



AC3
POCATOM

NPP EPC-projects abroad in the context of sustainable development

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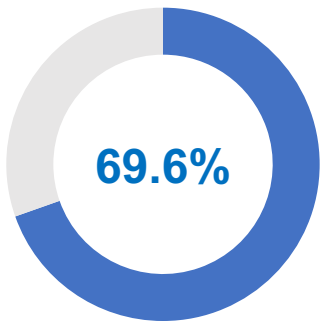
August 2023

Egypt: accents of sustainable development

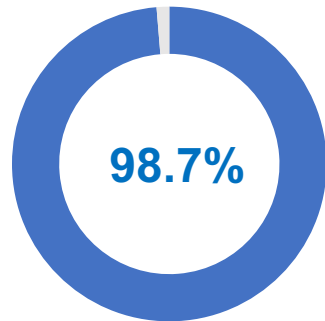
THE SUSTAINABLE DEVELOPMENT GOALS (SDGs)¹



SDGs Index Score



Other countries impact on the SDGs achievement⁴



QUANTITATIVE INDICATORS OF THE DEVELOPMENT²

GDP growth rate (%)



2019	2022	2030
6%	7%	12%

Unemployment rate (%)



2019	2022	2030
8%	7%	5%

Population below poverty line (%)



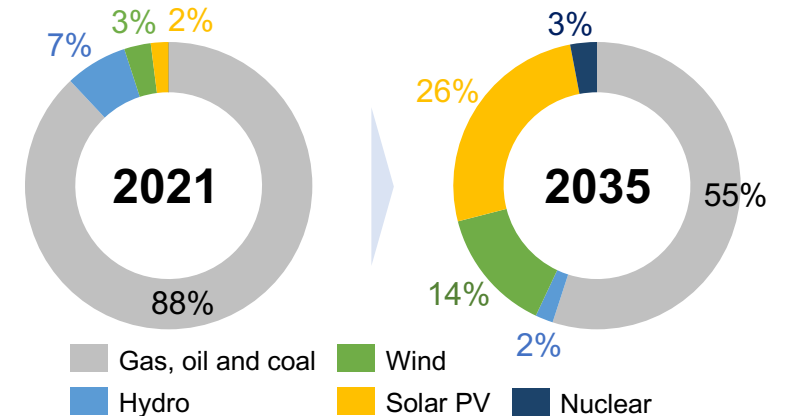
2018	2020	2030
33%	30%	22%

Adult literacy rate (%)



2015	2020	2030
72%	80%	93%

Energy balance (electricity generation as a %)³



SDGs status Major challenges remain Significant challenges remain Challenges remain SDG achieved Information unavailable

Note: 1 – The Sustainable Development Report 2023 Paris: SDSN, Dublin University Press in addition to the Voluntary National Review (UN); 2 – World Bank data, EGYPT'S 2021 Voluntary National Review, Sustainable Development Strategy: Egypt Vision 2030; 3 – according to the Egyptian Electricity Holding Company annual report 2021, Ministry of Electricity and Renewable Energy forecast 2035; 4 – Each country's actions can have positive or negative effects on other countries' abilities to achieve the SDGs. A higher score means that a country causes more positive and fewer negative spillover effects

«EI-Dabaa» NPP contribution to the SDGs of Egypt

EI-Dabaa NPP

The «EI-Dabaa» NPP is the first nuclear power plant in Egypt, which is planned to be built near the city of EI-Dabaa (3.5 km from the Mediterranean Sea and 300 km from Cairo).

