Iceland

IRENA
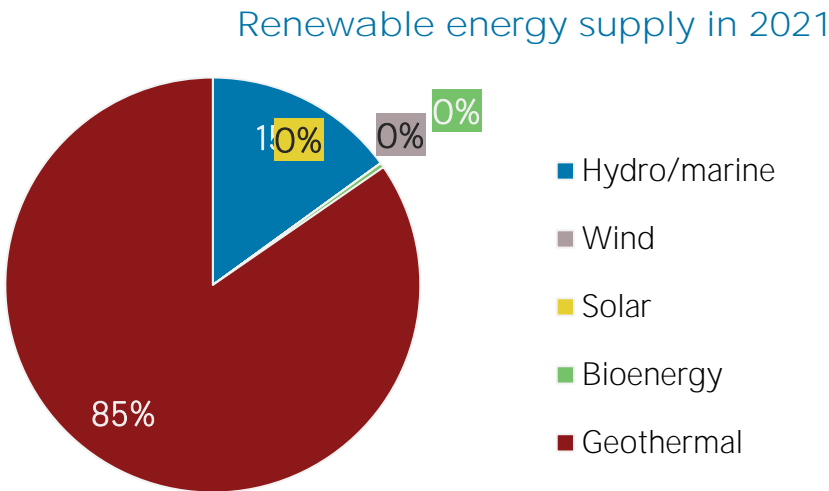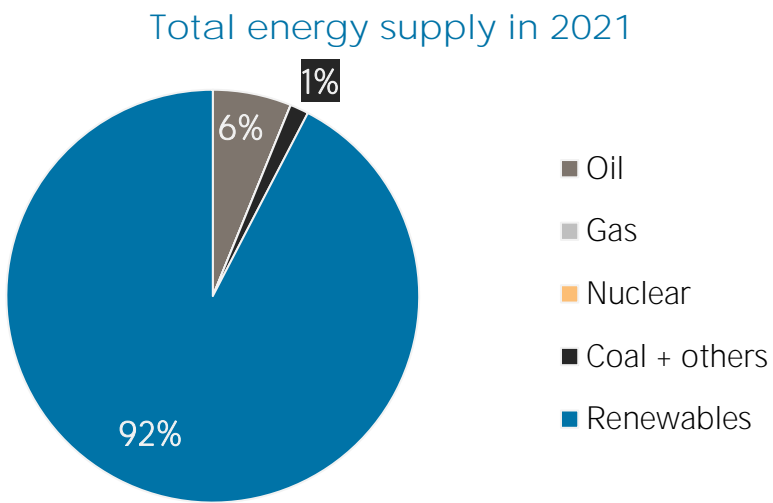International Renewable Energy Agency

COUNTRY INDICATORS AND SDGS

GDP per capita ▪ 8.1.1 Real GDP growth rate

6.5%
66.5

7.3.1 Energy intensity

12.3

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

100%
100%
82%

7.a.1 Public flows to renewables

7.b.1 Per capita renewable capacity

7,721.9

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

Urban ▪ Average ▪ Rural ▪ WHO safe

5.7 5.8 5.9 5.8

TOTAL ENERGY SUPPLY (TES)

Total Energy Supply (TES)	2016	2021
Non-renewable (TJ)	28 521	28 099
Renewable (TJ)	294 286	340 601
Total (TJ)	322 807	368 700
Renewable share (%)	91	92

Growth in TES	2016-21	2020-21
Non-renewable (%)	-1.5	+6.0
Renewable (%)	+15.7	+2.3
Total (%)	+14.2	+2.6

Primary energy trade	2016	2021
Imports (TJ)	44 779	37 936
Exports (TJ)	0	0
Net trade (TJ)	- 44 779	- 37 936
Imports (% of supply)	14	10
Exports (% of production)	0	0
Energy self-sufficiency (%)	91	92

Total energy supply in 2021

1%
6%
92%

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

Renewable energy supply in 2021

1% 0% 0% 0%
85%

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

RENEWABLE ENERGY CONSUMPTION (TFEC)

Renewable TFEC trend

Electricity ■ Commercial heat ■ Bioenergy

Petajoules (PJ)

