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## One Step Away From Power Generation

The first 2.5 MW wind turbine was erected on the wind farm in Russia's southern republic of Adygea.

With the rotor's diameter (including blades) of nearly 100 meters, the height of the wind turbine tower reaches 149 meters. The tower consisting of eight sections was erected by 35 workers with four cranes and auxiliary machinery. The most complex operations – installation of the nacelle, generator and hub with pre-assembled blades – were performed using a 500-ton capacity crane at the height of 120 meters. The foundations for other

wind turbines are completed, and two more towers are being set up at the moment.

**“Although, we had not had much experience in manufacturing or installing this type of wind turbines before, we have managed to achieve high precision and good installation speed when erecting the first turbine of the Adygea wind farm,”**

Andrei Nesteruk, Deputy Director General for Life Cycle of Wind Farms at NovaWind said.

He noted that the success of the operation was achieved thanks to the competent management of the international supply chain. Much attention was also paid to the streamlining of installation and assembly processes. **“The achieved results suggest a stepwise increase in the installation speed at the next wind turbines,”** Andrei Nesteruk said.



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Adygea wind farm will have 60 wind turbines with a total capacity of 150 MW. The wind park will reduce power shortage in the republic of Adygea by 20%. The wind power plant is expected to generate its first electricity in September. The annual average production will stand at 354 million kWh.

### Rosatom Enters Wind Power Market

Rosatom will commission a total of 1 GW of wind generation capacity in Russia's four southern regions by the end of 2022. Wind farms will be built in Adygea (150 MW), Krasnodar Krai (200 MW), Stavropol Krai (330 MW), and Rostov-on-Don Region (400 MW).

The Russian government demands the share of localized technology in wind generation projects in Russia to stand at 65% at least. NovaWind plans to increase this share to 88% by 2020.


NovaWind is a Rosatom Group company founded in 2017 to bring together wind generation assets of the Russian nuclear corporation and implement its strategy in wind power generation. NovaWind's technology partner is Lagerwey (the Netherlands) with almost 40-year experience



*«Wind power is a strategic choice for Rosatom as we are engaged in low-carbon electricity generation. Our approach is clear and simple: nuclear generates base-load power and is supplemented by wind energy»*

**Alexey Likhachev, Director General,  
Rosatom**

in design, production and operation of wind turbines and supply chain management. According to Rosatom's experts, the Dutch manufacturer has the most promising technology that uses direct drive and has no gearbox. Having much lower maintenance costs than other wind turbines, direct drive generators have been gaining their share of the global market.

The NovaWind generators and nacelles are manufactured in Volgodonsk by Atom mash (part of Rosatom's power engineering division). Investments in the production facility amounted to RUB 955 million (USD 15.2 million). The manufacturing company is Red Wind B.V., a joint venture of NovaWind and Lagerwey. It is planned that the company will manufacture around 96 generator and nacelle sets per year. The equipment will be supplied both to the domestic and global markets. 



## Approved by EUR Organization

**Russia's flagship nuclear power plant design VVER-TOI was certified as meeting the European Utility Requirements (EUR) by the EUR Organization.**

Experts studied the VVER-TOI design and awarded its owner RosEnergoAtom (a Rosatom Group company) with a EUR compliance certificate. It confirms that the design is compliant with the latest safety and cost efficiency standards for nuclear power plants and will help to market Russian nuclear products globally.

On June 13, Saint Petersburg hosted a certificate award ceremony which was attended by Guillaume Jacquard, Honorary President of the EUR Organization and Deputy Director for Engineering and New Build Projects at EDF (France's largest electric utility operator). He thanked all the stakeholders for their contributions. **"I can rightfully say that the VVER-TOI design was examined most thoroughly and extensively and is fully compliant with the European Utility Requirements,"** Jacquard said.

Representatives of EDF (France), ČEZ (Czech Republic), Paks II (Hungary), Gen Energija (Slovenia) and RosEnergoAtom examined VVER-TOI for its compliance with 4,332 safety, engineering and cost efficiency requirements for nuclear power plants.