The plant will consist of four VVER-1200 power units (safety generation III+) of 1200 MW of power each

NPP installed capacity: 4.8 GW

Output: 31.2 TW*h per year



1. GDP GROWTH

Approximately **\$4 billion** (0.9% of the country's GDP¹) will be added value to Egypt's GDP during the «EI-Dabaa» NPP construction

2. EMPLOYMENT LOCAL POPULATION RATE

More than **50% of workers** (near 14 thousand people²) will be the local population of Egypt during NPP construction

3. LOCAL SUPPLIERS

85 local companies will participate in the «EI-Dabaa» NPP construction



4. ENERGY SUPPLY

About **22 million people** (20% of the country's population⁴) can be provided with electricity thanks to the «EI-Dabaa» nuclear power plant

5. INCREASE OF LOW-CARBON GENERATION

By **12 percentage points⁵** (up to 24%) will increase the share of electricity generation by low-carbon sources after NPP launch



6. PUBLIC EDUCATION

More than **3.7 thousand people⁶** will be able to study with the support of Rosatom (including higher education)



7. GREENHOUSE GAS EMISSION REDUCTION

About **11 million tons CO₂ equivalent** will be annually reduced of greenhouse gases emissions (5% of the current level³)

ESG projects at the «El-Dabaa» NPP site



ENVIRONMENT AND BIODIVERSITY PROTECTION PROGRAMS



Environmental monitoring

- JSC 'Atomenergoproekt' monitors the environment as per the types of engineering surveys



Environmental infrastructure

- Water intake structures equipped with fish protection devices
- Treatment of sewage and rain waters provided



Safety of NPP construction

- The closed two-circuit cooling system eliminates the entry of pollutants into reservoirs
- Technologies are used for effective purification of radioactive areas



SOCIAL INFRASTRUCTURE DEVELOPMENT PROJECTS



Educational infrastructure

- School and library
- Children's stay center (*planned*)



Medical infrastructure

- Two first aid medical center
- Pharmacy (*planned*)



Sports infrastructure

- Sports area with swimming pool, football court and table tennis
- Two gyms
- Playground and workout area (*planned*)



Trade infrastructure

- Cafe and store selling prepared meals
- Two grocery stores and barbershop



TRANSIT INFRASTRUCTURE DEVELOPMENT PROJECTS



Motor road infrastructure

- The access road to the NPP site was constructed (the Alexandria–Marsa-Matruh highway and the «El-Dabaa» NPP)



Marine infrastructure

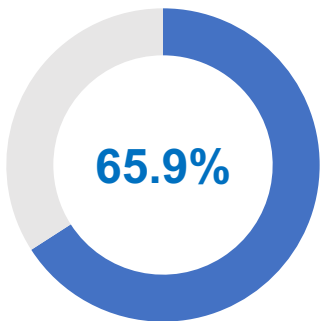
- The seaport near «El-Dabaa» NPP site (*launched March 2023*)

Bangladesh: accents of sustainable development

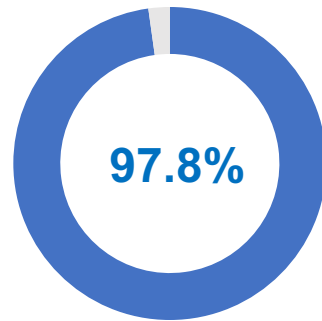
THE SUSTAINABLE DEVELOPMENT GOALS (SDGs)¹



SDGs Index Score



Other countries impact on the SDGs achievement⁵



QUANTITATIVE INDICATORS OF THE DEVELOPMENT²

GDP growth rate (%)



2019	2022	2030
8%	7%	9%

Adult literacy rate (%)³



2015	2020	2030
65%	75%	100%

Population below poverty line (%)



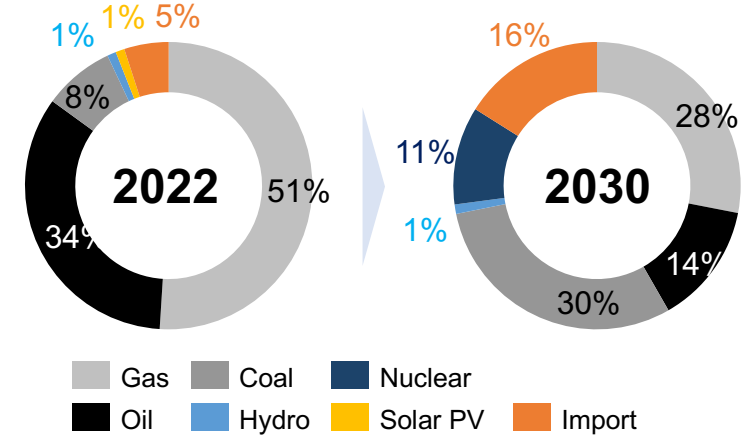
2016	2022	2030
24%	19%	7%

Population with electricity access (%)



