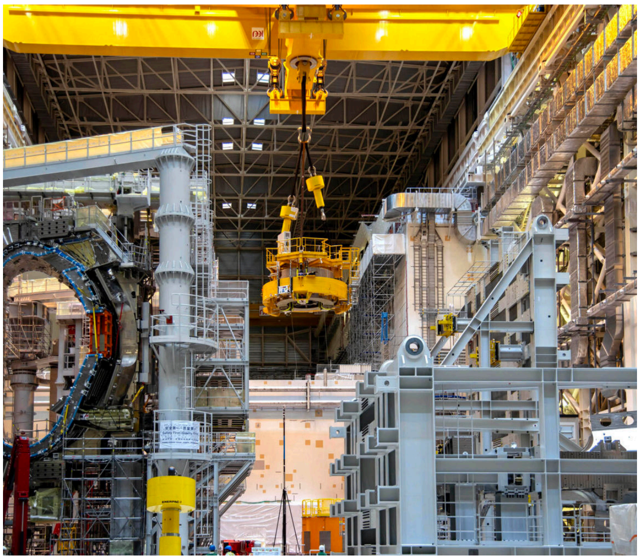
ROSATOM NEWSLETTER

01.

STORIES

Benefits of Russian Nuclear Power Technology
Nuclear Medicine Without Borders
NIITFA: Medicine and Beyond



02.

TRENDS

Thermonuclear Fusion: On the Path to Power Generation

03.

REGIONAL STORIES

Hungary. Rosatom's Energy Unites Countries
Middle East. Construction in Full Swing
Uzbekistan. Uzbekistan Building Nuclear Future

Benefits of Russian Nuclear Power Technology

Rosatom is committed to sharing its technologies with friendly nations, providing them with energy and technology solutions for adopting a new economic paradigm and improving the quality of life. The partners of the Russian nuclear corporation reap these benefits, even during the construction of nuclear power plants. These topics, along with the prospects for Russian nuclear technologies in space, were discussed at the international Russian Energy Week (REW) forum held in Moscow on October 15-17.

Rosatom holds about 90% of the global market for nuclear new build. There are 110 Russian-designed reactor units constructed globally. "Russia is the world's only country with competencies across the entire nuclear energy chain. When building new capacity abroad, we do not merely construct power generation facilities but, together with our partners, create the future of the energy sector and related industries, establishing a solid foundation for the development of personnel, science, and technology on the national scale. These are the principles we follow when building nuclear stations in Egypt, Bangladesh, and Türkiye. We intend to deepen nuclear cooperation with countries of the Global South and within BRICS," Russian President Vladimir Putin said at REW.

What secures Rosatom's unrivaled position in the global market is the complete self-sufficiency of the Russian nuclear industry. "No other corporation brings together all the competencies required, from uranium exploration and mining to decommissioning and environmental projects," Rosatom Director General Alexey Likhachev said at the plenary session.

Russian nuclear engineers have been sharing nuclear technologies since the industry's inception, building research and power reactors worldwide. "Sharing technologies with the countries striving to build a prosperous future is in our DNA," Alexey Likhachev emphasized.

Today, Rosatom is constructing 24 power reactors, has won a contract for a two-reactor power plant in Kazakhstan, and has agreed to expand Uzbekistan's nuclear project, with two large and two small reactors to be built instead of six small modular reactors. Belarus has expressed its intent to construct a third large reactor; a roadmap for nuclear new build has been signed with Ethiopia, and negotiations with some other countries are in their final stages.

Benefits during operation

Two reactors of the Belarusian nuclear power plant supply the country with clean energy, which is used, among other things, for electromobility and heating. These systems — from generation to motor and boiler — are entirely carbon-free. There are 41,000 electric vehicles in the country, and the number is projected to reach 50,000 by the end of this year.

In Belarus, newly-built apartment buildings and individual homes are being converted to electric heating. BelEnergo, which supplies heat and electricity to the country's major cities, has installed electric boilers with a total capacity of 916 MW.

The country is not stopping there, working on digitalization, additive technologies, nuclear medicine, energy storage systems, and more in cooperation with Rosatom. "Those who use nuclear energy have the opportunity to strengthen their energy security and also to create conditions for improving the quality and comfort of life for their people. I would go as far as saying nuclear energy is an engine of progress. And those who have nuclear energy will always be a step ahead," said Belarusian Deputy Prime Minister Viktor Karankevich.

Benefits during construction

Türkiye is already benefiting from its Akkuyu NPP, now under construction. As stated by Türkiye's Minister of Energy and Natural Resources, Alparslan Bayraktar, local content — meaning the share of goods and services provided by Turkish companies — exceeds 50%. "This will help us build the second and third plants, or even plants outside Türkiye. Perhaps, our companies can participate in the Hungarian project or elsewhere," he noted.

The global nuclear community has set a goal to triple the total installed nuclear capacity. Along with finance and technology, we need human capital to achieve it, the minister explained. And this is what Türkiye has: hundreds of Turkish students have received degrees in nuclear engineering from Russian universities and are already working at the Akkuyu NPP. "Developing human capital is the most important part of our nuclear energy program," the minister concluded.

