



Russian Energy Week 2017

- 22** Measures to increase energy efficiency
- 33** Energy in the new economic environment
- 44** The investment appeal of the Russian fuel and energy industry

Energy
for global growth



To Participants and Guests of the Russian Energy Week, International Energy Efficiency and Energy Development Forum

Dear Friends,

I would like to welcome you on the occasion of the opening of the first Russian Energy Week.

The Forum will bring together representatives of government bodies, major industries, business circles and the expert community from Russia and other countries to discuss main global energy development trends. In the framework of the intensive program of the Forum, they will conduct a serious and comprehensive analysis of the current situation in the global energy market and offer effective solutions to the challenges facing the energy sector.

Sustainable growth of the modern world economy greatly depends on ensuring energy security. And naturally Russia stands to play a special role as one of the guarantors of energy security for the entire Eurasia. The participants and guests of the Forum will have an opportunity to learn about the prospects of the Russian fuel and energy complex, the strategic projects that are being implemented, as well as to map out areas of cooperation, including in the fields of energy efficiency and introduction of cutting edge technologies that meet the highest environmental standards.

I hope that a substantive dialogue among the participants in the Russian Energy Week will be instrumental in working out common approaches to development of the international energy agenda and launching new mutually beneficial initiatives.

I wish you every success.

V. Putin





Dear Russian Energy Week participants,
Thank you for your interest in the new industry event, Russian Energy Week.

The overarching theme of the event is 'Energy for Global Growth'. Government officials and representatives from over 500 of the world's leading companies, as well as scientists and market analysts, will assemble to discuss the issues that will determine the future of the energy sector.

These will include: the development prospects for the oil, gas, and coal industries, electricity and petrochemicals, the investment appeal of Russia's fuel and energy sector, and the introduction of new breakthrough technologies. The event will focus particularly on energy efficiency and saving energy, the global climate agenda, and the development of alternative energy sources.

I am confident that the solutions and opportunities for mutually beneficial cooperation identified during our discussions will make a significant contribution to developing both the Russian and the global energy sectors.

Minister of Energy of the Russian Federation
A. Novak





RUSSIAN
INVESTMENT
FORUM

Sochi, Russia

February 15–16, 2018

rusinvestforum.org

Operator of the
Russian Investment Forum:
 **ROSCONGRESS**

Advertisement 

CONTENTS:

- | | | | |
|----|---|----|--|
| 8 | Standout events during Russian Energy Week | 40 | Dmitry KONOVOV, Chairman of the Management Board, SIBUR. The petrochemistry sector: still growing at a time of crisis |
| 22 | Anton INYUTSYN, Deputy Minister of Energy of the Russian Federation Key measures to increase energy efficiency | 44 | Kirill DMITRIEV, CEO, the Russian Direct Investment Fund. The investment appeal of the Russian fuel and energy industry |
| 26 | Peter BIRYUKOV, Deputy Mayor of Moscow, Government of Moscow for Housing, Public Utilities, and Amenities. Energy policy in the capital: outcomes and plans for the future | 46 | Pavel SHTARK, Chief Executive Officer of Mechel Mining Management Company. The development of the Elginsky Coal Mine, and the future of coal |
| 30 | David YAKOBASHVILI, President of the Russian-American Council for Business Cooperation. Priorities of the Russian fuel and energy industry in the current economic climate | 54 | Carlo PALASCIANO VILLAMAGNA, Enel Russia General Director. The results of the state support programme for renewable energy sources |
| 33 | Mikhail GUTSERIEV, Chairman of the Board of Directors, RussNeft. Investing in developing hard-to-recover oil reserves and new markets | 58 | #BrighterTogether Festival – a global social campaign in Russia |
| | | 64 | Roscongress Foundation – achievements at the Eastern Economic Forum |

Roscongress Magazine
Project Manager: Head of the Roscongress Foundation's Information Service Dmitry Kryukov
For questions concerning commercial cooperation, please contact: camilla.spence@roscongress.org

Roscongress Foundation
Address: 12, Krasnopresnenskaya Nab., Moscow, Russia, 123610
Tel/fax: +7 (495) 640 4440, Email: info@roscongress.org

The issue used photos from: TASS, Russia Today, Getty, Shutterstock, Alamy, Lori

OPINION LEADERS on Russian Energy Week



VAGIT ALEKPEROV
President, LUKOIL

The Russian Energy Week International Forum is an important event for the fuel and energy complex. Its busy programme effectively spans the entire range of urgent matters facing the Russian and global oil industry and paves the way for offering comprehensive solutions through joint efforts. I wish all Forum participants and organizers effective work, a constructive dialogue and interesting meetings!



VIKTOR VEKSELBERG
Chairman of the Board of Directors, Renova Group

Today, the whole world is following the transformation of the energy sector. In the same way that oil and gas at one time took over firewood and coal in the energy balance structure, renewable energy will displace hydrocarbon sources of energy in our times. Technology is rapidly developing in the area of energy storage, energy efficiency, and the industrial Internet. It is important for Russia to not be left out in the cold of technological competition. For its part, Energy Week could become an indicator of change in the domestic energy sector and enable participants to find the right place to apply their efforts regardless of the focus of their activities: be it power engineering, solar, or traditional generation.



SEMYON SAZONOV
CEO, Quadra

It's very important to make sure that the fuel and energy complex and thermal power generation in particular outpace the rest of the economy. The discussion of urgent industry issues that experts and participants in the Russian Energy Week will raise will help achieve just that.



ANDREI MUROV
Chairman of the Management Board, FGC UES

Energy is often a driver of the changes that take place in the economy. It consists of a whole range of problems, initiatives, and ideas that are not always possible to discuss on existing platforms. In this regard, holding a representative industry forum in Russia is a long overdue decision, which I am sure will generate interest among our Russian and foreign colleagues.



NAIL MAGANOV,
General Director, Tatneft

The 'Russian Energy Week' International Forum is an effective platform for a constructive dialogue between representatives of leading oil companies, industry experts, and various business communities. Meetings of this level are a good opportunity to learn about trends in the industry's development and exchange advanced experience as well as scientific and technical achievements in the global oil industry.



NIKOLAI SHULGINOV
Chairman of the Management Board and CEO, RusHydro

A systemic approach and regular "reality checks" are particularly important for the energy industry. The Russian Energy Week helps government agencies, companies and experts develop optimal long-term solutions for the industry.



ANDREI MELNICHENKO
Chairman of the Strategy Committee of the Boards of Directors, Siberian Coal Energy Company (SUEK) and Siberian Generation Company (SGK)

A strong, efficient and competitive energy industry is essential for our nation's stable development and economic security and for its to command respect. I believe an important objective of the Russian Energy Week is to emphasize the best practices and strengths of the national energy industry and to design strategies for improving and developing them further.



SERGEI STEPASHIN
Chairman of the Supervisory Board, Housing and Utility Reform Support Fund State Corporation

I am pleased to welcome the participants and guests of the Russian Energy Week, which is being held during the Year of Ecology in Russia! The forum is a unique platform where representatives of the expert community, the federal executive authorities, and public organizations have an opportunity to discuss pressing issues concerning energy conservation and energy efficiency in such important sectors as construction as well as housing and utility services, share positive experience, and exchange views. I wish you productive work and success!



ALEXEI LIKHACHEV
General Director, Rosatom State Corporation

Rosatom can design, build, and produce equipment, commission, train personnel, provide maintenance and fuel, and operate a nuclear facility anywhere in the world. Our integrated approach has enabled us to become number one in the world in terms of the number of power units being built. It's not just trade in raw materials. The knowledge and competence of Russian nuclear scientists in matters concerning high technologies is the focus of export demand. During Russian Energy Week, we not only want to present our best technologies, but discuss key challenges and global trends in the energy sector together with our partners and leading experts.



ALEXEI MILLER
Chairman of the Management Committee, Gazprom

The Russian fuel and energy sector is the foundation of the national economy and a substantial part of the global energy industry. Representatives of the government, business, and the expert community must maintain a qualitative dialogue to effectively develop it. I am certain that Russian Energy Week will become an important industry platform for discussing current events and trends, working out new approaches to the development of the energy sector as well as establishing and developing business ties.



JOHAN VANDERPLAETSE
Senior Vice President and President, Schneider Electric in Russia and the CIS

The world is rapidly changing under the influence of new technologies as well as growth in urbanization and industrialization, and energy is now at the forefront of these changes. I am confident that Russian Energy Week will be a key platform for discussing the objectives facing the industry and advanced technologies and coming up with solutions to develop energy, not only on a Russian scale, but also around the world. I am pleased to welcome the participants in Russian Energy Week on behalf of Schneider Electric, a partner in the Forum's organization!



SERGEI PARAMONOV
Director, Kuzbassrazrezugol Managing Company

As Russia's biggest company specializing in open-pit coal mining, Kuzbassrazrezugol is part of its fuel and energy complex and is thus interested in a constructive conversation about the outlook for the industry and the urgent issues facing coal miners in this difficult coal market environment. I am confident that the international energy efficiency forum will become a launchpad for mutually beneficial cooperation between Russian and international companies. Above all, we are interested in discussing the issues of improving the coal mining industry's efficiency and safety: these are the key premises for our corporate development strategy for the coming years.

WHAT TO LOOK FORWARD TO DURING *Russian Energy Week*

BUSINESS DISCUSSIONS, SUMMITS,
EXTENSIVE CULTURAL PROGRAMME –
WE'LL LOOK AT THE STANDOUT EVENTS OF
RUSSIAN ENERGY WEEK, WHICH THIS YEAR
IS TAKING PLACE AS AN INTERNATIONAL
FORUM FOCUSING ON ALL KEY SECTORS OF
THE FUEL AND ENERGY INDUSTRY.

RUSSIAN ENERGY WEEK: *business programme*

THE 'RUSSIAN ENERGY WEEK' ENERGY EFFICIENCY AND ENERGY DEVELOPMENT INTERNATIONAL FORUM WILL TAKE PLACE IN MOSCOW ON OCTOBER 3–7, 2017 IN ACCORDANCE WITH ORDER NO. 2026-R OF THE GOVERNMENT OF THE RUSSIAN FEDERATION DATED SEPTEMBER 27, 2016. DETAILED INFORMATION ABOUT THE FORUM VENUE IS AVAILABLE IN THE VENUE SECTION.

The Forum is being held to demonstrate the prospects of the Russian fuel and energy industry and unlock the potential of international cooperation in energy. The Forum will serve as a platform for a discussion of the main challenges faced by the energy sector and topical problems involving the development of:

- the gas industry;
- the oil industry;
- the coal industry;
- petrochemistry;
- electricity;
- energy conservation and increased energy efficiency.

The Forum will bring together the CEOs of major global and Russian energy companies. About roughly 8,000 Russian and foreign officials and businessmen and media representatives will take part in the events of Russian Energy Week.

Session (closed event)
GECF MINISTERIAL MEETING
The Gas Exporting Countries Forum (GECF) brings together the world's leading natural gas producers and exporters. The main objective of cooperation between GECF participants is to ensure reliability and security in supply and demand for gas and other energy resources.

Russia attaches great importance to working with other gas exporting countries in the Forum, which was created to help achieve coordination between the countries with the most significant reserves of 'blue fuel'.

ALL-RUSSIAN MEDIATEK AWARD CEREMONY

Third MediaTEK All-Russian Contest for the Media, Energy Sector Press Services, and Regional Administrations.

The contest is open to federal and regional media organizations, journalists, corporate public relations departments in the fuel and energy sector, and regional administrations. Its main aims are to encourage increased professionalism in the way energy companies publicize their activities in the media, inform the public about projects in the fuel and energy sector, prompt new projects to raise awareness of professions in the fuel and energy sector, and

emphasize the significance of the roles played by workers in the energy, oil, and gas industries.

Plenary Session THE RUSSIAN FUEL AND ENERGY INDUSTRY: NATIONAL INTERESTS AND GLOBAL TRENDS

Developments in technology are making the international energy sector ever more global in nature, and energy ever more accessible. At the same time, the climate agenda is aimed at minimizing any negative impact on the environment. Every country is participating in this process in its own way, as it simultaneously develops and implements new technologies. This is resulting in changes to the global energy balance, demand for energy resources and technologies, and the structure of the economy. For Russia, as for other countries, questions regarding the optimal strategy for development of the fuel and energy industry under these new conditions are becoming increasingly urgent.

INTERNATIONAL MAYORS' SUMMIT ON ENERGY EFFICIENCY AND SUSTAINABLE GROWTH IN CITIES

As a follow-up to the Moscow Mayors' Meeting in 2016 and as part of the international Clean Energy Ministerial initiative, the Mayors' Summit on Energy Efficiency and Sustainable Growth in Cities 2017 will be held. The session will include a discussion of international initiatives in the areas of energy-efficient lighting, implementing projects to demonstrate the application of renewable energy, and increasing energy efficiency in buildings and transport, as well as a large-scale Russian project from the Agency for Strategic Initiatives and the Ministry of Energy of the Russian Federation. The programme for the Summit includes the signing of a cooperation agreement between Russian cities and international organizations, as well as a presentation on a pilot research project to benchmark cities



according to energy efficiency and sustainable development.

Meeting INVESTING IN THE FUTURE OF CITIES: DEVELOPING INFRASTRUCTURE FOR ELECTRIC VEHICLES IN RUSSIA

Since 2013, Rosseti has been implementing a Russia-wide programme to develop infrastructure for charging electric vehicles. Support is being provided by the government in the form of tax concessions on electric cars in a number of regions, and such cars can also be parked free of charge at parking facilities throughout Moscow. Moscow and other major cities are planning to develop electric forms of overground public transport. The Russian Ministry of Industry and Trade is currently working to harmonize new requirements for electric vehicles with UN regulations, and to standardize requirements for charging equipment. At this

roundtable, the results of work completed so far will be reported and updates will be provided on projects which are under way.

Meeting RUSSIAN-EUROPEAN COOPERATION: THE PATH TO GLOBAL IMPROVEMENTS IN ENERGY EFFICIENCY

Experts consider energy efficiency to be an important priority in global energy policy. It is a crucial factor in energy and environmental security, the fight against climate change, and ensuring universal access to energy resources. In spite of energy-saving measures adopted in recent decades, however, around 70% of energy globally is still consumed without taking energy efficiency into consideration. In this context, cooperation between the leading economies of the 'Old World' – Russia and the countries of the European Union – on effective energy use and ensuring the transition to green energy sources, takes on a special relevance.



Presentation
MEETING BETWEEN CHIEF ENGINEERS OF POWER DISTRIBUTION COMPANIES: 'TECHNOLOGY AND INVESTMENT POLICY: REPAIR OR REPLACE?'

A significant amount of power grid equipment has practically zero residual value, yet has remained in use thanks to periodic technical examination and repair. At the same time, companies do not have sufficient resources to completely upgrade fixed assets. Companies are faced with the challenge of finding an optimal balance between maintaining dilapidated equipment for comparatively low repair and operational costs, and replacing it with expensive modern equipment which will save money on subsequent maintenance.

Presentation
PRESENTATION ON THE HEATING SUPPLY EFFICIENCY RANKING

In 2017 the Russian Ministry of Energy, together with the regions of the Russian Federation and the expert community, began work on creating a heating supply efficiency ranking for communities in the Russian Federation. The ranking evaluates the efforts of administrative bodies at all levels to establish conditions facilitating a reliable, failure-free

heating supply, reduce levels of specific fuel consumption, apply modern technology, update heating supply systems, implement planned measures, and increase energy efficiency among consumers. The ranking seeks not only to measure progress, but also to identify and promote best practices.

Meeting
MEETING BETWEEN CHIEF ENGINEERS OF HEATING SUPPLY COMPANIES

Rapidly expanding urban populations and the associated increase in housing stock are contributing to a greater burden on urban infrastructure. The centralized heating supply system found in Russian cities, which dates back to the Soviet period, offers enormous potential for efficiency gains. During this annual meeting, head engineers and energy specialists from heating supply companies will discuss current problems in the sector based on real case studies and exchange experience of solving challenges faced by companies.

All-Russian Conference
COOPERATION WITH INTERNATIONAL ORGANIZATIONS: HOW TO ACHIEVE MAXIMUM EFFECT

Russia has long benefitted from the support of the United Nations

Development Programme. The country subsequently founded a trust fund, together with the UNDP, with the aim of supporting sustainable development in programme countries. The session will include a discussion of best practices at the UNDP Regional Bureau, as well as a presentation and discussion of the challenges faced by the regional project 'Legislative regulation to promote energy efficiency in the countries of the Eurasian Economic Union'.

Session
ALL-RUSSIA FORUM ON PROMOTING AN ENERGY-SAVING LIFESTYLE AND INFORMATION TRANSPARENCY IN THE FUEL AND ENERGY INDUSTRY

The Russian fuel and energy sector plays a special role in the social and economic development of the country, accounting for more than 22% of GDP even in the present highly volatile state of the global markets. A reliable energy supply for tens of millions of consumers and the importance of energy to the federal budget ensure that the public pays close attention to the state of the sector. Between 2013 and 2016, companies and regions began to consolidate their efforts to promote an energy-saving lifestyle,


as well as professions in the fuel and energy sector and social and environmental activism, with support from the Ministry of Energy. During the All-Russia Forum, the results of joint work done in 2017 will be presented, together with an analysis of the #TogetherBrighter festival, the MediaTEK contest, and other examples. Sector-wide challenges for 2018 will also be identified.

And also:

- **Plenary Session**
 Uniting the Efforts of the Infrastructure Sector and the Regions to Achieve Economic Growth
- **Business Breakfast**
 Diversifying the Defence Industry to Support the Energy Sector: A Strategy for Change. Make in Russia!
- **All-Russian Conference**
 All-Russian Conference on Preparations by Electric Power Organizations for the Autumn/Winter Period 2017-2018
- **Session**
 50th Session of the APEC Expert Group on Energy Efficiency and Conservation

7TH ST. PETERSBURG INTERNATIONAL GAS FORUM

St. Petersburg International Gas Forum (SPIGF) will be held as a part of the 'Russian Energy Week' Energy Efficiency and Energy Development International Forum. SPIGF is the leading venue to discuss topical issues of the industry. During the Forum industry leaders make their decisions that provide direct impact on formation of the global gas market. SPIGF will take place at the EXPOFORUM Convention and Exhibition Centre from 3 to 6 October.

The Forum is supported by federal and regional authorities: Ministry of energy of the Russian Federation, Ministry of industry and trade of the Russian Federation, Ministry of transport of the Russian Federation, Administration of St. Petersburg, and Russian and foreign industry associations. 



