Zambia

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
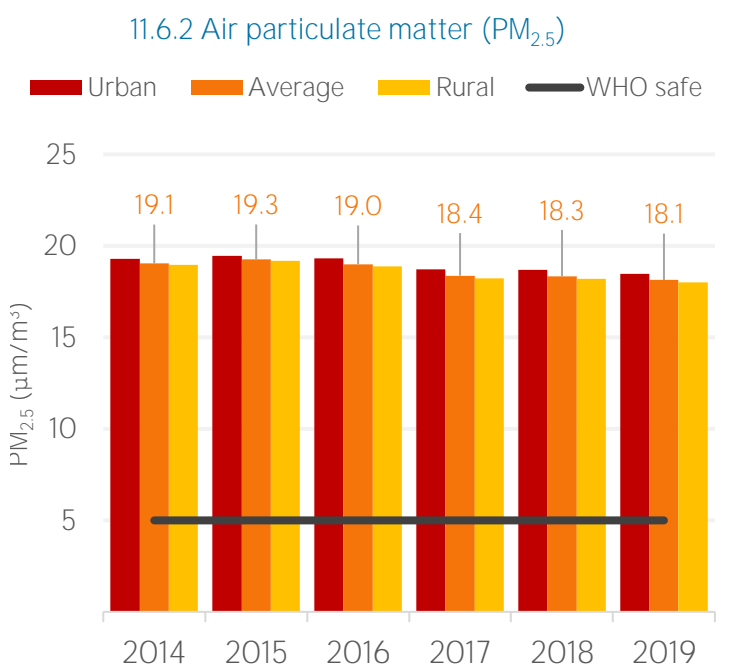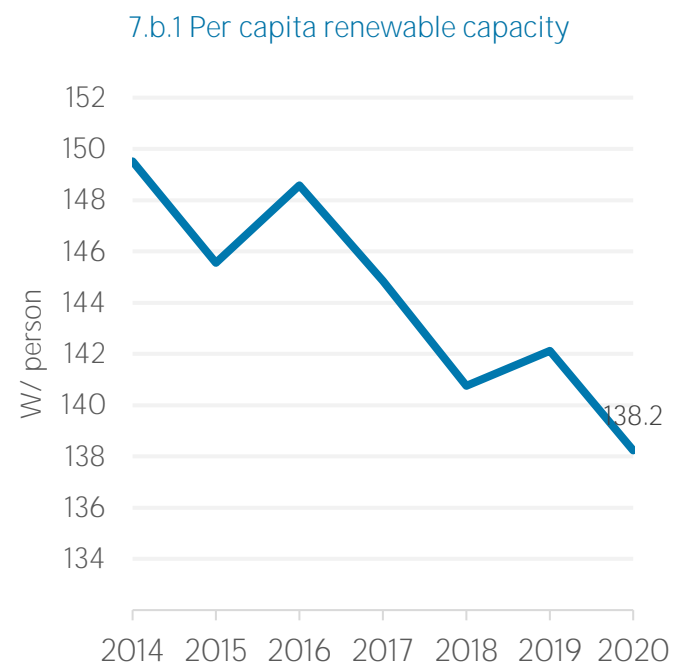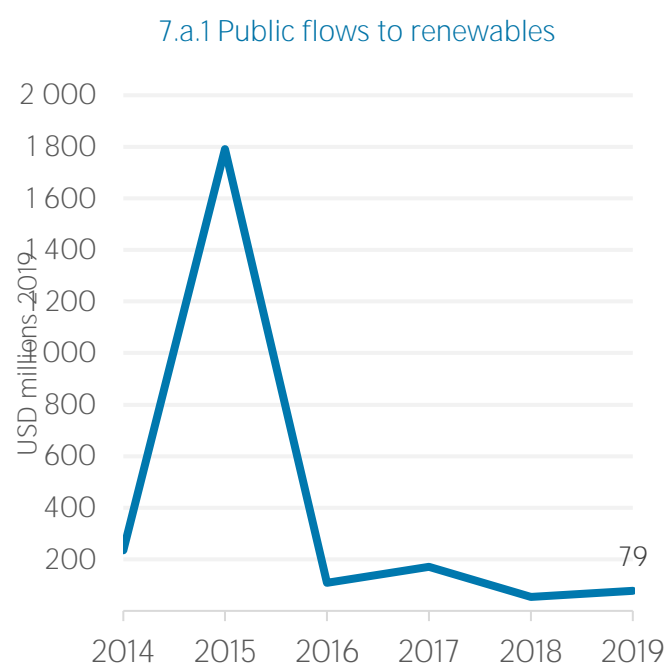