An example of how the nuclear industry positively impacts individual lives is the story of Sohyla Aboudeif from Egypt, a recipient of the IAEA Marie Skłodowska-Curie Fellowship, who also spoke at REW. Sohyla Aboudeif received her higher education in Russia, completing her postgraduate studies at the Moscow Institute of Physics and Technology. She did an internship at the Novovoronezh Nuclear Power Plant. Sohyla now works on automating and digitalizing manufacturing processes. She is also engaged in R&D activities: together with colleagues, she has created a facility for processing plastic using ionizing radiation.

Space plans

Speakers at REW also addressed how nuclear technologies shape the future. One of the most exciting areas is space exploration. "Nuclear energy is the key to the Solar System. We cannot travel far on chemical engines, and humanity would be doomed to the low Earth orbit," cosmonaut Oleg Kononenko said at REW.

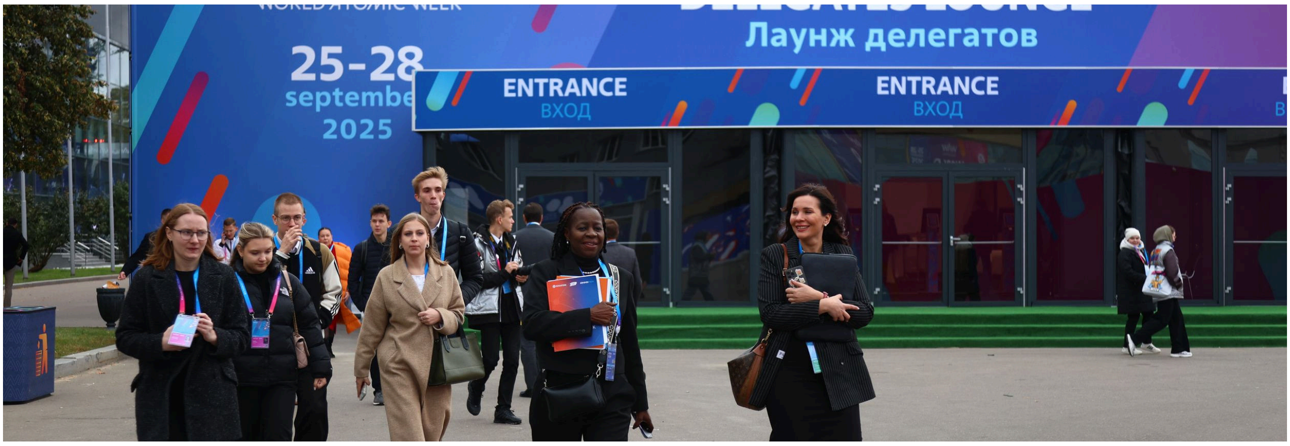
Rosatom and the Russian space agency Roscosmos are working on building a lunar nuclear power plant. It is needed there to live, work, conduct experiments, extract water ice from polar craters, produce oxygen and hydrogen for rocket fuel, and power laser communication systems. The long-term perspective includes nuclear reactors to power life support systems of extraterrestrial colonies.

"We are inspired by the task of creating a nuclear power plant on the Moon. Humanity has never solved such tasks before. But they are outlined in the national space project, so we are simply obliged to solve them," Alexey Likhachev said in conclusion.

Photo by: Roscongress, Akkuyu Nuclear JSC, ASE JSC

Nuclear Medicine Without Borders

Rosatom, a global leader in the production of medical isotopes, is expanding its capabilities and offerings in nuclear medicine while strengthening international cooperation in this field. Recent activities include participation and partner meetings at the Bioprom 2025 and World Atomic Week international forums.



Bioprom 2025

The Bioprom 2025 forum held in early October in Gelendzhik, Russia featured a Rosatom-organized session titled “Regulatory Strategy in the Lifecycle of Radiopharmaceuticals.” During the session, experts in radiopharmaceuticals considered challenges in the legal regulation of nuclear medicine, transfer of innovations, pre-clinical and clinical trials, application of new methods and technologies, and personnel training.

As noted by the discussion moderator, Ekaterina Chaban, Head of Scientific and Technical Cooperation and Director for Advanced Projects at Rosatom, safeguarding citizens’ health is a priority for Russia, and the role of nuclear medicine within this priority is growing. “Rosatom subsidiaries produce a wide range of radioisotope products for diagnosing and treating cancer and other diseases. There are also many promising radioisotopes that are yet to be fully studied,” Ekaterina Chaban said.

Session participants shared insights on Russian and international practices for registering innovative radiopharmaceuticals. Russian Deputy Minister of Health Sergey Glagolev spoke about the accelerated introduction of innovative drugs, and conditions for their rapid inclusion in clinical guidelines and the state guarantee program. Yekaterina Yakovleva, Head of the Drug Registration Department at AstraZeneca Pharmaceuticals (representative office in Russia and Eurasia), noted that leading international pharmaceutical companies viewed radiopharmaceuticals as the market of the future and were pinning much hope on it.

