Serbia

IRENA
International Renewable Energy Agency

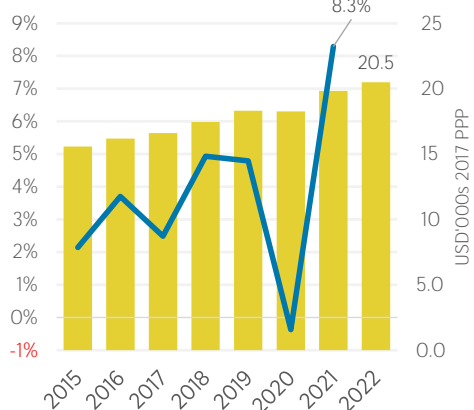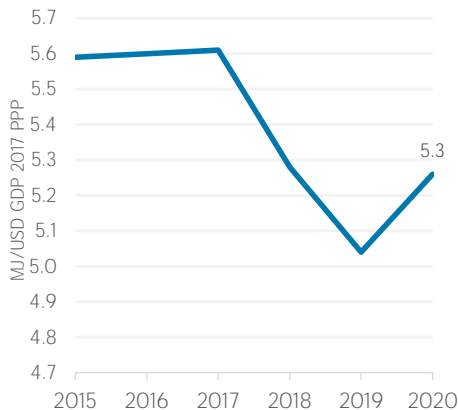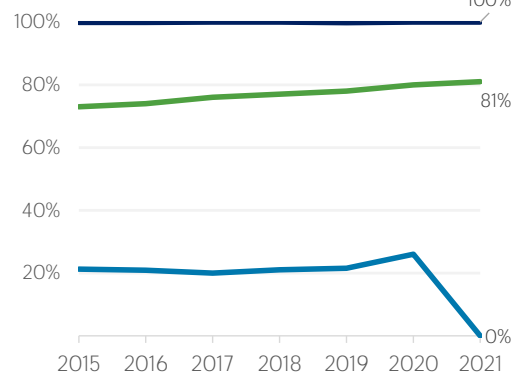## COUNTRY INDICATORS AND SDGS

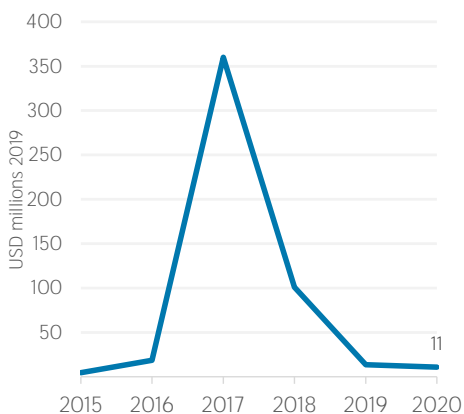**GDP per capita** — **8.1.1 Real GDP growth rate**
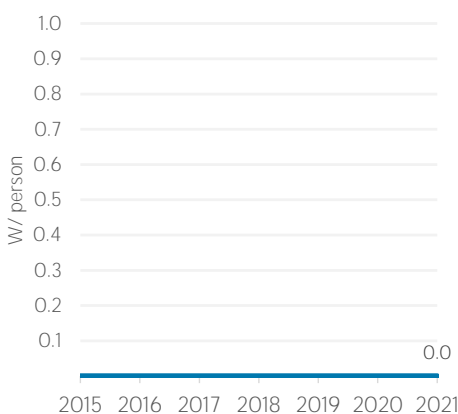

7.3.1 Energy intensity

- 7.1.1 Access to electricity (% population)
- 7.1.2 Access to clean cooking (% population)
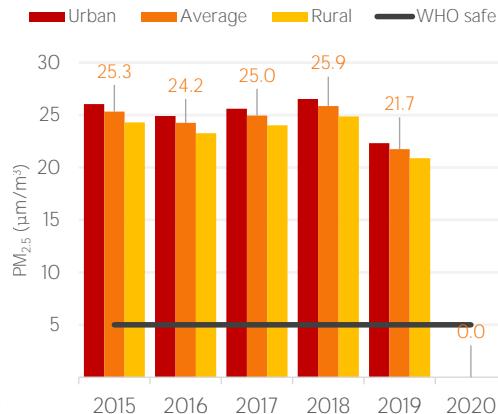- 7.2.1 Renewable energy (% TFEC)

