For Better Performance of Our Clients
About Us
Joint-Stock Company Rusatom Automated Control Systems (JSC RASU) is part of the State Atomic Energy Corporation Rosatom.

The company combines long-term experience of the Rosatom companies and functions as a single industry integrator of the I&C and Electrical Engineering businesses.

RASU is a modern centre for development of digitalization, automation and information technology.

Our products: conventional I&C and IoT solutions, digital systems, smart electrical equipment. Many years of experience gained in implementation of multi-level control systems for nuclear power plants, have generated products focused on critical infrastructure facilities, including safety related manufacturing companies for various purposes.

Our Target Production Facilities:

RASU is a single point of access to the Rosatom technologies on automation and power supply. We offer integrated customer-oriented solutions and provide support throughout the life cycle of our products: from design to decommissioning of facilities of any complexity.

- Nuclear power
- Conventional power
- Metal industry
- Alternative power
- Oil and gas industry

Over 60 years of successful experience in implementation of NPP I&C projects

30 partners among manufacturing, design and research Russian companies

Over 20 power units equipped with our I&C systems in 14 countries

Over 2,300 employees in I&C and EE businesses. The average age of our team is 38

Over 20 power units equipped with our I&C systems in 14 countries
Our Values
Responsibility
We appreciate efficient cooperation. Knowing that our clients and partners are solving critical tasks, we act responsibly in each project.

Focus on Clients
Our goal is your result. We involve the best available technologies and human resources to find optimal solutions for the tasks we face.

Openness
We are open to everything new—new technologies and products, new markets and regions, new partners and clients. Our openness and readiness to work with every 'player', small or large, is the key to success.

Global Reach
Business development requires the international expertise. We are involved in active cooperation with the overseas partners. We organize joint and localized production of foreign equipment. The well-proven products and successful developments are used in our projects.

Safety and Security
Safe and therefore efficient production is our top priority. All the applied solutions are compliant with the requirements for nuclear power facilities. We pay special attention to information security. Cybersecurity is the key notion for us.

Going Forward
We always aim high—that is why we continuously develop and implement our own R&D solutions and create smart products with high potential for development.

Efficiency
What makes our projects successful is the combination of proven solutions, optimal terms and conditions provided by top professionals of the industry.
Our Approach
WE PUT ALL BEST THINGS TOGETHER TO GET THE BEST RESULT FOR THE CUSTOMER

Specialists
We are a team of highly qualified professionals, and we can offer a variety of integral and balanced solutions.

Partners
Throughout the years, we have established strong partnership with the leading players in the market. This enables us to use the world's leading technologies to achieve the best result.

Technologies
We use state-of-the-art technologies. All design, engineering and supporting processes are fully digitalized and based on digital twins.

Our Advantages
• A specialized company in Rosatom
• Proven expertise of a mature player
• Experience in implementation of complex large-scale projects
• Access to the leading Russian and global technologies and developments
• A single center for I&C and electrical engineering capabilities in the nuclear industry
• The unified technical policy in I&C and electrical engineering
• Support at all work stages
• Optimal implementation time
• Flexible financing conditions

Our approach is to find the best possible solution for each particular client.

Timeframe
With the deep understanding of processes, we offer solutions which can be implemented within an optimal timeframe.

Expertise
We implement projects of any scale and complexity. Our expertise is proved by failure-free operation at critical facilities – nuclear power units in Russia and abroad.
Entire Rosatom on Our Side
We use our in-house developments and mature production capacities of Rosatom companies. That is why we always ensure high quality, optimal cost and meet the project time schedule.

RASU guarantees compliance with all specified indicators. The products are qualified for compliance with the strictest safety and security requirements, including information security, which is critical in view of the potential cyber threats.

With all necessary resources and infrastructure available within the industry, our clients may be sure that we fulfill our obligations on every stage of the lifecycle of our solutions.

Partners in the Nuclear Industry — Developers of I&C and Electrical Equipment

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Quality Strategy
RASU gives absolute priority to high quality of the products. We ensure safe and reliable operation of process equipment. In terms of safety, we strictly follow the internationally recognized standards of IAEA, IEC, WANO.

The scope of RASU certification covers both nuclear power facilities and industrial enterprises of other sectors.

Regardless of the project location, RASU participates in the inspection and supervision activities at all stages of the project together with the customer and the regulatory body. For international projects, all stakeholders are subject to mandatory qualification by the relevant national regulatory authority, and the equipment is subject to certification.