398	401	441	437	441	443
2016	2017	2018	2019	2020	2021
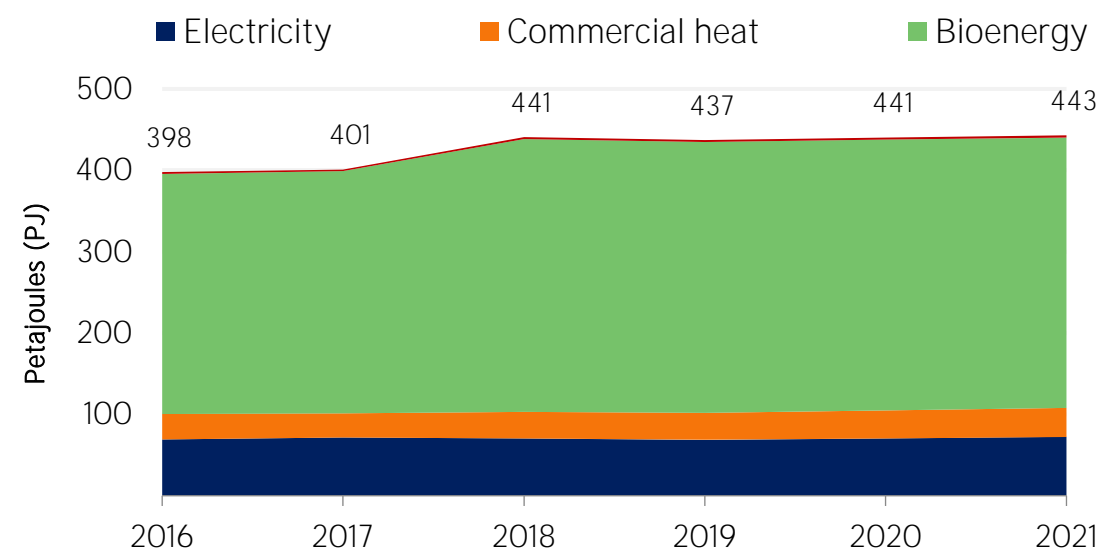
Consumption by sector	2016	2021
Industry (TJ)	60 836	60 438
Transport (TJ)	606	1 364
Households (TJ)	18 566	21 293
Other (TJ)	317 646	359 943

Renewable energy consumption in 2021

■ Geothermal ■ Solar direct

- 1%
- 16%
- 8%
- 75%

■ Industry ■ Transport ■ Households ■ Other

- 14%
- 0%
- 5%
- 81%
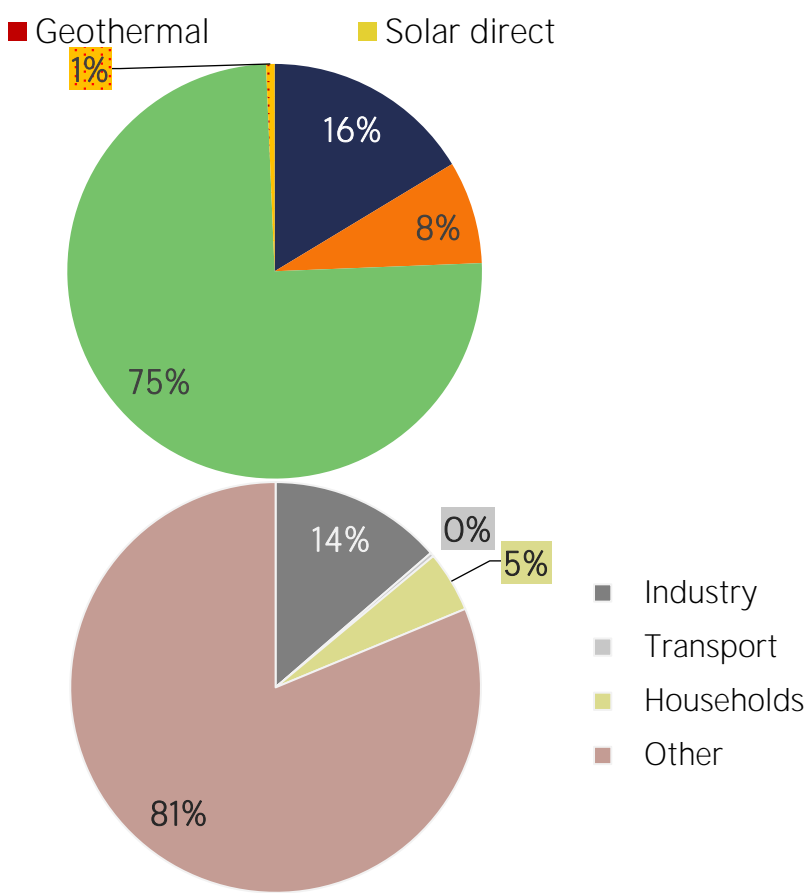
ELECTRICITY CAPACITY