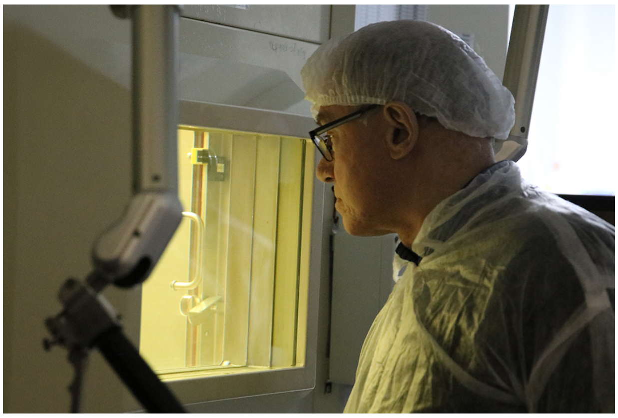
The session also discussed the accessibility, availability and safety of advanced methods and drugs for radionuclide diagnostics and therapy.

World Atomic Week

At the World Atomic Week international forum held in Moscow in September, representatives of many different nations shared their experiences of cooperating with Rosatom in the field of nuclear medicine.

Baktygul Sultangaziyeva from Kyrgyzstan, who is in charge of the project to build a nuclear medicine center in the country, reported the Bishkek Institute of Oncology and Radiology used to have a nuclear medicine department during the Soviet era, which closed in 1990. Since then, no medical research or treatment using nuclear technologies has been conducted. However, the country needs them critically as approximately 7,000 new cancer cases are detected annually in Kyrgyzstan, with about half proving fatal within a year. The situation began to change in 2022 when, with assistance from Rosatom and the IAEA, preparations began to open a nuclear medicine department at the National Center for Oncology and Hematology in Kyrgyzstan. Rosatom provided diagnostic kits free of charge.

The nuclear medicine department received its first patients in June 2024. Since then, over 400 patients have been examined. The next step will be to establish a nuclear medicine center in Bishkek. “This will be a fully-fledged, large center with a radiopharmacy, a cyclotron, PET scanners, and gamma cameras, featuring GMP-compliant production of radiopharmaceuticals, molecular imaging, radiotherapy, and theranostics. This is what we are working on with the Russian nuclear corporation Rosatom,” Baktygul Sultangaziyeva explained. The center will cater not only for oncology patients but also for those with cardiac, endocrine, and other diseases. “This is the gold standard of medical care for the people of Kyrgyzstan,” Sultangaziyeva emphasized.



Danica Grujičić, Chair of the Serbian Society for the Fight Against Cancer and a neurosurgeon, spoke about how she was impressed by the achievements of Russian nuclear medicine. “This applies mostly to neuroblastomas, given that you have started working with actinium,” Grujičić noted. She said that Serbia had decent diagnostic capabilities, which nevertheless required development, while therapeutic potential was underdeveloped.

Currently, Serbia imports all radiopharmaceuticals it uses; however, the country is exploring the possibility of opening nuclear medicine centers in cooperation with Russia, similar to Kyrgyzstan. “What pleases me is that more and more young colleagues choose nuclear medicine as their specialty, showing growing interest in it. I believe the future lies with nuclear medicine,” Danica Grujičić concluded.

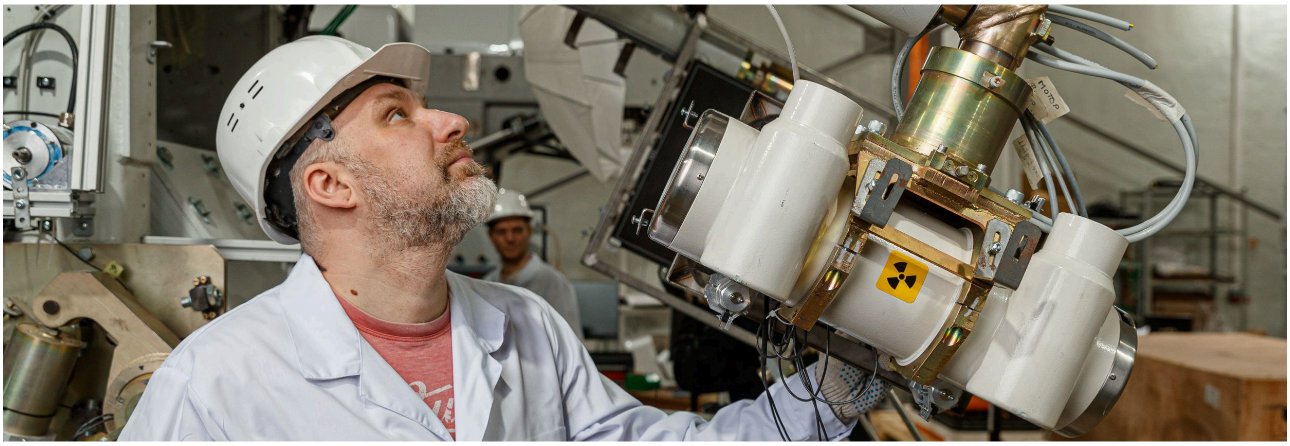
Ahmed El Sobky, Chairman of the Egyptian Healthcare Authority, reported that he had discussed the improvement of nuclear medicine infrastructure with Russian colleagues on the sidelines of the forum. Alongside Egypt, this pertains to other African countries. “The negotiations are progressing very successfully. We hope to cooperate with Rosatom in this field,” Ahmed El Sobky said.

