IRENA
International Renewable Energy Agency

COUNTRY INDICATORS AND SDGS

GDP per capita —— 8.1.1 Real GDP growth rate
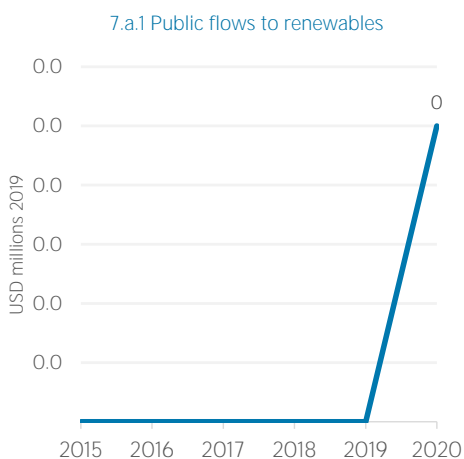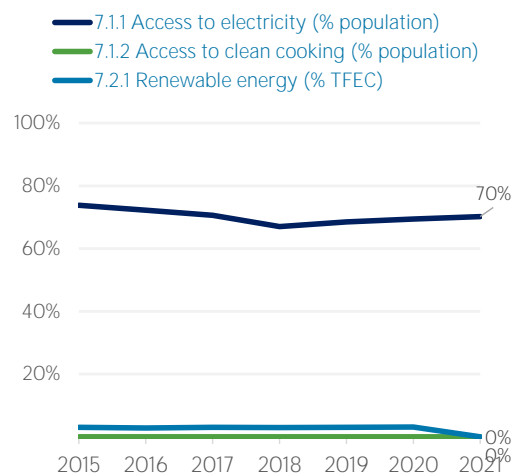
7.3.1 Energy intensity

—— 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
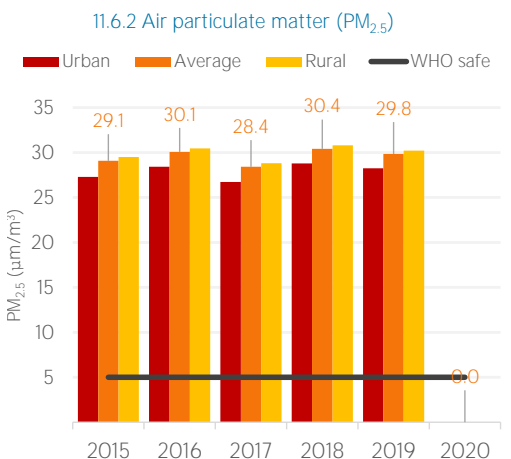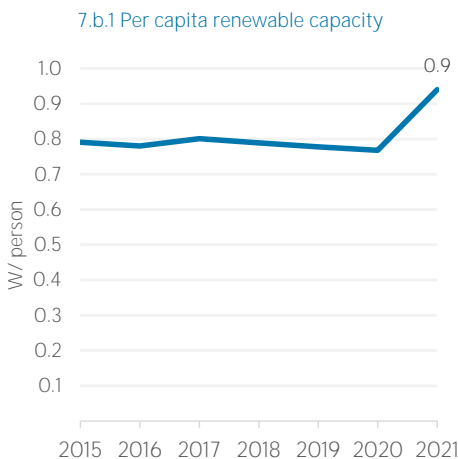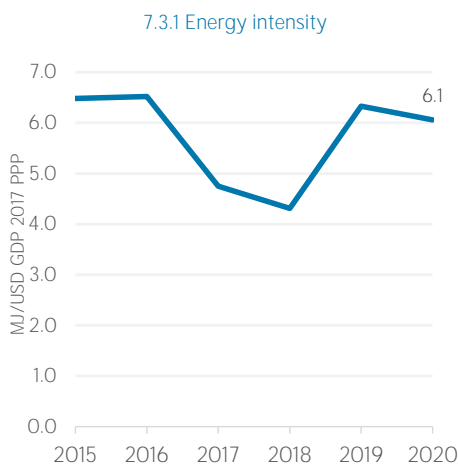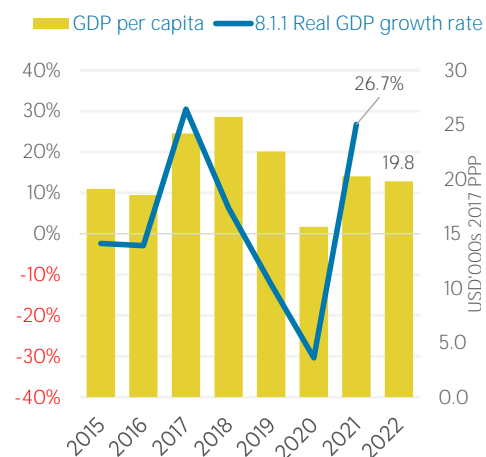
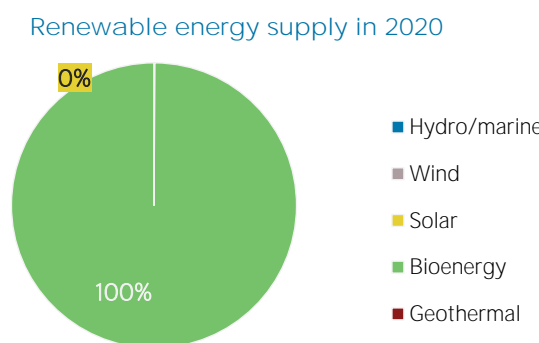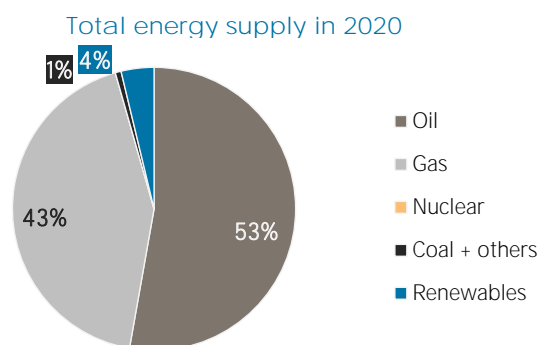## TOTAL ENERGY SUPPLY (TES)

