CONTENTS

ROSATOM NEWS

Performance Highlights and Plans

Rosatom's Director General Alexey Likhachev presented annual performance highlights and future priorities in early March.

Two new reactors – at Leningrad NPP and Rostov NPP – were commissioned in 2018. Notably, the unit at Rostov NPP was put into operation three months ahead of schedule.

In addition, Novovoronezh Unit 7 achieved criticality in February 2019. With low power tests already completed, the unit is planned to be commissioned by the end of 2019. It means that there are currently three Generation III+ VVER-1200 units operating in Russia.

Another major achievement of 2018 was the startup of reactors onboard Akademik Lomonosov, the first ever floating nuclear power plant. It will soon be transported to its deployment site in the port of Pevek (Russia's northernmost town) where it will replace the retiring capacity of Bilibino NPP and a local heating station. A sea-going low

Facts & Figures

ROSATOM'S ACHIEVEMENTS

CONSOLIDATED REVENUE:
over RUB 1 trillion (USD 15.3 billion)*

ELECTRIC POWER GENERATED:
204.3 billion kWh

*According to the Russian Accounting Standards

ROSATOM NEWS

power nuclear station attracts much interest from international customers who will be offered a floating nuclear power unit (FNPU) of improved design. AtomEnergoMash, Rosatom's power engineering division, developed the unit. It has an increased capacity of 100 MW and a 10-year refueling cycle.

Last year, Rosatom and China signed an agreement package for the construction of new reactor units at Tianwan and Xudabao, and cooperation in fast reactors and space exploration.

Uzbekistan and Serbia have joined the ranks of Rosatom's partners. In Uzbekistan, Rosatom will build a large capacity nuclear power plant. Serbia is interested in establishing a nuclear research center.

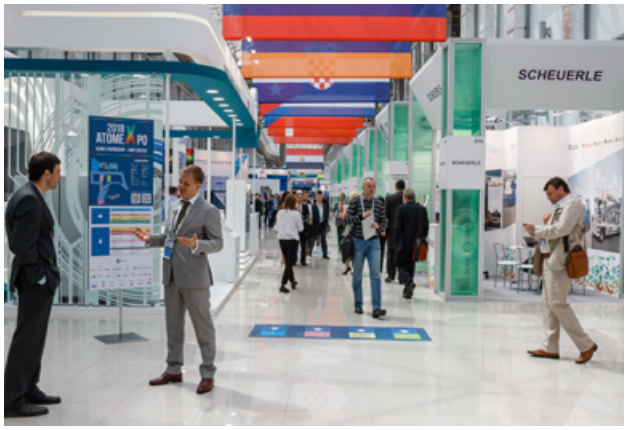
Rosatom's priorities for the years to come are international construction projects, fundamental research, new businesses, development of the Arctic, and digitalization.

For the first time ever, Rosatom's portfolio of contracts for its new products exceeded RUB 1 trillion (USD 15.3 billion) in 2018. Nuclear medicine, wind generation, composite materials, digital products and environmental projects remain areas of strategic concern.

Last year Rosatom began the construction of a plant in Tatarstan to manufacture the PAN (Polyacrylonitrile) precursor for carbon fiber. Automated control systems are another product that is popular with Rosatom's customers. Revenue from sales of control automation components reached RUB 15 billion (USD 229 million).

In late 2018, the Russian government enacted a new law giving Rosatom more powers in the Arctic, particularly in respect of the Northern Sea Route development. Rosatom is now responsible for navigation on the route and its infrastructure. The goal is to maintain the year-round navigation and increase the freight traffic to 80 million tons by 2024.

Rosatom has also adopted its Digitalization Strategy 2030. The document provides for internal digitalization, new products to be brought to market, and participation in the national digitalization program.



ATOMEXPO 2019: Planning the Future

On April, 15-16 Sochi will host the 11th International Forum ATOMEXPO dedicated to the contribution of nuclear technology to the UN Sustainable Development Goals.

