

## COUNTRY INDICATORS AND SDGS

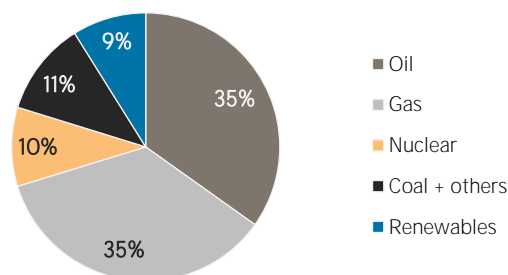


## TOTAL ENERGY SUPPLY (TES)

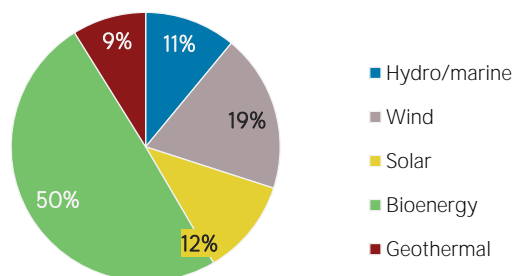
Total Energy Supply (TES)	2017	2022
Non-renewable (TJ)	83 266 052	83 060 534
Renewable (TJ)	7 058 289	8 111 607
Total (TJ)	90 324 341	91 172 141
Renewable share (%)	8	9

Growth in TES	2017-22	2021-22
Non-renewable (%)	-0.2	+1.3
Renewable (%)	+14.9	+0.5
Total (%)	+0.9	+1.2

## Total energy supply in 2022



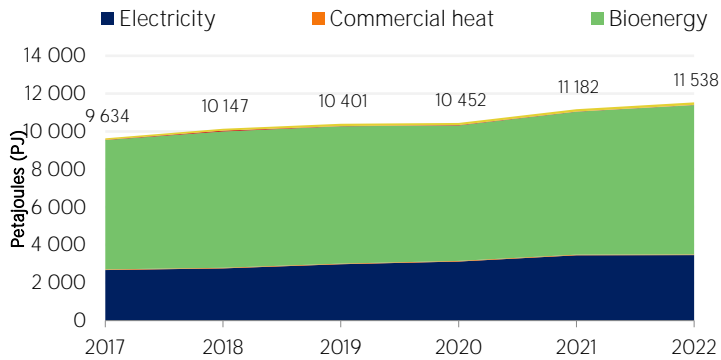
## Renewable energy supply in 2022



Primary energy trade	2017	2022
Imports (TJ)	25 038 450	21 093 076
Exports (TJ)	17 690 575	26 913 293
Net trade (TJ)	-7 347 875	5 820 217
Imports (% of supply)	28	23
Exports (% of production)	21	28
Energy self-sufficiency (%)	92	107

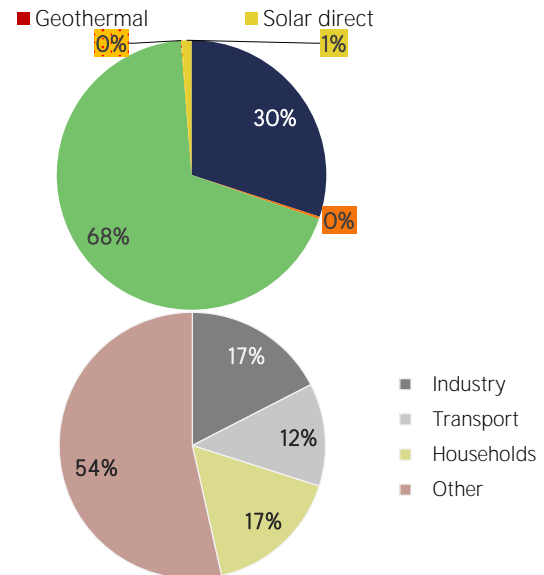
## RENEWABLE ENERGY CONSUMPTION (TFEC)