**"The nuclear industry is moving forward at pace. What makes it different from any other industry is that each our solution has to be checked for safety multiple times. Nuclear operators understand this much better than anyone else,"** Alexander Lokshin, First Deputy Director General for Operations Management at Rosatom and President of Rosatom's Engineering Division ASE, said at the award ceremony. He stressed that the certificate has proved, yet again, that the solutions used in the VVER-TOI design improved safety and reliability of a nuclear power plant and met international standards.

### EUR Certificate

European Utility Requirements (EUR) is an association of European utility operators founded in 1991. Its primary goal is to create a set of technical specifications for new light water nuclear reactors to promote the nuclear industry development in Europe.

Guidelines and criteria are grouped into four volumes. Volume 1 deals with main policies and objectives of assessing nuclear plant designs; Volume 2 contains generic and nuclear island requirements; Volume 3 describes the application of EUR to specific Generation III LWR designs, and Volume 4 lists specific power generation plant requirements.

Current members of the EUR Organization are utilities of the countries that signed an



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agreement on legal and financial rights and obligations. They are ČEZ (Czech Republic), EDF (France), EnergoAtom (Ukraine), Fortum (Finland), Engie Tractebel (Belgium), Gen Energija (Slovenia), Iberdrola (Spain), Paks II (Hungary), NGR (Netherlands), TVO (Finland), Preussen Elektra (Germany), EDF Energy (UK), and RosEnergoAtom (Russia). The Russian utility operator joined the EUR club in 1993, almost right after it was founded. The first Russian design that was awarded a EUR certificate was AES-92 with the VVER-1000 reactor in 2006.

### VVER-TOI

VVER-TOI is a standardized design for a nuclear power plant with two Generation III+ VVER-1300 reactors (a Russian-designed light water power reactor). The overall design was developed by Rosatom's subsidiary AtomEnergoProekt. The nuclear island was designed by another subsidiary OKB Hidropress under the supervision of Kurchatov Institute. The first VVER-TOI unit is now under construction at the Kursk II Nuclear Power Plant.

If compared to previous VVER reactor designs, it has a higher power capacity (1,225 MW) and a two times' longer service life of its core machinery (up to 60 years). Another difference of VVER-TOI is its lower construction and operation costs, as well as reduced construction time. The design combines active and passive safety systems. One of them is a core catcher, which has long become an integral part of the VVER technology.

The containment will prevent radioactive substances from getting out into the environment even in case of an 8.0-magnitude

earthquake or an airplane crash. VVER-TOI is a standardized design for different climates and environments. It can be used on different sites with various environmental conditions without changing its key concept, engineering or layout solutions. [NL](#)



## SPIEF 2019: Highlights from the Forum

**On June 6–8, Saint Petersburg hosted Russia's most important international economic forum (SPIEF). Below you will find a summary of agreements made by Rosatom and its subsidiaries at SPIEF.**

### **For the Benefit of the People**

Rosatom is working consistently to improve the infrastructure of nuclear towns since their sustainable development is seen as one of the company's priorities. At SPIEF 2019, Rosatom signed agreements with Udmurtia and Obninsk. The first agreement is made



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to improve water supply in the nuclear town of Glazov (with USD 18.65 million to be invested over 2019–2024 in the construction and retrofit of water supply systems). The second agreement aims at improving utilities (water, heat and sewerage) in Obninsk (Kaluga Region).

### For the Benefit of Arctic

Rich in gold, oil and natural gas reserves, the Arctic region is crossed by the Northern Sea Route, the shortest way between Northern Europe and Eastern Asia. In 2018, cargo traffic on the Northern Sea Route (NSR) reached 20 million tons. As an NSR infrastructure operator, Rosatom set a goal of increasing annual freight traffic to 92.6 million tons by 2024 and 110–120 million tons in the 2030s. In the coming years the company will receive three new powerful Project 22220 icebreakers – Arktika (Arctic), Sibir (Siberia) and Ural (Urals). Preparations are now underway to tender out contracts for the construction of the fourth and fifth Project 22220 icebreakers. The total price of the contracts is USD 1.58 billion.