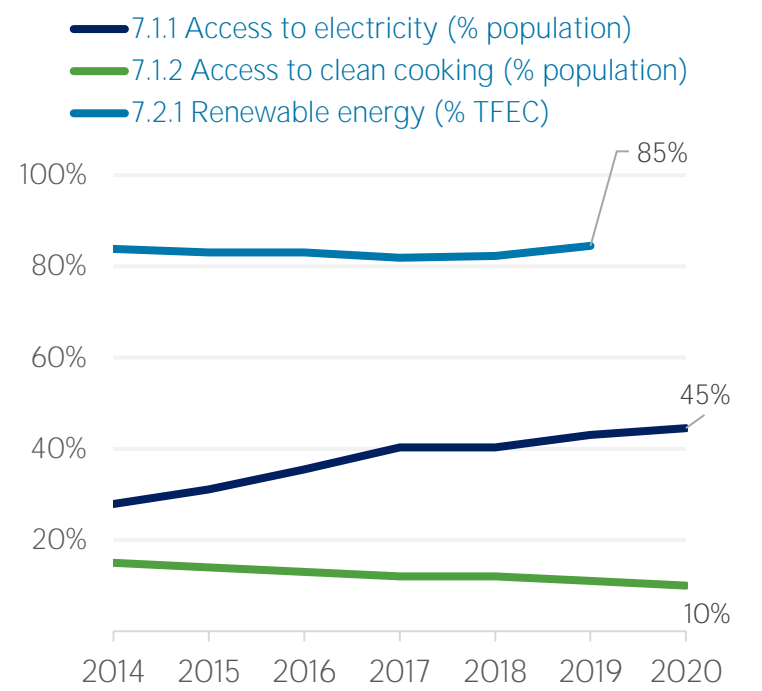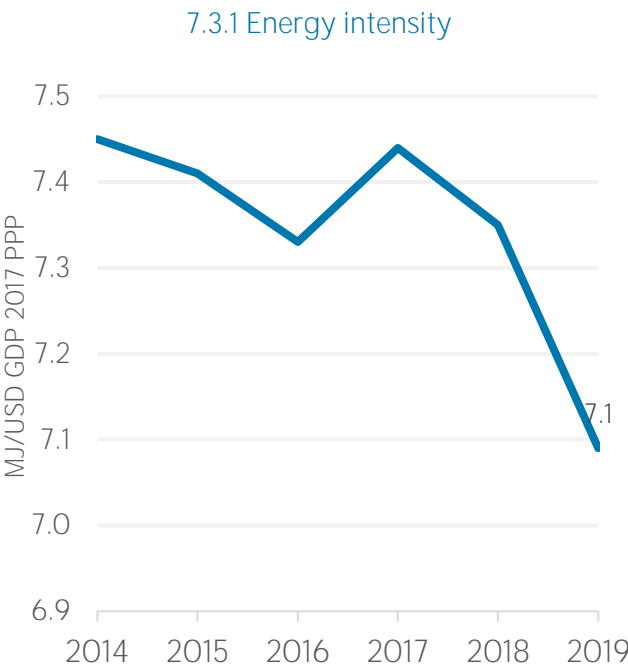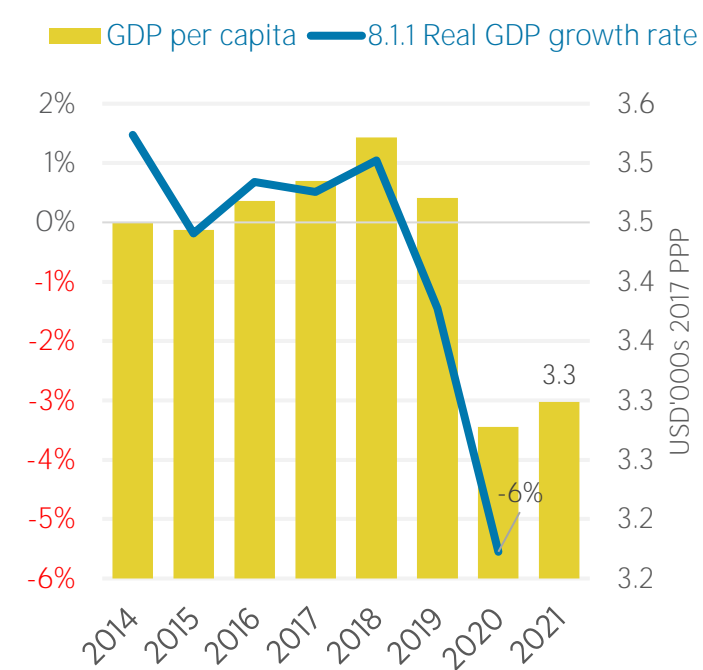
TOTAL ENERGY SUPPLY (TES)

