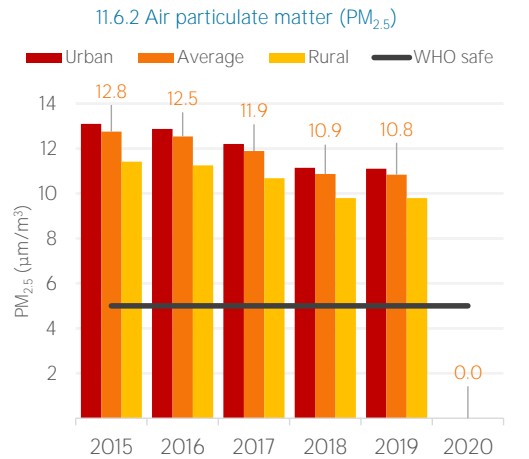
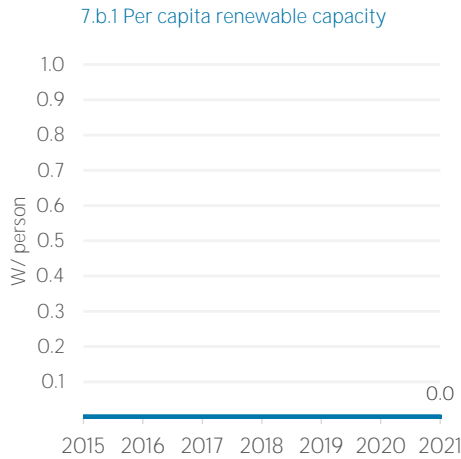
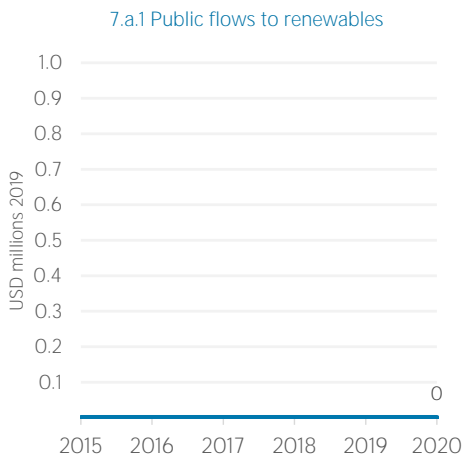
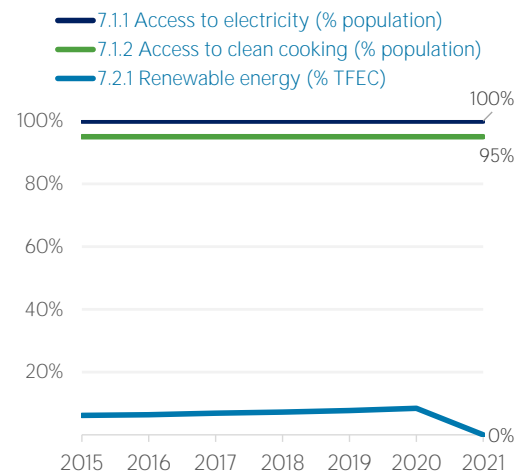
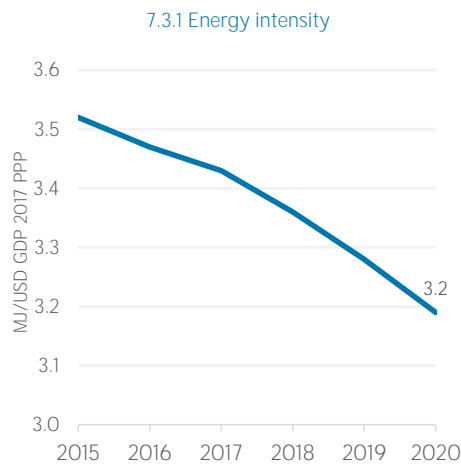
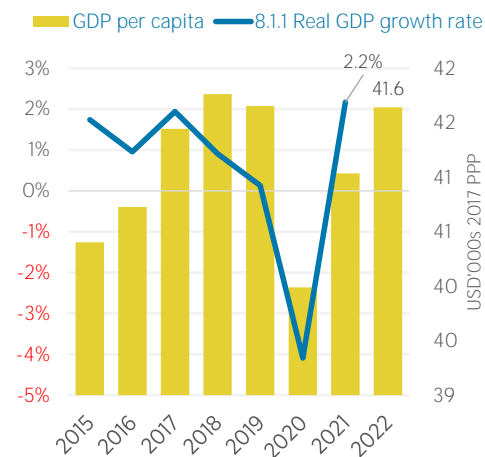