Total Energy Supply (TES)	2015	2020
Non-renewable (TJ)	738 645	653 738
Renewable (TJ)	24 123	25 479
Total (TJ)	762 768	679 217
Renewable share (%)	3	4

Growth in TES	2015-20	2019-20
Non-renewable (%)	-11.5	-26.0
Renewable (%)	+5.6	+1.1
Total (%)	-11.0	-25.2

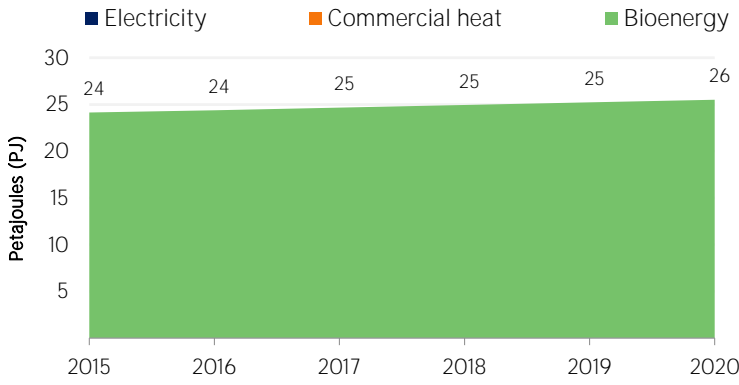| Primary energy trade	2015	2020
Imports (TJ)	286 634	295 240
Exports (TJ)	970 862	945 620
Net trade (TJ)	684 228	650 380
Imports (% of supply)	38	43
Exports (% of production)	67	71
Energy self-sufficiency (%)	190	196