On SPIEF sidelines Rosatom and VTB Bank signed an agreement for the cooperation



in Arctic projects. The document provides for joint efforts to establish safe navigation, increase cargo traffic on the Northern Sea Route, and offer a range of financial services to NSR stakeholders. Another agreement made between VTB and Rosatom sets out the parties' intentions to jointly finance projects of the Russian nuclear corporation. These include design and construction of large and small nuclear power reactors, development of new materials and solutions for power systems of the future, and other areas of technology. **“Rosatom is working on a number of new designs for small and medium nuclear reactors. This is one of the most promising segments of the nuclear power industry,”** Rosatom's Director General Alexey Likhachev said.

Another NSR development agreement was signed at SPIEF between Rosatom, Nornickel, a leading global producer of palladium and nickel, and DP World, one of the world's largest port operators based in Dubai. The parties will examine and select the best commercial options of using the NSR. They will also consider the opportunity to set up a partnership (a joint venture) to facilitate cargo traffic on the NSR. **“Rosatom and Nornickel have been business partners for many years. Nuclear icebreakers operated by Rosatom's subsidiary Atomflot convoy most of the ships carrying cargo for Nornickel. Our current task is to increase cargo traffic on the Northern Sea Route,”** Alexey Likhachev commented.

The First Ore Mining Company (part of Rosatom's Mining Division) and Finnish mining and metallurgy machinery supplier Outotec signed an agreement for the cooperation in developing the Pavlovskoye lead-zinc deposit on the Arctic archipelago of Novaya Zemlya. The plan is to build the



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northernmost mining and processing facility to produce lead and zinc concentrates. The project will have a capacity of 3.5 million tons of ore per annum and be operated by the First Ore Mining Company. Outotec will contribute its expertise in finding innovative solutions and technology for the Pavlovskoye project. The First Ore Mining Company also signed a memorandum of understanding with the Moscow-based Zyfra Group. The parties will consider the possibility of implementing the Digital Mining project for robotic automation and mining machinery remote control at the Pavlovskoye deposit.

SPIEF hosted the first meeting of the Northern Sea Route Public Council. The meeting was attended by 22 people representing R&D institutions, federal executive and legislative authorities, governments of Russian Arctic communities, businesses, NGOs, and international organizations. The proposal to establish a public council was made by Rosatom in April. It will become a venue for experts to deliberate on the NSR development.

### For the Benefit of the Environment

Rosatom will commission seven hazardous waste treatment facilities in Russia by 2024. The first four facilities will be established at the plants that used to destroy chemical weapons. The other three will be built from scratch. Project costs are estimated at USD 568.9 million. The government will provide 48% of this amount, with the rest to be financed by investors, including PromSvyazBank that signed an agreement with Rosatom at SPIEF. The purpose of this agreement is to cooperate in the implementation of the Hazard Class I and II

Waste Management Infrastructure federal program.

### Focusing on High Tech

Digitalization tasks set by Rosatom for 2019 include introduction proprietary digital solutions, bringing new digital products to the market, and creating cross-cutting technologies for digital transformation of the Russian economy. In order to promote digital economy in Russia, Rosatom and Rostelecom, the country's largest provider of digital services, signed a memorandum of cooperation. **"We discussed an end-to-end approach covering a wide range of issues, such as reliable digital infrastructure, digital safety, innovative applications for digital transformation, and joint testing of future technology,"** Alexey Likhachev commented on the memorandum.

Russia's largest financial institution Sberbank signed a strategic cooperation agreement with Rosatom to make business processes more efficient thanks to innovative technology. Some of the examples include the Internet of Things, artificial intelligence, virtual and augmented reality, robotics, cybersecurity, blockchain, gamification, etc. Sberbank will also continue participating in Rosatom's projects, raising finance for them and providing other financial services.

### Focusing on Goals

The strategic – and most ambitious – goal for Rosatom's TVEL Fuel Company is to achieve a several-fold increase in non-nuclear revenue by 2030. The company plans to reach it through cooperation with local R&D institutions and manufacturers.



