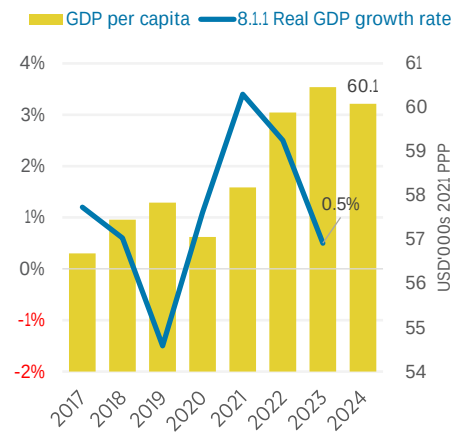
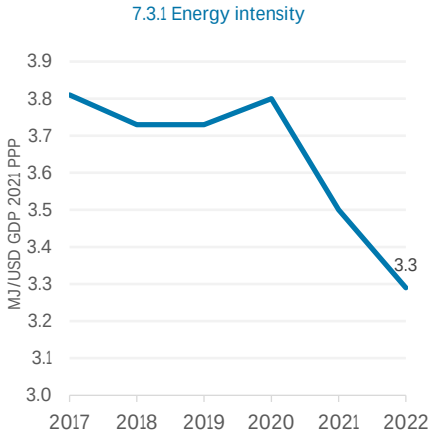
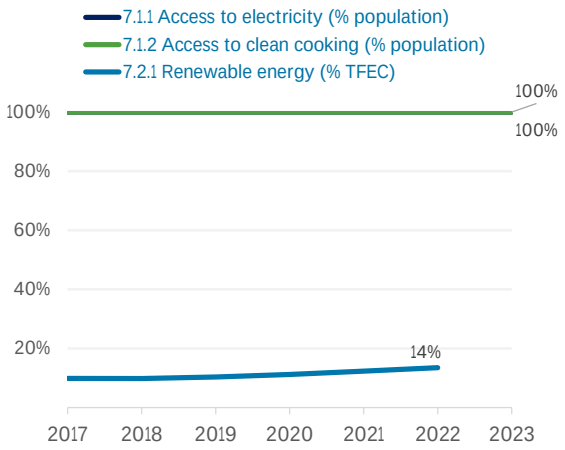
ENERGY PROFILE

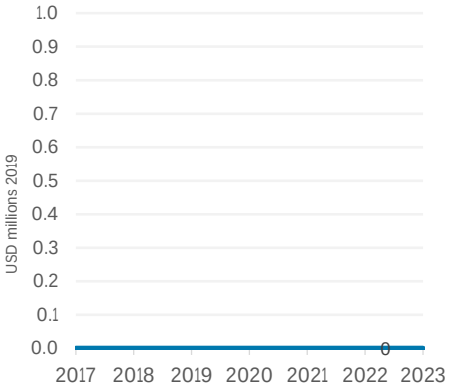
# Australia

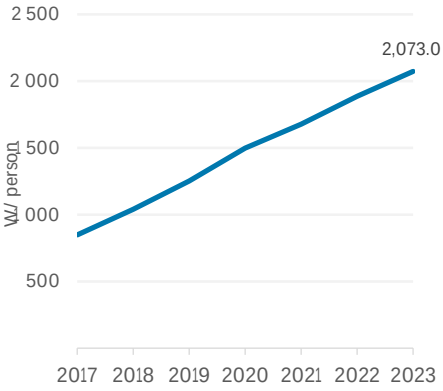
## COUNTRY INDICATORS AND SDGS

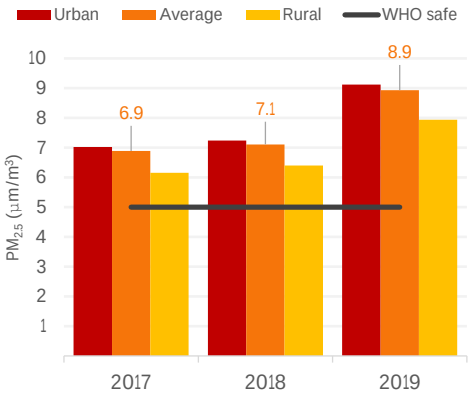


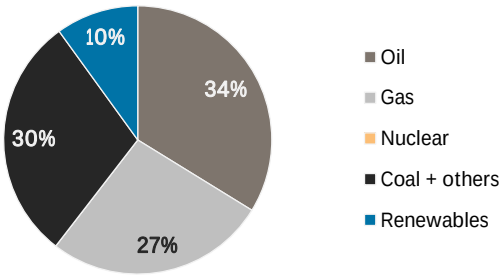

## TOTAL ENERGY SUPPLY (TES)

| Total Energy Supply (TES) | 2017 | 2022 |
|---|---|---|
| Non-renewable (TJ) | 5 008 791 | 4 863 900 |
| Renewable (TJ) | 387 652 | 538 725 |
| Total (TJ) | 5 396 443 | 5 402 625 |
| Renewable share (%) | 7 | 10 |

