

IZOLYATOR *120+1*

Century-old traditions – state-of-the-art technologies

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2017 - YEAR OF ACHIEVEMENTS AND INTERNATIONAL COOPERATION DEVELOPMENT



ALEXANDER SLAVINSKY


Chairman of the Board of Directors, Izolyator, Russia's Representative in CIGRE SC D1, Vice-President of TRAVEK International Association, Russia's expert in IEC (Permanent Committee 36A), Head of SC D1 RNC CIGRE

2017 has become a year of achievements and international cooperation development. We have found reliable partners in European and Asian countries, made a contribution to strengthening of relations between the national power systems of Russia, Vietnam and India.

International cooperation has always been an important part of our work and a natural challenge for Izolyator's development. We appreciate every opportunity to demonstrate reliability and technical efficiency of our products by putting them to a most difficult check - the test of time. We are interested to set up exactly the same sort of partnerships — long-term and efficient, opening new regions of our presence.

A series of talks and meetings with representatives of electrical engineering corporations, power grid companies and R&D organizations of Europe and Asia, that took place in 2017, became a new stage of long-term partnership development.


Thus, the dialogue with partners from Vietnam that we developed became a basis for signing a memorandum, stating key approaches and directions of long-term cooperation between the Federal Grid Company of the Unified Energy System of Russia and the State Power Grid Corporation of Vietnam EVN NPT.

 The open workshop, which our company held in India, was dedicated to experience sharing between state power grid companies and between Indian and Russian high-voltage equipment manufacturers. It once again demonstrated

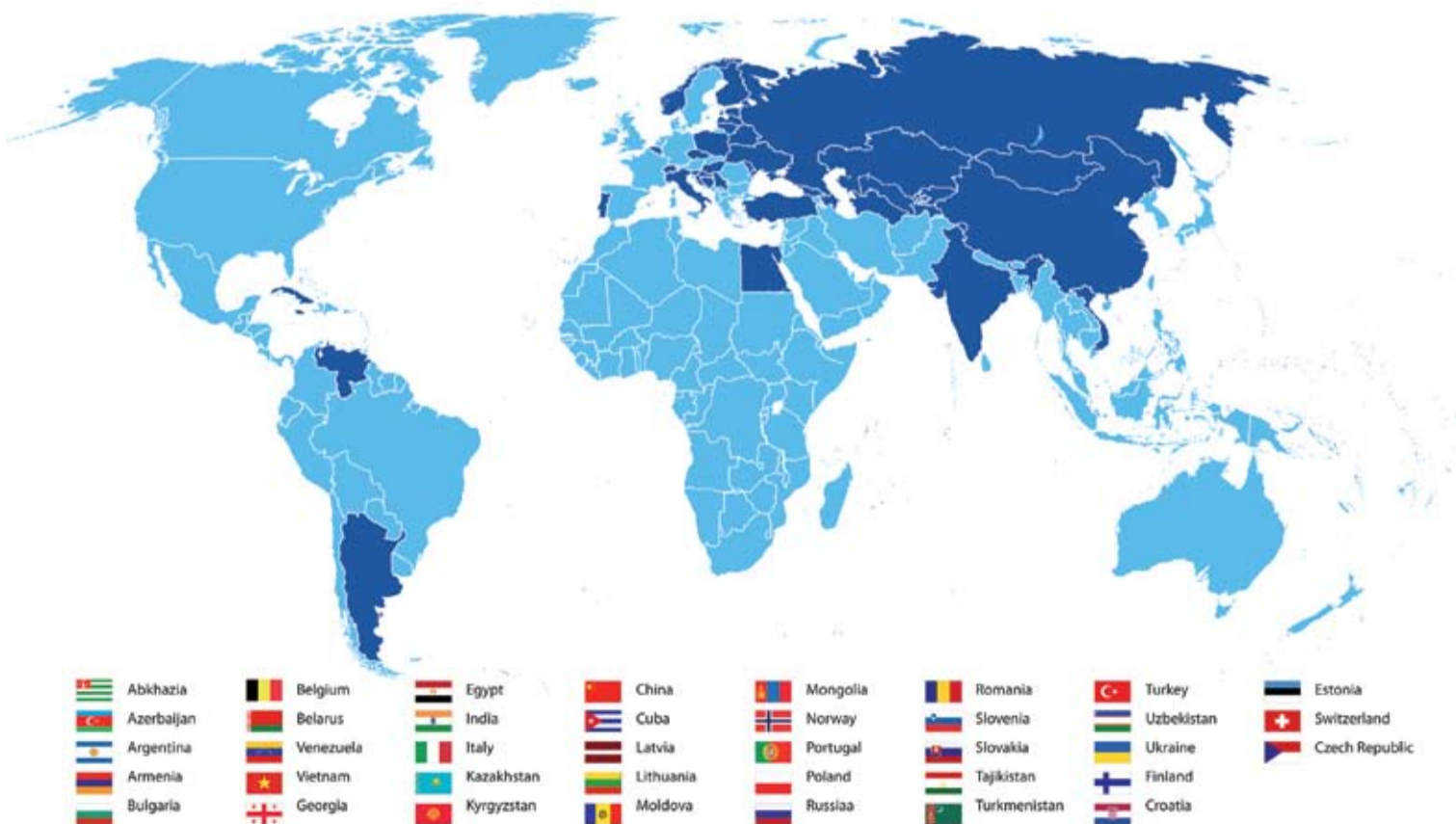
the large scale of the operation of our company in India.

The full-scale work, done by Izolyator in China, also opens new prospects for further mutually beneficial cooperation and integrative development be-

showed interest of our partners in high-voltage bushings with RIP insulation that we have been promoting in the European market.


 In 2017, we carried on to strengthen our longstanding relations with reliable part-

Geography of deliveries




A NUMBER OF TALKS AND MEETINGS THAT WE HAD WITH REPRESENTATIVES OF ELECTRICAL ENGINEERING CORPORATIONS, POWER GRID COMPANIES AND RESEARCH ORGANIZATIONS OF EUROPE AND ASIA IN 2017 HAVE BECOME ANOTHER STAGE IN SETTING UP AN EFFICIENT PARTNERSHIP.

tween the national and regional power systems of Russia and China.

 We carry on an active dialogue with power grid companies and power products manufacturers in Europe. The meetings organized by our sales and technical divisions in 2017 once again

ners in the CIS countries: power grid companies and power equipment OEMs from Armenia, Moldova, Tajikistan, Kazakhstan, Belarus, Ukraine, Uzbekistan and Georgia.

 We are active contributors to the Russian National Committee of the International



Chairpersons of the national power grid companies of Vietnam and Russia Dang Phan Tong and Andrey Murov signed a Memorandum of Understanding between EVN NPT and FGC UES

WE CARRY ON OUR ACTIVITIES IN THE FRAMEWORK OF THE RUSSIAN NATIONAL COMMITTEE OF THE INTERNATIONAL COUNCIL ON LARGE ELECTRIC SYSTEMS - RNC CIGRE, INCLUDING INVOLVEMENT IN THE WORK OF THE STUDY COMMITTEE D1 RNC CIGRE 'MATERIALS AND EMERGING TEST TECHNIQUES', WHICH WAS SET UP ON THE BASIS OF OUR COMPANY.

Council on Large Electric Systems — RNC CIGRE, including research work of SC D1 RNC CIGRE «Materi-

als and emerging test techniques», which was created on the research base of our company.

Cooperation with RNC CIGRE helps our company to take its activities to a whole new level.

Today, we set new goals for ourselves. It has become a tradition with us to introduce new materials and technologies to our customers, and in 2018, we are preparing to increase exports, making the Made in Russia brand truly global.

In its more than 120 years' history the enterprise has produced more than 620 thnd HV bushings that are operating in the overwhelming majority of pow-

er facilities in Russia and the CIS countries as well as 30 more countries of the world. We will continue to make every effort in order to prove your trust by timely fulfilling our obligations in high-voltage bushings production and technical support of our customers.

This year, we wish all our colleagues and partners cosmic-reach success, every chance to explore the limitless space of ideas and opportunities.



Participants at Summary Conference of the 46 CIGRE Session

STUDY COMMITTEE D1 OF RNC CIGRE — RESULTS OF ACTIVITIES IN 2017

Study committee D1 RNC CIGRE «Materials and emerging test techniques», created on the basis of Izolyator has worked under Alexander Slavinsky's leadership for two years now. SC D1 is a platform for sharing information and professional discourse between scientists and specialists on current scientific and technical issues.

In 2017, members of the study committee participated in international exhibitions and conferences, that were held in Russia and abroad, and ensured the committee's activities coverage in media and RNC CIGRE website section.

The key objectives for D1 study committee in 2017 were:

- expansion of international activities; new work-groups formation;
- participation in events, relevant to the research fields of SC D1 CIGRE;
- invitation of youths to activities of the study committee in order to create a talent pool for RNC CIGRE among students of leading technical universities;
- invitation of new Russian specialists to activities of the study committee;
- informing about activities of the study committee by updating information on the committee's page at RNC CIGRE website and industry media.

Committee representatives took part in the work of the Summary Conference of the 46th CIGRE Session. At the plenary sitting, the Chairperson of SC D1 Alexander Slavinsky summarized experience of Russian manufacturers of electrical products in export promotion using state and non-government support tools.

SC D1 is getting experience in organization of international events. In April, the committee organized and ran a meeting of D1-WG D1.52 «Moisture Measurement in Insulating Fluids and Transformer



Alexander Slavinsky speaking at the Summary conference, dedicated to the results of the 46th CIGRE Session



Participants of the international workgroup CIGRE WG D1.52 meeting

Insulation — an Evaluation of Solid State Sensors and Chemical Methods « international workgroup in Moscow.

A lot of attention is given to the youth - students, PhD students, young specialists are entered in the talent pool for opening roles in the committee and RNC CIGRE. In this respect, SC D1 representatives actively engaged in preliminary rounds and finals of the Power industry league at the V International Case-in engineering contest.

Representatives of the study committee D1 took part in the key industry events of 2017:

СІМРУС XIV annual conference «Methods and means of insulation condition control on high-voltage equipment» in Perm.

The conference became the biggest by the number of attending experts (about 200) from Russia, CIS and rest of the world. The visitors of the conference made 31 reports about problems of high-voltage equipment diagnostics, based on the analysis of dissolved (in oil) gases and partial discharges. Seven reports were dedicated to the topics of the study committee D1.

М New Professions in the power industry of the digital economy round-table, part of the International Moscow Education Salon.

The participants discussed issues on professional competences development with power engineers and creation of the state's demand for specialists' training to new professions.

Alexander Slavinsky, Chairman of SC D1 made a report on "Necessity of advance professional training of human resources for the power industry. Outlook of the world's sector-wide community." He gave details about attraction and professional training of young specialists at power industry companies.

ТРАВЕК The XXV International Science and Technology TRAVEK Association Conference "Power and Distribution Transformers. Reactors. Systems of Diganostics.

Executives and technical specialists of companies – consumers of high-voltage equipment, representatives of power equipment OEMs from Russia and foreign countries, leading scientists, developers, academic and design organizations representatives took part in the conference. Repre-

sentatives of SC D1 also made reports at the conference.

The XXVI International Scientific and Practical Conference «Prospects of power industry and high-voltage equipment development. Commutation technique, converter equipment, microprocessor control and protection systems».

The conference went with support from the Russian Academy of Sciences, Academy of Power Engineering Sciences of Russian Federation, Ministry of Energy of Russian Federation, Ministry of Industry and Trade of Russian Federation, Rossiiskie Seti PJSC, FGC UES PJSC. SD D1 representatives made several reports at the conference.

Р Among meaningful events abroad it is important to mention SC D1 representatives' participation in the International Conference



Preliminary round of the Power Industry Leagues at the Vth Jubilee Case-in International Engineers's Championship

on Condition Monitoring, Diagnosis and Maintenance (CMDM 2017) in Buharest, Romania. A report on the conference's results was prepared and published on the webpage of SC D1 RNC CIGRE at RNC CIGRE web-portal.

In September 2017, the International CIGRE SC D2 «Information Systems and Telecommunications» Colloquium was organized. During the event, Alexander Slavinsky, Chairperson at SC D1 RNC CIGRE and Philip Adam, General Secretary of the International Council on Large Electric Systems (CIGRE) had a brief meeting where they spoke about the importance of knowledge and information sharing on industry development issues.

On 30 September - 6 October 2017, CIGRE A3, B4 and D1 International Colloquium & Exhibition and HVDC & HVAC Network Technologies for the Future were held in Winnipeg, Canada. During the event, Alexander Slavinsky and SC D1 Chairperson Mr. Pitch shared opinions about the committee's work. Alexander Slavinsky informed R. Pitch about the work of SC D1 section in Russia and achievements of Russian specialists in the committee research programs and offered to have the next colloquium in Moscow.



"New professions in Power industry in the digital economy" roundtable



Participants of the International Colloquium of the Study Committee CIGRE SC D2

On 15 December 2017, a meeting of the leading science and technology partners to the Russian national committee of CIGRE went at the head office of FGC UES.

The management of the research base companies of RNC CIGRE organization took part in

the activities of the Study Committee D1 in 2017 and spoke about the key results of the international cooperation, namely experience sharing with the largest power grid companies of Vietnam and India and a direct export support of Russian industrial manufacturers. The report included a video



Participants of CIGRE International Colloquium in Winnipeg 2017

the meeting. RNC CIGRE Chairman Andrey Murov, summarized the results of 2017. As A. Murov emphasized, the common strategic objective is creation of a supranational regional association within CIGRE with participation of Russia's partners in EEU.

Alexander Slavinsky, Chairman of the Board of Directors at Izolyator, Head of SC D1 RNC CIGRE Slavinsky in his report gave a detailed account of

about the Russia – India power industry workshop, which went in India and was organized with support from the Indian state power corporation Power Grid and FGC UES.

In accordance with the goals and activities of Study Committee D1 RNC CIGRE, the key targets for 2018 were agreed:

- preparation and participation in the 47th CIGRE Session in Paris;

- on request of RNC CIGRE management SC D1 will work on the organization of Colloquium in Russia;
- expansion of the international activities, suggestion of candidates among the members of the study committee for participation in the activities of international workgroups (WG);
- participation in events, related to SC D1 CIGRE topics;
- invitation of youths to engage in SC D1 activities in order to form a talent pool for RNC CIGRE;
- invitation of new Russian specialists to activities of study committee;
- events, organized by CIGRE and youth section of CIGRE;
- participation in conferences and exhibitions both in Russia and abroad.

For more details about Study Committee activities, please visit the official webpage of RNC CIGRE, Study Committee D1 section.



Meeting of the leading science and technology partners to the Russian National Committee of CIGRE at FGC UES Headquarter



Meeting of SC D1 RNC CIGRE

STRENGTHENING COOPERATION WITH PARTNERS IN EUROPE AND ASIA - OUR PRIMARY OBJECTIVE



IVAN PANFILOV

Commercial Director,
1st Deputy CEO

Success of our partners is the best possible recognition of our work! The highly professional team, advanced equipment, highest quality standards and decades of experience make up the mix of competences that helps us win and retain the trust of our partners all over the world.

Strengthening of partner ties with power grid and generating companies as well as transformer plants in Europe and Asia is a priority objective for Izolyator.

In 2017, we carried on with our common activities with power grid companies and manufacturers of power equipment in France, Belgium, Germany, Turkey, China, India, Vietnam and our old and reliable partners in the CIS countries. I should empha-

size that we set up a productive dialogue with Asian power grid companies and leading manufacturers and transformer and reactor equipment in this region. Already today, we deliver our products to major power facilities of the state Indian power grid company Power Grid Corporation of India Limited and Vietnam's state power grid company Vietnam Electricity EVN.

The leading positions in design, manufacture and

TODAY, ONE OF THE IMPORTANT RESULTS OF OUR MEETINGS AND TALKS IS STUDY OF INNOVATIVE DEVELOPMENT ISSUES IN POWER COMPLEX OF RUSSIA AND INCREASED NUMBER OF ACTIVITIES IN INTERNATIONAL COOPERATION IN RESPECT TO IMPLEMENTATION OF HIGHLY ADVANCED POWER EQUIPMENT, INCLUDING HIGH-VOLTAGE BUSHINGS WITH SOLID RIP INSULATION IN POWER SYSTEMS OF VARIOUS COUNTRIES.



Trilateral meeting at PowerGrid with management representatives led by Chairman and Managing Director of I. S. Jha, Director of Electrical Equipment Technology Development of FGC UES Kirill Lunin and Izolyator power grid companies

OBJECTIVES OF IZOLYATOR ON THE GLOBAL MARKET:

- EXPERIENCE SHARING WITH LEADING POWER GRID COMPANIES
- LONG-TERM COOPERATION WITH WORLD'S LEADING POWER GRID COMPANIES
- LONG-TERM COOPERATION WITH LEADING GLOBAL POWER EQUIPMENT MANUFACTURERS
- IZOLYATOR HIGH-VOLTAGE RIP AND RIN BUSHINGS PROMOTION ON THE GLOBAL POWER MARKET

implementation of modern technologies in power industry rest a big responsibility on our company. We always stress our readiness to openly share the unique experience with our partners, which we hold an integral part of our mission - to create foundation for a stable and sustainable power supply in the whole world.

Objectives of Izolyator on the global market:

- Experience sharing with leading power grid companies
- Long-term cooperation with world's leading

- Long-term cooperation with leading global power equipment manufacturers
- Izolyator high-voltage RIP and RIN bushings promotion on the global power market

Integrative processes in the global power industry allow to establish close interaction in scientific and engineering, promote new technologies implementation in power equipment production, ensure innovative development and secure operation of national power grid in different countries already today.

The experience sharing, which we did in 2017, between Russian and foreign power grid companies became a good basis for development of further cooperation between countries and international exchanges resulting in export promotion of Russian manufacturers.

Izolyator is a leading global supplier of high-voltage bushings of virtually all voltages. The stable quality, professionalism and all-round service support have won trust with clients. We value greatly an opportunity to offer the best solutions to consumers in Russia and abroad.

The power sector requires close attention to equipment, so interaction with partners does not stop at the sales stage, but continues throughout the entire service life of transformer and reactor equipment. Installation and commissioning, warranty and post-warranty service, staff training - altogether ensure a failure-free operation. We address any issues promptly, as time and trust of partners and consumers are our key values.

In 2017, Izolyator received numerous positive references and recommendations from power grid companies, oil companies, transformer plants and partners from different countries of the world.

Despite of projects complexity, the delivery terms of high-voltage bushings are always met; and, in case of a specific situation, our experience with custom-made designs, which take into account complex operation conditions, always helps. Today, Izolyator's



Discussing Russia - Vietnam cooperation development in EVN headquarter



Ivan Panfilov, Deputy CEO of Izolyator and Jieyuan Tian, Director of Bushing (Hongkong) HV Electric Co., Limited signed an Agreement on Cooperation

innovative products are used in many corners of the world and ensure a better security and reliability of power systems operation.

The highly professional and close-knit team of specialists uses every effort to retain and strengthen positions of Izolyator on the markets of power equipment in Russia and the world, dynamically grow sales volume and expand client base of the company.

Professional development of our team by living the principles of open dialogue, support and team spirit is an important priority for commercial division of the company. It helps us give full attention to every customer, set up longterm and mutually beneficial cooperation.

The function and priority of development of every division of Izolyator is creation of a longterm and mutually beneficial cooperation, success of our partners and consumers.

Talking to the biggest global energy makert companies and state power corporations in charge of transmission and distribution specifically, we witnessed that Russia is the sole county in the world to adopt RIP bushings as base products, used on generation facilities and power transmission and distribution lines. In our country, bushings with RIP insulation have been in operation in power lines for over 15 years now.

