



## ROSATOM NEWS



## NEW BUILD


## Main Construction Started at Rooppur-2

On July, 14 the first portion of concrete was symbolically poured into the foundation base of the reactor building of Rooppur NPP Unit 2. The ceremony marked the beginning of the main construction period.

Prime Minister of the Govt. of Bangladesh Sheikh Hasina, Deputy Prime Minister of the Russian Federation for Defense Industrial Complex Affairs Yury Borisov and First Deputy Director General for Operations Management of Rosatom Alexander Lokshin took part in the ceremony.

**For reference:**

Rooppur NPP, with two VVER-1200 reactors, with the total capacity of 2400 MW, is under construction at the Rooppur village of Ishwardi Upazilla, 160 km from Dhaka, the capital city of Bangladesh, in compliance with the General Contract signed on December 25, 2015. ASE (Rosatom Engineering Division) is the General Contractor for Rooppur NPP construction.

The design and construction works on the site are being performed by ASE, Rosatom Engineering Division. Rosatom Machine Building Division — Atomenergomash — supplies reactor island equipment, as well as the auxiliary equipment for the turbine island. Various divisions of Rosatom are in charge of the manufacturing of reactor vessels, steam generators, pumps, heat-exchange systems and other equipment. 



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### Robust Foundation

**Concreting of the foundation slab was finished at Unit 1 of Kursk II nuclear power plant.**

Over 16,000 cubic meters of self-compacting concrete were poured into the foundation. The use of self-compacting concrete helped perform the task faster and with higher quality. After the concreting was completed, work began to build containment walls and internal containment structures.

**“Kursk-II is based on the advanced VVER-TOI design. This plant will be a reference for all subsequent nuclear plant construction projects in Russia and other countries,”** said Alexei Deriy, ASE Vice President for Russian Projects.

The VVER-TOI design provides for the development of a data model for power units. Information accumulated in the engineering data management system will be used at different stages of the plant’s life cycle, from developing a design concept to decommissioning. <sup>NL</sup>

#### AGREEMENTS

### Paris Agreements

**Rosatom and its subsidiaries signed four agreements on cooperation and one commercial contract during the World Nuclear Exhibition in Paris.**

#### MoU on Innovation Development

Director General of Rosatom Alexey Likhachev and Chairman and CEO of EDF Group Jean-Bernard Levy signed a memorandum of understanding on the Development of Innovative Cooperation.

There are five areas of cooperation listed in the document. They include the development of additive technologies, energy storage, digitalization and modelling, cooperation on fast neutron reactors operation.

The MoU is aimed to support interaction between the parties in conducting R&D to “develop innovative products and solutions for the benefit of the competitiveness and safety of nuclear power plant and to promote them on the global market”.

**“Today we’ve made another important step toward developing the scientific potential of our countries. That will allow to move not only our companies, but the whole nuclear industry forward,”** Alexey Likhachev said.

#### MoU on Water Treatment

Rusatom Smart Utilities (JSC «ITPC», a division of Rosatom) and SUEZ company signed a memorandum of understanding in the field of water desalination, water treatment and waste water treatment.



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The parties agreed to work jointly on fresh water supply projects and water projects in the crude oil and gas industry. Cooperation will include manufacturing and supply of equipment, components and assemblies of desalination plants, as well as water treatment and waste water treatment systems supply.

**“Rosatom has unique experience in the field of nuclear desalination, as well as the high-tech production base and the rich experience in creating world-class engineering facilities. Together with such a serious leader in the field of water technologies as SUEZ, we will be able to achieve a synergistic effect, which in the end will give both companies new opportunities in the world water market, will allow to acquire new market segments”**, Kirill Komarov, First Deputy General Director for Corporate Development and International Business of Rosatom noted.

### MoU on Digital Platform Development

ASE (Engineering division of Rosatom) and Bureau Veritas signed a memorandum of understanding covering the establishment of the strategic partnership for the development of a digital platform to enhance the efficiency of regulatory oversight of nuclear power plant and other industrial facilities.

### For reference:

#### **About Rusatom Smart Utilities**

Rusatom Smart Utilities, a trademark of JSC “Integrated Thermal Power Company” (ITPC), is a Rosatom company responsible for promotion, marketing and sales of “Clean Water” and “Smart City” projects. “Clean Water” includes seawater desalination, water treatment and water purification, while “Smart City” includes solutions for renovation and digital upgrade of city services and utilities. ITPC also manages electric power and heat generation thermal plants in five cities in Russia.