Installed capacity trend

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

Gigawatts (GW) / Renewable share (%)

2.8	2.8	3.0	3.0	3.0	3.0	3.0	3.0
2016	2017	2018	2019	2020	2021	2022	2023

96%

Net capacity change in 2023 (MW)

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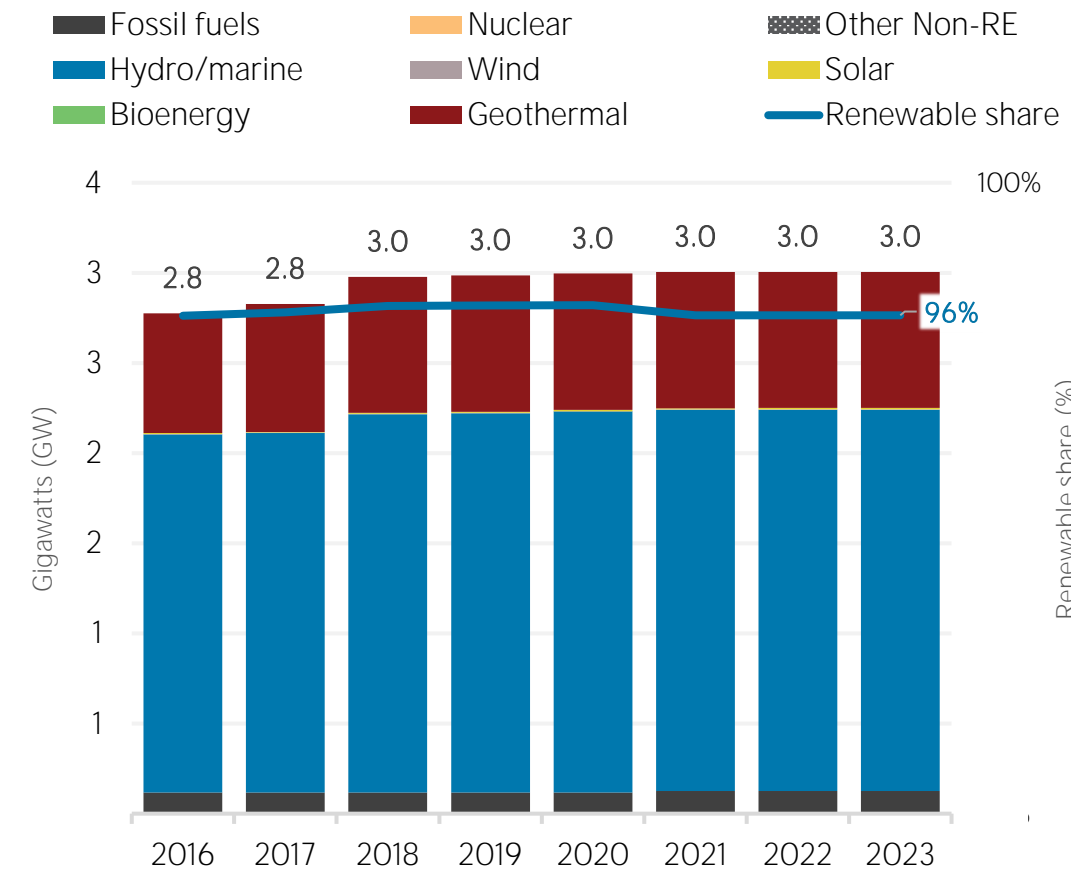
Renewable capacity in 2023

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

- 26%
- 0%
- 0%
- 73%

Net capacity change (GW)

■ Fossil fuels ■ Renewable

0.2			0.0		
0.0	0.0	0.0	0.0	0.0 0.0	0.0 0.0
2018	2019	2020	2021	2022	2023
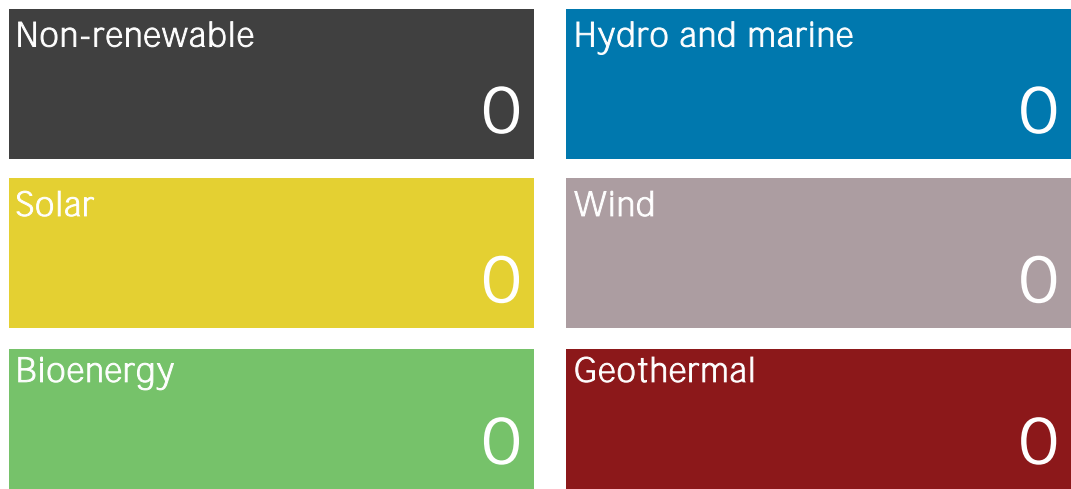
Capacity utilisation in 2022 (%)