2019	2022	2030
92%	99%	100%

Energy balance (installed capacity as a %)⁴



SDGs status Major challenges remain Significant challenges remain Challenges remain SDG achieved Information unavailable

Note: 1 – The Sustainable Development Report 2023 Paris: SDSN, Dublin University in addition to the Voluntary National Review (UN); 2 – World Bank data, Making Vision 2041 a Reality. Perspective plan of Bangladesh 2021-2041 (accessed 2020); 3 – The UNESCO Institute for Statistics; 4 – fuel-based generating capacity as a %; 5 – Each country's actions can have positive or negative effects on other countries' abilities to achieve the SDGs. A higher score means that a country causes more positive and fewer negative spillover effects

«Rooppur» NPP contribution to the SDGs of Bangladesh



Rooppur NPP

The «Rooppur» NPP is the first nuclear power plant in Bangladesh, which is being built on the eastern bank of the Padma river near the city of Ishwardi (160 km from Dhaka, the capital).

The plant will consist of two VVER-1200 power units (safety generation III+) of 1200 MW of power each

NPP installed capacity: 2.4 GW

Output: 17.4 TW*h per year



1. GDP GROWTH

Approximately **\$2.5 billion** (0.6% of the country's GDP¹) will be added value to Bangladesh GDP during the «Rooppur» NPP construction

2. EMPLOYMENT LOCAL POPULATION RATE

81% of workers (more than 24 thousand people²) will be the local population of Bangladesh during NPP construction

3. LOCAL SUPPLIERS

71 local companies will participate in the «Rooppur» NPP construction



4. ENERGY SUPPLY

Up to **36 million people** (21% of the country's population⁴) can be provided with electricity thanks to the «Rooppur» nuclear power plant

5. INCREASE OF LOW-CARBON GENERATION

By **17 percentage points**⁵ (up to 18%) will increase the share of electricity generation by low-carbon sources after NPP launch



6. PUBLIC EDUCATION

More than **10 thousand people** will be able to study with the support of Rosatom (including higher education)



7. GREENHOUSE GAS EMISSION REDUCTION

About **8.3 million tons CO₂** equivalent will be annually reduced of greenhouse gases emissions (10% of the current level³)

Note: 1 – GDP according to the World Bank data (accessed 2022); 2 – at the peak of construction in 2021; 3 – the share of Bangladesh total greenhouse gas emissions from fuel combustion; 4 – the population of the country (accessed 2022); 5 – by 17 percentage points (output growth from 1% to 18%), (accessed 2022)

ESG projects at the «Rooppur» NPP site



ENVIRONMENT AND BIODIVERSITY PROTECTION PROGRAMS



Environmental monitoring

- JSC 'Atomenergoproekt' monitors the environment as per the types of engineering surveys
- List of environmental aspects has been developed with the related risks and opportunities



Environmental infrastructure

- Water intake structures equipped with fish protection devices
- Treatment of sewage and rain waters provided



Water chemistry maintenance

- Environmentally-friendly and safe reagents are used to maintain the water chemistry required for the system operation



SOCIAL INFRASTRUCTURE DEVELOPMENT PROJECTS



Sports infrastructure

- Multipurpose sports complex
- Three gyms in the Green City residential block
- Football ground, gym, swimming pool and sauna at the Bangla Kutir settlement



