Rosatom Keeps Setting Records

Rosatom has set a new construction speed record. China's Tianwan Unit 3 built with Russia's input was brought online in less than five years after the construction started.

Tianwan 3 went critical in late September as a controlled chain reaction was initiated in the reactor. Going critical was the final step of the reactor start-up phase that began in mid-August with the loading of nuclear fuel into the reactor core. With a total of 163 fuel assemblies loaded, this process was completed ahead of schedule.

Valery Limarenko, President of Russia's ASE Group, said, "Phase II of the Tianwan construction project has passed a key milestone today as its Unit 3 achieved criticality, which will be followed by the grid connection."

"It is telling that the first two units built by us in cooperation with China are recognized among the best in the country," Mr. Limarenko added. "Tianwan is a project that uses our most innovative solutions and latest technology in nuclear energy and construction management. We hope that Tianwan II will serve the people of China and strengthen ties between our countries."

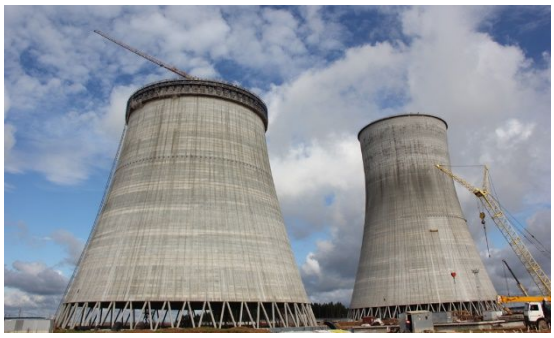
The construction speed record established at Tianwan Unit 3 is yet another proof that the construction of Russian-designed nuclear plants has got into its stride, experts say. To compare, the construction of VVER-1000-based Rostov Unit 3 began on 15 September 2009, with the reactor going critical a little more than five years after, on 7 December 2014. Russia's recent nuclear construction projects include VVER-1200-based Novovoronezh II Unit 1 (started in May 2016) and Beloyarsk Unit 3 based on a BN-800 fast-breeder reactor (started in June 2014), both of which were built from scratch for almost eight years.

The next step is the connection of Tianwan 3 to the Chinese power grid. The Tianwan nuclear power plant is the largest project delivered jointly by Russia and China. Tianwan Units 1 and 2 were commissioned in 2006 and 2007 respectively and have an annual capacity of over 15 billion kilowatt hours. Commercial operations at Tianwan Unit 3 are planned to begin in 2018. "The cooperation between China and Russia is evolving consistently and has good results. It should be noted that, as a global leader in nuclear construction, Rosatom discharges its obligations on time," noted Leonid Gusev, an expert from the MGIMO Analytical Center. "The Chinese partners highly appreciate the experience gained in this cooperation. They have already tested the reliability of Russia's nuclear technologies. With this in mind, China's readiness to continue the cooperation seems quite explicable.

COOPERATION

France May Join Rosatom's Projects

Rosatom expects France to join nuclear construction projects in the EU, Egypt and Turkey, Rosatom CEO Alexei Likhachev said.



Rosatom has invited its French partners to join the projects in third countries. The company hopes that French equipment suppliers will make their bids for construction of Russian-designed reactors in the EU, Turkey and Egypt. This was announced by Rosatom CEO Alexei Likhachev at a press briefing on the margins of Russian Energy Week 2017. "We have invited French suppliers to take part in all tenders, primarily for the European projects based in Finland and Hungary. We also hope that they will have a chance to become stakeholders in Turkey's Akkuyu project. As soon as the project in Egypt kicks off, the French engineering and system management companies will also join the bidding process," said Mr. Likhachev.

He also noted that Rosatom does not rule out participation of Asian companies, including those from China, in Hungary's Paks II project. Speaking about the planned tenders for services and equipment supplies under the Paks II project, Mr. Likhachev stressed that all contracts will be awarded pursuant to the EU standards. "We hope that our European suppliers will be the first [to take part in tenders], but we will also be glad to work with our partners from China and other Asian countries," said Alexei Likhachev. He added that China's expertise would be of great use for projects in African countries (for instance, South Africa) if they decide on building a nuclear power plant, or in Latin America. In particular, Rosatom's Chinese partners could take part in the nuclear island construction.

About Paks II

The Paks II construction project is carried out under a framework agreement signed in January 2014 and contracts between MVM Paks II and NIAEP (a Rosatom Group company). Construction of the new reactor units is expected to start in 2018 as the European Commission finally gave its approval on 6 March. Paks NPP has

four operating reactor units built by Soviet engineers in 1974–1987 and satisfies over 40% of Hungary's power demand. Paks is one of the world's safest and most reliable nuclear plants. The construction of new reactor units at Paks with Russia's input is strongly supported by a majority of Hungarians.