Fossil fuels	0%
Nuclear	
Hydro/Marine	77%
Solar	9%
Wind	35%
Bioenergy	
Geothermal	89%

0   20   40   60   80   100
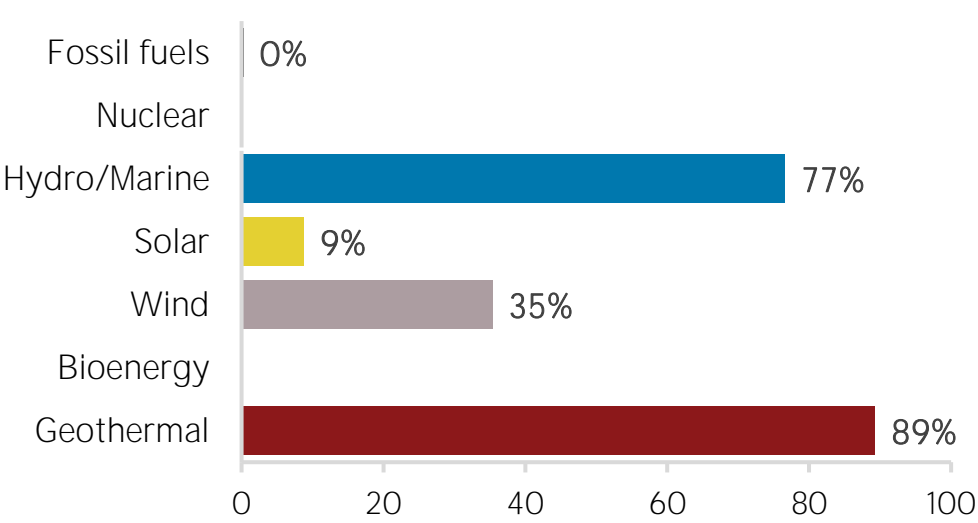
ELECTRICITY GENERATION

Generation in 2022	GWh	%
Non-renewable	3	0
Renewable	20 123	100
Hydro and marine	14 196	71
Solar	5	0
Wind	6	0
Bioenergy	0	0
Geothermal	5 916	29
Total	20 126	100

