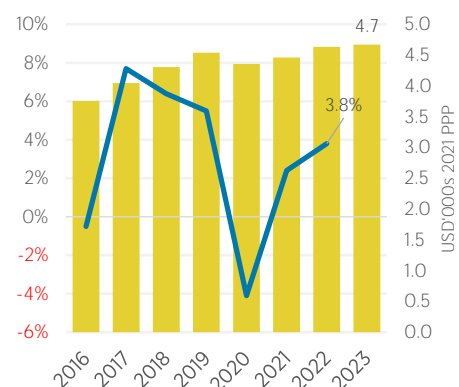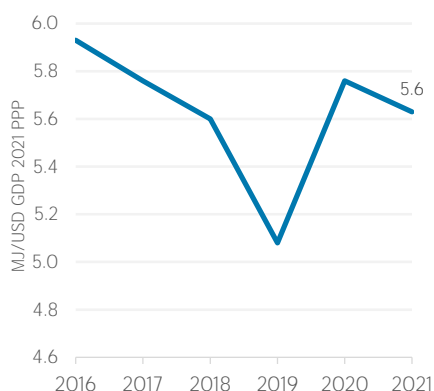# Nepal
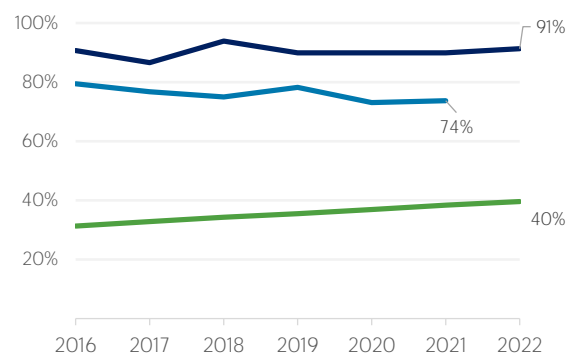
IRENA
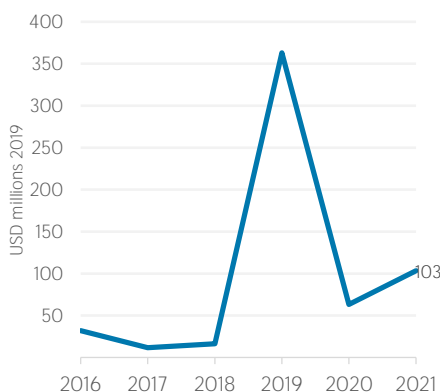International Renewable Energy Agency

COUNTRY INDICATORS AND SDGS

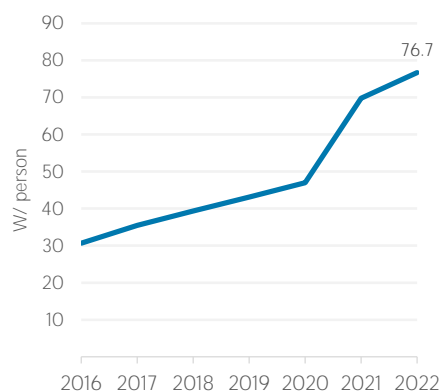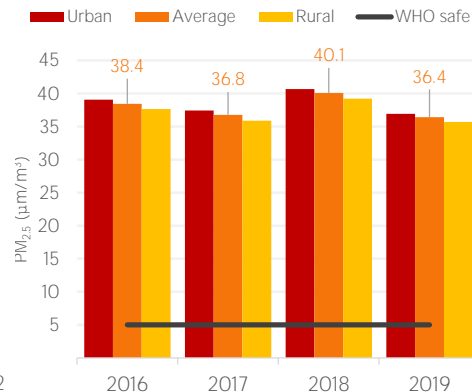GDP per capita   8.1.1 Real GDP growth rate

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

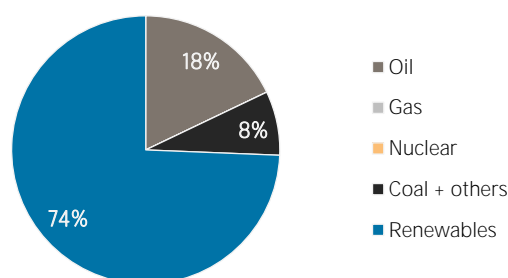11.6.2 Air particulate matter (PM$_{2.5}$)

Urban   Average   Rural   WHO safe

TOTAL ENERGY SUPPLY (TES)

Total Energy Supply (TES)	2016	2021
Non-renewable (TJ)	105 876	165 893
Renewable (TJ)	442 564	481 280
Total (TJ)	548 440	647 173
Renewable share (%)	81	74