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At SPIEF, TVEL and Krasnoyarsk Krai signed a roadmap for cooperation. It provides for the collaboration in 3D printing and additive technology to create new materials with unique physical and mechanical properties in association with Magnetic Hydrodynamics RPC, Reshetnev Siberian State University of Science and Technology, Siberian Federal University, Information Satellite Systems, and other local organizations. Discussions are underway to establish a center of excellence for additive technology.

TVEL and Hermith GmbH, a major European titanium supplier, agreed to set up a joint venture in titanium alloy production. The new company will specialize in high value-added products for knowledge-intensive sectors, such as aircraft, automobile and medical industries. In the first phase, the company will produce titanium wire for 3D printing and seamless pipes for aircraft hydraulic systems. After that, the product range will be expanded to include aircraft fasteners, titanium springs for cars, implant blanks, superconducting materials, etc. **“TVEL’s subsidiary Chepetsk Mechanical Plant accounts for over 25% of TVEL’s ‘non-nuclear’ revenue, which amounted to RUB 13.5 billion (USD 215 million) in 2018. The agreement with Hermith paves our way to new markets of high added value titanium products,”** TVEL President Natalia Nikipelova said. Cooperation between TVEL and Hermith GmbH started in 2016 when a large contract for the supply of titanium products from Chepetsk Mechanical Plant to the European market was signed.

### For the Benefit of Children

There was much talk on the SPIEF sidelines about popularizing science among children



and students. TVEL and Kurchatov Institute made an agreement to cooperate in creating a chain of school tech parks. The parties will develop a concept of the curriculum for school tech parks in TVEL’s host towns (Glazov, Novouralsk, Seversk, and Zelenogorsk) and a model of their cooperation with the children’s tech park at Kurchatov Institute in Moscow. **“The School Tech Park project is gaining momentum in TVEL’s host communities. These tech parks offer 68 educational programs covering over 3,000 people annually. In 2018, we have launched three new laboratories specializing in programming, composite materials, and drone engineering. Technologies and equipment are growing more complicated, and children in local communities need advanced training courses,”** Natalia Nikipelova said.


### Focusing on Health

Along with many other products, Rosatom manufactures equipment and isotopes for nuclear medicine and research. At SPIEF 2019, Rosatom and the National Medical Research Center for Radiology with the Russian Ministry of Health signed a memorandum of cooperation. The document



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establishes plans to carry out joint clinical research of radioactive isotopes and medical equipment for nuclear medicine and medical radiology. The plan is to develop new cancer treatments and application guidelines. **“We have been cooperating with Rosatom for several years. The result is a number of breakthrough achievements, such as the use of Russian-made iodine-125 in brachytherapy and yttrium-90 based microspheres for radioembolization of liver cancer,”** Andrey Kaprin, General Director of the National Medical Research Center said. 



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## Nuclear Power as a Foundation of Clean Energy

Clean energy transition is impossible without investments in nuclear power. This was the key message of the research presented by the International Energy Agency (IEA) in May 2019 and the speech delivered by Agneta Rising, Director General of the World Nuclear Association (WNA), in the same month. The outcomes of Japan's Fukushima incident only confirm such concerns as nuclear plants are now replaced by coal, not renewables.

The WNA director general is convinced that more nuclear facilities are needed for sustainable development, economic growth and environmental protection. **“New designs**

**and technologies will further enhance the ability of nuclear power to facilitate the integration of more intermittent sources into a low-carbon generation mix,”** Rising said at the 10th Clean Energy Ministerial (CEM10).

However, nuclear capacities decline would put nuclear generation at risk of losing its pivotal role in the clean energy system. This idea is the centerpiece of the IEA's Nuclear Power in a Clean Energy System report published in May. **“If governments don't change their current policies, advanced economies will be on track to lose two-thirds of their current nuclear fleet, risking a huge increase in CO2 emissions,”** IEA Executive Director Fatih Birol said in his official statement.