Total energy supply in 2020
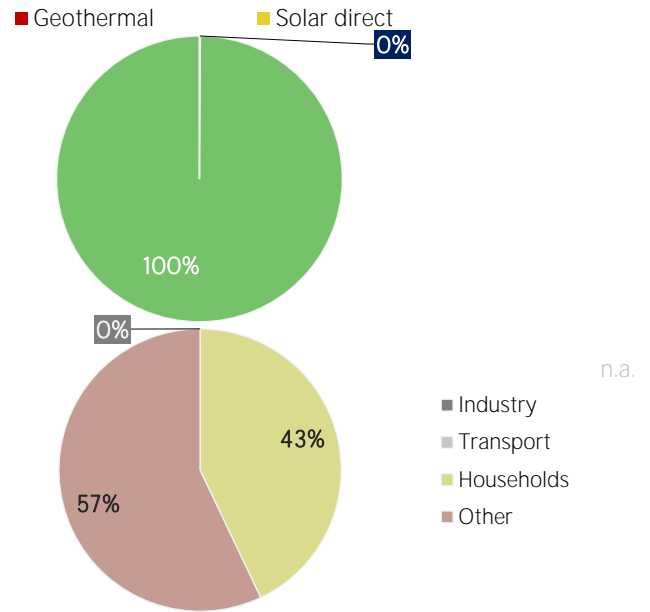
- Oil
- Gas
- Nuclear
- Coal + others
- Renewables

Oil 53%, Gas 43%, Renewables 4%, Coal + others 1%

Renewable energy supply in 2020

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

Bioenergy 100%, Solar 0%

RENEWABLE ENERGY CONSUMPTION (TFEC)

Renewable TFEC trend

Legend: ■ Electricity ■ Commercial heat ■ Bioenergy ■ Geothermal ■ Solar direct

Petajoules (PJ)

Values: 24 (2015), 24 (2016), 25 (2017), 25 (2018), 25 (2019), 26 (2020)
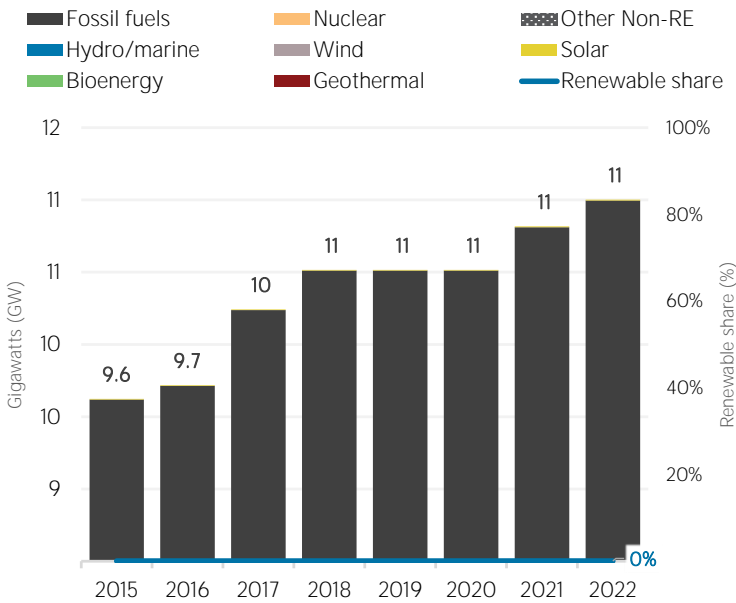
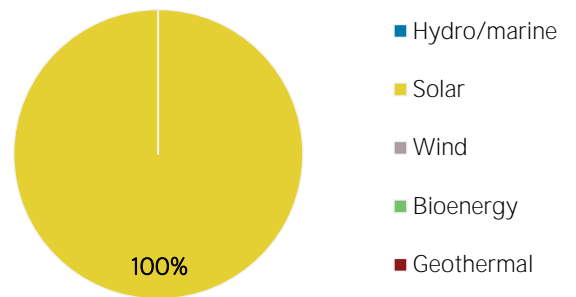| Consumption by sector	2015	2020
Industry (TJ)	3	1
Transport (TJ)	0	0
Households (TJ)	10 286	10 950
Other (TJ)	13 863	14 556

Renewable energy consumption in 2020

0%

100%

0%

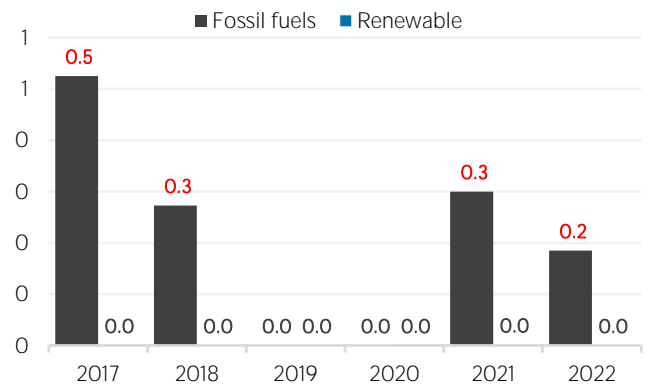57% 43%

n.a.