After the facility is commissioned, supervision goes on up to the final stage of its lifecycle. In addition to the conventional test procedures, real-time 'digital twins' are developed for critical systems. Such technology ensures online prediction of behaviour and condition of the facility, and reduces the time needed for decision making in case of emergency.

The Quality Management System of the company is improved continuously with regard to the strategic development goals of RASU.

Compliance of our products and services with high quality standards has been proved by the audits of international supervisory and regulatory bodies.

RASU performs the full cycle of qualification and certification of its products, works and services in accordance with the Russian and international regulations.

Strict quality requirements are also imposed on the products of external suppliers. We inspect factories on a regular basis and check all the materials, parts and components.

We have all necessary permissions to work at nuclear facilities.

List of licenses – see Appendix 1
Ensuring compliance of our products and services with the best international practices and standards requires extensive use of global cooperation. JSC RASU cooperates with recognized global leaders in all areas of its activities.

**RASU Technological Partners**

- **Radiation Monitoring Systems**
- **Ergonomics, Human-Machine Interface**
- **I&C Special Systems**
- **Electrical Engineering**

Forms of cooperation are diverse: from implementation of joint projects to localization of a partner's products in Russia. Its main goal is to provide our customers with solutions compliant with the highest requirements.
Key Events at JSC RASU

- Establishment of consortium of NPP I&C designer companies
- Start of implementation of activities at Kalinin NPP, Unit 4
- Startup of Kalinin NPP, Unit 4
- Establishment of RASU Electrical Engineering branch
- Contract for LVSG supply for Kudankulam NPP, Units 3–4
- Contract for modernization of Kalinin NPP, Unit 1
- Contract for I&C supply for Rooppur NPP
- Contract for I&C design for El Dabaa NPP
- Contract for supply of 0.4V switchgear for Kursk NPP, Units 1–2
- Startup of Rostov NPP, Unit 4
- Startup of Leningrad NPP 2, Unit 1 (VVER-1200, 3+)
- Contract for I&C design for Akkuyu NPP
- Contract for modernization of Ust-Dzhegutinskaya and Barsuchkovskaya small hydro power plants (RusGidro)
- Startup of Rostov NPP, Unit 3
- Appointment of JSC RASU as Rosatom I&C integrator
- Startup of Beloyarsk NPP, Unit 4
- Obtaining Rosatom I&C Chief Designer status
- Involvement in contracts for I&C supply for Hanhiki NPP and Paks-II NPP
- Contract for I&C supply for Kudankulam NPP – Proryv (Breakthrough) Project
- Startup of Novovoronezh NPP, Unit 6 (VVER-1200, 3+)
- Contract for I&C supply for Kudankulam NPP – Proryv (Breakthrough) Project
- Startup of Rostov NPP, Unit 2
- Startup of Rostov NPP, Unit 2
- Startup of Rostov NPP, Unit 3
- Startup of Novovoronezh NPP, Unit 6 (VVER-1200, 3+)
- Startup of Rostov NPP, Unit 4
- Startup of Leningrad NPP 2, Unit 1 (VVER-1200, 3+)
Geography of Supplies for Nuclear Power Industry

Geography of JSC RASU Supplies Covers almost all the Continents.

JSC RASU performs activities on design, engineering, supply and implementation of I&C and equipment on the territory of the Russian Federation, as well as in Europe, Asia, Africa. Only referent solutions proven at Russian nuclear facilities are used in all foreign projects.

New Projects Implemented in Nuclear Power Industry

**Russia**
- **Kalinin NPP**: Modernization of I&C within activities on Unit 1 lifetime extension.
- **Kursk NPP-2**: I&C basic design, package supply, integration activities.
- **Leningrad NPP-2**: Package supply of I&C for Unit 2, integration activities.
- **Novovoronezh NPP**: Package supply of I&C for Unit 3, integration activities.
- **Rostov NPP**: Package supply of I&C for Unit 4, integration activities.
- **Balakovo NPP**: Turnkey modernization of ITS/SPDS for Unit 4 (from RS and basic design to supply and installation supervision).