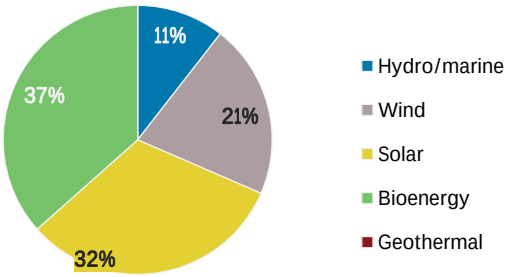
| Growth in TES | 2017-22 | 2021-22 |
|---|---|---|
| Non-renewable (%) | -2.9 | -3.4 |
| Renewable (%) | +39.0 | +6.6 |
| Total (%) | +0.1 | -2.5 |

| Primary energy trade | 2017 | 2022 |
|---|---|---|
| Imports (TJ) | 2 091 125 | 2 035 355 |
| Exports (TJ) | 13 352 928 | 14 608 572 |
| Net trade (TJ) | 11 261 803 | 12 573 217 |
| Imports (% of supply) | 39 | 38 |
| Exports (% of production) | 79 | 80 |
| Energy self-sufficiency (%) | 315 | 337 |

### Total energy supply in 2022

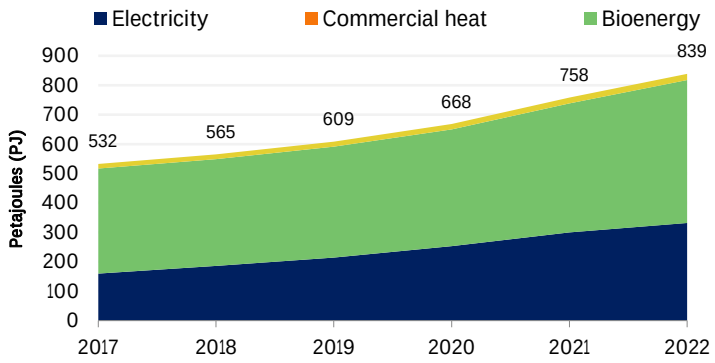



### Renewable energy supply in 2022



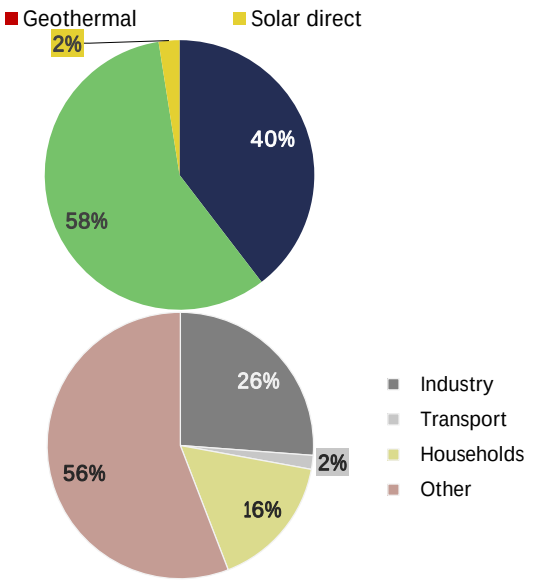
## RENEWABLE ENERGY CONSUMPTION (TFEC)

