

WE CREATE THE FOUNDATION FOR A SUSTAINABLE POWER SUPPLY OF SOCIETY AND EVERY MAN

# IZOLYATOR

CENTURIES-OLD TRADITIONS – STATE-OF-THE-ART TECHNOLOGIES

Corporate Edition Izolyator

Special issue No. 3

## NUCLEAR POWER INDUSTRY OF RUSSIA

October 2015  
Eng / Рус

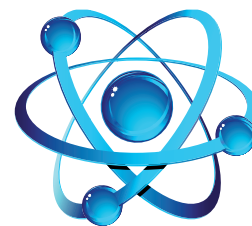
[www.mosizolyator.com](http://www.mosizolyator.com)



Meeting of Vladimir Putin, President of Russian Federation with Sergey Kirienko, General Director of Rosatom State Corporation in anticipation of the 70s anniversary of the Nuclear Power Industry of Russia on 25 September 2015 (photo from official website of the President's Administration)

**“This year we will reach a record generation in the entire industry history ... Over 190 billion kilowatt-hours of power”**

Sergey Kirienko



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**On board the nuclear-powered ice-breaker «The 50s anniversary of the Victory»**

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# The Russian nuclear industry



The Russian nuclear industry is an undisputed leader in advanced nuclear technologies, providing innovative engineering and construction solutions for nuclear reactors and production of nuclear fuel. Since 1954, when the world's first nuclear power plant was launched in Obninsk, ROSATOM has amassed a wealth of experience and acquired extensive competencies in large-scale nuclear projects. Russia possesses the most sophisticated nuclear enrichment and reactor engineering technologies – pressurized water reactors designed by

Russian engineers have proved their reliability through thousands of reactor years of accident-free operation.

Today the Russian nuclear industry comprises over 400 companies with over 250,000 employees operating in the nuclear fuel cycle, power generation, and R & D sectors. With its 10 nuclear power plants (34 operating power units with 25.2 GW of installed capacity), which generate about 18 % of total power output, and the world's only nuclear icebreaker fleet, Russia is focused on development of the Northern Sea Route and fur-

ther expansion of nuclear power generation. Recent achievements in these areas include construction of 9 new nuclear reactors (Novovoronezh NPP-2, Leningrad NPP-2, the world's first floating NPP and others), an additional fourth power unit at Beloyarsk NPP, and a new nuclear icebreaker flagship laid down in 2013 at the Baltic shipyard in Saint Petersburg. Its launch will mark a new stage in exploration of the Arctic region.

International nuclear projects are another focus area of ROSATOM, which is now engaged in the construction of 29 new nuclear

reactors in Kudankulam (India), Akkuyu (Turkey), Belarus, Vietnam, Bangladesh and China.

Development of the nuclear industry is seen as a top national priority. It is perceived to be a key sector of the Russian economy, essential for national energy security. The nuclear industry drives demand for other products and services and therefore stimulates engineering, steel making, geology, construction and other sectors of the national

*Materials from official webpage of Rosatom Corporation*

## NUCLEAR POWER INDUSTRY OF RUSSIA

# ROSATOM


  
 ROSATOM


ROSATOM is the Russian Federation national nuclear corporation bringing together circa 400 nuclear companies and R & D institutions that operate in the civilian and defense sectors. With 70 years' expertise in the nuclear field, we are a global leader in technologies and competencies offering cutting-edge industry solutions. We work on a global scale to provide comprehensive nuclear services that range from

uranium enrichment to nuclear waste treatment.

**ROSATOM highlights:**

- No. 1 globally in number of nuclear reactors under simultaneous construction (9 in Russia and 29 abroad)
- No. 2 globally in uranium reserves and No.3 globally in annual uranium extraction
- No. 2 globally and No. 1 in Russia in terms of nuclear power generation (about 17

% of total power generated in Russia and over 33 % in European Russia)

- 36 % of the global uranium enrichment market
- 17 % of the global nuclear fuel market
- the world's only nuclear ice-breaker fleet

ROSATOM is a proponent of the uniform national policy and best management practices in nuclear power utilization, the

nuclear weapons industry, and nuclear safety. ROSATOM is responsible for meeting Russia's international commitments regarding peaceful uses of nuclear energy and nuclear non-proliferation. Other - ROSATOM lines of business include nuclear medicine and composite materials.

