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# Akkuyu NPP Project and Sustainable Development Agenda

Rusatom Energy International, Joint-Stock Company

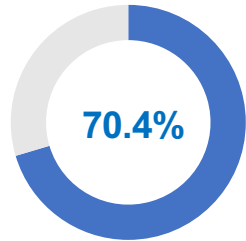
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# Türkiye's Sustainable Development Focus

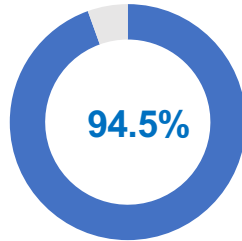
## SUSTAINABLE DEVELOPMENT GOALS (SDGs)<sup>1</sup>



SDGs Achievement Index



Impact on SDGs Achievement by Other Countries



## QUANTITATIVE DEVELOPMENT DATA

GDP Growth Rate (%)<sup>2</sup>



2014	2019	2030
2.9	0.9	3.3

CO<sub>2</sub>e Emissions per Capita (t)<sup>3,3</sup>



2014	2019	2030
6.08	6.10	8.7



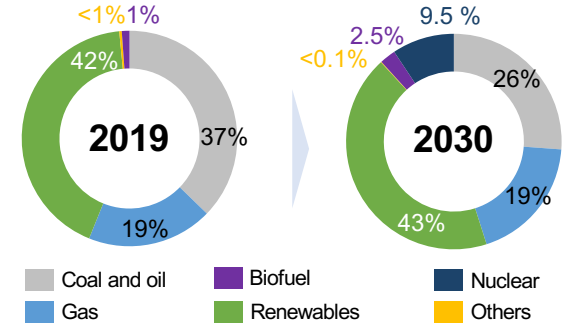
2053 – achieving net zero emissions<sup>4</sup>

Share of Energy Imports, 2021<sup>5</sup>



Oil	Gas
93%	99%

Energy Mix (electricity generation, %)<sup>6</sup>



SDGs achievement status

Major obstacles persist

Significant challenges remain

Challenges remain

SDG achieved

No data available

Note:

<sup>1</sup>In 2019, CO<sub>2</sub>e per capita in the EU countries amounted to 7.04 tons.

# Contribution of the Akkuyu NPP Construction Project to Türkiye's Sustainable Development



## Akkuyu NPP

Akkuyu NPP is the first nuclear power plant in Türkiye and the world's first NPP project based on the BOO model.  
Location – Mersin province, Türkiye's southern coast.  
NPP includes four VVER power units (Generation III+) with a capacity of 1,200 MW each.

**Construction period as per the IGA: 2018 – 2028\*** **Installed nuclear capacity: 4,800 MW** **Generating capacity: 35 billion kW•h per year**

### NPP CONTRIBUTION TO THE NATIONAL SUSTAINABLE DEVELOPMENT GOALS OF TÜRKIYE



#### 1. GDP GROWTH

Up to **7 billion USD** (~1% of the country's GDP<sup>7</sup>) is the project's estimated contribution to Türkiye's GDP over the period of NPP construction

#### 2. TAX EFFECT

Over **2 billion USD** will be generated through additional tax revenues to the country's budget over the construction period

#### 3. SHARE OF LOCAL EMPLOYEES

**~80%** of employees during the construction stage are **Turkish citizens**

#### 4. LOCAL SUPPLIERS

Over **400** local companies have been included in the list of suppliers for the project (Turkish suppliers will cover ~40% of construction & assembly works and supplies)



#### 5. POWER SUPPLY

Over **15 million people** (~18% of the country's population, or ~population of Istanbul<sup>8</sup>) will be supplied with electricity from Akkuyu NPP

#### 6. GROWING OUTPUT FROM LOW-CARBON SOURCES

Share of electricity generated by **low-carbon sources** will grow by **6 pp** (to 48%<sup>9</sup>) after Akkuyu NPP is commissioned



#### 7. POPULATION TRAINING

About **600** Turkish nuclear experts will receive specialized education at Russian universities until the end of 2027<sup>\*\*\*</sup>