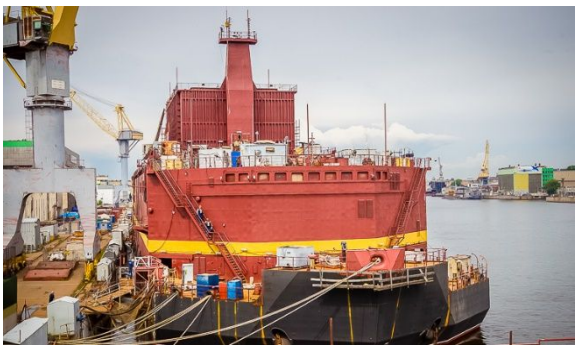
About El Dabaa

On 19 November 2015 in Cairo, Russia and Egypt signed an agreement on the construction of Egypt's first nuclear station near El Dabaa on the Mediterranean coast and a loan of USD 25 billion. The El Dabaa nuclear power plant will consist of four 1,200 MW reactor units. With its comprehensive product offering, Rosatom will help Egypt create a full-fledged nuclear power industry from scratch and assist in delivering hi-tech projects.

About Hanhikivi-1

Fennovoima and RAOS Project, subsidiary of Rusatom Energy International, have a plant supply contract for the Hanhikivi-1 nuclear power plant. According to the schedule agreed with Rosatom, Hanhikivi-1 plant will produce electricity in 2024. Hanhikivi-1 is based on VVER-1200, a Generation 3+ nuclear plant design made in line with all European safety requirements and post-Fukushima safety standards.

IN FOCUS



Absolute transparency

Norwegian Foreign Minister Børge Brende thanked Rosatom for finding a transportation solution for Akademik Lomonosov floating nuclear power plant.

Norway's Foreign Minister Børge Brende sent Rosatom CEO Alexei Likhachev a letter to express his deep appreciation of the cooperation between Russia and Norway in the field of radiation safety, notably the joint efforts of Rosatom and the Norwegian Radiation Protection Authority (NRPA). "Our dialog over the transportation of Akademik Lomonosov is a good example of neighborly cooperation. We are grateful to Rosatom for taking Norway's concerns into account," says the letter.

The innovative nature of the floating nuclear power plant (FNPP) has made it difficult to apply the provisions of the current maritime law to floating nuclear power units. "The maritime law lags behind the development of industry and does not yet contain the definition of a non-self-propelled floating nuclear facility," Alexei Likhachev said at a press conference last July. "This is the reason why many of the questions asked by our neighbors and partners in the Baltic region have no legal solution." According to Mr. Likhachev, Rosatom decided to load nuclear fuel as close to the place of operation as possible in order to avoid multiple interpretations of legal documents governing the transportation

of the floating power unit from St. Petersburg to Pevek (Chukotka Peninsula). Fuel will be loaded at a RosAtomFlot facility in Murmansk after the construction of the unit is completed, Rosatom's CEO said. Mr. Likhachev stressed that Rosatom would transport the vessel across the Baltic Sea with no nuclear fuel on board so as to comply with the requests of the Baltic and Scandinavian countries. "This is how we can avoid the legal conflict and maintain good neighborly relations with our partners," he said.

It was also noted that all decisions about construction and transportation of the floating nuclear power unit "are, and will always be, fully transparent". "We are convinced that the technology used and operations performed at the FNPP are safe, and we do our best to inform our partners from the Baltic countries in a fully open manner of our plans regarding implementation of the project, with all decisions taken in their best interests," a Rosatom spokesperson said.

Certified by IAEA

The primary circuit flushing at the both reactors of the floating nuclear power plant is scheduled for completion in late November. The systems and equipment, however, will be tested for compliance with the operating parameters till the end of 2017. After the dock trials and other necessary preparations, the FNPP will be towed to RosAtomFlot's site in Murmansk in May 2018. Nuclear fuel will be loaded roughly in October 2018 while the startup is scheduled for November 2018. The project is based on the nuclear icebreaker solutions that have proved to be reliable for decades in operation. The unit is equipped with two KLT-40S reactors with a capacity of 35 MW each. The FNPP has been designed in full compliance with the IAEA safety standards and is capable of withstanding extreme weather impacts, such as tsunami and other natural disasters.

STRATEGY

Management Reshuffle in Rosatom

Natalya Nikipelova has become the President of TVEL Fuel Company in Rosatom's management reshuffle. Vyacheslav Pershukov has been appointed Rosatom's special envoy for international and R&D projects.