These examples demonstrate the global medical community is interested in the nuclear medicine technologies offered by Rosatom and other relevant Russian organizations and a more intensive international cooperation in this field.

Photo by: JSC Rosatom Science, newspaper “Strana Rosatom”

NIITFA: Medicine and Beyond

The Research Institute of Technical Physics and Automation (NIIITFA) is celebrating its 65th anniversary. Historically known for producing radiation equipment, radioisotope thermoelectric generators, and non-destructive testing devices, the institute is now developing an export version of the Brachyum gamma therapy system, working on biofabrication of tissues and organs and preparing to manufacture titanium implants using additive technology.



NIIITFA (formerly the All-Union Research Institute of Radiation Engineering, VNIIRT) was established on October 6, 1960. Serving as the leading research organization for radiation engineering and technologies, the institute grew rapidly.

At VNIIRT, researchers studied the effects of ionizing radiation on various materials and food products. They developed inspection instruments, such as gamma radiography equipment for non-destructive testing of metal structures, and power sources, such as radioisotope thermoelectric generators (RTGs). The latter are used to power low-consumption devices in the Arctic and space. All Soviet and Russian RTGs were developed at NIIITFA.

For a long time, the institute had had the only product for nuclear medicine in its portfolio, the Agat gamma therapy system, which works as follows: according to an irradiation map developed by a doctor and a medical physicist, isotopes are mechanically guided to the tumor, which is then destroyed by high-energy gamma quanta.

In 1989, the institute established a branch in Saransk. This is where they produce Geiger-Müller gas-discharge counters, better known as Geiger counters, and ionization chambers for neutron flux measurements.

Current activities

Today, NIIITFA specializes primarily in the development and production of nuclear medicine equipment. Its flagship product is the Brachyum gamma therapy system designed for brachytherapy of pelvic organs, breast, esophagus, nasopharynx, and oral cavity. Brachyum is already being supplied to Russian clinics, with 10 such devices to be delivered to hospitals in 2025-2026.

The institute's production capabilities fully meet the needs of the Russian market, so NIIITFA plans to produce an export version of the device by the end of 2027. It will feature improved proprietary software, while its dimensions and weight will be reduced by approximately 20%. Applicators, through which the radiation source is inserted, will also be improved. Special adapters will be introduced to enable the use of imported applicators. The upgraded features will be later incorporated into the Russian version, and the process of updating the registration documents has begun.

NIIITFA is also developing a 1.5T magnetic resonance imaging (MRI) scanner. Such scanners are the ‘workhorses’ of medicine, well-proven in daily practice. NIIITFA plans to supply 25% of the Russian market, which amounts to approximately 40 scanners per year. The first three serial installations are scheduled for delivery and trial operation in 2027. In 2028, the institute will manufacture 10 MRI scanners, with plans to reach full production capacity in 2029.

Future prospects

3D implant printing is among the most interesting areas NIIITFA is engaged in. This is where Rosatom’s subsidiary is involved in every link of the supply chain, from the development of powders and specialized software to final products and sterilization. Working in collaboration with the Sechenov First Moscow State Medical University, NIIITFA is developing osteotropic implants, having already created an implant coating that improves implant integration. The joint research results are intended for an investment project involving 3D printing of custom and serial products. Work is underway to prepare a feasibility study for the project.

Furthermore, NIIITFA is involved in research of biofabrication of tissues and organs. Scientists have managed to grow an equivalent of a rabbit blood vessel in a biofabricator. It was successfully implanted into the animal’s femoral artery. In the future, such technologies will allow for the replacement of damaged tissues and even organs in patients. Work in this field continues, with scientists hoping to showcase new developments at the Future Technologies Forum in February 2026.

Space plans

NIIITFA has not abandoned nuclear instrumentation either. The institute continues to produce, among other things, boron concentration meters. These are also planned to be upgraded as requested by Indian and Russian customers. Specifically, engineers are considering the option of moving the signal processing unit from the hot zone to a separate cabinet. The institute also plans to further develop the RTG technology. This will advance alongside the ongoing development of the Northern Sea Route and space exploration, primarily of the Moon and Mars.

Photo by: Rosatom State Corporation

Thermonuclear Fusion: On the Path to Power Generation

The IAEA has published its World Fusion Outlook 2025 presenting key projects and recent advancements in technology, regulation and strategies, along with the first financial assessment of fusion energy's costs and impact on the global energy sector and economics. The most important trend is the transition from research and development to construction and practical application. Russia, a world leader in fusion energy, is shaping these trends through the participation in international projects and launch of its own initiatives.