Total Energy Supply (TES)	2014	2019
Non-renewable (TJ)	58 852	90 507
Renewable (TJ)	336 539	369 508
Total (TJ)	395 391	460 015
Renewable share (%)	85	80

Growth in TES	2014-19	2018-19
Non-renewable (%)	+53.8	+9.0
Renewable (%)	+9.8	+2.5
Total (%)	+16.3	+3.7

Primary energy trade	2014	2019
Imports (TJ)	51 858	68 731
Exports (TJ)	5 526	3 695
Net trade (TJ)	- 46 332	- 65 036
Imports (% of supply)	13	15
Exports (% of production)	2	1
Energy self-sufficiency (%)	87	86

Total energy supply in 2019

■ Oil
■ Gas
■ Nuclear
■ Coal + others
■ Renewables
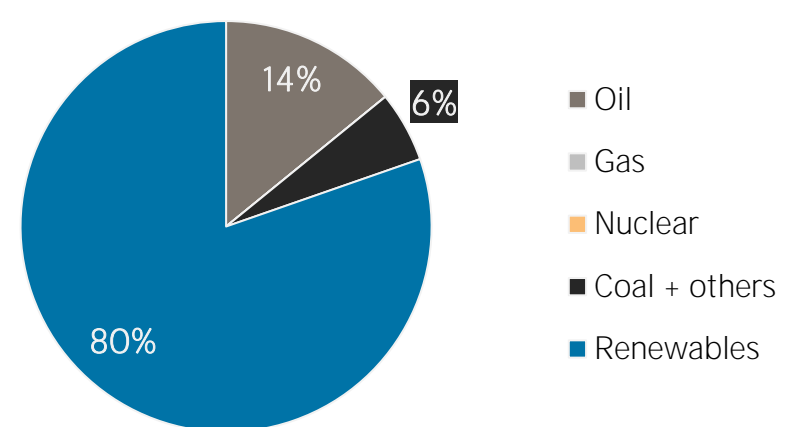
Renewable energy supply in 2019

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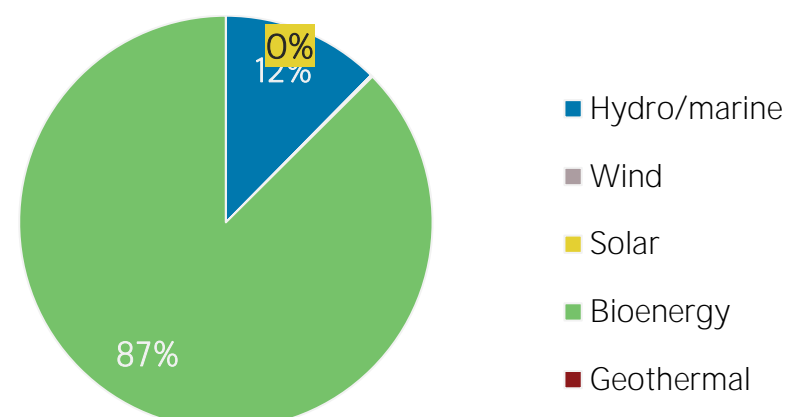
RENEWABLE ENERGY CONSUMPTION (TFEC)

Renewable TFEC trend

- Electricity
- Commercial heat
- Bioenergy

Consumption by sector	2014	2019
Industry (TJ)	56 600	62 492
Transport (TJ)	99	99
Households (TJ)	193 679	215 622
Other (TJ)	3 201	3 904

Renewable energy consumption in 2019

- Geothermal
- Solar direct

14%
86%

1%
22%
0%
76%

n.a.

- Industry
- Transport
- Households
- Other

ELECTRICITY CAPACITY

Installed capacity trend

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

Net capacity change in 2021 (MW)

Non-renewable	0	Hydro and marine	+ 150
Solar	0	Wind	0
Bioenergy	0	Geothermal	0
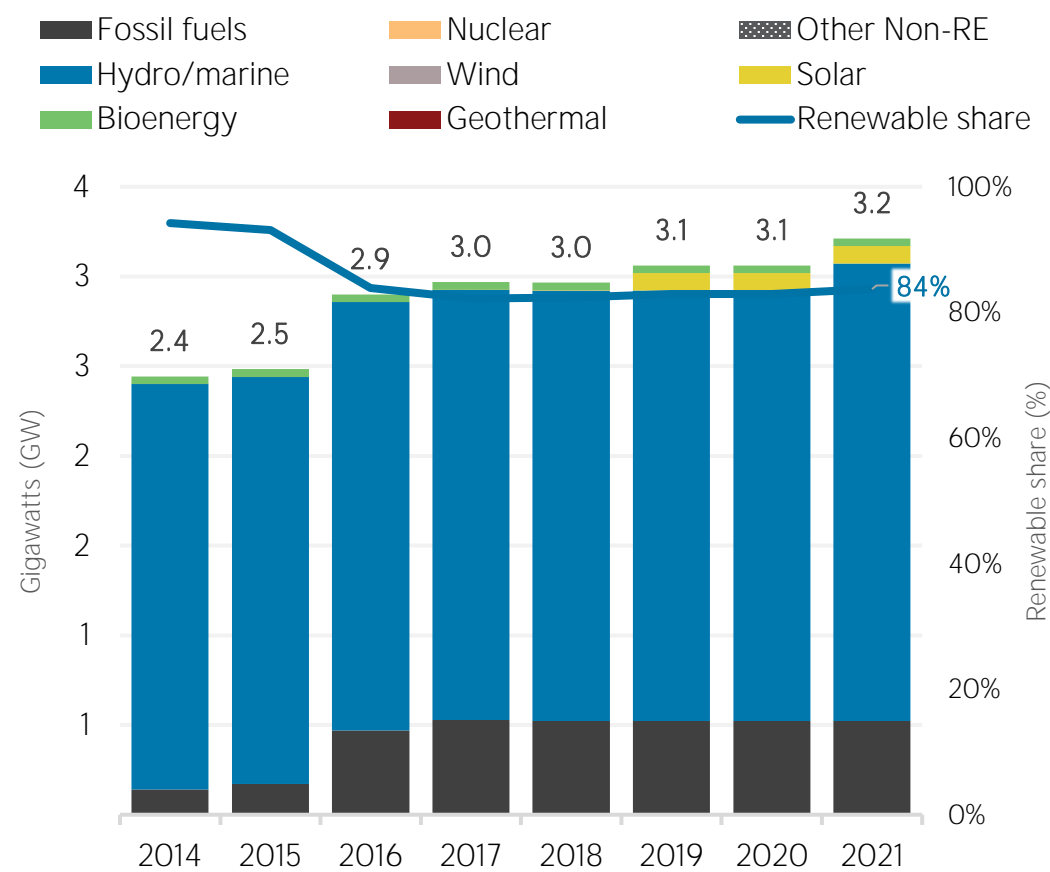
Renewable capacity in 2021