Thanks to an efficient cooperation with such majors as Rosseti PJSC and consequently FGC UES PJSC, we were able to obtain unique mass use experience of high-voltage bushings with RIP insulation. With an active support from the Federal Grid Company, our dialogue with international power corporations continues.

Already today, the meetings and talks resulted consideration of issues of innovative development of the power complex of Russia and activation of international cooperation in implementation of advanced power equipment including high-voltage bushings with RIP insulation in power systems of various countries.

The largest market players work in integrative projects, promote new ideas, discuss them and share experience. Russia is prepared to become a power bridge between Europe and Asia, promoting emergence of Eurasian transcontinental power pool.

In the near future, electrical energy integration will be a driver of social and economic growth of

related sectors in Russia and the world. It requires coordinated work and communication between power equipment suppliers, scientific community and end users.

Izolyator appreciates input of every participant of the power market, analyzes other brand cases and proudly presents own innovative ideas and designs.

ALL IZOLYATOR ACHIEVEMENTS WERE MADE POSSIBLE THANKS TO THE WELL-COORDINATED WORK OF THE HIGHLY QUALIFIED TEAM, INVOLVEMENT OF EVERY STAFF MEMBER IN ACHIEVEMENT OF THE COMMON GOAL.

The top priority for Izolyator in the near years is to expand presence on European and Asian markets and leadership in design, manufacture and imple-

we intend to work in the future: integrating decades of experience to modern reality and combining it with innovative technologies.



Participants of Izolyator workshop for representatives of electrical corporations of China

AN IMPORTANT PRIORITY IN SALES FORCE OPERATIONS IS PROFESSIONAL DEVELOPMENT OF THE TEAM BY OPEN DIALOGUE, SUPPORT AND TEAM SPIRIT. THIS PRINCIPLE HELPS US TO GIVE MOST ATTENTION TO EVERY CUSTOMER, SETTING UP A LONG-TERM AND MUTUALLY BENEFICIAL COOPERATION.

mentation of modern technologies in power industry.

All Izolyator achievements were made possible thanks to well-coordinated work of highly professional and tight-knit team, involvement of every staff member in pursuit of common goal. This is the way our plant has worked for over 120 years and the way

We would like to thank our partners and consumers for longterm cooperation and active interaction and support to Izolyator in development of dialogue with international power corporations and integration of innovative products to the world market.

RUSSIA — INDIA: DIALOGUE ON COOPERATION DEVELOPMENT



The power complex of India is one of the most rapidly developing in the world by, first of all, introduction of backbone power lines. The longstanding history of relations in power industry between the countries since the USSR times, the successful dialogue between FGC UES PJSC and the state power grid company of India PowerGrid as well as Izolyator's successful operations in India allowed to continue experience sharing between the power grid and industrial companies of the friendly countries.

On 5 - 8 December 2017, Izolyator representatives held several successful business meetings and an open workshop on power industry in India.

Izolyator was represented by:

- Ivan Panfilov, Commercial Director, 1st Deputy CEO;
- Andrey Shornikov, Head of International Business Development;
- Dr. Ashok Singh, Partner of Izolyator in India. The workshop was dedicated to experience sharing between the state companies, engaged in electric power generation, transmission and distribution, and also - between Indian and Russian high-voltage equipment manufacturers for power transmission.

Meeting with the Chairman and Board members of PowerGrid

The Indian side:

- I. S. Jha, Chairman & Managing Director of PowerGrid, President of the National Committee of CIGRE;
- Anish Anand, General Manager (Engineering-TL), PowerGrid;
- S. K. Mishra, Executive Director, PowerGrid;
- R. K. Arora, Executive Director, PowerGrid;
- R. G. Kushwaha, General Manager, PowerGrid;
- Kailash Rathore, General Manager (Engg.-S/S), PowerGrid;
- Sandeep Prakash Sharma, Executive Director, Mehru Electrical & - Mechanical Engineers;
- Binod Thakur, Managing Director, Shyama Power
- R. P. Sasmal, Director (Operations) at PowerGrid, technical Co-chairman of the Indian National



Meeting between FGC UES and Izolyator representatives and I. S. Jha, Managing Director of PowerGrid

- Committee of CIGRE and national Representative in CIGRE on direct current and power electronics;
- R. K. Tyagi, Additional Director of Asset Management at PowerGrid, Chairman at A3 Study committee of the Indian national committee of CIGRE.
- Vikram Singh Bhal, Deputy General Manager (Engg. -S/S) at PowerGrid.
- A. K. Handa, Deputy General Manager (Construction); Pankaj K. Das, Deputy General Manager (Engineering), PowerGrid;
- Pankaj K. Das, Deputy Director / Design, PowerGrid.



Meeting at PowerGrid, L-R: Anish Anand, General Manager / Engineering TL, Kirill Lunin, Ivan Panfilov and Ashok Singh

At the meetings, the sides discussed common issues of power industries of the countries and power transmission, namely, working coordination between PowerGrid and FGC UES in experience shar-

ing, direct and within CIGRE activities, FGC UES's successful record of Izolyator RIP bushings operation.

The meetings participants showed interest in developing cooperation towards more practical exchanges.

AT THE MEETINGS, WE DISCUSSED GENERAL SITUATION IN THE POWER SECTORS OF THE TWO COUNTRIES, WORKING ISSUES OF INTERACTION BETWEEN POWERGRID AND FGC UES IN EXPERIENCE SHARING, BOTH DIRECT AND WITHIN CIGRE STRUCTURE, FGC UES'S POSITIVE EXPERIENCE IN IZOLYATOR RIP BUSHINGS OPERATION.



Meeting with the Indian partners, third on L - General Manager, Head of Procurement and Logistics at CG Power and Industrial Solutions Limited Yogesh Jaiswal



Power Grid Corporation of India Limited (PowerGrid) is an India-based state company engaged in construction, operation and maintenance of inter-state transmission system. The company's core business is transmission of bulk power across the states of India.



Public limited company Federal Grid Company of Unified Energy System (FGC UES PJSC) was founded in the result of power industry reform with the purpose of the national power grid management for its preservation and development.



Transformers & Rectifiers (India) Ltd (T & R), founded in 1994, makes power equipment including a wide range of transformers for both domestic and global markets.

RUSSIA-INDIA OPEN WORKSHOP ON POWER INDUSTRY



PowerGrid management at the open Russia - India workshop on power industry

On 8 December 2017, an open Russia-India workshop on power industry was held in Gurgaon in India. At the invitation of Izolyator, FGC UES PJSC took part in the workshop.

There workshop gathered more than 80 visitors altogether.

- The workshop reached all objectives and tasks:
- continuation of FGC UES and PowerGrid dialogue;
 - the first presentation of Uncomtech trading;



R.K. Tyagi, Additional Director of Asset Management is giving a question on the topic of the workshop



Deputy Export Director of Uncomtech Trading house Dmitry Egorov and Technical Director of Kirskable JSC Ivan Noskov are making a presentation of Uncomtech holding products



Ivan Panfilov is giving a welcome speech and telling workshop participants about Izolyator's achievements



Workshop participants - PowerGrid representatives: Deputy General Manager / Substation Design Vikram Singh Bhal, Puneet Tyagi, Manager, Abhay Kumar, Manager, K.K. Sarkar, Manager, Abhijeet Jha, Manager

- informing clients of PowerGrid and transformer plants of India about the necessity of replacement of OIP HV bushings with service life exceeding 25 years;
- detailed account of operations at installation and operation of Izolyator RIP bushings with description of possible blunders that need to be avoided.

Upon completion of the business part, the organizers gave the Indian partners certificates, thank-you bouquets and corporate giftware. A gala dinner that went in an informal, warm and

friendly atmosphere concluded the workshop.

We appreciate Power Grid Corporation of India Limited and the organizers of the workshop and meetings for the execution of this important event on a high professional level and efficient cooperation!

In 2018, we will continue to develop a productive dialogue with the Indian partners, deliver our products and share experience in operation and maintenance of high-voltage bushings.



Organizers of Russia - India open workshop on power industry



CG Power Systems Belgium NV (formerly Pauwels Trafo Belgium NV) is an engineering conglomerate with a 2 bln USD turnover and a wide range of products, solutions and services for power industry. Formerly known as Crompton Greaves Limited, it received a new name on 27 February 2017.



TBEA is an enterprise group which is accredited by Chinese government, to be engaged in foreign economic and technical cooperation and to undertake national external assistance projects in four industrial fields: Transmission, Transformation, New Energy and Advanced Materials.



Uncomtech Trading House, Public listed company Uncomtech Managing Company, Irkutskable JSC and Kirskable JSC for a holding, engaged in production and sale of cabling products. The plants are among the largest cables and wires manufacturers of Russian Federation.



Toshiba Transmission & Distribution Systems (India) Pvt. Ltd. (TTDS) produces transformers. The company was incorporated in 2013 and is based in Medak, India. Toshiba Transmission & Distribution Systems (India) Pvt. Ltd. operates as a subsidiary of Toshiba Corporation.

RUSSIA - VIETNAM: DEVELOPMENT OF STRATEGIC PARTNERSHIP



Izolyator has been actively developing cooperation and export of high-voltage bushings to the Republic of Vietnam. Today, the company is proud, appreciative and thankful to Vietnamese colleagues for the opportunity to stay in a productive and open dialogue with power men and electrical products manufacturers such as Vietnam's power grid EVN and Dong Anh Electrical Equipment Corporation. In 2017, we carried on with relations development on all levels of both state and private partnership.

SUCCESSFUL EXPERIENCE OF SUPPLY AND BUSHINGS REPLACEMENT AT HOA BINH SUBSTATION

In May 2017, according to the arrangements of 2016, 220 kV Izolyator RIP wall bushings from the first batch were installed at the power plant. Izolyator HV bushings, made by the plant in the past and having operated at the power station for 25 years, were replaced with HV RIP bushings with rated voltages from 72 to 220 kV.

VISIT OF FGC UES TO VIETNAM

In August 2017, the Federal Grid Company of Russia management paid a working visit to Vietnam. The FGC UES delegation, lead by Chairman Andrey Murov, had meetings with the management of the state power grid corporation of Vietnam EVN NPT and EVN holding, also visiting power infrastructure facilities near Hanoi.

opment after Pavel Korsunov, Deputy Chairman at FGC UES PJSC made a report on the topic.

The Chairman of the Board of Directors of Izolyator Alexander Slavinsky represented Russia's industrial manufacturing sector. In his report, he mentioned about a wide range of electrical equipment, made on the territory of Russian Federation, and presence of the manufacturers of the most demanded 330 kV and higher classes equipment in the market. He also spoke about highly professional and competitive pool of transformers and autotransformers makers (550 kV and higher).

Signing of the Russia - Vietnam Memorandum of Understanding between the power grid companies became the main practical result of the meeting. Both sides reflected the main approaches and directions of long-term cooperation in the document, and decided to keep the achieved arrangements both in the short-term and 3-5 year perspective. The sides plan is to share experience in construction, operation and management of bulk power transmission networks, train personnel, create and implement newest technologies.

Andrey Murov, FGC UES Chairman and Vu Ngok Minh, EVN NPT President and General Director put their signatures on the memorandum in presence of the Chairman of the Board of Directors of EVN NPT Dang Phan Tuong and the delegates from both sides. Besides, the Russian delegation visited the headquarter of EVN to have a working meeting with Vice President of EVN Ngo Son Hay. The sides agreed to take all efforts to make the memorandum a working document and expand coordination as and when necessary.



Andrey Murov is addressing participants of the Russia - Vietnam meeting



Russia - Vietnam meeting with participation of EVN NPT, FGC UES and Izolyator is opened by Dang Phan Tong



Alexander Slavinsky's report at the Russia - Vietnam meeting



220 kV RIP bushings by Izolyator at Hoa Binh HPP

RIP TECHNOLOGY PROMOTION IN THE POWER FACILITIES OF VIETNAM

Russian power grid is not only the longest in the world (over 140 000 km!) but also the most experienced operator of high-voltage bushings with solid RIP insulation. The unique experience of mass use of HV RIP bushings in Russia attracts more and more attention in both Europe and Asia, where the obsolete bushings with oil-in-paper insulation are still widely used.

The practice showed that the solid insulation is more reliable and safer, so one of the key targets

At the plenary meeting the Chairman of the Board of Directors of EVN NPT Mr. Dang Phan Tuong told about specifics of the power systems of Vietnam, prospects of its development and investment potential.

Andrey Murov presented operational indicators of FGC UES, summarized results of the previous meeting and informed about power industry arrangements that were reached during talks between RF President Vladimir Putin and President of the Republic of Vietnam Tran Dai Quang in the Kremlin on 29 June 2017.

The sides also discussed the investment program and the program of energy systems devel-



Participants of the visit to 500 kV Thuong Tin substation

of Izolyator is to tell about the advantages of application and maintenance of HV RIP bushings to the partners all over the world. This priceless and unique 15-year experience of HV RIP bushings application at FGC UES PJSC and the worldwide trend with the leading power grid companies to make a transition to high-voltage RIP bushings, as was

with PGCIL in India, raised interest with EVN NPT and allowed Izolyator to set up a dialogue and deliver a presentation on application examples and advantages of RIP bushings in FGC UES power network in Russia. Nguyen Minh Tang, Member of the Board of Directors at EVN NPT took part in the workshop.



Dong Anh Electrical Equipment Corporation (EEMC) has years of tradition and experience of design, manufacture, supply and maintenance of electrical equipment for the national power sector, for example, for the largest national projects, such as 500 kV NhoQuan substation, thermoelectric substation VungAng 500 kV.



The state power company of Vietnam — Vietnam Electricity (EVN) is fully responsible for transmission and distribution of electric power in the country. The key activities of the company are production, transmission, distribution and sales of electric energy, operation of production management system.



The state power company of Vietnam EVN National Power Transmission Corporation (EVN NPT) was founded in 2008 as result of reorganization of activities of four transmission companies: Power Transmission Company No.1, 2, 3, 4 and three power project management offices - Northern, Central and Southern.

Izolyator would like to express gratitude to EVN NPT and FGC UES for an opportunity to demonstrate its knowledge and give a detailed account of the successful longstanding practice of HV RIP bushings operation in the power transmission and distribution systems in Russia.

DIALOGUE CONTINUED

In November 2017, Izolyator representatives paid a business visit to Vietnam.

sia-Vietnam cooperation development in regard to power equipment deliveries. Besides, our colleagues had talks with representatives of the Dong Anh power equipment plant.

The common result of all meetings are contacts with new business partners, successful promotion of advanced RIP technologies in the new markets and confirmation of an order for the advanced Izolyator products in 2018. Besides, the sides came to an agreement to organize a technical workshop

IT IS PROVED BY PRACTICE THAT THE SOLID INSULATION IS MORE RELIABLE AND SAFER, SO IT IS ONE OF IZOLYATOR'S KEY OBJECTIVES TO TELL ABOUT THE ADVANTAGES OF RIP HV BUSHINGS TO PARTNERS ALL OVER THE WORLD

During the visit, the company management had several productive meetings, VATCO, Izolyator partner in Vietnam being among the first. At the meeting the partners discussed questions of cooperation in 2018, prospects of orders in the coming periods and bilateral cooperation development.

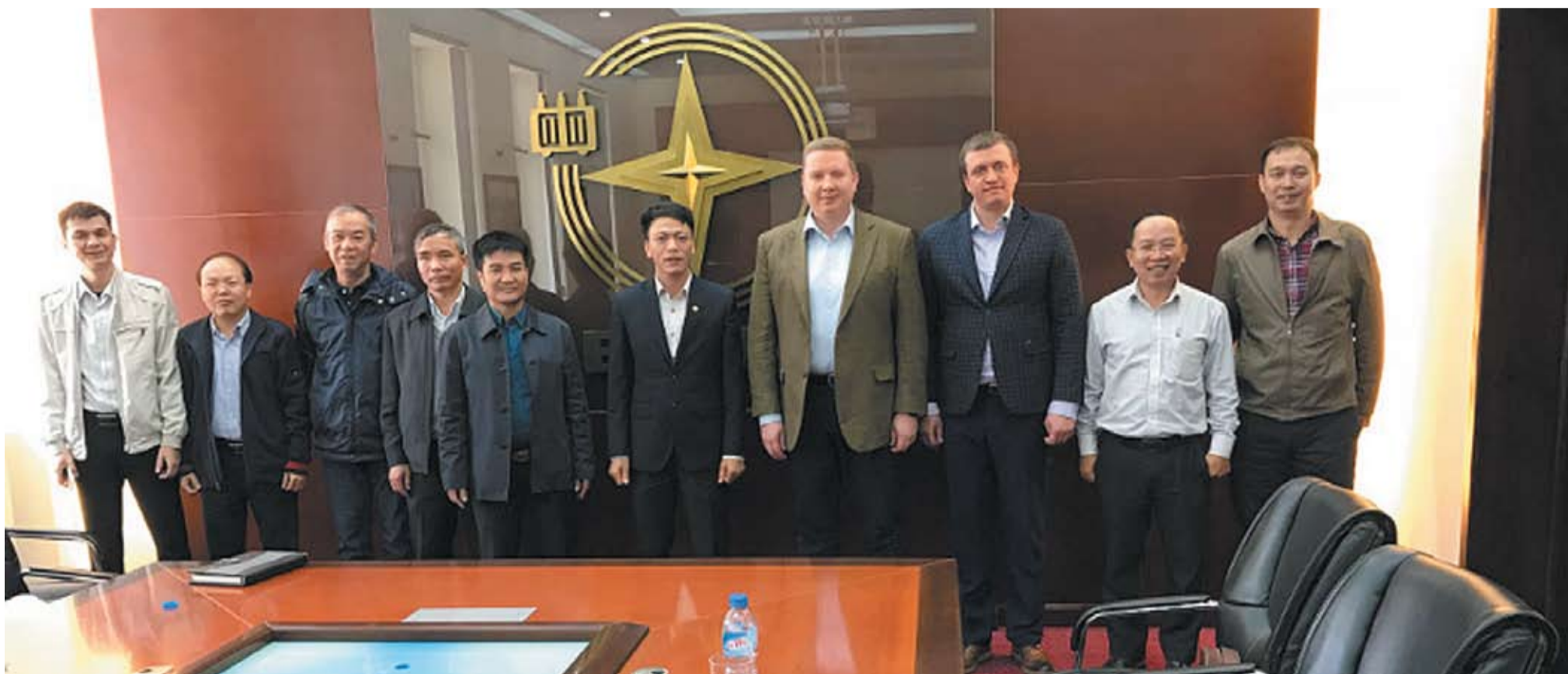
Based on the arrangements, reached during FGC UES PJSC's top management visit to Vietnam in August 2017, Izolyator visited EVN NPT's office to express respect to discuss steps of further Rus-

for the specialists from Vietnam in the first quarter of 2018.