### Renewable TFEC trend



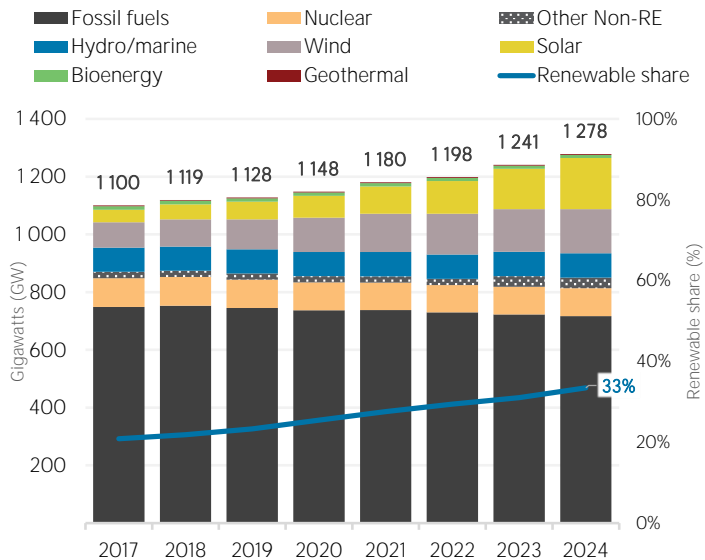
Consumption by sector	2017	2022
Industry (TJ)	1 633 711	2 013 858
Transport (TJ)	1 348 865	1 439 461
Households (TJ)	1 573 108	1 909 299
Other (TJ)	5 078 536	6 175 581

### Renewable energy consumption in 2022

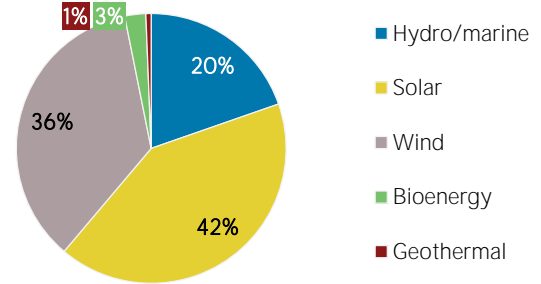


## ELECTRICITY CAPACITY

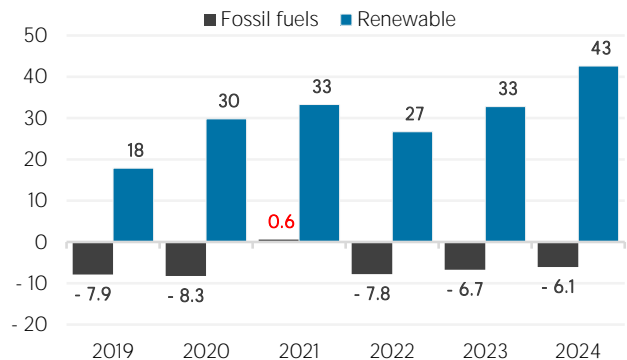
### Installed capacity trend



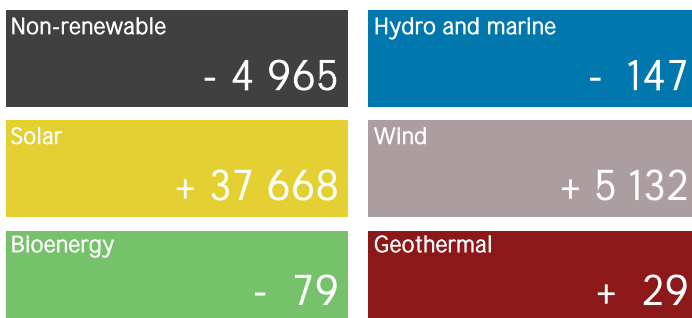
### Renewable capacity in 2024



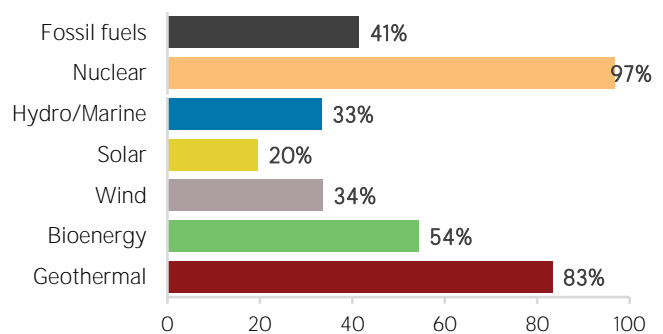
### Net capacity change (GW)



### Net capacity change in 2024 (MW)



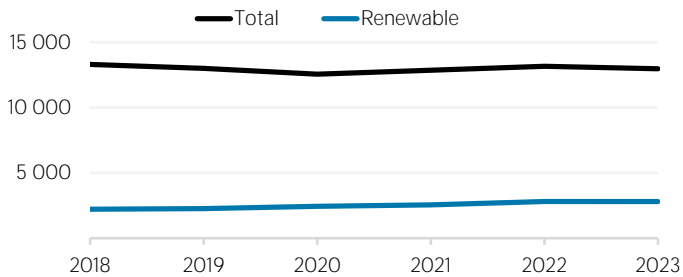
### Capacity utilisation in 2023 (%)