### Renewable TFEC trend



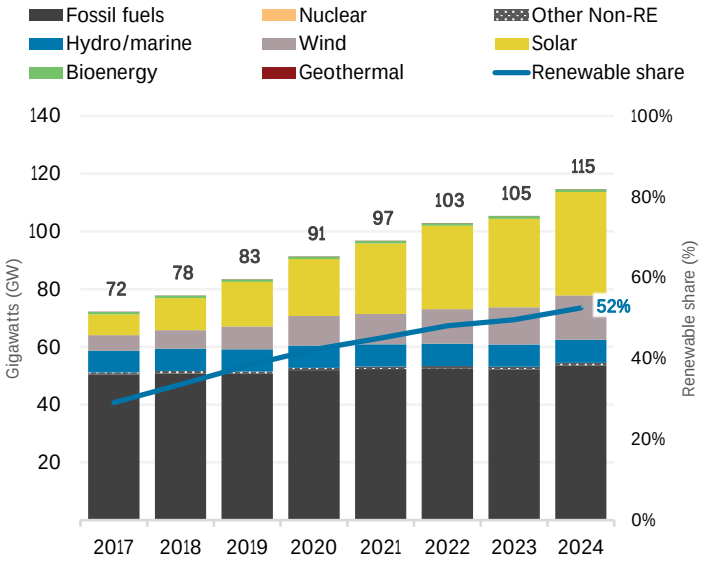

| Consumption by sector | 2017 | 2022 |
|---|---|---|
| Industry (TJ) | 189 680 | 219 603 |
| Transport (TJ) | 8 624 | 14 144 |
| Households (TJ) | 68 743 | 136 501 |
| Other (TJ) | 265 403 | 468 379 |

### Renewable energy consumption in 2022




## ELECTRICITY CAPACITY

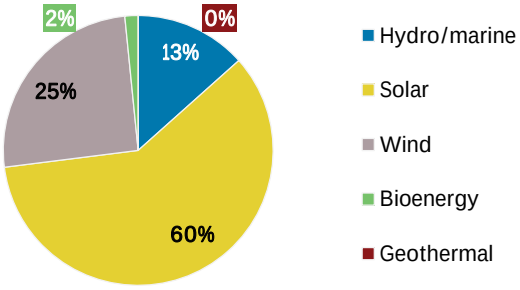
### Installed capacity trend



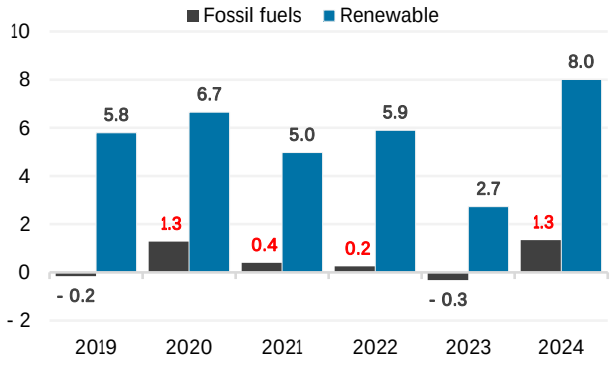

### Net capacity change in 2024 (MW)

| | |
|---|---|
| Non-renewable: + 1 356 | Hydro and marine: + 352 |
| Solar: + 5 190 | Wind: + 2 380 |
| Bioenergy: + 84 | Geothermal: 0 |