Key trends

“The fusion energy landscape continues to develop at an extraordinary pace. What was once confined to experimental research and long-term aspirations is now rapidly becoming a cornerstone of national energy strategies and industrial planning,” says IAEA Director General Rafael Grossi in the foreword to the World Fusion Outlook report.

The main trends can be summarized as follows: countries are formulating dedicated fusion policies. Companies are selecting sites and designing the first generation of power plants. According to the IAEA, over 160 fusion facilities are planned, under construction, or in operation worldwide. Regulatory bodies are beginning to issue tailored guidance, with nearly 40 countries already having dedicated fusion energy programs. End-users are discussing power purchase agreements, utilities are forming strategic alliances with fusion technology developers, and major industries (automotive, conventional power generation, aerospace, and digital technology) are incorporating fusion advancements into their long-term energy portfolios. Global private investment in the related technologies has exceeded USD 10 billion.

“This convergence of scientific progress, commercial interest and policy attention marks a decisive shift: fusion energy is entering a new phase of real-world implementation,” Rafael Grossi comments.

In 2024, the IAEA established the World Fusion Energy Group to bring together public and private stakeholders, research institutions, academia and regulatory authorities. The purpose of the group is to share experience and build connections and mutual understanding.

Progress in controlled fusion

The International Thermonuclear Experimental Reactor (ITER) is the world’s mainstream fusion project. Russia is both a project initiator and a key contributor. Russian engineers are currently preparing to manufacture first-wall panels from tungsten (previously planned to be made from beryllium) and are developing technologies for applying to them a boron carbide coating intended to prevent impurities from entering the plasma. Russian research institutes are planning cyclic thermal tests using electron beams and quality checks on the coating through irradiation with pulsed plasma clusters. For ITER, these are critically important studies that directly impact the project’s future. The Russian party fulfills all of its obligations regarding the supply of equipment for ITER within its responsibility.

The report lists ongoing fusion projects in various countries, such as the joint Japanese-European JT-60SA, China’s EAST, America’s SPARC and NIF, Germany’s W7-X, and others. Experiments on these facilities have already yielded important results, including plasma temperature and confinement time records.

National strategies

As noted in the IAEA's World Fusion Outlook, many countries have updated their fusion energy strategies over the past year, now expanding them beyond pure research programs and into the components of energy, industrial, and foreign policies. "This reflects a broader recognition that fusion energy is progressing towards practical viability. With an eye on the opportunities that lie ahead, governments are making investments and developing policies to support future deployment," the authors of the report note.

For instance, Russia is working on the Thermonuclear Fusion Technologies federal program as part of its national umbrella-like New Nuclear and Energy Technologies project. Its primary goal is to conduct necessary research and develop fundamental technologies for future fusion energy solutions.

Russia

Russia operates several fusion facilities, such as the T-15MD and T-11M tokamaks and the Globus-M2 spherical tokamak.

Russian engineers have prepared the preliminary design for a next-generation tokamak, the so-called Tokamak with Reactor Technologies (TRT). Construction is planned to begin in the coming years. Based on decades of national experience in magnetic confinement fusion, the TRT project is expected to lay the foundation for national research, which in turn will contribute to global fusion advancement. The TRT is anticipated to facilitate plasma physics experiments and advanced material tests and will be integrated into international research collaborations.

Legal framework

"Although there is currently no globally harmonized definition of a fusion power plant, many jurisdictions recognize the need to establish clear regulatory frameworks for fusion machines intended to produce electricity or heat for commercial use," the authors of the World Fusion Outlook write.

Countries are actively exploring approaches to regulating fusion energy. Some have already introduced regulatory norms for research-purpose fusion facilities. These serve as a basis and precedent for establishing a legal framework and can be applied to future fusion power plants directly or after necessary modifications.

The IAEA's report, likely due to timing constraints, does not include recent changes in Russian fusion energy regulations. On August 1, the Russian President signed Federal Law No. 342-FZ comprising amendments to the Law on the Use of Atomic Energy. According to the amendments, the legal foundations and principles regulating the use of nuclear energy and related aspects now extend to the fusion facilities under design or in operation, including those containing nuclear materials, specific non-nuclear materials, and radioactive substances intended for thermonuclear fusion reactions involving light atoms. The amendments will come into force on January 1, 2027.

High-temperature superconductors

A special section in the IAEA's World Fusion Outlook is dedicated to high-temperature superconductors (HTS). "By enabling higher magnetic field strengths in more compact geometries, HTS materials offer new pathways for accelerating fusion development and developing economically attractive final products," the report says. The document outlines the challenges faced in manufacturing, installing, and using HTS magnets. For instance, higher magnetic fields generate larger electromagnetic stresses, and tighter geometries increase plasma heat fluxes to the inner surface of the machine in the absence of mitigation. Nevertheless, the authors note the growing number of public and private projects using HTS magnets to reduce device size, construction costs, and development timelines.