PANEL DISCUSSIONS

- The Future of the Electricity Industry: How Power Systems and Consumers Are Set to Change
- Globalization and Prospects for the Global Gas Market
- The Global Gas and Petrochemical Markets: Opportunities for Russia
- The Role and Potential Development of Nuclear Energy in the Global Energy Mix
- Finding a New Balance on the Oil Market
- The Future of the Coal Industry against the Background of a New Climate Agenda
- Open Session of the Housing Reform Assistance Fund Supervisory Council
- Developing Renewable Energy Sources in Russia: Scaling Up and Exporting Technology
- Russia's Foreign Energy Policy
- Safety in the Fuel and Energy Industry: New Challenges
- The Digital Transformation of Russian Electricity
- Heating Supply Reform: New Stimuli and Initial Results
- Petroleum Refining in Russia: Large-Scale Modernization and New Challenges
- Investment Attractiveness in the Oil Industry: A New System of Taxation
- 6th Global Energy Summit
- Inevitable Growth: New Renewable Energy Projects in Russia's Regions
- Increasing the Efficiency of Oil Extraction: Meeting the Challenges
- 'Energynet' Projects and Initiatives: a Contribution Towards the Development of 'New Energy'
- Shining a Light on New Technologies: Making Quick and Noticeable Improvements to the Quality of the Urban Environment
- Developing Exchange Trading in Russian Oil
- The Best Management Models and Practice for Major Construction Work in the Fuel and Energy Industry
- Uniting the Efforts of the Infrastructure Sector and the Regions to Achieve Economic Growth
- Technological Cooperation and Import Substitution in the Energy Sector: An Effective Response to the Risks of Sanctions
- Presentation on the Energy Efficiency Ranking of Power Distribution Companies
- Modernizing Generating Capacity in the Electricity Sector: Problems and Prospects
- Efficiency and Safety in the Coal Industry: Best Practices and Innovative Technologies
- Meeting between the Technical Directors of Coal Mining Companies





GETTING A BADGE BY PROXY

To collect your participant badge by proxy, your proxy must:

- Show a document confirming their identity (a passport)
- Present an original standard power of attorney form*
- Show a list of all participants whose badges the proxy is collecting
- Show copies of the passports of all participants whose badges the proxy is collecting (without a list and copies of the passports of all participants to be accredited, the power of attorney will not be valid)**

* Example of power of attorney to collect participant badge can be downloaded from the Forum website in the Accreditation section.

** Copies of passports will be returned once badges have been issued.

FORUM MATERIALS

Forum materials are issued to the Premium Package and Standard Package participants, and to the media representatives at the Forum venue (Manege, entrance area) upon presentation of a participant badge.

- To collect your Forum materials by proxy, your proxy must:
- Present an original standard power of attorney form*
 - Show a document confirming their identity (a passport)
 - Show the badges of all participants whose materials the proxy is collecting

* The power of attorney form, as well as an example of how to fill it out, is available to download in the Accreditation section of the Forum website.

Please note: Forum materials can only be collected under power of attorney by a proxy upon presentation of a badge providing access to the Forum venue.

FORUM MATERIALS DISTRIBUTION POINT OPERATING HOURS

| Date | Time |
|-------------|-------------|
| October 3-6 | 09:00-20:00 |
| October 7 | 08:00-17:00 |

RUSSIAN ENERGY WEEK: *navigator**

LOCATION AND DATE

The main events of Russian Energy Week will take place on **October 3-7, 2017** at **Manege Central Exhibition Hall** (1, Manezhnaya Ploshchad, Moscow).

PARTICIPANT ACCREDITATION

Participants must present an **accreditation badge** in order to access a number of events on the REW 2017 business programme. **Your accreditation badge is personalized and may not be given to third parties.** You should keep your badge and ID with you at all times

during the Russian Energy Week. You must present your badge for verification upon request by security service officials. Participant accreditation badges may be collected personally (on presentation of the participant's passport) or by the third party using a power of attorney.

ACCREDITATION POINTS OPERATING HOURS

You are advised to collect your badge in one of the accreditation points located in Moscow. In order to ensure easy access to the

Forum venue we kindly ask that you collect your accreditation badge in advance from one of the accreditation points.

| Point | Address | Date | Time |
|---------------------------|-----------------------------------|--------------------------|--|
| MOSCOW | | | |
| World Trade Centre Moscow | 12, Krasnopresnenskaya Nab. | September 27 – October 3 | 09:00-20:00 (Mon to Fri) 10:00-18:00 (Sat to Sun) |
| Schneider Electric office | bld. 1, block A, 12, Ul. Dvintsev | September 27 – October 2 | 09:00-18:00 (Mon to Fri) |



FORUM INFORMATION CENTRE

Tel.: +7 (800) 333 1773

Email: info@rusenergyweek.com

rusenergyweek.com

* Information is valid as at September 20, 2017. The latest information about the Forum can be found on the official website rusenergyweek.com.

INFORMATION AND SERVICES POINTS

Forum information and services points are located in accreditation point in the World Trade Center Moscow, as well as at the Forum venue (Manege, entrance area). At information and services points you can obtain information on the Forum's programme, available services, and directions around the REW 2017 venue and other sites. Additionally, the information and services points also offer the following services:

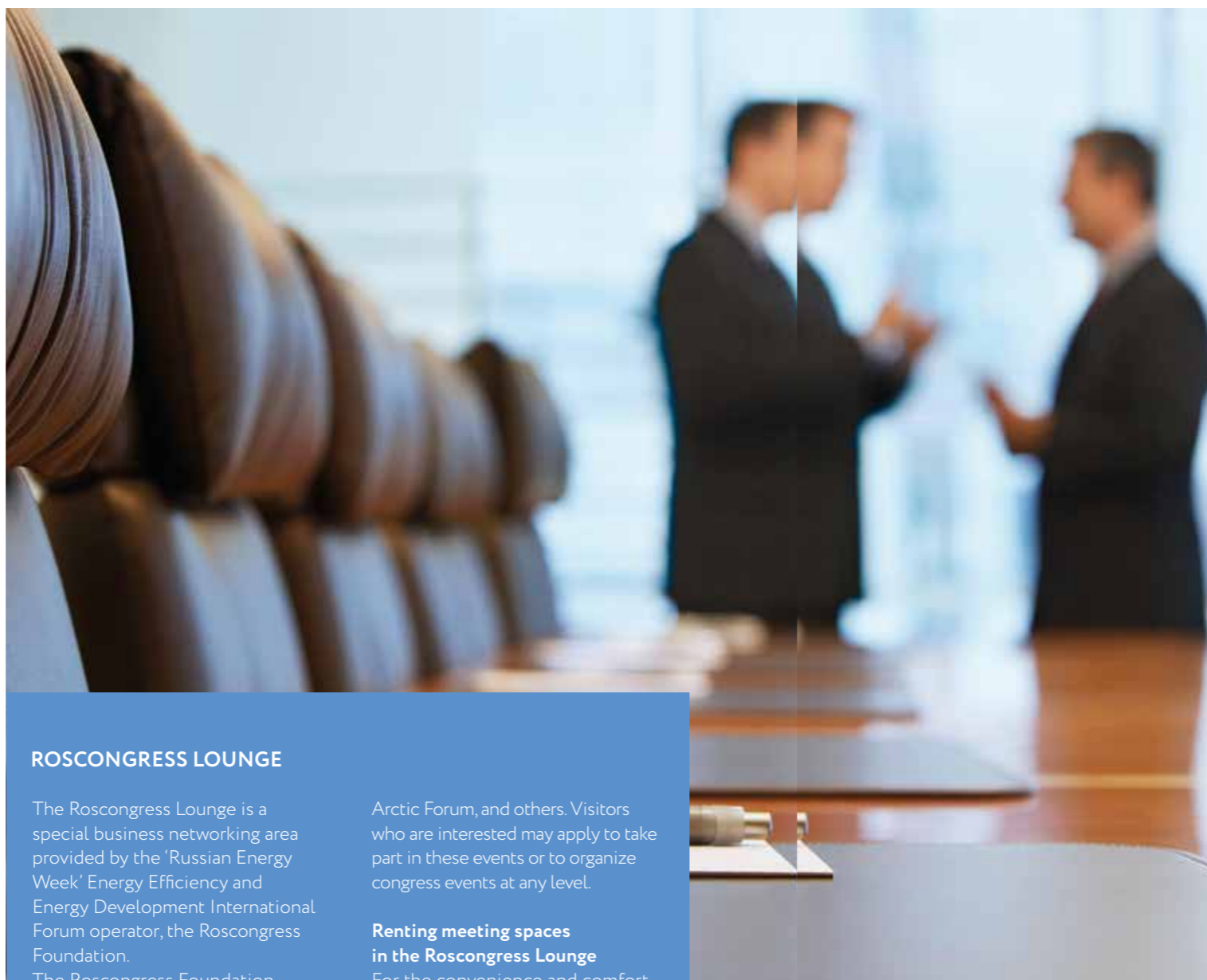
- Copying, scanning, and printing of documents
- Copying and writing information to electronic media
- Distribution of REW 2017 information materials
- Lost & found
- Mobile device charging

Service desks at the Forum venue:

- Congress Attaché concierge service
- Taxi booking and transport services
- Theatre ticket booking and excursion services
- Russian Post
- Mobile device charging point

BROADCASTS OF FORUM EVENTS

Live video broadcasts of the plenary session and other Forum events will be displayed on TV screens located throughout the Forum venue and in the press centre. In addition to session broadcasts, the TV screens will also display information that will help participants navigate through the Forum: announcements about sessions, changes to the programme, the schedule for upcoming events, the latest news and photographs, and much more. Footage of Forum business programme events will also be broadcast live in the Programme section of the official Forum website, rusenergyweek.com. A broadcast archive will be available in the Programme section of the Forum website at rusenergyweek.com, where you will be able to search by date and event title. Video material can be watched in full or by section.



ROSCONGRESS LOUNGE

The Roscongress Lounge is a special business networking area provided by the 'Russian Energy Week' Energy Efficiency and Energy Development International Forum operator, the Roscongress Foundation. The Roscongress Foundation (previously the SPIEF Foundation) has been regularly holding business events in Russia and abroad since 1997, creating favourable conditions for economic cooperation between the business and political elites of Russia and other countries.

Visitors to this area can learn about all the opportunities available for participants in the events and projects carried out by the Roscongress Foundation: the St. Petersburg International Economic Forum, the International Financial Congress, the Eastern Economic Forum, the World Festival of Youth and Students, the Russian Investment Forum, the International

Arctic Forum, and others. Visitors who are interested may apply to take part in these events or to organize congress events at any level.

Renting meeting spaces in the Roscongress Lounge

For the convenience and comfort of its guests, the Lounge is equipped with meeting spaces, which can be booked in advance, and a coffee break area. It will also screen broadcasts of key REW 2017 events. Meeting spaces in the Roscongress Lounge are available for rent for 20–30 minutes. If you wish to rent meeting spaces, please go to the Roscongress Lounge administrator's stand. This service is provided free of charge, subject to availability when booking.

Please note: access to the Roscongress Lounge is provided to Premium Package and Standard Package participants only, after booking of the meeting space.

DINING AT THE FORUM VENUE

Participants do not need to leave the Forum venue for lunch or to have a cup of coffee during breaks between business programme events. The venue has its own restaurants, and coffee and light refreshments will be available throughout the day via services provided by the Forum's organizers and partners.

Please note: in the Restaurants section of the official Forum website participants may find a list of restaurants in Moscow nearest to the Forum venue. Restaurants require payment at the menu prices.

INTERNET

For the convenience of participants, complimentary high-speed Internet access is available at the Forum venue. This service is available free of charge to Forum participants and guests. Network name: **REW2017** Password: **rew-2017**

SPECIAL TAXI RATES

You can book a taxi by contacting one of the city's taxi companies.

Official (accredited) taxi services are provided by **taxi company 'Komandir'**.

Tel.: **2412** (free of charge from mobile phone) or **+7 (499) 999 2412**; special taxi rates are provided upon key word: **REW 2017**.

Fixed rates have been set for accredited taxis, covering the main transport routes.

Please note, parking of vehicles at the Central Exhibition Hall 'Manege' is prohibited. Taxi may pick up and drop off passengers only.

| Name | Location | Operating hours | Catering format |
|---|-------------------------------------|------------------------------|---|
| CAFÉS OFFERING LIGHT SNACKS (FREE OF CHARGE) | | | |
| Coffee break area | Lower Hall (-2 nd floor) | October 4–6 08:00 – 19:00 | Coffee break |
| CAFÉS AND RESTAURANTS (PAYMENT REQUIRED) | | | |
| Restaurant for participants [Ⓢ] | 3 rd floor | October 4–6 09:00 – 18:00 | Breakfast, lunch, set-menu |
| Genius cafeteria café [Ⓢ] | -1 st floor | 08:00–19:00 | Tea, coffee, cold beverages, sandwiches, salads, and bakery |

[Ⓢ] Access to the restaurant for participants may be limited for the special events.



MOBILE APP

The mobile app for the Russian Energy Week is the best way to get the latest information about REW 2017 and learn about services offered at the Forum.

It can be downloaded in the App Store and Google Play (search term 'rew 2017').

The app is a tool that participants can use to plan their work and communication at the Forum.

Key app functions:

- information about the Forum programme
- view video broadcasts of business events
- exchange messages with other participants
- schedule meetings (under 'Day Planner')
- create a personal schedule to attend REW 2017 events
- information on transport services
- navigate the Forum venue

Log on to the mobile app using the login and password from your personal web office. Your personal login and password were sent to you along with your invitation to REW 2017.

RUSSIAN ENERGY WEEK: cultural programme*

TUESDAY, OCTOBER 3

The Swedish Match

🏠 Main Stage, Theatre of Nations
🕒 19:00. Duration: 1 hour 40 minutes
No interval
Anton Chekhov
Director – Nikita Grinshpun
Designer – Ksenia Shimanovskaya

Peer Gynt

🏠 Main Stage, Lenkom
🕒 19:00. Duration: 2 hours 10 minutes.
No interval
Based on the play by Henrik Ibsen, with choreography by Oleg Glushkov
Script by Mark Zakharov
Director – Igor Fokin
Production – Mark Zakharov, Oleg Glushkov
Music – Sergey Rudnitsky

Enough Stupidity in Every Wise Man

🏠 Main Stage, State Academic Maly Theatre
🕒 19:00. Duration: 3 hour 20 minutes
Interval after the third act
Alexander Ostrovsky. A comedy in five acts
Performance Director – Vladimir Beilis (People's Artist of Russia) Scenography – Enar Stenberg (People's Artist of Russia) Composer – Shandor Kallosh
Director – Alexander Shuiskiy

WEDNESDAY, OCTOBER 4

Tchaikovsky. Romances and Letters

🏠 Beethoven Hall, Bolshoi Theatre
🕒 19:30
A concert by the Bolshoi Theatre opera soloists Olga Seliverstova (soprano), Anna Bondarevskaya (mezzo-soprano), Ivan Maximeiko (tenor),

Yuri Syrov (baritone),
Rauf Timergazin (baritone)
Pianist – Semyon Skigin

The Glass Menagerie

🏠 Main Stage, Theatre of Nations
🕒 19:00. Duration: 2 hour 40 minutes
One interval
Tennessee Williams
Director – Tufan Imamutdinov

One Flew Over the Cuckoo's Nest (The Eclipse)

🏠 Main Stage, Lenkom
🕒 19:00. Duration: 3 hour 20 minutes
One interval
A theatrical fantasy based on the novel One Flew Over the Cuckoo's Nest by Ken Kesey
Production – Alexander Morfov Designer – David Borovsky (People's Artist of Russia).
Director – Ivan Agapov (People's Artist of Russia)

THURSDAY, OCTOBER 5

The Idiot

🏠 New Stage, Bolshoi Theatre
🕒 19:00. Duration: 3 hours 5 minutes
One interval
Composer – Mieczyslaw Weinberg Score adaptation by Philippe Adam Libretto by Alexander Medvedev based on the novel The Idiot by Fyodor Dostoyevsky

Half-Witted Jourdain

🏠 Main Stage, Moscow Art Theatre
🕒 16:00. Duration: 1 hour 40 minutes
Mikhail Bulgakov
Director – Tatyana Doronina (People's Artist of the USSR)
Designer – Viktoriya Sevryukova (Honoured Artist of Russia)
Ballet Mistress – Tatyana Borisova
Composer – Valery Sokolov

FRIDAY, OCTOBER 6

🏠 Main Stage, State Academic Maly Theatre
🕒 19:00. Duration: 2 hour 40 minutes
Alexander Ostrovsky
Production Director – Vladimir Dragunov (Honoured Artist of Russia)
Set Designer – Stanislav Benediktov (People's Artist of Russia, winner of the State Prize of Russia)
Composer – Grigoriy Gubernik (People's Artist of Russia)

The Idiot

🏠 New Stage, Bolshoi Theatre
🕒 19:00. Duration: 3 hours 5 minutes
One interval
Composer – Mieczyslaw Weinberg Score adaptation by Philippe Adam Libretto by Alexander Medvedev based on the novel The Idiot by Fyodor Dostoyevsky

The Masquerade

🏠 Main Stage, State Academic Maly Theatre
🕒 19:00. Duration: 3 hours
One interval
A drama in rhyme in four acts
Performance Director – Andrei Zhitinkin (People's Artist of Russia) Scenography – Sergei Barkhin (People's Artist of Russia, winner of the State Prize of Russia)
Ballet Master – Alexei Sklyarenko.
Director – Boris Klyuyev (People's Artist of Russia)

Photo: Damir Yusupov/the press service of the Bolshoi theatre



SUNDAY, OCTOBER 7

La Bayadère

🏠 Historic Stage, Bolshoi Theatre
🕒 19:00. Duration: 3 hours 15 minutes.
Two intervals
Ludwig Minkus
A ballet in three acts
Libretto by Marius Petipa and Sergei Khudekov, revised by Yuri Grigorovich.
Choreography by Marius Petipa.
New stage version by Yuri Grigorovich.
Includes excerpts from productions by Vakhtang Chabukiani, Konstantin Sergeyev, Nikolay Zubkovsky.
Conductor – Pavel Sorokin

Première: The Dreams of Monsieur De Molière...

🏠 Main Stage, Lenkom
🕒 19:00. Duration: details not available.
One interval
Based on Mikhail Bulgakov's play The Cabal of Hypocrites

It's Not All Shrovetide for the Cat

🏠 Ordynka Stage, State Academic Maly Theatre
🕒 19:00. Duration: 2 hours 30 minutes.
One interval
A comedy in two acts. Scenes from Moscow life.
Director – Zinaida Andreeva (Honoured Artist of Russia)
Lighting Designer – Damir Ismagilov (Honoured Arts Worker of Russia)
Ballet Master – Anton Leschinskiy (Honoured Artist of Russia)

SATURDAY, OCTOBER 7

The Idiot

🏠 New Stage, Bolshoi Theatre
🕒 19:00. Duration: 3 hours 5 minutes
One interval
Composer – Mieczyslaw Weinberg Score adaptation by Philippe Adam Libretto by Alexander Medvedev based on the novel The Idiot by Fyodor Dostoyevsky

The Government Inspector

🏠 Main Stage, State Academic Maly Theatre
🕒 18:00. Duration: 3 hours 55 minutes.
Two intervals
Nikolai Gogol. A comedy in five acts

Performance Directors – Yuri Solomin (People's Artist of the USSR, winner of the State Prize of Russia), Vasily Fedorov
Scenography – Alexander Glazunov (Honoured Arts Worker of Russia)
Composer – Grigoriy Gubernik (People's Artist of Russia)
Lighting Designer – Damir Ismagilov (Honoured Arts Worker of Russia)
Ballet Mistress – Natalia Tsapko

Juno and Avos

🏠 Main Stage, Lenkom
🕒 19:00. Duration: 2 hours 10 minutes.
One interval
Andrei Voznesensky, Alexey Rybnikov.
A modern opera in two parts
Production – Mark Zakharov (People's Artist of the USSR, winner of the State Prize of the USSR and Russia, winner of the City of Moscow Prize, full cavalier of the Order for Service to the Fatherland)
Scenography – Oleg Sheintsis (People's Artist of Russia)
Choreography – Vladimir Vasilyev (People's Artist of the USSR)
Choirmaster – Irina Musaelian (Honoured Artist of Russia)

SPORTING PROGRAMME

SATURDAY, OCTOBER 7

World Energy Games

🏠 Sochi, Planet of Champions Sports Club, 23/4 Fugurnaya Ul.
🕒 09:00–17:00

RECEPTION ON BEHALF OF REW 2017 ORGANIZING COMMITTEE

🏠 The Pashkov House, 3/5, bld. 1, Ulitsa Vozdvizhenka (entrance from Starovagankovskiy Pereulok)
📅 Wednesday, October 4
🕒 Guest arrival time: 19:30
👉 By invitation only



BOOKING THEATRE TICKETS AND PERSONAL GUIDED TOUR SERVICES

You can find out more about how to book tickets for performances at Moscow theatres and order personal guided tour services through the Cultural Programme section of your personal web office and at theatre ticket and guided tour booking stands.
Please note that the cost of tickets and excursions is paid by the participant independently.