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

2%
95%
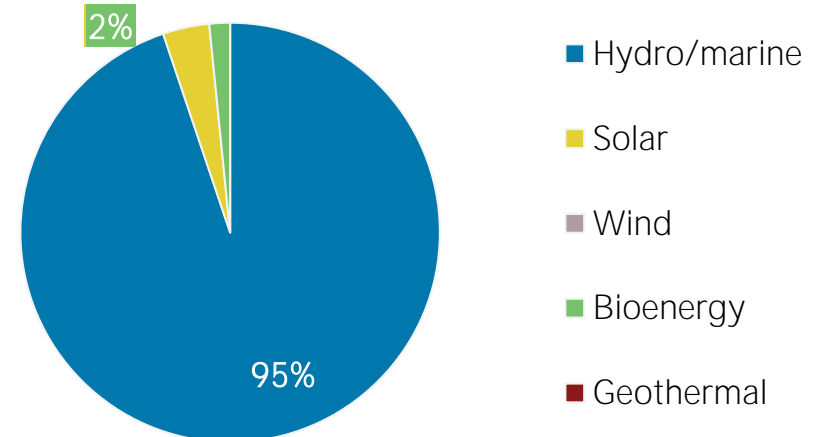
Net capacity change (GW)

- Fossil fuels
- Renewable

Capacity utilisation in 2020 (%)

Fossil fuels	48%
Nuclear	
Hydro/Marine	61%
Solar	19%
Wind	
Bioenergy	21%
Geothermal	
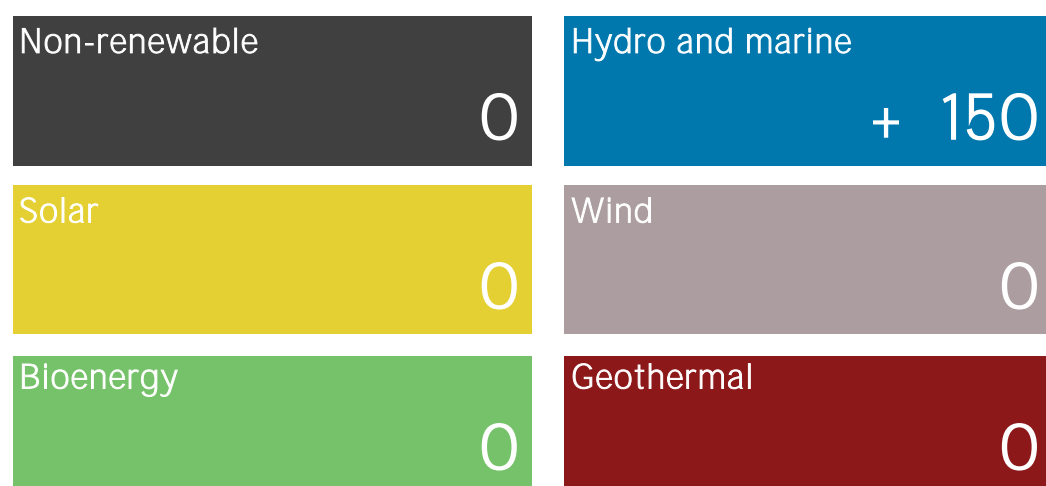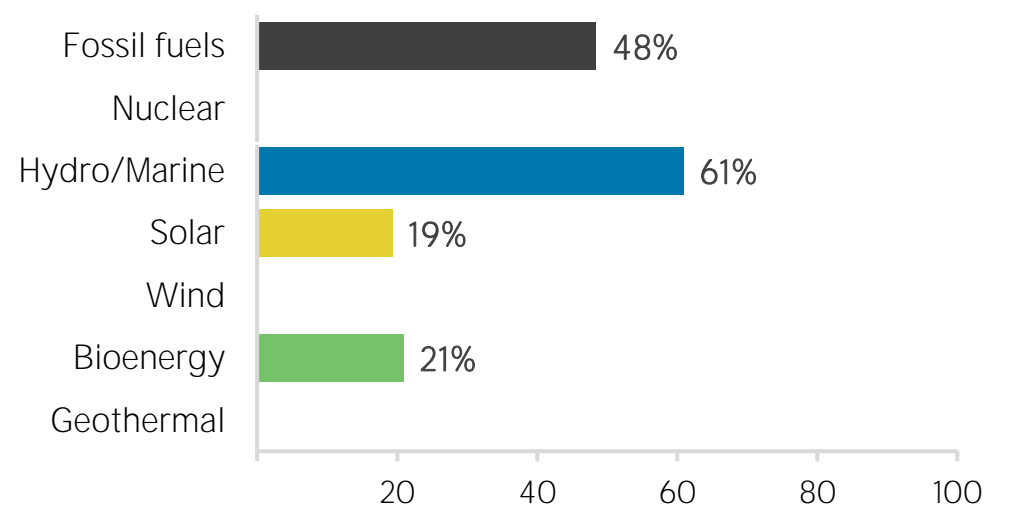
ELECTRICITY GENERATION