Per capita electricity generation (kWh)
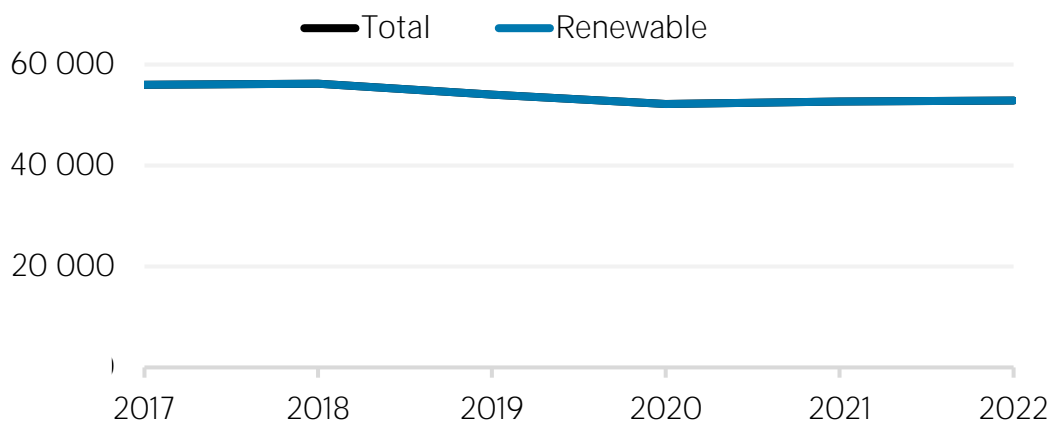
Electricity generation trend
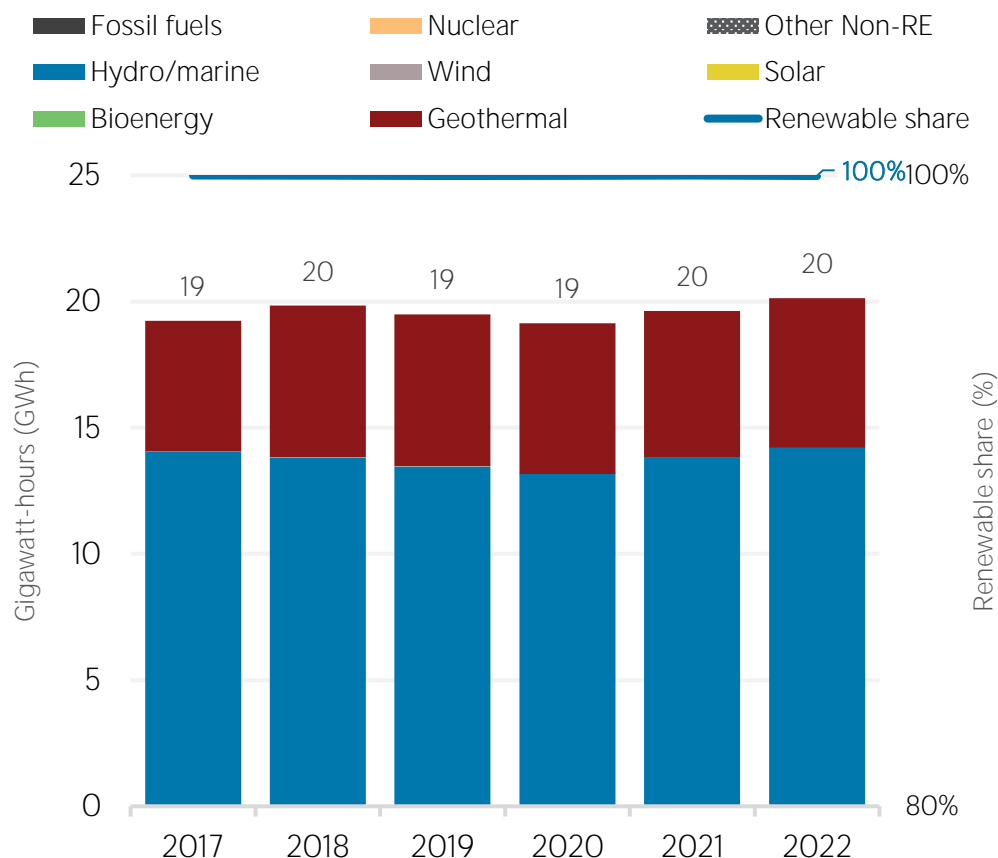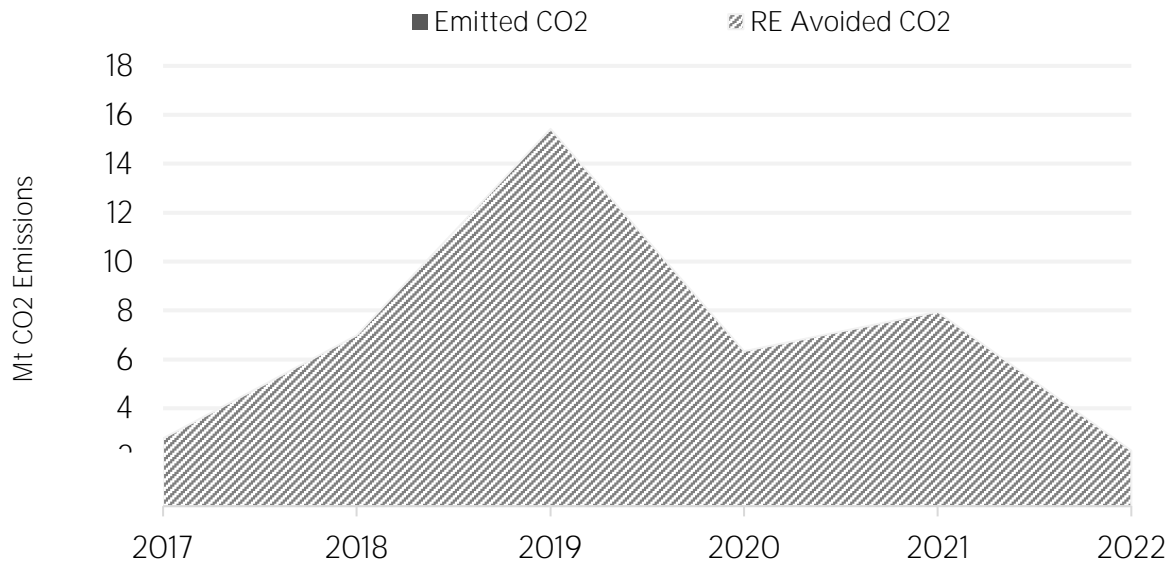