Medical infrastructure

- Two medical stations
- Vaccination center



Educational infrastructure

- Training and production complex
- Children's center



Orthodox chapel



Five stores, cafe



TRANSIT INFRASTRUCTURE DEVELOPMENT PROJECTS



Motor road infrastructure (Rooppur NPP - Dhaka)

- Quality of the road pavement improved
- Traffic at the site now has 4 lanes
- Commuting time down from 9 to 6 hours
- Safety improved



Marine infrastructure

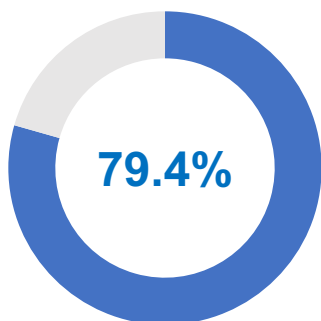
- Cargo terminal (port) on the Padma river
- Reinforced concrete dam to protect the coast from erosion

Hungary: accents of sustainable development

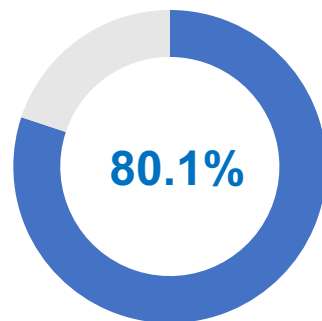
THE SUSTAINABLE DEVELOPMENT GOALS (SDGs)¹



SDGs Index Score



Other countries impact on the SDGs achievement³



QUANTITATIVE INDICATORS OF THE DEVELOPMENT²

GDP growth rate (%)



2019	2022	2027
4.9%	4.6%	3% ⁵

CO₂ emissions (metric tons per capita)



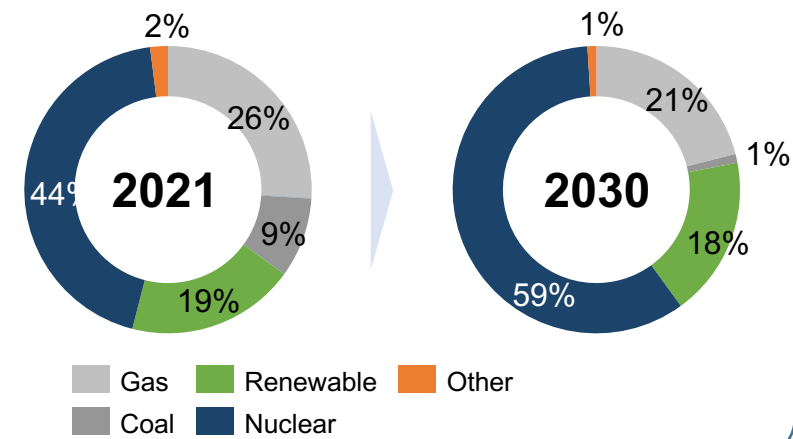
2016	2021	2030
4.5	4.7	5.2 ⁶

Share of imported energy (%)



2021	2040
30%	Up to 20%

Energy balance (electricity generation as a %)⁴



By 2050,
achieving carbon
neutrality

SDGs status Major challenges remain Significant challenges remain Challenges remain SDG achieved Information unavailable

Note: 1 –The Sustainable Development Report 2023 Paris: SDSN, Dublin University Press in addition to the Voluntary National Review (UN); 2 – World Bank data, National energy strategy 2030; 3 – rating was downgraded due to CO2 emissions in import products, export of hazardous pesticides, official development assistance; 4 – according to the International Energy Agency, 2030 forecast based on the New National Energy Strategy 2030 with prospects up to 2040 (2020); 5 – forecast according to statista.com; 6 – calculated data based on climate-resource.com NDC Factsheets, 2022 and the World Bank

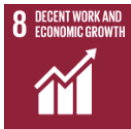
«Paks II» NPP contribution to the SDGs of Hungary