Growth in TES	2016-21	2020-21
Non-renewable (%)	+56.7	+3.7
Renewable (%)	+8.7	-0.8
Total (%)	+18.0	+0.3

Primary energy trade	2016	2021
Imports (TJ)	118 798	174 864
Exports (TJ)	11	1 775
Net trade (TJ)	- 118 787	- 173 089
Imports (% of supply)	22	27
Exports (% of production)	0	0
Energy self-sufficiency (%)	79	74

Total energy supply in 2021

Oil
Gas
Nuclear
Coal + others
Renewables

Renewable energy supply in 2021

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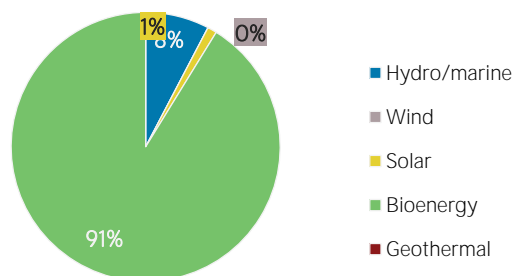
RENEWABLE ENERGY CONSUMPTION (TFEC)

Renewable TFEC trend

Legend: Electricity, Commercial heat, Bioenergy

Petajoules (PJ)

Values: 446 (2016), 455 (2017), 465 (2018), 479 (2019), 493 (2020), 512 (2021)
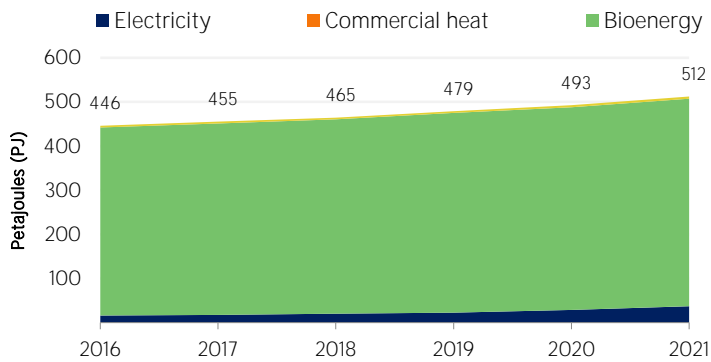
Consumption by sector	2016	2021
Industry (TJ)	19 950	46 474
Transport (TJ)	20	16
Households (TJ)	404 831	397 166
Other (TJ)	21 236	68 684

Renewable energy consumption in 2021

Legend: Geothermal, Solar direct

Top pie: 1%, 7%, 92%

Bottom pie (Industry, Transport, Households, Other): 0%, 9%, 13%, 78%
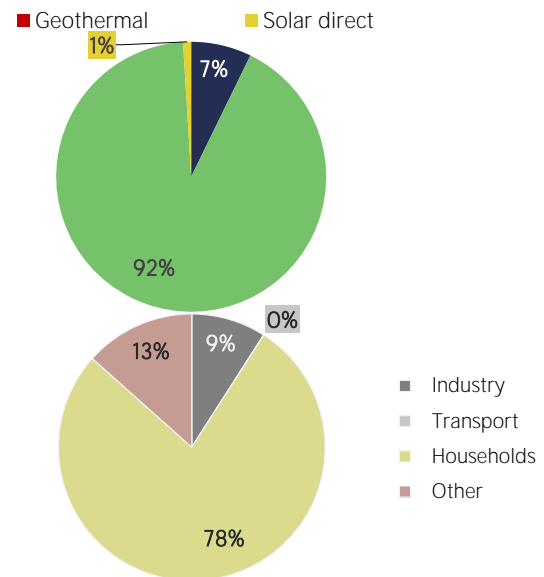
ELECTRICITY CAPACITY

Installed capacity trend

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

Gigawatts (GW) / Renewable share (%)

Values: 0.9 (2016), 1.0 (2017), 1.2 (2018), 1.3 (2019), 1.4 (2020), 2.1 (2021), 2.4 (2022), 2.9 (2023)