■ 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: 9.6 (2015), 9.7 (2016), 10 (2017), 11 (2018), 11 (2019), 11 (2020), 11 (2021), 11 (2022)

0%

Renewable capacity in 2022

100%

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

Net capacity change in 2022 (MW)

Non-renewable	Hydro and marine
+ 185	**0**

Solar	Wind
0	**0**

Bioenergy	Geothermal
0	**0**

Net capacity change (GW)

Legend: ■ Fossil fuels ■ Renewable

Year	Fossil fuels	Renewable
2017	0.5	0.0
2018	0.3	0.0
2019	0.0	0.0
2020	0.0	0.0
2021	0.3	0.0
2022	0.2	0.0
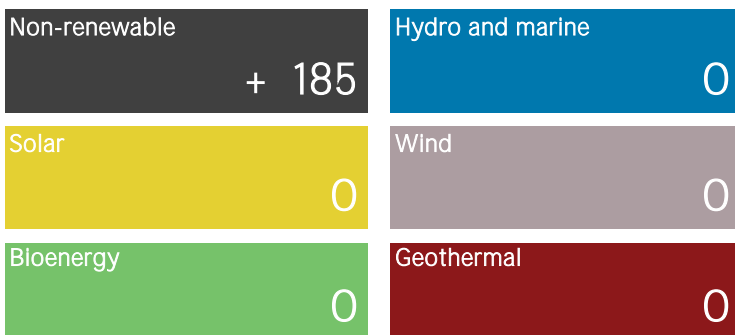
Capacity utilisation in 2021 (%)

	%
Fossil fuels	37%
Nuclear	
Hydro/Marine	
Solar	16%
Wind	
Bioenergy	
Geothermal	
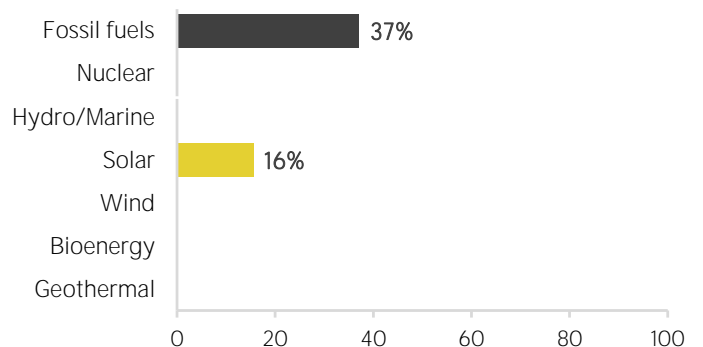
ELECTRICITY GENERATION

Generation in 2021	GWh	%
Non-renewable	34 621	100
Renewable	8	0
Hydro and marine	0	0
Solar	8	0
Wind	0	0
Bioenergy	0	0
Geothermal	0	0
Total	34 629	100