Generation in 2020	GWh	%
Non-renewable	2 216	15
Renewable	13 036	85
Hydro and marine	12 795	84
Solar	163	1
Wind	0	0
Bioenergy	78	1
Geothermal	0	0
Total	15 252	100

Per capita electricity generation (kWh)

Total — Renewable

Electricity generation trend

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

Gigawatt-hours (GWh) / Renewable share (%)

14, 12, 15, 16, 15, 15 — 85%
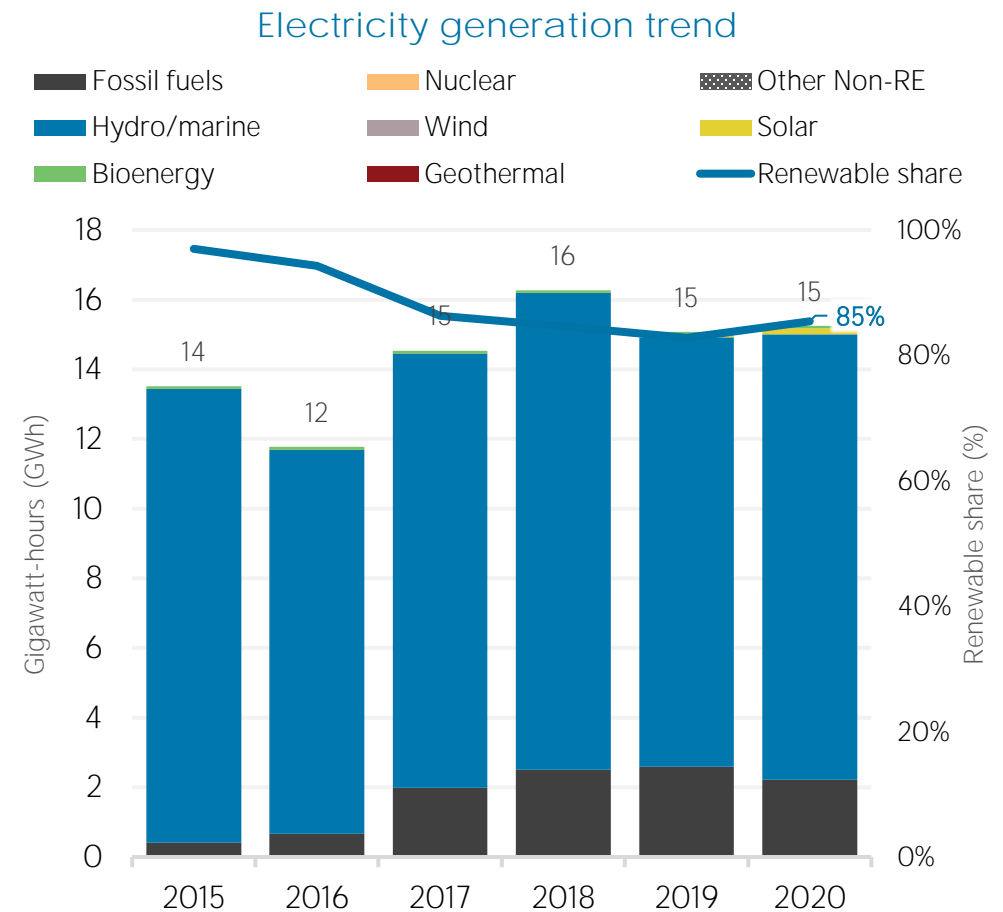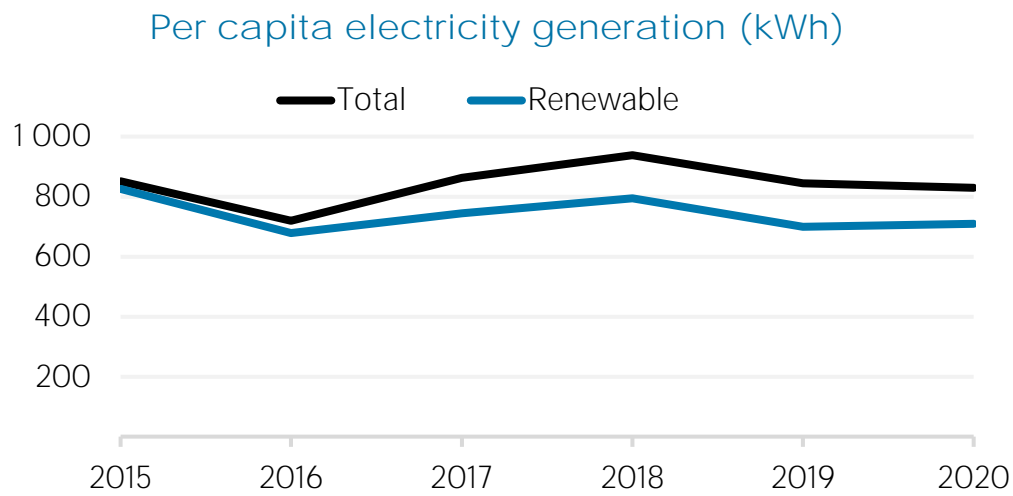
# LATEST POLICIES, PROGRAMMES AND LEGISLATION