Renewable share: 98%, 100%
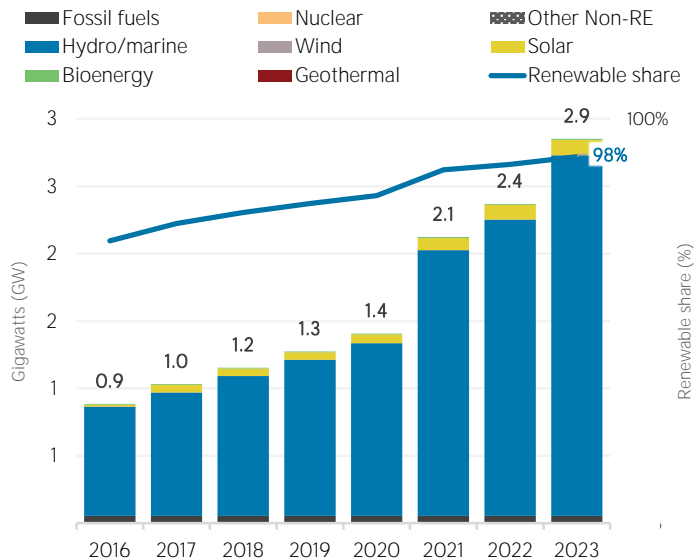
Net capacity change in 2023 (MW)

Non-renewable	0	Hydro and marine	+ 478
Solar	+ 6	Wind	0
Bioenergy	0	Geothermal	0
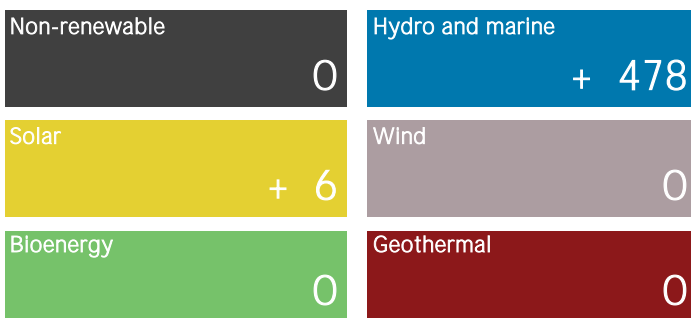
Renewable capacity in 2023

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

0%, 0%, 96%

Net capacity change (GW)

Legend: Fossil fuels, Renewable

Renewable values: 0.1 (2018), 0.1 (2019), 0.1 (2020), 0.7 (2021), 0.2 (2022), 0.5 (2023)
Fossil fuels values: 0.0 across all years
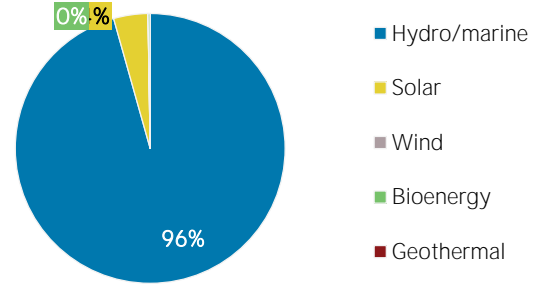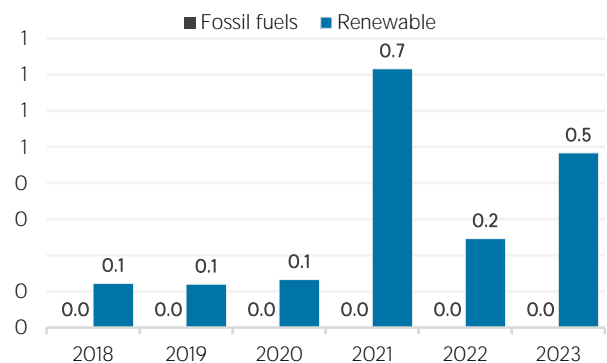
Capacity utilisation in 2022 (%)

Fossil fuels	0%
Nuclear	
Hydro/Marine	56%
Solar	12%
Wind	20%
Bioenergy	17%
Geothermal	
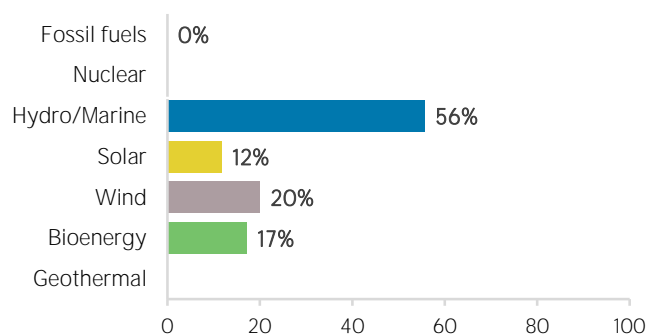
ELECTRICITY GENERATION

Generation in 2022	GWh	%
Non-renewable	0	0
Renewable	10 290	100
Hydro and marine	10 176	99
Solar	103	1
Wind	0	0
Bioenergy	11	0
Geothermal	0	0
Total	10 290	100