COUNTRY INDICATORS AND SDGS



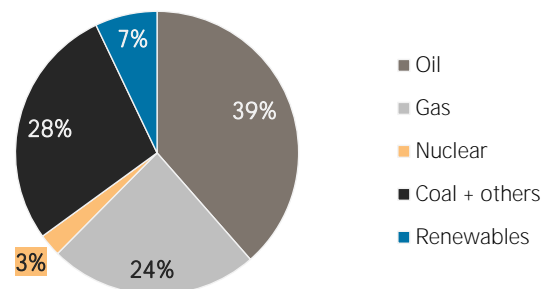
TOTAL ENERGY SUPPLY (TES)

| Total Energy Supply (TES) | 2015 | 2020 |
|---------------------------|------------|------------|
| Non-renewable (TJ) | 17 206 284 | 15 024 504 |
| Renewable (TJ) | 929 863 | 1 147 879 |
| Total (TJ) | 18 136 147 | 16 172 383 |
| Renewable share (%) | 5 | 7 |

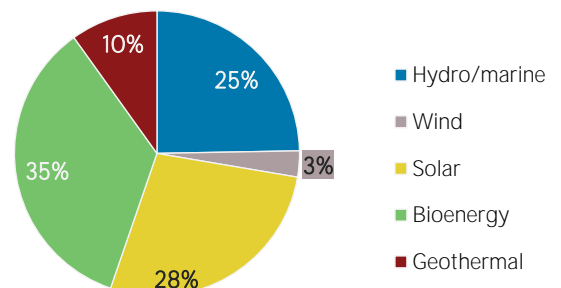
| Growth in TES | 2015-20 | 2019-20 |
|-------------------|---------|---------|
| Non-renewable (%) | -12.7 | -8.1 |
| Renewable (%) | +23.4 | +1.2 |
| Total (%) | -10.8 | -7.5 |

| Primary energy trade | 2015 | 2020 |
|-----------------------------|-------------|-------------|
| Imports (TJ) | 17 976 210 | 14 965 733 |
| Exports (TJ) | 790 896 | 493 461 |
| Net trade (TJ) | -17 185 314 | -14 472 272 |
| Imports (% of supply) | 99 | 93 |
| Exports (% of production) | 59 | 27 |
| Energy self-sufficiency (%) | 7 | 11 |