Paks II NPP

The «Paks II» NPP is a two-unit nuclear plant with VVER-1200-type reactor (safety generation III+). The plant is being constructed near the town of Paks on the banks of the Danube River

NPP installed capacity: 2.4 GW

Output: 19.1 TW*h per year



1. GDP GROWTH

Approximately **\$3.6 billion** (2% of the county's GDP¹) will be added value to Hungary GDP during the «Paks II» NPP construction

2. ADDITIONAL JOBS

2.2 thousand additional jobs created at the plant and service organizations

3. LOCAL SUPPLIERS

More than **140 local companies** will participate in the «Paks II» NPP construction



4. ENERGY SUPPLY

4 million people (42% of the country's population²) can be provided with electricity thanks to the «Paks II» nuclear power plant

5. INCREASE OF LOW-CARBON GENERATION

By **13 percentage points**³ (up to 76%) will increase the share of electricity generation by low-carbon sources after NPP launch



6. PUBLIC EDUCATION

About **435 people** will be able to study with the support of Rosatom (including higher education)



7. GREENHOUSE GAS EMISSION REDUCTION

About **4.2 million tons CO₂** equivalent will be annually reduced of greenhouse gases emissions (9% of the current level⁴)

ESG projects at the «Paks II» NPP site



ENVIRONMENT AND BIODIVERSITY PROTECTION PROGRAMS



Water protection from pollution

- Most earthworks will be carried out on the land
- The ground for hydraulic filling to settle water



Preservation of the temperature regime

- Applications of ventilation cooling towers
- Definition of water intake and discharge locations to maintain the temperature of the reservoir



Environmental monitoring

- The environmental protection program will be used during NPP construction and its operation. The program takes into account requirements of the Hungarian legislation



SOCIAL INFRASTRUCTURE DEVELOPMENT PROJECTS



Residential infrastructure

- Prefabricated residential settlements for project workers
- Canteens in the villages



Medical infrastructure

- Medical center
- Employee Health Insurance (VHI) program employees



Educational infrastructure

- Sector of day care for children of school age "Territory of Childhood" in the city of Paks



Other infrastructure

- Shops and hairdressers
- Cultural and public center
- Banking services
- Sport facilities



TRANSIT INFRASTRUCTURE DEVELOPMENT PROJECTS



Motor road infrastructure

- A road was built between the nuclear power plant from the western direction and route No.6
- Construction of the access road from the northern direction (*in process*)



Railway

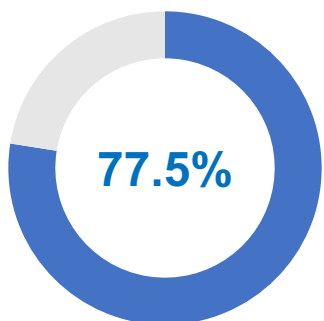
- The NPP site is connected with the Hungarian transport system by railway tracks
- Railway tracks inside the building site

Belarus: accents of sustainable development

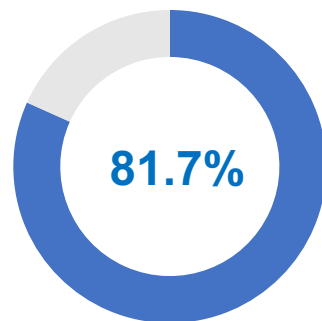
THE SUSTAINABLE DEVELOPMENT GOALS (SDGs)¹



SDGs Index Score



Other countries impact on the SDGs achievement³



QUANTITATIVE INDICATORS OF THE DEVELOPMENT²

GDP growth rate (%)



