### ENERGY PROFILE

## Finland







#### 7.a.1 Public flows to renewables 1.0 0.9 0.8 0.7 USD millions 2019 0.6 0.5 0.4 0.3 0.2 0.1 • 0 2019 2020 2021 2016 2017 2018



11.6.2 Air particulate matter ( $PM_{2.5}$ )



#### TOTAL ENERGY SUPPLY (TES)

Total Energy Supply (TES)	2016	2021
Non-renewable (TJ)	930 753	812 105
Renewable (TJ)	469 332	571 091
Total (TJ)	1 400 085	1 383 197
Renewable share (%)	34	41
Growth in TES	2016-21	2020-21
Non-renewable (%)	-12.7	-0.8



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#### COUNTRY INDICATORS AND SDGS

Renewable (%)	+21.7	+14.1
Total (%)	-1.2	+4.8

Primary energy trade	2016	2021
Imports (TJ)	1062967	850 684
Exports (TJ)	403 914	306 743
Net trade (TJ)	- 659 053	- 543 941
Imports (% of supply)	76	62
Exports (% of production)	55	39
Energy self-sufficiency (%)	52	58

#### RENEWABLE ENERGY CONSUMPTION (TFEC)







ELECTRICITY CAPACITY



Net capacity change in 2023 (MW)

Hydro and marine



#### Installed capacity trend

#### Renewable capacity in 2023



#### Net capacity change (GW)



Renewable energy consumption in 2021



#### Capacity utilisation in 2022 (%)



#### ELECTRICITY GENERATION



100%

80%

Renewable share (%)

20%

0%

#### LATEST POLICIES, PROGRAMMES AND LEGISLATION

1 2022 3rd Supplementary Budget- Lending facility for energy companies	2023
2 August 2022 Amendments to the Law on Measures to Reduce the Extraordinary Rise in Energy Prices	2022
3 Electrification aid for energy-intensive industries	2022
4 Grant to renew district heating equipment in residential buildings	2022
5 Green transition investment projects	2022





Avoided emissions based on tossil tuel mix used for power

Mt CO2 Emissions

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

#### RENEWABLE RESOURCE POTENTIAL



#### 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<sup>2</sup>) 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

# International Renewable Energy Agency

IRENA Headquarters Masdar City P.O. Box 236, Abu Dhabi United Arab Emirates www.irena.org 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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