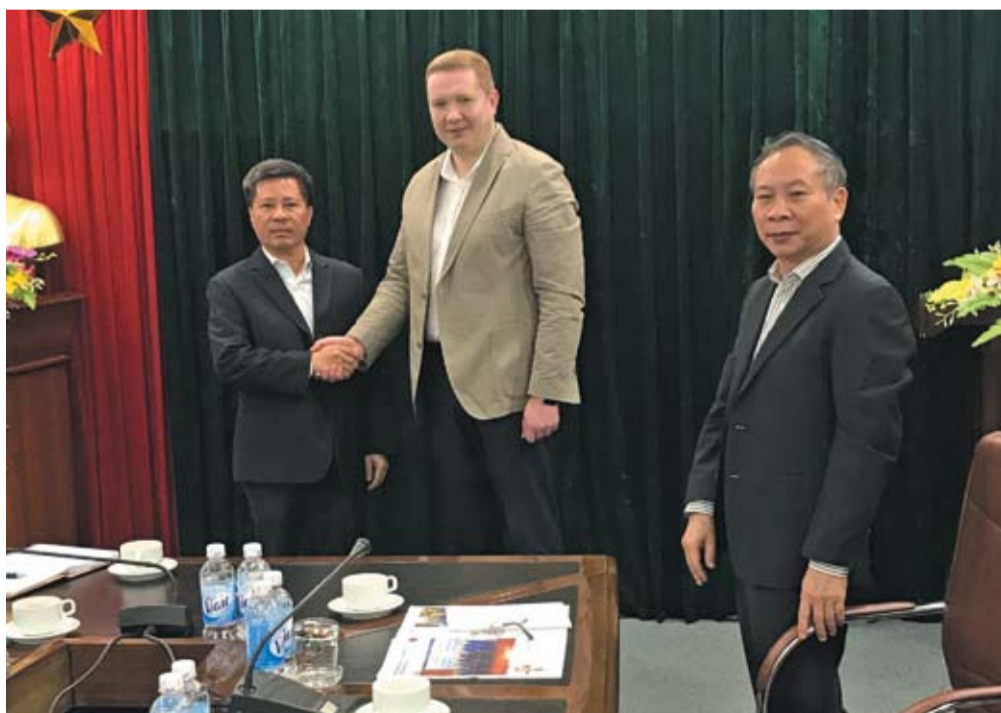
In the result of the meetings, our partners confirmed intention to carry on with experience sharing in order to raise the quality and security of electric power transmission in Vietnam as well as decrease of operational costs at power equipment operation.



A. Shornikov and I. Panfilov by the head office of Vietnam's power grid company EVN NPT



Meeting with General Director of EEMC Nguyen Vu Cuong



Meeting with Chairman of the Board of Directors of EVN NPT Dang Phan Tong



Izolyator representatives at talks with Chairman of the Board of Directors of EVN NPT Dang Phan Tong participation



The Hoa Binh Hydropower Plant — the Hoa Binh Hydropower Company (Hoa Binh HPC) — is the largest in Vietnam and entire South Eastern Asia comparable with Son La HPP. The power plant is located on the river Da in Hoa Binh province. The dam is 128 m high and 970 m long.



Stock Company (Vatco) is a leading supplier of materials, equipment, parts for hydraulic and thermal power plants built in Vietnam with participation of the Soviet Union and a reliable supplier of equipment for power stations from developing countries.

TRUST ON INTERNATIONAL LEVEL



ANDREY SHORNIKOV

Head of International Business Development

Development and prosperity in modern world largely depend on how a company meets demands of society, follows trends and attempts to grasp them. For the sales team of Izolyator it is evident that support and development of partner relations all over the world is an inherent part of work. Aiming at global leadership in design, production and implementation of modern technologies in power industry, we study and optimize operations all the time. In 2017, we purposefully reached our targets and we do have the reasons for expressing gratitude to our partners.

We can easily call Izolyator's strategic goals in foreign trade activities ambitious, but only such goals help us to move on. When planning an efficient and longterm cooperation on the international market, we have outlined several directions of special interest to us.

In 2017, the focus of our activities was directed to the countries where Izolyator products are al-



Inspection of Izolyator bushings tests by J. Surya Prakash, Director of TSTRANSCO

ready well known and recognized - Belgium, Italy, Vietnam and India, and to those countries, where we continue to develop an active dialogue, such as for instance, Saudi Arabia and Turkey. Notably, we were able to share our business development activities with such new destinations as China and South Africa.

CONSTRUCTIVE DIALOGUE WITH INDIAN COLLEAGUES

 The fruitful cooperation that we set up with our partners in India has become a certain landmark in our global expansion. Maintaining an active dialogue with regional grid and generating companies, strengthening mutually beneficial and long-


term relations with major consumers of bushings in the Indian market, we were able to increase our order portfolio. Importantly, our discourse retains its open nature. So, Izolyator is the first in the world to supply high-voltage bushings with RIP insulation to the state Power Grid Corporation of India Limited, with a series of workshops run for technical specialists of Power-Grid, regional grids APTRANSCO, TSTRANSCO and transformer plants T%R, CG, TELK, TBEA, TOSHIBA, where we familiarized our Indian colleagues with the technical and design features of Izolyator products.

Having expanded its presence, Izolyator started to work with the companies that manage power distribution systems in the states of India.

In 2017, specialists of the Indian PowerGrid TSTRANSCO paid a visit to Izolyator plant to inspect a series of high-voltage bushings. The successful tests of 145 kV 1250 A RIP bushings at Izolyator plant and 30 pcs 52, 252 and 420 kV high-voltage bushings at the All-Russian power engineer institute named after V.I. Lenin demonstrated to our partners that Izolyator products can be and should be trusted. The tests and inspection went in strict conformity with 60137-2008 IEC requirements, confirming the high quality of our products.

Besides, we received several orders for bushings of various voltages from Indian power grid companies and transformer makers, which were delivered just in time in line with the contractual obligations. We keep to maintain and develop a productive dialogue with the Indian partners, send our products and share experience in operation and maintenance of high-voltage bushings.

WELL-ESTABLISHED PARTNERSHIP FOR MANY YEARS TO COME

 Power engineers all over the world gradually switch to high-voltage bushings with solid RIP insulation - and the global trend in 2017 only strengthened these positions. Expansion of international cooperation and promotion of innova-



220 kV RIP bushings by Izolyator installed on a transformer at Hoa Binh HPP (Vietnam)



The Transmission Corporation of Telangana Limited (TSTRANSCO) was founded in the result of India's power industry reform. Initially the power company of Andhra Pradesh State APSEB, which came into existence in 1959, was responsible for generation, transmission and distribution of electricity.



GE Grid Solution works with clients all over the world, having more than 20 000 employees in 80 countries. GE Grid Solutions helps power grid operators and industrial clients to effectively manage electric power from production site to consumption, allowing to maximize reliability, efficiency and fault tolerance of power systems.



CG Power Systems Belgium NV (formerly Pauwels Trafo Belgium NV) is a developer of innovative, high-quality, reliable products and turnkey solutions with manufacturing units in Belgium, Ireland, USA, Canada and Indonesia and several Business Units: transformers, switchgear, systems, automation, services.



Visit of CSG representative Dang Zhenping to the test center of Izolyator plant

WE ARE PROUD OF THE FACT THAT BY STRENGTHENING LONG-TERM AND MUTUALLY BENEFICIAL RELATIONS WITH PARTNERS ALL OVER THE WORLD WE MAKE A CONTRIBUTION TO DEVELOPMENT OF TIES BETWEEN COUNTRIES.

tive development of the power complex between the national and regional power systems are strategic objectives of the national level. We are proud that when strengthening mutually beneficial and long-term relations with partners all over the world we make an impact on development of interstate relations. There is a wonderful illustration to the above: our cooperation with the leading energy companies of Vietnam and major transformer manufacturers of the region. The largest state power grid company together with its subsidiaries, structurally related to the Ministry of Industry and Trade of Vietnam - Vietnam Electricity EVN has become a reliable partner to Izolyator. The power engineers of Vietnam are well familiar with Izolyator bushings as the plant's bushings, supplied to the power facilities in Vietnam more than 25 years ago, soundly operate to-date.

The dialogue with Hoa Binh HPC is a good example of an efficient interaction resulting in a large common work to evaluate technical condition and residual life of power equipment at the hydropower plant, including the obsolete high-voltage bushings with oil-in-paper insulation (OIP), delivered by Izolyator plant a long time ago. Today, 220 kV RIP bushings are successfully operating on the transformer equipment of Hoa Binh HPP. Izolyator supplied those pieces in 2016. In May 2017,

Hoa Binh power station had the first batch of 220 kV RIP wall bushings installed and put in operation.

REGULAR CONTACT

Communication with European partners continued in 2017. Our sales people also visited several EU companies in order to develop a productive dialogue, share

experience and news about our recent achievements. The talks with global multinationals like General Electric do play a special part as Izolyator keeps sending shipments in their address. We are pleased to continue our regular visits to the Belgian transformer plant of CG, which uses Izolyator high-voltage bushings

for the needs of Belgium's power grid Elia, and with which we enjoy strong business relations. We have made progress in developing ZREW transformer plant with several shipments already sent to this client.

Generally, I could describe Izolyator's operation in Europe as extensive and grand-scale. We were able to show to our foreign partners that the solid RIP insulation is reliable, secure and modern. That is why more and more partners all over the world begin to trust us. We are proud that Izolyator exports its products to more than 30 countries in the world and the staff members are always open to start an open and friendly dialogue with partners.

REACHING NEW HORIZONS

 It is of special importance for us to enter new markets and China with its colossal volume is a perfect example. It is a sole county to have the longest ultrahigh voltage direct current power lines. For China, Izolyator has designed a DC bushings product line for the whole range of voltages, including a transformer bushing with 800 kV rated voltage, which we made and successfully tested both in Russia and China.

In 2017, Izolyator representatives visited several companies in China, discussing cooperation prospects with their management. At the end of September, Izolyator also held a technical workshop for Chinese electrical engineering corporations.

 Finally, we signed an important agreement granting Bushing (Hongkong) HV Electric Co., Limited a partner status on the electrical products market of China. Within the framework of our cooperation, Bushing (Hongkong) HV Electric Co., Limited will provide current information about the condition, trends and parameters of the Chinese power equipment market with primary focus on the high-voltage bushings category.

We are confident that the 2018 will be a new step towards building our success and well-being. We would like to thank our partners and wish you a smooth pace work, discoveries and achieving common targets! On our side, we are prepared to render all-round support from assisting with equipment installation to delivering technical trainings for the staff of our partners.



Meetings participants at BEST plant, L-R: Procurement Specialist Ali Riza Deniz, Andrey Shornikov, Manager Administration and Production Operations Devrim Demirbash, Engineer Erkan Ozdemir, Group Leader Barbaros Kavaklioglu, Head of Export Sales Ozlem Aksoy and Yaroslav Sedov



The state power grid company Elia is Belgium's system operator and a key player on the energy market of Europe. The company operates a system of 30 - 380 kV networks, over 8,000 km of lines and underground cables throughout Belgium.



ZREW Transformatory (Poland) manufactures, maintains, modernizes and runs diagnostics of oil power transformers. The company makes transformers for distribution networks, block transformers for power plants and thermal power plants up to 125 MVA with rated voltages up to 170 kV.



Bushing HV Electric Co., Ltd. is a Chinese trading company specialized in power equipment.

ACTIVE DIALOGUE WITH PARTNERS IN CHINA



Izolyator is active in international business development. We are building relations with Chinese power and industrial companies on mutually beneficial basis. In 2017, we had several good meetings with Chinese partners where we discussed our further cooperation.

of China, which became a special point of agenda of the visit to China. The companies participating in the seminar: China Energy Engineering Group Shaanxi Electric Power Design Institute, State Grid Shaanxi Electric Power Company, China XD Electric Co. LTD, Xi'an XD High Voltage Apparatus Co., Ltd, Xi'an XD Transformer Co., Ltd.

During the presentations, representatives of Chinese companies had an introduction to Izolyator and its products. The speakers made a special mention about design features and successful operational experience of Izolyator high-voltage bushings with solid RIP insulation in Russia and leading energy companies of the world as well as the company's foreign trade activities.

Izolyator representatives visited several electrical engineering companies and research institutes in China. Izolyator delegation included Ivan Panfilov, Commercial Director and Andrey Snornikov, Head of International Business Development and col-



Participants of the meeting at PowerChina Beijing by the corporate headquarter

THE TECHNICAL WORKSHOP FOR REPRESENTATIVES OF ELECTRIC EQUIPMENT RESEARCH AND PRODUCTION CORPORATIONS OF CHINA BECAME A SPECIAL POINT OF THE DELEGATION'S AGENDA IN CHINA.

leagues from Bushing (Hongkong) HV Electric Co., Limited - Izolyator's partner in China.

In April 2017, Izolyator sales people visited PowerChina Beijing Engineering Corporation Limited in Beijing and Tianwei Baobian (Hefei) Transformer Co., Ltd. plant in Hefei. The sides discussed recent trends of the electrical equipment market development and outlined cooperation development steps at the talks.

Among the most remembered moments, we can mention the visit to the State Nuclear Electric Power Planning Design & Research Institute) in Beijing and the China Earthquake Administration, located in the advanced technologies development zone YanJiao, Hebei province. Izolyator representatives familiarized themselves with the testing equipment of CEA and held talks with the center's administration about joint seismic tests of electrical equipment.

Later, Izolyator representatives went to Shenyang Transformer Research Institute, where they discussed issues of high-voltage bushings, including DC bushings, testing with the institute's administration. Then, Izolyator delegation paid a visit to China XD Group plant in Xian.

Izolyator held a technical seminar for representatives of research and manufacturing corporations



At the talks at Tianwei Baobian (Hefei) Transformer Co., Ltd plant



Participants of the meeting at the State Nuclear Electric Power Planning Design & Research Institute



Visit to the test laboratory of Shenyang Transformer Research Institute



PowerChina Beijing Engineering Corporation Limited (PowerChina Beijing) was founded in 1953. It is one of the earliest hydropower investigation and design institutes in China. PowerChina Beijing is a state-owned enterprise affiliated to Power Construction Corporation of China.



中国地震局
CHINA EARTHQUAKE ADMINISTRATION

China Earthquake Administration, CEA is a state body, responsible for forecasting of earthquakes and minimization of damage.



China Southern Power Grid Company Limited (CSG) is one of the two state-owned enterprises established in 2002 according to the precept to reform the power system promulgated by the State Council of the People's Republic of China.



Participants of the meeting at Shenyang Transformer Research Institute



sis, our company produced marketing materials - Company Profile and Product Catalogue in Chinese. Besides, Izolyator corporate video and training video about high-voltage bushings installation were produced.

The Chinese version of Izolyator webpage was another step towards setting up an open experience sharing and international dialogue development for the strengthening of longterm partner relations.

In 2018, Izolyator will continue to develop an active dialogue with Chinese electrical corporations and manufacturers of power equipment in regard to supplies of high-voltage bushings to the power facilities of China. We appreciate our Chinese partners for productive cooperation and realization of common projects.

During the business trip, Izolyator signed an Agreement granting Bushing (Hongkong) HV Electric Co., Limited status of Izolyator's partner on the electrical equipment market of China. According to the partnership agreement, Bushing (Hongkong) HV Electric Co., Limited will provide marketing information about the condition, trends and China's power equipment market's demand in electrical products and high-voltage bushings particularly. Also, upon approval of Izolyator, Bushing (Hongkong) HV Electric Co., Limited will be prepared to set up direct business contacts and develop long term relations with consumers of high-voltage bushings - power and industrial companies of China.

Representative of the state utility China Southern Power Company Limited and Izolyator's partner in China Bushing (Hongkong) HV Electric Co., Limited continued to familiarize themselves with the products of Izolyator plant during their trip to Moscow. The guests had an introduction to the modern production technologies of high-voltage bushings with RIP insulation and could see advanced equipment in operation.

Stressing the importance of relations development with Chinese power and industrial companies on long-term and mutually beneficial ba-



Izolyator representatives at China XD Group, L-R: Ivan Panfilov, Andrey Shornikov and Xie Zhengbin, representative of Bushing (Hongkong) HV Electric Co., Limited - Izolyator's partner in China



China Southern Grid Company Limited representative Dang Zhenping is familiarizing himself with manufacturing process at Izolyator



A fragment of video Installation of high-voltage bushings with RIP insulation, made by Izolyator, in Chinese language



The State Nuclear Electric Power Planning Design & Research Institute, SNPDR I is engaged in development and implementation of modern technologies in the following areas of power industry in China: nuclear power, thermal power, energy systems and renewable sources of energy.



Tianwei Baobian Electric (TWBB) is one of the leading domestic manufacturers of transformers of 750 kV, 500 kV and below on the domestic market of China. It is a qualified product and service supplier for nuclear power plants, thermal power and hydropower plant of 1000 MW capacity and below. The company's large transformers are exported to 30 countries of the world.



China XD Group develops, tests and manufactures equipment for electric power transmission, distribution and control. The group offers AC and DC equipment for high, ultra-high and extra high-voltage applications.

EXPANDING PRESENCE




YAROSLAV SEDOV
Head of EU Sales


Promotion of international activities and integrative development of the power complex in the regional markets and the global arena are priority objectives on state level that Izolyator is motivated by in order to reach its targets. The company's strategic task is setting up relations on interstate level with active involvement of Russian power grid companies.


High-voltage bushings are an inseparable part of sustainable power supply system of the entire world, including the most developed market of Europe. In 2017, we carried out a series of successful shipments to our European partners and were able to develop new destinations. For instance, we executed deliveries to CG Power Systems Belgium NV (Belgium), GE (Switzerland), ETD (Czech Rep) and ZREW (Poland). Besides, we received orders from Turkey and Bulgaria. Last year, Izolyator also completed an order for HV bushings with innovative RIN insulation from CG.

 In 2017, we had a series of sales meetings with CG to strengthen our relations. We were able to reach stability and transparency in relations and get a clear vision of our common activities. CG is the largest partner to Izolyator on the European market today. We received orders for more than 100 pcs high-voltage bushings for rated voltages from 52 kV to 300 kV. Besides, we sent shipments of 100 kV, 172 kV and 300 kV RIN bushings.

 In the framework of international cooperation, we pay a special attention to development of relations with multinational corporations. In 2017, for instance, we sent a shipment to General Electric, marking a new round of our cooperation.

Izolyator, using its references on the European market, set up a dialogue with the Polish transformer plant ZREW and Czech transformer maker ETD, with which we not only have friendly relations, but already completed in 2017 shipments.

 We are prepared to render our partners an all-round support and make our products in the shortest possible time. Thus, in December 2017, our company realized a project for manufacture and delivery of 42 wall bushings for CEZ Razpredelenie Bulgaria in the shortest period of time.

 Our news from the market of France should be definitely mentioned. We passed the first stage of production audit from the French JST, so we expect to discuss the first orders in 2018. We



Meeting participants at ETD Transformatory, L-R: Peter Mandik, Victoria Loshchinina and Yaroslav Sedov

WE ARE PREPARED TO PROVIDE OUR PARTNERS WITH ALL-ROUND SUPPORT AND MANUFACTURE PRODUCTS IN THE SHORTEST AVAILABLE TIME



Participants of the talks at JST Transformateurs, L-R: Victoria Loshchinina, Frederic Palmer and Yaroslav Sedov



Representatives of Siemens AG are familiarized to production process at Izolyator plant



Balkesir Elektromekanik Sanayi Tesisleri A. S. (BEST) is a manufacturer of high-quality and reliable distribution and power transformers. BEST is the largest national manufacturer in Turkey, which enjoys reputation of a reliable supplier to more than 50 countries.


CG Power Systems Belgium NV (formerly Pauwels Trafo Belgium NV) is a developer of innovative, high-quality, reliable products and turnkey solutions with manufacturing units in Belgium, Ireland, USA, Canada and Indonesia and several Business Units: transformers, switchgear, systems, automation, services.




Siemens AG (Berlin and Munich) is a global technological leader, adhering to the highest standards of technological excellence, innovation, quality and reliability over the 165 years of its history. The company operates in more than 200 countries, focusing on the areas of electricity management technologies, automation and digital.

began dialogue on implementation of a large program of OIP bushings replacement with RIP bushings.

 Strengthening positions on the European market, Izolyator passed an audit of one of the biggest manufacturers of high quality and highly reliable distribution and power transformers in Turkey - Balikesir Elektromekanik Sanayi Tesisleri A. S. (BEST). In the result of the audit, we proceeded to discussing sales order of the first batch of high-voltage bushings, which we expect to complete in the first quarter of 2018. We once again demonstrated that our experience in operation of RIP high-voltage bushings of various applications allows us to find optimal solutions for our partners. Through its complete operations cycle, Izolyator proves that its products meet the highest quality standards and the company itself is a professional and reliable partner.