1 Zambia Solar PV Tender — 2016

2 Zambia Scaling Solar Programme — 2015

3 Biodiesel Standards — 2008

4 National Energy Policy 2008 — 2008

5 Zambia Vision 2030 — 2006

ENERGY AND EMISSIONS

Energy-related CO_2 emissions by sector

Elec. & heat · Other Industrial · Transport · Other · Buildings

-48%

Mt CO_2 Emissions

Elec. & heat generation CO_2 emissions in

Coal + others — 59%

Gas — 0%

Oil — 41%

17 Mt CO_2

Avoided emissions from renewable elec. & heat

Emitted CO_2 · RE Avoided CO_2

Mt CO_2 Emissions
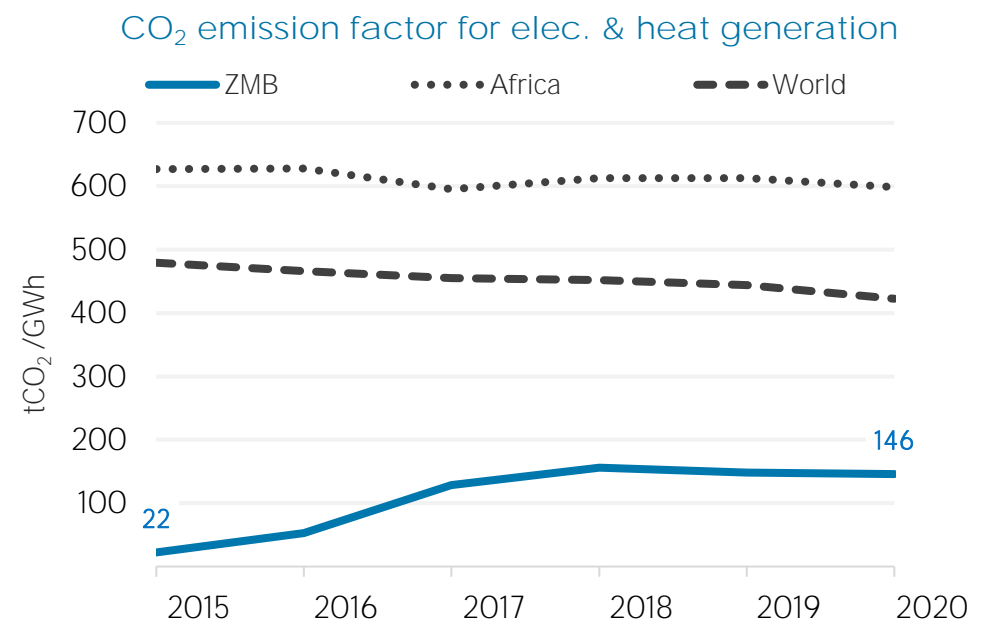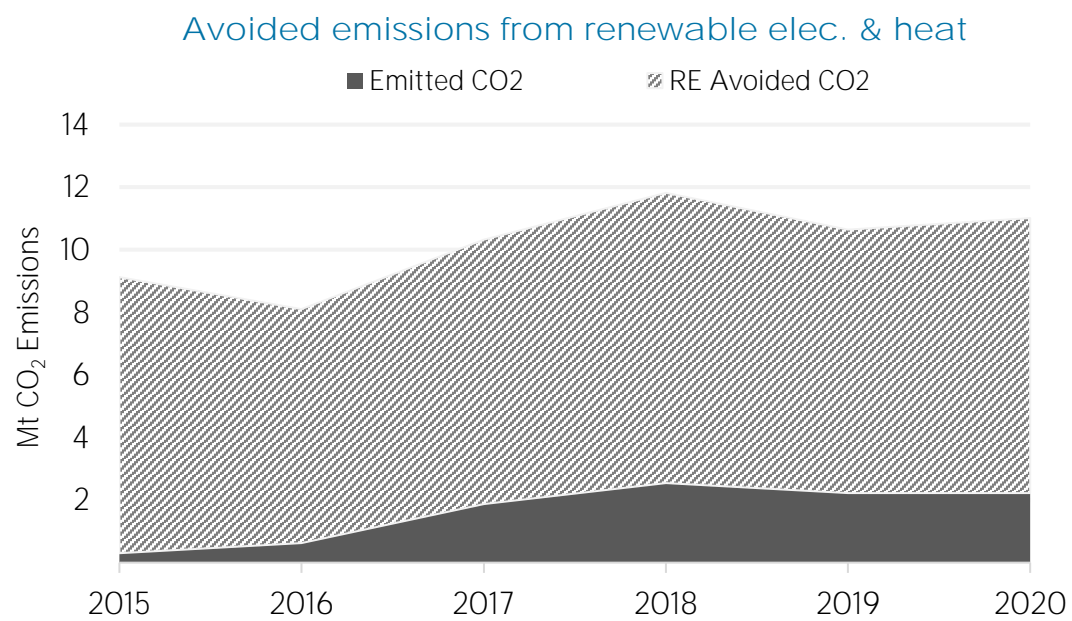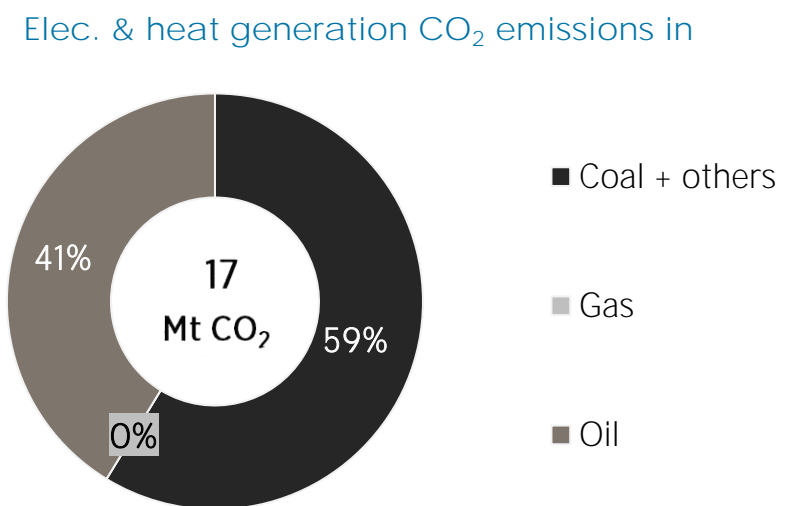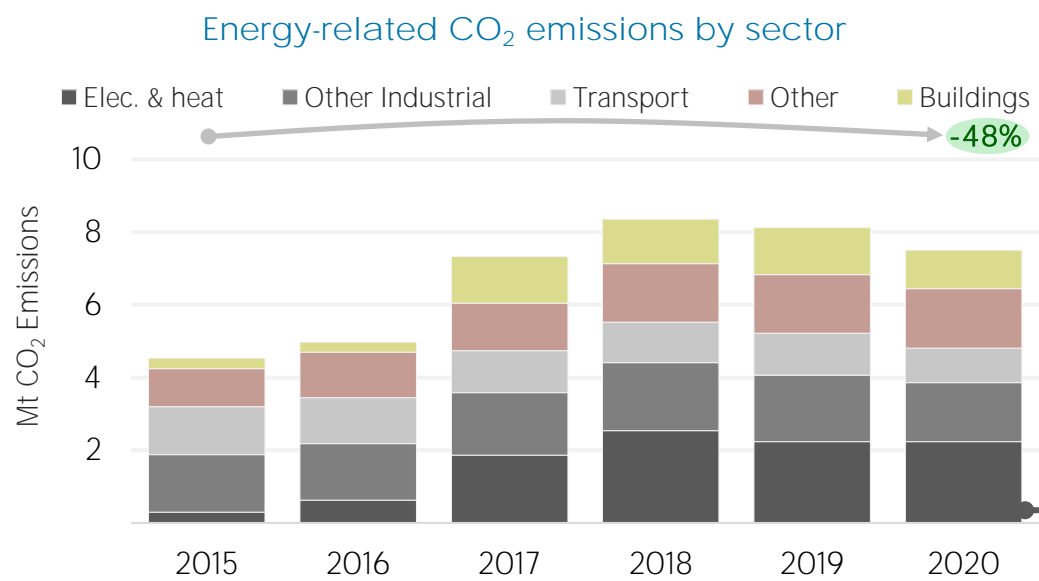
Avoided emissions based on fossil fuel mix used for power