## Per capita electricity generation (kWh)
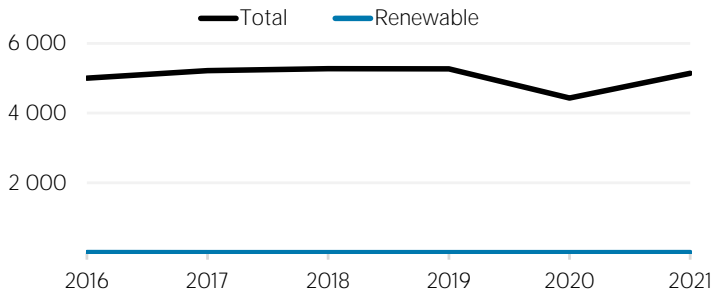
Electricity generation trend
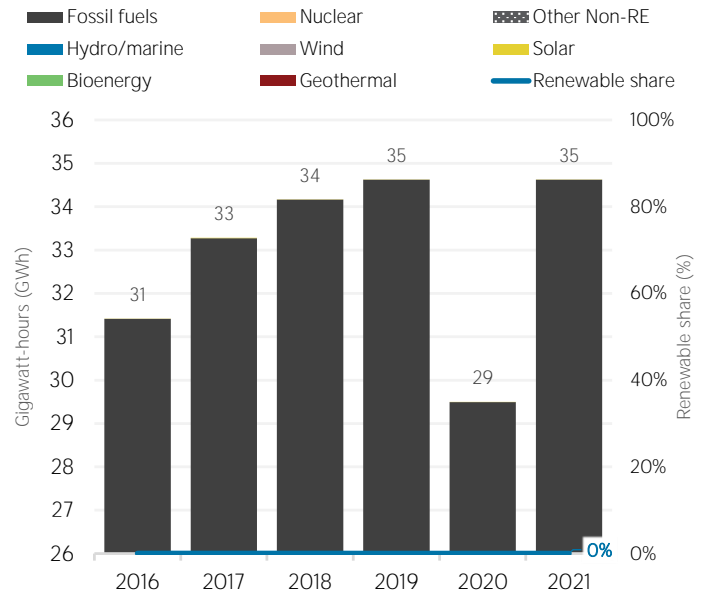

LATEST POLICIES, PROGRAMMES AND LEGISLATION

1 Libya Renewable Energy Strategic Plan 2013-2025 — 2013

2 Council of ministers' decree No. 32 for 2012, about the organization of the oil and gas ministry. — 2012

3 Council of ministers' decree No. 341 for 2012, to approve the organization of the General Authority for the Environment — 2012

4 Law No. 426 establishing the Renewable Energy Authority of Libya (REAOL) — 2007
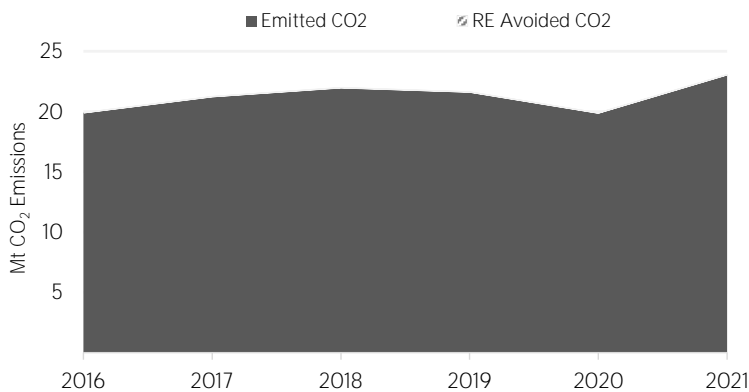
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ENERGY AND EMISSIONS