* Information is valid as at September 20, 2017. The latest information about the Forum can be found on the official website rusenergyweek.com.

22 “WE’RE FOCUSING ON measures which have the highest impact”



Deputy Minister of Energy of the Russian Federation **Anton Inyutsyn** tells how measures to increase energy efficiency are working out, why we need classifications for residential buildings, and about the benefits of ranking power distribution companies

26 MOSCOW RANKS AMONG THE WORLD’S TOP-5 Illuminated Cities



Deputy Mayor of Moscow for Housing, Public Utilities, and Amenities **Peter Biryukov** tells us how much energy the capital needs, how the My Street programme affects energy efficiency and whether it is reasonable to use renewable energy sources in a metropolis

30 DEVELOPMENTS in processing are essential

President of the Russian-American Council for Business Cooperation, **David Yakobashvili**, discussed the financial and technological considerations involved in developing this industry and the areas requiring focus in the current situation

33



A SAFETY MARGIN: how the oil and gas industry is operating in the new economic environment

Chairman of the RussNeft Board of Directors **Mikhail Gutseriev** talks about investing in developing hard-to-recover oil reserves, new markets, and competition with alternative energy sources



34 A Wealthy ARCTIC

Corresponding Member of RAS, Deputy Director of the Oil and Gas Institute, RAS, **Vasily Bogoyavlensky** about hydrocarbons production in the Arctic zone



“WE’RE FOCUSING ON MEASURES which have the highest impact”



DEPUTY MINISTER OF ENERGY OF THE RUSSIAN FEDERATION **ANTON INYUTSYN** TALKED TO US ABOUT HOW MEASURES TO INCREASE ENERGY EFFICIENCY ARE WORKING OUT, WHY WE NEED CLASSIFICATIONS FOR RESIDENTIAL BUILDINGS, AND THE BENEFITS OF RANKING POWER DISTRIBUTION COMPANIES.

What are the major challenges facing the Russian fuel and energy industry today? How well prepared is it to face them?

The major challenges faced by the Russian fuel and energy industry are linked with gaps in technology and limited access to financial resources, which are partly the result of sanctions. Our strategy is to increase technological cooperation with our partners from countries in the Asia-Pacific region and other regions which are not involved in the sanctions, creating investment funds with them in order to finance major products as well as organizing import substitution for critical equipment. The task faced by government in this context is of course to ensure a favourable environment for business, by creating a flexible system of taxation, as well as the conditions for reducing the cost of funding for reliable borrowers within the country.

This approach is already bearing fruit. Thanks to the low cost of oil production, at just USD 3–8 per barrel, and an increase in processing depth from 70% to 80% (and for refineries, over 98%), our resource base remains one of the world’s most competitive. Last year Russia not only retained its leading position as a supplier of gas to global markets, with a 20% market share, but also regained first place for supplies of liquid hydrocarbons. We exported 12% of oil and 9% of petroleum products.

Russian companies are now more technologically competitive. For example, horizontal wells with

multizone hydraulic fracturing have begun to be widely used, which has significantly increased oil production efficiency. Production of rotary steerable systems has also begun in St Petersburg, Krasnoyarsk, and Tyumen. We are working together closely with China on developing infrastructure in the Russian Far East, and joint projects are being launched with Japan, Korea, and India. The Yamal LNG 1 project will go online next year, and by 2035 the Russian LNG market will have expanded fivefold, and account for 15% of global exports.

The government is devoting considerable attention to environmental issues and protecting the climate. This is a global challenge, and every country is making its own efforts to reduce harmful emissions, including in the energy sphere. Here, our key areas of action are using gas to replace “dirtier” fuels, modernizing oil refineries, and developing renewable energy sources. It is our plan to increase their installed capacity to 7–9 GW by 2035, and to achieve a tenfold growth in electricity produced from renewables.

Among the major energy trends you mentioned renewables. How relevant are these for Russia? Where in Russia can effective use of renewables be made?

At present, almost half of our domestic energy consumption is fed by gas, and 15% by coal, which is less environmentally friendly. At the same time, according to data from World Energy Outlook for 2016, coal is used to generate around 40% of electricity in the US and Germany, around 72% in China, and 30–35% of energy globally. Non-hydrocarbon sources account for 13% – a figure which will increase to 16% by 2035, largely due to the spread of renewables. Mechanisms



have been put in place for supporting the development of renewables on the wholesale and retail electricity markets, a high-tech plant has been built in Novocheboksarsk, and the first facilities have been commissioned. Around 200 MW of renewable capacity has been installed in the grid within the last 2 years.

Given Russia’s enormous size, renewables will be developed chiefly in hard-to-access areas and for isolated energy systems. These will be cheaper and more environmentally friendly than the diesel power stations presently in use.

As you’re in charge of energy conservation and efficiency at the ministry, let’s discuss those in a bit more detail. What progress is being made on the implementation of the

government programme “Energy saving and increase of energy efficiency to 2020”? Has the complex economic situation pushed this into the background, or only made it more relevant?

The programme is only becoming more relevant, although, due to the present crises, less and less money is being allocated for it. That’s why we’re focusing on measures which have the highest impact: phasing out inefficient generation (9 GW by 2020), reforming the heating supply, energy-efficient lighting, automatically regulated heating, budgetary measures, and promoting an energy-saving lifestyle.

Take just one example. At present, losses in heating supply networks can be as high as 30%, whilst the annual shortfall in funding for the heating supply system is something in the region of RUB 200 billion. We had waited for a long time for corrections to federal legislation adopted this summer which are designed to remedy the situation. In particular, state regulation on all heating supply tariffs has been lifted. This has been replaced with the “alternative boiler plant” system, which sets the maximum price paid for heating by the end consumer. This is making the sector more attractive to investors, which will provide funds for modernization and renovation.

ELECTRICITY GENERATION STRUCTURE ACCORDING TO DIFFERENT SOURCES*

| | 2016 | 2035 |
|--------------------------|-------|-------|
| Hydropower plants | 16.0% | 15.6% |
| Nuclear power plants | 18.3% | 18.3% |
| Renewable energy sources | 0.2% | 3.2% |
| Thermal power plants | 65.5% | 62.9% |

*According to the best case scenario of the Russian Energy Strategy project, by 2035 domestic electricity generation will increase by 40% and energy efficiency by 30%.

Source: Ministry of Energy of the Russian Federation

Thanks to the low cost of oil production and an increase in processing depth our resource base remains one of the world's most competitive



Which measures for increasing energy efficiency produce the best results in your view?

It's hard to isolate them from one another. Technical regulation, economic stimuli, educational efforts – all of these work hand-in-hand, but the precise combination of these measures may vary depending on where they are being put to use.

Technical regulation includes prohibiting out-of-date technology and introducing purchase requirements, which can work well when production is concentrated among a few organizations. Where members of the public are involved, information and promotional campaigns take on a big importance.

For example, a progressive regulatory framework has been formed in Russia for lighting, which in some respects is on a par with global best practices. This has enabled us to make rapid progress in the transition to energy-efficient lighting in the municipal sector – in a number of regions, the share of LED and sodium-based street lights is already at 100%. But domestic consumers still aren't

giving very much thought to the advantages of energy-efficient lighting; especially as the price of an LED bulb in Russia is still quite high. We need to encourage this transition by educating people, by working on lowering the price of energy-efficient equipment, and by applying technical regulation more actively.

On the initiative of the Russian Ministry of Energy, the Government of the Russian Federation has adopted a resolution on the mandatory installation of individual heaters in new buildings from 2017. This equipment will have only a minor impact on property costs per square metre, whilst allowing heat savings of 20–30%. Individual heaters are also being installed during major renovation works which are currently being carried out in apartment buildings. The relevant authorizations exist not only at a national level, but a regional one too.

On the whole, reducing the cost of energy in Russia requires an active government policy in energy conservation and energy efficiency. Unfortunately, even those measures outlined in legislation often go unused.

and what impact is it having on prices per square metre?

First of all, an energy efficiency classification is carried out by a building inspectorate, and has no impact on developer expenses. But why do we need such a classification in the first place? It is so that buyers can assess not only the cost of purchasing a home, but also the expenses involved in running it. Having this in mind will allow everybody to make the right choice – buy cheaper and pay more for utilities, or choose an apartment in an energy-efficient block which will be significantly cheaper to run. It is our belief that classifying homes for energy efficiency will provide an additional stimulus for genuine developers who think in the long term to build more comfortable housing. Another incentive to buy an apartment in a block with a high energy efficiency rating are possible property tax benefits. This possibility is presently under discussion.

What initiatives are being taken at a government level to increase public awareness of the principles of energy efficiency?

Many steps are being taken across Russia to promote an energy-saving lifestyle, with special attention being given to regional participation. The nationwide energy-saving festival "Brighter Together", an event spearheaded by the Russian Ministry of Energy, is already in its second year. The festival took place in 2017 in the form of a family event held in 80 regions, both in regional centres and in municipal districts. According to a survey by the Russian Public Opinion Research Centre, 15 million people (11% of the country's adult population) heard about the festival, and more than 200,000 took part. Hundreds of thousands of school and preschool children attended special lessons where they were taught how to use electricity sparingly. Dozens of universities across the country presented their own visions of how to increase energy efficiency.

Among other landmark projects, I'd like to mention the ENES 2017 4th Russian National Contest for Energy-Saving and Energy-Efficiency Projects, as well as the MediaTEK

Russian National Contest for the Media, Energy Sector Press Services, and Regional Administrations.

Approximately 400 applications were made to each of these. It is important to note that the ENES projects contest was launched in 2014, and the first MediaTEK contest took place in 2015. That means that in the space of just two to three years, they have succeeded in attracting a large number of applicants, which attests to the amount of interest shown by people in this subject.

The Ministry of Energy has prepared a ranking of power distribution companies for Russian Energy Week. Tell us why it was compiled, and how it works.

We regard the ranking first and foremost as an instrument for providing incentives to power distribution companies. The objective, as set by the President of Russia, is to decrease GDP energy intensity by 40% of its 2007 level by 2020. It is hoped that 13.5% of this will be achieved by technological factors, and 26.5% by structural changes in the economy.

The major potential that power distribution companies have to increase energy efficiency is by reducing energy losses in transmission and supply (these account for around 1% of total consumption of all fuel and energy resources in the country). It is our hope that measures taken to increase energy efficiency between 2017 and 2020 will enable electricity savings of 10 billion kW/h.

Unlike the previous version of this ranking, which only included companies with state participation, we have now extended the list to 90 participants, including independent power distribution companies with revenues of more than RUB 500 million a year. The ranking is now also used to compare branches of companies, and no longer major interregional distribution grid structures as before. New indicators have been added, and companies ranked in groupings based on these. This approach allows us not only to identify the leaders and languishers of the sector, but also to determine which measures have helped to achieve a positive effect.

KEY ENERGY EFFICIENCY INDICATORS FOR THE RUSSIAN FUEL AND ENERGY INDUSTRY

| Indicator | Unit of measurement | 2012 | 2013 | 2014 | 2015 | 2016 | Total |
|--|--------------------------|-------|-------|-------|-------|-------|--------|
| Specific consumption of fuel equivalent in electricity supply | g/kWh | 329.4 | 321.3 | 319.8 | 317.6 | 315.4 | -4.3% |
| Specific consumption of fuel equivalent in heat supply | Kg fuel equivalent/ Gcal | - | 168.2 | 161.8 | 162.4 | 162.2 | -3.5% |
| Oil processing depth | % | 71.1% | 71.4% | 72.3% | 74.3% | 79.2% | +8.1% |
| Electricity transmission and distribution losses | % | 11.8% | 11.6% | 11.5% | 11.0% | 10.7% | -9% |
| APG utilization efficiency | % | 76.2% | 78.8% | 85.5% | 88.2% | 87.1% | +10.9% |
| Specific consumption of electricity in oil transportation in comparable conditions | kWh/thousand tkm | - | 11.39 | 11.37 | 11.16 | 11.03 | -3% |

Source: Ministry of Energy of the Russian Federation

For example, in 2011 the government approved rules to introduce energy efficiency requirements for buildings; the requirements themselves were supposed to be adopted in April of the same year, but this still hasn't happened. The Russian Ministry of Energy has so far taken a similar amount of time on the approval process for energy efficiency requirements for an extensive range of goods on the state procurement list.

Since August 2016, new residential buildings have been classified according to their level of energy efficiency. To what degree are developers interested in this,

"MOSCOW RANKS AMONG THE WORLD'S TOP-5 Illuminated Cities"



DEPUTY MAYOR OF MOSCOW FOR HOUSING, PUBLIC UTILITIES, AND AMENITIES **PETER BIRYUKOV** TELLS HOW MUCH ENERGY THE CAPITAL NEEDS, HOW THE MY STREET PROGRAMME AFFECTS ENERGY EFFICIENCY AND WHETHER IT IS REASONABLE TO USE RENEWABLE ENERGY SOURCES IN A METROPOLIS.

How much energy does Moscow need, including urban development plans? How do you plan to supply it?

Moscow is a dynamically growing metropolis. The Troitsky and Novomoskovsky districts joined the capital in 2012; moreover, housing is being constructed at an unprecedented pace. The more housing we build, the more heat energy we need. The planned load will have reached 33.3 thousand Gcal/h of heat energy and 53.4 billion kWh of electric energy by 2021.

Moscow has a substantial surplus of heat output today (the energy consumption is about 32.8 thousand Gcal/h, while the reserve amounts to 26.6 thousand Gcal/h). The heat energy needs are thus fully covered by available sources. To reduce the surplus and gas consumption, we plan to shift the workload from low-efficiency and obsolete boiler houses to CHPP.

Speaking about electric energy supply, transformer capacity increases by 2 thousand MVA annually. Yet this rate happened to be lower in 2016 owing to use of existing surplus

electrical capacity (4.7 thousand MVt), while the electric energy consumption totalled 43 billion kWh.

What efforts is the city making to improve energy efficiency? What bottlenecks do we still have?

Implementation of steps to improve energy efficiency is a priority objective of the municipal authorities. Systematic efforts to introduce energy saving projects are included in the Energy Saving and Communal Engineering Infrastructure Development Programme for the city of Moscow, as well as its Energy Saving and Energy Efficiency Improvement subprogramme.

The aggregate savings, according to the key indicators of the State Programme as of 1 January 2017, reached savings of: 6,587.38 million kWh of electric energy, 10.87 million Gcal of heat energy, 278.9 million cubic metres of water, 3,734.47 million cubic metres of gas; and greenhouse gas emissions were cut by 4,866.6 thousand tonnes.

Despite the positive energy saving dynamics, lack of funds for implementing capital-intensive energy saving activities is still a major problem of the industry. The Energy Saving and Increasing Energy Efficiency Federal Law No. 261-FZ of 23.11.2009 provides for concluding energy service contracts to attract



Pokrovka Street

institutional investors' funds. More than 1.5 thousand energy service contracts have already been signed in the Russian Federation.

Mass awareness raising efforts are being made in the capital to popularize the energy service; draft standard documents and contracts, as well as the general principles for forming the starting conditions for bidding procedures, are being

developed. Moscow authorities are striving to minimize the customers' risks and are considering including the Energetika Main Monitoring Directorate as a third party to a contract to monitor project implementation, estimate savings, etc.

Are energy efficiency requirements taken into consideration in implementation of the My Street programme and the five-

ENERGY SUPPLY IN MOSCOW (CUMULATIVE TOTAL)

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 [°] | 2018 [°] | 2019 [°] |
|--|--------|----------|----------|----------|----------|----------|----------|-------------------|-------------------|-------------------|
| Aggregate electric energy savings, kWh | 958.97 | 1,768.3 | 2,921.39 | 3,897.12 | 4,716.35 | 5,618.15 | 6,587.38 | 6,914.16 | 7,207.84 | 7,501.83 |
| Aggregate heat energy savings, m Gcal | 2.38 | 4.59 | 6.17 | 7.80 | 8.89 | 9.96 | 10.87 | 11.77 | 12.47 | 13.16 |
| Aggregate water savings, m cubic metres | 41.60 | 79.55 | 190.61 | 208.3 | 244.84 | 264.31 | 278.9 | 287.4 | 295.84 | 304.26 |
| Aggregate gas savings (cumulative total), m cubic metres | 547.83 | 1,083.39 | 1,532.63 | 2,105.87 | 2,498.66 | 3,065.86 | 3,734.47 | 4,198.48 | 4,662.06 | 5,125.63 |
| Greenhouse gas emissions reduction, thousand tons, CO ₂ equivalent (carbon dioxide) | - | - | 657.66 | 1,696.39 | 2,688.12 | 3,724.89 | 4,866.6 | 5,638.24 | 6,409 | 7,179.76 |

[°] forecast values

Source: Moscow Department of Housing, Utilities and Amenities

In line with the renovation, reconstruction of outdoor lighting systems will be made with the use of modern energy efficient technologies

storey apartment block renovation programme?

Of course they are. For example, the My Street Complex Improvement Programme, among other efforts, includes replacement of sodium discharge lamps with metal halide and LED lamps, which save up to 30% of electric energy without a reduction in the illumination level.

The colour temperature of the new LED lamps (2,700–2,800 K) provides warm white light that is close to the solar spectrum and is most comfortable for the human eye. Depending on the manufacturer, the lamps have a lifetime close to 30–50 thousand hours, which helps cut

the costs of functional illumination of the city. Other advantages of such lamps include absence of flickering and noise, instant illumination with high-contrast light, resistance to various negative factors, ability to work under critical temperatures, and easy disposal due to absence of hazardous substances.

The Mossvet State Unitary Enterprise will provide the contracting organizations engaged in renovating old buildings and constructing new ones with technical specifications for reconstruction of outdoor lighting systems using modern, energy-efficient light sources.

Executed projects using heat pumps, for example, heating of the halls of the subway station "Salarjevo"



What initiatives are being implemented to raise public awareness of the energy efficiency principles?

Moscow authorities, together with the Department of Housing, Utilities and Amenities, focus particularly on popularizing the ideas of energy saving and nurturing a responsible attitude towards energy consumption among the city's population. Relevant promotional materials are placed in outside advertising media, while brochures and booklets with recommendations on energy saving are distributed to Moscow apartment buildings.

Thematic city events are organized, such as the Moscow stage of the all-Russia Energy Saving Festival (including lectures and workshops) as part of the City Day, as well as promotions organized by manufacturers of energy-efficient devices in cooperation with big retailers, offering customers free sample products.

87 open lessons in energy saving took place in Moscow in 2016, when specially designed interactive stands helped convey the important information in the most accessible and clear way. Also, pupils received information kits and thematic drawing books.

Journalism contests focused on energy saving and energy efficiency are held annually.

What cities could be a good example for Moscow with regard to energy efficiency?