7.a.1 Public flows to renewables

7.b.1 Per capita renewable capacity
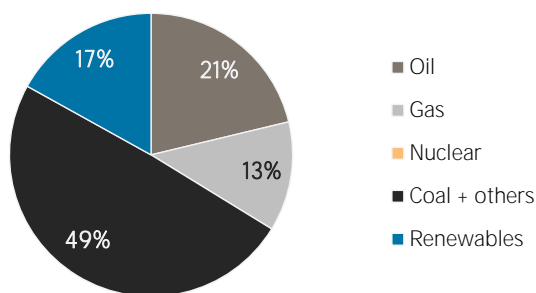

11.6.2 Air particulate matter (PM$_{2.5}$)

Urban — Average — Rural — WHO safe

TOTAL ENERGY SUPPLY (TES)

Total Energy Supply (TES)	2015	2020
Non-renewable (TJ)	531 780	553 034
Renewable (TJ)	82 681	112 804
Total (TJ)	614 461	665 838
Renewable share (%)	13	17

Growth in TES	2015-20	2019-20
Non-renewable (%)	+4.0	+1.0
Renewable (%)	+36.4	+33.8
Total (%)	+8.4	+5.3

Primary energy trade	2015	2020
Imports (TJ)	229 476	256 531
Exports (TJ)	61 388	60 537
Net trade (TJ)	- 168 088	- 195 994
Imports (% of supply)	37	39
Exports (% of production)	14	13
Energy self-sufficiency (%)	73	70

Total energy supply in 2020

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

Renewable energy supply in 2020

- Hydro/marine
- Wind
- Solar
- Bioenergy
- Geothermal

Renewable TFEC trend

Legend: ■ Electricity ■ Commercial heat ■ Bioenergy

Petajoules (PJ): 120, 117, 118, 123, 123, 151 (2015–2020)
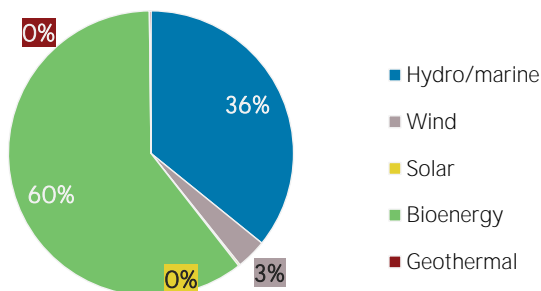
Renewable energy consumption in 2020

Legend: ■ Geothermal ■ Solar direct

0% 0% 0%
30%
69%
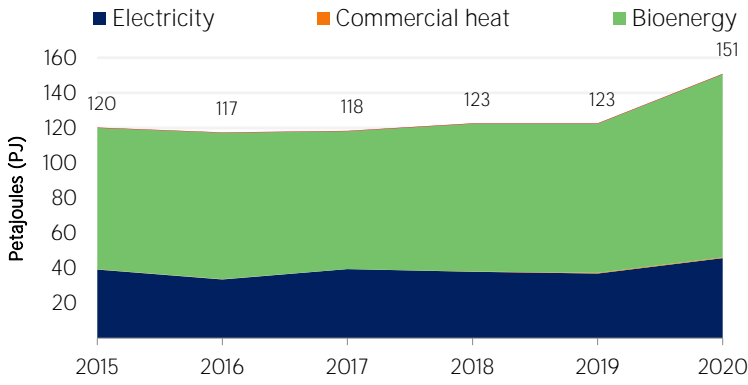
Consumption by sector	2015	2020
Industry (TJ)	16 481	22 070
Transport (TJ)	506	586
Households (TJ)	55 792	79 497
Other (TJ)	47 373	48 679

32% / 15% / 0% / 53%   n.a.