*Materials from official webpage of Rosatom Corporation*

# Rosenergoatom Concern



**Andrey Petrov is appointed General Director of Rosenergoatom Plc on 7 September 2015. Mr Petrov has 30 years of experience in the industry.**

Rosenergoatom Concern OJSC is one of the largest electrical generation companies in Russia, and Russia's only entity that functions as a nuclear plant operator.

As branch companies, Rosenergoatom Concern OJSC has integrated active nuclear plants, project management of nuclear plants under construction, plus Facilities Construction Management, Science and Engineering Centre,

a science research center for NPP emergency response activities, a project design branch, and a technology branch company. Rosenergoatom Concern OJSC maintains a representative office in the People's Republic of China.

The core businesses of Rosenergoatom Concern OJSC are the generation of electrical and thermal energy by its nuclear plants, and operating nuclear plants,



**Dear Andrey Yuvenalyevich!**

Our congratulations on the General Director position appointment in Rosenergoatom Plc and the 70s anniversary of the Nuclear Power Industry in Russia!

It has always been a priority with Izolyator to cooperate with Rosenergoatom Plc having a long history or relations. From the moment of Nuclear Power Industry origination, the products of our company operate at the branches of the concern. As of today, there are about 500 Izolyator high-voltage bushings of 66–750 kV voltage class in operation.

We sincerely hope that our further cooperation and partnership with Rosenergoatom Plc will continue in years!

We wish you professional achievements for the good of Russian Power Industry, further development and prosperity of the industry that you lead as well as energy and good health for you personally!

*Alexander Slavinsky,  
Chairman of the Board of Directors at Izolyator,  
Vice President AES RF  
Vice President International Association TRAVEK  
Dr Eng Sc*

sources of radiation, and storage of nuclear and radioactive materials and waste, through procedures legally regulated in the Russian Federation.

NPPs are absolutely safe for the environment, unlike many ecologically dangerous productions. The modern safety standards applied at NPPs guarantee that the past mistakes – when inattention and incompetence caused serious