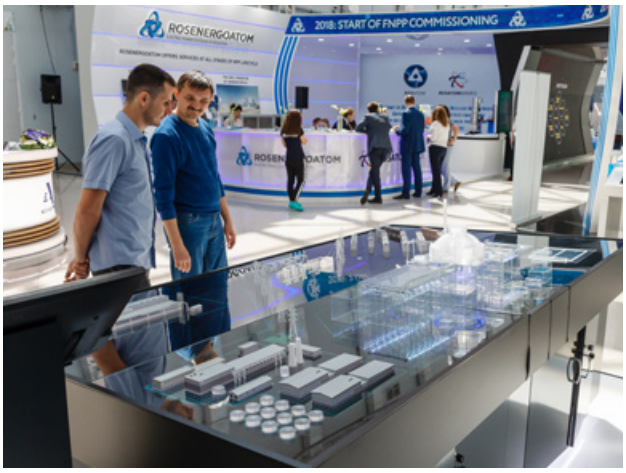
This year its key topic will be "Nuclear for Better Life."

ATOMEXPO 2019 will feature top industry speakers, including chief executives of major nuclear vendors, heads of international

ROSATOM NEWS

and public organizations, government bodies and pro-nuclear activists. Among the speakers will be Rosatom's Director General Alexey Likhachev, WNA Director General Agneta Rising, OECD NEA Director General William D. Magwood and pro-nuclear environmentalist Michael Shellenberger, among others.

"Increasingly more countries become aware that they need nuclear technology as it is capable of making a great contribution to the sustainable development goals," Sergey Kirienko, First Deputy Chief of Staff of the Presidential Administration of Russia and Chairman of the Supervisory Board of Rosatom, said in his address to the attendees of the Forum.



The UN Sustainable Development Goals include access to affordable and clean energy, innovation, good health and well-being, and fighting climate change.

ATOMEXPO 2019 will focus on the discussion of global carbon-free prospects, responsible attitude to the environment and natural resources, 'green' investments, and international partnerships. Round tables and panel sessions will be primarily devoted to non-energy applications of nuclear and radiation technologies in industry, science, medicine and agriculture, knowledge management, best management practices, and digital solutions for municipal infrastructure and improvement of living standards.

"Nuclear has long proved to be a reliable source of base load. It supplements renewable sources of power, decreases risks related to their instability, and contributes to carbon-free economy and reliable power supply," OECD NEA Director General William D. Magwood, IV said in his address to the participants of the Forum.

The opening day of the Forum will feature the ATOMEXPO Awards given to the international companies in recognition of their contribution to the development of the global nuclear industry and use of nuclear energy for the good of humankind. Applications for awards have been received from 25 countries.

The exhibition organized as part of the Forum will present a wide range of nuclear technology applications related to both energy generation and non-energy industries. The area of the exhibition will exceed 13,000 square meters. NL

For reference:

The first ATOMEXPO Forum was held in 2009. Last year's 10th Anniversary Forum ATOMEXPO 2018 was attended by over 4,000 people representing more than 600 companies from 68 countries. 39 partnership and cooperation agreements, including commercial contracts, were signed on the sidelines of the Forum. The area of the exhibition exceeded 20,000 square meters.

ROSATOM NEWS

Atomic Collaboration

The Russian-Chinese cooperation in the nuclear dates back several decades and keeps gaining momentum. On March 7, in Beijing, Rosatom's nuclear engineering division and China National Nuclear Corporation (CNNC) signed a general contract for the construction of Tianwan Units 7 and 8 and a contract for engineering design of Xudabao Units 3 and 4.

The contracts were prepared as a part of a record set of agreements signed in Beijing on June 8 . **"In fact, we made a partnership program for decades to come,"** Alexey Likhachev, Director General of Rosatom, said. **"Through many years of cooperation with our long-standing and reliable partners – China Atomic Energy Authority (CAEA), National Energy Administration and CNNC – we have developed strong relations of mutual trust."**

New power units of the Tianwan and Xudabao nuclear power plants will feature Generation III+ VVER-1200 reactors. They will be based on the same project design as the Leningrad NPP-2, which is currently under construction.

"The initial design will be slightly changed to adapt to a different type of soil, climate and water supply. Besides, the customer has a number of specific requirements for nuclear, radiation, fire and environmental safety," Alexey Bannik, Rosatom engineering division Vice President for Chinese Projects, explained. **"Another important point is that the customer wants us to rely on the experience from our previous projects in China, particularly Units 3 and 4 of the Tianwan NPP. When constructing them, we used certain solutions from the Leningrad NPP, but there were some differences,**

For reference:

Along with the construction of four reactor units at two nuclear power plants, the set of agreements signed between Russia and China on June 8 provides for the parties to join their forces to build a pilot CFR-600 fast neutron reactor. Since Russia has extensive expertise in the design and operation of fast reactors, it will supply CFR-600 components and fuel, train Chinese operators, grant licenses for Russian-developed calculation codes, and audit technical documents.