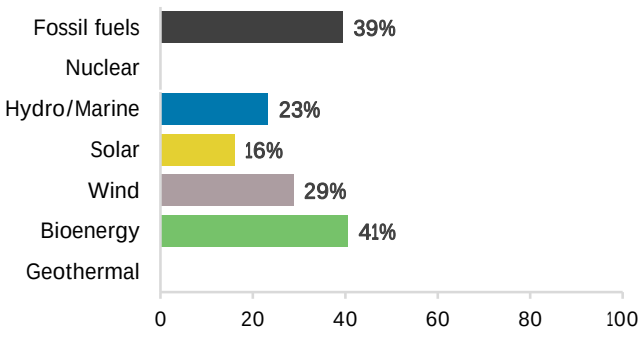
### Renewable capacity in 2024




### Net capacity change (GW)



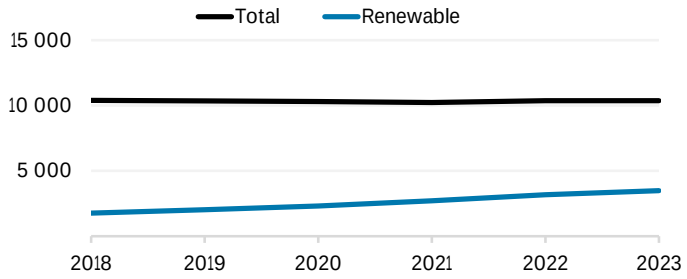

### Capacity utilisation in 2023 (%)



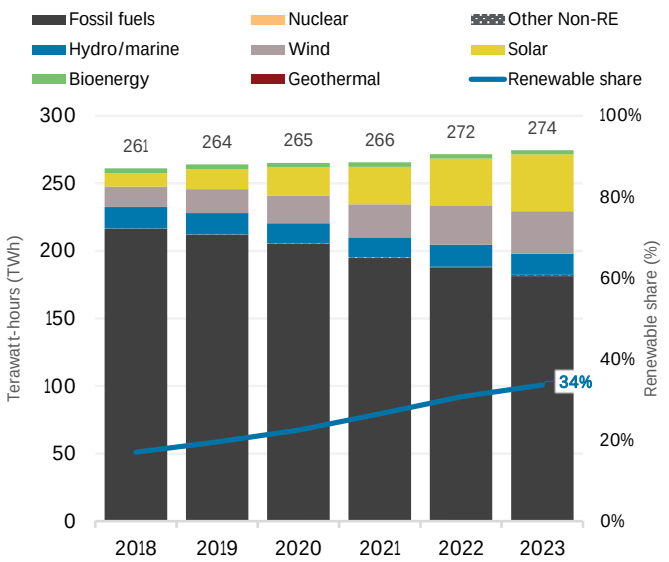
## ELECTRICITY GENERATION

| Generation in 2023 | GWh | % |
|---|---|---|
| **Non-renewable** | **182 259** | **66** |
| **Renewable** | **92 216** | **34** |
| Hydro and marine | 15 770 | 6 |
| Solar | 41 969 | 15 |
| Wind | 31 385 | 11 |
| Bioenergy | 3 093 | 1 |
| Geothermal | 0 | 0 |
| **Total** | **274 475** | **100** |

### Per capita electricity generation (kWh)




### Electricity generation trend

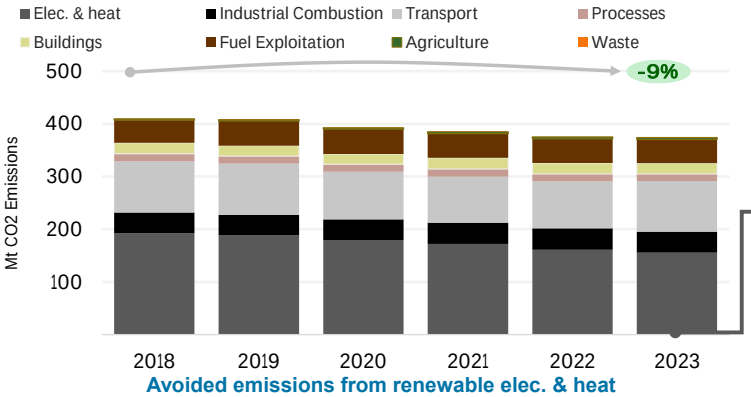



## LATEST POLICIES, PROGRAMMES AND LEGISLATION

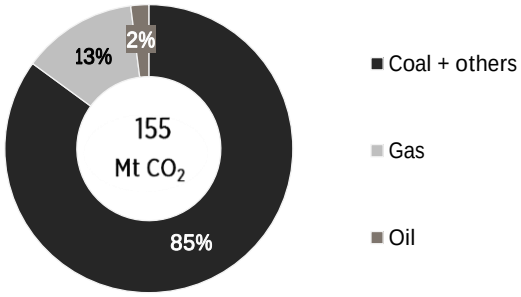
| | | |
|---|---|---|
| 1 | Australia New Vehicle Efficiency Standard (2025-2029) | 2025 |
| 2 | Australia NRFC investment commitment in rare earths project | 2025 |
| 3 | Future Made in Australia Act 2025 | 2025 |
| 4 | (Western Australia) Royalty relief for nickel | 2024 |
| 5 | Future Made in Australia - Attracting Investment in Key Industries | 2024 |