Legend: ■ Industry ■ Transport ■ Households ■ Other
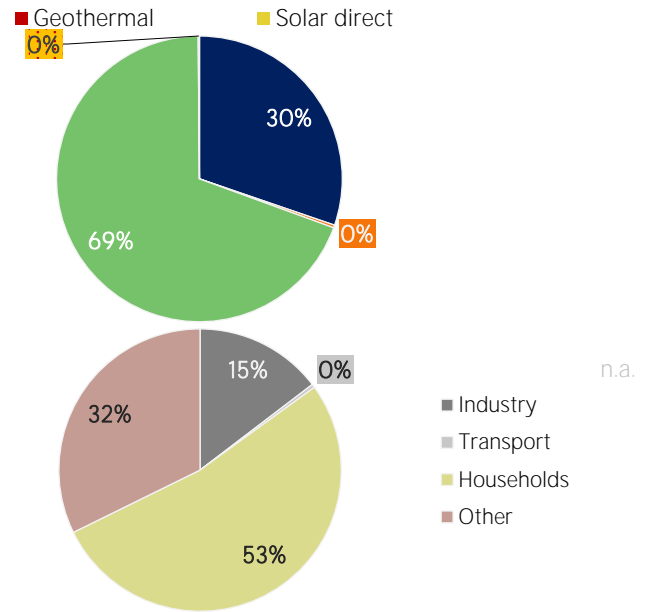
Installed capacity trend

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

Gigawatts (GW): 7.3, 7.3, 7.4, 7.6, 7.9, 7.9, 7.9, 8.5 (2015–2022)
Renewable share: 36%
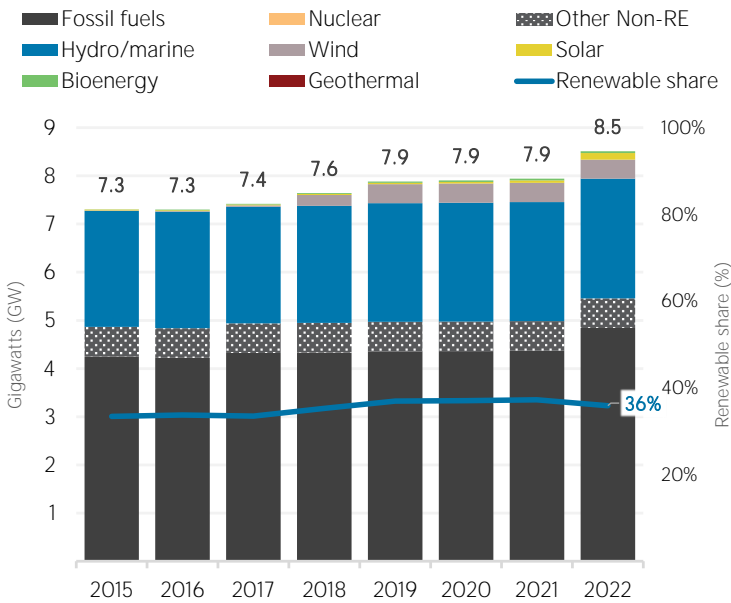
Renewable capacity in 2022

1% / 4% / 13% / 81%

Legend: ■ Hydro/marine ■ Solar ■ Wind ■ Bioenergy ■ Geothermal
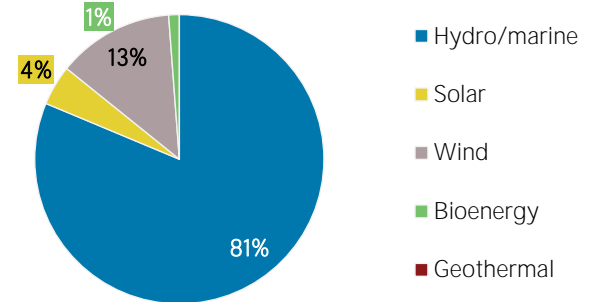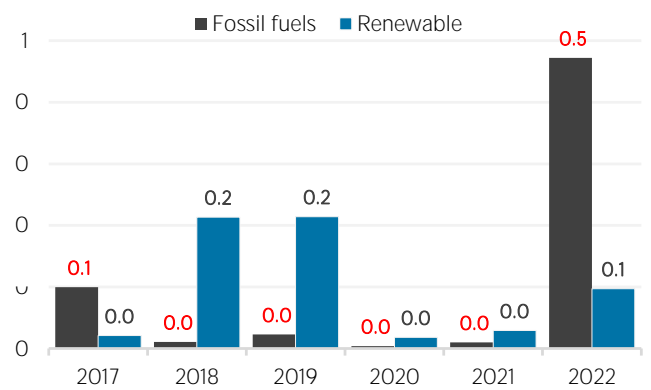
Net capacity change in 2022 (MW)