#### **About SUEZ**

With 90,000 people on the five continents, SUEZ is a world leader in smart and sustainable resource management. The Group recovers 17 million tons of waste a year, produces 3.9 million tons of secondary raw materials and 7 TWh of local renewable energy. It also secures water resources, delivering wastewater treatment services to 58 million people and reusing 882 million m<sup>3</sup> of wastewater. SUEZ generated total revenues of 15.9 billion euros in 2017.

Both companies have already developed digital platforms based on Dassault Systèmes’ 3DEXPERIENCE platform. The parties hope this fact will facilitate their cooperation.

ASE and Bureau Veritas will develop a digital platform for all the phases of a nuclear power plant life cycle.

**“Digital interaction with inspection and supervisory bodies within the unified digital platform will significantly improve the transparency, speed and efficiency of certification and licensing processes. The integration of our efforts will allow us to create the innovative technologies to ensure**





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**efficient and reliable operation of the NPPs in the world market,”** says Ivan Borisov, ASE’s Senior Vice President, Business Development.

### For reference:

#### *About ASE*

ASE (Rosatom Engineering Division) is one of the global leaders in nuclear power engineering and holds 30% of the global NPP construction market. ASE has representative offices, branch offices and operational offices in 15 countries around the world, with almost 80% of its portfolio coming from the projects abroad. ASE company develops and implements an innovative Multi-D project management system in the area of complex engineering objects construction which allows more efficient budget, time frame and quality management.

#### *About Bureau Veritas*

Bureau Veritas is a world leader in laboratory testing, inspection and certification services. Created in 1828, the Group has around 75,000 employees located in more than 1,400 offices and laboratories around the globe.

### Rosatom Joined NQSA

The agreement on acceding the Nuclear Quality Standard Association was signed by Rosatom First Deputy Director General for Corporate Development and International Business, Kirill Komarov, the President of NQSA Thierry Zumbihl, and the General Secretary of NQSA Laurent Kueny.

Joining the Association as a full member, Rosatom got the opportunity to participate in the development and implementation of global nuclear quality standards.

**“Accession to NQSA proves that Russian experience of quality control in the nuclear industry is in global demand. The state corporation gets an opportunity to influence the setting of common industry standards and requirements”**, — Kirill Komarov said.

### For reference:

#### *About NQSA*

Nuclear Quality Standard Association (NQSA) is a nonprofit association jointly launched by Areva and Bureau Veritas in January 2011. Open to all major nuclear utilities, nuclear engineers and manufacturers, NQSA promotes the application of the NSQ-100 standard, and sets a nuclear oriented supplier evaluation process.

### Contract for Research

The Research Institute of Atomic Reactors (NIIAR) and EDF signed a contract for irradiation and research of zirconium alloys. Under the terms of the document experimental samples will be irradiated in Russia’s BOR-60 fast research reactor. Post-irradiation analysis will be carried

### For reference:

#### *About NIIAR*

NIIAR is a nuclear R&D center. It is a part of Rosatom’s science division. The Institute operates the majority of Russia’s high-flux research reactors: MIR, SM, BOR-60, VK-50, RBT-6 and RBT-10/2. NIIAR also holds the first place in the amount of isotope production in Russia.



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out by NIIAR specialists. The purpose of the experiments is to identify the thermal stability of radiation and deformation defects in model zirconium alloys. The contract term is five years. [NL](#)



### AWARDS

## Commended for Digitalization

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OKBM Afrikantov, a Rosatom company, developing naval and fast breeder reactors, won the WNE Award 2018 in the Skill & Knowledge Management category.

The awards ceremony was organized as part of the World Nuclear Exhibition that took place in Paris. OKBM Afrikantov's award-winning project deals with organization and transfer of knowledge, including key technologies, from developers to customers and product users.

The comprehensive knowledge management systems will protect intellectual capital and maintain OKBM's leadership on the global nuclear technology market, particularly in fast neutron reactors and marine reactors.

As a result, knowledge and expertise accumulated by OKBM Afrikantov during the many years of its existence will be turned into intellectual property. This will improve competitiveness of the company's products and bring in extra income from patent sales.

All research documents have been stored in a digital archive since 2012. The plan is to digitalize the existing hard copies. [NL](#)



### RENEWABLES

## Adygea Gives Permit

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**VetroOGK — a subsidiary of Rosatom's NovaWind, obtained a permit to construct a wind farm in the Republic of Adygea (Russia).**

The initial permit for the construction of a 150 MW wind farm and a 220 kV switchyard was issued by a regional government expert panel. Now the Committee for Architecture and Urban Planning of the Republic of Adygea has given a green light to the project as well.




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Obtaining all regulatory approvals means that project design documents take account of site survey results and technical regulations and comply with sanitary, environmental, fire safety and formal requirements set forth in the Russian Urban Planning Code.