#### 8. GREENHOUSE GAS EMISSION REDUCTIONS

**CO<sub>2</sub>e emissions** will be reduced by about **18 million tons** annually (~3.4% from the current level)<sup>\*\*\*\*,10</sup> through **replacement of generation by other sources due to the NPP operation**

Note:  
<sup>7</sup>According to the Intergovernmental Agreement between Russia and Türkiye, Unit 1 shall be commissioned within 7 years after obtaining all required permits. Provided that the construction license for Unit 1 was granted in April 2018, Unit 1 shall be commissioned in 2025 to be followed by subsequent units with one-year intervals.

<sup>8</sup>A total of over 25,000 people are involved on site at peak construction.

<sup>9</sup>The development of the national education system is also promoted through the enhancing of secondary vocational education programs to train graduates of Turkish technical schools and engage them in the project implementation.

<sup>10</sup>Four units of the Akkuyu NPP will help to avoid carbon dioxide emissions equivalent to those produced by nearly 10 million vehicles per year.

# ESG Projects at the Akkuyu NPP Site



## ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION PROGRAMS



### Environmental monitoring

- The state of terrestrial and aquatic flora and fauna and marine hydrobionts is being monitored.
- The environmental monitoring report is annually prepared and submitted to the industry regulator – Nuclear Regulatory Agency (NDK) of the Republic of Türkiye.



### Environment protection infrastructure

- Industrial and household waste is collected separately and transferred for processing.
- Water intake structures are equipped with fish protection systems.



### Other

- AKKUYU NUCLEAR is a partner of the project for observation, protection and rescue of sea turtles inhabiting the NPP construction area.



## SOCIAL INFRASTRUCTURE DEVELOPMENT PROJECTS



### Education

- A school designed for 390 students was opened for AKKUYU NUCLEAR employees' children and other students in the region.
- Support is provided to school and preschool educational institutions in the region of presence.



### Residential infrastructure

- A residential campus for the operating personnel will be constructed to accommodate no less than 6,290 people, including apartment buildings, a school, a kindergarten, cafeterias and supermarkets, a medical centre with a pharmacy, shops, a sports centre, playgrounds and sports grounds, a laundry, a hair studio, public cultural centre.



### Medicine

- Support is provided to local medical centres.
- First-aid point functions at the site.
- Health insurance program is provided to employees.



## TRANSPORT INFRASTRUCTURE DEVELOPMENT PROJECTS



### Road infrastructure

- The Akkuyu NPP project promotes development of the road and transport infrastructure in Mersin, including renovation of the road from the district centre of Gülnar to the NPP construction site: bottlenecks were expanded, restriping was made, fencing was installed on steep slopes and dangerous bends, and speed control was enhanced, altogether making the road much safer.



### Maritime infrastructure

- For the purposes of the project, a port terminal was constructed at the NPP construction site making it possible to ship heavy equipment directly to the site without any additional load on the transport infrastructure of the area.

### Sources (according to the data available as of August 2022):

1. Priority SDGs: The Sustainable Development Report 2022 Cambridge: Cambridge University Press: <https://s3.amazonaws.com/sustainabledevelopment.report/2022/2022-sustainable-development-report.pdf>, page 438.

2. GDP growth rate:

2014: Turkish Statistical Institute (TURKSTAT) – TÜİK: <https://data.tuik.gov.tr/Bulten/Index?p=Gayrisafi-Yurt-Ici-Hasila-IV.-Ceyrek:-Ekim---Aralik,-2014-18727#:~:text=T%C3%9C%C4%B0K%20Kurumsal&text=%C3%9Cretim%20y%C3%B6ntemiyel e%20gayri%20safiy%20yurti%C3%A7i,milyar%20782%20milyon%20TL%20oldu>

2019: Turkish Statistical Institute (TURKSTAT) – TÜİK: <https://data.tuik.gov.tr/Bulten/Index?p=Donemsel-Gayrisafi-Yurt-Ici-Hasila-IV.-Ceyrek:-Ekim---Aralik,-2019-33603>

2030 (projection): OECD (2022), "Long-term baseline projections, No. 109 (Edition 2021)", OECD Economic Outlook: Statistics and Projections (database), <https://doi.org/10.1787/cbdb49e6-en>.