Impact of fusion technologies on the energy sector and economy

Fusion technologies have advanced to a level where global assessments of fusion power plant costs have begun. For instance, the World Fusion Outlook cites another report, The Role of Fusion Energy in a Decarbonized Electricity System, prepared by the MIT Energy Initiative in collaboration with the MIT Plasma Science and Fusion Center and adapted for the IAEA publication.

The researchers acknowledge that future costs of fusion-based electricity generation are difficult to determine, so they assessed the impact of assumed cost ranges, also considering the learning curve. They used estimates of capital costs per kW of installed capacity, reflecting the costs of fusion power plants in the USA. The researchers noted that these would differ in other countries and depend on electricity prices, labor costs, and capital investment.

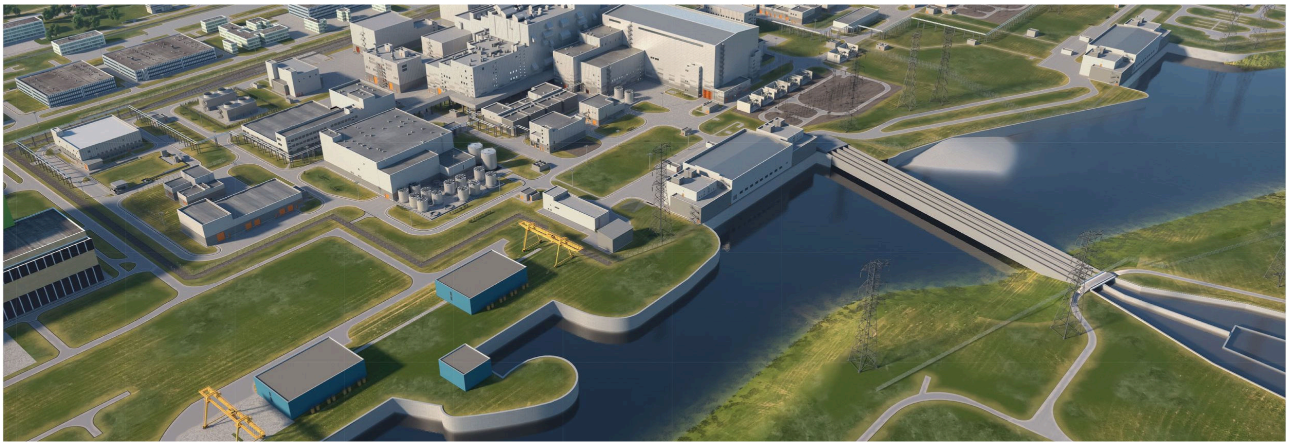
In the base case (USD 8,000/kW), electricity generation from fusion is estimated to grow from 2 TWh in 2035 to 375 TWh in 2050 and to 25,000 TWh by 2100. The share of fusion energy in global electricity production in the base case would reach 15% by 2075 and 27% by 2100.

The researchers also modeled the potential economic benefit of fusion energy: “Compared to a decarbonization scenario without fusion electricity, cumulative global GDP would be 0.4% higher in the base case (with fusion cost in 2050 at USD 8,000/kW) and 0.9% higher in the lower-cost (USD 5,600/kW) case. These results indicate that investments in developing and deploying fusion technology can create value for the global economy and support efforts to achieve decarbonization goals over the course of this century.”

Photo by: ITER Organization, NIIEFA JSC, ChMZ JSC

Rosatom's Energy Unites Countries

Hungary has issued permits enabling Rosatom to begin pouring first concrete for the Paks II Nuclear Power Plant. Alongside advancing the construction project, Rosatom is expanding cooperation with Hungarian communities: international photo exhibitions have opened in the cities neighboring the nuclear power plant, and a Russian delegation held a series of meetings on social infrastructure development and sister-city ties.



The Hungarian Atomic Energy Authority has issued permits allowing for the start of first concrete pouring for the foundation of Paks Unit 5, and construction of the nuclear island buildings. The advanced Paks II NPP is the first nuclear power plant being built to the Russian Generation III+ VVER-1200 design in the European Union.

"The licenses obtained enable Rosatom's engineering division AtomStroyExport as the general contractor to begin preparations for the first concrete pouring to take place in February 2026," said Alexander Merten, Senior Vice President for International Business Development at AtomStroyExport.

Issued as supplements to the general construction license from 2022, the licenses confirm that the construction project complies with strict international, European, and national nuclear safety requirements. The comprehensive safety approach, including the use of active and passive systems, ensures that all standards are met.

Equipment for the nuclear island

Earlier, Hungary approved the shipment of equipment for the nuclear island of the Paks II NPP. Rosatom's mechanical engineering division received confirmation from the Hungarian customer that the equipment was in full compliance with their requirements. According to the document, the Russian nuclear corporation may ship equipment for the nuclear steam supply system, which is being manufactured at the production sites of the mechanical engineering division.

The production facilities and equipment were inspected by experts from the audit team of the customer (Paks II. Ltd.) accompanied by representatives from the Hungarian Atomic Energy Authority as part of a supervisory audit. No issues were identified during the inspection, and the division continues to work actively on the project.