**“The wind farm in Adygea is by far the largest wind energy project in Russia,”** said Anton Kovalevskiy, First Deputy CEO of NovaWind. **“The construction permit enables us to bring machinery to the site in expectation of turbine component deliveries that will start in August.”** The construction site covers an area of 163,913 sq m.

News is also coming from Krasnodar region in the Russian south where it is planned to build a 200 MW wind farm. Local authorities have decided to support the project that will need RUB20.5 billion in investments.

According to NovaWind, wind measurements currently taken in Krasnodar region will help determine optimal sites for wind turbines. The measurements will be completed early next year. NovaWind and local authorities are already selecting potential construction sites for the wind park. Before construction begins, the area should be checked for any explosive items and cleaned up if necessary. It will also be surveyed for the presence of any cultural and historical heritage sites. 



### CULTURE & EVENTS

## Hungary Hosts NuKids Rehearsals

**The International Children’s Creativity Project Nuclear Kids (NuKids) started its preparatory stage July 6 in Hungary. The project is organized and sponsored by Rosatom.**

This year 56 project participants from Russia and 23 from other countries will take part in NuKids. Foreign participants represent Bangladesh, Belarus, China, Croatia, Egypt, Hungary, India, Kazakhstan, Turkey and the United Kingdom.

### For reference:

Nuclear Kids is a Rosatom project that annually unites talented kids from Russia and foreign countries to produce a musical show. The main goals of the project are to establish friendships between children from different countries, to build up the conditions for creative development of talented children. The project has been implemented since 2009.



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The kids will put on a performance of the “Lomonosov’s Scroll” musical. For the first time, a movie will be shot concurrently with staging the musical. The shooting will proceed in Hungary, Yekaterinburg and Moscow.

“Lomonosov’s Scroll” will premiere on August 4 in a theater in Szekszárd (Hungary). Then the show will be hosted by Ozersk and Snezhinsk — two towns in Russia’s Chelyabinsk Region. In Moscow, the musical will be presented at the Et Cetera Theater on August 15 and 16. [NL](#)

## Global Broadcast of “Wild Edens: Russia” Started

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**Wild Edens: Russia, the first film in a series brought to the audiences by Rosatom and broadcast by National Geographic, began airing across the globe starting July, 15.**

Over several months, the Wild Edens film crew carried its kit to the most remote corners of a territory stretching 10000 kilometers from east to west and forming the biggest country on our planet.

### For reference:

The “Wild Edens” project is brought to the audiences by Rosatom and broadcast by National Geographic. It involves filming and broadcasting a series of feature-length documentaries about pristine locations, where the ecosystems are especially vulnerable to the effects of global warming. The project’s main goal is to attract the attention of the international community to climate change and the need for a global transition to clean energy.

“The film will take viewers on an unforgettable journey across Russia’s most remote and unexplored regions, including Kamchatka, Altai and the Arctic. Their rugged, yet fragile ecosystems are under threat from the crippling effects of climate change,” Rosatom stated.

## Bid for WEC

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The bid for St. Petersburg as the host city is initiated by the Russian National Committee of the World Energy Council (WEC RNC) and supported by the Russian Energy Ministry. As a patron of WEC and member of RNC WEC, Rosatom fully supports the bid.

According to [bidding documentation](#), Russia, one of the leaders of the international energy industry, is planning to harness its scientific and technological potential, along with its strong standing in terms of producing and exporting energy sources, to generate conversation about the future of global energy supply.

The country also expects to promote dialogue among the new generation of industry professionals. “Russia puts an emphasis on the support for and promotion of ideas put forward by young energy specialists, their integration in the global ideology of the current and future development of the energy industry, and accumulation of the intellectual and creative potential for the sake of developing the energy sector in Russia and the entire world,” states the document.

The suggested dates for the event are June 11–15, 2022.

Voting for the host country will be open until July 29, 2018. Please find the full bid video [here](#).



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## Trained Manpower — Biggest Challenge for RNPP: M Ali Zulqarnain

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**Bangladesh's eminent nuclear scientist and former chairman of the Atomic Energy Commission M Ali Zulqarnain talks about the hurdles in realizing the country's dream of harnessing the power of atom to meet the demand of its rapidly growing economy. The nuclear scientist talks about what steered the Bangladesh government's decision in finding partners, collaborators and financier, for the Rooppur NPP.**

*How did Bangladesh arrive at the fulfillment of its long-cherished dream of harnessing atomic energy?*

The two units of the country's first nuclear power plant are currently under construction. The country reached this stage after completing many required steps. The initiative was first taken back in 1961 to install a nuclear power plant near the Padma River in Pabna. However, the project didn't succeed at that time. The project was revived in 2009, when the Awami League-led government took charge of the government. A deal was signed then with Russia to install the nuclear power plant. During the visit of Prime Minister Sheikh Hasina to Russia in January 2013, Russia signed a USD500 million loan agreement for technical research on the proposed nuclear power plant. The government also laid the foundation stone of





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the nuclear power plant in Rooppur, Pabna in October of the same year. On December 25, 2015, the Bangladesh Atomic Energy Commission (BAEC) signed a deal with the Russian state-run ASE.