Moscow is the most populous city in Russia and in Europe, and also one of the ten most populous cities in the world. The power supply to its housing and social facilities is the highest in the country, so it would be wrong to compare energy consumption and energy efficiency improvement in Moscow and other Russian cities.

Even so, the capital learns from the experience and best practices of other metropolises of the world. Last year, it ranked as one of the five most illuminated cities in the world, along with Tokyo, London, New York and Paris.



Implementation of the My Street programme set lighting saving up to 30% of energy without compromising the light level

So what solutions implemented in Moscow could be rolled out to other cities in Russia?

The capital is implementing a number of interesting energy efficiency projects. The biggest of these is the commissioning of five power units for combined gas and steam installations at CHPP-26, CHPP-16, CHPP-20, CHPP-9, and CHPP-12 in 2011. That produced a cut in gas consumption by 1,264.57 tonnes of reference fuel and in specific consumption for electric energy production from 253.8 to 232 grams of reference fuel per kWh, as well as consumption for heat energy production from 166.2 to 165.2 kilograms of reference fuel per Gcal, which had a positive impact on the environment.

How would you characterize the potential of alternative energies? To

what extent are they applicable in Moscow?

The scope for using alternative energies in Moscow is quite narrow. This could be attributed to the specifics of a large city with a developed infrastructure for producing and transferring traditional energies, as well as to geographical factors and the high building density.

Nevertheless, there are three generating units in Moscow, namely Lyubertsy Gas Engine Power Plant, Kuryanovo mini-CHPP, and Ecotehprom State Unitary Enterprise Station, that work on biogas as an alternative energy source. A number of pilot projects using heat pumps are being implemented, e.g., heating of Salarjevo Metro station entrance hall and buildings located in specially protected nature areas, where laying traditional utilities are prohibited by the current legislation.

Alternative energies may be used in New Moscow, where there is no developed system of centralized heat and electricity supply.

Support measures for popularizing and implementing renewable energy sources, namely subsidies for cost compensation for technological connection of renewable energy source facilities, equilibrium wholesale market price bonification for electric energy produced from renewable energy sources, as well as reducing renewable energy source production costs, will lead to active use of such alternative energies in homes, as well as industrial power facilities. At the same time, the customer chooses the source of energy supply depending on their financial status, as well as the necessary level of energy supply security.

Photo courtesy of the Press Service of the the Moscow Department of Housing, Utilities and Amenities

"Developments IN PROCESSING ARE ESSENTIAL"



THE RUSSIAN FUEL AND ENERGY INDUSTRY HAS PROBABLY FELT THE IMPACT OF SANCTIONS IMPOSED BY THE U.S. AND ITS ALLIES MOST STRONGLY. PRESIDENT OF THE RUSSIAN-AMERICAN COUNCIL FOR BUSINESS COOPERATION, **DAVID YAKOBASHVILI**, DISCUSSED THE FINANCIAL AND TECHNOLOGICAL CONSIDERATIONS INVOLVED IN DEVELOPING THIS INDUSTRY AND THE AREAS REQUIRING FOCUS IN THE CURRENT SITUATION.

Irrespective of the sanctions, foreign companies remain as important a partner as ever for Russia in developing the fuel and energy sector. Mr. Yakobashvili, to what extent do you believe the sanctions to be damaging business?

It is the financial aspect of the sanctions which is the most difficult because Russian companies have lost a source of inexpensive financing. Foreign banks set high interest rates for our businesses, I would say unjustifiably high, and this becomes uncompetitive. On the other hand, attempts to enter new markets, for example Asia, have in my opinion so far not achieved the expected results. The Chinese banks mainly offer credit only on condition of working with Chinese companies, and this is by no means simple. At this point, I'm not even able to name any Russian companies that have recently succeeded in the Chinese market. Therefore Europe is our best customer and also the partner paying the most, and doing so on time.

Are you counting on the possibility of the situation changing, a softening of the sanctions regime?

It is often the case that things happen not because of something, but rather the opposite. I am not ruling out the notion that restrictions might be lifted, and I hope that notwithstanding the faintly absurd situation we currently find ourselves in, Russian business will be able to cooperate with its European colleagues as an equal partner.

On the other hand, would it be possible in the current situation to develop business relationships in some other format?

Business is inventive and resourceful. Even at the present time, companies are finding opportunities to continue joint work on projects already started and even to conclude new agreements. Business professionals, by this I mean our foreign partners, will always find a way to resolve issues with the equipment and technologies our country needs, and work where it suits them and where they are sure the markets are most profitable. For example, BASF is continuing its collaboration with Gazprom and Nornickel. The company Total was even involved in financing a Yamal LNG project during 2014-2015 and is today negotiating with Novatek on new projects on Russian territory. European companies regard restrictions from politicians with a high degree of nervousness because they are interested in our market. We have long established business connections and strong contacts which nowadays need to be hidden or rejected. Petrocas (Editor's note: a multi-faceted company founded by David Yakobashvili trading in oil products in the Caspian region, Central Asia and the Caucasus) is working with the Greek company Mobil Oil and the



Arctic LNG carrier "Christophe de Margerie", developed for the project "Yamal LNG"

Turkish energy company Demirören Group. The sanctions are not restricting our work in these markets but all conflict situations always have an impact on business.

What possible different approaches to developing business do you envisage?

We are seeing increased energy usage in new markets. This is particularly the case in African countries where there is a high level of interest in good quality products, and where energy consumption is growing across the continent as a whole. Europe is not experiencing growth. In terms of Asia, India is consuming more energy every year. So there is a market for Russian products, our companies simply have to work more quickly and take a more organized approach.

There is a rapid growth in alternative energy sources overseas, particularly

in the West. Russia is also giving attention to such projects. Which are the particularly promising aspects of this for Russia in your opinion?

I believe the most effective and most accessible are hydroelectric power stations and hydroelectric power. There were developments as early as Soviet times, however today for some reason hydroelectric power is not getting the attention it deserves. There is an explanation. The huge size of the country and the incomplete infrastructure means that we cannot transfer electricity from East to West, or vice versa. Our power lines are "cut short". For this reason there is an electricity surplus which we cannot sell. And at the same time many other countries, neighbours both near and far, suffer from a lack of much needed electricity. We could transfer large quantities to Turkey and Europe. It would simply be necessary to build the infrastructure and develop the business opportunities. We have huge amounts in Siberia but we cannot transport it to the European part of the country. If the government were to create favourable investment conditions, business could move into this sphere, develop the infrastructure, and the earnings potential would be huge. The infrastructure would be in

Business is inventive and resourceful.

Even at the present time, companies are finding opportunities to continue joint work

operation for many years and would bring revenue to the budget in the form of taxes.

This aspect of the market is not subject to sanctions, our plants are manufacturing equipment for hydroelectric power stations, and also the pylons, supports, and everything needed to transport electricity.

With respect to the question of increasing demand for electricity. New technologies require ever more, for instance bit coin mining rigs. However in my view peer-to-peer payment systems do not have huge potential. Many governments already want to limit this area of activity and introduce regulation.

Could we for our part work on developing new technologies so as not to be dependent on sanctions and imports?

Of course, but at the moment Russian companies are highly reliant on foreign equipment and technology. This is partially, I believe, a consequence of our own mistakes. For example, our leading companies did not believe in the potential of shale oil and gas. American companies are now successfully producing shale oil, they have technology that we don't. Production methods are so cheap that even with prices at 45 dollars a barrel, this oil is profitable. In Russia, production volumes are not increasing appreciably because it

Petrochemical development will allow to increase the added value of energy products

has already become unprofitable to work in the old way and efficient field exploitation is entirely dependent on equipment and technology. And it is crucial that the conditions for the labour force mean that specialists receive the very best education and do not leave to work abroad. It is good that our country still has inventors, mechanics and engineers who are literally developing real know-how in their garages, following the tradition of the great Russian inventor Ivan Kulibin. But then they go off to the US to bring their projects to life.

Which developments, for example? Can you give examples of import substitution?

The production of windows which change colour and tint intensity. This project was developed by young Russian engineers. It is possible to use mobile phone technology to send a signal to darken or lighten windows. This allows an apartment to become warmer or cooler. This is an example from domestic energy saving, but the technology can also be used in offices or production facilities and thereby save a huge amount of electricity. The guys went to California because it turned out to be more complicated to implement and develop this project in Russia than in the US.

On the other hand, we can use the example of a development by Petrocas. This is an additive which can be used in various types of fuel, petrol, oil etc. This is a new development; essentially when this

additive is mixed with fuel, there is virtually complete combustion. As a result, there is a reduction in the level of harmful emissions, and an increase in fuel savings, and in the power and lifespan of the engine. Also, the concentration of additive in the fuel is relatively low: only 20 grams for 100 litres. Development has already been approved by specialist institutes, and this will go through European investigations.


We have been talking about fuel for internal combustion engines and petrochemical products, but globally tests are already underway on driverless cars and electric cars using batteries and solar power. Visionaries claim that these will soon take the place of conventional cars on the roads. Do traditional types of fuel have potential for the future?

Without a doubt the process of transitioning to driverless and electric transport will take place quickly. However, on the other hand, in my view the state of affairs on the market will mainly remain unchanged for the next 50-70 years. Even if there are fewer cars with internal combustion engines on the roads, there will nevertheless be a need for oil. Testing of driverless cars does not mean that hydrocarbon production should stop. The problem lies elsewhere. Russia needs to develop the added value of these products, process oil, gas and coal and sell the products resulting from this.

What is currently stopping development in this area?

It is something simple, which is being discussed by all business associations and communities, it is the unpredictability of our economy and our laws.

Mr. Yakobashvili, this is clearly the eternal debate between government and business.

But it is a hindrance. It is impossible to calculate investments five or ten years ahead. The rules of the game must not be changed so often. Resolving this problem would stimulate development in all sectors, including the fuel and energy industry. 

A SAFETY MARGIN: how the oil and gas industry is operating in the new economic environment

CHAIRMAN OF THE RUSSNEFT BOARD OF DIRECTORS
MIKHAIL GUTSERIEV TALKS ABOUT INVESTING
IN DEVELOPING HARD-TO-RECOVER OIL RESERVES,
NEW MARKETS, AND COMPETITION WITH ALTERNATIVE
ENERGY SOURCES.



The hydrocarbon power industry is often used as a tool for political confrontation, and this has a negative impact on both producers and consumers. Yet, although falling energy prices and sanctions have presented a serious challenge to the Russian oil and gas industry, the sector has demonstrated its sustainability and ability to adapt successfully to the new conditions.

Revenues have obviously gone down but, at the same time, this has served as a driver for companies to optimize costs and develop new, more efficient technology. Instead of operating old marginal wells (RussNeft has shut down 89 wells since the beginning of 2017 alone, and plans to close a total of 122

this year), companies have turned their attention to unconventional reserves. For instance, we embarked on developing such reserves two years ago and they now account for a 20% share of RussNeft's portfolio, with this figure expected to grow in the medium term.

Technological development means that unique well rates can now be obtained from the Bazhenov and Achimov formations. We have tried a new 'hybrid' hydrofracturing method on tight reservoirs (similar to shale oil - Ed.) using Slickwater technology. This has enabled the company to obtain a unique starting well rate for this type of deposit of around 100 tpd.

Thanks to improved operating efficiency, the lifting costs of unconventional reserves at some of our West Siberian fields, primarily Tagrinskoe, are only half the average figures.

All these achievements have been attained under conditions where the import of technology and equipment is restricted. The Russian engineering companies Borets and Rimera have successfully replaced the recognized global leaders on the submersible equipment market - Schlumberger and Baker Hughes.

Russian oil companies are demonstrating not only the ability to operate under these new

conditions but also to keep actively investing. In particular, RussNeft is increasing its investment 1.5 times in 2017 y-o-y, and will top RUB 25 billion.

We have also taken a different view of the CIS countries, the Asia-Pacific region, and China. We expect to find sustainable markets there, along with investment targets which will allow Russia to become not merely a seller of hydrocarbons but also a significant investor. Speaking specifically of RussNeft, we are already working in Azerbaijan through our joint venture GEO, and we are exploring opportunities for joint projects in Belarus, Kazakhstan, Uzbekistan, and China.

It has recently become fashionable to discuss the brilliant prospects for alternative energy sources. But these sources - solar, hydro, and wind - are not going to be in a position to compete seriously with oil and gas in the foreseeable future, since the latter are not only cheaper but also, thanks to breakthrough technology, safer and cleaner.


In addition, the emergence of such new discussion platforms as Russian Energy Week creates additional opportunities for networking and sharing views among experts in the most diverse areas of the power industry. 



Photo: sibur.ru



A Wealthy ARCTIC

OVER THE YEARS RUSSIA HAS HELD THE LEADING POSITION IN HYDROCARBONS EXPORT. NOTABLY, MAJOR PRODUCTION SHARE – BOTH CURRENT AND FUTURE – CONCENTRATES IN THE ARCTIC ZONE.



VASILY BOGOYAVLENSKY,
Corresponding Member of RAS,
Deputy Director of the Oil
and Gas Institute, RAS,
Head of the Department
of Geoecology at Gubkin Russian
State University of Oil and Gas

Over the past 40 years the Arctic zone (AZRF) provided major volume of gas production in Russia. The share of natural gas produced there compared to the global output numbers has reached its peak in 1992 amounting to 27.6% of the overall production volume worldwide. In 1995 another historic maximum was reached when AZRF was responsible for a 90% share of the entire domestic production. In 2016 the contribution of the Arctic zone was smaller but still very significant: 13.3% of the global and 75% of Russian gas production. What projects lead the development of the region?

CURRENT SITUATION

In October 2012 Russian companies started to produce and transport

Cenomanian gas from the uniquely rich Bovanenkovsky oil/gas/condensate field (deposits up to 4.9 trillion cubic meters) via the high-pressure Bovanenkov-Ukhta pipeline (120 atm). In 2016 production output has reached 67.4 billion cubic meters (10.5% of Russia's overall volume). The planned production level of 115 billion cubic meters is expected by 2021, while the output may go as high as 140 billion cubic meters in the future. In addition, the neighbouring Kharasaveiskoye field will be commissioned after 2024.

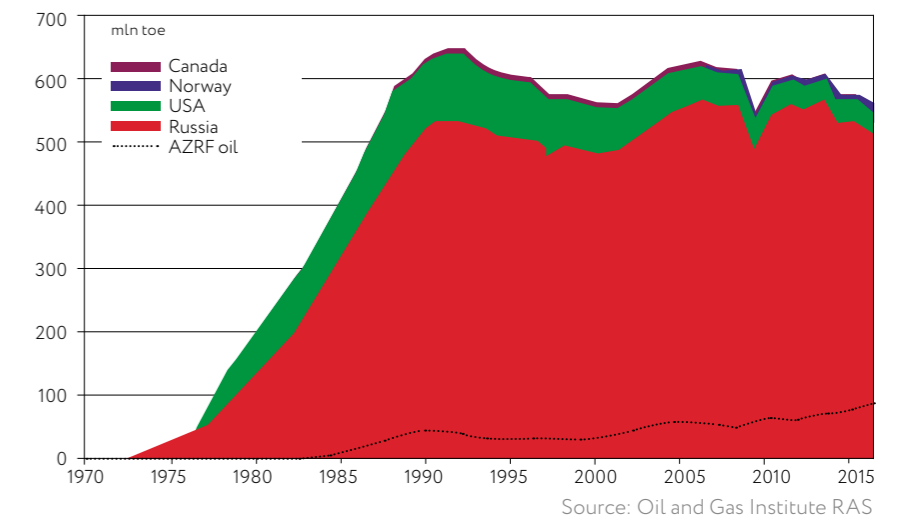
The first line of natural gas liquefaction plant for the northern part of Yamal in the port of Sabetta (Yamal LNG) has already been completed. First export shipments are expected to start in late 2017.

A test passage along the Northern Sea Route with the LNG cargo has already been done by Christophe De Margerie, the world's first YamalMax ice-class gas carrier with a capacity of 172 000 cubic meters. For this project Russian company NOVATEK partnered with the French Total, CNODC and Silk Road Fund, an investment organization from China. Similar preparations for the Gydana fields are under way.

For years there have been speculations that the production of liquid hydrocarbons in Russia (LHC – oil and condensate) was expected to go down. Seemingly, it has been confirmed by the gradual decline in oil production in the key region of the West Siberian basin, the Khanty-Mansiysk Autonomous Area. Yet, in 2016 record-breaking 547.5 million tons have been reported. This contribution came from new projects in the Russian Arctic, which have provided a stable increase in liquid fuel production in the Yamal-Nenets and Nenets Autonomous Areas and in the north of the Krasnoyarsk Krai. Since 2009, the share of LHC from AZRF grows relative to the national production volume and by 2016 it has reached 15.2%. The significance of the regional output keeps growing in the worldwide oil balance amounting to 1.9% in 2016.

New projects in AZRF such as Vankor, Novo-Portovskoye and Prirazlomnoye fields deserve a special mention. The latter two are still in development and at their peak will be able to jointly produce

HYDROCARBONS PRODUCTION IN THE ARCTIC ZONES OF RUSSIA, USA, NORWAY AND CANADA



over 10 million tons per year. The commissioning of the Suzunsky field (capable of increasing the overall oil production volume in Krasnoyarsk Krai in 2017) compensates the production decline at the Vankor field registered in 2016.

Since December 2013 the world's only high-Arctic gravity platform Prirazlomnaya (Gazprom Neft project) has been producing oil on the Arctic shelf. In early 2016 Rosnedra approved a new technological scheme for the development of the Prirazlomnoye field: maximum production rate was reduced from 5.5 to 4.8 million tons per year to extend the duration of the project from 3 to 5 years. The entire development period will last 36 years so that the production continues until 2050.

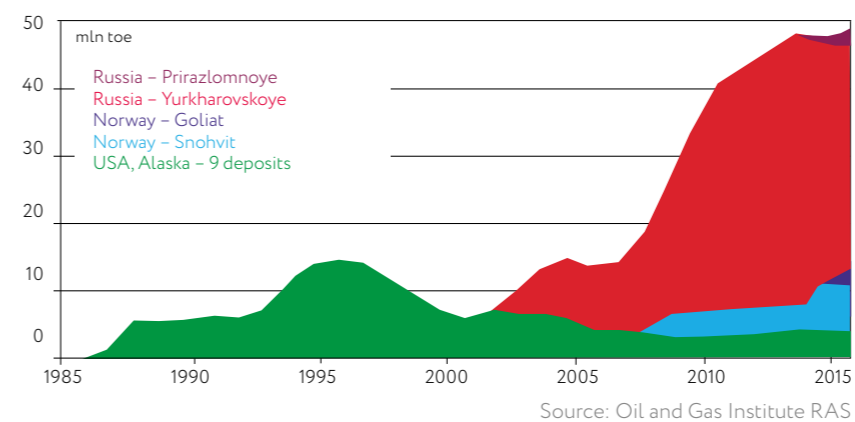
In May 2016 a unique sea terminal Vorota Arktiki (The Gate of the Arctic, Gazpromneft-Yamal project) has been launched. Novy Port oil brand (sulphur content up to 0.1%) is delivered from the namesake field via a 103 km pipeline.

According to Sovcomflot as of late August 2017 61.2 million tons of oil were successfully shipped through the three new sea export ports: 54.1 million tons through Varandey, 4.8 million tons through Prirazlomny, and 2.3 million tons through Vorota Arktiki (Novy Port).