**Turkey**
- **Akkuyu NPP**: I&C design documentation, package supply for Units 1-4.

**Iran**
- **Bushehr-2 NPP**: Package supply of I&C (export version) for Units 2-3, integration activities.

**India**
- **Kudankulam NPP**: Package supply of I&C (export version) for Units 3-4, integration activities.

**Hungary**
- **Paks-II NPP**: I&C design documentation on package supply for Units 5-6.

**Bangladesh**
- **Rooppur NPP**: Development of I&C design documentation and package supply of I&C equipment for Units 1-4.

**Egypt**
- **El Dabaa NPP**: Development of I&C design documentation and package supply of I&C equipment for Units 1-4.

**Finland**
- **Hanhikivi-1 NPP**: I&C design documentation in compliance with EU and Finnish regulatory base.

**Note:**
1. The VVER-1200 reactor design of generation 3+ is the main export product of Rosatom State Corporation, implemented by using automated (digital) design.
2. The VVER-1200 power unit of generation 3+ has four active independent safety system channels which are redundant for each other, and a combination of passive safety systems which operate regardless of the human factor.
3. Software & Hardware tools of the design comply with the European requirements for redundancy, independence and reliability.
4. I&C systems used at LNPP-2 will be used as reference in Finland, Hungary, Turkey.
Our Experience in Non-Nuclear Markets

JSC RASU uses more than 25 years of experience in implementing large-scale projects in the oil and gas sector of the Rosatom companies and prepares expert proposals for non-nuclear industries.

For a quarter of a century, the company has developed and implemented equipment and control systems of various scale and complexity: from local facilities to the territorially distributed enterprises.

During the whole period of work the Rosatom companies use the state-of-the-art technologies. The generally recognized result was an increase in the efficiency and safety of operation of oil and gas facilities in Russia.

- 1996 — NIIIS named after Y. Sedakov, the first gas well is automated
- At this point the Gazprom companies have had the following facilities automated
  - More than 12 gas distribution stations
  - 40 Linear Production Departments
  - 1200 control panels
  - 27 000 km of main gas pipelines
- The total cost of the supplied products amounts to over 35 billion rubles.

Today JSC RASU provides the Russian market with a competitive product. We are ready to respond to the request of our time and deliver the equipment corresponding to the best practices, with a cost lower than one of Western counterparts while providing more prompt technical support.

Strategically Important Projects on Non-Nuclear Markets

Since 2015, we have implemented a number of strategic projects related to the development and implementation of import-substituting equipment in the area of activity of large oil and gas corporations and their subsidiaries.

Recently implemented projects:

I&C modernization of South-Balyk Gas Compressor Station 1 (GCS-1)

Customer: PJSC Rosneft Oil Company
Project Duration: 2 years

As a result of modernization, Allen Bradley’s equipment was replaced with domestic one. At the same time, the amount of automation equipment with the maintained scope of the existing functionality and implementation of new one has been significantly reduced.

The customer noted the advantages of Russian development and components:
- the possibility of building centralized and distributed control systems
- High accuracy of measurements
- High resistance to cyber-threats

I&C Refurbishment for the Nizhnevartovsk oil refining facility.

Customer: PJSC Rosneft Oil Company
Project Duration: 2 years

Today JSC RASU provides the Russian market with a competitive product. We are ready to respond to the request of our time and deliver the equipment corresponding to the best practices, with a cost lower than one of Western counterparts while providing more prompt technical support.
Personnel

The high level of JSC RASU specialists’ qualification and competence allows to ensure compliance of the company’s products and services with the global quality and technology level. Our employees have many years of experience in design, manufacture maintenance, successful I&C commissioning and operation of technically complex, critical manufacturing facilities.

At present JSC RASU team includes:

- More than 1000 high-qualified specialists
- More than 450 engineers of specialized areas: I&C, digital, Electrical Engineering
- 3 specialists with doctor degree and 23 specialists with PhD degree
- Average age of employees — 38 years
- 3 specialists with doctor degree and 23 specialists with PhD degree
- More than 450 engineers of specialized areas: I&C, digital, Electrical Engineering
- Average age of employees — 38 years

The policy of the Company – increasing not the number but the quality features of personnel. We are constantly working on increasing the level of personnel competence and qualification. Qualification upgrade and mentorship programs are implemented within the company.

JSC RASU starts preparing specialists since they are students. The basis of this – JSC RASU “own” specialized department at Moscow Institute of Physics and Technology. We fully understand that only in case of our active participation in preparing, educating students we can maintain and increase our scientific engineering potential.