Non-renewable	+ 472
Hydro and marine	+ 12
Solar	+ 85
Wind	0
Bioenergy	0
Geothermal	0

Net capacity change (GW)

Legend: ■ Fossil fuels ■ Renewable

Year	Fossil fuels	Renewable
2017	0.1	0.0
2018	0.0	0.2
2019	0.0	0.2
2020	0.0	0.0
2021	0.0	0.0
2022	0.5	0.1
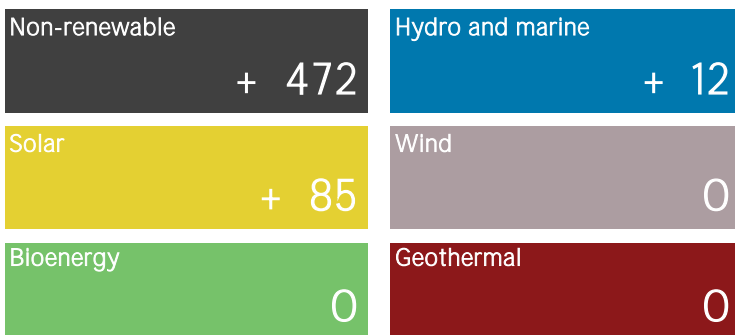
Capacity utilisation in 2021 (%)

	%
Fossil fuels	65%
Nuclear	
Hydro/Marine	52%
Solar	16%
Wind	31%
Bioenergy	84%
Geothermal	
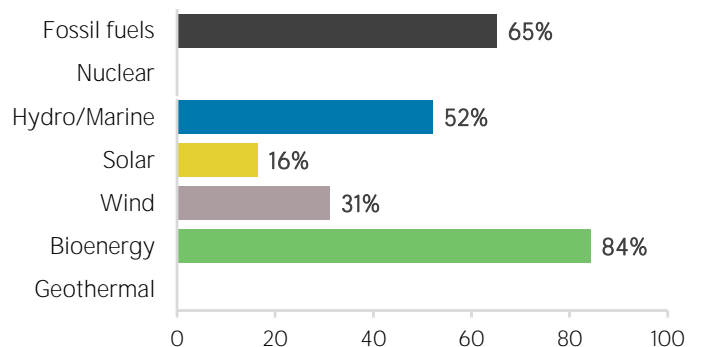
ELECTRICITY GENERATION

Generation in 2021	GWh	%
Non-renewable	25 606	67
Renewable	12 676	33
Hydro and marine	11 284	29
Solar	59	0
Wind	1 085	3
Bioenergy	247	1
Geothermal	0	0
Total	38 281	100