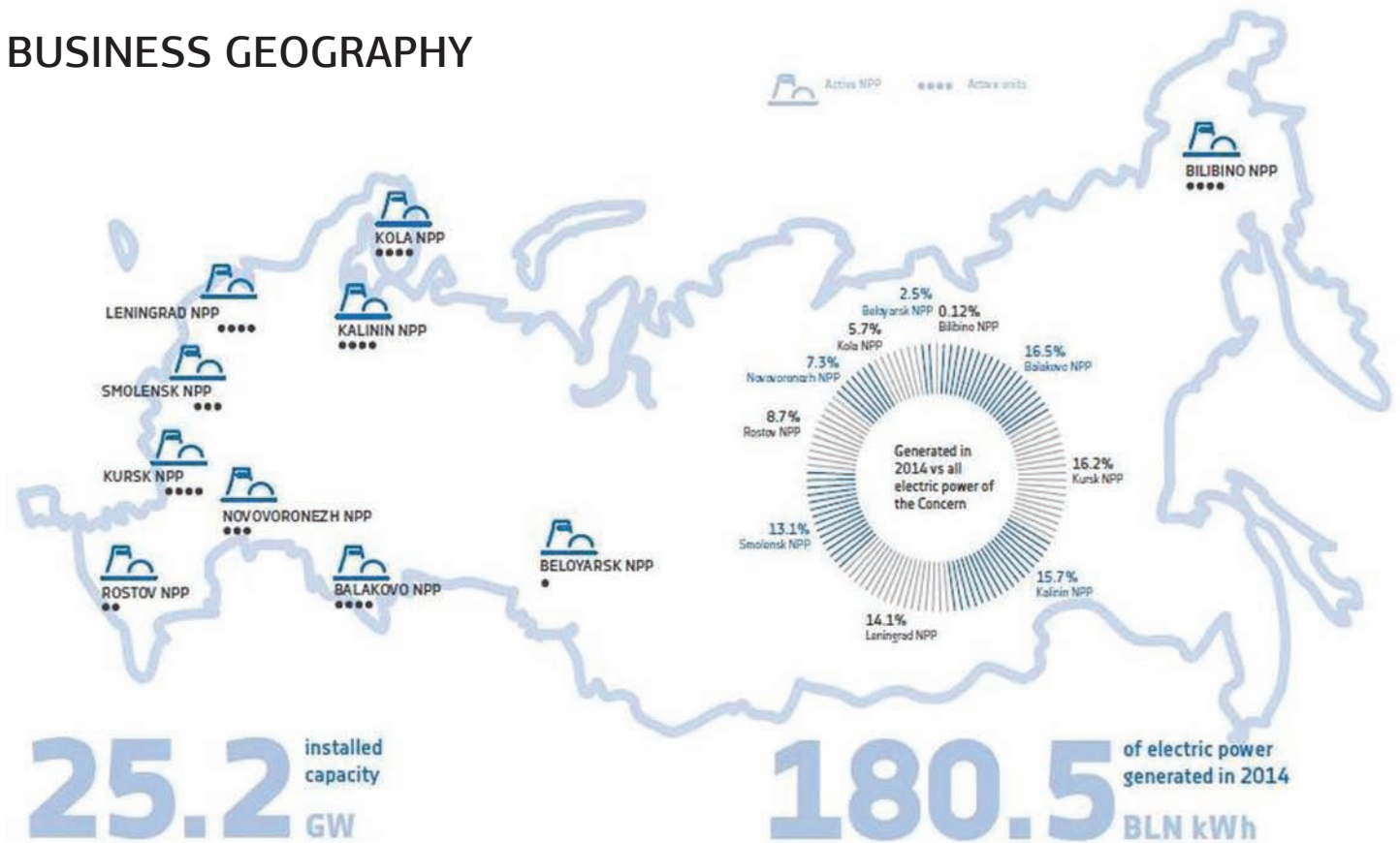
technological failures - will never recur.

NPPs are not only strategic facilities but companies employing tens of thousands of people. Continuity and devotion underpinned by stability and high remuneration are the key guarantees of the sector's development.

*Materials from official webpage of Rosatom Corporation*

# Rosenergoatom Concern: results and achievements in 2014

## BUSINESS GEOGRAPHY



## KEY PERFORMANCE RESULTS

**Nº1**  
The first place among Russian electric power generation companies

**Nº2**  
The second place among the world's leading companies in terms of NPP installed capacity and operating units quantity

**15**  
years with no events above Level 1 according to the IINES scale

**17.2%**  
NPP share in Russia's energy balance



Dear colleagues!

With the strict safety requirements for nuclear power plant equipment in mind, our enterprise works to raise reliability of high-voltage bushings together with Rosenergoatom technical specialists.

Izolyator plant takes part in annual sittings of the Electrical Engineering Council organized by the engineering support department of Rosenergoatom. As part of this work, the plant informs the specialists of the concern about new designs and modernizations of existing bushings designs for a better reliability.

This activity is very important for us, however our cooperation with the Nuclear Power industry is complex and includes other directions. So our entire experience of joint projects finds its output in the enhanced reliability of our insulating products.

I would like to thank Rosenergoatom for an effective cooperation and express our firm confidence in the long-term partnership development!



**Ivan Panfilov,**  
Commercial Director, 1st Deputy General  
Director at Izolyator

## SITTING OF THE ELECTRICAL ENGINEERING COUNCIL AT ROSENERGOATOM



On 15–17 October 2013 Izolyator attended an Electrical Engineering Council sitting at Rosenergoatom dedicated to topics of power equipment reliability improvement.