Per capita electricity generation (kWh)
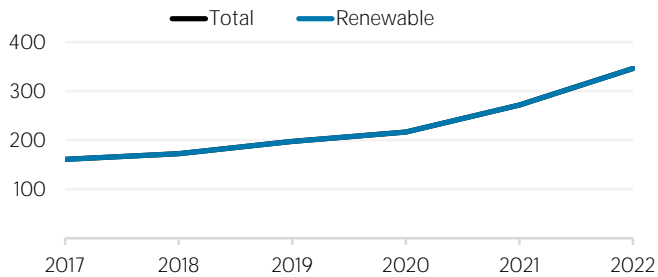
Electricity generation trend
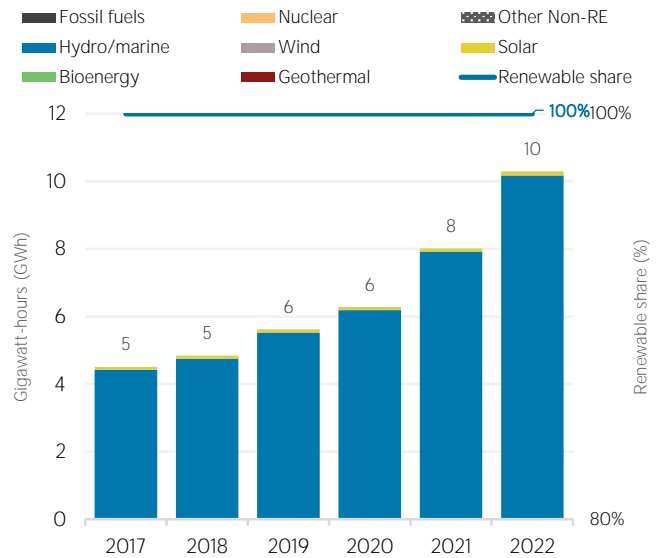
# LATEST POLICIES, PROGRAMMES AND LEGISLATION

1 Girls4rurals initiative — **2018**

2 Renewable Energy Subsidy Policy of Nepal — **2016**

3 National Rural and Renewable Energy Programme (NRREP) of Nepal — **2012**

4 Rural Energy Policy of Nepal — **2006**

5

ENERGY AND EMISSIONS

CO$_2$ emissions by sector

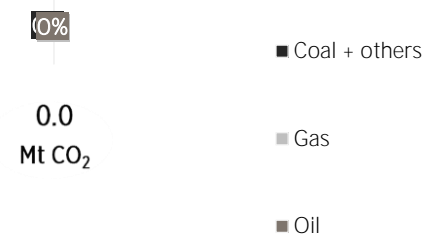## Elec. & heat generation CO$_2$ emissions in

0.0 Mt CO$_2$

- Coal + others
- Gas
- Oil
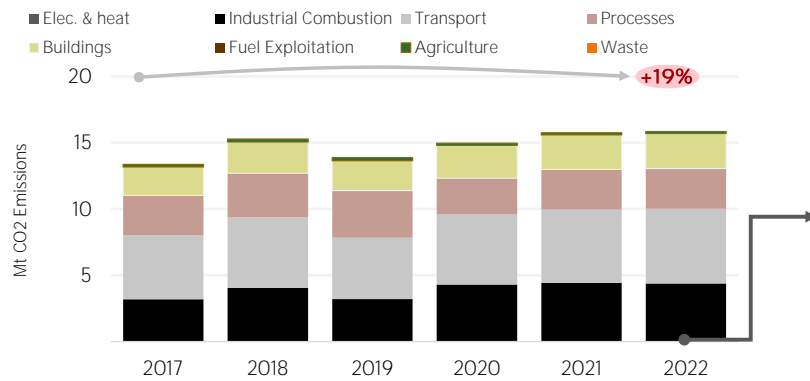
Avoided emissions from renewable elec. & heat
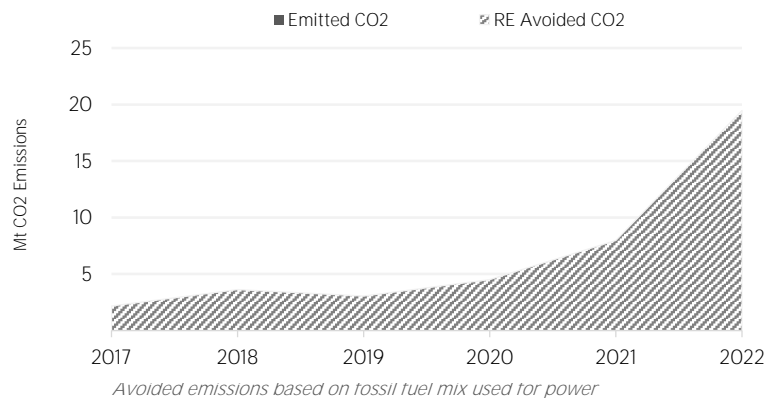
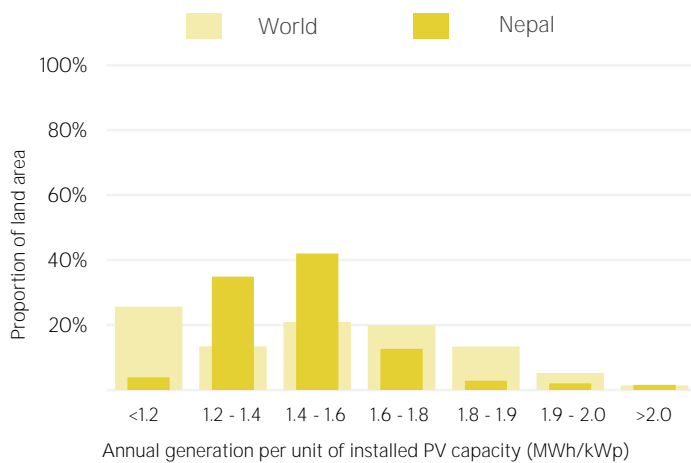*Avoided emissions based on fossil fuel mix used for power*