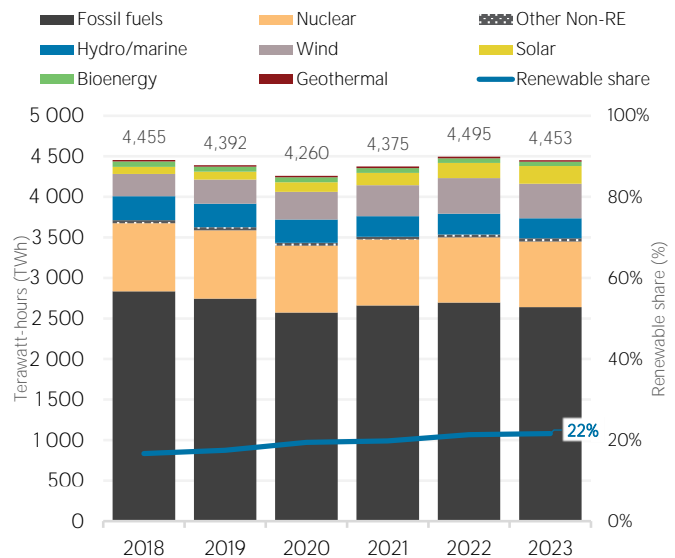
## ELECTRICITY GENERATION

Generation in 2023	GWh	%
Non-renewable	3 490 463	78
Renewable	962 076	22
Hydro and marine	246 757	6
Solar	217 532	5
Wind	425 941	10
Bioenergy	52 346	1
Geothermal	19 500	0
<b>Total</b>	<b>4 452 539</b>	<b>100</b>

Per capita electricity generation (kWh)



Electricity generation trend

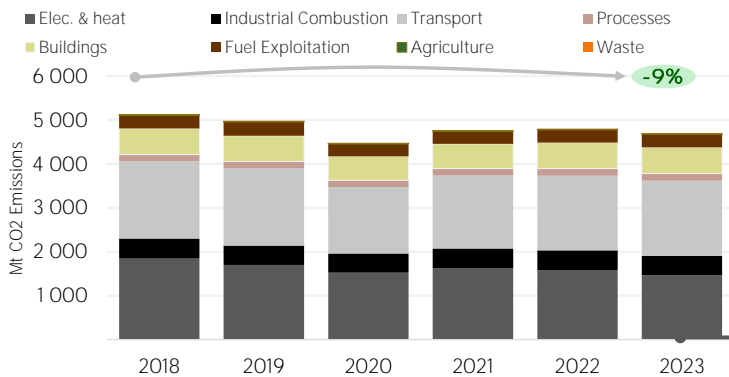


## LATEST POLICIES, PROGRAMMES AND LEGISLATION

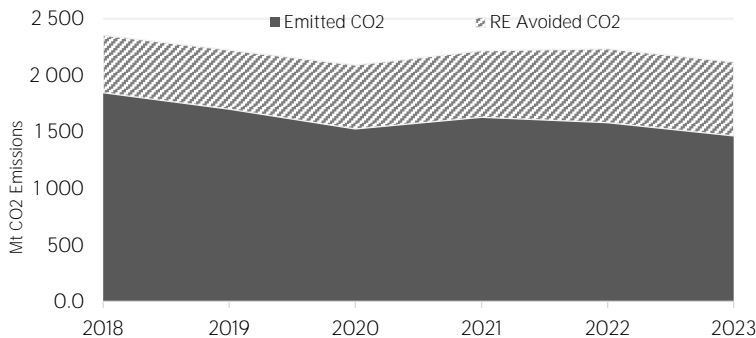
- Greenhouse Gas Emissions Standards for Heavy-Duty Engines and Vehicles-Phase 3 **2027**
- Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light Duty and Medium-Duty Vehicles **2027**
- Executive Order on Immediate Measures to Increase American Mineral Production **2025**
- Federal funding for regional collaboration on domestic critical minerals **2025**
- 2023 Energy Efficiency Standards for Air Conditioners and Heat Pumps **2024**