 Our company has a rich history of relations with Siemens AG Concern and we are actively cooperating now. Thus, in 2017, representatives of Siemens AG visited Izolyator plant. The talks pursued possibility of using Izolyator's potential for delivery of completing parts for the equipment, made at Siemens Transformers plant in Voronezh.

 Several visits to the dynamically developing transformer plants ASTOR and ELTAS were productive for our company. In 2018, our priority is to maintain and strengthen partner relations with these transformer plants by providing them with the shortest available production time of quality high-voltage bushings.

We would like to express our gratitude to our partners in Turkey - TEMPEK for their active efforts on the Turkish market to promote Izolyator products. We are looking forward to one more productive year in this region.

In 2018, we intend to strengthen our mutually beneficial and longterm relations with partners and expand presence, looking at new promising destinations. Thus, for example, the French market raised a great interest, since it possesses a large share of nuclear power, which requires products of the highest quality and conformity to strict standards, which our products meet 100%. We will strengthen presence in Turkey.

 Currently, we are looking into a possibility of entering the market of Saudi Arabia, which is one of the key players on the global power market.

We appreciate our partners and colleagues for their high interest to our products, constructive dialogue and look forward to working together for the achievement our goals in 2018!



Meeting with Siemens AG representatives at Izolyator plant, L-R: Yaroslav Sedov, Maxim Zagrebin, Head of Purchasing at Siemens AG Maik Roethe, Global Sourcing Manager at Siemens AG Frank Zelbiger, Director of Procurement and Logistics of Siemens Transformer Ltd Iskren Tsekov and Alexander Znamenskiy



Participants of meeting at GE Turkey, L-R: Yaroslav Sedov, Armagan Ceylan and Ivan Panfilov



Meeting participants at Astor Transformer A. S. plant in Turkey



Astor Transformatör A.Ş. производит трансформаторы для передачи и распределения электроэнергии. Компания производит масляные и сухие полимерные трансформаторы и силовые трансформаторы 200 MVA на класс напряжения 300 кВ на своем заводе площадью 26000 кв. м, расположенном в индустриальной зоне Анкара Синкан площадью 36000 кв. м.



Eltaş Transformatör выпускает трансформаторы, которые экспортируются в более чем 50 стран мира на 4 континентах. Россия, Туркменистан, Азербайджан, Нидерланды, Германия, Иордания, Нигерия, Ирак, Иран, Египет, Конго и Эфиопия являются ключевыми экспортными рынками. Eltaş Transformatör предлагает 3 продуктовые группы.



ETD transformatory (Чехия) обладает опытом производства распределительных, силовых и других типов трансформаторов мирового качества с 1923 года. Текущая линейка продукции завода представлена силовыми трансформаторами (одно- и трехфазными, регулируемыми и нерегулируемыми), автотрансформаторами, печными трансформаторами.



Более 60 лет французская компания JST Transformateurs поставила работу с технологиями трансформации электрической энергии. Среди заказчиков компании — крупнейшие мировые игроки на рынках производства, передачи и распределения электроэнергии, железнодорожных перевозок, а также тяжелой промышленности, как крупнейшего потребителя электричества.

A BIG RESPONSIBILITY OF BEING A STRATEGIC PARTNER



MAXIM OSIYOV
Head of CIS Sales


The countries, entering CIS, have always been one of the most important destinations for Izolyator. We have common history, geographic proximity as well as ethnic and cultural similarity. We strengthen and develop relations with power grid companies and power equipment OEMs of Armenia, Georgia, Moldova, Tajikistan, Kazakhstan, Belarus and Ukraine: this trend existed in 2017 and will remain in 2018.

In 2017, aside from achieving set targets, we managed to significantly expand geography of Izolyator products deliveries. With great interest, we are bidding in new tenders and having won, carried out shipments of high-voltage bushings to our customers just in time. At the same time, we strengthened relations with our old partners who were able to witness the quality and reliability of Izolyator products. We are always happy to receive guests at our plant, organizing plant tours and introducing them to our technologies and innovative designs. We appreciate greatly to see how these meetings find response and raise genuine interest.

ATMOSPHERE OF MUTUAL INTEREST

Possessing an impressive experience, we strive to make our contribution to an unending professional development of power industry professionals

and treat every opportunity of technical workshops organization for technical specialists of our partners with responsibility.

 Thus, in December 2017, Izolyator held a workshop «Specifics of design and operation of high-voltage bushings» for the staff members of the technical and commercial divisions of Kentau Transformer plant - the sole transformer maker in the Republic of Kazakhstan.

The Senior Manager of CIS Sales Dmitry Karasev made a presentation about Izolyator and its products and familiarized the audience with the key results and achievements of the year, which we made possible for the company in cooperation with CIS and Non-CIS partners. Leading Technical Support Specialist Victor Kiryukhin spoke about new designs of Izolyator plant, including bushings with solid RIN insulation.

The specialists of Kentau Transformer plant received certificates. Besides, after the workshop, the

technical features of key products, results of products tests at the plant, marking the importance of controlled parameters of high-voltage bushings at products release to operation. They also gave a short overview of the trends that prevail in design and application of insulating materials, giving answers to questions.

Meeting with partners from various countries, we always mention that only authorized Izolyator plant representatives who have an official certificate from the plant should be contacted. Should any doubts arise, you can always verify received information with sales managers of our company. Unfortunately, we have come across situations

AT MEETINGS WITH PARTNERS FROM DIFFERENT COUNTRIES, WE ALWAYS EMPHASIZE THAT COOPERATION WITH AUTHORIZED SUPPLIERS OF HIGH-VOLTAGE BUSHINGS, THAT HAVE A CERTIFICATE OF OFFICIAL REPRESENTATIVE OF IZOLYATOR PLANT, IS VERY IMPORTANT TODAY.


Last year, the company gave workshops to the specialists of electric shop of Ekibastuz SDPP-2 in Kazakhstan, Osh company of high-voltage power lines, branch of National Electric Network of Kyrgyzstan

when mala fide suppliers offer our consumers in the CIS countries used Izolyator bushings presenting them as brand new. They cannot ensure their reliable and fault free operation on power equip-



Participants of Izolyator workshop at Kentau transformer plant

sides had talks to discuss the purchase volume of high-voltage bushings in 2018 and cooperation development incentives.

 In 2017, our company together with EnergoSroyAlliance also ran a video seminar for the State production association Belenergo, Minsk, Belarus.

Chairman of the Board of Directors Alexander Slavinsky and Head of SVN-Service Dmitry Mashinistov spoke about the history and development of the company, priorities of strategy and detailed



Technical seminar of Izolyator and EnergoSroyAlliance for Belenergo SPA

guzstan JSC, Uzbekenergo JSC, the Republican unitary enterprise Chernomorenergo in Sukhum, Abkhazia.

It should be said that such events go in the atmosphere of mutual interest, making them an inspiring experience for all our speakers. The seminars continue into a productive dialogue between professionals, during which all the sides receive a huge volume of useful information.

ment and Izolyator's warranty does not cover high-voltage bushings, delivered by non-certified suppliers. We encourage all our consumers to contact for verification.

DETAILED INTRODUCTION TO TECHNOLOGIES

Izolyator provides an entire range of services from new designs of high-voltage bushings with internal



Handing over certificates of participation to the specialists of Kentau transformer plant




The state production association of electric energy Belenergo (SPA Belenergo) organizes secure, reliable, economically efficient operation and innovative development of production, distribution and sales of electric and thermal energy.




Kentau Transformer Plant JSC (KTP JSC) makes modern highly productive equipment allowing for efficiency increase of industrial enterprises. The key strategy of Kentau transformer plant is supplying the best electric engineering products to the market.

RIP insulation to warranty and post-warranty service, consulting users and running diagnostics.

We are interested to be perceived as not merely a manufacturer, but rather a reliable strategic partner. We do have what to tell and share with our partners, and the best way to do that is a personal meeting.

 Therefore, we are always happy to welcome guests at Izolyator plant to tell about our work and give details on various aspects of it. The visit of the Eurasian Group, represented by Telman Nariman ogly Bagirov, Lead Power Supply Specialist, Oleg Baizhanov, Deputy Power Plant Chief and Dmitry Ivchenko, Engineer, was no exception. We discussed prospects and directions of mutually beneficial cooperation with the guests and organized a traditional tour of the plant, introducing the visitors to the unique production technologies of high-voltage bushings with solid insulation.

 In 2017, we continued our discourse with partners in Uzbekistan. In December, Abduzhabbor Yunusov, Head of Substation Surge-voltage Protection of SUE Uzenergonaladka, part of Uzbekenergo JSC visited Izolyator plant. Armen Bunyatyan, Izolyator's partner in Uzbekistan, took part in the business agenda of that visit.

 Alexey Egorov, Partner in South Osetia, visited Izolyator.

The partners summarized results of the year and discussed progress of existing contracts as well as cooperation plans for 2018.

During the plant tour, the visitor learned about the key stages of unique production and testing technology of high-voltage bushings with solid insulation.

One of the primary objectives for us is to offer measures of further cooperation development aside from discussion of existing business. We are always prepared to enter a constructive dialogue and appreciate when our partners find time for a personal visit for meeting our company.

RELIABILITY AND SECURITY ARE CORNERSTONES

We work to make the list of Izolyator achievements longer every day. We do appreciate when the partners that we closely work with, regardless of the fact of our longstanding relations or their absence,

aim together with us at bringing the newest technologies to the industry and making the power sectors of the whole countries more reliable and secure.

We would like to thank our partners for the trust and wish a happy 2018, with fault-free operation of equipment throughout the year.



Visit of Eurasian Group representatives of the assembly shop of Izolyator plant, L-R: Alexey Pilyugin, Telman Nariman ogly Bagirov, Maxim Osipov, Oleg Baizhanov and Dmitry Ivchenko



Representative of Uzbekenergo Abduzhabbor Yunusov is getting an introduction to the test center capabilities of Izolyator plant



Dmitry Karasev (L) and Izolyator's partner in South Osetia Alexey Egorov



Eurasian Group counts its history since 1994, when the shareholders of the company acquired the first asset in the Republic of Kazakhstan. Since then, ERG has become a leading diversified company in mining and processing of natural resources.



Uzbekenergo JSC is a state-owned incorporated company established in 2001 as an open joint stock company uniting coal industry enterprises. The total installed capacity of Uzbekistan's power plants exceeds 12.3 mln kW, which compares to about 50% of the entire generating capacity of the Central Asian Unified Power Network.

TO SET AMBITIOUS TARGETS AND ACHIEVE MORE



OLEG BAKULIN

Director of Partner Relations

In our work, just as in life, we are used to set ambitious targets and always go to them without losing our way. The 2017 will be remembered by a whole chain of achievements, which strengthened our pace towards our mission - to create foundation for a stable and sustainable power supply.

PROVED BY PRACTICE

Strengthening the market position of our company in Russian power sector, we use all efforts to ensure trouble-free work of power men. In the first instance, it concerns timely shipments of products - just in time as stipulated by contracts. Meeting deadlines and contract terms is a standard of our daily operations. We carefully track all ongoing projects and make sure they meet schedule. This is how it was in 2017 and that is how we intend to work. We also managed to exceed sales plans both in terms of quantity and revenue! Working on sales volume increase, we target to exceed this indicator by 10-15% more this year.

We respect all arrangements with our partners and aim at long-term and mutually beneficial partner relations. In 2017, we actively worked on the items of our arrangement, formulated by the Agreement of Strategic cooperation with Rosseti PJSC. One of the key items was execution of joint tests of

high-voltage bushings at Rosseti PJSC subsidiaries. The tests went on schedule and once again proved how important it is to pay thorough attention to the technology of manufacture and testing of high-voltage bushings as well as specifics of HV RIP bushings operation on power facilities. In 2018, we will keep our activities in the frame of the agreement and we expect an interesting and productive year.

IMPLEMENTING INNOVATIONS

Experience shows over and over again that clearly set targets are a key to success. In June 2017, at the meeting of the Power electrical engineering Workgroup of the Multiagency Coordination Council on issues of power equipment building, power engineering and cabling industries development High-voltage Bushings Development till 2025 roadmap was presented. It was developed by Kubanenergo PJSC with an active involvement of Izolyator specialists.

AMONG PRESENTED PROJECTS THERE WAS HIGH-VOLTAGE BUSHINGS DEVELOPMENT 2025 ROADMAP, WHICH WAS PREPARED BY KUBANENERGO PJSC WITH ACTIVE INVOLVEMENT OF IZOLYATOR SPECIALISTS.

It is expected that the project will include high-voltage bushings with RIN insulation, developed by the design bureau of Izolyator plant with the purpose of moisture resistance increase of the internal insulation of bushings in rough conditions of operation. The project will be completed with information about devices of online-diagnostics and estimated demand in power equipment by generating facilities, but in general it should be emphasized that it is a meaningful achievement by itself. In 2018, RIN bushings are planned for operational test, Rosseti PJSC's accreditation and, finally, sent for mass production in accordance with the roadmap.

OPEN DIALOGUE

When setting up productive relations with our partners, we appreciate possibility of personal meetings a lot. The 2017 was marked by several bright events organized all across the country, while we continued to receive guests at Izolyator plant as always. In December 2017, Andrey Bragin, 1st Deputy General Director, Chief Engineer at Tyumenenergo JSC visited our plant. We paid a lot of attention to the technology of production and testing of high-voltage bushings and also to specifics of operation of high-voltage bushings with RIP insulation on power facilities at the meeting.



Visit of MOESK management to Izolyator plant, L-R: Konstantin Sipilkin, Vasily Vychezhzhanin, Director Substation and TL Operation, Alexander Yurtaev, Deputy Director, Chief Engineer at Eastern electric networks, branch of MOESK PJSC, Alexander Slavinsky, Vsevolod Ivanov, 1 Deputy General Director, Chief Engineer and Alexander Savinov



Alexander Slavinsky (L) and Andrey Bragin (Tyumenenergo JSC) at Izolyator plant



Alexander Pilyugin (L) and Oleg Bakulin at the meeting at IDGC Center



Kubanenergo is the largest grid company of the Krasnodar region and the Republic of Adygea that transfers and distributes electricity through 0.4 - 110 kV networks. The service territory of the company makes 83 thnd sq km with a total population of 5.5. mln people.



The public listed company of energy and electrification Magadanenergo is engaged in production of electric and thermal energy, with transmission and sale to end users, maintenance and installation works at power facilities. The company supplies electricity to the consumers in Magadan region, Chukotka Autonomous District and partially to the Republic of Sakha (Yakutia).



Moscow United Electric Grid Company (MOESK PJSC) is one of the largest distribution electric grid companies of Russia. Main activity types — service rendering of electric power transmission and grid connection of consumers to electric networks on the territory of Moscow and Moscow region.



The Public listed company Interregional Distribution Grid Company of Center (IDGC Center PJSC) is a leading power grid operator in Russia. The company's business involves operations in 11 regions of the Central Russia with total area of 457.7 sq km. IDGC Center PJSC is a daughter company of Rosseti PJSC.

Izolyator plant also received a delegation of Moscow Unified Power Grid company (MOESK) management. Our colleagues went on a plant tour, where they were introduced to the key stage of production and testing of high-voltage bushings with RIP insulation and innovative designs of high-voltage bushings. After the tour, the sides had talk, discussing specifics of operation of Izolyator high-voltage bushings on MOESK facilities as well as directions of cooperation development.

We made a productive visit to the Interregional Distribution Grid Company of Center in Moscow. We treat any event where Izolyator high-voltage bushings operation is discussed responsibly.

In December 2017, Chairman of the Board of Directors of Izolyator Alexander Slavinsky visited the Interregional Distribution Grid Company of Siberia in Krasnoyarsk, where he was received by the General Director of IDGC Siberia JSC Vitaly Ivanov. The sides discussed the strategy and plans of efficient cooperation in the near and remote future, issues of technical policy coordination with respect to introduction of innovative solutions in electrical insulating equipment and some other aspects of long-term common activities.

We work on making our partner meetings regular and productive. Last year, we actively communicated with MOESK, IDGE North-West, IDGC Center, IDGC Volga, IDGC Siberia, IDGC Ural, IDGC North Caucasus, Lenenergo, Tyumenenergo, TRC, Arekhenergo, Penzaenergo and Orenburgenergo and plan to stay in touch at all times.

the country. Thus, our involvement in obsolete OIP bushings replacement program and reserve stock replenishment program of Rosenergoatom Concern JSC began in 2017. We won several tenders for high-voltage bushings supply for the needs of Balakovo, Smolensk and Beloyarsk NPPs.

At the successful meeting with Engineer of Equipment Procurement of Balakovo NPP Artur Baklanov in November 2017, we agreed on the produc-



Vitaly Ivanov (L) and Alexander Slavinsky at the meeting at IDGC Siberia



Artur Baklanov (L) and Oleg Bakulin at the conference hall of Izolyator plant

UPGRADING FOR RELIABLE OPERATION

Power industry development is inseparably connected with timely modernization of equipment, and Izolyator is excited to work in the projects that are targeted at improvement of power complex of

tion and delivery terms of 220-500 kV bushings for Balakovo NPP.

I should mention that one of the most significant deliveries of 2017 was the shipment of 330 kV bushings to Smolensk NPP of Rosenergoatom Concern JSC. Active work on replacement of high-voltage bushings



Pavel Kiryukhin is making a report at the meeting of Electrical Engineering Council of Rosenergoatom Concern



«Interaction efficiency and excellent management are the key to success!»

Irina Duanova
Senior Manager of Partner Relations

In 2017, we actively worked in various industry-related events. The Electrical Engineering Council of Rosenergoatom Concern JSC stands out in this respect. We had talks with technical specialists of Rosenergoatom on issues of high-voltage bushings operation and OIP replacement programs realization with creation of the reserve stock of bushings.

During our visit to Vilyui HPP complex named after E.N. Batenchuk in the Republic of Sakha (Yakutskenergo PJSC), we inspected the high-voltage equipment of the power plant, including 220 and 110 kV RIP transformer and wall bushings made by Izolyator. At the talks at Yakutskenergo, we discussed issues of Izolyator high-voltage bushings operation on the power equipment of Vilyui HPP complex and presented new designs of Izolyator HV bushings with solid RIN insulation.

Izolyator plant representatives also visited Sakhalinenergo and Magadanenergo. The meeting went in a friendly and warm atmosphere and were productive. At the meeting with Magadanenergo management, we discussed plans of oil-in-paper bushings replacement with bushings with solid RIP insulation. We presented new designs of Izolyator products - bushings with solid RIN insulation and discussed long-term cooperation plans.

with obsolete oil-in-paper insulation is a key to uninterrupted operation in future. In 2018, Izolyator plans to ramp up sales volume of products under replacement and modernization programs dramatically.



Andrey Ryzhkov (L) and Oleg Bakulin at the meeting at Sakhalinenergo

There is an ongoing program of transformer park modernization in RusHydro PJSC as well. In the scope of that program, the company will install new CMTT-made transformers, completed with Izolyator 110-500 kV bushings at Votkinsk HPP. Besides, Izolyator already effected delivery of 220 kV bushings for Ust-Srednekansk HPP in 2017.

Power industry is a complex and critical field of economy, therefore everyone who chose it as a lifetime occupation know for sure how important it is by punctual and quality-oriented at work. On our side, we will keep doing everything possible to achieve best results and trouble-free operation. We would like to thank all our partners for productive cooperation. May the 2018 be a year of rhythmic and fault-free operation, marked with achievement of all set targets and fulfilment of plans.