TVEL's sole shareholder AtomEnergoProm nominated Natalya Nikipelova as the President of TVEL Fuel Company. Before that, she had occupied the position of TVEL's Senior Vice

President for Finance, Economy and Corporate Finance since 2013. Natalya Nikipelova entered the top executive office of Rosatom's nuclear fuel division on 26 September 2017. In the recent years, Ms. Nikipelova was in charge of TVEL's major strategic programs and achieved tangible results. Many of the projects delivered under her

management, including those targeted at improving operational efficiency, have been recognized as Russia's best practices. Ms Nikipelova's project for implementation of a uniform resource management system based on SAP ERP has been highly appreciated by the international expert community. Natalya Nikipelova has earned praise from the Russian President and a number of industry awards.

Yuri Olenin who has been running the office of TVEL's President for more than 10 years has become Rosatom Deputy CEO for Innovation Management. Following the current governance transformations, he will be responsible for research and development of new products and technology in Rosatom Group. He will also perform strategic management functions by supervising and contributing to the development of Rosatom's technology strategy, the official statement says.

Vyacheslav Pershukov, former head of Innovation Management at Rosatom, has been appointed Rosatom's special envoy for international and R&D projects. Pershukov will be responsible for the Russian part of the international ITER program, Russia's engagement in the FAIR project and construction of an international research center based on a multi-purpose fast-breeder reactor. He will also be the head of Rosatom's Technology Development Center at the National Nuclear Research University.

IN BRIEF

AEM-Technology Has Been Qualified As Manufacturer of Akkuyu NPP

AEM Technologies, a subsidiary of Rosatom's nuclear engineering division AEM, has obtained an approval from the Turkish Atomic Energy Authority (TAEK) for production of equipment for the Akkuyu project. The certificate of approval issued by TAEK entitles Atommash (Volgodonsk, Rostov Region) and PetrozavodskMash (Petrozavodsk), subsidiaries of AEM Technology, to manufacture equipment for the Turkish nuclear power plant. In particular, Atommash will produce reactor vessels for Akkuyu power units. Akkuyu NPP will have four Russian-made Generation 3+ units based on VVER-1200 reactors and fully compliant with post-Fukushima requirements. Each of the units will have a capacity of 1,200 MW. The project price is about 20 billion US dollars. Turkey expects to commission Unit 1 in 2023.

Russia and Saudi Arabia to Develop Co operation on Peaceful Use of Nuclear Energy

On 5 October, Rosatom State Atomic Energy Corporation and King Abdullah City for Atomic and Renewable Energy signed Programme for Cooperation in the Peaceful Uses of Nuclear Energy. The Programme signature was executed in Moscow during a visit of King of Saudi Arabia Salman bin Abdulaziz bin Abdul Rahman bin Saud to the Russian Federation. The Programme provides for cooperation between Russia and Saudi Arabia in several key areas such as small and medium reactors that could be used for both power generation and water desalination, in the area of human resources and nuclear infrastructure development for the Saudi national nuclear programme. Russia and Saudi Arabia will also consider the advantages of construction of a Nuclear Science and Technology Centre based on the Russian-design research reactor in the Kingdom of

Saudi Arabia. The Programme was signed following the framework of the Intergovernmental Agreement (IGA) for the Cooperation in the Peaceful Uses of Nuclear Energy concluded by the two countries on June 18, 2015.

Rosatom's Lean Clinics near Moscow Reduced Screening Time down to Two Hours

A number of clinics in the Moscow Region have reduced screening time down to two hours thanks to the Lean Clinic project, Olga Zabralova from the press service of Russia's First Deputy Prime Minister reports. Last year, the Russian Ministry of Healthcare and Rosatom started up a joint project named Lean Clinic. The project will improve operation of polyclinics, make it easier to arrange an appointment and reduce the average time needed for visiting a health institution. Since July 2017, the project has been running at Krasnogorsk Municipal Hospital No.1 and the Moscow Regional Mother and Child Health Center. "We have already achieved certain results. Since screening is arranged on one floor, its duration has dropped to two hours," said Olga Zabralova.

Smolensk NPP Started Co-60 Production

The first extra cobalt absorbers were loaded to the reactor Smolensk-1. This has been the significant step to large-scale development of the current radiation technologies to produce the chemical element which does not exist in the nature but is needed for medicine and industry. Cobalt-60 is stably in high commercial demand in the Russian and foreign market and has a decade-long growth prospective. Co-60 has already widely used for sterilization of foods, medical tools and materials; to stimulate growth and yield of crops and vegetables; disinfection and clean-up of industrial waste; radiation surgery of various pathologies; and gamma flaw detection of a wide range of items.