## ENERGY AND EMISSIONS

CO<sub>2</sub> emissions by sector

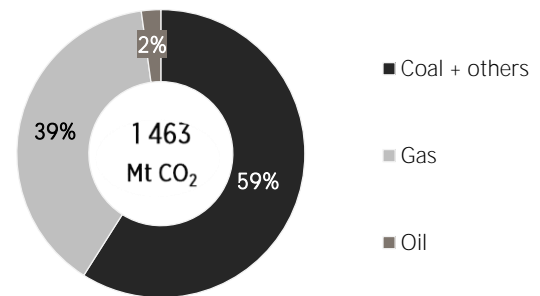


Avoided emissions from renewable elec. & heat

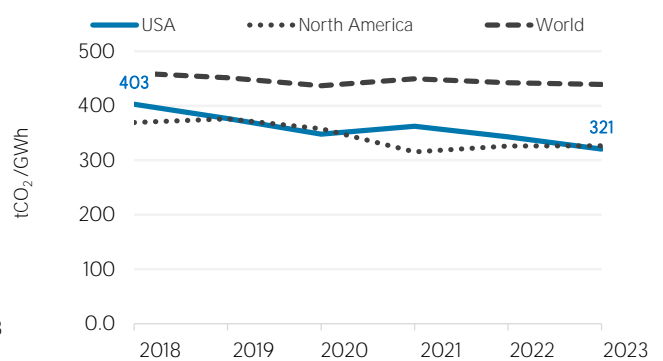


Avoided emissions based on fossil fuel mix used for power

Elec. & heat generation CO<sub>2</sub> emissions in



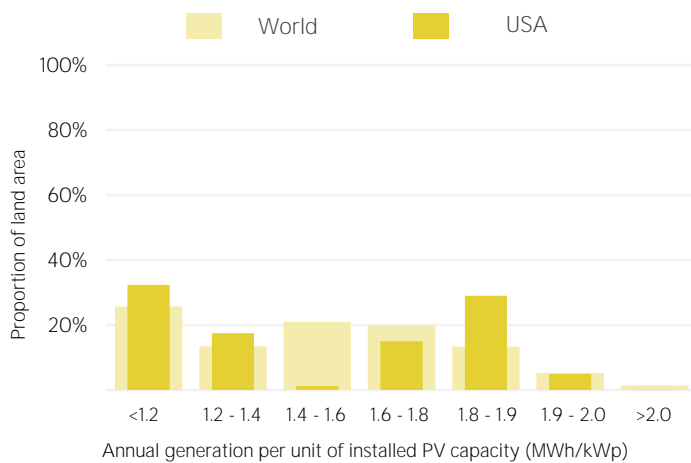
CO<sub>2</sub> emission factor for elec. & heat generation



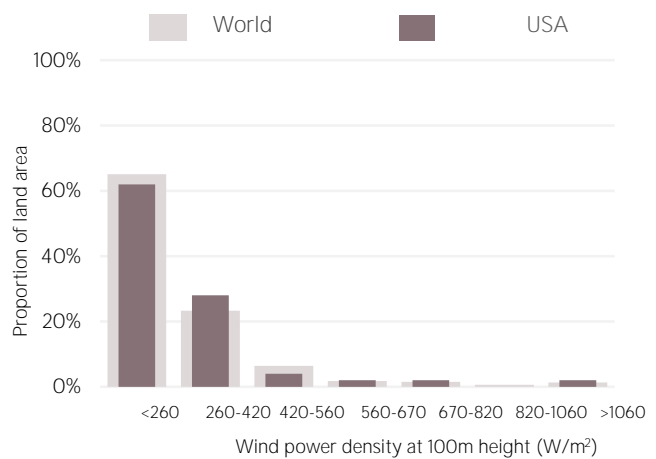
Calculated by dividing power sector emissions by elec. + heat gen.

## RENEWABLE RESOURCE POTENTIAL

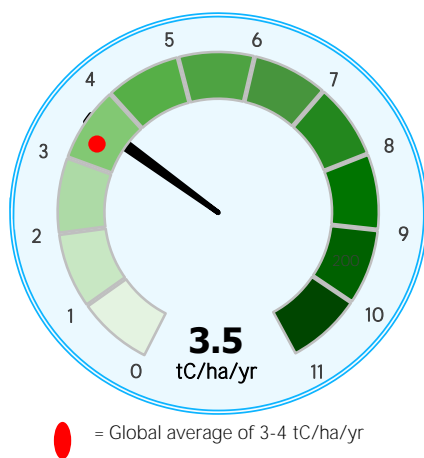
### Distribution of solar potential



### 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 ( $W/m^2$ ) 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  $\times 8,760$ h/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](mailto:statistics@irena.org).

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