CO$_2$ emission factor for elec. & heat generation
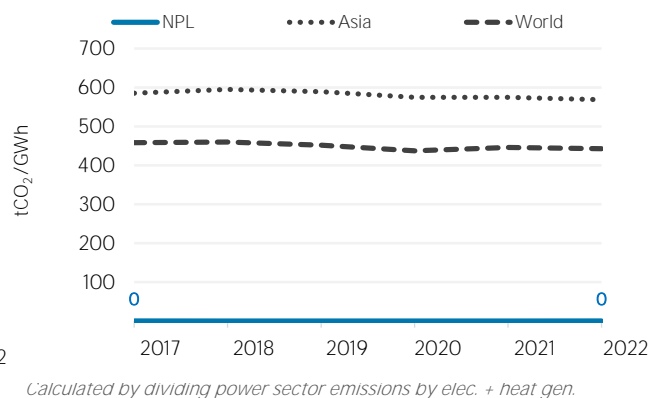
Calculated by dividing power sector emissions by elec. + heat gen.

Distribution of solar potential
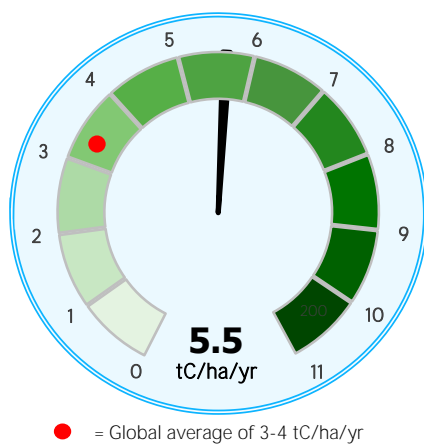
World Nepal

Proportion of land area

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

Distribution of wind potential

World Nepal

Proportion of land area

Wind power density at 100m height (W/m^2)
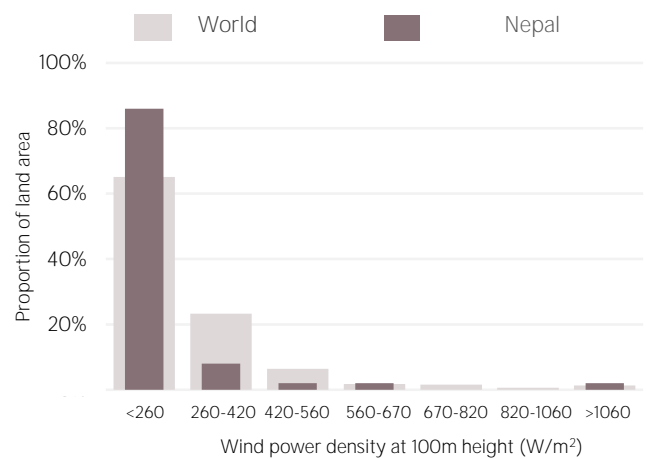
Biomass potential: net primary production

5.5
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