3. CO<sub>2</sub>e emissions per capita:

2014: Turkish Statistical Institute (TURKSTAT) – TÜİK: <https://data.tuik.gov.tr/Bulten/Index?p=Greenhouse-Gas-Emissions-Inventory-1990-2014-21582>

2019: <https://data.tuik.gov.tr/Bulten/Index?p=Greenhouse-Gas-Emissions-Statistics-1990-2019-37196>

2030 (projection): climate-resource.com NDC Factsheets, 2022: <https://www.climate-resource.com/tools/ndcs/countries/tur?version=>

CO<sub>2</sub>e per capita in the EU countries:  
2019: [https://www.climatewatchdata.org/ghg-emissions?breakBy=regions&calculation=PER\\_CAPITA&end\\_year=2019&regions=EUU&sector=s-total-including-lucf&source=Climate%20Watch&start\\_year=2018](https://www.climatewatchdata.org/ghg-emissions?breakBy=regions&calculation=PER_CAPITA&end_year=2019&regions=EUU&sector=s-total-including-lucf&source=Climate%20Watch&start_year=2018)

4. Statement on achieving net zero emissions by 2053: <https://www.undp.org/tr/turkiye/press-releases/undp-t%C3%BCrkiye%E2%80%99nin-2053-y%C4%B1n%C4%B1na-kadar-net-s%C4%B1f%C4%B1r-rotas%C4%B1-%C3%A7izmesine-destek-veriyor>

5. Share of energy imports:

2021: The International Energy Agency: <https://www.iea.org/reports/turkey-2021>

6. Energy mix:

2019: The International Energy Agency: <https://www.iea.org/countries/turkiye>  
2030 (projection) APLUS Enerji Investment Consulting Technology & Trade Co. Ltd.: <https://www.aplusenerji.com.tr/>

*Renewables: SPP, WPP, HPP, geothermal power plants.*

7. GDP according to Turkish Statistical Institute (TURKSTAT) – TÜİK, 2021: \$802,678 billion <https://data.tuik.gov.tr/Bulten/Index?p=Donemsel-Gayrisafi-Yurt-Ici-Hasila-IV.-Ceyrek:-Ekim-Aralik-2021-45548#:~:text=%C3%9Cretim%20y%C3%B6ntemine%20g%C3%B6re%20car%20fiyatlarla,milyar%2040%20milyon%20TL%20oldu.&text=2021%20y%C4%B1n%C4%B1nda%20ki%C5%9F%20ba%C5%9F%C4%B1na%20GSYH,cinsinden%209%20539%20olarak%20hesaplan d%C4%B1>

8. Population of Istanbul in 2021 was 15,840,900 people.

Population of Türkiye in 2021 was 84,680,273 people.  
<https://www.nufusu.com/>

9. Share of low-carbon energy sources (SPP, WPP, HPP, geothermal power plants) in the 2019 energy mix was 42%: The International Energy Agency: <https://www.iea.org/countries/turkiye>

10 CO<sub>2</sub>e emission reductions are calculated based on the "Methodology for assessing effects of nuclear energy in terms of the sustainable development" of ROSATOM (2020).

Current level of CO<sub>2</sub>e emissions (2020) is 523.9 million tons: Turkish Statistical Institute (TURKSTAT) – TÜİK: <https://data.tuik.gov.tr/Bulten/Index?p=Sera-Gazi-Emisyon-Istatistikleri-1990-2020-45862>

Amount of emission reductions compared to vehicle emissions:

<https://rusatom-energy.ru/media/prensa-o-nas/v-rosatome-schitayut-cto-aes-akkuyu-pomozhet-izbezhat-vybrossov-uglekislogo-gaza/>