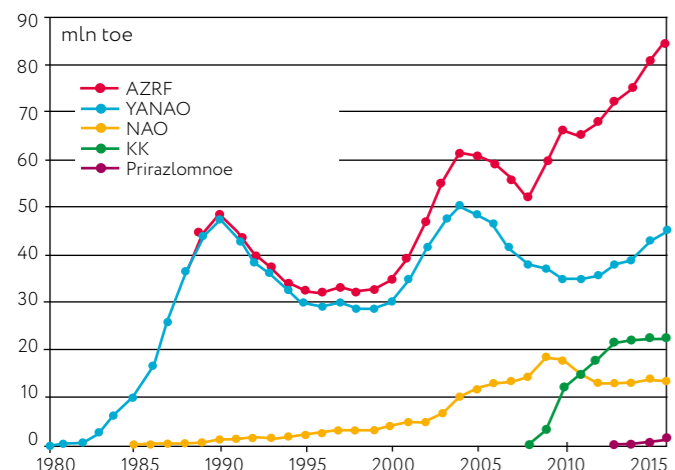
Development of the subaquatic deposits in the Yurkharovskoye oil/gas/condensate field in the Taz Bay is a major contribution to the production of Arctic gas. NOVATEK has been developing the project since 2003 by horizontal wells drilled from the shore. In 2014 it produced a record 38.8 billion cubic meters of gas (about 6.1% of the all-Russian production), and 35 billion cubic meters in 2016. With the development of the Yurkharovskoye deposit in 2005 Russia remains the world leader in commercial hydrocarbon production in the Arctic shelf ahead of the USA (nine deposits) and Norway (two deposits).

Over the last half a century enormous volumes of hydrocarbons (20.8 billion tons of oil equivalent) have been extracted from the

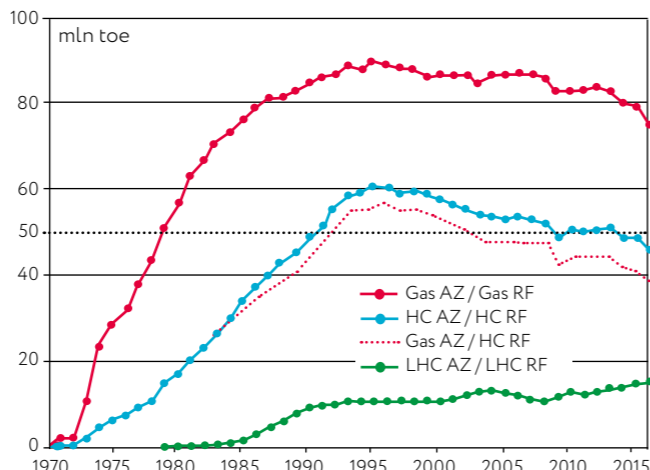
HYDROCARBONS PRODUCTION ON THE ARCTIC SHELF



DYNAMICS OF OIL PRODUCTION (WITH CONDENSATE) IN AZRF REGIONS



ARCTIC HYDROCARBONS SHARE IN THE OVERALL RUSSIAN PRODUCTION



Source: Oil and Gas Institute RAS

Arctic regions of Russia, the United States, Canada and Norway. 85.9% of that output was produced in the Russian Arctic and 13.6% in Alaska. The share of the accumulated production of LHC over the entire Arctic is 19.7% while gas accounts for 80.3%. However, the Arctic zone still holds a huge potential that has not yet been tapped into.

GROWTH POTENTIAL

Russian oil and gas companies have obtained 75 licenses to explore, prospect and develop the resources of the Arctic shelf (including land-sea hops) most of which were issued after 2008. Licensed areas cover about 1.52 million sq. km. of the Arctic Ocean. 98.7% of this territory is split between two Russian industry leaders: Rosneft (80.5%) and Gazprom (18.2%).

«We must address issues of the natural resources replenishment, intensify geological exploration of underexplored yet promising regions,” said Russian President Vladimir Putin during the session of a Committee on the Strategy of the Development of FPC and Environmental Safety in February 2013. However, practically very little is done for true replenishment of the mineral raw material base.

Currently, geological exploration stagnates on the Arctic shelf. In 2011-2016 only three wells have been

drilled from offshore drilling rigs: in the Pechora Sea at the Dolginskoye field; in the Kara Sea at the offshore extension of the Kharasaveyskoye field; at the University structure where the new Pobeda deposit has been discovered. In addition, a well with a horizontal deflection of about 4 km has been drilled from the Yamal coast to refine the offshore extension of the Kruzenshternskoye field.

Oil and gas industry resource base replenishment mainly happens by additional exploration of previously discovered deposits with only 15-20% of new deposits. Experience of USSR and other countries suggests that a minimum 3-5 times increase in wire line repairs drilling can improve the replenishment.

At the same time, the delay in large-scale development of the Arctic shelf resources gives Russia an opportunity for serious scientific, technological and technical research. Despite the latest innovations in drilling and in oil and gas production, emission of hydrocarbon substances, fires, explosions, pollution of terrestrial and aquatic ecosystems, injuries and loss of life happens annually in many countries during exploration and development of on and offshore deposits. Comprehensive analysis of available information reveals large man-made deposits that threaten

the ecosystems of the developed regions and the economic security of the country. Special attention should be paid to analysis and monitoring of wells abandoned by tens of thousands in the USSR. That being said, some of them still emit hydrocarbon mixtures into water and atmosphere. For environmental and economic security of the country it is paramount to resolve important issues of rational ecological resources management in the Arctic as well as on the entire shelf of the country. It’s consistent with the Strategy for the Development of the Arctic Zone of the Russian Federation 2020.

The priority development areas on the Arctic shelf are located within the shallow and on-offshore transit zones near areas with well-developed oil and gas industry onshore infrastructure. Deposits, which can be drilled from the shore, from drilling islands or gravity platforms with horizontal wells at the Yurkharovsky or Prirazlomnoye fields, are of the greatest interest in the short-term perspective (until 2030-2035). Horizontal well drilling from the shore is the most environmentally safe and economically profitable way of oil and gas production in the Arctic. e

The article used graphic materials of the author



OPEN JOINT STOCK COMPANY “SURGUTNEFTGAS”





40 “Technology in the petrochemical industry IS BEING UPGRADED ON A MAJOR SCALE”



Chairman of the Management Board of SIBUR, **Dmitry Konov**, on why the sector is continuing to grow – even during a crisis



50 FUEL for the global economy

Experts from the Analytical Credit Rating Agency and the Higher School of Economics on how hydrocarbon prices are set to change

HIGH POTENTIAL

CEO of the Russian Direct Investment Fund, **Kirill Dmitriev**, on the investment appeal of the Russian fuel and energy industry



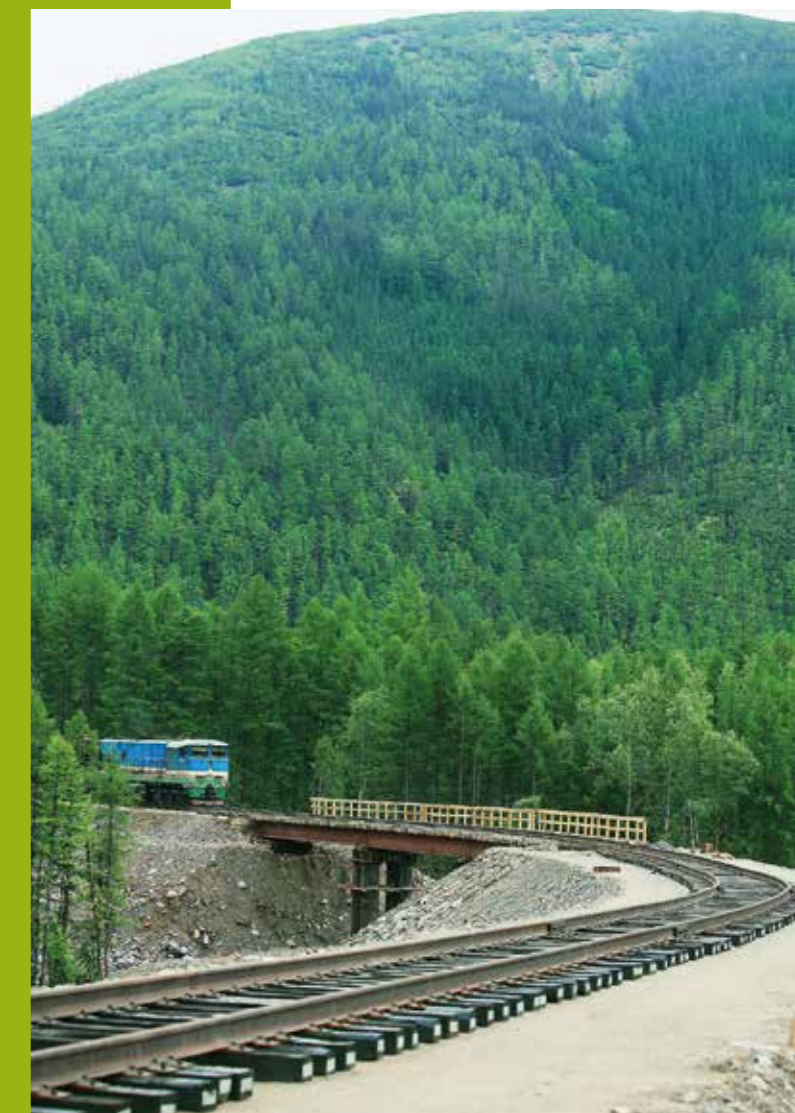
44

46



Plans for Elga Coal Field SPAN 100 YEARS

Chief Executive Officer of Mechel Mining Management Company **Pavel Shtark** elaborates on the top priorities for contemporary coal miners



“Technology in the petrochemical industry IS BEING UPGRADED ON A MAJOR SCALE”

PETROCHEMISTRY IS ONE OF THE FEW SECTORS OF RUSSIAN INDUSTRY TO HAVE EXPERIENCED CONTINUED GROWTH EVEN IN THE MIDST OF AN ECONOMIC CRISIS. SIBUR MANAGEMENT BOARD CHAIRMAN **DMITRY KONOV** TELLS US WHAT'S BEHIND THIS, AND ABOUT SOME MAJOR PROJECTS CURRENTLY BEING IMPLEMENTED.



How has the sector been affected by the slowdown in the domestic economy, the fall in value of the rouble, and declining hydrocarbon prices?

Petrochemistry depends heavily on domestic consumption, so it was inevitable that an economic crisis would affect the sector. On the other hand, falls in the price of raw hydrocarbons have made them more economical to process, and the weakening rouble has strengthened the market position of Russian companies. As a result, strange as it may seem, manufacturing of synthetic materials has grown in the last years, and the crisis has to a large extent impacted on foreign suppliers. Import substitution has also played its role. For example, many companies in the food industry have an increased workload, which has led to a growth in demand for Russian-made packaging. Now, as the economy recovers, additional opportunities for growth are materializing.

What factors might affect the development of the sector in the long term?

Consumption of synthetic materials in Russia is comparatively low, but will increase, among other reasons, as part of a worldwide trend for replacing traditional materials with polymers. If you look at the materials being used today in construction, these present a completely different

GROWTH IN GLOBAL DEMAND FOR VARIOUS MATERIALS (COMPARED WITH 1970)



Source: HIS, BCG, McKinsey, Rosstat



Photo: sibur.ru

picture from the one that existed 30–40 years ago. Pipes, heat insulation, windows, finishing materials – all of this is mostly synthetic at the moment.

We are observing a growth in polymer consumption, as well as an expansion in its range of uses, which is a key driver of development. It is for this reason that Russian producers are intensively increasing their capacity. This is important not only from the point of view of the sector itself and its prospects, but also for the economy as a whole, because it indicates an increase in the depth of hydrocarbon processing in the country. In the last few years, only SIBUR has commissioned new manufacturing facilities for polypropylene (more than 500,000 tonnes annually), polyvinyl chloride (330,000 tonnes annually), and other polymers with a combined capacity of approximately 1 million tonnes annually.

But didn't you use to invest predominantly in the raw materials business?

In our business we start by acquiring products from oil and gas companies which for them are by-products. One example would be the utilization of associated petroleum gas, which used to simply be flared. We consolidated petrochemical raw materials from Western Siberia by making significant investments in gas processing capacity and infrastructure,

Zapsibneftekhim will be the largest modern petrochemical complex in Russia

increasing the intake of associated petroleum gas practically threefold. This has allowed us to create a base for global petrochemical projects, and our focus is now on developing them.

Another key area of our operations is increasing production efficiency by implementing new technologies, both from the market and of our own creation. Ten years ago we made the decision to open our own R&D centre. There are some areas for which it is impossible to buy a licence, so you have to develop your own skills. Our R&D centre is concerned with solving issues like these, and its portfolio already includes several new products. In addition, we see great potential across the sector for making greater use of digital technology: working with big data, using virtual and augmented reality technology, and other areas.

Your main investment project at the moment is the ZapSibNeftekhim facility. When will it open?

We expect construction to be complete in 2019. This is one of the largest projects in the history of Russian industry – bringing it online will practically double national production capacity for polyethylene and polypropylene, the most widespread of plastics, which are often used in construction, packaging, the car industry, medicine, the electrical industry, and the textiles industry.

Is it aimed at the domestic market?

The Russian market is the priority across all of our platforms. But ZapSibNeftekhim is important not only from the point of view of meeting current demand, but also for potential future demand in the country. The infrastructure must gradually be developed for processing polymers into end products. It would be useful to have the support of the regulators in implementing projects of this kind, as would the creation of stimuli using

Manufacturing of synthetic materials has grown in the last years, and the crisis has to a large extent impacted on foreign suppliers

financial instruments to develop polymer processing as a part of small and medium business.

At the present time, however, Russia does not possess sufficient processing capacity to make use of the full production volume of ZapSibNeftekhim. That's why in the first few years, in order to maintain a constant load, we plan to work actively in export markets – with both Europe and Asia in mind. In spite of the major projects being implemented in the Asia-Pacific Region, the structural deficit of petrochemical products here is set to rise.

It is currently Year of the Environment in Russia. What are the policies of petrochemicals companies in this area?

The site for construction and the future project of the Amur Gas Processing Plant



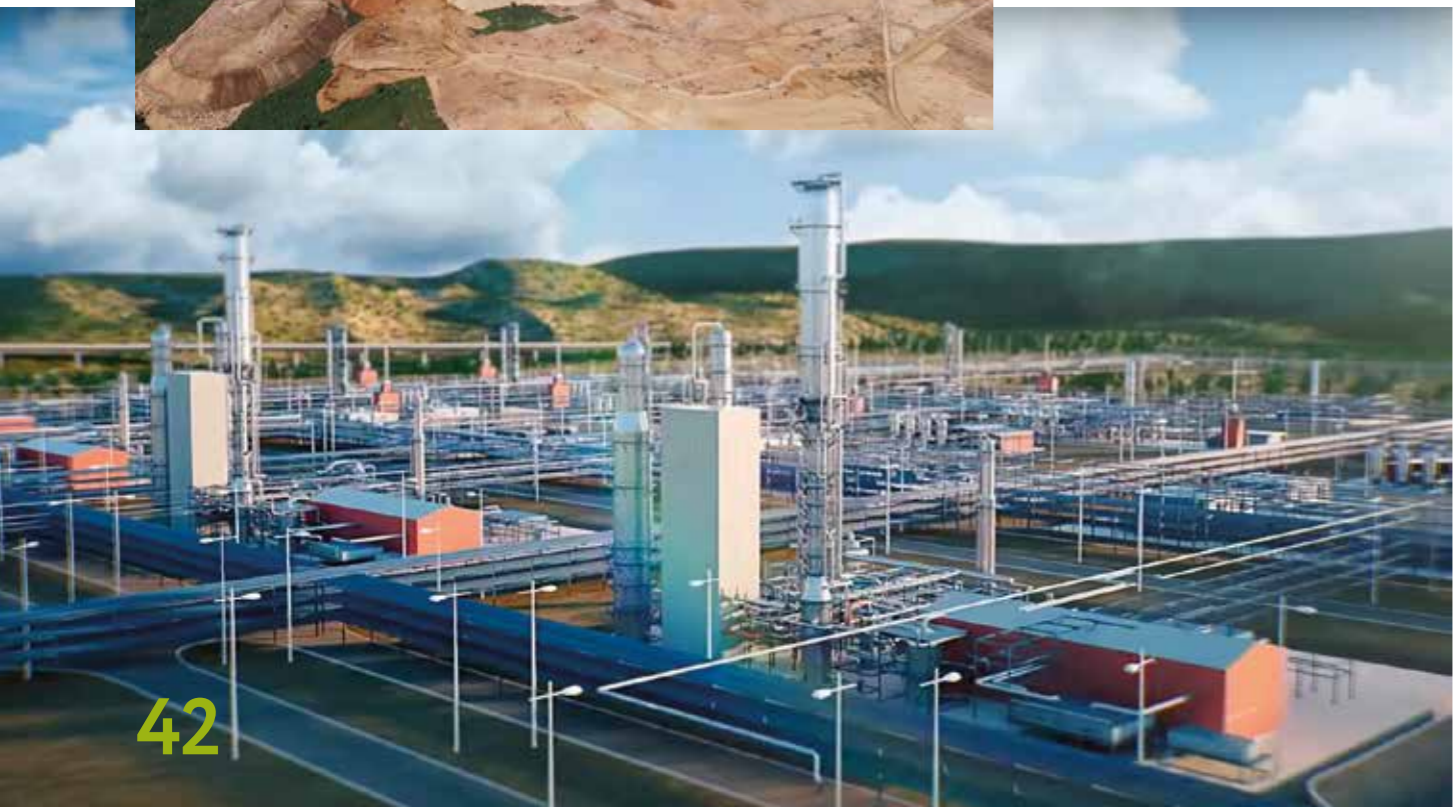
We need to talk not just about investment in environmental conservation measures, but also about the fact that technology in the petrochemical industry is being upgraded on a major scale. Not that long ago, a large part of our own manufacturing equipment and technology dated back to the 1970s. Today, more than 70% of SIBUR's capacity comprises new or upgraded equipment. We have carried out various measures on the remaining 15–20% of capacity, with the aim of increasing its production efficiency. We have invested something like RUB 600 billion into this over the last 10 years, and have dramatically transformed the assets that we had. Automation in production has grown almost tenfold since 2003 to 82%. One example I can mention is the construction of a new PVC manufacturing plant in Nizhny Novgorod Region, which

we completed in 2014. We have increased manufacturing output there elevenfold, compared to similar facilities in this region. At the same time, waste volumes have been reduced considerably – unlike outdated manufacturing processes, there is no need for a sludge collector.

The Eastern Economic Forum was held recently, which you attended. What interest does SIBUR have in the Russian Far East?

Gazprom is currently building a new complex in the region – the Amur Gas Processing Plant. It will be the largest enterprise of its kind in Russia, and also one of the largest in the world. The processed gas will be supplied to China. The NIPIGAS design and engineering centre, which is part of SIBUR, is managing construction of the site. We are also reviewing plans for the Amur Gas Chemical Plant, and conducting negotiations with Gazprom on supplying it with gas from the new processing plant. As the contract will remain in force for several decades, a lot of attention is being devoted to the specifics here. However, once implemented, this project will not only provide a contribution to the development of domestic production and consumption, but also significantly strengthen Russia's position in Asian markets. ☺

Photo: gazprom.ru



Siberian Coal Energy Company

#1 Steam Coal Producer in Russia



#6 in coal production volume worldwide



#4 in international coal sales volume



1700 consumers in 38 countries



Supplies 40% of country's coal fuel energy needs



27 coal mines and 7 coal enrichment plants in 7 Russian regions



Main shareholder in 3 port

THE GREAT POTENTIAL

OF THE FUEL AND ENERGY SECTOR HAS GREAT SIGNIFICANCE FOR THE RUSSIAN ECONOMY, PROVIDING OVER 22% OF GDP FOR 2016. ALTHOUGH THIS FIGURE HAS FALLEN IN THE PAST FEW YEARS, THE POTENTIAL OF THIS SECTOR IN RUSSIA AND ITS INVESTMENT ATTRACTIVENESS REMAIN AT A RELATIVELY HIGH LEVEL.