Advanced Russian-designed solutions are also used in the Chinese Lunar Exploration Program. Last December China launched a robotic lander and a rover as part of its Chang'e 4 lunar exploration mission to the far side of the Moon. Two 120 W and 4 W radioisotope heater units (RHUs) for the mission were designed and manufactured at the Russian Research Institute of Experimental Physics in 2018. Composite heat insulation bodies for the RHUs were produced at NIIGrafit. Mayak, another Rosatom Group company, produced radioisotope fuel pellets.

ROSATOM NEWS

too. We will discuss with the customer what they want to use for Units 7 and 8 in order to make the units safe, take positive operating experiences into account, and reduce costs."

Preparations and earthworks are already underway at the Tianwan site. **"The site is well known to us as we have built four units (with VVER-1000 reactors – RN) there. We will need no additional surveys,"** Alexey Bannik added. **"As for Xudabao, the second construction site, China has fully prepared it for six reactor units, and two of them will be built by Rosatom."**

At Tianwan, the parties will follow a long established procedure. Russia will design the nuclear island, develop technical specifications and safety guidelines, supervise the construction process, prepare key licensing documents, and supply the nuclear island equipment and certain safety systems. In turn, China will design the turbine island and supply the necessary equipment for it. Russia will be involved in every construction stage.

"Construction and installation will be done entirely by the Chinese party. They might need our engineers to be present on site as representatives of the contractor and supervise construction and installation operations to be performed by China. As for our representative office in China, the two nuclear stations are located in different provinces too far from each other (Xudabao is located in the Liaoning province, about 1,000 km away from Tianwan – RN). We will have to establish an additional representative office almost mirroring that at the Tianwan site in Lianyungang. This is what is provided for in the contract," Alexey Bannik concluded.

According to the contract, first concrete will be poured at Tianwan 7 in May 2021, followed by Xudabao 3 in five months, Tianwan 8 in another five months, and Xudabao 4 in another five months. The time span between the beginning of construction at Tianwan 7 and Tianwan 8 will be as short as 10 months and even much shorter – just five months – between the start of construction at Tianwan 7 and Xudabao 3. The tasks are very ambitious in terms of timing, so every party to the project should concentrate their efforts to stay on schedule. NL

Timeline of Criticality

With the startup stage completed on March 27, Novovoronezh Unit 7 was Russia's third Generation 3+ reactor to go critical. The other two reactors of the same design operate at the Novovoronezh and under-construction at the Leningrad II.

Reactor startup is an important milestone in the commissioning of a nuclear power plant. It is the time when the operation of all

systems and components is monitored closely to confirm that they function as designed. On February, 19 the first fuel assembly was loaded into the core to mark the beginning of the reactor startup stage. After the fuel loading was completed on February 24, the reactor was assembled and the main circulation pumps were turned on to prepare the reactor for criticality and a set of low power tests.

On March 22, the reactor went critical. As the self-sustaining chain reaction began, the 'heart' of the power unit started beating. **"The process of achieving criticality went safe and on schedule thanks to the work we did timely and to the highest professional standards,"** Vladimir Povarov, Director of Novovoronezh NPP, commented on the event.

Maxim Tuchkov, a shift supervisor at Unit 7, took part in the commissioning of both cutting-edge nuclear reactors at the Novovoronezh. **"As we were preparing for Unit 7 to go critical, we remembered every lesson learned, optimized our operating procedures and knew what to expect."**

The criticality step is followed by a set of comprehensive neutronic measurements in the core. The purpose of the measurements is to confirm compliance with design specifications, test control and safety systems, including the radiation monitoring system, ventilation, and others. Only after they are tested, the turbine is connected to the reactor.

The series of low power checks, tests and measurements was completed on March 27 to signal the end of the reactor startup stage. During the stage, engineers measured operating parameters of the reactor core and neutronic performance after the first fuel loading and confirmed that all the systems were functioning in accordance with design specifications.