At the council sitting, Konstantin Sipilkin, R & D Director at Izolyator made a report on Izolyator RIP-insulated high-voltage bushings operation experience.

On the final day of the council work, a representative delegation of nuclear power stations technical specialists of Rosenergoatom Concern visited Izolyator plant in order to have an introduction to modern technologies of high-voltage bushings manufacture and testing.

Izolyator Company took part in the session of the Power Engineering Council at Energoatom Concern OJSC titled “Improving Reliability of Power Engineering Equipment” and held in Zvenigorod, Moscow on 17-21 November 2014.

The open joint-stock company “the Concern for Generation of Electric and Heat Energy at Nuclear Power Plants” (Energoatom Concern OJSC) is a subsidiary of the State Corporation for Nuclear Energy Rosatom.

Chief Designer Yury Nikitin delivered a report titled “Production and Operation Experience Relating to Bushings with RIP-Insulation”.

In accordance with the agenda, a group of experts participating in the session visited Izolyator Company on 20 November 2014.

In the course of a site tour at Izolyator Company, the visitors were briefed on the modern technology for manufacture and testing of high-voltage bushings as well as on the latest design solutions aimed at improving product reliability and ease of operation.

On 19–23 October 2015, the Electrical Engineering Council of Rosenergoatom Plc had a sitting on

Power Equipment Reliability issues in Moscow region. Izolyator took part in its work.

Representatives of Rosenergoatom’s branches — Nuclear Power Plants, All-Russian Research Institute for Nuclear Power Plants Operation, All-Russian Electrical Engineering Institute named after V. I. Lenin, federal grid company FGC UES, Research Institute of Scientific Instruments, Power Machines company, Scientific and technical center of FGC UES, Togliatti Transformer company, Moscow Power Engineering Institute, Service Center of Zaporozhtransformer and a number of other enterprises and organizations took part in the Council’s work.

Pavel Kiryukhin made a report on High-voltage bushings technical condition evaluation as a criterion of a higher reliability.

We would like to thank Rosenergoatom Plc for the invitations and the Electrical Engineering Council work organization.

## NUCLEAR POWER INDUSTRY OF RUSSIA

## VISIT OF CHIEF PROCESS ENGINEER OF ROSENERGOATOM CONCERN

On 15 April 2015, Oleg Prorokov, Chief Process Engineer of Rosenergoatom Concern JSC visited Izolyator.

**On Izolyator part the guest was welcomed by:**

- Alexander Slavinsky, Chairman of the Board of Directors;

- Ivan Panfilov, Commercial Director, First Deputy General Director;
- Konstantin Sipilkin, R & D Director;
- Oleg Bakulin, Partner Relations Director;
- Alexander Savinov, Strategic

- Sales Director;
- Dmitry Ivanov, Head of Test Center.

The partners discussed co-operation prospects and HV bushings modernization plans at Rosenergoatom facilities in order to raise their reliability by

offering a more advanced design, for instance, measuring leads replacement program.

The visitor was introduced to the full cycle production of HV bushings according to the latest technologies.





## Dear colleagues!

In 2015, Rosenergoatom concern approved replacement program for oil-filled high-voltage bushings. The program was developed in close cooperation between the concern and its partners including Izolyator plant.

Our company actively cooperates Rosenergoatom concern and its branches in various directions. Besides our activities in the Electrical Engineering Council of Rosenergoatom we invite their specialists to our plant and introduce them to the modern technologies of production and testing of the high-voltage bushings. During such tours, we put a special emphasis on bushings with hard RIP insulation as a more advanced and reliable.

This year we arranged for a practical exercise in measuring unit replacement on a RIP bushing done by the concern's technical specialists at the premises of Izolyator plant. This training on RIP-insulated bushings currently operated at nuclear power plants with a modernized unit allows for raising reliability of power equipment of Nuclear stations.