KIRILL DMITRIEV,
CEO of the Russian Direct Investment Fund

The Russian Direct Investment Fund (RDFI) focuses on attracting foreign partners to the most important and lucrative sectors in the Russian economy. One of these is the fuel and energy sector. One of the first deals RDFI embarked on after its creation in spring 2012 was to invest in the leading wholesale energy producer Enel. This was the largest ever direct investment into the Russian domestic energy sector. The company is growing securely and is now ready to enter the Russian renewable energy market, offering wind generation facilities with an installed capacity of 291 MW. The total amount of investment required to build two wind farms (the construction project has been approved) is approximately EUR 405 million. This is one of the ways in which this industry, which forms the backbone of the Russian economy, continues to develop and create investment opportunities.

It is important to note that the fuel and energy sector creates opportunities for growth in other sectors of the Russian economy. One of these that deserves particular attention is efficiency and infrastructure creation.

One such example, a joint project between RDFI and Rosseti, aims to reduce waste by building so-called smart grids. These are next generation metering devices which allow energy usage to be tracked in real-time, provide relevant information, detect unauthorized connections and predict the future electricity needs of specific users. The project is now being piloted in Tula, Yaroslavl and Kaliningrad regions, but it's potential is already clear. We could see energy savings of as much as 20% throughout the country. Given the size of the sector and the Russian economy as a whole, this is a very significant figure. The

project is not just of interest to investors, but to users, too, who will save on additional expenses. The income for investors in smart grids comes from the reduction in user payments. They will not have to pay for wasted energy.

An example of a project in infrastructure is RDFI's joint investment in Transneft, alongside Chinese and Arabic partners. Together we see great potential to strengthen the company's market capitalization, which could as much as double according to some estimates. Note that our partners share this view, and hope to increase their share in the company.

Another interesting case of foreign investment into the infrastructure of the Russian fuel and energy sector is the SIBUR liquefied petroleum gas (LPG) and light oil products transshipment terminal at the commercial sea port of Ust-Luga. This is now one of the most modern port infrastructure facilities in the Baltic. Long-term contracts with transshipment companies ensure that the terminal's capacity for light oil products is made full use of, while its former owner and current operator SIBUR will utilize the terminal's liquefied petroleum gas facilities on a long-term basis. This means that the terminal is highly profitable, with a stable and predictable cash flow.

This, however, is not the full scope of our cooperation with SIBUR. Another key project that testifies to the high attractiveness of the Russian fuel and energy sector and the available opportunities for creating added value was the construction of the ZapSibNeftekhim integrated petrochemical facility which was funded in conjunction with



The field Korchagin in the Caspian sea – one of the projects Eurasia Drilling Company

some leading Middle Eastern sovereign funds and the National Wealth Fund (NWF). The total cost of the project is USD 9.5 billion, 3.3 billion of which has been provided by a consortium of investors and commercial banks. These funds are being used to develop the industrial and ancillary infrastructure for a hydrocarbon to polyolefin deep processing facility, which will be SIBUR's largest investment project yet.

Although the importance of these projects is undeniable, they all form a part of the traditional fuel and energy sector in Russia. From a technological standpoint, the investment projects with the highest potential are those connected with green energy and renewable energy sources. Russia has plenty to offer investors in this area. Not so long ago, RDFI joined forces with the Chinese strategic investor Sinomec to build two small HPPs in the energy-deficient Republic of Karelia. With the right

approach to structuring the deal as a whole, we managed to make our project so attractive that it drew the attention of the recently created New Development Bank (NDB; formerly BRICS Development Bank). As a result, these small HPPs were the first projects in Russia to receive financing from the NDB, a company which had previously not carried out any projects in our country. We are currently looking into the possibility of investing into another green energy project in Karelia, the construction of a wind farm in collaboration with Chinese partners. Negotiations with the New Development Bank are already underway and we have noted their eagerness towards the project. The bank's vice president Zhu Xian confirmed this on the sidelines of the Eastern Economic Forum in Vladivostok.

It is not just projects implemented within Russia that have great investment potential, but also domestic fuel and energy companies wishing to enter the international market. In cooperation with leading Middle Eastern partners, RDFI is working on an investment deal into Russia's largest oilfield service company Eurasia Drilling Company. The plan is to bring the company to international markets, including through partnerships with the world's largest oil producers. Work in this area has already started. 

From a technological standpoint, the investment projects with the highest potential are those connected with green energy

PLANS FOR ELGA COAL FIELD

span 100 years



CHIEF EXECUTIVE OFFICER OF MECHEL MINING MANAGEMENT COMPANY **PAVEL SHTARK** ELABORATES ON THE TOP PRIORITIES FOR CONTEMPORARY COAL MINERS AND THE PROSPECTS OPENING UP AS THE ELGA COAL FIELD IN THE REPUBLIC OF SAKHA (YAKUTIA) IS DEVELOPED.

Mr. Shtark, what major trends would you identify among coal mining companies worldwide today?

Coal mining companies all over the world are committed to increasing efficiency, improving industrial safety, and cutting costs. We are watching global trends closely, but we do not expect any major projects to be launched in the near future. The nature of the industry does not allow for production to be expanded right off the bat; it is a phased process requiring considerable financial outlays. In view of the current volatility on the commodity markets, few investors are considering such injections.

Has the Elga Coal Field in Yakutia, which Mechel regards as its main investment project, already reached its projected capacity?

Yes, definitely. In 2016, output at the Elga field stood at 3.7 million tonnes (some 1.7 million of which were exported), whereas this year production is expected to reach 4.5 million tonnes.

The Elga field is Russia's largest and one of the world's richest deposits of top quality coking coal, with 2.2 billion tonnes in reserves reported in accordance with the JORC Code. The deposit is an open-pit mine, which is much cheaper and safer than underground mining.

Over the past few years, Mechel has injected over RUB 100 billion into the Elga project, most of it into



Panorama of the Elga cut

infrastructure, building access roads and railways. The 321-kilometre Ulak-Elga branch line links the deposit to the Baikal-Amur Mainline. It counts a total of 80 bridges and 350 hydraulic facilities along its route. It is uncontestedly the first time such a large railway infrastructure project has been built by a private investor.

As I mentioned earlier, the Elga field has now reached its average annual capacity of 4.5 million tonnes. At the next stage, output is set to be increased to 11.7 million tonnes of ROM coal. Production plans for the field span at least 100 years. At this point, it is operated by around 1,500 people from different regions of Russia working on a rotational basis. Most of the miners, however, come from the Neryungri district of Yakutia,

making up the core of the team. We are hoping that development of the deposit will trigger the development of a new locality here in the not so distant future. Back in its day, the Neryungri open-pit mine with its 400 million tonnes in reserves, gave rise to the town of Neryungri around the deposit, which eventually became the centre of the Far Eastern coal mining industry. The Elga field reserves are five times greater. Mechel has established a mining and transport equipment production site and installed a number of facilities, including a camp for workers on rotation and a coal beneficiation plant to produce coking coal concentrate on site.

We expect roughly half the Elga coking coal to be marketed

domestically and the other half exported. The product has a promising future, since the Elga field produces rich bituminous varieties of coal that are in short supply in Russia and in demand from iron and steel producers all over the world.

What are the main markets for Mechel coal? How has the picture changed over the past few years?

Asia remains our main export destination. We customarily ship large quantities of coal to Japan, China and South Korea. In 2016, China accounted for around 30% of our total exports (over 11 million tonnes of coal in total), South Korea for 25%, Japan for 20%, with a further 5–6% going to Vietnam, Indonesia, Malaysia, and India. Our key clients include 20 major Asian iron and steel companies. We count such corporations as Baosteel, Shasteel, Nippon Steel & Sumitomo Metal Corporation, JFE, and POSCO among our long-standing partners. We also supply coking coals to Russian companies, including Severstal, Magnitogorsk Iron and Steel Works, and EVRAZ NTMK. As for thermal coal, we market it both abroad and domestically, selling it to power

The Elga field has now reached its average annual capacity of 4.5 million tonnes. At the next stage, output is set to be increased to 11.7 million tonnes

generating and utilities companies. Mechel's main markets have remained unchanged for a long time.

Do you have any plans to increase the capacity of the Ulak-Elga branch line?

At this point, the branch line's carrying capacity stands at some 4 million tonnes of freight a year, so we will certainly be gradually expanding it. I should note that the Ulak-Elga branch line is not just used to transport Elga coal; it is also a strategically important infrastructure facility for the Baikal-Amur Mainline and the whole eastern outreaches and will provide access to a freight hub for decades to come. According to scientists, the reserves of the Toko Coal-Bearing Region (of which the Elga mine is a part) exceed 40 billion tonnes. Apart from the Elga deposit, two dozen other coalfields have been discovered in the area, in addition to iron ore, uranium, molybdenum, and gold reserves. The Ulak-Elga line opens up all of these deposits for exploration.

It is worth noting that the railway line built by Mechel has actually remedied a historical oversight. Back during the Soviet era, two routes were proposed for the Baikal-Amur

Ulak-Elga branch line is not just used to transport coal; it is also a strategically important infrastructure facility for the Baikal-Amur Mainline and the whole eastern outreaches

Mainline: the northern route, which was understandably supported by industry, and the southern route, south of the Stanovik range, passing through less difficult terrain from a geological perspective. For cost efficiency purposes, the southern option was selected, with projected branch line to Neryungri and in future as far as the Elga field. In the early 2000s, the Transport Ministry made an attempt to build a railway line to the Elga deposit without private investment. The project was eventually put on hold with 60 kilometres of rail laid down. Elga and its enormous coal reserves waited a long time for its day to come. It was not until Mechel acquired a licence to develop the field and approached the project comprehensively, on a truly national scale, with maximum attention to the transport infrastructure, that the deposit finally came to life.

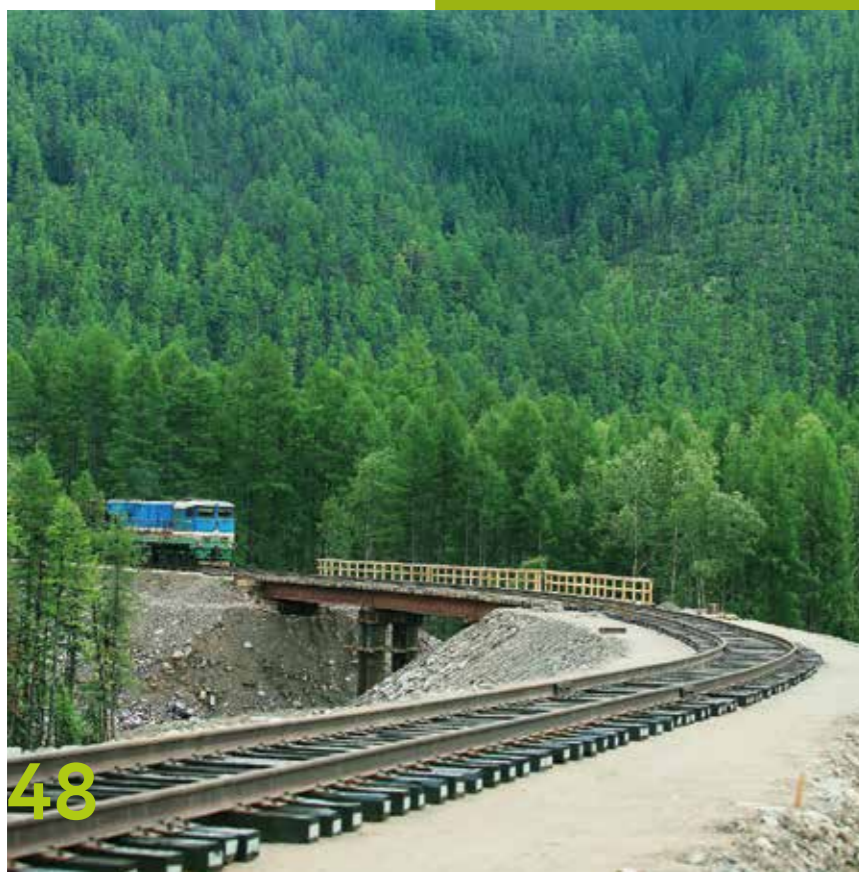
How would you describe Elga's long-term prospects?

The Elga deposit needs to be explored further, its output expanded, and the infrastructure improved – there is no other option. This is the future of the coal industry. The project is now an integral part of Russia's coal industry development programme for the period to 2030, which sets out the need to shift the focus of coal mining towards the Far East and Eastern Siberia, considerably shortening the distance to sea ports. It is 1,900 kilometres by rail from the Elga field to the port of Vanino, and 2,430 kilometres to Possiet Commercial Port in Primorsky Territory. This logistical advantage certainly works to improve the economic viability of the project.

As a representative of big Russian business, what are you expecting from Russian Energy Week?

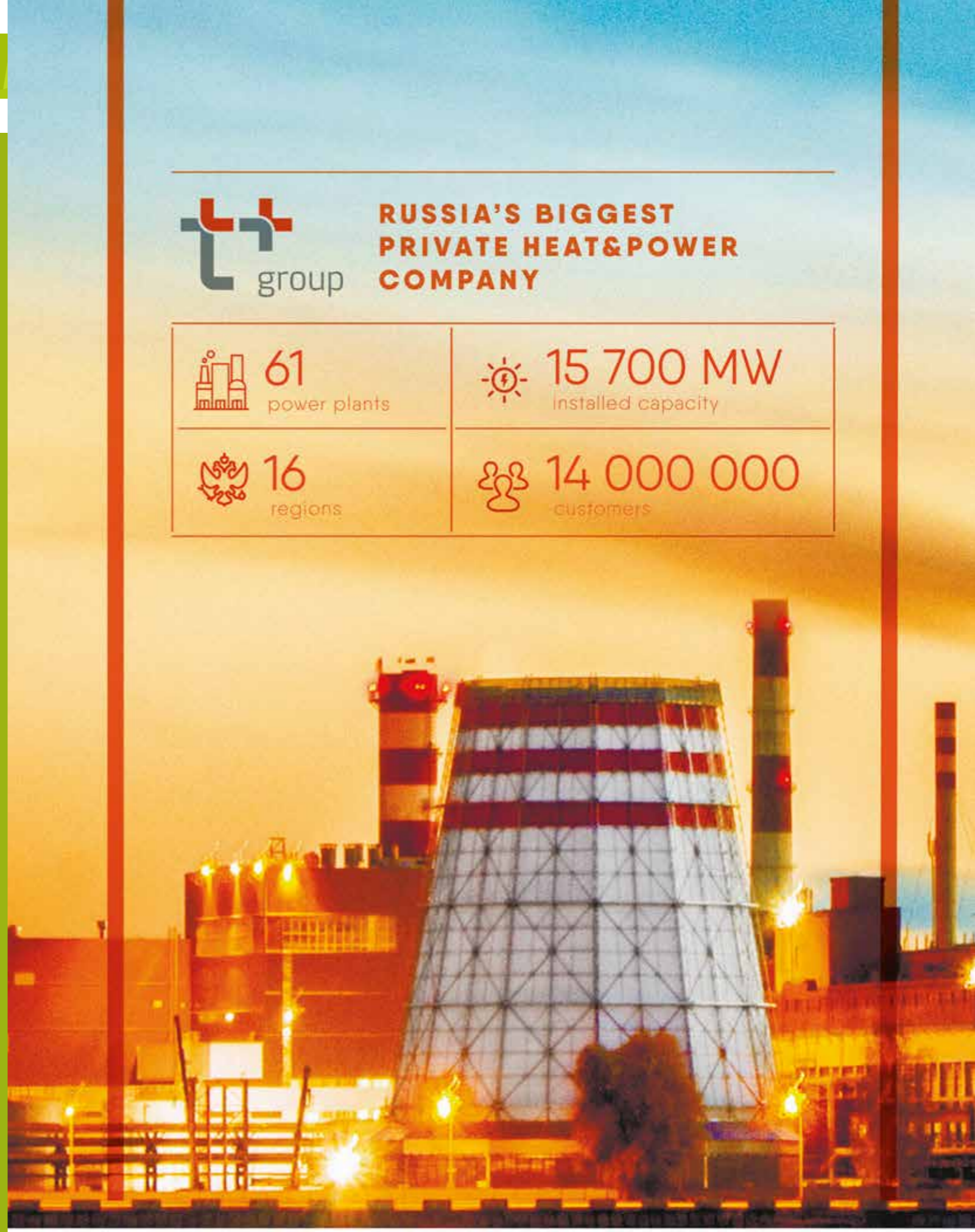
I believe that, as the successor to the ENES Forum, Russian Energy Week will keep the best of the previous event and evolve into the leading communications platform in the energy sector. Today, a lack of a clear state policy on energy saving and energy security issues makes it impossible for industrial companies to operate fully, or to implement strategic programmes and major investment projects. The matters to be addressed at the event are certainly relevant and critical for developing Russia's economic potential. I am sure that, together, scientists, experts, public officials, and business representatives will be able to find the best possible solutions. And, later on, these solutions will be put into practice as a result of an equally constructive dialogue. ☺

The 321-kilometre Ulak-Elga branch line



RUSSIA'S BIGGEST PRIVATE HEAT & POWER COMPANY

| | |
|---|--|
|  <p>61 power plants</p> |  <p>15 700 MW installed capacity</p> |
|  <p>16 regions</p> |  <p>14 000 000 customers</p> |



HEAT. LIGHT. COMFORT.

FUEL for the global economy

A SHARP DROP IN ENERGY PRICES THREE YEARS AGO WAS AN UNPLEASANT SURPRISE FOR EXPORTERS, AND RUSSIA WAS NO EXCEPTION. BUT ANY CRISIS PRESENTS OPPORTUNITIES AS WELL CHALLENGES.



NATALIA POROKHOVA,
Head of Research
and Forecasting Group
at the Analytical Credit
Rating Agency
(ACRA)

VOLATILITY ON THE OIL MARKET HAS REACHED ITS LOWEST POINT

The state of both global and local energy markets since the 2008 crisis has been characterized by excess capacities. The availability of oil, gas, coal, and renewable energy sources has significantly outstripped demand. This is due to the fact that growth in the global economy and in individual importing countries turned out to be lower than previously forecast.

As of 2017, however, a fall in accumulated surpluses has been observed across all energy markets. This has led to a noticeable increase in the price of power-generating coal, although so far this has had only a small effect on oil prices.

Several factors are set to influence prices on global energy markets in the coming years. First of all, volatility on the oil market is expected to lessen as the result of reduced investment cycles. Long investment cycles have been the principle cause behind extended periods of deficit or excess capacity, as well as sharp fluctuations in prices. For shale oil producers, on the other hand, these have been short, and companies have been able to react to the changing price environment within the space of a year. Oil market volatility has already reached its lowest indicators for 2017.

The second factor set to have a significant influence on prices is the position of China. Efforts to implement a strict environmental policy at a global level have yet to see results. In addition, in some developed

countries, such as the US, we can expect environmental initiatives to undergo a reassessment. That said, the acuteness of the air pollution problem in Chinese cities is set to impact on the country's energy policy. This will put pressure on the global price of power-generating coal and, in turn, shore up gas prices.