LATEST POLICIES, PROGRAMMES AND LEGISLATION

1	State support for electric vehicle imports	2023
2	Ownership tax	2017
3	Parking exemption - Reykjavik	2017
4	Parking exemption Akureyri	2017
5	VAT exemption ISL	2017

ENERGY AND EMISSIONS

CO_2 emissions by sector

Elec. & heat generation CO_2 emissions in
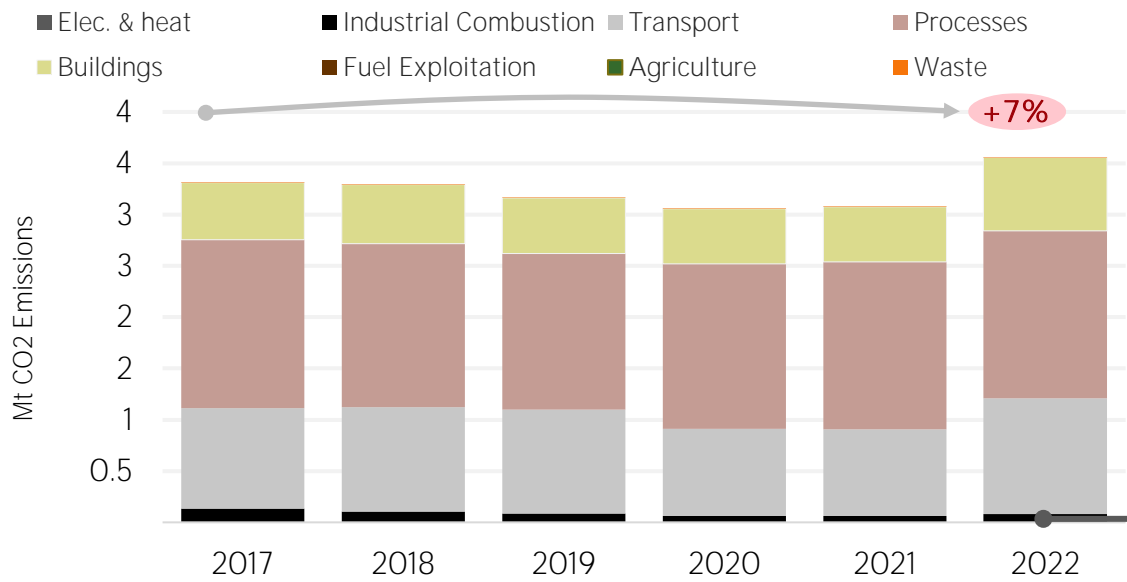
Avoided emissions from renewable elec. & heat

