**ENERGY PROFILE**

**Iraq**

### COUNTRY INDICATORS AND SDGS

#### TOTAL ENERGY SUPPLY (TES)

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Energy Supply (TES)</strong></td>
<td>1999 936</td>
<td>1894 230</td>
</tr>
<tr>
<td>Non-renewable (TJ)</td>
<td>1983 862</td>
<td>1872 310</td>
</tr>
<tr>
<td>Renewable (TJ)</td>
<td>16 074</td>
<td>21 920</td>
</tr>
</tbody>
</table>

#### Growth in TES

<table>
<thead>
<tr>
<th></th>
<th>2015-20</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-renewable (%)</td>
<td>-5.6</td>
<td>-17.9</td>
</tr>
<tr>
<td>Renewable (%)</td>
<td>-36.4</td>
<td>+2.4</td>
</tr>
<tr>
<td>Total (%)</td>
<td>-5.3</td>
<td>-17.7</td>
</tr>
</tbody>
</table>

#### Primary energy trade

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imports (TJ)</td>
<td>571622</td>
<td>481578</td>
</tr>
<tr>
<td>Exports (TJ)</td>
<td>6 259 241</td>
<td>7 472 734</td>
</tr>
<tr>
<td>Net trade (TJ)</td>
<td>5 687 619</td>
<td>6 991 156</td>
</tr>
<tr>
<td>Imports (% of supply)</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>Exports (% of production)</td>
<td>83</td>
<td>84</td>
</tr>
<tr>
<td>Energy self-sufficiency (%)</td>
<td>378</td>
<td>471</td>
</tr>
</tbody>
</table>

### 7.a.1 Public flows to renewables

#### 7.1.1 Access to electricity (% population)

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>39.1</td>
<td>38.5</td>
<td>38.9</td>
<td>40.0</td>
<td>39.3</td>
<td></td>
</tr>
</tbody>
</table>

#### 7.1.2 Access to clean cooking (% population)

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>0.0</td>
<td>0.0</td>
<td>5.0</td>
<td>10.0</td>
<td>15.0</td>
<td>20.0</td>
</tr>
</tbody>
</table>

### 7.2.1 Renewable energy (% TFEC)

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>82%</td>
<td>82%</td>
<td>82%</td>
<td>82%</td>
<td>82%</td>
<td>82%</td>
</tr>
</tbody>
</table>

### 11.6.2 Air particulate matter (PM$_{2.5}$)

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>39.1</td>
<td>38.5</td>
<td>38.9</td>
<td>40.0</td>
<td>39.3</td>
<td></td>
</tr>
</tbody>
</table>

### 8.1.1 Real GDP growth rate

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>10%</td>
<td>0%</td>
<td>5%</td>
<td>10%</td>
<td>15%</td>
<td>20%</td>
</tr>
</tbody>
</table>

### GDP per capita

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>50</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>300</td>
</tr>
</tbody>
</table>

### 5.0 Renewable energy (% TFEC)

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>36.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 7.b.1 Per capita renewable capacity

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### 7.3.1 Energy intensity

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

### Total energy supply in 2020

- **Renewables**: 33%
- **Oil**: 63%
- **Gas**: 3%
- **Nuclear**: 0%
- **Coal + others**: 0%
- **Renewables**: 7%
### Consumption by sector

<table>
<thead>
<tr>
<th>Sector</th>
<th>2015 (TJ)</th>
<th>2020 (TJ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
<td>2,504</td>
<td>1,711</td>
</tr>
<tr>
<td>Transport</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Households</td>
<td>5,860</td>
<td>9,975</td>
</tr>
<tr>
<td>Other</td>
<td>15,385</td>
<td>24,605</td>
</tr>
</tbody>
</table>

### Non-renewable

- 2015: 29,799
- 2020: 95

### Renewable

- 2015: 1,599
- 2020: 5

#### Capacity utilisation in 2021 (%)

- Fossil fuels: 34%
- NUCLEAR: 0%
- Hydro/Marine: 31%
- Solar: 31%
- Wind: 0%
- Bioenergy: 0%
- Geothermal: 0%

#### Renewable capacity in 2022

- Hydro/marine: 11 GW
- Solar: 17 GW
- Wind: 12 GW
- Bioenergy: 12 GW
- Geothermal: 0 GW

#### Net capacity change (GW)

- 2017: -0.7 GW
- 2018: -5.4 GW
- 2019: -6.0 GW
- 2020: 0 GW
- 2021: 0 GW
- 2022: +3.0 GW

#### Installed capacity trend

<table>
<thead>
<tr>
<th>Year</th>
<th>Fossil fuels</th>
<th>Hydro/marine</th>
<th>Wind</th>
<th>Solar</th>
<th>Bioenergy</th>
<th>Geothermal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>31</td>
<td>32</td>
<td>26</td>
<td>27</td>
<td>27</td>
<td>30</td>
</tr>
<tr>
<td>2016</td>
<td>31</td>
<td>32</td>
<td>27</td>
<td>27</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>2017</td>
<td>31</td>
<td>32</td>
<td>27</td>
<td>27</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>2018</td>
<td>31</td>
<td>32</td>
<td>27</td>
<td>27</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>2019</td>
<td>31</td>
<td>32</td>
<td>27</td>
<td>27</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>2020</td>
<td>31</td>
<td>32</td>
<td>27</td>
<td>27</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>2021</td>
<td>31</td>
<td>32</td>
<td>27</td>
<td>27</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>2022</td>
<td>31</td>
<td>32</td>
<td>27</td>
<td>27</td>
<td>30</td>
<td>31</td>
</tr>
</tbody>
</table>

#### Renewable TFEC trend

- 2015: 24 PJ
- 2016: 23 PJ
- 2017: 29 PJ
- 2018: 25 PJ
- 2019: 36 PJ
### ELECTRICITY GENERATION

<table>
<thead>
<tr>
<th>Generation in 2021</th>
<th>GWh</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-renewable</td>
<td>81541</td>
<td>95</td>
</tr>
<tr>
<td>Renewable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydro and marine</td>
<td>4541</td>
<td>5</td>
</tr>
<tr>
<td>Solar</td>
<td>377</td>
<td>0</td>
</tr>
<tr>
<td>Wind</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bioenergy</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Geothermal</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>86082</td>
<td>100</td>
</tr>
</tbody>
</table>

**Per capita electricity generation (kWh)**

- **Total**
- **Renewable**

### 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

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

- IRQ
- Middle East
- World

### LATEST POLICIES, PROGRAMMES AND LEGISLATION

1. **Nationally Determined Contribution (NDC) to the Paris Agreement: Iraq**
   - **2021**

2. **Template Contract for Technical Services and for exploration, development and production**
   - **2021**

3. **Iraq renewable energy auction**
   - **2016**

4. **Integrated National Energy Strategy of Iraq**
   - **2014**

5. **Law on Protection and Improvement of the Environment (Law No. 27 of 2009)**
   - **2009**

**Electricity generation trend**

- Fossil fuels
- Nuclear
- Other Non-RE
- Hydro/marine
- Wind
- Solar
- Bioenergy
- Geothermal
- Renewable share

**CO₂ emissions**

- Coal + others
- Gas
- Oil

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

**Calculated by dividing power sector emissions by elec. + heat gen.**
## Distribution of solar potential

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).

## Distribution of wind potential

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 potential: net primary production

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 8,760 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.