Third, an increase is forecast in the share of electricity consumption (domestically, in industry, and in transport). In the medium to long term, demand for electricity will surpass demand for energy as a whole – this is due to its expanding use in the growth of automated production, in increasing living standards, and also in replacing other energy sources, for example in transport. This will increase global demand for local energy sources: renewables, nuclear power stations, and also gas (as the most environmentally clean of the hydrocarbon fuels).

Ultimately, the most tangible impact will be had by the lack of cheap technologies for storing electricity. Our inability to store electricity on an industrial scale is the key barrier to the development of renewable energies, and the reason that the growth of investment rates in this sector in developed countries has slowed. Developing technologies of this kind is a major research and development focus among global energy companies. A breakthrough in this field would increase demand for renewable energies and reduce the demand for traditional hydrocarbons.

Across global markets, the years 2014–2016 were characterized by the withdrawal of inefficient suppliers due to an excess of supply and tough competitive conditions. During this time, Russia increased her share in the markets for coal, oil, and equipment for nuclear power plants, and in 2017 will increase her share in the gas market. This increase of supplies to global markets was made possible thanks to investment over previous years, made between 2010 and 2014. However, serious barriers are hindering the future expansion of Russia's share in global markets, from limited access to technology due to sanctions, to the increased expense of industrial imports caused by the decline in the rouble's value.



OLEG ANASHKIN,
Associate Professor of World Economy
and International Affairs at Russia's
Higher School of Economics National
Research University

RUSSIA IS TO MAINTAIN ITS POSITION ON THE GLOBAL HYDROCARBONS MARKET

Accurate forecasting of energy supply prices is quite complex, even in the medium term. A few years ago, everyone thought that the price of oil would increase and reach almost USD 200 a barrel. The situation now is fundamentally different. Largely because of the increase in production volumes in the US, there has been a sharp drop in prices. Domestic oil has replaced imported supplies in the US, and there has been no demand appearing in other markets which could take up the additional volume. And the volume is considerable: 6–7 million barrels a year.

But how long will this situation last? It is well known that there has been a shale revolution in the US. As a result, they have been able to increase production volumes extremely quickly, literally within a few years. But on the other hand, shale wells have a limited lifetime,

and production figures are only high in the first two to three years. Also, the US has already brought the major shale oil deposits into production. There are not so many new provinces of this kind, and they are considerably smaller. This, combined with a strengthening of demand for energy supplies as a result of growth in the global economy, is indicative of the situation stabilizing. There is already a reduction in the surplus available on the market.

In view of the current level of development in energy storage technology, it is difficult to see renewables having a significant impact on hydrocarbon demand in the near future. I will give you a simple example. A typical economy-model car can run on petrol for approximately 600 km without refuelling. The distance for an electric car is around 300 km. Also, recharging the battery for this type of vehicle takes a lot longer than refuelling a traditional vehicle. Until such issues are resolved – and this will require a huge technological breakthrough – critically significant volumes of traditional energy sources will still be needed.

That said, many people are of the opinion that reserves of oil, gas and coal are limited. Existing large deposits are no longer sufficient, and we still need to learn how to develop the more complex fields. Due to the limited nature of easily accessible reserves, and while there is still demand for hydrocarbons (primarily oil and gas), prices will most probably increase again, although a sharp uplift should not be expected. Despite the reduction in prices for hydrocarbons in recent years, Russia has been able not only to retain but also increase its share of the global market. It can be expected that Russia will retain its lead position for the near future. ☺

Due to the limited nature of easily accessible reserve prices of hydrocarbons will increase again, although a sharp uplift should not be expected

54 “INVESTORS CAN MAKE AN ABOVE AVERAGE RETURN *in exchange for achieving government targets*”



Enel Russia General Director **Carlo Palasciano Villamagna** spoke about how the state support programme for renewable energy sources works, and what aspect concerns strategic investors



56



“THE TOTAL NUMBER OF CONTRACTS signed is currently no more than 3% of what it could be”

Irina Bulgakova, General Director of the Russian Association of Energy Service Companies (RAESCO), on the development of the Russian energy services market

58

#BRIGHTERTOGETHER FESTIVAL – A Global Social Campaign in Russia

In its two-year history, the #BrighterTogether All-Russian Energy Conservation Festival has transformed into a public movement to encourage a careful approach to natural energy resources, promote respect for the work of those in the energy industry, and generally raise awareness of professions in the fuel and energy industry

“INVESTORS CAN MAKE AN ABOVE AVERAGE RETURN in exchange for achieving government targets”



IN THE SUMMER, POWER GENERATION COMPANY ENEL RUSSIA WON A GOVERNMENT TENDER FOR THE CONSTRUCTION OF TWO WIND FARMS IN THE ROSTOV AND MURMANSK REGIONS WITH A TOTAL CAPACITY OF 291 MW. ENEL RUSSIA GENERAL DIRECTOR **CARLO PALASCIANO VILLAMAGNA** SPOKE ABOUT WHY THE COMPANY IS INTERESTED IN THESE PROJECTS, HOW THE STATE SUPPORT PROGRAMME FOR RENEWABLE ENERGY SOURCES WORKS, AND WHAT ASPECT CONCERNS STRATEGIC INVESTORS.

There has recently been an energy surplus on the power generation market. Given this, is it advisable to launch new projects, particularly in renewable energy?

There is indeed a surplus in the Russian energy system. However, I should say that it is our belief that the goals that have been announced for the development of renewable energy sources and the related regulatory environment represent a reasonable compromise, considering, among other factors, the price component. Achieving 6 GW by 2024 is a realistic goal that will lead to the development of renewable energy sources in the country. In addition, renewable energy sources in Russia play an important role in achieving significant technological progress, due to the localization of equipment manufacturing, transfer of experience, and implementation of the latest technologies.

Four years ago, a system was launched in Russia to support renewable

energy projects. How do you assess its effectiveness to date?

The Russian government began supporting the development of renewable energy sources a few years ago, and we are already seeing the initial results. In particular, the results of the tender for wind generation, in which we participated, were impressive [taken together, the government selected applicants to construct wind generation facilities offering a total capacity of 1.9 GW – ed.]. This, in turn, shows that Russia is on the right track to ensuring the further development of this sector. We are seeing how solar generation projects are already being implemented, with local manufacturing capabilities for related equipment already up and running. At the same time, small hydro facilities offer all the potential needed for a highly promising future.

There is one aspect, however, that requires clarification. What support mechanism for renewable energy will be proposed after 2024? Strategic investors do not view the development of renewable energy as a single short-term project. A predictable and understandable long-term national strategy needs to be developed for this area. Our company is engaged in a joint dialogue with regulatory bodies in order to develop a new mechanism that will be beneficial for all market participants and which will focus on the subsequent development of the renewable energy sector.

In principle, how much does wind power generation benefit investors compared to traditional gas or coal plants?

The power supply contracts mechanism which forms part of the renewable energy support programme provides a rather attractive return on investment, presuming that projects are implemented in a timely manner and localization requirements are met. Let me remind you that in Russia the required level of localization for wind farm equipment is 65%. I don't think it would be an exaggeration to say that the existing power supply contracts mechanism to support renewable energy could serve as a good example of public-private



partnership: there is competition on the market, and selected investors can make an above-average return in exchange for achieving government targets. The programme is designed in such a way that, on the one hand, all the necessary market mechanisms have been launched, while on the other hand, the state has the opportunity to maintain reasonable control over the volumes of renewable energy and maximum energy prices. Such a balanced system is quite progressive and interesting even from the standpoint of international regulatory practice.

What specific features should be taken into account when implementing wind power generation projects? How does the Russian market differ from the European one?

Enel, which has accumulated considerable experience in recent years, pays special attention to three key factors when making an investment decision for such projects: resource availability, increased demand for electricity, and the reliability of the regulatory and legal environment.


For now, it's rather difficult to compare the Russian renewables market to the European one for the simple reason that the latter is much more developed (wind energy capacity in the EU was 154 GW as at the end of 2016). That said, clear differences can still be discerned. For example, Russia has a more complex process of obtaining the necessary permits and integrating renewable energy into the power grid, due

to the use of other technologies. In addition, the requisite level of equipment localization in Russia is a factor that does not exist in the European market. Nevertheless, it's not the first time that Enel has been faced with this issue, and the company has vast experience with tackling it as the result of developing renewable energy projects outside the EU. In Russia, our equipment localization partner will be Gamesa Siemens.

Are you planning to enter other renewable energy markets in Russia? Which of them are the most promising, given the conditions in the country?

This year we managed to win a tender for wind power, and we are very pleased with our results. In terms of resource availability, the north and south of the European part of Russia provide the best opportunities for the construction of wind farms.

Russia is certainly rich in various types of renewable energy. Our renewable energy department is always studying new opportunities, technologies, and areas of renewable energy, where Enel's extensive experience could be applied.

According to the recent Bloomberg Energy Outlook 2017 study, solar and wind power will prevail over other types of generation in the future. Russia has enormous solar and wind potential, which will enable it to achieve accelerated development in renewable energy. We are confident that this, in turn, will lead to the achievement of significant results. 

“THE TOTAL NUMBER OF CONTRACTS signed is currently no more than 3% of what it could be”

RUSSIA'S ENERGY SERVICES MARKET IS RELATIVELY YOUNG – BY WAY OF COMPARISON, IN EUROPE AND THE US IT HAS EXISTED FOR ALMOST 50 YEARS. NEVERTHELESS, THE COUNTRY HAS GREAT POTENTIAL IN THIS AREA. HOW CAN IT BE REALIZED? **IRINA BULGAKOVA**, GENERAL DIRECTOR OF THE RUSSIAN ASSOCIATION OF ENERGY SERVICE COMPANIES (RAESCO), PRESENTS HER VIEW.



IRINA BULGAKOVA,
General Director
of the Russian Association
of Energy Service Companies
(RAESCO)

Irina, what are the key trends in the domestic energy services market?
I can identify two key trends. The first is that there is a great interest from energy service companies in projects to modernize street lighting. Primarily, this involves replacing mercury-vapour lamps with LED equivalents. There is also an interest in projects to install weather compensators with individual heat points. The second trend is that companies are currently seeking contracts with short payback periods of 3–5 years. Seven/ten-year contracts are now a rarity. In the past three of four years, the number of electrical service contracts in Russia has increased by a factor of several

dozen, and market leaders have emerged in the shape of energy service companies (ESCOs) which are striving to push up their volumes and coverage. There is also a lot of interest in this area from investors, from state companies like Rostelecom and Rostec on the one hand, to private capital on the other. Despite the risks, energy service projects are very profitable. RAESCO is trying its utmost to encourage as many companies as possible to enter the energy services sector.

How can modernization efforts on the part of companies to improve energy efficiency affect the cost of their products and services?

Costs will not change, and may even fall. This is due to the fact that modernization programmes are carried out at the expense of ESCOs, which take their payment from savings coming as a result of energy efficiency. After the project is completed, the client keeps all the savings, and can consolidate them as profits, or reduce the cost of production. There is no surcharge for modernization.

What are the priority areas in the Russian energy services sector?
The government has been issuing a large number of regulatory documents aimed at implementing energy-saving measures in public sector institutions. A lot of attention has been paid to switching over to LED lighting devices. As per Resolution No. 971 dated September 27, 2016, the prevalence of LED lamps should be no less than 75% by 2020.

Does this mean that the government is seriously regulating the market?
There is no strict regulation of the energy services market in Russia. Companies do not have to be members of SROs or have any particular certifications. Energy service companies have only recently gained an industry classification code in Russia, but the government is nevertheless paying this market a lot of attention. It seems to me that almost all the legal documentation required for energy service companies to operate normally has been drawn up over the past three years. These start with the recommended forms for energy services contracts and Revision 636 of Russian Government Decree dated August 18, 2010, and end with the publishing of government standards to measure and verify energy efficiency.

What tends to be used for modernization projects: Russian or foreign equipment?
ESCOs give preference to equipment which offers the highest possible level of reliability at a cost low enough to ensure a return

The Russian energy services sector in facts and figures

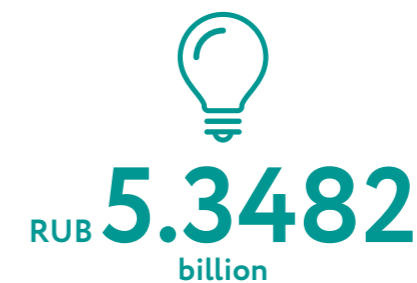
The majority of contracts signed were for the social sphere, namely for educational facilities (44%) and preschool institutions (27%). Street lighting is the leading area for investment (32%). Over 40 contracts (69%) were aimed at saving thermal energy, while 17 (28%) were focused on electrical energy. In terms of investments, the weighting between the electrical and thermal energy sectors is more balanced: 47% and 52%, respectively.

RAESCO data for Q1 2017

on investment and, of course, further earnings. Unfortunately, most contracts for LED lights use LEDs produced outside Russia. However, the remaining parts are all produced to a satisfactory quality in Russia. For thermal energy-saving projects, preference is given to foreign-produced equipment. It is more expensive to purchase, but enables ESCOs to reduce maintenance

costs during an energy service contract.
It is our hope that in both areas, Russia will soon start producing equipment that ESCOs will have confidence in, and use in their projects. Most Western technologies already have Russian equivalents. Given the attention the government has paid to this area, it is likely that the cost of domestically-produced technologies will fall, and that they will become available to a wider audience.

How would you assess the future of the Russian energy services market?
In our opinion, the energy services market has enormous growth potential. The total number of contracts signed is currently no more than 3% of what it could be. The energy services market has practically no foothold in apartment buildings. Contracts with long payback periods are not being considered. Most solutions currently implemented are generic, and there are very few technically complex projects being considered in industrial enterprises. State-owned companies have only just started to explore this market. One thing is for certain: the government sees energy conservation as one of the drivers of the Russian economy, and therefore we can expect to see a lot of positive change in this sector as a whole. ☺



size of the energy services market in the first quarter of 2017



were signed

#BRIGHTERTOGETHER FESTIVAL – A Global Social Campaign in Russia

OVER ITS TWO-YEAR HISTORY, THE #BRIGHTERTOGETHER ALL-RUSSIAN ENERGY CONSERVATION FESTIVAL HAS TRANSFORMED INTO A PUBLIC MOVEMENT TO ENCOURAGE A CAREFUL APPROACH TO NATURAL ENERGY RESOURCES, PROMOTE RESPECT FOR THE WORK OF POWER INDUSTRY WORKERS, AND POPULARIZE FUEL AND ENERGY INDUSTRY PROFESSIONS. A TOTAL OF 80 RUSSIAN REGIONS TOOK PART IN THE EVENT THIS YEAR, THREE MORE THAN IN 2016.

The #BrighterTogether festival held throughout Russia in the form of family-oriented city events has already received the popular name “A Helpful Celebration.” With the support of the Ministry of Education and Science of the Russian Federation, the State Fund for Assisting Housing and Utility

Services Reform, the Federal Agency for Youth Affairs and other federal and regional agencies and public organizations, the Ministry of Energy has managed to turn the festival into an event that goes beyond the industry and brings the energy sector, education, youth policy, ecology, housing and utilities services, and culture together.


In many regions, the #BrighterTogether events are supported personally by the governors and heads of municipalities, who encourage residents to join in the idea of taking a careful approach to energy resources. Meanwhile, regional energy departments and companies demonstrate inexhaustible inspiration and creativity in organizing the festival to inform residents about energy conservation, the energy industry and electrical safety in an interesting and easily accessible way.

Divisions from Gazprom, Rosseti, RusHydro, FGC UES, T Plus, Russian Railways, Transneft and Enel Russia all took part in the 2017 #BrighterTogether festival. The event has also significantly expanded its geography, covering not only the regional centres, but also municipal districts. Dozens of the country’s largest universities, libraries, youth centres and youth associations have

joined the movement. For example, the Russian Schoolchildren’s Movement declared September the “Month of Energy Conservation,” for which they have organized a campaign called “Kind Energy,” and will hold regional KVN-themed humour competitions in a number of regions.

The large-scale social campaign launched in support of the festival in September and October 2017 targets people of all ages and occupations. It includes lessons in energy conservation and thematic weeks in schools and kindergartens, open houses and corporate tender competitions for energy efficiency proposals at energy companies, charitable events to replace traditional lamps with energy-saving alternatives, quizzes, original light installations exhibits, photo areas and exhibitions of various technologies.

The festival is promoted through new forms of communications such as online competitions and quests. Thousands of photos with the hashtag #brightertogogether are being published in social media and on websites, where people hold signs with appeals to support the festival and sign a personal declaration to take a careful approach to the use of energy resources on the www.вместяярче.рф website. This can be done from 1 August to 22 December, when Russia celebrates Energy Day. Around 60,000 Russian people joined the declaration over the two months of the festival in 2016.

Another great initiative is the joint campaign “A Message of Kindness” by the #BrighterTogether All-Russian Festival and the World Festival of Youth and Students (WFYS). Schoolchildren and young people from Russia’s regions can write letters to people their age in other countries asking to become pen pals and organize joint activities, including in matters concerning energy conservation and environmental protection. Thus, the idea of a careful approach to the use of the Earth’s natural resources, which is the basis of the #BrighterTogether Festival, helps to unify young people from different countries. 

#BrighterTogether Festival events are being held all over the country, from Kaliningrad to Vladivostok

- In Moscow, the festival was held at Gorky Park on 9–10 September as part of City Day celebrations and was attended by 900,000 people. The event featured an interactive miniature mock-up of the capital with its sights and illuminated streets, buildings and structures. At the same time, the visitors actually generated energy for the illumination during various interactive quizzes, sports and dance contests.
- In Moscow region, the festival was held on 16 September at Skolkovo Technopark. Guests were treated to an extensive programme: an electric car exhibition, quests and master classes on energy conservation, a visit to a “smart house,” lectures by Skoltech professors, sports competitions (including streetball and energyball), as well as performances by creative and student teams from the KVN humour contest.
- In Krasnodar Region, festival participants were introduced to the latest sustainable technology applications during the exhibition “Boulevard of Modern Energy-Efficient Technologies” on 9 September. From LED lamps to a model of a wind turbine, the exhibitors demonstrated practical solutions that can be used in all sectors of the region’s economy.
- The Leningrad Region city of Priozersk set up exhibition areas as part of the festival on 2 September where leading Russian universities and companies from the Leningrad Region demonstrated their scientific and technical development and models of modern energy conservation equipment for household and outdoor use. The attendees had the chance to participate in an energy conservation quest, master classes, virtual reality tours, scientific and educational shows, contests and quizzes.
- In Oryol, an exhibition of special equipment was held as part of the festival on 8 September. Visitors were able to test drive an electric vehicle, take part in pavement art crossword competitions based on the theme of energy conservation, and see modern equipment and special machinery used in the energy industry. The more daring visitors chose to take a ride on the lifting platform of a cherry picker and try their hand at climbing electricity pylons in full Oryolenergo electrician gear.
- The all-Russian children’s centres Orlyonok and Ocean held thematic #BrighterTogether summer sessions.

ANTON INYUTSYN, Deputy Minister of Energy of the Russian Federation

“For us, the idea of the #BrighterTogether Festival is that we can all see and demonstrate examples of energy saving, environmental protection and conservation of resources at home, at work and in public spaces. We would like to invite everyone who believes it is important to support our country’s competitiveness and its economy through the introduction of state-of-the-art technology to join in.”