Avoided emissions based on fossil fuel mix used for power
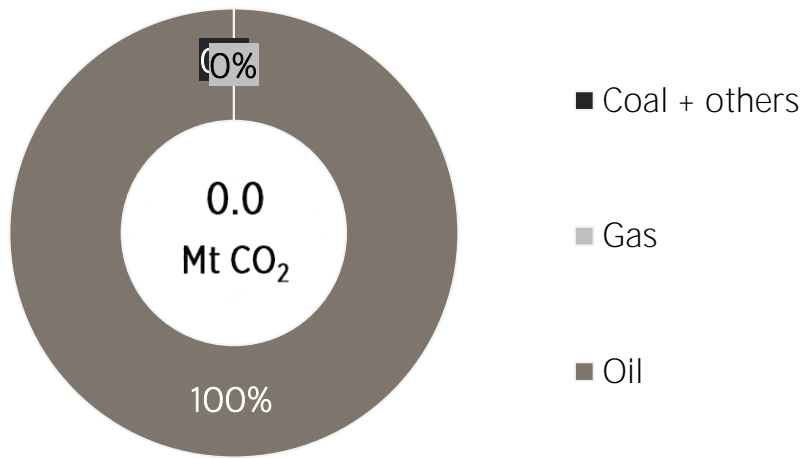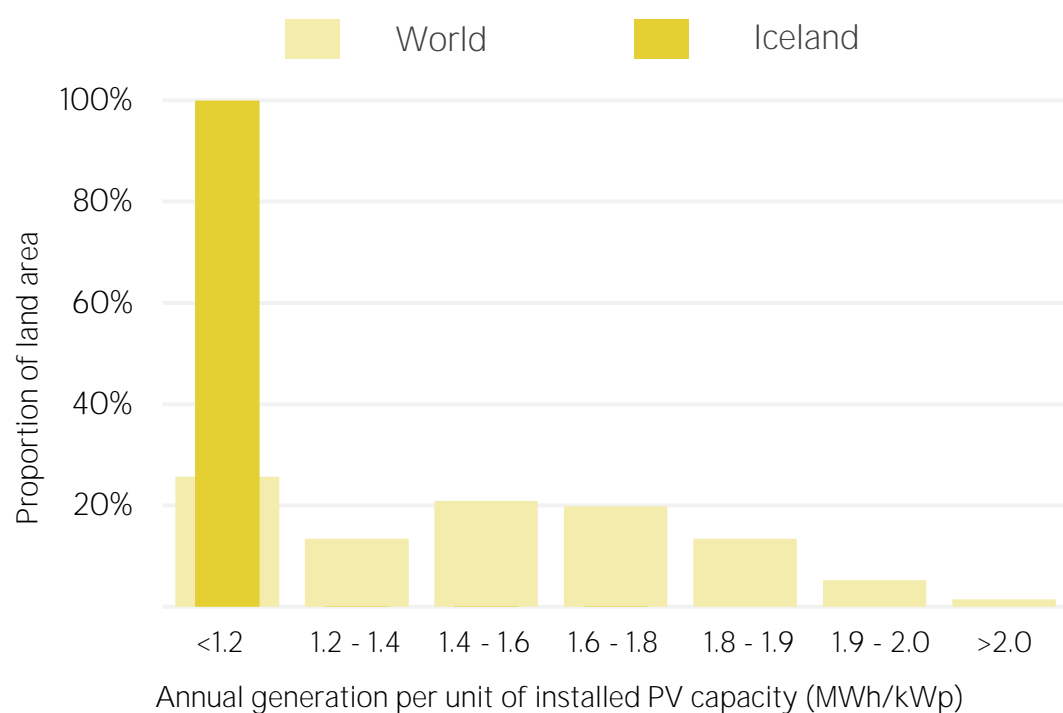
CO_2 emission factor for elec. & heat generation
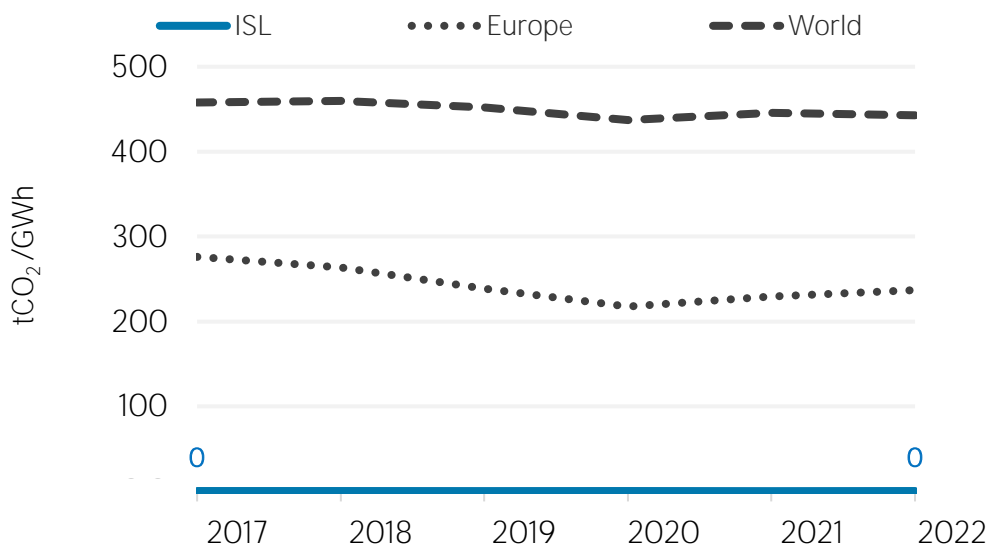
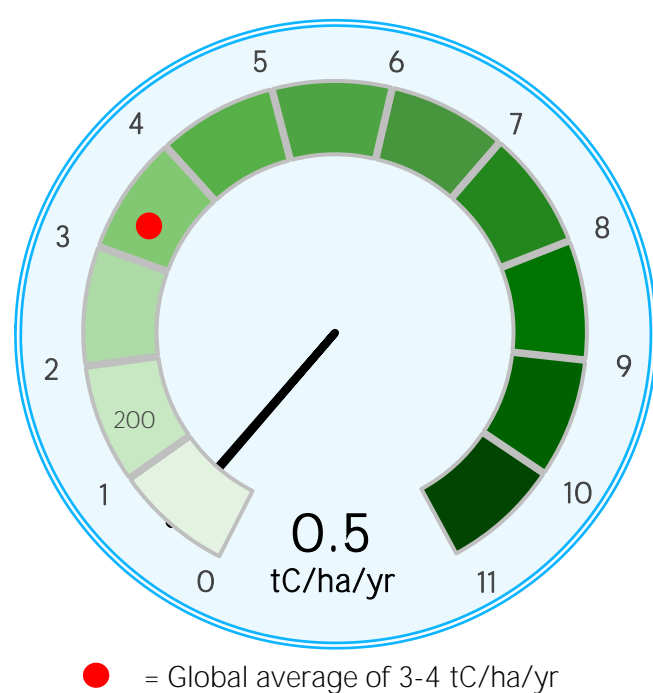*Calculated by dividing power sector emissions by elec. + heat gen.*