Per capita electricity generation (kWh)
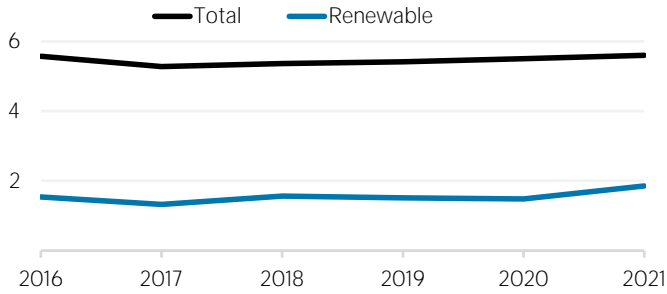

Electricity generation trend
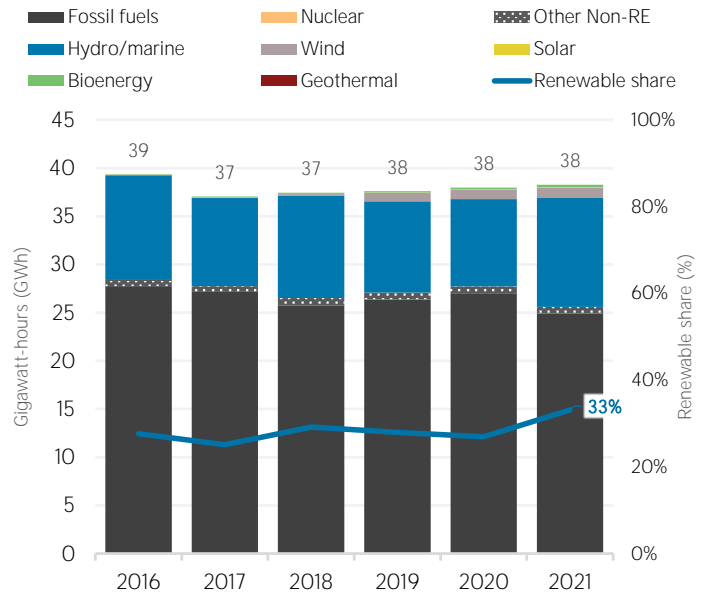
LATEST POLICIES, PROGRAMMES AND LEGISLATION

1 Decree on Amount of Special Fee for Incentives in 2013 (RS Official Gazette, No. 8/13) — 2013

2 Decree on Criteria and Procedure for Qualification for Privileged Electricity Producer Status (RS Official Gazette, No. 8/13) — 2013

3 Decree on Incentive Measures for Privileged Energy Producers (Eco-scheme) — 2013

4 Decree on Method of Calculation and Allocation of Funding Raised from Incentive Fees for Privileged Electricity Producers (RS Official Gazette, No. 8/13) — 2013

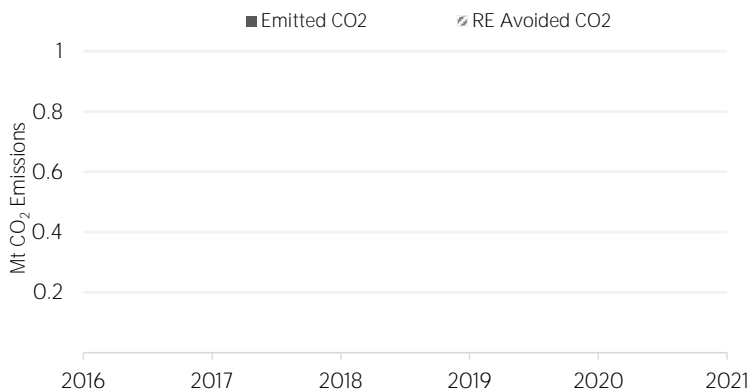5 National Renewable Energy Action Plan (NREAP) — 2013

ENERGY AND EMISSIONS

Energy-related CO_2 emissions by sector
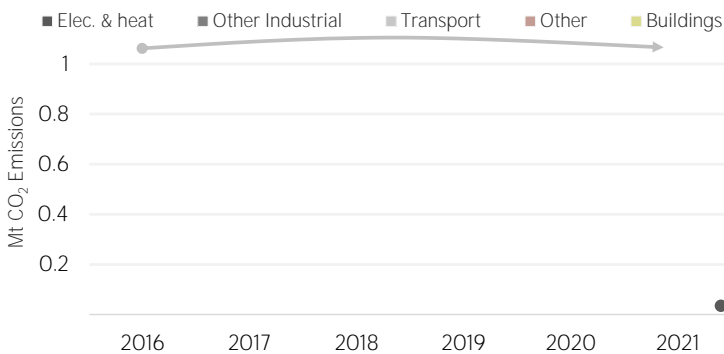
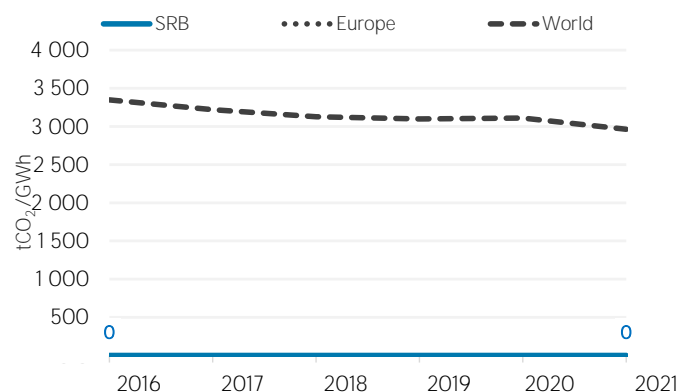## Elec. & heat generation CO_2 emissions in