While performing the criticality tests, the staff of the nuclear power plant and subcontractors working on-site started

For reference:

Novovoronezh NPP is the world's first commercial nuclear power plant to use VVER reactors. Six more reactors have been commissioned here since the first one 55 years ago. Unit 3, 5 and 6 piloted VVER-440, VVER-1000 and VVER-1200 reactor designs. Units 4, 5 and 6 are currently in operation while the others have been decommissioned. Novovoronezh NPP is the largest producer of electric power in the Voronezh Region, with electricity supplied to neighboring regions as well.

Rosatom's engineering division acts both as the general designer and general contractor for the Unit 7 construction project. Innovative VVER-1200 reactors have a number of advantages over the previous generation of VVER reactors. The new design has a 20% higher capacity while requiring about 35% fewer operational personnel than VVER-1000. It has a 60-year design lifetime that can be extended for 20 more years. What really distinguishes the new generation of reactors is their one-of-a-kind combination of active and passive safety systems making a nuclear power plant capable of withstanding hurricanes, earthquakes and even a plane crashing right into the reactor building.

VVER-1200 is one of the most in-demand reactors in the world. The Generation III+ reactor design has been selected by Finland, Hungary, Bangladesh, Belarus and other countries. By now, Rosatom has 36 projects in different stage of implementation underway in 12 foreign countries.

preparations for the next stage of the commissioning process – power ascension and pilot operation – scheduled for the year end. After that, Novovoronezh NPP will pay over USD 15 million in local property taxes in 2020.

Wild Edens Comes to South Asia

The premiere screening of Wild Edens: South Asia was held on March, 19.

Wild Edens: South Asia, the third installment of the documentary series highlighting the issue of climate change, premiered in Mumbai, India. Focusing on flora and fauna in the unique natural habitats of India and Bangladesh, the documentary was filmed in a number of remote locations, including the Western Ghats, a varied landscape of Tamil Nadu, and the Sunderban Delta.

"Along with our international partners, we take responsibility for resolving global environmental challenges and call upon the world community to wake up and do the right thing. As Mahatma Gandhi once famously said, you should 'be the change that you wish to see in the world'." Vadim Titov, Senior Vice President of Rusatom International Network, said at the event.

The Wild Edens project was initiated by Rosatom and broadcast by the National Geographic TV channel. Two previous episodes – Wild Edens: Russia and Wild Edens: Turkey – had a potential audience of more than 666 million people from 155 countries.

Wild Edens ambassador Freida Pinto, a Hollywood actress known for her roles in Slumdog Millionaire, Black Gold, and Escape from the Planet of the Apes, said at the premiere:

"I have been learning a lot regarding the human-wildlife biodiversity connection in my role as ambassador of Wild Edens and as I keep going deeper into the research, the one thing that keeps coming up again and again as one of the biggest solutions is clean and green energy lowering

For reference:

Rosatom is the world leader in the production of safe and clean energy and a socially responsible company that acknowledges the need to preserve natural resources. Rosatom Corporation comprises 350 nuclear industry companies and research institutions.

Wild Edens is a multi-faceted project combining television, digital media, and offline events. All three movies were produced by Off the Fence Productions based in Bristol, England, the global headquarters of natural history filming.

carbon emissions and reducing carbon footprints."

Each of the three episodes tells a story of pristine lands noted for exceptional natural beauty and inhabited by rare species, and shows how particularly vulnerable local ecosystems are to the effects of global warming. The project targets world communities in an attempt to raise awareness of climate change.

According to the Paris Agreement adopted in 2015, the increase in global average temperature should be kept below 2 degrees Celsius by 2100. The plan is to significantly reduce carbon emissions and, for that purpose, to gradually migrate from carbon generation to 'green', carbon-free sources of energy. To meet this international objective, the share of nuclear in the EU energy mix alone should reach at least 25% by 2050, says Pathways to 2050: Role of Nuclear in a Low-Carbon Europe, a report prepared by the European Atomic Forum (FORATOM) in late 2018. NL

Rosatom Goes North

As a new infrastructure operator of the Northern Sea Route (NSR), Rosatom will be responsible for the development of navigation in the Arctic.

The law appointing Rosatom an NSR infrastructure operator was signed by Russian President Vladimir Putin on December 27, 2018. Rosatom will have to build the necessary infrastructure, including power

generation facilities, and develop the sea going fleet and vessel traffic services.