Total energy supply in 2020

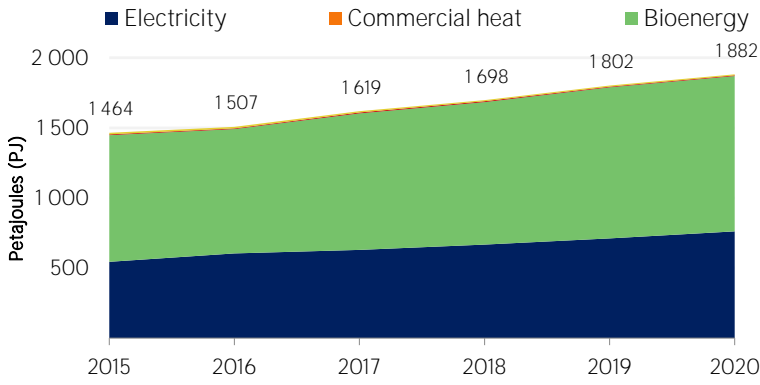


Renewable energy supply in 2020



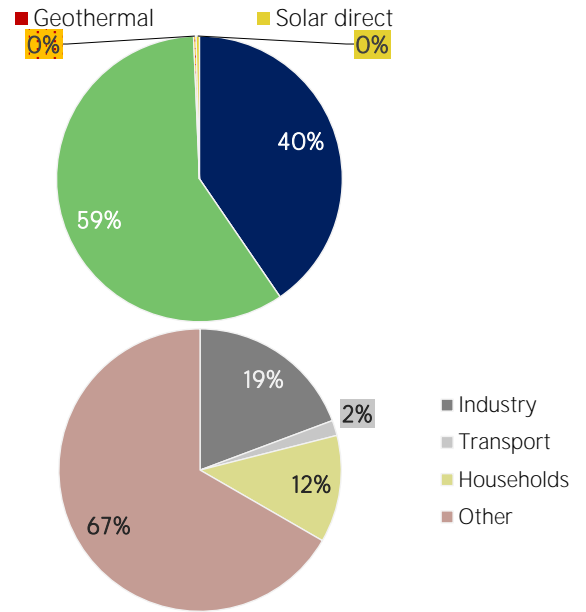
RENEWABLE ENERGY CONSUMPTION (TFEC)

Renewable TFEC trend



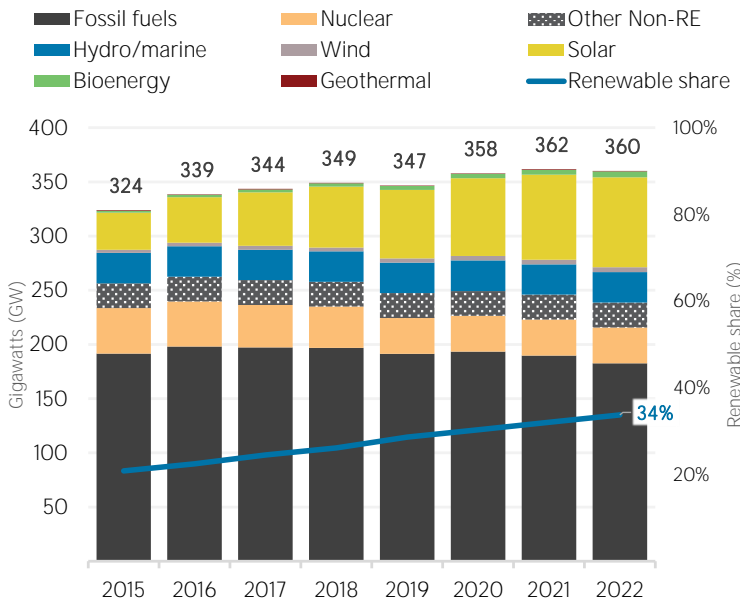
| Consumption by sector | 2015 | 2020 |
|-----------------------|---------|-----------|
| Industry (TJ) | 304 944 | 363 230 |
| Transport (TJ) | 24 469 | 32 864 |
| Households (TJ) | 166 611 | 231 125 |
| Other (TJ) | 967 821 | 1 254 639 |