It is advanced economies, such as the United States, Canada, the European Union, Japan and South Korea, that take on these risks since they operate the world's oldest nuclear



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fleet. Most of the nuclear reactors existing in the advanced economies were built in 1970s and 1980s. For example, 90 of 98 units operating in the USA have their licenses renewed to extend their service lives from 40 to 60 years. This is not the limit as the industry aims for a further extension to 80 years. Similar license renewal processes are underway in Europe and Canada.

At its peak in the mid-1990s, nuclear power industry contributed an average of 18% to the energy mix across the globe and 23% in developed countries. Since then, its global share has fallen to 10%. Much less power units are now being commissioned in the advanced economies. At present, developed countries account only for 18 GW out of 58 GW of global nuclear capacities under construction.

The main reason is that building new nuclear power units involves financial risks. In thermal power plant projects, which attract as many investments as nuclear ones, the relevant risks may be distributed between the stakeholders to the extent that the project operators hold no majority stakes. This is not the case in nuclear power industry where a customer, which is a generating company, sometimes has to bear the entire financing burden and run all the risks. The nuclear construction market has already seen delays

in commissioning, cost overruns, and refusals of governments to provide guaranteed tariffs for the service life period of power units. In the absence of adequate government support (which is lavishly provided to operators of renewable energy sources), it is but natural that private companies prefer to avoid such serious risks and do not invest in construction of nuclear generation capacities.

However, there comes the question, does the humanity (first of all, the advanced economies) really want energy to be clean? To meet the sustainable growth targets, clean energy generation should rise to 85% of the total power output by 2040. The current share of clean energy amounts to only 36%. **“Along with massive investments in efficiency and renewables, the trajectory would need an 80% increase in global nuclear power production by 2040,”** the IEA report reads.

Maybe, it is enough to simply boost investments in renewable power generation? As a matter of fact, it is all about whether renewable energy can ever efficiently replace nuclear and fossil fuels. Japan’s experience demonstrates that this is not happening.

The summary of the Renewables 2016 Japan Status Report features a diagram of power generation by power sources. It shows that after the Fukushima disaster of 2011 nuclear power units were replaced with coal-fired capacities instead of renewable power sources.

The country’s renewable electricity generation continued to grow over the following years, albeit rather slowly. According to the Preliminary Report on the Share of Renewable Energy Power in Japan in 2018, renewables increased their share from 12.1% in 2014 to 17.4% in 2018. The bulk of this amount is taken up by hydro power





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whose generation has been rather stable over the past five years (from 7.6% to 8.6%).

Since the renewable energy transition is still non-feasible, the Japanese government has approved a new basic energy plan which sets a goal of increasing nuclear generation to 20-22% of the country's total energy mix until 2030 (against 3% in 2017) by gradually restarting its nuclear power plants previously suspended.


Japan's experience demonstrates that renewable power sources failed to replace nuclear and fossil energy within eight years after nuclear power plants were excluded from the national energy system. On the contrary, the country expects to replace fossil fuels with nuclear energy.

The IEA report suggests that national governments, especially those in advanced economies, should support their nuclear industries if they truly strive for clean energy. As an example, the report cites emerging countries (first of all, China, Russia and India) where new power units are built with the government support.

The IEA has also prepared a set of recommendations for the governments willing to support low-carbon energy. Among other things, they include providing regulations for service life extension (with safety as a focus), establishing common rules for nuclear and low-carbon energy producers (which take into account and give bonuses for contribution to environment and energy security), offering attractive funding scenarios, supporting construction of new power capacities, and creation of new reactor designs.



The report also estimates how the environment can benefit from the nuclear generation. Over the past 50 years, nuclear power reactors operating all over the world have generated 76,000 TWh of low-carbon electricity and prevented 63 gigatons of carbon dioxide from being emitted into the atmosphere.

Finally, the nuclear generation offers certain benefits to the energy system as a whole. Speaking at CEM10, Agneta Rising said that the most efficient use of a nuclear power plant is to supply electricity constantly at a full capacity. However, nuclear reactors are also used to complement intermittent renewable energy sources in the electricity mix. **“Nuclear power can play a major role in easing the technical difficulties and lowering the cost of transforming the electricity system. The speed with which that transformation needs to take place, involving a massive increase in production of low-carbon energy over the next two decades, adds to the economic value of maintaining existing nuclear power and building new capacity,”** the report reads. 