ALL-TIME CONTACT

Provision of theoretical classes and practical drills to the staff members of consumers of our products as well as organization of workshops on specifics of operation of electrical equipment, made by Izolyator, is a meaningful part of our work.



The Public listed company Interregional Distribution Grid Company of Siberia (IDGC Siberia PJSC) is engaged in transmission and distribution of electric energy on the territories of Altai, Buraytia, Khakasia and Altai, Zabaikalsky, Kemerovo and Omsk regions.



The Public listed company Russian Networks (Rosseti PJSC) is operator of power networks of Russia and one of the largest power companies in the world. It manages 2.30 mln km of power lines, 490 thnd substations with transformer capacity over 761 GVA.



Rosenergoatom Concern JSC is one of the largest companies in power industry of Russia and Russia's only operator of nuclear power plants. Rosenergoatom Concern is a part of Electric Energy Division of Rosatom State Corporation.



The Public Listed company Federal Hydrogenerating Company - RusHydro Group - is one of the largest Russian energy holdings. RusHydro is a leader in electric power production from renewable sources of energy, which develops generation on the basis of energy of water streams, sea tides, wind and geothermal energy.

DIALOGUE AND OPENNESS MAKE THE BASIS FOR A FRUITFUL COOPERATION



ALEXANDER SAVINOV
Director of Strategic Sales

Confucius once said that openness lies in the core of all virtues. Living two millennia later, we witness that it is exactly our orientation to dialogue and openness help us to find reliable partners, committed to mutually beneficial and fruitful cooperation, every day. In 2017, Izolyator fulfilled its high-voltage bushings delivery obligations staying ready to provide all necessary technical and informational support.

FOR A BETTER OPERATION OF ENERGY SYSTEM

The timely delivery has a direct impact on the reliable operation of power men. It is a decisive factor in our work, hence our meticulous approach to order processing. Last year, Izolyator was selected high-voltage bushings supplier for a whole number of power companies. Among them: FGC UES PJSC, Enel Russia (500 kV units for Reftinsk SDPP), FEFC JSC and Unipro PJSC, Fortum PJSC and many other. Izolyator specialists used every effort to have bushings production meet the schedule strictly.

We are confident that technical support of our clients is also an integral part of our work. Our company is prepared to render assistance and help in identification of wear of the operating equipment and prioritization of its replacement - or, should there be a technical possibility, modernization. If such decision is made, it would allow to rationally distribute funding, paying attention to the most problem areas. Besides, our company completes 330 kV and higher high-voltage bushings with DB-2 sensors for a possibility of online-monitoring system connection as a precautionary measure against power equipment failure.

The fact that Izolyator partners aim at upgrading of obsolete and outmoded equipment allows to develop not only the power complex but the entire economy of the country, decreasing corporate costs on equipment repair and raising its efficiency factor.

OUR COMPANY IS READY TO RENDER SUPPORT IN IDENTIFICATION OF WEAR AND RESIDUAL SERVICE LIFE OF THE INSTALLED POWER EQUIPMENT WITH PRIORITY OF REPLACEMENT, OR, SHOULD IT BE TECHNICALLY POSSIBLE, WITH MODERNIZATION OF HIGH-VOLTAGE BUSHINGS IN STAYING IN OPERATION.



Participants of the visit to Izolyator plant by FGC UES representatives, led by Deputy Chairman of the Board, Chief Engineer of FGC UES PJSC Dmitry Vodennikov



Working meeting with FGC UES management delegation at Izolyator plant

When a customer purchases 330 - 750 kV Izolyator bushings, together with the product he received a free of charge consultation service of supervision engineer. Any issues of design, specifics of diagnostics and operation of high-voltage bushings with solid RIP insulation have explained in detail by our specialists.

PROMOTING GROWTH OF PROFESSIONAL COMPETENCES

Experience sharing with partners, working meetings and business talks help us stay in the thick of the events. The 2017 will be remembered by a

whole bunch of activities that helped not only to strengthen our market position, but also to share our achievements. Thus, in October, we met with the chief engineers of the branches of the Federal Grid Company of the Unified Energy System of Russia. Dmitry Vodennikov, Chief Engineer, Deputy Chairman of the Board at FGC UES PJSC led the delegation. We organized a tour of Izolyator manufacturing facility with Alexander Slavinsky, Chairman of the Board of Directors of Izolyator introducing the guests to the key stages of development of the company and production and testing technologies of high-voltage bushings with RIP insulation. At the working meeting that followed the sides discussed specifics of operation of high-voltage bushings with oil-in-paper insulation, which exceed 25 years in operation at power facilities of FGC UES PJSC as well as prospects of cooperation development.



Participants of the plant tour for technical specialists of MES Center at the test center of Izolyator plant



Main Power Transmission Lines of Center (MES Center) is a branch of FGC UES PJSC that operates on the territory of Central, North-Western and Southern Federal Districts. The service area of the branch includes 19 federal subjects with 40 million inhabitants. MES Center provides electric connection between the unified power grid of Center with power networks of the South.



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The Public joint stock company of energy and electrification Mosenergo (Mosenergo PJSC) is currently the largest territorial generating company in Russia and one of the largest heat producers in the world. The 15 power plants of Mosenergo have installed electricity capacity of 13 GW.

Presentation of the production capabilities has become a must for all partner meetings at the plant. In October 2017, we made a tour for the technical specialists of the Main Power Transmission Lines of Center - listeners of FGC UES Staff training center Bely Rast. The specialists familiarized themselves with modern technologies of production and testing of high-voltage bushings and design features of RIP bushings. The meeting became an important step in raising qualification

AWARE OF NEWS

Izolyator specialists regularly conduct workshops for employees of technical divisions of generating and distribution companies.

Thus, in November 2017, we held a seminar «High-voltage bushings: operation, diagnostics, modernization» for the technical specialists of Fortum PJSC branches at Izolyator plant. During the event, we introduced the international experience of Izolyator that we gained: storage, instal-



Izolyator master class with a RIP bushings full-size replica

and professional development of MES Center companies specialists.

NEW FORMAT FOR NEW KNOWLEDGE

Last year we launched a new format of partner work: we gave a master class during the Interregional contest of FGC UES 220 - 1150 kV substation maintenance staff and for a visual aid we used a full-size replica of a 220 kV transformer bushing. It was made at our plant exactly for this sort of events just as information boards and stands with information on products, technical service and operation of Izolyator high-voltage bushings.

It was the first experience of information and visual aids delivery to our partners, which was made as part of a large-scale initiative of furnishing companies of power industry and engineering with spectacular visual aids. This practice of supplying training centers of Izolyator's key customers with high-voltage bushings' replicas has become regular and systematic since 2017 following our wonderful training routines of popular technical seminars and workshops.



Seminar for technical specialists of Fortum PJSC branches at Izolyator plant



Visit of Mosenergo specialists to Izolyator plant, L-R: Alexander Savinov, Sergey Arshunin, Andrey Gritsenko and Yury Nikitin



lation and operation of high-voltage bushings. Izolyator specialists demonstrated methods of modernization of high-voltage bushings at operation site.

They introduced innovative approaches and new development of Izolyator to prepare mass production of new high-voltage bushings designs. Besides, the seminar program included description of the key stages of the unique production technology of high-voltage bushings with solid RIP insulation.

The seminar went in the atmosphere of keen interest, sparking a productive dialogue and demonstrating the necessity to make this form of communication a regular format. All questions of Fortum PJSC specialists received detailed answers. All meeting participants marked its success and use for the growth of professional competences.

In November 2017, Izolyator received technical specialists of generating company Mosenergo. Mosenergo PJSC was represented by Andrey Gritsenko, Head of Electrical Equipment Service and Sergey Arshunin, Lead Specialist Engineering. Mosenergo specialists shared a high opinion of the advanced production and test facilities of Izolyator plant and the successful experience of company

cooperation with the largest energy companies and transformer makers all over the world.

Representatives of Siberian energy company visited Izolyator in December 2017. The sides discuss technical features and specifics of installation, operation and diagnostics of Izolyator high-voltage with solid RIP insulation. The hosts arranged for a plant tour introducing SIBECO specialists to the key stages of the unique production technology of high-voltage bushings.

We visit our partners with pleasure to discuss cooperation prospects. In October, Samara branch of T Plus Group received Izolyator representatives. The partners discussed various aspects of cooperation on current agreements and outlined plans of business development in the near future. No less productive was the meeting in Main Power Transmission Lines of Volga in Samara.

In November 2017, we paid a visit to the headquarter of Siberian Generating Company, where we met with technical specialists and introduced innovative designs and solutions of Izolyator in creation and manufacture of high-voltage bushings. The sides expressed satisfaction with the results of the meeting and intention to continue development of mutually beneficial cooperation.

VALUABLE EXPERIENCE AND ADVANCED TECHNOLOGIES

All Izolyator staff members aim at creating conditions for the company potential to realize and positively influence the industry in general. It is our key objective to be a reliable partner, whose opinion is trusted.

Resting on our best experience, we offer modern, innovative products, which is highly recognized by professionals in Russia and abroad. This status imposes responsibility on us, so we work every day to prove our clients' trust. In 2018, we set a target to achieve more, preserving our best practice.

We wish all our partners an incessant movement forward, as only the process of unceasing perfection will lead to achievement of truly ambitious goals. May all your plans come true! We, on our side, will render you our support - openly as ever.



Visit of SIBECO specialists to Izolyator plant, L-R: Yury Nikitin, Arcady Kopylov, Sergey Shilov and Alexander Savinov



Fortum JSC is a leading producer of thermal and electric energy in Ural and West Siberia. The company structure includes eight TPPs, five of which are in Chelyabinsk Region, three — in Tyumen Region with Nyagan SDPP being one of the biggest modern thermal power plants in Russia.



Public listed company Siberian energy company (SIBECO JSC) is the largest company in Siberia that produces electric and thermal energy in the Novosibirskaya Region and Altayskiy Krai. There are six thermal power plants in its structure. SIBECO JSC enters RUCOM group.



The branch of T Plus Group in Samara combines generating and thermal assets in four cities of the Samara Region: Samara, Novokuibyshevsk, Syzran and Togliatti. There are seven CHPPs and SDPPs entering the branch's structure: Samarskaya CHPP, Bezymyanskaya CHPP, Togliattinskaya CHPP, Volga Automotive Plant CHPP, Syzranskaya CHPP.



Siberian Generating Company Ltd. SGC Ltd is one of the leading power holdings in Russia. It is a united complex of electric and thermal power production, transportation and sales. The company supplies heat to three million consumers in five regions of Russia.

TURNING FACE TO CONSUMER



MAXIM ZAGREBIN
Head of OEM Sales

Reliability is one of the most important principles of our operations. To be a reliable partner, to deliver excellent product, promoting secure power supply to consumers - those are factors that make up our daily work. In 2017, Izolyator aimed at achieving targets and fulfil contractual obligation in time.

PRODUCTIVE INTERACTION

Having started the year by meetings with our partners - manufacturers of transformer and reactor equipment, we spent the year sharing opinions and developing a productive dialogue. We appreciate opportunities to demonstrate Izolyator's innovative designs to the professional community. Thus, in October 2017, Izolyator took part in the meeting of the Electrical Engineerin Council of Rosenergoatom Concern in the Moscow region. The meeting gathered management of Rosenergoatom Concern, chiefs of nuclear power plant electric shops, suppliers of power equipment and representatives of scientific and research organizations. We were able to have a number of business meetings with management representatives of the leading Russian transformer plants, where we discussed progress of common projects and issues of practical coordination. At those meetings, Chief Designer Andrey Sidelnikov represented Togliatti Transformer, Technical Director Andrey Kanivets represented Power Machines - Toshiba. High-voltage transformers. We also had talks on issues of high-voltage bushings operation and realization of OIP bushings replacement programs with reserve stock replenishment.

INFORMATION SHARING AS KEY TO PROGRESS

We continue to actively cooperate with representatives of transformer plants, giving technical workshops regularly. They are mostly dedicated to design features and specifics of operation of Izolyator high-voltage bushings for power transformers and shunt reactors.

We always offer initiative of organization of this event with pleasure, because talking to specialists of different levels allow us to make an impression of what interests our partners most and timely answer the most actual questions. Besides, the speakers possess a whole arsenal of visual aids including training videos on transformer and switch bushings installation, which invariably raise interest with the consumers of our products.

In December 2017, Izolyator held a seminar «Design features, specifics of operation and installation

of Izolyator bushings. RIN insulation: research, testing, prospects» for the technical specialists of Siemens Transformers Ltd plant in Voronezh. The event went in the atmosphere of open dialogue which gave Siemens Transformers specialists exhaustive information on the topic of the event.

The fact that meeting participants always actively ask questions, hammer out details and really go deep into the topics speaks for the meaningful-

IZOLYATOR APPRECIATES ITS CUSTOMERS AND WE FIND IT IMPORTANT TO STAY PARTNERS TO YOU AFTER THE SHIPMENTS ARE RECEIVED. BEING ALWAYS IN TOUCH, WE ARE PREPARED TO CONTINUE OUR COOPERATION BY, FOR EXAMPLE, WORKSHOP FORMATS FOR DESIGN AND SALES DIVISIONS OF POWER EQUIPMENT MANUFACTURERS.



Participants of Izolyator workshop at Siemens Transformer plant



Handing certificates to Izolyator workshop participants - specialists of Power machines - Toshiba. High-voltage transformers plant

ness of such work. The same situation we saw at the technical workshop for Power Machines - Toshiba. High-voltage transformers in Saint-Petersburg.

Serious questions were given at the workshop, dedicated to bushings installation at Togliatti Transformer. During the event, which was held in November 2017, we detailed the sequence and specifics of Izolyator bushings installation operations on Power transformer at factory settings.

Izolyator appreciates its customers. We believe it is important to stay partners after the shipments are made. So we are always in touch and ready to continue by, for example, organizing seminars for design and sales divisions of power equipment makers.

There are good examples of working with key strategic partners of our company, among those Togliatti Transformers Ltd, Power Machines - Toshiba. High-voltage transformers Ltd, SVEL Group



Maxim Zagrebina at the meeting with the technical specialists of Togliatti transformer



Zaporozhtransformer (ZTP) is the largest in CIS and Europe plant to make power oil transformers and electric reactors with production capacity of 60 thnd MVA annually, concentrated in one facility.



Siemens Transformers Ltd (Voronezh, Russia) is a 100% owned company of Siemens in Russia. Siemens Transformers Ltd plant project, its technology and equipment came as result of the long term experience in more than 20 transformer plants run by Siemens all over the world, including Germany and Austria.



Power Machines — Toshiba. High-voltage transformers Ltd is a joint venture of Power Machines JSC and Toshiba Corporation. The project started in September 2011 with signing of a JV set up agreement and construction of power transformers manufacturing facility in Russia.



Togliatti Transformer Limited is one of the largest designers and makers of electric engineering equipment in Russia and the CIS countries. As of today, the company's main business is high-voltage power transformers production.



Sergey Suvorin (L) and Maxim Zagrebina during his business visit to Power Machines - Toshiba. High-voltage transformers Ltd



«Reliability and high quality of the manufactured products are a pledge of longstanding cooperation with our partners.»

Catherine Zenina
Manager of OEM Sales



Andrey Kanivets (Togliatti transformer) and Maxim Zagrebina at Izolyator plant

tries, being a part of the largest power projects that use Izolyator equipment. Our company has established itself as a supplier to the markets of India, Vietnam and Europe. We find it equally important to deliver bushings as competing parts of Russian-made transformers and transformer and reactor equipment, made outside of our country.

Our old partners know that we strictly meet delivery terms and that explains why pay a lot of attention to not only to controlling high-voltage bushings production, but also to coordination of logistics with the customer and in some case - with the end user. We value every partner and are proud to have really long-term and efficient strategic relations with many our partners.

Every shipment is a result of a large team of professionals. We actively work with Russian and foreign electrical engineering plants, design institutes and organizations.



Participants of meeting with ZTP, L-R: Maxim Osipov, Alexander Slavinsky, Alexander Tsier and Maxim Zagrebina

OPEN DIALOGUE

In 2017, we received visitors at Izolyator plant with pleasure and went to the leading electrical engineering companies. Thus, in the 4th quarter, we had meetings with representatives of Power Machines - Toshiba. High-voltage Transformer Ltd, where we marked the successful progress of common projects and outlined common objectives. At the talks, we also spoke about commercial and technical issues of coordination between the two companies and future projects.

During our meetings with partners, we not only analyzed realized projects, but also discussed issues of mutually beneficial cooperation development and common plans for 2018. In December, Andrey Kanivets, Technical Director of Togliatti Transformer Ltd. visited Izolyator plant. The meeting was dedicated mainly to agreement of power equipment features and other technical issues of coordination between the companies. We also discussed results of the successful work in 2017 and plans of cooperation development in the next year.

The successful production audit by SVEL Group JSC concern became a notable event in the 4 quarter 2017. The auditors learned about all technological operations and stage by stage quality control system of design, production, testing and preparation for shipment of high-voltage bushings. All necessary explanations, technical and process documentation were provided on first request and in full volume. All audit procedures went according to the official plan and ended up in positive result.

The great number of meetings and talks that we did last year helps us to make forecasts and plans so that the mutually beneficial cooperation was truly fruitful and long-term. One of such meaningful talks went with Energy Standard and developed into discussion with participation of Energy Standard and Zaporozhtransformator. These meetings were dedicated to technical aspects of scheduled replacement of high-voltage bushings on ZTP transformers.

In 2018, we set ambitious plans and are pleased that real professionals will engaged in their realization. We wish that this year will be remembered for big and efficient projects, productivity and success. Izolyator, staying a reliable partner as ever, will use every effort to support cooperation at all stages.



Participants of the auditors group from SverdlovElectro at the assembly shop of Izolyator plant



SverdlovElectro Group (SVEL Group) is a leading power equipment manufacturer in Russia. The company boasts one of the impressive growth modernization rates in the industry.



JSC «Uralelectrotyazhmash» (UETM) is the biggest Russian developer and producer of electric power equipment for generation, transmission, distribution and consumption of energy. High-voltage equipment, transformers and reactors, converter equipment and electric machines of UETM brand are world known and enjoy a good reputation.



Open Joint Stock Holding Company «Electrozavod» (OJSHC Elektrozaovod) is the leading Russian and world-wide manufacturer of various transformer equipment being supplied for all industries including electric-power industry, metallurgy, machine building, transport, oil and gas complex, housing and utilities infrastructure.



Energy Standard Ltd is a dynamically developing company that promotes products of the largest CIS plants on the Russian market. At present, the company offers a wide range of equipment for oil, gas, chemical, ferrous and nonferrous metallurgy, rail transport and mining industries.

STAY OPEN AND ALWAYS AIMING TO EXCEL



DMITRY ABBAKUMOV
Deputy Commercial Director

The high quality and timely fulfilment of contact obligations are factors successful companies differ by. However, today, it is not possible to realize these principles without regular improvement of all production stages. Izolyator specialists set ambitious goals, raise qualification and quality of completing parts for production of goods.