Renewable energy consumption in 2020

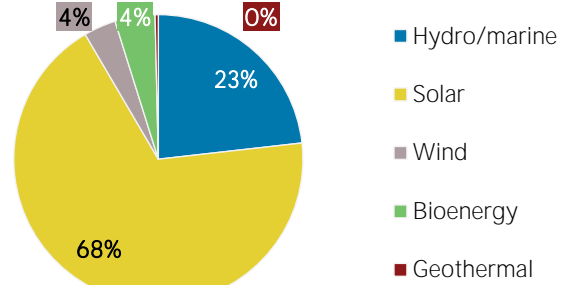


ELECTRICITY CAPACITY

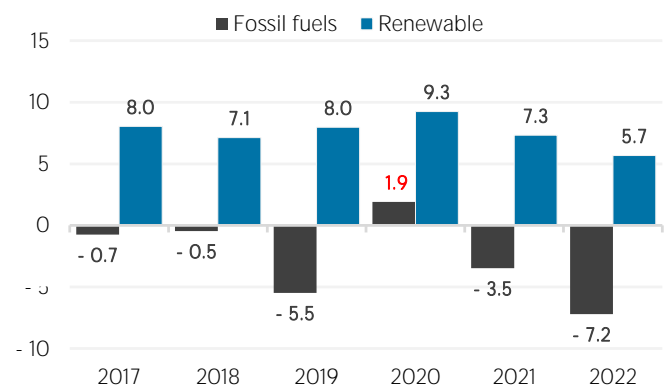
Installed capacity trend



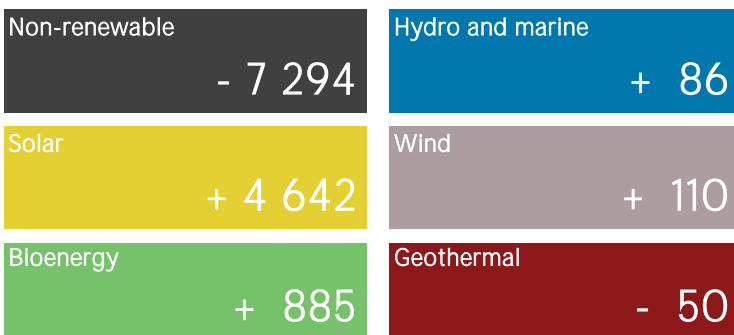
Renewable capacity in 2022



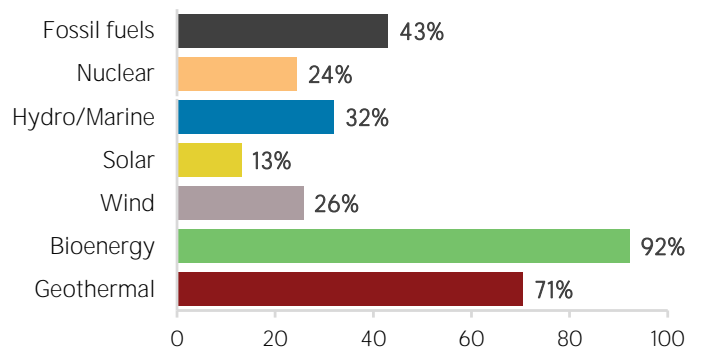
Net capacity change (GW)



Net capacity change in 2022 (MW)



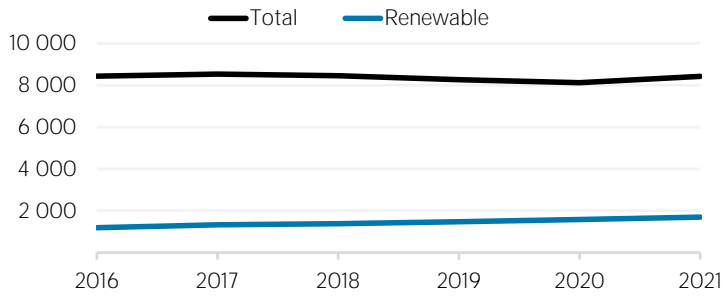
Capacity utilisation in 2021 (%)