We also make regular visits to Nuclear Power Plants where we can see our products in operation and share experience with specialists and operators.

We sincerely appreciate open and productive cooperation of our partners and wish them to reach new achievements in our common goal!



**Oleg Bakulin,**  
Director on Partner Relations at  
Izolyator

## SEMINAR FOR THE TECHNICAL SPECIALISTS OF ROSENERGOATOM



On 22 July 2015, a seminar for technical specialists of Rosenergoatom took place at Izolyator plant.

The seminar was organized by:

- Konstantin Sipilkin, R & D Director;
- Dmitry Mashinistov, Head of SVN-Service;
- Dmitry Ivanov, Head of Test Center.

The organizers made a presentation of Izolyator plant and products for Rosenergoatom specialists and introduced the guests to the modern technologies of manufacture and testing of RIP-insulated high-voltage bushings. The guests did a practical exercise on measuring unit replacement by a modernized type on Izolyator bushings operated at the branches of the concern.





## SMOLENSK NPP — IZOLYATOR: VISITS EXCHANGE

### Smolensk NPP

(quick info)



City-forming leading enterprise of the region, the largest in the fuel and energy balance plan of the geographic region. Russian Organization of High Social Efficiency: 2000. It was the first among Russian NPPs to obtain the international certificate of conformance of quality management system to ISO 9001:2000 standard and was recognized as the best NPP of Russia in providing social safety and work with personnel: 2007. Smolensk nuclear power plant is a branch of the JSC «Concern Rosenergoatom». The SNPP annually issues on average about 20 billion kilowatts hours of the electric power into country power supply system, that constitutes about 13% of the energy, developed by Rosenergoatom Concern and more than 80% of Smolensk region energy, developed by the power entities.

On 9 July 2014, Izolyator company was visited by Mikhail Potekhin, deputy manager of the electric shop at Smolensk Nuclear Power Plant, a branch of Rosenergoatom Concern.

As a local economic mainstay, Smolensk NNP is a leading enterprise ensuring the region's fuel and energy balance. Its established total electric power amounts to 3000 Megawatt.

The visitor was received by Ivan Panfilov, Deputy CEO — Commercial Director of Izolyator company.

Oleg Bakulin, the company's Director for Partner Relations, Yuri Nikitin, Chief Designer and Maxim Zagrebin, manager in charge of the company's relations with energy equipment manufacturers briefed the visitor on Izolyator company, and its products, elaborating on the specifics of operation of high-voltage bushings with RIP insulation. The visitor was also acquainted with the manufacturing process and testing procedures of Izolyator-made high-voltage bushings.

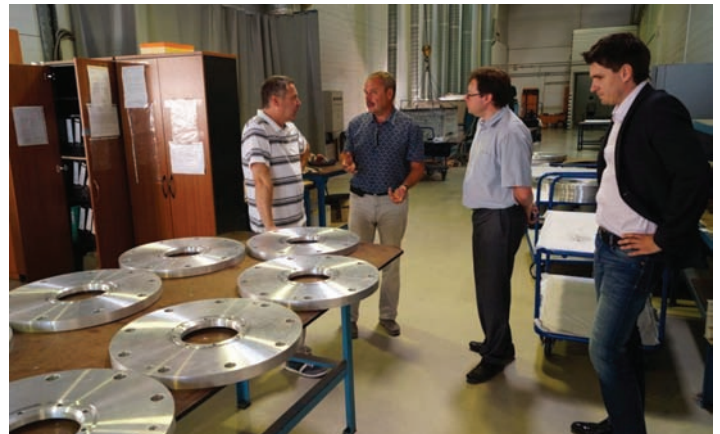
On 17 December 2014, Oleg Bakulin, Director on Partner Relations at Izolyator paid a visit to Smolensk Nuclear Power Station.

Mikhail Potekhin, Deputy Chief of Electrical Shop welcomed Izolyator representative.