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## Rooppur NPP: Laying Foundation for Future

**The Government of Bangladesh approved Russian nuclear fuel deliveries for the Rooppur NPP. As a year has passed since the first concrete pouring, the construction goes as scheduled.**

The Cabinet Committee on Government Purchase with Bangladesh's Cabinet of Ministers approved a proposal to deliver nuclear fuel for the Rooppur Nuclear Power Plant from Russia. Rosatom will provide

nuclear fuel for the NPP throughout its entire service life.

A third of fuel rods in each reactor will be replaced every eighteen months, with fuel for the first three reloads to be provided by Rosatom free of charge. The parties also agreed on the price of sold uranium to stand at USD 500 per kilogram. This price will stay the same until 2027 and then be revised every 10 years.

Several of Rosatom's divisions are involved in the Rooppur project. Company's engineering division is responsible for the on-site design and construction. Machinery and systems for the nuclear and turbine islands are supplied by Rosatom's mechanical division



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AtomEnergomash. Fuel will be supplied by TVEL Fuel Company.

The first concrete pouring ceremony at the second unit was held a year ago on July 14, 2018, ahead of schedule. Speaking at the ceremony, Bangladesh Prime Minister Sheikh Hasina said that the country's first nuclear power plant with the total capacity of 2,400 MW would generate around 10% of the national energy mix.

Electrification of Bangladesh is going rapidly. In 2009, just a decade ago, electricity was available in only 47 percent of households, while today 93 percent of the population has access to power. According to the government plans, electrification coverage will reach 100% already in 2021. <sup>16</sup>

### For reference:

Featuring two Russian-designed VVER-1200 reactors with a total capacity of 2,400 MW, the Rooppur Nuclear Power Plant is constructed 160 km away from Bangladesh's capital Dhaka under the general construction contract signed on December 25, 2015. The reference design for the first nuclear station in Bangladesh is VVER-1200 technology implemented at Novovoronezh and Leningrad NPPs. Rooppur Unit 1 is scheduled for commissioning in 2023, to be followed by Unit 2 in 2024.

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## Egypt: Staff for Nuclear Industry

**Staff training is a key point in creating a national nuclear infrastructure. Construction of Egypt's first nuclear power plant in El Dabaa will bring about a new generation of highly qualified professionals.**

Rosatom will train all the employees needed for safe and reliable operation of four reactor units to be built in El Dabaa. With the support from the Russian nuclear corporation, Egypt is establishing a system to educate and form a pool of high potential employees for the nuclear industry.

The nuclear school in El Dabaa has no equivalents in the Middle East or the entire Arab world, said Samir Al-Nili, First Deputy Minister of Education in the Matrouh Governorate. According to him, the school contributes to raising public understanding of technical education and its importance.

The nuclear school consists of 9 buildings, including 2 hotels for teachers and students. The school is fitted out with the best-in-class equipment and features a laboratory, a computer classroom and lecture halls for classes in physics, geology, mechanics and electronics. School students have an opportunity to study in Russia. Each academic year the school enrolls 75 students who have a high school graduation certificate. After five years of studies,



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nuclear school graduates receive diplomas equivalent to college or vocational school certificates. They have the right to enter a nuclear engineering department of a higher education institution or take a job at El Dabaa.

Rosatom, which is carrying out the El Dabaa project, gives much focus to career orientation and education of the young generation. Rosatom School, a project launched over nine years ago, is dedicated to nuclear oriented school education. Every year Rosatom School organizes the International Smart Holidays. This year's event was held on the Russian coast of the Black Sea and brought together schoolchildren from Egypt, France, Hungary, Armenia, Uzbekistan, and Bulgaria. Natalia Shurochkina, Head of the International Smart Holidays, said that the event helped children learn more about different cultures and traditions.

As announced earlier by Grigory Sosnin, Vice President of Rosatom's engineering division ASE Group and El Dabaa Project Director, the Russian nuclear corporation plans to train about 2,000 professionals from Egypt.