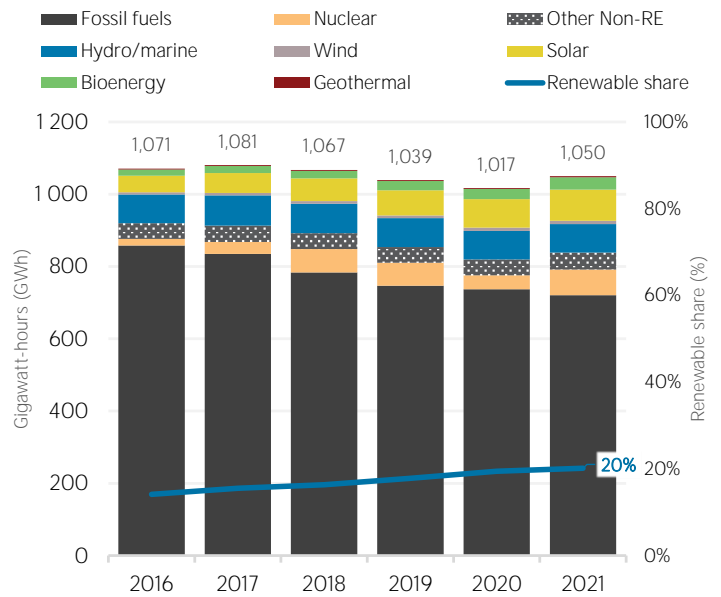
ELECTRICITY GENERATION

| Generation in 2021 | GWh | % |
|----------------------|------------------|------------|
| Non-renewable | 838 415 | 80 |
| Renewable | 211 496 | 20 |
| Hydro and marine | 78 793 | 8 |
| Solar | 86 094 | 8 |
| Wind | 9 429 | 1 |
| Bioenergy | 34 172 | 3 |
| Geothermal | 3 008 | 0 |
| Total | 1 049 911 | 100 |

Per capita electricity generation (kWh)



Electricity generation trend

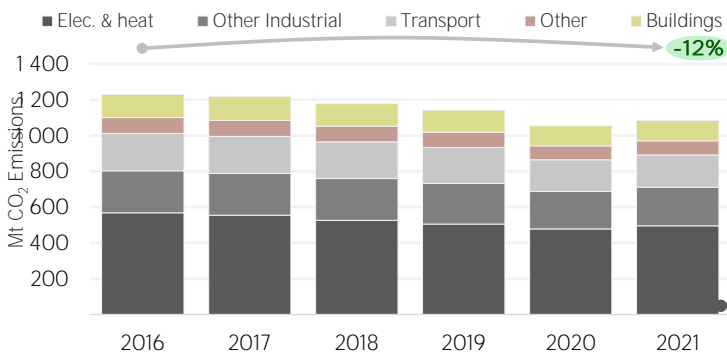


LATEST POLICIES, PROGRAMMES AND LEGISLATION

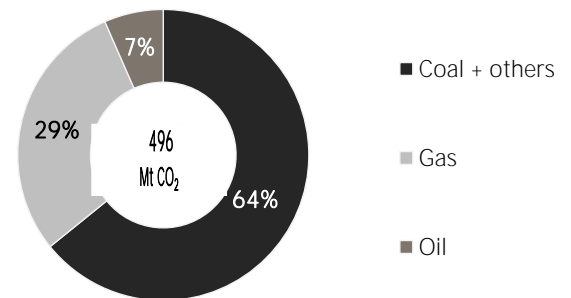
- 1 Amendment to the Energy Conservation Act 2023
- 2 CCS Long-Term Roadmap 2023
- 3 2022 Comprehensive emergency measures to address soaring crude oil and commodity prices 2022
- 4 Japan - Indonesia cooperation agreement on decarbonization technologies 2022
- 5 JOGMEC funding for exploration and technology development 2022