Currently, the production facilities of Rosatom's mechanical engineering division are manufacturing VVER-1200 reactors for the two power units of the Paks II NPP under construction. The manufacturing of steel blanks for Unit 5 began in 2024, followed by the same for Unit 6 in 2025. Also in 2025, manufacturing began on the reactor internals for the Unit 5 reactor.

Russian delegation in Hungary

Russian nuclear experts visited Hungary. The delegation included representatives from Rosatom, Russian nuclear host communities, and the Foundation for Assistance to the Development of Municipalities. The delegation visited Hungarian sister cities, met with their mayors, inspected social facilities, and visited the Paks II construction site. A meeting was also held at the National Parliament of Hungary, among other events.

"Partnerships with Hungary in peaceful uses of nuclear energy is a bright chapter in the history of our two countries, and a symbol of a long-standing, strong friendship. The relationships between sister cities are a clear example of this. We will continue to deepen cultural and social ties and expand mutual understanding between our peoples," said Tatyana Terentyeva, Rosatom's Deputy Director General for Human Resources.

"The Paks II construction project is grounded in the experience of building advanced power units at the Novovoronezh and Leningrad nuclear power plants. We are interested in developing industrial cooperation with the Voronezh Region, as well as adopting best Russian practices in urban development and social projects," said János Süli, a member of the Hungarian National Assembly.

Outdoor exhibitions in Paks and Kalocsa

Rosatom's engineering division, AtomStroyExport, has opened an outdoor exhibition titled "The Light Within Us" in the city of Kalocsa, which is located near the Paks NPP. The exhibition is dedicated to the celebration of the 80th anniversary of the Russian nuclear industry. It features the best photographs from Bangladesh, India, China, Egypt, Hungary, and other countries presented at the ASE International Photo Awards.

Another outdoor exhibition was opened in Paks. Titled "Energy of the Future," it showcases works by young Russian artists.

"For Paks, nuclear energy is the energy of the past, present, and future. That is precisely why I wish us all plenty of strength and energy so that we can reach the ribbon-cutting ceremony for the first concrete pouring as soon as possible as it will mark the beginning of a new nuclear development," said Anita Heringes, Mayor of Paks.

Photo by: ASE JSC, AEM-Spetstal plant, Rosenergoatom Concern

Construction in Full Swing

The reactor pressure vessel for El Dabaa Unit 1 has been delivered to the construction site in Egypt. The next step for the construction team will be to install it in its design position. Work is also progressing at full speed on the other three units. Here are the latest updates on the progress at El Dabaa and related business activities in the region.

The reactor pressure vessel for Unit 1 of the El Dabaa Nuclear Power Plant was delivered to the Egyptian site in late October. Its sea voyage from Saint Petersburg, Russia, took 20 days.

The reactor vessel is a key component of the reactor unit, housing the core where the controlled nuclear fission chain reaction occurs. It is leak-tight, withstands high pressure and temperature, and guarantees the safety and reliability of the power unit. The vessel weighs more than 330 metric tonnes.

"We are about to pass this year's major milestone as we are preparing to place the Unit 1 reactor vessel in the design position. The entire team is united by a common goal, mobilized, and focused on achieving this result," said Alexey Kononenko, Vice President of AtomStroyExport and Director of El Dabaa Construction Project.

In mid-October, workers installed the retaining frame at the first unit of the nuclear power plant. This welded steel structure located in the reactor pit is designed to securely hold the reactor vessel. The retaining frame was delivered to the site in individual segments, including 48 beams, the outer shell, and circular flanges, which were then welded together into a single structure.

"The El Dabaa NPP construction project is of strategic importance for our country, and every successful step brings us closer to building an advanced facility that will contribute to Egypt's sustainable development and energy security for decades to come," said Dr. Sherif Helmy, Chairman of the Board of Directors of Egypt's Nuclear Power Plants Authority.

The retaining frame is more than 6.7 meters in diameter and weighs over 28.7 metric tonnes. For the first time ever in the construction of a VVER-1200 power unit, the retaining frame was integrated into a pre-assembled rebar cage. This solution moved complex operations out of the primary installation area, enabling continuous installation of the molten core catcher and other components of the reactor unit while adhering to safety, quality, and time requirements.

At El Dabaa Unit 2, workers finished concreting the third level of the inner containment shell in the reactor building. The process took approximately 24 hours.

In late October, construction crews poured concrete for the foundation slab of the nuclear service building with controlled access staff rooms at Unit 4. This is one of the key infrastructural buildings ensuring safe work of the personnel in radiation-protected environments. Workers finished concreting operations two months ahead of schedule by applying the best practices accumulated during the construction of the three previous power units.

Business activity

Egypt is not the only country in the region to be among Rosatom's partners. In early November, the Russian nuclear corporation and the Algerian Atomic Energy Commission (COMENA) held their second joint seminar in Algeria for key stakeholders and companies of the country's healthcare sector. Speaking at the opening ceremony, Algerian Minister of Energy, Mines and Renewable Energy, Mohamed Arkab, highlighted the historically strong ties between Russia and Algeria. He stated that the Algerian government was placing particular emphasis on the fight against cancer and the development of nuclear medicine. The Minister expressed hope that the experience accumulated by Rosatom in this field would benefit Algeria.