CO_2 emission factor for elec. & heat generation

ZMB · Africa · World

tCO_2/GWh

22, 146

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

Distribution of solar potential

World Zambia

Proportion of land area

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

Distribution of wind potential

World Zambia

Proportion of land area

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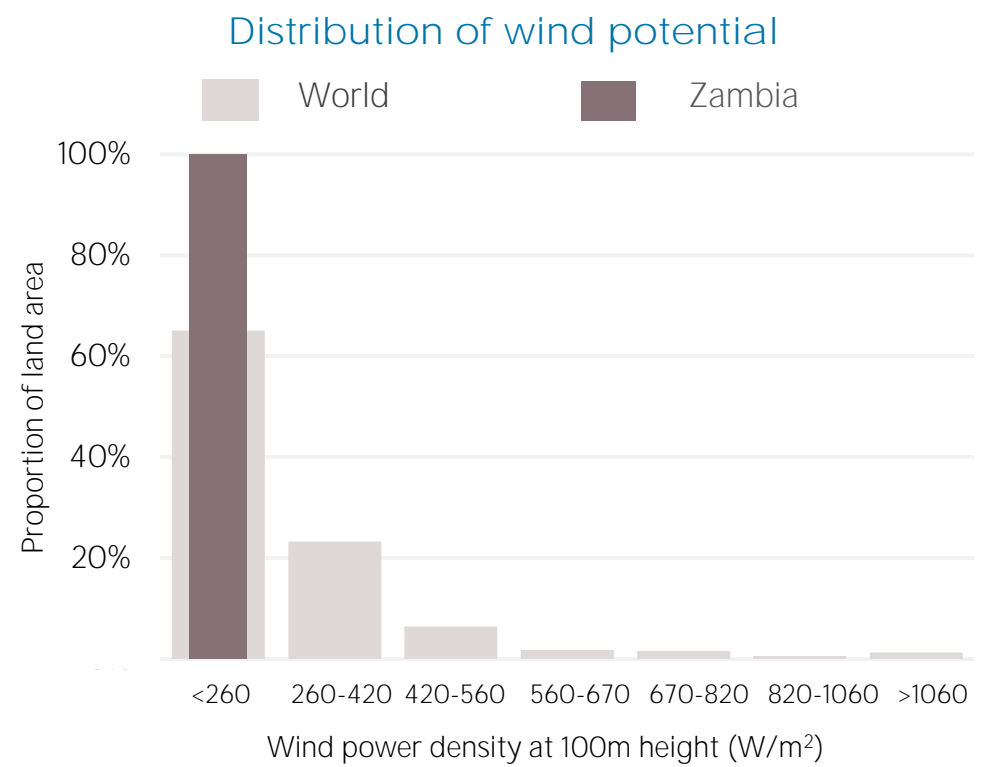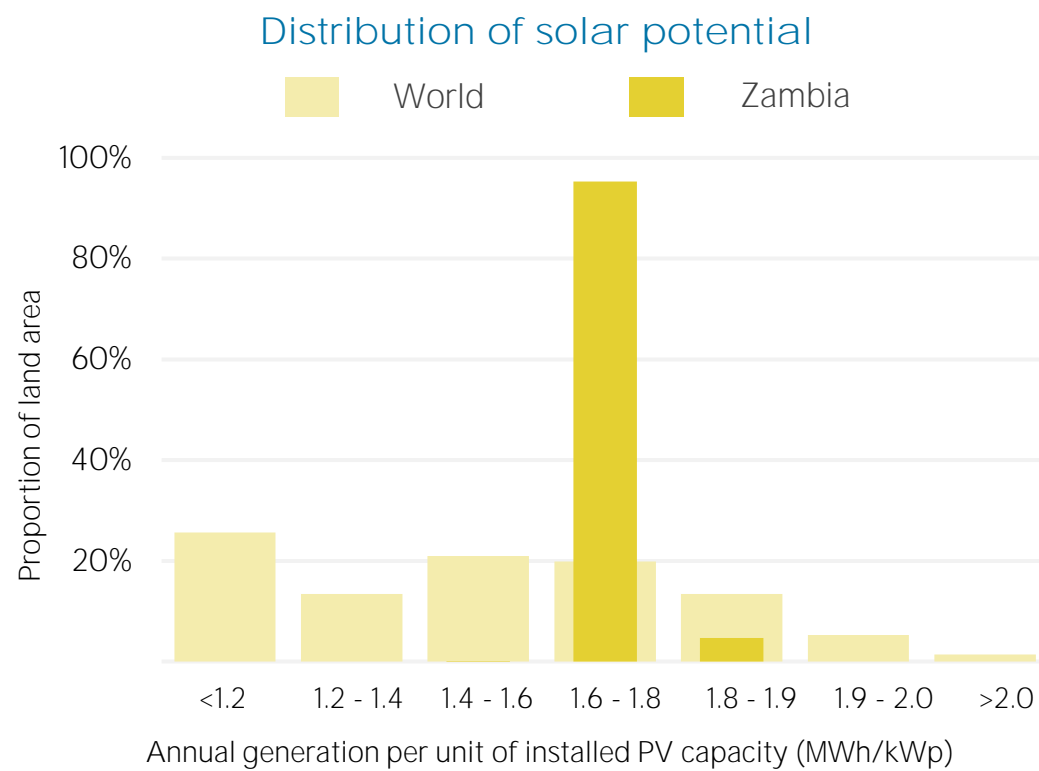
Biomass potential: net primary production

2.5
tC/ha/yr

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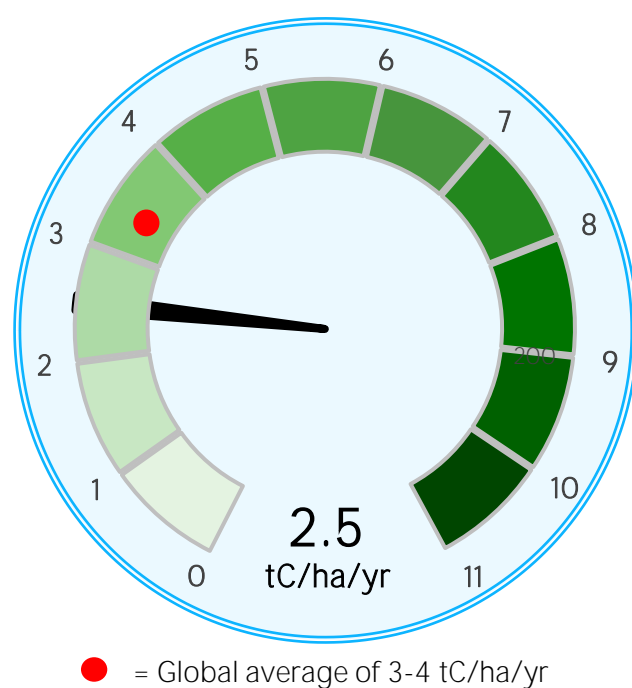
Indicators of renewable resource potential

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

Sources: IRENA statistics, plus data from the following sources: UN SDG Database (original sources: WHO; World Bank; IEA; IRENA; and UNSD); UN World Population 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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