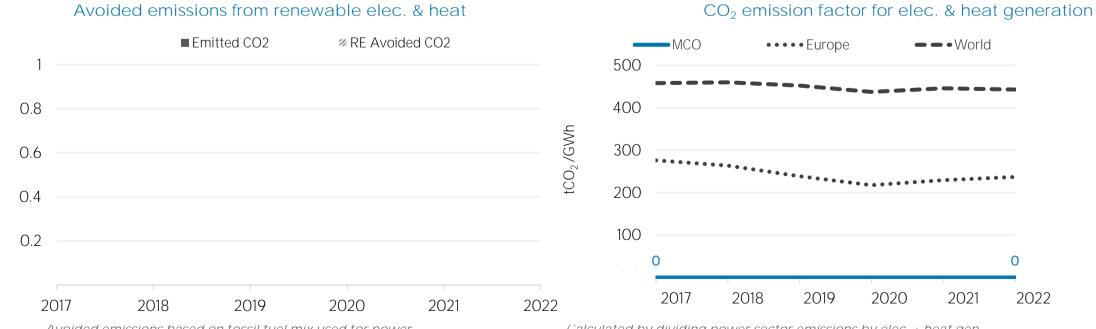
Generation in 2022	GWh	%		Electricity ge
Non-renewable	0	n.a.	Fossil fuels	Nuclear
Renewable	0	n.a.	Hydro/marine	Wind
Hydro and marine	0	n.a.	Bioenergy	Geotherm
Solar	0	n.a.		
Wind	0	n.a.	0	
Bioenergy	0	n.a.	0	
Geothermal	0	n.a.	0	
Total	0	0	0	
Per capita electricity	generation (kWb)			
i el capita cicetiteity	generation (kwn)		<u>9</u> 0	
	Renewable		ours	
1			0 t-ho	
1			Gigawatt-hours (GWh)	
1			0	

Mt CO2 Emissions

Electricity generation trend







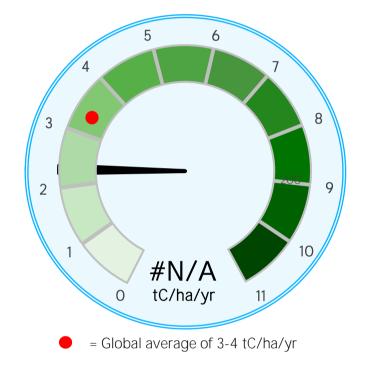
Avoided emissions based on fossil fuel mix used for power

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

RENEWABLE RESOURCE POTENTIAL



Biomass potential: net primary production



World Monaco 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)

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

Distribution of wind potential

International Renewable Energy Agency

IRENA Headquarters Masdar City P.O. Box 236, Abu Dhabi United Arab Emirates www.irena.org Prospects; UNSD Energy Balances; UN COMTRADE; World Bank World Development Indicators; EDGAR; REN21 Global Status Report; IEA-IRENA Joint Policies and Measures Database; IRENA Global Atlas; and World Bank Global Solar Atlas and Global Wind Atlas.

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 (HS). 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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