The Northern Sea Route is the shortest way between Northern Europe and the Far East going along the Russian coast of the Arctic Ocean through the Barents, Kara, Laptev, East Siberian, Chukchi and Bering Seas. NSR is a promising competitor to the Suez Canal since the shipping route from Murmansk (Russia) to Yokohama (Japan) through the Suez Canal is 12,500 nautical miles long while the Arctic route is only 5,770 miles.

President Putin set a task to increase freight traffic on NSR to 80 million tons by 2024. According to the estimates of Atomflot, a Rosatom Group company operating the nuclear icebreaker fleet, some 25 million tons of cargo will be transported already in 2019 with the primary cargo being liquefied natural gas.

"To fulfill the task set by the president, we at Rosatom plan to work across different areas. First, we need a strong fleet of nuclear icebreakers, so we plan to build new icebreaking vessels for our fleet. The second overarching goal is to create new infrastructural facilities and upgrade existing ones in the region,"

ROSATOM NEWS

Rosatom's Director General Alexey Likhachev commented on the company's plans.

Russia is the only country in the world to have a nuclear icebreaker fleet. Atomflot's nuclear icebreakers escort vessels on NSR, support scientific research expeditions and emergency rescue operations, and bring tourists to the North Pole.

Rosatom plans to increase the number of its vessels. Three multi-purpose nuclear icebreakers are currently under construction at the Baltic Shipyard in Saint Petersburg. They will be the largest and most powerful icebreaking vessels in the world and unlike operating icebreakers will be able to escort vessels both in deep and shallow water areas on the Northern Sea Route. The keel of Arktika (Arctic), the first Project 22220 nuclear flagship, was laid at the Baltic Plant in 2013. Construction of Sibir (Siberia), the second Project 22220 icebreaker, started in 2015 followed by Ural (Urals), the third in a series, in 2016.

"We plan to sign contracts for the fourth and fifth multi-purpose nuclear icebreakers in 2019 and take a final decision on the construction of Lider (Leader), presumably at the Zvezda shipyard in the Far East," Mustafa Kashka, CEO of Atomflot, explained.

Environmentalists welcomed the appointment of a new NSR operator. **"The decision to manage the Northern Sea Route from a single control center is right. It is much more dangerous to divide the body of management tasks into multiple individual projects, which are harder to control,"** Igor Chestin, Director of WWF Russia, said confidently. **"We have been already invited by Rosatom to join our efforts in ensuring environmental safety in the region."** The WWF and Rosatom plan to establish natural sea reserves and jointly work to preserve and monitor rare species, such as walruses, polar bears, narwhals and beluga whales. NL

Open for Cooperation

Rosatom grows partnerships in Eastern Europe

Russia is ready to implement the project of Belene NPP construction in Bulgaria if such an offer is made, Prime Minister Dmitri Medvedev said after the Russian-Bulgarian talks in Sofia in March. **"Russia's Rosatom truly has a lot of experience in similar projects, including those underway in the European Union,"** Medvedev added.

Rosatom is able to deliver the project within the shortest time possible, Sergei Prikhodko, First Deputy Chief of the Government Staff said. **"Most machinery and equipment for the nuclear island have been assembled and delivered to Bulgaria. Russian engineers did a large part of design and**

ROSATOM NEWS

licensing. This speaks in favor of Rosatom and its ability to finalize the nuclear plant construction within a short time period and remain Bulgaria's reliable partner for the entire lifecycle of the nuclear power plant," he said.

According to Rosatom's Director General Alexey Likhachev, initial investments made to date in the Belene are estimated at USD 1.7 billion.

In 2006, ASE, the Rosatom engineering division, won an international tender and was awarded a contract to build two Belene units. However, the project was suspended in 2009 by the Bulgarian government.
In May, Bulgarian Prime Minister Boyko Borisov said that the country was planning to resume the nuclear project. In December 2018, Temenuzhka Petkova, Bulgarian Energy Minister, announced the terms and conditions to be offered to strategic investors. One of them was to use the machinery already delivered to the site to the maximum extent possible and follow the project design approved earlier. **"Project costs should not exceed USD 11 billion, with the plant to be commissioned within the next 10 years. A mandatory condition is to provide Bulgarian subcontractors with access to construction contracts,"** Petkova stressed.