2019	2022	2030
1.4%	-4.7%	4%



Course for carbon neutrality and energy independence

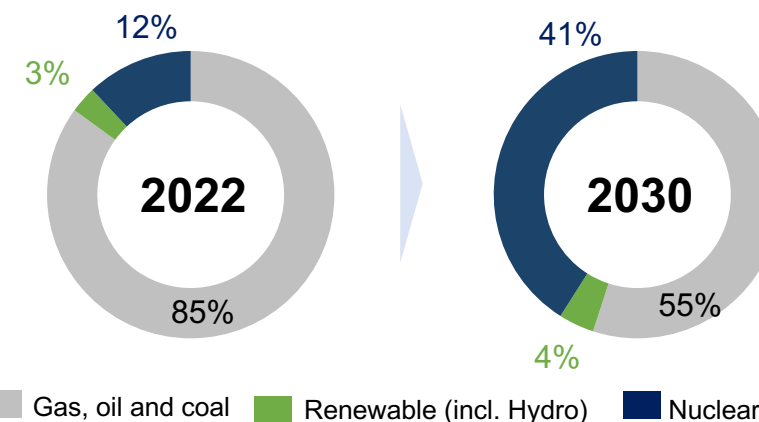
- Growth in primary energy production
- Reduction of the dominant type of fuel (gas) in gross consumption

CO₂ emissions (metric tons per capita)⁴



2015	2020	2030
5.8	5.8	8.2

Energy balance (electricity generation as a %)⁵



SDGs status Major challenges remain Significant challenges remain Challenges remain SDG achieved Information unavailable

Belarusian NPP contribution to the SDGs of Belarus

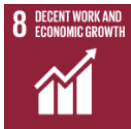


Belarusian NPP

The Belarusian NPP is the first nuclear power plant in Belarus built near the village of Ostrovets. The plant consists of two VVER-1200 power units (safety generation III+) of 1200 MW of power each

NPP installed capacity: 2.4 GW

Output: 17.1 TW*h per year



1. GDP GROWTH

Approximately **\$0.8 billion** (1.1% of the country's GDP¹) will be added value to Belarus GDP during the Belarusian NPP construction

2. TAX EFFECT

About **\$650 million** additional tax income into the country's budget throughout NPP construction period

3. EMPLOYMENT LOCAL POPULATION RATE

48% of workers (3.4 thousand people²) are the local population of Belarus during NPP construction

4. LOCAL SUPPLIERS

About **110 local companies** are involved in the Belarusian NPP construction



5. ENERGY SUPPLY

4.5 million people (48% of the country's population³) can be provided with electricity thanks to the Belarussian nuclear power plant

6. INCREASE OF LOW-CARBON GENERATION

By **20 percentage points⁴** (up to 35%) will increase the share of electricity generation by low-carbon sources after the NPP reaches it's full capacity



7. PUBLIC EDUCATION

About **1.2 thousand people** are trained with the support of Rosatom (including higher education)⁶



8. GREENHOUSE GAS EMISSION REDUCTION

About **6.2 million tons CO₂** equivalent will be annually reduced of greenhouse gases emissions (12% of the current level⁵)

ESG projects at the Belarusian NPP site



ENVIRONMENT AND BIODIVERSITY PROTECTION PROGRAMS



Environmental infrastructure

- Water intake structures equipped with fish protection devices
- Treatment of sewage and rain waters provided



Safety of NPP construction

- The closed two-circuit cooling system eliminates the entry of pollutants into the Viliya River



SOCIAL INFRASTRUCTURE DEVELOPMENT PROJECTS



Residential infrastructure

- Apartment buildings for staff (over 210,000 sqm)
- Catering establishments



Educational infrastructure

- Two schools for 720 and 520 students
- Kindergartens for 190 and 150 children
- Library



Medical infrastructure

- Hospital for 380 patients



Sports infrastructure

- Sports and recreation center
- Stadium



Cinema



TRANSIT INFRASTRUCTURE DEVELOPMENT PROJECTS



Motor road infrastructure

(P-45 (Goza) – NPP – Ostrovets)

- The roadway (22 km) was built to provide access to the plant, production base and residential infrastructure



Railway

- The NPP site is connected to the railway line Oshmyany – Bobrovniki
- The railway station ensure transport operations

Appendix: Sustainable development goals