Distribution of solar potential

Legend: World, Iceland

Proportion of land area (y-axis: 100%, 80%, 60%, 40%, 20%)

x-axis: Annual generation per unit of installed PV capacity (MWh/kWp)
Categories: <1.2, 1.2 - 1.4, 1.4 - 1.6, 1.6 - 1.8, 1.8 - 1.9, 1.9 - 2.0, >2.0

Distribution of wind potential

Legend: World, Iceland

Proportion of land area (y-axis: 100%, 80%, 60%, 40%, 20%)

x-axis: Wind power density at 100m height (W/m^2)
Categories: <260, 260-420, 420-560, 560-670, 670-820, 820-1060, >1060
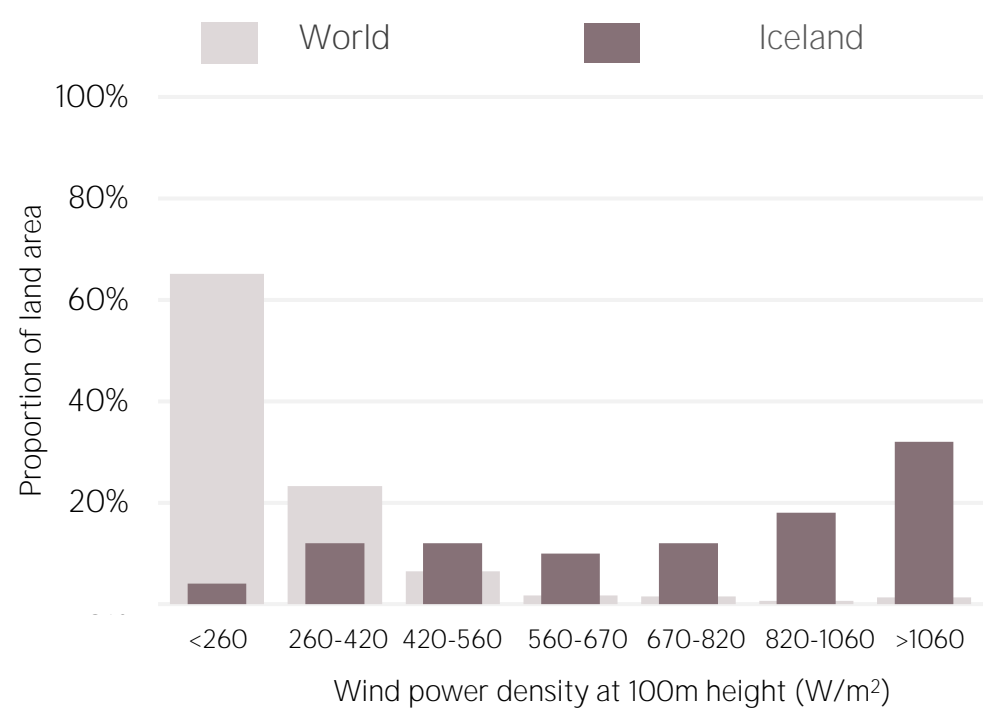
Biomass potential: net primary production

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