The Belene project is planned to be put out to tender next year.

Serbia is another country that shows interest in nuclear technology and a partnership with Rosatom. In late January, an agreement on cooperation nuclear energy technologies was signed during the visit of Russian President Vladimir Putin to Serbia. A declaration of strategic partnership aimed at building a nuclear science, technology and innovation center was signed as well.

"Today, we are laying a strong foundation for the development of advanced technologies in Serbia for many years to come. A more efficient economy, agriculture, medicine or education and a higher quality of life are hardly achievable without civil nuclear energy," Nenad Popović, Serbian Minister of Innovations and Technology said.

"Serbia has an outstanding background and potential to develop and use nuclear technologies. We have identified projects of mutual interest to join professional human resources and technical competencies of Russia and Serbia," Alexey Likhachev, Director General of Rosatom, said at the signing ceremony. NL

To the beginning of the section.

TRENDS

The SMR race

Small modular reactors (SMRs) are one of the most promising areas of nuclear energy development and reactor technology. They are designed to be smaller, both physically and in the building footprint.

The SMR concepts are based on the same traditional scientific approach of a large-scale reactor using fission to generate electric power up to 300 MW. SMRs are of particular interest due to the lower capital costs and ability to supply electricity in absence of large grid systems. They will play an important role in addressing energy security, economic and climate goals thanks to greater design simplicity, shorter construction times and lower costs.

World electricity production is around 25.100 TWh, and about 11% (~2500 TWh) is generated by about 450 nuclear power reactors.

However, approximately 2bn people have no access to electricity, largely due to underdeveloped infrastructure. This is where SMR technologies come into play.

THE WORLDWIDE MARKET

Interest in SMR technologies is rapidly growing across the entire nuclear industry. There are more than 150 proposed SMR designs worldwide. Currently, there are several projects under construction: CAREM-25 in Argentina, KLT-40S and RITM-200 in Russia. In addition, NuScale project in the US is at the final design and licensing

stage. PWR (pressurized water-water), fast neutron reactors or high-temperature reactors (mainly with gas coolant) based SMRs could be brought to life in 10–15 years. However, today we will focus on the current technology.

The NuScale project named MASLWR is a built-in unit with PWR reactor type of 45 MW. The first plant is to be completed in 2026 at a site of the Idaho National Laboratory. It was developed jointly by the Laboratory and the University of Oregon. The NuScale Power Inc. was founded to commercialize the project in 2007. The project has been in development since 2000. The reactor building is designed to fit 12 SMRs. Each NuScale power unit has a thermal output of 160 MW and an electrical output of 50 MW with the plant totalling at 600 MW. The procedure for obtaining a license from the US Nuclear Regulatory Commission (NRC) began in February 2018 and the regulator is to finalize its safety assessment report by August 2020.

«Nuclear is ideal for dealing with climate change, because it is the only carbon-free, scalable energy source that's available 24 hours a day»

The Microsoft Corp co-founder Bill Gates

The Westinghouse Electric Company also boasts its latest innovation in small, innovative W-SMR producing over 225 MW. The Westinghouse SMR fuel design started back in 2011 with the main concept of Robust Fuel Assembly (RFA) technology of the Westinghouse AP-1000 large-scale reactor. Preliminary design of the W-SMR project has been finalized. The plan is to manufacture units at the UK facilities and ship them over.

The SMR programme in the UK is desperately needed to ensure that by 2030 it could be an important element in the revitalization of nuclear expertise in the country. The deal for the construction of such low-capacity SMR plants, estimated at USD 340 million, will help creating hundreds of jobs in the UK nuclear sector. The British government has ranked companies offering their small reactor designs. These include NuScale Power, Urenco (high-temperature gas reactor, U-battery), Westinghouse (Westinghouse SMR), Moltex Energy (Fast Molten Salt reactor), GE Hitachi (Fast Sodium PRISM), CNNC (Chinese PWR ACP-100), Rolls-Royce (PWR). Rolls-Royce is a top leader of the SMR programme in the UK, with a strong experience in SMR technologies for civil nuclear applications since the early 1990's. The Rolls-Royce-guided UK consortium is aiming to provide its SMR supplying 220-440 MW of installed power in dependence on reactor configuration, which will boost the economy by $130bn in 2030-2050, creating ~40,000 jobs. According to the estimates, gross value added (GVA) indirect contribution of USD 93bn will be impacted to the UK economic system.