0.0 Mt CO_2
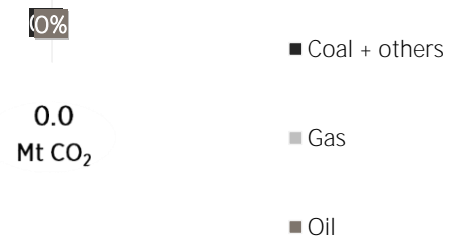
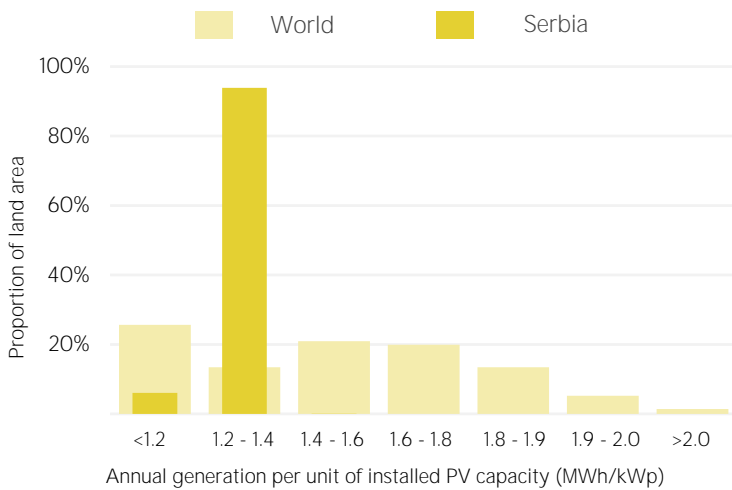## Avoided emissions from renewable elec. & heat

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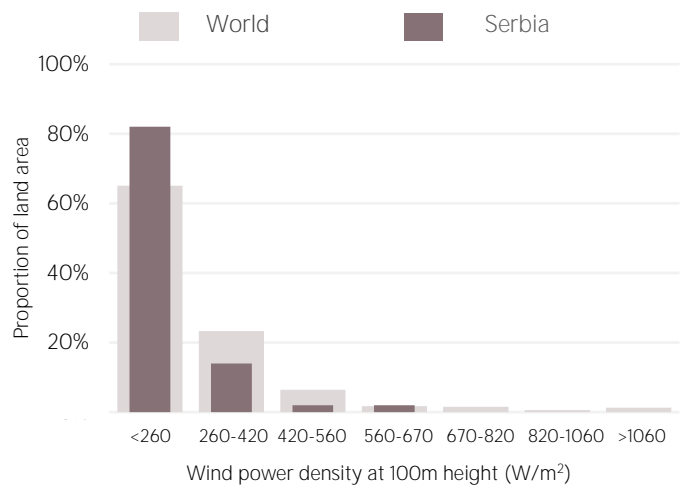
CO_2 emission factor for elec. & heat generation

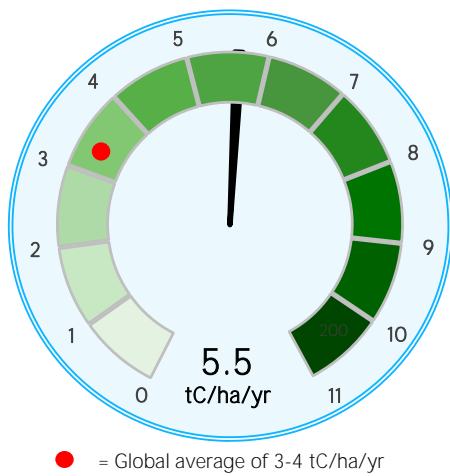*Calculated by dividing power sector emissions by elec. + heat gen.*

Distribution of solar potential

World   Serbia

Proportion of land area

100%
80%
60%
40%
20%

<1.2 1.2 - 1.4 1.4 - 1.6 1.6 - 1.8 1.8 - 1.9 1.9 - 2.0 >2.0

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

Distribution of wind potential

World   Serbia

Proportion of land area

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)

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/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