Rosatom experts presented a wide range of nuclear medicine solutions offered by the Russian nuclear corporation. The offering includes the production and supply of medical isotopes, radiopharmaceuticals, diagnostic and therapeutic equipment, as well as construction of medical infrastructure and multi-purpose irradiation centers for medical and food products. Furthermore, Rosatom manufactures and supplies products for prosthetics, offers additive technology solutions for implantology and prosthetics, and provides services for inbound medical tourism.

"Rosatom offers not just a product, but an entire ecosystem. This includes infrastructure development, personnel training, research, and assistance in developing science and education. We are ready to expand cooperation with our Algerian partners to make these solutions available in your country," said Igor Palamarchuk, Deputy Director General for the Middle East and North Africa at Rosatom.

Photo by: ASE JSC, Rosatom International Network

Uzbekistan Building Nuclear Future

From making an excavation for the country's first nuclear plant to hosting international forums, Uzbekistan is working actively to expand its multifaceted cooperation with Rosatom. Uzbek experts are engaged in discussing international safety standards for the nuclear industry. An angling team from Uzbekistan was among the winners of a fishing tournament for nuclear professionals from different countries.

Construction of Uzbekistan's small-capacity nuclear power plant (SNPP) has entered a pivotal phase. It involves excavating a pit for the foundation of a power unit with a RITM-200N reactor to be built in the Farish district of the Jizzakh region to a Russian design. Approximately 1.5 million cubic meters of soil will be excavated for the station, with the pit to reach 13 meters deep.

Rosatom Director General Alexey Likhachev and UzAtom Agency Director Azim Akhmedkhajaev gave the green light to the start of excavation work. Construction machinery extracted the first cubic meters of soil.

"Just as in all our international projects, we strive to increase local content in the construction of this SNPP. Much work will be done by subcontractors from Uzbekistan. Rosatom will build a station with a service life of at least 60 years and will provide all necessary support during its operation. We are looking forward to many decades of fruitful and mutually beneficial cooperation," Alexey Likhachev emphasized.

Currently, work is underway to conduct engineering surveys, finalize design, and set up a construction yard.

The final design of the nuclear power plant provides for the construction of two large power units with Generation III+ VVER-1000 reactors and two 55 MW power units with RITM-200N reactors. This will be the world's first facility to feature both high- and low-capacity reactors on the same site.

Nuclear and radiation safety

Experts from Uzbekistan participated in the 19th International Nuclear Forum on Safety of Nuclear Technologies and Safety Culture. The forum was held at the Rosatom Technical Academy in Saint Petersburg, Russia, bringing together industry professionals from 10 countries. The forum discussed nuclear and radiation safety issues at every stage of the lifecycle of nuclear energy facilities.

"Safety is a personal value for every nuclear industry employee. In 2024, we recorded the lowest number of fatal injuries in the entire history of the nuclear industry. 94% of Rosatom's subsidiaries operate without injuries; the number of fires has decreased sixfold; zero accidents at hazardous production facilities and a lost-time injury frequency rate of 0.07 are the best indicators among Russian industrial companies," said Sergey Adamchik, Chief Inspector at Rosatom.

Fishing tournament

Rosatom organized its third international fishing tournament. The competition was held for the first time in Türkiye, near the Akkuyu NPP construction site. A team from Uzbekistan won the Biggest Fish category. The tournament winner was the team from Hungary, with teams from Indonesia and Egypt taking second and third place.

The tournament featured 14 amateur anglers as well as reporters and representatives of the expert community from seven of Rosatom's partnered countries, which are either working on or planning nuclear energy projects. Employees of Akkuyu Nuclear JSC also participated in the event. When weighing the catch, they checked the caught fish for radiation using specialized equipment and confirmed it was totally safe.

"This international fishing tournament is an opportunity for us to demonstrate our careful attitude towards nature when building large nuclear energy facilities. It is important that representatives of partner countries see with their own eyes our responsible approach to preserving the ecosystems. The tournament also shows that the infrastructure surrounding a nuclear power station transforms the region into a comfortable place for living, recreation, and tourism, creating new opportunities for several generations of local residents," noted Alexandra Yustus, Deputy CEO for Communications at Rosatom International Network.

"This fishing tournament held in the Akkuyu NPP host community demonstrates that the facility is open to the public, and also confirms that it is safe for local ecosystems to build a nuclear power plant. We hold annual competitions for Turkish anglers at the regional level, and this year we were happy to welcome international contestants at the site. Such tournaments show that nuclear power plants are built to meet high environmental standards and do not impact the natural environment," said Sergey Butskikh, CEO at Akkuyu Nuclear JSC.

As part of the tournament, the Akkuyu Nuclear team organized a visit to the under-construction Akkuyu NPP and a cultural program for the tournament participants.

Photo by: Uzatom Agency, Nuclear Safety Institute of the Russian Academy of Sciences (IBRAE RAN), Akkuyu Nuclear JSC