Argentina is now the closest to operating a 25 MWe demonstration modular reactor. CAREM-25 is an integral type of PWR, which has been in construction since in 2014 close

to the Atucha NPP. This is purely Argentinian technology and local manufacturers are expected to supply 70% of the equipment and materials. The project was developed as an energy source for regions with low consumption and could be used for desalination plants.

RUSSIAN ACHIEVEMENTS

Russian Akademik Lomonosov is the world's only floating power unit (FPU). Named after Russian scientist Mikhail Lomonosov, it is the first in the series of low-capacity mobile power units. On May 19, 2018, Akademik Lomonosov was successfully towed from its construction site at the Baltic Shipyard in Saint Petersburg to Rosatom's icebreaker maintenance site in Murmansk. It is currently undergoing comprehensive tests. Once these are completed, the FPU will be tugged to its port of destination in Pevek, Russia's northernmost town.

In Pevek it is intended to replace outgoing capacities of the Bilibino NPP and Chaunsky CHPP. The FPU comprises two KLT-40C reactors, each of 35MW capacity, together generating up to 70MW of electricity and 50 Gcal/h of heat under nominal operation conditions, which is enough to supply power to a town of about 100,000 residents.

The FPU vessel's design ensures resistance to collisions with icebergs as well as a 7-meter wave impact and hurricane wind of up to 200 km/h, making the ship virtually unsinkable and invulnerable to natural disasters.

The second generation of the FPU technology, optimized floating power unit (OFPU) is currently in the works. The OFPU will be smaller than its predecessor, yet more powerful. It is envisaged to have two RITM-200M reactors, each of 50MW capacity. This model of the floating power unit will be offered for export. It is expected to generated electricity at a cost comparable to that of diesel power plants.

Overall, fighting for the first place in the SMR race, main power giants are in the process of justification of their first implemented projects of low-power nuclear power plants and their real economy, which will determine the volume of the market and its possible saving role for the entire global nuclear industry. Therefore, let see if there will be built one in the foreseen future. NL

Performance in Focus

A long-awaited recovery has finally begun as the uranium market shows certain signs of improvement, according to Kazatomprom, a major global producer of natural uranium. The company has published its IFRS financial statements for 2018 and demonstrates consistent earnings.

TRENDS

Kazatomprom was established in 1997 as a national operator for the nuclear fuel cycle in Kazakhstan. Since then, the company has grown into the largest global uranium producer accounting for over 20% of natural uranium produced in the world. In the early years, the company was concentrating its efforts on the expansion of production and cost reduction. Soon enough the market became oversupplied and put downward pressure on uranium prices. It became obvious that this strategy did not maximize the value of assets.

Kazatomprom adopted a new strategy in early 2018. It centers around sustainable development of uranium deposits and optimization of the added value chain.

The company announced a decision to reduce production by 20% in 2018 and maintain that level through 2020. **"After a long period of oversupply, the market balance was restored in 2018 and even slid into the undersupply territory, mostly on the back of reduced supply from major uranium producers, us included,"** the management of Kazatomprom commented on the company's performance in 2018.

Producers' decisions to reduce production improved the market mood that resulted in spot sales (spot contracts providing for in-year deliveries) hitting a record high of nearly 90 million pounds (40 thousand tons) of uranium oxide concentrate (U3O8) in 2018. Within a single year, the spot price increased from USD 24 to USD 29 per pound.

"We showed much progress both strategically and financially, with its culminating point being our successful initial public offering (IPO) in November," Galymzhan Pirmatov, Chairman of the Board of Kazatomprom said. **"We are happy to see all of our key financial indicators growing."**

In 2018, Kazatomprom generated USD 1.1 billion in consolidated revenue, up 58% year-on-year (all amounts in this article are converted at the exchange rate of the National Bank of Kazakhstan as at 2 April 2019 – RN). Operating profit soared 138% year-on-year to USD 204 million. Adjusted net profit for 12 months of 2018 amounted to USD 175.8 million, a sizable increase of 112% over the year. Adjusted EBITDA increased 36% year-on-year to reach USD 345.6 million in 2018.

To the beginning of the section.