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### For reference:

The El Dabaa Nuclear Power Plant will feature four Generation III+ VVER-1200 reactors. Russia will supply them with nuclear fuel throughout their entire service life, build a dedicated spent fuel storage facility, provide storage containers, and train relevant staff in the country.

In December 2017, Alexey Likhachev, Director General of Rosatom, and Mohamed Shaker, Minister of Electricity and Renewable Energy of Egypt, signed protocols enacting commercial contracts for the construction of El Dabaa NPP. The signing marked the start of the project. The construction of reactor units is expected to begin in the second half of 2020 after all licenses are obtained, with the commissioning of Unit 1 scheduled for 2026.

With a 4.8 GW design capacity, El Dabaa is expected to meet Egypt's growing demand for electricity. The facility is also expected to boost the national economy and industry by creating up to 50,000 new jobs. 



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## Responsibility for the Future

**Wild Edens: Turkey, a part of Rosatom’s project, was demonstrated in the cities of Gülnar and Mersin in the Turkish province of the same name. The documentary tells the audience about the threats of global warming. Nuclear energy is a ‘green’ energy that makes a minimal impact on the environment.**

The Wild Edens project initiated by Rosatom includes three documentaries – Wild Edens: Russia, Wild Edens: Turkey and Wild Edens: South Asia. Each of the three episodes tells a story of pristine lands noted for exceptional natural beauty and inhabited by rare species. Local ecosystems of those remote areas are

particularly vulnerable to the effects of global warming.

The screening of Wild Edens: Turkey in Mersin and Gülnar was attended by both the locals and high-ranking officials.

**“We were pleased to learn that there are such beautiful creatures in our country. And now we also know about the threats that climate change poses for these creatures. I believe that our people have received a powerful message,”** Alpaslan Ünüvar, Mayor of Gülnar, said after watching the documentary.

Commenting on the film, Eyüp Lütü Sarıcı, Director of the Public Information Center at Akkuyu, stressed that nuclear energy played an important role in the fight against climate change. **“In 2018 alone, [Russian-designed]**



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**nuclear power plants prevented 584 million tons of CO2 emissions. This is a tenth of exhaust fumes produced by all the vehicles on our planet. The civil nuclear industry contributes to sustainable development, which is necessary to preserve the flora and fauna. Rosatom and its international partners take on the responsibility for solving global environmental problems and call on the global community to adopt a more conscious and reasonable attitude towards the fragile balance of nature,”** Eyüp Lütü Sarııcı said.

Turkey’s need for nuclear energy producing no direct CO2 emissions is underlined by top officials of the country. Speaking at the G20 Summit in Japan, Turkey’s Energy Minister Fatih Dönmez said that the country was following a policy of energy mix diversification. According to him, the share of renewable power sources is expected to make two thirds of the country’s energy mix. The minister also stressed that Turkey intended to

**For reference:**

Akkuyu is the first nuclear power plant in Turkey. It will have four units with Russian-designed Generation III+ VVER-1200 reactors fully compliant with the post-Fukushima safety standards. Their total capacity will be 4.8 GW. Construction of Unit 1 started in April 2018. Concreting of the foundation slab for the first unit was finished in March 2019. The first unit is planned to be launched in 2023 followed by one unit every subsequent year.

develop the nuclear energy industry. **“Turkey plans to commission Akkuyu Unit 1 in 2023 and remains committed to developing nuclear as one of the primary sources of power in the country,”** Fatih Dönmez added.

When speaking about the progress in the Akkuyu project, the minister focused on safety matters. He said that all the materials used in the nuclear plant construction – ranging from cement and steel to nuclear island components – would be certified to the strictest standards. The certification process will be supervised by the Turkish Standards Institute (TSE) and the dedicated Nuclear Regulatory Authority. **“We follow a zero tolerance approach to any deviations or deficiencies in this area. Besides, we have long been a member of the IAEA that apply the strictest safety standards. Construction of a nuclear power plant is a process open for international supervision organizations,”** Fatih Dönmez stressed. NL

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