Later, Prime Minister Sheikh Hasina inaugurated the main construction of the nuclear power plant of Rooppur, Pabna at the project site. This event has finally pushed forward the country one more step to fulfill the country's long-cherished dream.

### ***What were the challenges that Bangladesh faced in reaching this stage?***

To reach the current stage, the one task that can be considered easier than the other tasks and was the acquisition of land for the power plant project. The land was acquired earlier and we didn't have to look for land. In a densely populated country like Bangladesh, acquiring land would have been challenging if the land was not acquired already. Apart from this there were many tough tasks. Financing the project, selecting the country to buy the reactor from, choosing the right contractor were some of the tasks that were considerably difficult.

The most difficult part of the entire project was training manpower, which Bangladesh lacked. We had to start from scratch and for a developing country like Bangladesh, it is not always easy. It is a first nuclear power plant for us and that's why selecting a country as a partner for this sensitive and ambitious project was another difficult decision to make.

### ***How did Bangladesh overcome the difficulties?***

The government has handled these issues deftly. Firstly, Bangladesh developed a belief that it is doable. The Prime Minister should be praised for it. Besides, International Atomic Energy Agency (IAEA) and Russia assisted us in solving many problems. We have got India besides us as well. Bangladesh is still on the right track. Actually, the main requirement for Bangladesh was to have the courage and the mental strength to install a nuclear power plant, which the government has successfully instilled in the countrymen. Next, what was necessary was to select the right partner. In this case we have selected Russia and they are working on it. Another important thing was to solve the financing issue, which was again managed by Russia as a loan.

The establishment of Unit 1 and 2 of the Rooppur Nuclear Power Plant is in progress. The power plant will be able to generate as much as 2,400 MW of power from these two units combined. The core construction of the reactor of both units was inaugurated by the prime minister and so far the construction progress is right on schedule and it's a great news for us. This power plant is a long cherished dream of the countrymen and we're progressing boldly towards fulfilling the dream.

A big project like the RNPP is likely to change the fortune of the countrymen. Many of the large enterprises and the companies of the country are involved in the development of this project while it has also created job opportunities for individuals and opportunities for small businesses as well. You might not recognize the area 10 years from now, which will be caused by the current transformation.



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### ***Did Bangladesh need any help in nuclear infrastructure development?***

Bangladesh is absolutely a newbie in the nuclear power sector. The country had no prior experience, no money and no manpower. So, we needed help or assistance from others from the start to end. As I already said, the power plant is a sensitive and high tech project, so we needed both the technology and money to materialize the project. We also needed the technical knowledge on it and now we are approaching ahead with adequate preparation from all these sides.

### ***What are the things that Bangladesh currently needs to develop its nuclear power infrastructure?***

Manpower. We need trained and proficient manpower and we need it as soon as possible. We need to prepare our own manpower and the process should be started now so that, we can operate the plant by ourselves very soon. Operating a nuclear power plant is utterly technical; we have talented students and we need to motivate them so that we can prepare them fast.

Also, now we need manpower to monitor and understand the ongoing works of the installation of the power plant. The construction of the power plant has already started and we need to oversee and supervise the entire installation process to make sure that everything is going on as planned. The government has already considered this as a priority project. The project should progress in a coordinated manner.

### ***Safety and security are really important for a nuclear power plant. What measures have been put in place to ensure the safety at Bangladesh's maiden nuclear power plant?***

This power plant will have a five-stage security system and a third generation technology. Russia has signed an agreement with Bangladesh to take away the radioactive waste. As a new entrant to the nuclear power sector, Bangladesh needs to ensure proper management of the radioactive waste. We need to oversee that everything happens according to the agreement and meets all the standard set by the IAEA.

The government will have to think about some new issues such as, ensuring the students who are studying nuclear energy do not migrate outside the country. The government may offer them a special pay-structure so that they stay in the country. The government needs to focus on such issues as well. We have India and China as our neighboring countries, who have already progressed much in nuclear power. We have to reach their stage and we will do it one day for sure. 