ENERGY PROFILE

Singapore

COUNTRY INDICATORS AND SDGS

TOTAL ENERGY SUPPLY (TES)

<table>
<thead>
<tr>
<th>Total Energy Supply (TES)</th>
<th>2014</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-renewable (TJ)</td>
<td>1046 955</td>
<td>804 932</td>
</tr>
<tr>
<td>Renewable (TJ)</td>
<td>16 243</td>
<td>17 478</td>
</tr>
<tr>
<td>Total (TJ)</td>
<td>1063 198</td>
<td>822 410</td>
</tr>
<tr>
<td>Renewable share (%)</td>
<td>2%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Growth in TES 2014-19 2018-19

<table>
<thead>
<tr>
<th></th>
<th>2014-19</th>
<th>2018-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-renewable (%)</td>
<td>-23.1</td>
<td>-23.6</td>
</tr>
<tr>
<td>Renewable (%)</td>
<td>+7.6</td>
<td>+1.8</td>
</tr>
<tr>
<td>Total (%)</td>
<td>-22.6</td>
<td>-23.2</td>
</tr>
</tbody>
</table>

Primary energy trade 2014 2019

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imports (TJ)</td>
<td>6 754 669</td>
<td>6 721 807</td>
</tr>
<tr>
<td>Exports (TJ)</td>
<td>3 690 311</td>
<td>3 658 290</td>
</tr>
<tr>
<td>Net trade (TJ)</td>
<td>-3 064 358</td>
<td>-3 063 517</td>
</tr>
<tr>
<td>Imports (% of supply)</td>
<td>635</td>
<td>817</td>
</tr>
<tr>
<td>Exports (% of production)</td>
<td>13409</td>
<td>13707</td>
</tr>
<tr>
<td>Energy self-sufficiency (%)</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Total energy supply in 2019

Renewable energy supply in 2019

7.1.1 Access to electricity (% population)
7.1.2 Access to clean cooking (% population)
7.1.3 Renewable energy (% TFEC)
7.2.1 Renewable energy (% TFEC)
7.3.1 Energy intensity
7.4.1 Energy self-sufficiency (%)
7.5.1 Renewable energy supplied (% TFEC)
7.6.1 Renewable energy use (% TFEC)
7.7.1 Renewable energy (TJ)
7.8.1 Renewable energy (TJ)
7.9.1 Renewable energy (TJ)
7.10.1 Renewable energy (TJ)
7.11.1 Renewable energy (TJ)
7.12.1 Renewable energy (TJ)
7.13.1 Renewable energy (TJ)
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7.19.1 Renewable energy (TJ)
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7.94.1 Renewable energy (TJ)
7.95.1 Renewable energy (TJ)
7.96.1 Renewable energy (TJ)
7.97.1 Renewable energy (TJ)
7.98.1 Renewable energy (TJ)
7.99.1 Renewable energy (TJ)
8.1.1 Real GDP growth rate
### Consumption by sector

<table>
<thead>
<tr>
<th>Sector</th>
<th>2014</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry (TJ)</td>
<td>3,060</td>
<td>3,096</td>
</tr>
<tr>
<td>Transport (TJ)</td>
<td>378</td>
<td>436</td>
</tr>
<tr>
<td>Households (TJ)</td>
<td>1,073</td>
<td>1,109</td>
</tr>
<tr>
<td>Other (TJ)</td>
<td>3,255</td>
<td>3,208</td>
</tr>
</tbody>
</table>

### Renewable energy consumption in 2019

- **Non-renewable**: 11,473 TJ
- **Renewable**: 651 TJ
- **Hydro/marine**: 0 TJ
- **Solar**: 433 TJ
- **Wind**: 0 TJ
- **Bioenergy**: 218 TJ
- **Geothermal**: 0 TJ
- **Total**: 12,125 TJ

### Capacity change (%)

- **Non-renewable**: 0.0%
- **Renewable**: 17.5%
- **Hydro/marine**: 0.0%
- **Solar**: 28.9%
- **Wind**: 0.0%
- **Bioenergy**: 0.0%
- **Geothermal**: 0.0%
- **Total**: 0.8%

### Renewable share of electricity capacity in 2021

- **Renewable**: 66%
- **Hydro/marine**: 34%
- **Solar**: 0%
- **Wind**: 0%
- **Bioenergy**: 0%
- **Geothermal**: 0%

### Net capacity change in 2021 (MW)

- **Non-renewable**: 0 MW
- **Solar**: +97 MW
- **Bioenergy**: 0 MW
- **Hydro and marine**: 0 MW
- **Wind**: 0 MW
- **Geothermal**: 0 MW

### Capacity utilisation in 2020 (%)

- **Fossil fuels**: 48%
- **Nuclear**: 3%
- **Hydro/Marine**: 13%
- **Solar**: 13%
- **Wind**: 40%
- **Bioenergy**: 95%
- **Geothermal**: 0%
### ELECTRICITY GENERATION

<table>
<thead>
<tr>
<th>Generation in 2020</th>
<th>GWh</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-renewable</td>
<td>50 898</td>
<td>96</td>
</tr>
<tr>
<td>Renewable</td>
<td>2 182</td>
<td>4</td>
</tr>
<tr>
<td>Hydro and marine</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Solar</td>
<td>360</td>
<td>1</td>
</tr>
<tr>
<td>Wind</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bioenergy</td>
<td>1 822</td>
<td>3</td>
</tr>
<tr>
<td>Geothermal</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>53 080</td>
<td>100</td>
</tr>
</tbody>
</table>

**Per capita electricity generation (kWh)**

- Total
- Renewable

### LATEST POLICIES, PROGRAMMES AND LEGISLATION

1. Smart services for efficient energy consumption - including smart meters  
   - 2019
2. EE Funding for Qualifying Costs for Energy Assessment in Industries  
   - 2018
3. Energy conservation (prescribed regulated goods) order 2017  
   - 2018
4. MEPS for Motors (IE3)  
   - 2018
5. Requirements for Energy Efficiency Opportunities Assessment (EEOA) for New Ventures (NV)  
   - 2018

### ENERGY AND EMISSIONS

#### Energy-related CO₂ emissions by sector

- Elec. & heat
- Other Industrial
- Transport
- Other
- Buildings

#### Avoided emissions from renewable elec. & heat

- Emitted CO₂
- RE Avoided CO₂

#### Elec. & heat generation CO₂ emissions in

- Mt CO₂
- Coal + others
- Gas
- Oil

#### CO₂ emission factor for elec. & heat generation

- SGP
- Asia
- World
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; REN21Global 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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