TIME OF CHANGES

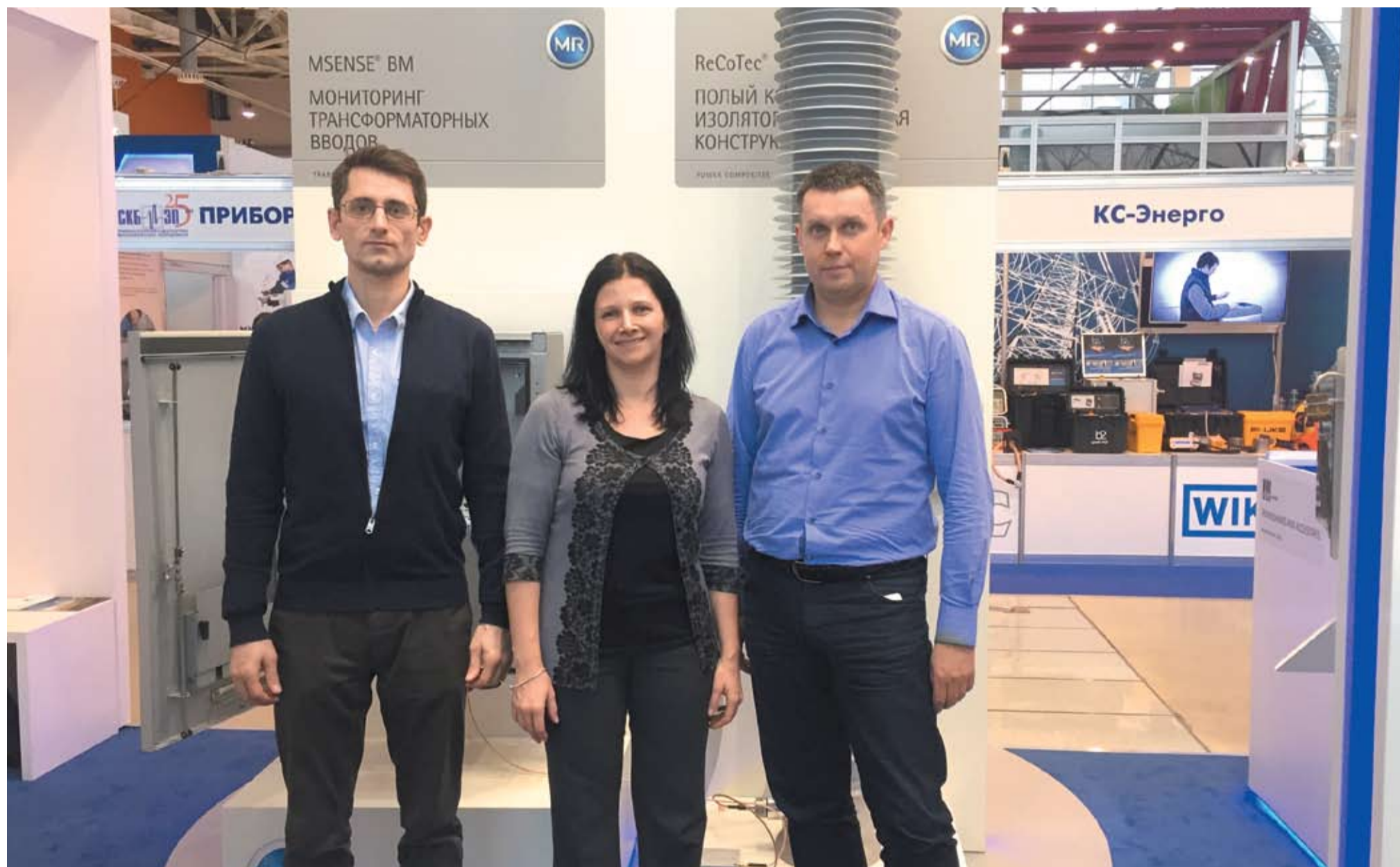
Equipment and material procurement of production is an important component of production system management in production that to a large degree defines the quality of processing of the input of the system and the system's output - the finished product. With a low quality of input of the system it would not be possible to have a high quality at its output. To raise the quality of products and efficiency of production processes, one should avoid fear of changes and carry on search of new suppliers, resources and materials.

A properly selected supplier can source the company with the so called "fuel for innovation", for example, by being a potential source of valuable knowledge and technologies, required for perfection of mediating processes and final product improvement. Procurement specialists are a key link between suppliers and company, ensuring a close cooperation and allowing to generate additional strategic advantages for the company.

Most of the people who were required to evaluate a potential supplier could witness how much time and resources the process may take. There are several criteria to make a more objective judgement of supplier. Firstly, it is product quality, or a supplier's ability to furnish buyer with goods and services in accordance with the specifications and requirements of his production. Absence of defective articles can be also mentioned here. Secondly, we speak about reliability of supplier, his responsiveness, commitment and interest in doing business, financial stability and manufacturing capabilities, reputation, timely delivery of agreed volumes of shipments. Besides, one needs to consider price, service quality and possibility to have favourable terms of payment or availability of unscheduled deliveries.



Dmitry Abbakumov and Irina Borunova (Alfa-Metal) at Metal-Expo 2017



Area Sales Manager at Reinhausen Power Composites GmbH Kinga Kastenberger with Izolyator staff members at Electric Networks of Russia 2017



Maschinenfabrik Reinhausen GmbH (MR) is a leading company within the Reinhausen Group. For 30 years, MR has designed and manufactured insulation tubes from glassfiber reinforced epoxy resin. Since 2009, these insulators are made by Reinhausen Power composites GmbH, a 100% subsidiary of MR.



Alfa-Metal is a dynamically developing company, specialized in aluminium semi products distribution, and one of the largest Russian aluminium products traders. Alfa-Metal supplies parts for high-voltage bushings to Izolyator plant: central tubes, couplers and mounting flanges

IN SEARCH OF THE BEST SUPPLIERS


In the core of our strategy of new channels search lies the practice of new direct suppliers pool building. One of the key tools that we use is both independent screening and analysis of the markets and work at the topical events, like exhibitions. For example, we visited Metal-Expo International Industrial Exhibition in November 2017. Our participation helped us not only to get a lot of useful information about new trends in the industry, but also to set up contacts with many advanced domestic and foreign manufacturers, not to mention a series of business meetings with representatives of trusted suppliers of Izolyator plant. At the meetings, we discussed progress of current supply contracts and set up plans of further cooperation.

During another bright event of the last year - the XX International Specialized Exhibition Electric Networks of Russia 2017, held in Moscow in December, Izolyator representatives had meetings with suppliers of materials and completing parts.

VALUE OF FACE-TO-FACE INTERACTION

Forming strategic partnerships is an important part of our work. In 2017, we received guests at Izolyator plant with pleasure. We not only spoke about our principles and projects but also showed the production process of equipment. Besides, we are proud that the plant tours during partner visits have become a good tradition, giving an excellent opportunity to meet the key production technology stage of high voltage bushings and technical specialists and giving questions to those who daily work on creation of the best technologies.

Thus, in October 2017, representatives of KalugaEnergoProm Ltd - General Director Irina Smirnova and Lead Engineer Andrey Pavlov - visited Izolyator plant. The key topics of the talks was development of further cooperation and quality issues of delivered products.

 The meeting with Sales Manager of Wacker Silicones (one of the biggest makers of silanes and silicones) Mikhail Spirin also took place in October. Wacker Silicones supplies organosilicone compound to Izolyator plant for making the external polymer insulation of high-voltage bushings. At the meeting, Maxim Spirin made a presentation about new materials, developed and offered by Wacker Silicones. The sides also had a discussion about the achieved level of supplies and cooperation prospects.

In November, a group of Alfa-Metal representatives visited Izolyator plant, The company is specialized in distribution of aluminium semi-products and is one of largest Russian traders of aluminium products. Alfa-Metal supplies central tube, couplers and mounting flanges for high-voltage bushings. The group was led

by the Deputy Commercial Director of Industrial Procurement Ltd part of Alfa-Metal Alexander Gladkikh. The partners discussed cooperation development prospects in supply of completing parts for Izolyator high-voltage bushings. Alexander Gladkikh made a presentation of company products and company development strategy.

We were pleased to once again organize a plant tour for our guests. In December, during the visit to



Visit of KalugaEnergoProm Ltd representatives to Izolyator plant



Meeting with Wacker Silicones representatives, L-R: Mikhail Spirin, Dmitry Abbakumov and Vladimir Romanov

the metal treatment center MOST-1 in Moscow region, Izolyator specialists had talks with Director of MOST-1 Ltd Andrey Bashkov. We discussed progress of current supply contracts and outline plans of cooperation development in 2018.

Every meeting in 2017, every event and speech made its report in the company development. We are pleased that every time there were interested partners around us. Our productive cooperation and experience sharing allow us to improve and keep going, constantly looking for new opportunities. We are convinced that the secret of efficient partnership is in openness and aiming to excel.

Setting up relations with partners, we always remember that quality completing parts is a prerequisite of our common success. We would like to thank all our suppliers for active work in 2017 and look forward to keeping our partnership efficient and mutually beneficial!



Alfa-Metal representatives at Izolyator, center on R: Alexander Gladkikh, L - Vladimir Romanov and Dmitry Abbakumov



Andrey Bashkov (L) and Dmitry Abbakumov at MOST-1 metal treatment center



MOST-1 metal treatment center is a manufacturer of semi-finished products of aluminium alloys. All products are of high quality and precision and correspond to Russian and international standards. The company caters to aerospace, shipbuilding, chemical production, oil and gas, transport machine building, electrical engineering and FMCG.



Wacker Silicones ranks among the world's largest manufacturers of silanes and silicones. Product portfolio ranges from silanes through silicone fluids, emulsions, elastomers, sealants and resins to pyrogenic silicas. Thanks to their highly diverse properties, silicones offer virtually unlimited potential for customized solutions in numerous sectors.



KalugaEnergoProm is a leader in highly advanced parts for machine building and power sector production. The products of the company are delivered to the largest plants of Russia and the CIS. KalugaEnergoProm supplies cast brass parts for high-voltage bushings to Izolyator plant.

PARTICIPATING IN MEETINGS AT POWER INDUSTRY FORUMS

RUSSIAN POWER WEEK 2017

Izolyator worked at the first International Forum on power efficiency and development of power industry «Russian Power Week», which was held on in Moscow and Saint Petersburg on 3 - 7 October 2017.

Oleg Bakulin, Director of Partner Relations at Izolyator saw the exhibition exposition of the forum and took part in one of the round tables. We also had meetings with business partners.

The forum became an important venue that brought together more than 480 business community representatives from 150 Russian and 76 foreign companies.

Oleg Bakulin marked a very productive and professional atmosphere of the first Russian Power Week forum.

We appreciate the forum organizers for the invitation and high-level of organization of the event.



President of Russian Federation Vladimir Putin at the first International Forum on power efficiency and power industry development "Russian Power Week"

CONFERENCE ON SWITCHING EQUIPMENT

Izolyator took part in the Scientific conference "Switching equipment: production, operation, repair, diagnostics and service life extension" in Kirov.

The conference was organized and executed jointly by:

- the civil council of power equipment diagnostics specialists by the Engineering and Technical Center UralEnergEngineering;
- the civil council of power devices diagnostics specialists of Siberia and Far East;
- Kirovergo, branch of the Interregional Distribution Grid Company of Center and Volga.

The Conference went with support from the Study Committee D1 of Russian National Com-

mittee (RNC) CIGRE "Materials and Emerging Test Techniques.

Izolyator was represented by:

- Alexander Slavinsky, Chairman of the Board of Directors at Izolyator, Head of SC D1 RNC CIGRE, Doctor of engineering;
- Vladimir Ustinov, Deputy Quality Director at Izolyator, SC D1 RNC CIGRE Coordinator.

Alexander Slavinsky made a report "Key directions of CIGRE activities in electrical equipment diagnosis", where he summarized materials of the 46th CIGRE Session.



Participants of the conference on switching equipment in Kirov

THE XXVI TRAVEK ASSOCIATION INTERNATIONAL CONFERENCE



Yury Nikitin's report at the XXVI TRAVEK Association International Conference

Izolyator participated in the XXVI TRAVEK Association International Conference "Prospects of power industry and high-voltage equipment development. Commutation devices, converter equipment, microprocessor control and protection systems", which was held in Moscow.

The conference went with support from the Russian Academy of Sciences, Academy of Electrical Sciences of Russian Federation, Ministry of Energy of Russian Federation, Ministry of Industry and Trade of Russian Federation, Rossiyskie Seti PJSC, FGC UES PJSC.

Management and technical specialists of consumer companies of high-voltage electrical equipment, representatives of electrical equipment OEMs from Russia and foreign countries, leading scientists, developers, research and de-

sign organizations, universities took part in the conference.

Izolyator was represented by:

- Chairman of the Board of Directors, Vice-President TRAVEK Association, Head of Study Committee D1 RNC CIGRE, Doctor of Engineering Alexander Slavinsky;
- Deputy Quality Director, Coordinator of Study Committee D1 Vladimir Ustinov;
- Chief Designer Yury Nikitin;
- Strategic Sales Director Alexander Savinov.

Yury Nikitin made a report "RIN insulation: research, testing, prospects", speaking about innovative high-voltage bushings designs.

Vladimir Ustinov made a report "Specifics of design and testing of DC high-voltage bushings", in which he summarized materials of the International CIGRE 2017 Colloquium "High-voltage power networks of direct and alternating current" that went in Canada.



International Association on transformers, high voltage equipment, electrical ceramics and other spare parts and materials — TRAVEK — established on 11 April 1991 in order to implement the business cooperation, contributing to marketing, manufacturing and technology development, to ensure product competitiveness in world markets.



International Forum on power efficiency and development of power industry Russian Power Week is held annually in Moscow and Saint Petersburg. Forum aims at discussion of current development trends in fuel and energy complex, search of optimal solution to meet existing challenges.

ELECTRIC NETWORKS OF RUSSIA 2017

Izolyator participated in the XX Electric networks of Russia 2017 International Exhibition in Moscow.

Participation of the Russian National Committee of CIGRE (RNC CIGRE) also became a major novelty of this year's exhibition.

- Dmitry Vodennikov, Deputy Chairman of the Board, Chief Engineer at FGC UES PJSC;

- Pavel Korsunov, Deputy Chairman of the Board at FGC UES PJSC were among the visitors of the exhibition.
- other management representatives of FGC UES and RNC CIGRE.
- RNC CIGRE's participation also became a major novelty of this year's exhibition.
- The Chairman of the Board of Directors of Izolyator, Head of SC D1 RNC CIGRE Alexander Slavinsky took part in the opening ceremony together with them and walked the exposition.



Business meetings at the Electric networks of Russia 2017 Exhibition: Maxim Zagrebin (2nd on R) with representatives of Togliatti transformer Ltd



Viewing the exposition of Electric networks of Russia 2017 Exhibition, at the forefront, L-R: Alexander Slavinsky, Dmitry Vodennikov, Deputy Chairman of the Board, Chief Engineer at FGC UES PJSC and Deputy Chairman of the Board at FGC UES PJSC Pavel Korsunov

Izolyator staff members also visited the exhibition and had meetings with business partners:

- Konstantin Sipilkin, R&D Director;
- Dmitry Abbakumov, Deputy Commercial Director;
- Oleg Bakulin, Director of Partner Relations;
- Nikolay Borichev, Marketing and PR Director;
- Svetlana Kryuchkova, Deputy Chief Process Engineer;
- Maxim Zagrebin, Head of OEM Sales;
- Maxim Osipov, Head of CIS Sales;

- Yury Kukhtin, Procurement Group Leader.

Generally, more than 350 research and design organizations, power grid and electricity wholesale companies, power and measuring equipment OEMs, relay and automation devices and information technologies suppliers, regulatory bodies, educational institutions and other specialists and organizations of the electric power sector participated in the exposition and business program of this year's exhibition.

We would like to thank the organizers of the XX Electric networks of Russia 2017 International Exhibition!

SMART AND SECURE POWER INDUSTRY ROUNDTABLE



Smart and Secure Power Industry Roundtable

As part of the agenda of the Electric networks of Russia 2017, Izolyator took part in the Smart and secure power industry roundtable.

The organizers are Organizing committee of Export of Advanced Safety Technology initiative, Russian National CIGRE Committee and the scientific journal Energy of the unified network.

The purpose of the round-table is to develop the dialogue between representatives of export-oriented domestic manufacturers of electrical

equipment and promotion of highly advanced solutions in the power grid complex.

The Chairman of the Board of Directors of Izolyator Alexander Slavinsky worked in panel of the roundtable.

Representatives from foreign countries, RNC CIGRE experts, domestic power equipment designers and manufacturers took part in the event.

We would like to thank Energy of the unified network Journal for the invitation to take part in the activity!

CALCULATIONS, ANALYSIS AND LOSSES DECREASE IN ELECTRIC NETWORKS CONFERENCE

Izolyator took part in the International scientific conference «Calculations, analysis and losses decrease in electric networks», which was held in the working days of the XX International specialized exhibition Electric networks of Russia 2017 in Moscow.

The organizer of the conference - Energoexpert Journal.

Deputy Quality Director of Izolyator and SC D1 RNC CIGRE coordinator Vladimir

Ustinov made a report at the scientific conference.

We wish to thank Energoexpert Journal for the invitation to work at the conference!



Vladimir Ustinov is making a report at the International scientific exhibition "Calculations, analysis and losses decrease in electric networks"



Electric Networks of Russia is a specialized international exhibition allowing its participants to develop their projects with support from leading power grids of Russia and enter business and scientific communities in order to obtain industry expertise or present a project to potential investors and customers.

ADVANTAGES OF NEW TECHNOLOGIES



KONSTANTIN SIPILKIN
R&D Director

Every day, dozens of scientific discoveries are made in the world: some of them - we will never know about, some - are bound to change our life. In 2017, our corporate edition began to publish articles under Innovation rubric, where we speak about new designs of high-voltage bushings and technical issues of installation and operation of bushings at power facilities. We are pleased to receive comments from our readers and will continue to discuss interesting topics.

As of December 2017, the product range of our company includes 360 high-voltage bushings (including custom designs) of various types and rated voltage. Altogether, last year we developed more than 30 new bushings designs. There are unique items, which we not made in Russia earlier, among them. For instance, we are talking about 220 kV and 500 kV oil-SF₆ gas RIP bushings. We will go into details about those bushings in one of our future issues. Right now, we would like to speak about a highly promising technology, which has no counterparts in Russia, - high-voltage bushing designs with RIN insulation.

Presently, the most modern type of internal insulation of a high-voltage bushing is solid RIP insulation. We already spoke many times about the advantages of this insulation type. However, even RIP insulation, with its technical superiority over other type of high-voltage bushings insulation, is not completely void of shortcomings. One of the gravest is possibility of moistening in the process of long-term

storage. The reason to that is presence of paper in the structure of insulation.

Thus, by excluding paper from the solid insulation of a bushing, one could significantly increase its tolerance to moistening and effectively level down standards to storage conditions in the field. This type of insulation received the name of RIN - Resin Impregnated Nonwoven. So, we ran a test, which unequivocally and pointedly showed moistening

of RIP insulation and nonsusceptibility to moistening of RIN insulation in same conditions. Two 110 kV bushings - one with RIP, another with RIN insulation - were installed on a tank, testest for moistening of polymer external insulation (fig. 1). The liquid level in the tank (NaCl water solution) was set in such a way that the bushings' insulations did no touch the wa-

ter surface. After that the tank was heated to make the water solution boil. The test was performed for 48 hours, then the bushings were dismantled and cooled down to room temperature. After that, frequency response measurements were run on the bushings's insulations, with RIP insulation preliminarily wiped with a cloth moistened with spirit. On fig.2 you can see parameters of the bushings prior to and after the testing.

THIS TYPE OF INSULATION RECEIVED THE NAME OF RIN - RESIN IMPREGNATED NONWOVEN.