ENERGY AND EMISSIONS

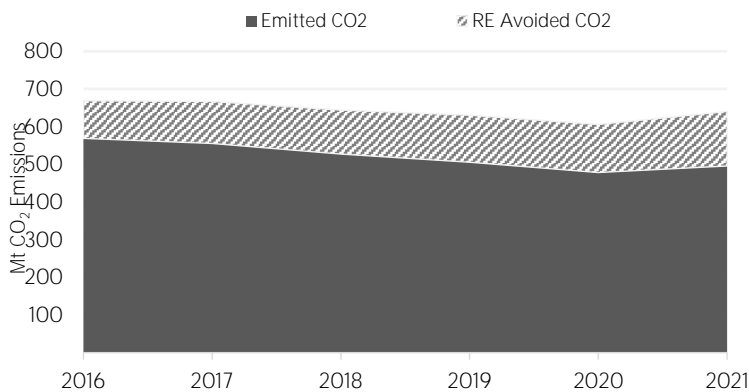
Energy-related CO₂ emissions by sector



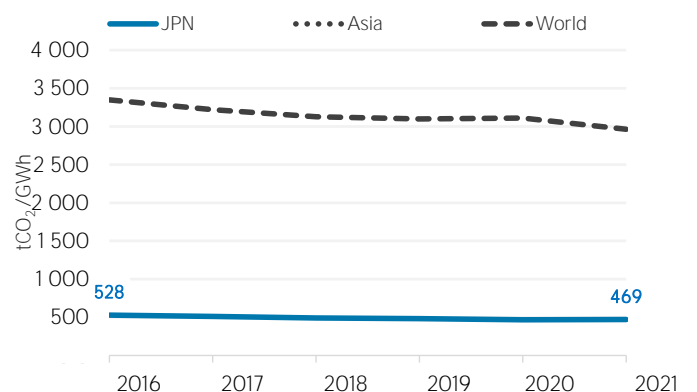
Elec. & heat generation CO₂ emissions in



Avoided emissions from renewable elec. & heat



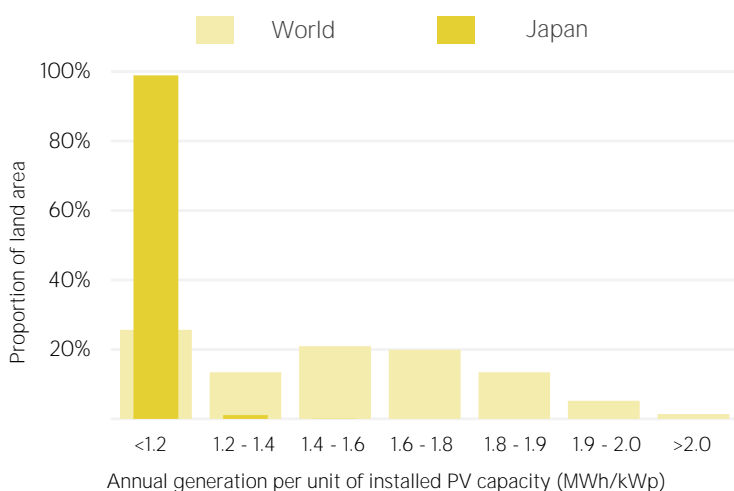
CO₂ emission factor for elec. & heat generation



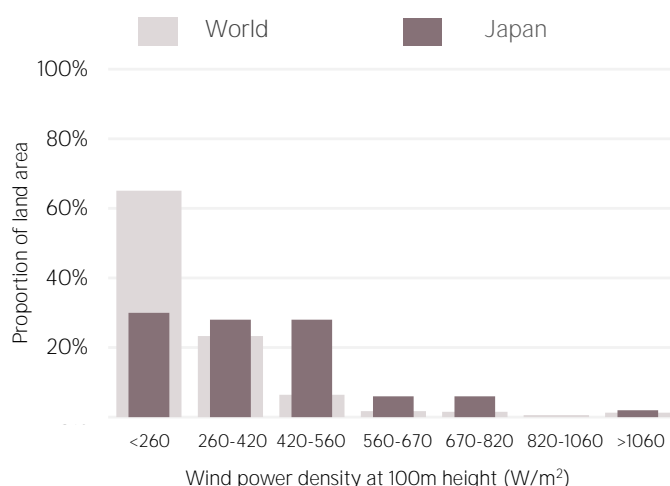
Avoided emissions based on fossil fuel mix used for power

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

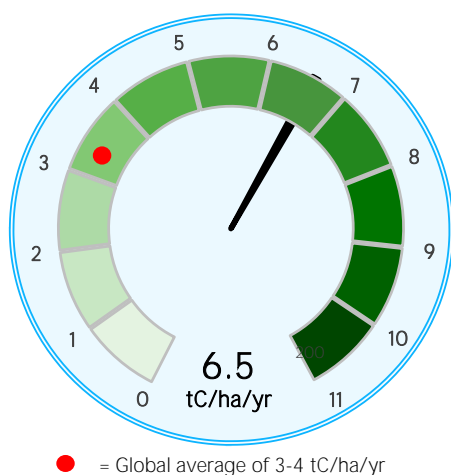
Distribution of solar potential



Distribution of wind potential



Biomass potential: net primary production



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.

Last updated on: 8th August, 2023