The quality of our products directly depends on their compliance with modern requirements, regulations, standards. But that is not enough for us – we shall respond to global trends of development promptly or even anticipate them now and then. Thus key directions of personnel qualification upgrade – international standards related to I&C as well as information security, cybersecurity.

We do not shut off ourselves from the world, we accumulate and take over the best experience. We inherit experience and competence of entire Rosatom!
Design

In the area of digital technologies implementation JSC RASU is competitive with the best global practices, it constantly upgrades business processes, encourages partners—business participants to develop such.

Implementation of information systems and CAD developed in-house allows to increase I&C operation and maintenance efficiency continuously while process automation reduces implementation time increasing the quality level.

Project development cycle includes all our close business partners: customers, participants and contractors. Due to integrated IT systems even under the conditions of distributed design and manufacture all of us work in the common information space. Our dependence on external suppliers is minimum, we are able to adapt promptly and update our product including intelligent SW.

In-house developments are not the goal itself but they allow both to decrease final cost and customize the final product according to the Customer’s requirements within the stipulated period.

Information Systems Developed and Applied:

AKURA IS — information system of configuration, change, nonconformity, operating experience accounting management

ISATR — requirements management system

ARIUS CAD — a tool of end-to-end I&C design at life cycle
Solutions in I&C and Electrical Equipment

I&C Structure

Upper Level
SCADA-based operator control level, ensures human-machine interface (according to the required adjustable presentation forms), performs the 'analytical' processing of data received from PLC and the operator, and generates the integral process indicators.

Medium Level
PLC (Programmable Logic Controller) level, ensures the interface with the field devices, primary processing of the monitoring data, and control of the devices according to the preset algorithm.

Lower, or Field Level
The level of sensors and actuators which interact directly with the process equipment, monitor the parameters and control the processes according to the preset procedures.
### Comprehensive Electrical Engineering Solutions

#### Construction of 10–750 kV overhead line substation

- Pre-project inspection
  - analysis of the customer’s requirements
  - preliminary site inspection
  - feasibility study

- Fundraising
  - development of financing schemes
  - assistance in finding an investor

- Design
  - development of basic and detailed design documents
  - support during expert review
  - designer supervision

- Full-scope supply
  - procurement for the facility, supply management
  - installation and commissioning supervision

- Construction management
  - arrangement of construction, installation and commissioning activities
  - construction supervision

- Maintenance and service
  - warranty and post-warranty service
  - equipment monitoring and diagnostics
  - personnel training

- Assessment of technical condition
  - integrated condition assessment
  - justification of life extension / decommissioning

### Lifecycle of the Facility

- 10–220 kV modular containerized substations
- 110–220 kV mobile substations
- 10–220 kV indoor and outdoor packaged substations
- 35–750 kV AC/DC cable lines and overhead lines

### Nuclear

- Equipment supply to Beloyarsk NPP, Novovoronezh NPP-2, Leningrad NPP-2
- I&C design for Akkuyu NPP
- I&C modernization for Kursk NPP-2

### References for the past 3 years

- Oil & Gas
  - ~ 2 bln rubles – amount of supply contracts

- Secondary systems for 10–750 kV substations and switchgear
- Control rooms and full-scope simulators
- Automated complex for monitoring, diagnostics and asset management
- Active-adaptive distribution networks (SmartGrid, digital power distribution zone)
Advanced Research and Development

It is impossible to maintain a high technological level with no continuous improvement of products and processes.

Rosatom State Corporation and RASU as an integrator company recognize the need for R&D. Thanks to this work the companies keep up with the current technology trends, and the business activity meets the established performance indicators. We are able to respond to cyber-threat challenges and ensure the safety of facilities.

R&D activities are carried out by RASU and its business partners in various areas:

1. Maintenance and improvement of existing products for compliance with the component framework and the regulatory requirements
2. Development of new complex products based on digital technologies
3. Optimization of engineering activities aimed at improving the quality and reducing the time of implementation
4. Unification of solutions developing standard platforms with titles of protection and qualified according to international regulations
5. Development of life-cycle technical support tools based on the digital twin technology

We strive to develop and evolve. And we are ready to abandon standard solutions to achieve the best result.

NOT ONLY WE UNITE, BUT ALSO CREATE THE BEST FOR ACHIEVEMENT OF THE BEST RESULT FOR OUR CUSTOMER
List of Licenses