During the visit to the station, the sides discussed Izolyator bush-

ings operation experience that will be used for future design development. The partners clarified routine replacement schedules for the bushings of obsolete types.

We wish to thank Rosenergoatom Plc represented by Smolensk Nuclear Power Station for the invitation and a warm welcome.



## VISIT OF KURSK NUCLEAR POWER STATION REPRESENTATIVE

### Kursk NPP

(quick info)



The Kursk nuclear plant is among the nation's four nuclear plants of equal capacity, and it is a major node in the Russian Unified Power Grid. It exports most of its output to the Central Russia grid that serves 19 regions in the Central Federal District of Russia.

The plant's contribution to the installed capacity of all power plants in the region is more than 50%, and it sells electrical power to most manufacturers in the Kursk Oblast. Kursk NPP was named "Russia's Best NPP" in 2009 in the industry-wide contest on safety culture. In 2010–2011, third-party auditors recognized the environmental management system at Kursk NPP as compliant with the requirements of Russian national standards and the regulation on mandatory certification for environmental compliance.

On 17 September 2014, Mikhail Koshelev, Deputy Head of Electrical Shop at Kursk Nuclear Power Station visited Izolyator.

**On Izolyator side the guest was received by:**

- Dmitry Abbakumov, Deputy Commercial Director;
- Oleg Bakulin, Director on Partner Relations;
- Yury Nikitin, Chief Designer;
- Dmitry Ivanov, Head of Test Center.

The hosts made a presentation of Izolyator plant and its products with an emphasis made on RIP

technology design features RIP-insulated HV bushings operation. A tour of the plant facilities was arranged for the guest, so he was able to familiarize himself with modern technologies of manufacture and testing of high-voltage bushings.



## VISIT TO LENINGRAD NUCLEAR POWER STATION

### Leningrad NPP

(quick info)



Leningrad NPP is a major producer of electrical power in the Russian North-West. The plant meets more than 50% of the power needs of St. Petersburg and the Leningrad Oblast. Leningrad NPP accounts for 28% of the fuel and power balance of the entire North-West region. Leningrad NPP was the nation's first plant to use RBMK-1000 reactors. With a view to the future decommissioning of currently active power units, in August 2007, work began to build Leningrad NPP-2. Substitute power units with upgraded water-moderated reactors (VVER), each with an installed capacity of 1,200 MW, will come to replace the existing power units in Leningrad NPP with RBMK reactors; they will serve as reliable sources of power for St. Petersburg, Leningrad Oblast, and the Russian North-West up to the end of the 21st century.

On 26 March 2015, Oleg Bakulin, Director on Partner Relations, visited Leningradskaya Nuclear Power Station, branch of Concern Rosenergoatom.

The sides discussed issues on bushings operation and discussed nearest plans for replacement of outmoded

designs. Izolyator will consider all comments and suggestions at next generation bushings design elaboration.

We wish to thank Concern Rosenergoatom represented by Leningradskaya Nuclear Power Station for invitation and warm welcome.



## LICENSES FOR DESIGN AND MANUFACTURE OF EQUIPMENT FOR THE NUCLEAR POWER INDUSTRY



Design



Manufacture

## ATOMEX 2013 FORUM

### The International Forum & Exhibition ATOMEX

(quick info)



The International Forum & Exhibition ATOMEX is the single specialized business platform in Moscow used to showcase the nuclear industry's achievements and ensure information transparency of the Rosatom State Atomic Energy Corporation, which opens up opportunities for suppliers to establish direct and open dialogue and cooperation with nuclear industry customers. The purpose of the Forum is the expansion of the number of suppliers for the construction of NPP using Russian technologies in Russia and abroad, improving the quality of supplied goods and services. The Rosatom State Corporation brings together more than 350 enterprises and scientific organizations developing high-tech products and needing reliable suppliers of quality products and services. The format of the ATOMEX includes: exhibition, conference and B2B meetings.