The condition of RIN bushings stayed unchanged, curve 1 and 3 on fig.2 are practically identical, witnessing of absence of any impact of moisture on RIN insulation condition. Plus, tgδ of RIN insulation has much lower values across the whole temperature diapason staying below 0.27% on all frequencies. At the same time, from publications of foreign bush-

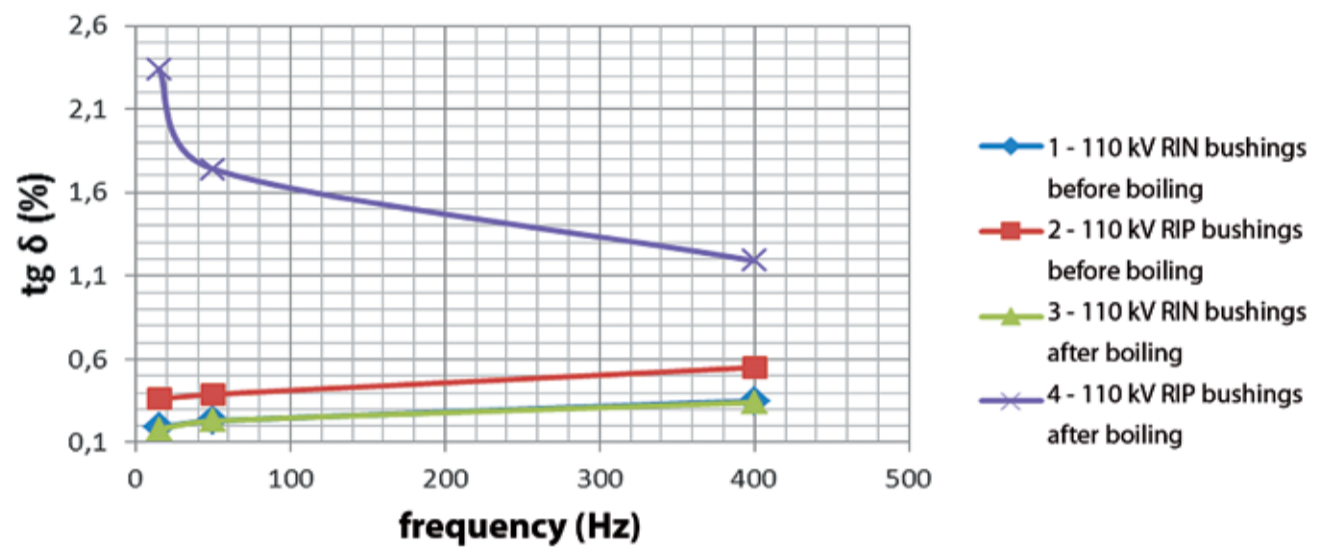


Fig. 2 Comparison of tgδ variation change from RIP and RIN bushings frequency after forced moistening in salt fog



Fig.1 Test on moistening in a salt fog of 110 kV bushings



Fig.3 220-500 kV bushings at the assembly shop

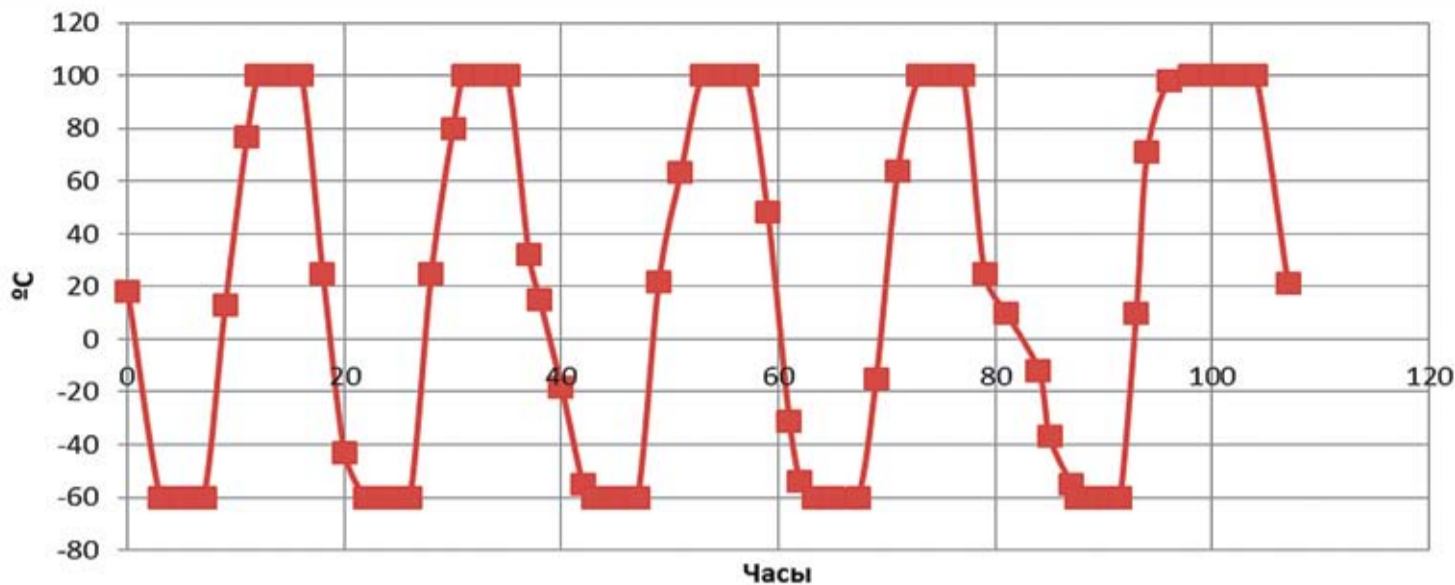


Fig.4 Thermal cycles of climate chamber tests of 110 kV bushings with RIN insulation

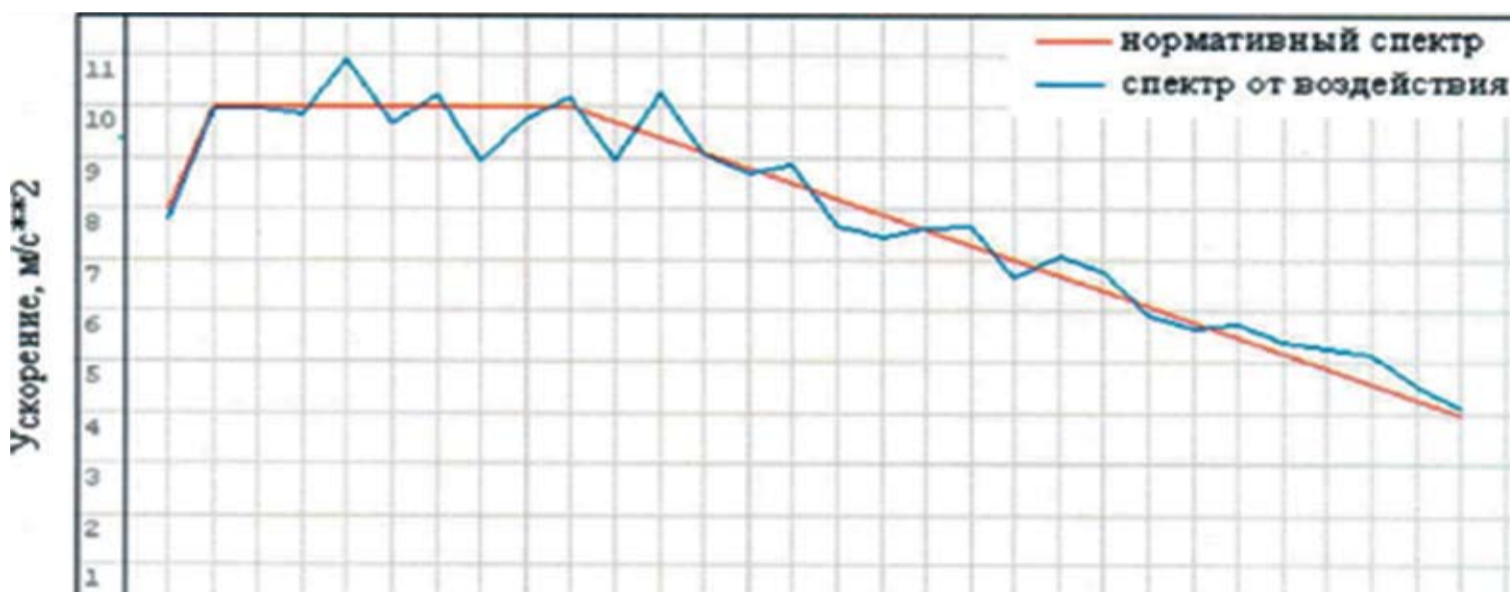


Fig.5 Result of seismic tests of a 500 kV RIN bushing

ings manufacturers we know that the average $\tan\delta$ value of bushings with RIS insulation (analogue of RIN) makes $\leq 0,35\%$.

There are two major conclusions in the result:

1. The bushings of Izolyator plant that were tested are not inferior in their characteristics to foreign made counterparts ;

2. RIN insulation does not catch moisture and has great prospects of being used as internal insulation of high-voltage bushings.

If we speak about the production technology of RIN insulation, it is identical to that of RIP technology, but the properties of material allow to exclude a lengthy, heavy and energy-consuming operation of thermal vacuum drying. Thus, the new RIN insulation has the following operation advantages:

1. hydrophobic properties, i.e. inability of a non-woven material to catch moisture. Excluding paper from the bushing design eliminates the ability of the insulation core to absorb moisture, which, in its

All samples went through the standard acceptance tests procedures in accordance with GOST R 55187 and IEC 137 (IEC 60317:2017). Besides, some samples were exposed to long-term life testing, thermal stability testing and nominal current testing. Taking into account that bushings are in operation in different countries, on the territories with highly diversified climate condition, we had climate tests of two 110 kV bushings (800 A and 200 A) to confirm required crack resistance and sufficient plasticity on RIN insulation. During the tests, we simulated conditions under GOST 20.57.406-81 using method 205-2, gradual temperature raise. According to this method, the item undergoes two interchanging temperature cycles from minimum working to maximum working temperature of environment. At the testing, we completed in one case 3, in another - 4 stages of tests, 5 thermal cycles in each with temperature fluctuating from - 60 to + 100°C. The average gradient of temperature increase inside the cham-

UPON COMPLETION OF THE TESTS, THE BUSHINGS' CONDITION REMAINED UNCHANGED, SPEAKING FOR THEIR HIGH RELIABILITY AND ABILITY TO OPERATE IN THE MOST EXTREME CLIMATE CONDITIONS.

turn, makes the dielectric loss factor of the material absolutely stable, independent of impact of high humidity. It ensures an easy transportation, absence of specific storage requirements and reliability in operation. RIN bushings are characterized by a very low dielectric loss factor $\tan\delta$ 0,20-0,25 %, which is significantly lower the required values as per high-voltage bushings standards IEC 60137:2017 and GOST R 55187-2012 with normalized value of 0.7%.

2. The saturation process, which does not leave cavities, using chemical reaction between the synthetic thread and epoxy compound. It allows to eliminate partial discharges inside the insulation up to the peak operating voltage.

3. RIN insulation has a high thermal conductivity and low thermal expansion rate, which leads to decrease of stress between mechanically joined elements of the bushing. It is important for operation at extreme temperatures, both high and low.

To check and verify the working efficiency of the new type of insulation, we have done a lot of research. Altogether, we made more than 40 high-voltage bushings of various types and rated voltage from 35 to 500 kV for testing (fig.3).

ber made 0.56 degrees/min (33.6 degrees an hour). The average gradient of temperature decrease in the chamber in diapason of 100 C to - 60 C made 0.38 degrees/min (22.8 degrees/hour) (fig.4).

After each stage of the tests, made up of 5 thermal cycles, the bushings were examined for deformations, cracks, damages and crippling. After the examination, the bushings underwent high-voltage electric tests. Upon completion, the bushings' condition remained unchanged, speaking for their high reliability and ability of the bushings to operate in the most extreme climate conditions.

In December 2017, we held field seismic withstand tests at intense dynamic loading, equivalent to 9 on MSK-64 in accordance to GOST 30546.1-98 and GOST 30546.2-98 at the Center of Complex Seismic Testing. A 500 kV RIN bushings with porcelain external insulation was tested and successfully passed the testing (fig.5).

We should tell about another specific test in detail. In order to create a current-limiting device, using the superconductivity effect, we were tasked with making a bushing, capable of operation at extremely low temperatures. Its uniqueness is explained by a

necessity for the bottom part of the bushing to operate in liquid nitrogen at -196 C. Our research has shown that RIP is not capable to retain its mechanical properties at such temperature, so the nonwoven turned out to be the only material void of moist and, consequently, RIN insulation. In the result of the first tests, we optimized the bushing design, also changing the manufacturing process, and selected freezing modes of the bushings. In the result, we designed and made 110 kV and 220 kV bushings that pass all acceptance tests.

The bottom part of the bushings was placed in cryostat, filled up with liquid nitrogen. (fig.6).

After all the tests were completed, the condition of the bushings was unchanged, which proves a huge cold endurance margin of this type of insulation. According to our estimates, adhesion of insulation material to liners did not change and ensures absence of partial discharges in the bushings even at the peak operating voltage and even with the bottom part of the bushing immersed in liquid nitrogen.

Thus, our company is the only manufacturer of high-voltage bushings in the world to pass acceptance tests of 110 and 220 kV bushings with their bottom part immersed in liquid nitrogen at -196 C.

As of today, the RIN bushings completed the required testing and are getting ready for attestation at Rosseti PJSC, with operational testing of the units in 2018 and serial production scheduled for 2019.

Research and development of our company witness for the world level of our company. If we lagged behind the global leaders in development and implementation of RIP insulation by at least 30 years, we are on a par with them in respect to mastering production of RIN bushings. In manufacture of bushings for cryogenic equipment we have gone far ahead and intend to keep up this pace.



Fig.6 220 kV bushing in cryostat during the testing

FIRST TIME IN RUSSIA A 500 KV OIL - SF6 GAS BUSHING IS MADE

In March 2017, Izolyator completed acceptance tests of a 500 kV oil - SF6 gas bushing.

The bushing passed the entire complex of acceptance tests, allowing to make and send the first batch of bushings to the customer in full compliance with the contract. One of the first 500 kV oil - SF6 gas bushings was installed on the 500 kV Zapadnaya substation (FGC UES PJSC).



Tests of 500 kV Oil - SF6 gas bushing at Izolyator plant

500 KV RIN BUSHING FIRST TIME TESTED IN RUSSIA



RIN bushing at the test center of Izolyator plant

In June 2017, Izolyator plant successfully completed acceptance tests of a 500 kV bushing with solid RIP insulation for the first time in Russia. The bushing is intended for power transformers installation.

The tests became one more practical step and major achievement of the technical policy of Izolyator in increasing reliability of high-voltage bushings operation in any conditions.

MEASUREMENTS WITH OMICRON DEVICE APPLICATION

Izolyator made measurements of high-voltage bushings insulation together with Omicron.

Maxim Kravchenko, Engineer at Omicron came to Izolyator plant for making measurements. On Izolyator side, Pavel Kiryukhin, Deputy Chief Designer and Dmitry Mashinistov, Head of SVN-Service took part in the testing.

With the help of Omicron device the colleagues found out degree of moistening of the solid insulation of Izolyator high-voltage bushings by frequency response analysis method showing insulating properties.

The purpose of the measurements is to gain experience in high-voltage bushings condition diagnostics using Omicron equipment.

The tests showed efficiency of the method and the device.

Omicron and Izolyator specialists discussed co-operation development prospects in high-voltage bushings diagnostics.



Participants of joint tests - Izolyator and Omicron representatives, L-R: Dmitry Mashinistov, Maxim Kravchenko and Pavel Kiryukhin

OMICRON



Omicron manufactures and supplies modern equipment and systems for testing, diagnostics and power equipment monitoring to energy companies all over the world. These solutions allow to monitor high-voltage installations like generators, motors and cable under load.

IN NOVEMBER 2017, THE TEST CENTER OF IZOLYATOR RECEIVED ACCREDITATION FROM THE FEDERAL SERVICE FOR ACCREDITATION

The state body issued an accreditation certificate for Izolyator's test center in recognition of conformity with the requirements of GOST/ISO/IEC 17025-2009.



220 KV BUSHING TESTS AT -200 °C



Participants of the world's first successful tests of a 220 kV bushing at -200°C at the test center of Izolyator plant

Izolyator plant completed successful test of a 220 kV bushings at -200°C for the first time in the world!

Izolyator became the first in the world to develop, manufacture and test a bushing with solid insulation and capacitive field regulation for operating in media Air – Liquid Nitrogen with rated voltage 220 kV.

Air – Liquid Nitrogen bushings are aimed for operation in innovative current-limiting devices that operate on superconductivity effect. These devices are developed by a Russian SuperOx

that sent its specialists to prepare and facilitate the testing.

The bottom side of the bushing is designed to operate in liquid nitrogen at -196°C and the upper side – in the open air at -60 до +55 °C. temperatures.

A year of R&D activities, engineering and testing preceded those successful tests. Within that amount of work, the plant developed and made several 110 kV and 220 kV sample bushings that allowed to expose weak points in design and work out optimal modes of the bottom part freezing eliminating damage.

TESTS OF CURRENT- LIMITING DEVICE MADE BY SUPEROX

Izolyator plant completed successful tests of current-limiting device together with its developer SuperOx. 220 kV Izolyator bushings were used for the tests.

The purpose of the testing is checking performance of the current-limiting device filled with liquid nitrogen.

The tests went according to the procedure and were a success.



Current-limiting device of SuperOx design at the test center of Izolyator plant



Federal Service for Accreditation (RusAccreditation) is a federal government agency that serves as Russian Federation's national body for accreditation. RusAccreditation is under the supervision of the Ministry of Economic Development of Russian Federation.



SuperOx was established in 2006 by investor Andrey Vavilov for development of producton technology of high-temperature superconductive second generation wires. The core of the intellectual capital of the company is 30 year experience in plating coatings of complex oxides and studying properties of HTSC materials.

IZOLYATOR PLANT: 10 YEARS OF RECENT HISTORY

On 17 December 2017, Izolyator plant had its 10th Anniversary in Pavlova Sloboda in Moscow region!

Izolyator's history, since its beginning in 1896, counts three large-scale reconstructions and a major relocation in 2007, when a green-field facility was designed and built. It is an advanced industrial complex, capable to develop and mass produce electrical products, meeting the highest international standards.

Today, Izolyator plant is manufacturer with a worldwide recognition and partners including Russia's and the world's largest power grid companies and electrical products producers.

To mark the 10th Anniversary of the plant, the company had a corporate event.

During this event, the company staff members engaged in teambuilding activities called The Scandinavian Legends. The best teams were awarded special prizes, and every participant received a medal.

The Chairman of the Board of Directors of Izolyator Alexander Slavinsky opened the official part of the celebrations. He briefly spoke about the key facts and milestones of the building history of the new manufacturing facility in Pavlova Sloboda.



Celebrating a well-deserve victory



One for all and all for one!



Strengthening corporate spirit



Alexander Slavinsky is opening the official part of the celebration

Alexander Slavinsky emphasized the continuity of generations of employees and thanked the whole team addressing the warmest words to the veterans of the plant.

The official part of the event then continued with an awarding ceremony of Izolyator plant staff members who received letters of recognition and corporate awards, namely:



The veterans of Izolyator plant, L-R: Anatoly Mitroshkin, Boris Kokurkin and Nelya Barkova



Handing Letters of Recognition

- Nikolay Zemskov, Electrical fitter, maintenance;
 - Dmitry Ivanov, Head of Test Center;
 - Farizat Koroleva, Head Technical Control Bureau;
 - Sergey Medvedev, Mechanic, Transport shop;
 - Alexander Novikov, Quality Director.
 - Konstantin Tihomirov, Head of Production Planning Bureau.
- Staff members who worked in the company for over 20 years:
- Alexey Terentyev, Mechanic, Maintenance;
- Staff member who worked in the company for over 25 years:
- Alexander Slavinsky, Chairman of the Board of Directors
- Staff members who worked in the company for over 30 years:
- Yury Kirillov, Metal worker.
- Staff member who worked in the company for over 45 years:
- Alexander Bogatyrev, Metal worker.