Energy-related CO_2 emissions by sector
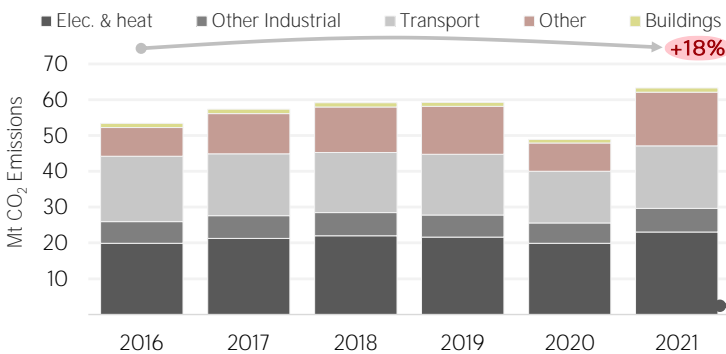
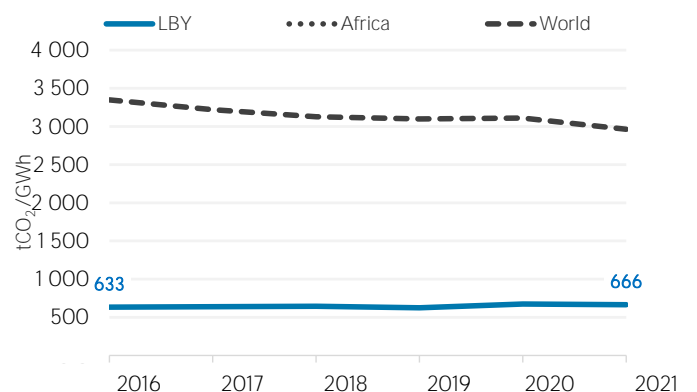## Elec. & heat generation CO_2 emissions in
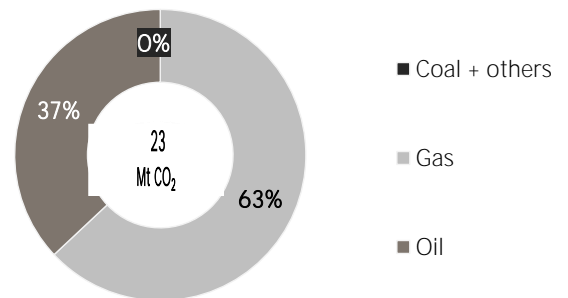
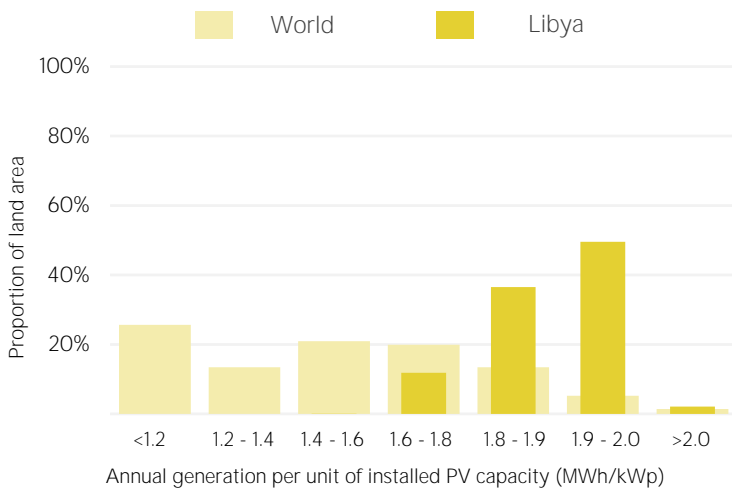## Avoided emissions from renewable elec. & heat

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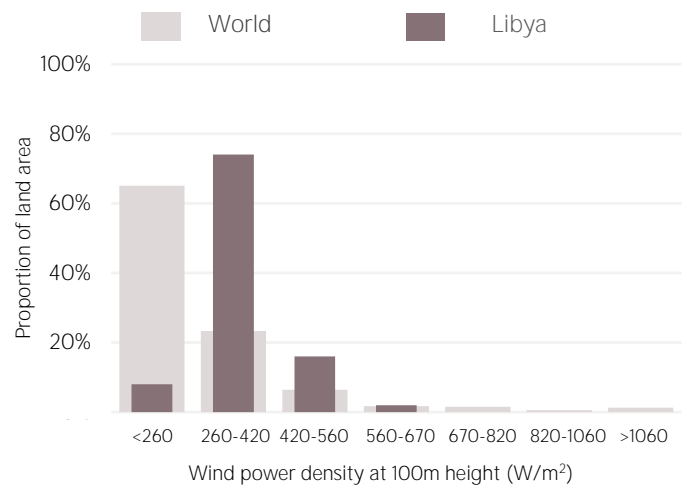
CO_2 emission factor for elec. & heat generation

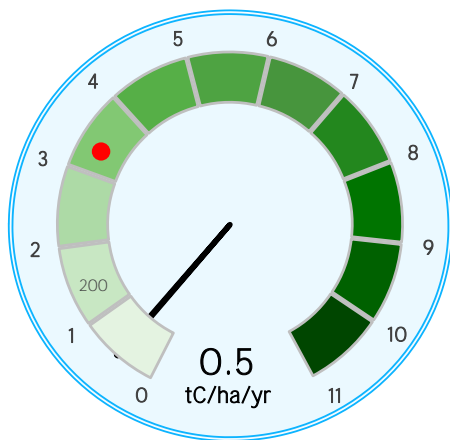*Calculated by dividing power sector emissions by elec. + heat gen.*

Distribution of solar potential

World   Libya

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   Libya

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/m^2)

Biomass potential: net primary production

5 6
4 7
3 8
2 9
200 10
1 11
0

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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