## ENERGY AND EMISSIONS

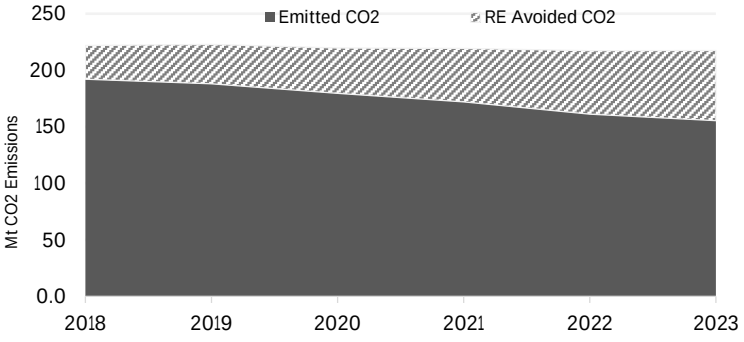
### $CO_2$ emissions by sector



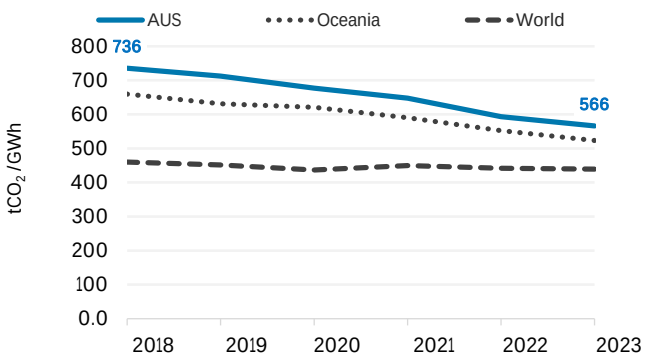

### Elec. & heat generation $CO_2$ emissions in




### Avoided emissions from renewable elec. & heat




### $CO_2$ emission factor for elec. & heat generation

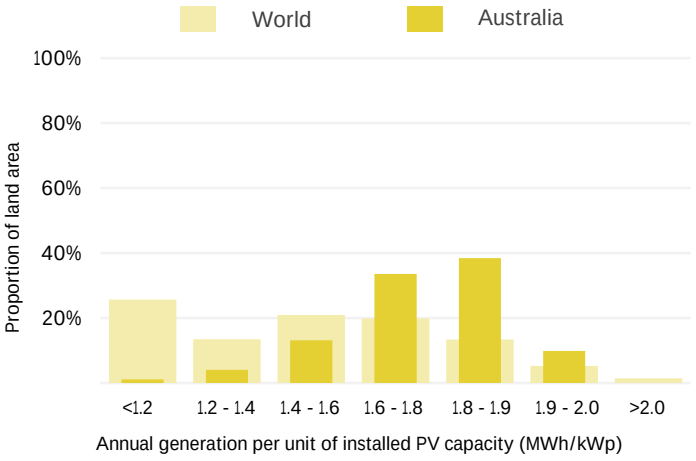



*Avoided emissions based on fossil fuel mix used for power*

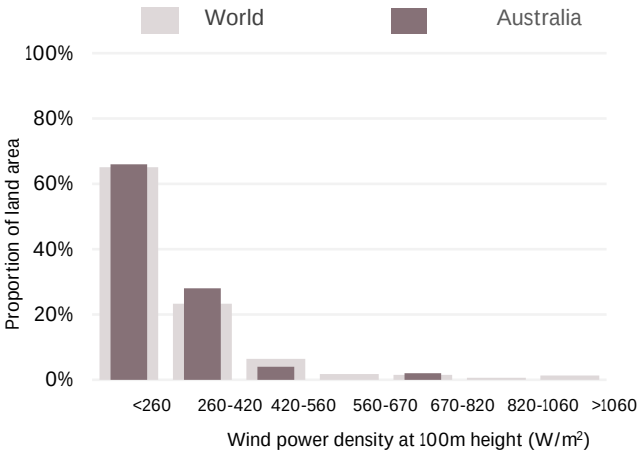
*Calculated by dividing power sector emissions by elec. + heat gen.*

## RENEWABLE RESOURCE POTENTIAL

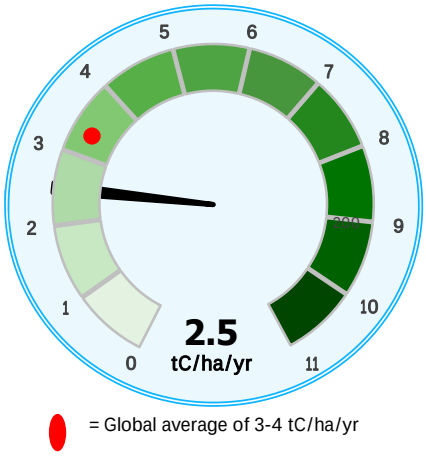
### Distribution of solar potential




### 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/m²) 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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