On 2–4 December 2013, Izolyator took part in the 5th Atomex International Forum of suppliers to

the power industry in Moscow. Izolyator is a traditional licensed supplier of high-voltage

bushings to Nuclear Power Stations. The company reaffirmed its ability to create modern and

reliable equipment meeting the highest requirements of the nuclear power industry.



## THE MOST POWERFUL ICE-BREAKER FLEET IN THE WORLD



*The nuclear-powered icebreaker "The 50s anniversary of the Victory"...*



*... and Alexander Slavinsky on board of it*

Federal State Unitary enterprise Atomflot enters Rosatom State Corporation being an operator of the Russian Nuclear Navy. The company operates and maintains nuclear-powered icebreakers and service vessels.

**The core activities of Atomflot are:**

- Icebreaker escort of vessels on the Northern Sea Route and to the freezing ports of the Russian Federation;
- Expeditions into the high latitudes;
- Sea transportation of container cargoes;
- Expeditions and exploratory works supply;
- Rescue operations in cold waters, etc.

The company operates integrated icebreaker complex of nuclear-powered civil fleet of Russian Federation.

*Based on materials from official webpages of Rosatom and FGUP Atomflot.*

*Photo – Wikipedia and personal archives of Alexander Slavinsky*



# IZOLYATOR

**1896**   
Established in

from 200   
from 500  
employees

plant area   
**24 000** sq m

**USD**   
**62 mln**  
Annual sales

**70-80%**   
market share  
in Russia and CIS

**20%**   
Export share  
in sales volume

## Izolyator Advantages

-  118 years of experience behind our back, we are the most experienced manufacturer of high-voltage bushings in the world (> 500 000 pcs produced)
-  Strive for constant product improvement
-  We stand by modern approaches to partnership and cooperation
-  Full range of HV bushings 12 - 1150 kV available
-  Supply reference all around the world
-  We are a professional team
-  More than 15 year experience of RIP bushings manufacture
-  Company and products recognized worldwide
-  We render a complete services range:
  - Design
  - Production
  - Testing
  - Warranty and post warranty service
-  Design and develop innovative products
-  We are always open to cooperation

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 NUCLEAR POWER INDUSTRY OF RUSSIA
 

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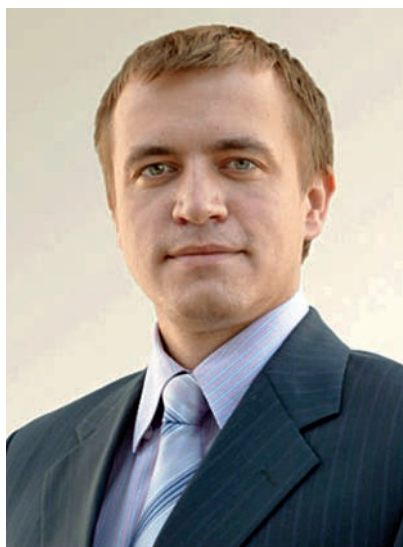
**COMMERCIAL DIVISION OF IZOLYATOR COMPANY**


Our mission is to create basis for stable and sustainable power supply. We can achieve this goal only with common effort in close cooperation, joint creation and development.

That is why we value dialogue with you so highly as it is a starting point towards success in our common goal.

**We are looking forward to meet you!**

**Ivan Panfilov**  
 Commercial Director  
 1st Deputy  
 General Director



**Andrey Shornikov**  
 International  
 Business Development  
 Manager

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# IZOLYATOR: FACTS AND ACHIEVEMENTS

**118** years of bushings production experience

Sole bushings manufacturer in

**12–1200** kV

range in Russia and CIS

**550 000**

bushings made – an equivalent of **90 000** transformers with **80 MVA** capacity

**500 000**  
OIP

**50 000**  
RIP

**40 000** bushings installed in FSK UES facilities

**20 000** bushings with fault free operation exceeding **35** years

Exports to more than

**30**

countries worldwide