Izolyator's General Director Sergey Moisseev finalized the official part of the day, once again thanking all the members of the staff for the professionalism and dedication.

The participants of the celebration enjoyed the events that had a warm, friendly atmosphere.



Awarding the best employees



The badge of merit "For longstanding and dedicated work" at Izolyator is awarded to Alexander Bogatyrev who has worked over 45 years at the company

- Thank you Letter from the Governor of the Moscow Region for the years of dedicated work in the Moscow region industrial complex and high professionalism;
- Thank you Letter from the Governor of the Moscow region for the long standing dedicated work in the Moscow region industrial complex and high professionalism;
- Letter of Recognition from the Ministry of investment and innovation of the Moscow region for the longstanding dedicated work, high achievement in professional activities in connection with the 10th Anniversary of the modern manufacturing facility on the territory of Istra city district;
- Thank you Letter from the Ministry of investment and innovation of the Moscow region in connection with the 10th Anniversary of Izolyator plant;
- Letter of Recognition for the longstanding and dedicated work in connection with the 10th Anniversary of establishment of the modern manufacturing facility of Izolyator company.

The awarding ceremony also included acknowledgement of the company employees with the highest Izolyator corporate award - badge of merit "For the longstanding and dedicated work" in these categories:

Staff members who worked in the company for over 15 years:



Santa will make all your dreams come true

HIS HEART BELONGED TO THE PLANT



A. Barkov in his office

In November 2017, Alexander Alexandrovich Barkov would have turned 90 years. He was an irreplaceable director of Izolyator plant in 1964 – 1989, outstanding production organizer, ideologist and inspirator of large-scale reconstructions and expansion of the key domestic manufacturer for high-voltage bushings for the power industry.

During his employment at Izolyator, Alexander Barkov made a career from electrician to the general

director of the plant. He was a Senior Engineer at the testing station, Chief Process Engineer, Chief Designer, Head of Special Design Bureau of high-voltage bushings.

Alexander Barkov was born on 8 November 1927 in the family of woodworker in Lyahovo, Vereya district, Moscow region. In 1928, the Barkovs moved to Moscow, Maryina Roscha. Sasha spent the summers at his grandmother's, who cultivated love of the nature with the boy. When the II World War began, the family was evacuated to Tashkent. The then youth Alexander began to work as wireman's apprentice at the

plant No.239. In 1943, the family moved to Chardzhou, where Alexander Barkov continued to work as electrician at the Construction and Installation Enterprise No.10 of Ukrneftstroy. At nights, he made some extra by watching over melon fields. In April 1944, the family came back to Moscow and

Alexander came to Izolyator as electrician.

In early 1950s Barkov went to evening school, which he graduated from in a year, taking exams without attending classes. In 1953, he entered the Moscow Power Engineering Institute.

In 1959, he graduated from MPEI and becomes Chief Process Engineer at Izolyator. The plant rapidly developed together with the power industry of the country by improving equipment and expanding the product range.

In 1961, Barkov became Head of special design bureau of the plant.

In 1964, aged 36, Alexander Barkov headed the plant.

Practically immediately upon his appointment in 1965, the plant received an instruction to organize products delivery to Aswan dam in Egypt. That was a special order for bushings ranging from 66 to 500 kV. This order became a bright illustration of energy and enthusiasm of Izolyator team. "Necessary!" – this word stuck to Barkov's mouth. The client ordered leak-tight bushings – so development of designs and production process improvement started. The staff members worked on day and night shifts during the acceptance tests. The clean production policy was met so strictly – one could compare the plant with a medical institution.



A. Barkov at the equipment installation at Aswan dam



Construction of manufacturing and laboratory facility, the 1970s.

It is a great merit of Mr. Barkov that Izolyator plant was expanded. Under his lead, it was completely reconstructed and received a new assembly and testing building, raw materials warehouse, envelope kiln for porcelain housing baking. In 1982, a new 8500 sq m administrative and laboratory facility was commissioned. During his work at all times, Alexander Barkov paid attention to reequipment, implementation of new technologies, product quality improvement at the plant.

Izolyator became one of the leading enterprises of the Ministry of electrical engineering and occupied a visible stand not only in the country borders but far beyond, supplying its product to 26 countries of the world.

Under the management of Mr. Barkov and with his direct involvement, the plant developed high-voltage bushings for rated voltage range 20 – 1150 kV for power transformers, shunt reactors, oil circuit breakers and wall and detachable ultra-high current bushings. The plant made a transition to production of leak-tight designs, SF6 gas insulated bushings and DC bushings for ± 400 kV and ± 750 kV power lines. Alexander Barkov – the inventor – has two certificates of invention and for creation and organization of mass production and implementation of new 110 kV transformer series in national economy. He received the Council of Ministers USSR Award for that work.

In 1980, the plant completed development of leak-tight bushings for the world's first ultra-high voltage 1150 kV AC ETL Ekibastuz – Kokchetav – Kustanay, whose industrial operation began in 1989. Creation of bushings for such voltage had an important scientific and practical meaning for construction and development of ETLs for extra-long distances.

During the period from 1964 to 1989, the overall production of finished products grew 6 times, high-voltage devices – almost 5 times, the staff reached 1200 people, productivity increased 5 times.

For high operational indicators, advanced delivery of quality power equipment to the most important construction sites of the country (Kuybishev, Bratsk, Krasnoyarsk HPP, etc.) Alexander Alexandrovich Barkov was awarded order of the Red Banner of Labour, order of Peoples' Friendship, Badge of Honor and five medals. On 9 May 1985, he participated in the Victory Day Parade on Red Square in honor of the 40th Anniversary of the Great Victory.

A. Barkov knew all pain points of the plant. He could inspire people. During those year, everyone at the plant was lively, cheerful and confident of the future. Humanity was in the core of the company culture. That is what the workers say, and so it was. As for that reason, his name was recorded in the plant's name in 1992 – the name of Alexander Alexandrovich Barkov, a great laborer, a wonderful manager, a man of integrity, who will be remembered by many generations, those who work at the plant now and those who will appear to replace them.

The strong work ethic and traditions, cherished by A.A. Barkov are carefully preserved and further developed in our days. Today, Izolyator is one of the world's largest manufacturers and suppliers of high-voltage bushings, a modern and advanced manufacturing facility, equipped to the latest technologies, capable of designing, producing and testing of 12 - 1200 kV alternating and direct current bushings.



Alexander Barkov (second row) at the demonstration at the Red Square in 1987



A. Barkov is taking part in the Victory Day Parade on Red Square in honor of the 40th Anniversary of the Great Victory



Installation of 1150 kV bushings on Ekibastuz - Kokchetav ETL in Kazakhstan



Monument to A. A. Barkov by the entrance to Izolyator plant

OUR CORPORATE LIFE

BADGE FOR "SERVICE TO THE MOSCOW REGION"



Moscow region Governor Andrey Vorobyov (L) is giving an award to Alexander Slavinsky

Alexander Slavinsky, Chairman of the Board of Directors at Izolyator was awarded a Badge of honor "For Service to the Moscow Region", III grade, for his input in the development of the science and industry of the Moscow region.

The awarding ceremony took place within the Industry Men of the Moscow Region 2017

Forum, which brought together executives of the largest industrial companies of the region, representatives of the banking sector, expert and scientific community, investors, realizing project in the Moscow region.

The Moscow Region Governor Andrey Vorobyov thanked all entrepreneurs and executives of the Moscow region companies, who create new work places, implement advanced technologies, build new plants and produce highly competitive and modern products.

CERTIFICATE OF ACKNOWLEDGEMENT OF THE MOSCOW REGION'S GOVERNOR

The Governor of Moscow region Andrey Vorobyov gave awards on the occasion of the National Day of Unity.

Izolyator staff received the Moscow region's Governor's acknowledgement of the longstanding dedicated work, high professionalism and a strong contribution

to development of the industrial complex of Moscow region.

The General Director of Izolyator Sergey Moisseev received the award from the Governor.

In his speech, Sergey Moisseev thanked the Governor, the Government of Moscow region and the Administration of the city district Istra for an all-round support.



Andrey Vorobyov (L) and Sergey Moisseev at the awards ceremony in honor of the National Day of Unity

DIRECTORATE MEETING AT IZOLYATOR

On 13 November 2017, Izolyator had the directorate meeting with Chairman of the Board of Directors Alexander Slavinsky chairing it.

The members of the directorate:

- Alexander Sorokin, Member of the Board
- Sergey Moisseev, CEO
- Ivan Panfilov, Commercial Director, 1st Deputy CEO
- Tatyana Kravets, CFO
- Konstantin Sipilkin, R&D Director
- Alexander Shornikov, Technical Director.

The directorate meeting summarized the first results of 2017 and discussed priorities of the company development and activities in 2018.

The results of the company as well as nearest and long-term goals of the technical, commercial and financial policy of Izolyator were discussed at the meeting.

The colleagues paid special attention to planning and prospects of further expansion on global power products markets on the principles of development of long-term cooperation with key partners.



Members of the Board of Directors of Izolyator

STAFF ARE PREPARED FOR IMPLEMENTATION OF INTEGRATED MANAGEMENT SYSTEM

Izolyator trained employees to operate in an integrated management system of quality, ecology, health protection and safety (IMS).

The system, which is now being implemented at Izolyator is a combination of ISO 9001:2015 quality management system, ISO 14001:2015 ecological management and OHSAS 18001:2007 health and safety management system.

The Leading Consultant of QMS Consult Maxim Aliev gave the training.

36 managers and engineers took the IMS course. They studied details of the international standards requirements and obtained practical skills for successful IMS implementation.

Upon completion of the course, the company employees passed tests checking knowledge of standards requirements and received certificates.



Training of Izolyator employees on implementation of integrated management system

EFFICIENT SUCCESSION PLANNING POLICY IS A STRATEGIC FACTOR



Presentation of Succession Planning program of Izolyator

A meeting to make a presentation of succession planning policy took place at Izolyator.

The objective is to ensure that the company has the right people in place to accomplish its strategy.

Selection of candidates is done by the company management, based on evaluation of the

business and personal qualities of the candidates.

Every candidate receives a mentor from the qualified specialists or managers, who would form an individual development program and on-job training.

Upon completion of the development program, Izolyator management gives an evaluation of the current professional level of the candidate and takes a personnel decision.

FIRE SAFETY EXERCISE

The next scheduled fire safety drill was held at Izolyator plant.

Boris Sobelman, Civil defense, emergency situations and fire safety specialist at Izolyator organized and ran the training.

The first exercise was done in the packing station of the assembly shop. After receiving the

task of the exercise, the employees practiced in extinguishing simulated fire at the storage location of wooden blanks.

At the second stage, the trainees practiced evacuation on Fire alarm signal. Upon actuation of the fire alarm, the management and staff of the company left their working places in organized manner and arrived at the training site 2.

We would like to thank our partners - the fire team Plant 101 for assistance in organization of the training and practical exercise!

left their workplaces in an organized order and arrived at the practice station No 2.

When speaking on the results of the exercise, Boris Sobelman informed that all the training tasks were fulfilled and marked good organi-

zation of his colleagues once again repeating the order of actions upon fire outbreak in the premises.

We appreciate our partners – the fire crew Plant 101 – for assistance with the exercise organization. Thank you!



The staff of the assembly shop successfully apply fire fighting equipment – CO2 fire extinguishers

A YEAR OF SPORTS ACHIEVEMENTS

FUNDRAISING FUTSAL CUP OF MIC RUSSIA

Izolyator took part in a fundraising Futsal Cup of the Military-Industrial Complex of Russia and made a good game.

The tournament went in the Spartak sports center in Moscow. It was a large sports festival with global reach, which is supported by the Defense Ministry of Russian Federation and traditionally gathers about 20 teams from different parts of Russia and the CIS.

The teams of industrial, research and defense enterprises from Moscow, Saint Petersburg, Orel, Nizhny Novgorod, Voronezh, Voskresensk, Khimki, Troitsk took part in competitions.

Izolyator futsal team also played in the games and became the strongest in its group in the result of four matches, making it to the Golden play-offs and losing 0:2 to Sberbank of Russia team in the final game.

Izolyator futsal team was awarded a special cup "Revelation of the Tournament!"

Team roster:

Mikhail Sheremetyev, Captain; Gennady Rybakov, Coach, master of sports, football; Anton Kobelev; Alexander Nakidalhyuk; Maxim Smurygin; Denis Petrov; Mikhail Puzyrev; Alexander Germanov; Evgeny Kurachuk; Pavel Zotov; Maxim Melnichenko.

A famous football player, broadcaster and Match TV sports shows host Evgeny Savinov took part in the tournament.

Part of the funds, raised with the cup organization, will be donated to charity fund helping the patients of the Moscow Oncological Institute named after P.A. Gertzen.

For a detailed coverage of the MIC Russia cup please visit Izolyator corporate webpage and the company's official pages in social media.

Our congratulations to Izolyator team with its successful performance and thanks to all supporters!



Izolyator team at the fundraising Futsal Cup of MIC Russia



The teams are lining up for the cup opening



A moment of the game



Izolyator futsal team is the strongest in its group



The prizes

AIMING AT THE BEST

The warehouse manager of Izolyator Konstantin Konstantinov is telling about his sports life with zest and yet modestly. Even though he took premier places in different contests, Konstantin confides that the prizes are of little importance to him, because the main rival that he fights against is himself.

In 2017, Konstantin continued pursuit of success in armlifting tournaments: taking part in different categories, he invariably took got into prizes. However, according to Konstantin, he wanted to try himself in new kinds of sports - so, double-event bench press came to his life, leaving the the back-seat to armlifting.

«I really like the format of the contest itself», says Konstantin. «The press of max weight is

checking your strength, while multiple presses demonstrate your stamina, making it difficult for a sportsman to combine both». Yet, our athlete is capable of doing that: Konstantin not only succeeded at The Double-event press bench Tournament of Russia, but also hit the qualifying standard of master of sports. «I am very much interested in trying something new» - continues Konstantin. «Improvement of my own results is what matters, not the titles. Besides, when coming to the tournament, I always try to see the receiving city: last year, it was a whole tour across the Golden ring towns: Suzdal, Ivanovo, Yaroslavl - by the way, the contests were held on the City Day there, it was a grea holiday».

The sportsman does not plan to stop and is already getting ready for the spring tournaments and is looking forward to seeing new places and victories.



Some medals of the prize collection of 2017



Yaroslavl the Wise Strength Sports Cup in Yaroslavl



The tournament of the Central Federa District in double-event bench press contest in Ivanovo



Russia Armlifting Championship according to WAA in Puschino, Moscow region

WE APPRECIATE ALL OUR PARTNERS!



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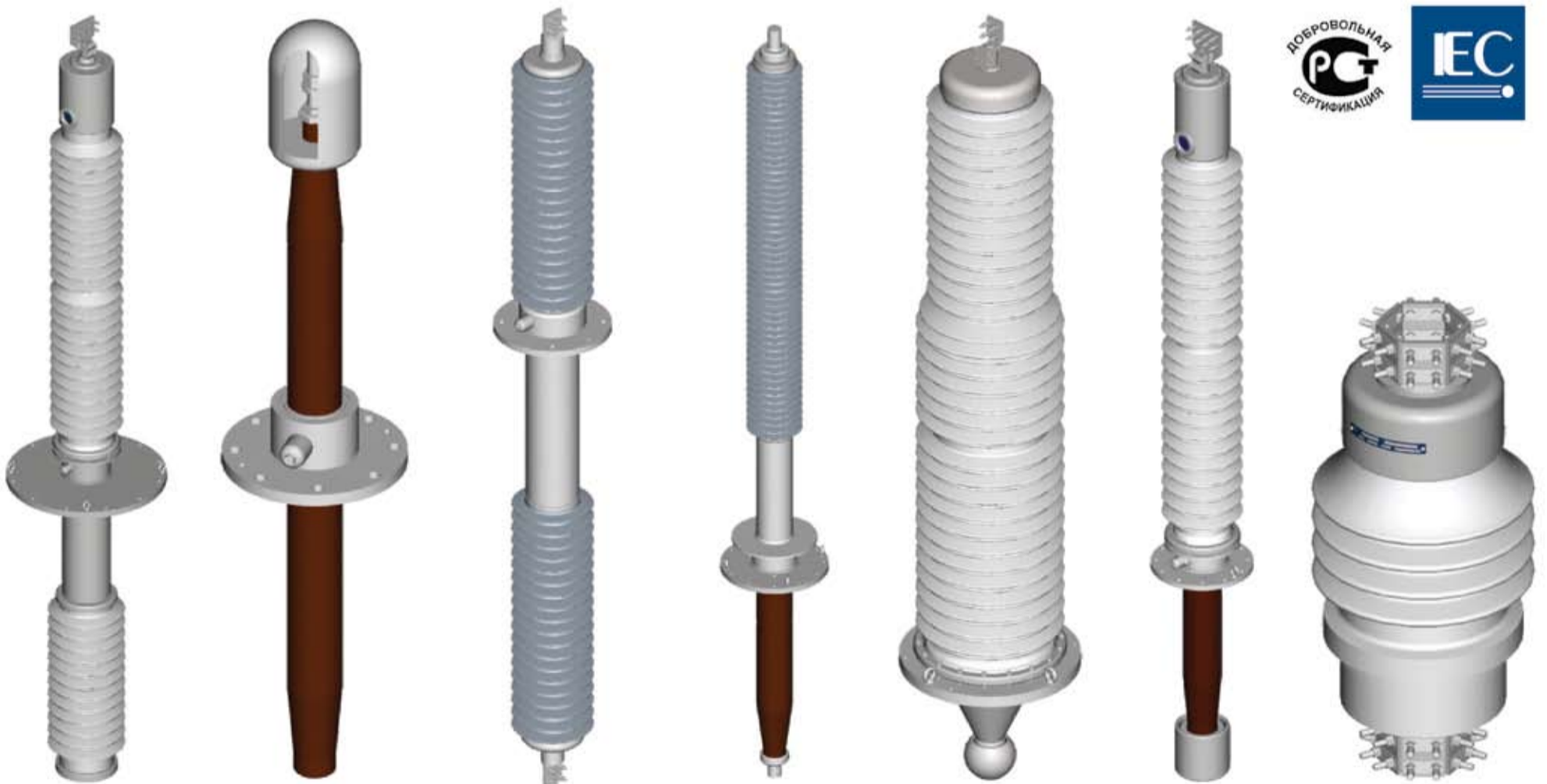
INNOVATIVE PRODUCTS

HIGH-VOLTAGE
 BUSHINGS
 IN 12 - 1200 kV RANGE



Izolyator designs, manufactures, maintains and repairs high-voltage bushings for alternating and direct current with rated voltages up to 1200 kV for power transformers, shunt reactors, oil switches, SF6 insulated switchgear as well as high-voltage wall bushings.

Alternating current bushings with rated voltages from 12 to 800 kV inclusively and all direct current bushings are made with solid internal RIP insulation of own design that has a high reliability and long service life



Air - Oil Bushing
 for oil circuit breakers
 Voltage: 35 - 220 kV
 Current: 1000 - 3150 A

Oil - Oil Bushing
 for cable connection
 to transformers
 Voltage: 110 - 500 kV
 Current: 630 - 1000 A

Air - Air wall bushing
 Voltage: 66 - 220 kV
 Current: 2000 - 4000 A

DC Bushings
 Voltage: $\pm 126 - 800$ kV
 Current: 1800 - 5400 A

Air - SF6 gas bushing
 for switchgear
 Voltage: 220 kV
 Current: 2000 - 3150 A

Air - Oil bushing
 for power transformers
 and shunt reactors
 Voltage: 12 - 1200 kV
 Current: 315 - 2500 A

Detachable Air - Oil bushing
 for power transformers
 Voltage: 20 - 35 kV
 Current: 6 - 20 kA