The Roscongress Foundation is a major conference and exhibition operator, and offers a range of services for organizing events of all kinds and levels of complexity.

“ In the 20 years since its founding, the St. Petersburg International Economic Forum has grown into a platform for the discussion of strategic issues and challenges. This conversation is all the more important today in a world going through a major transformation, where profound changes are affecting practically every sphere of life. ”

Vladimir Putin



ST. PETERSBURG INTERNATIONAL ECONOMIC FORUM 2018
24–26 May 2018, St. Petersburg

The most prominent business event in Russia, the St. Petersburg International Economic Forum takes place every year under the auspices and with the participation of the President of the Russian Federation. Attendees include heads of state and government, senior executives of Russian and international companies, and representatives from the world's major media organizations. The key objective of the Forum is to provide a practical instrument for developing business through mutually beneficial dialogue between Russia and the international community.

FORUMSPB.COM



RUSSIAN INVESTMENT FORUM
14–22 October 2017, Sochi

The largest youth event of 2017. Over 20,000 young people from 150 countries will participate, coming together to develop a vision of the planet's future.

RUSINVESTFORUM.ORG



19TH WORLD FESTIVAL OF YOUTH AND STUDENTS
14–22 October 2017, Sochi

The largest youth event of 2017. Over 20,000 young people from 150 countries will participate, coming together to develop a vision of the planet's future.

RUSSIA2017.COM



'RUSSIAN ENERGY WEEK 2017' INTERNATIONAL FORUM
3–7 October 2017, Moscow

Russia's largest international business discussion platform for the energy sector. The aim of this event is to showcase future opportunities in the Russian fuel and energy sector and to realize the potential of international cooperation.

RUSENERGYWEEK.COM



10TH EURASIAN ECONOMIC FORUM IN VERONA
19–20 October 2017, Verona, Italy

An international discussion platform, where government officials, ministers from the Eurasian Economic Union, representatives from the European Commission, ambassadors, and leaders from linchpin corporations based in member states meet to discuss issues facing a Greater Eurasia in the present geopolitical and economic context.

FORUMVERONA.COM



RUSSIA HOUSE IN DAVOS
22–26 January 2018, Davos, Switzerland

Russia's official residence and platform for promoting Russian initiatives among key representatives from international business and political circles, who traditionally meet every January in Davos, Switzerland.

HOUSERUSSIA.COM



FINOPOLIS 2017
5–6 October 2017, Sochi

Russia's key event in the world of Fintech. The objective of Finopolis is to facilitate the implementation of innovative technologies in Russia's financial sector.

FINOPOLIS.RU



EASTERN ECONOMIC FORUM
6–7 September 2017, Vladivostok

The key business event in the Russian Far East, the mission of which is to highlight the economic potential of the region, as well as strengthen links between the international investment community, Russian business, and federal, regional, and local government bodies.

FORUMVOSTOK.RU



INTERNATIONAL FINANCIAL CONGRESS
July 2018, St. Petersburg

The International Financial Congress is Russia's major international financial forum, bringing together distinguished experts and high-level representatives of central and commercial banks and other financial institutions.

IBCINGRESS.COM

The Foundation has organized more than

440
events

from Montevideo to Vladivostok

with participants from

143
countries

64

FROM AUSTRALIA TO LADOGA:
Roscongress Foundation Signs Agreements at Eastern Economic Forum

The Eastern Economic Forum, which took place on September 6-7 in Vladivostok resulted in numerous tangible accomplishments, and not just for the participants. The Roscongress Foundation, which organized the event, signed several important agreements, which will pave the way for exciting international cooperation opportunities.



72

CUISINE
done right

What gastronomic surprises does Moscow have in store?



76

OTHER THINGS TO SEE:
Moscow's best museum exhibitions



68

RISEN FROM THE ASHES

An amazing history of the Moscow Manege





Photo: roscongress.org

FROM AUSTRALIA TO LADOGA: Roscongress Foundation Signs Agreements at Eastern Economic Forum

THE EASTERN ECONOMIC FORUM, WHICH TOOK PLACE ON SEPTEMBER 6-7 IN VLADIVOSTOK RESULTED IN NUMEROUS TANGIBLE ACCOMPLISHMENTS, AND NOT JUST FOR THE PARTICIPANTS. THE ROSCONGRESS FOUNDATION, WHICH ORGANIZED THE EVENT, SIGNED SEVERAL IMPORTANT AGREEMENTS, WHICH WILL PAVE THE WAY FOR EXCITING INTERNATIONAL COOPERATION OPPORTUNITIES.

On September 6, in the presence of Russian President Vladimir Putin, Alexander Stuglev, CEO of the Roscongress Foundation, and Jaehong Kim, President and CEO of the Korea Trade-Investment Promotion Agency (KOTRA), exchanged a signed memorandum of understanding. The development marks the start of an initiative in which the two organizations will cooperate in developing joint international communication platforms for representatives of the scientific, business, and political communities of Russia and Korea to meet. Given the strengthening economic ties between the two countries, the need for this kind of interaction has become apparent. For example, prior to the EEF, Alexander Galushka, Minister for the Development of the Russian Far East, noted that in May 2017, South Korean investments in Russia's Far East amounted to USD 67 million – a figure which grew exponentially to USD 272 million in August.

A similar cooperation agreement was signed between the Roscongress Foundation and the China Overseas Development Association (CODA). "In recognition of the importance of expanding and strengthening relations between our countries, we agreed

The Eastern Economic Forum business programme also saw the Roscongress Foundation secure support from both foreign and Russian partners

to support dialogue on cooperation in investment and finance, export-import activities, tourism, and culture," said Stuglev.

China is a key foreign investor in the Russian Far East, accounting for 80% of investment from the Asia-Pacific Region. The implementation of the memorandum will help Chinese entrepreneurs to participate more widely in forums organized by the Roscongress Foundation. In turn, He Zhenwei, Secretary-General of CODA, emphasized that China was anticipating a high number of Russian participants at business events in China, especially at the International Fair for Investment and Trade.

A standout achievement of the Eastern Economic Forum was the strengthening of Russian-Japanese ties. A noticeable example of this was the signing of a memorandum of intent between

the Roscongress Foundation and the Japan Association for Trade with Russia & NIS (ROTOBO). The memorandum was amongst a list of 56 documents circulated following talks between President of the Russian Federation Vladimir Putin and Prime Minister of Japan Shinzo Abe. It sets out plans for cooperation on disseminating information on the economic potential and investment opportunities offered by Russia and Japan.

"We are delighted to have established a collaborative relationship with the organizer of key Russian events," stated Shigeru Murayama, ROTOBO's President. "We are aware that Japan will be a partner country at next year's St. Petersburg International Economic Forum. It is also possible that our country will host some major events of its own."

The Roscongress Foundation also signed cooperation agreements with the ADC (Australian Davos Connection Ltd.) Forum, and the Philippine-Russian Business Assembly (PRBA).

The ADC is an independent non-profit organization that brings together leading business and academic representatives, public officials, and journalists, and provides them with a platform for dialogue on key issues affecting Australia. Anton Roux, CEO of the ADC Forum, stated that this partnership "will help to solve a number of global problems and support cultural exchange across a range of fronts" in a fast-growing Asia-Pacific Region. Stuglev further specified that focus will be given to organizing industry-specific sessions and exchanging delegations as part of the St. Petersburg International Economic Forum, the Eastern

The Memorandum of understanding exchanged by the Director of the Fund "Recongress" Alexander Stuglev (on the right) and President and CEO KOTPA Jae Hong Kim



Photo: roscongress.org

Economic Forum, and key events at the ADC Forum in Australia.


The agreement with the PRBA is a logical development, given the current state of Russian-Philippine relations, which gained a strong boost after the visit by Philippine President Rodrigo Duterte to Russia in May 2017. "The broadening of contacts between representatives of the two countries' business communities will facilitate the development of trade and economic relations," noted Armi Lopez Garcia, Chairperson of the Philippine-Russian Business Assembly. At the same time, she expressed her hopes for increased cooperation in tourism and culture, which, she noted, "is an effective platform for increasing Russian-Philippine trade and investment."

The Eastern Economic Forum business programme also saw the Roscongress Foundation secure support from both foreign and Russian partners. Alexander Stuglev and Andrey Gavrilenko, Director of the Ladoga Trophy Raid Foundation, signed a memorandum on cooperation which will focus on organizing the Ladoga Trophy race. It is the biggest rally competition in Russia, and indeed, one of the biggest worldwide. This year saw the Ladoga Trophy celebrate its 20th anniversary. The race sees off-road vehicles, quad-bikes, ATVs, and motorcycles face-off against one another. Even cyclists have been part of the competition since 2016! The challenging route, which traditionally starts and finishes at St Isaac's Square in St Petersburg, covers 1,200 km.

"This exciting annual rally, which kicks off each year in St Petersburg during the city's white nights, is invariably a huge success," said Gavrilenko. "A new team, and the strategic partnership with the Roscongress Foundation will raise this event to an entirely new level, and also broaden its geographical reach." Stuglev added that expanding the strategic partnership will not only result in the promotion of sports and sport tourism in Northwest Russia, but across the entire country.

In addition, the Roscongress Foundation signed a cooperation agreement with the Investment Promotion Agency of Novosibirsk

Region. The agreement aims to establish a long-term partnership, with the objective of strengthening trade and economic ties between Novosibirsk Region and foreign investors; this includes promoting exports of products and services from the region on the European market, implementing advanced technologies, and attracting direct foreign investment into the region's economy.

It may be the biggest business event in Russia's Far East, but these developments clearly show that the scope of the Eastern Economic Forum reaches far beyond the region. This year's event alone has seen the instigation of new projects involving the Roscongress Foundation which will stretch from the cold northern climes of Ladoga to the warmth of Australia. 

Welcome to Virtuality

This was the first year that the Roscongress Foundation presented its innovative VR space (#vrspace) at the Eastern Economic Forum. Participants at the event had the opportunity to take a look at some of the best virtual and augmented reality technology projects implemented by Russian companies.

Over the two days of the Forum, over 300 people visited the VR space, including representatives of the business community, foreign delegations, and government bodies. The technological partner of the project was Newsroom, a VR/AR technology training and demonstration centre for business.

The stand showcased over 30 innovative applications, including a virtual walk in a museum and apartment, a VR cinema, remote corporate training, simulators, virtual test drives, and meeting rooms – all of which could be incorporated in industry, banking, construction, architecture, education, and the arts.

Today, Russian developers are among the world's leaders in creating innovative VR/AR solutions. The country is the birthplace of the world's first synchronized wireless VR cinema, as well as the MoveInVR system. These unique products are the result of the work put in by the Russian team of developers at Interactive Lab.

Holo Group's stand presented impressive opportunities for using augmented reality technology in tandem with the Microsoft HoloLens. The organization showcased its application in presentations, education, and engineering solutions for major Russian and international companies, such as Alrosa, L'Oréal, Auchan, and others.

Given the significance of the VR space to participants at the EEF, Alexander Stuglev commented on the importance of using innovative technologies at future congresses and exhibitions.



Photo: roscongress.org



The "Made in Russia" national brand is the first government-sponsored global communications project for promoting Russia's manufacturing, export, cultural and tourism potential and human capital



The "Made in Russia" national brand concept consists in promotion of all sectors of our economy. It may serve as an umbrella for successful implementation of all of the initiatives proposed to date, such as The Year of Entrepreneurship, The Year of the Theatre, The Year of People's Unity, etc. We will also be able, in the all-important election year, to develop a unified national communications strategy for promoting Russia's manufacturing, export, cultural, tourism and human capital and for raising public awareness of the achievements and successes in those areas in order to involve our society actively in all sectors of the economy.

Agency for Strategic Initiatives New Project Promotion Director
Svetlana Chupsheva on the 2018 "Made in Russia" Year

www.madeinrussia.ru

Project participation applications from companies



Country promotion and creation of national brands have been among the key trends in 2016–2017, yet they have also revealed the lack of a common approach among federal government agencies, development institutions and businesses on how to promote the "Made in Russia" brand and Russia's image. It is to implement such an approach, while taking into account the interests of all stakeholders, that we have proposed to establish a national communications strategy for promoting Russia's manufacturing, export, cultural, tourism and human capital.

Roscongress Foundation Director
Alexander Stuglev on the national communications strategy

madeinrussia.gov.ru

Expert Council participation applications



A national brand aggregator, such as the "Made in Russia" campaign, is expected to harmonize all points of view, strike the correct balance between the practical (the "Made in Russia" national brand aggregator) and semantic (national, regional, export, tourism, cultural and other brands) components, and implement a national communications strategy to ensure public marketing funds are spent correctly.

Mikhail Sadchenkov, Roscongress Foundation, Made in Russia Project Manager

pr@madeinrussia.ru

Applications from general partners and industry partners



I thought the idea and concept behind the "Made in Russia" national brand were interesting enough to be included in Nation Brand, the first global national branding textbook.

Dr. Keith Dinnie (PhD), Senior Lecturer in Branding at Middlesex University Business School, London, UK



RISEN FROM THE ASHES

THE MOSCOW MANEGE, WHICH WILL HOST THE MAIN EVENTS OF RUSSIAN ENERGY WEEK, WAS CONCEIVED 200 YEARS AGO AS A SITE FOR MILITARY EXERCISES, BUT BY THE NINETEENTH CENTURY IT HAD ALREADY BEEN TURNED INTO THE COUNTRY'S TOP EXHIBITION CENTRE.

ANTON SOBCHENKO
journalist

The cause of the Moscow Fire of 1812 was a mystery to people of the time, and has today become a subject of dispute among historians. Some believe that the Governor of Moscow, General Fyodor Rostopchin, came up with the idea of burning down the ancient capital, which had been seized by Napoleon's army. Others believe that the French did it. A third camp is of the view that the fire resulted from a confluence of circumstances. "Moscow was

burned through the pipes, the kitchen stoves, and camp fires, through the recklessness of the enemy's soldiers", Leo Tolstoy wrote in War and Peace. Whatever happened, it wasn't entirely a loss for Moscow. One unexpected gift was the Manege – a unique architectural masterpiece erected on the site of a burnt out trading area.

THE BIGGEST BUILDING

In 1817, Russia was preparing to celebrate the fifth anniversary of Napoleon being driven out of the Russian Empire. Alexander I planned to make Moscow the main venue for the celebrations. The city, still in ruins after the fire, was supposed to remind those invited to the celebration, in

particular allies from Austria and Prussia, of the price Russia had paid in its war against the 'invincible' Corsican.

The organization of the event was complicated, however, by the lack of a site that would be capable of accommodating a large audience and also suitable for inspecting regiments – an indispensable part of the programme. So the decision was made to build the Manege, or as they called it then, the Exercirhaus – a place for military exercises.

The best possible site was chosen – near the walls of the Kremlin. Prior to the war, this site had been used to trade firewood and moss to heat wooden buildings (which, incidentally, is where the name 'Mokhovaya Ulitsa',



Agustin Betancourt is the author of the project of the Moscow Manege

or 'Moss Street', comes from). The architects faced a difficult task – in just a few months they would have to build a huge covered parade ground. But the problem was not even the size of the structure – 166.1 by 44.7 metres, the largest building in Russia for a century and a half – but the fact that it needed to be built without internal supports, which would interfere with military training. The engineer Agustín de Betancourt decided to take up the project.

He deserves a separate story all to himself. Agustín José Pedro del Carmen Domingo de Candelaria de Betancourt y Molina (his full name) was born on the island of Tenerife, the descendant of a noble French family. His ancestor, the seafarer Jean de Béthencourt, at one time was even considered the King of the Canary Islands. Agustín de Betancourt had already reached the respectable age of 50 when he arrived in Russia. Prior to this, he had travelled across half of Europe: he was educated in France and well-known for building an optical telegraph in Spain. He was also sent to prison in England on charges of industrial espionage.

Having received the rank of Major-General upon arrival in Russia, Betancourt plunged headlong into his work. He was in charge of rebuilding the Tula Armoury and constructing a new complex at the Nizhny Novgorod Fair. He built a dispatch office for government securities in St. Petersburg and helped to design St. Isaac's Cathedral. Another brainchild of

The building constructed based on Betancourt's design was a structure without equal in Europe at the time

Agustin Agustinovich – as the engineer was simply known in his new homeland – was the Institute of the Transport Engineer Corps, where he was appointed Inspector General. So the Moscow Exercirhaus was just one of the items on the long list of Betancourt's services to Russia.

Work at the site was led by another prominent engineer, Louis Carbonnier. The plan had to be implemented extremely quickly. The building design was only approved at the highest level in June 1817, and the facility was due to be commissioned in autumn. But Carbonnier was not daunted by these difficult challenges. Prior to the war, he had been involved in the construction of the Odessa fortress and was the director of hydraulic works at the Kronstadt roadstead. After 1812, he helped to improve navigation on the Volga and Moskva Rivers.

A 'SOARING' ROOF

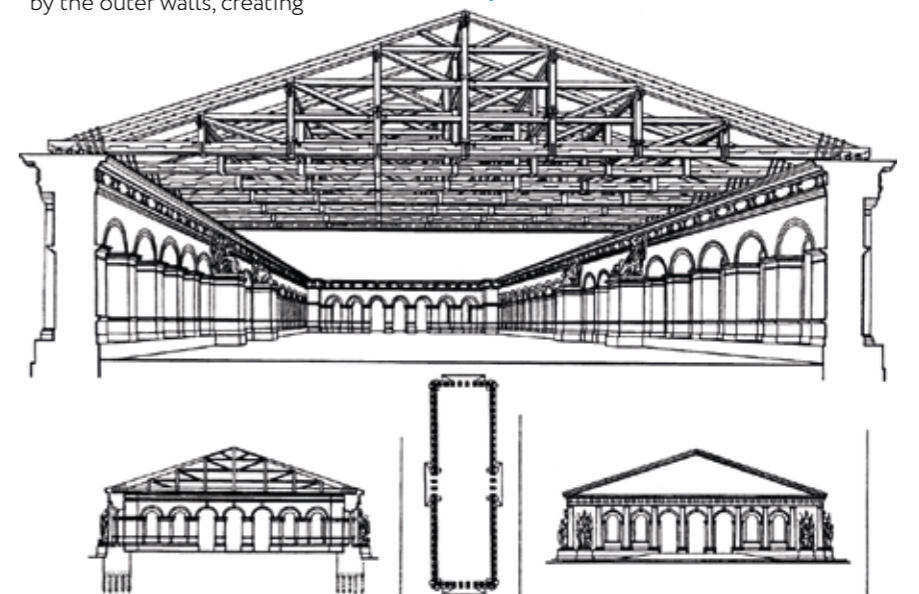
The Exercirhaus building constructed by Carbonnier based on Betancourt's design was a structure without equal in Europe at the time. Thirty wooden beams held up a copper gable roof on wooden trusses, supported only by the outer walls, creating

a parade ground inside that could accommodate 2,000 soldiers.

The walls were made about a metre thick to ensure that the building was stable. All of the wooden components for the fortress were fastened with iron rods with nuts, which had to be tightened periodically. Century-old larch brought to Moscow from all over the country was used in the construction. The design also envisaged trophy sculptures in an antique style, which were to be located in openings between the external columns, but this idea never materialized due to a lack of time.

The grand opening of the Exercirhaus took place in November 1817. The beams soon began to settle and cracks appeared as the haste in construction took its toll. But not even this prevented news about the splendour of the Manege from spreading around the world, and engineers came from abroad specifically to study it.

The main feature of the Arena – lack of internal colon





It looked like an exhibition of "agricultural products" in 1852

However, by 1823, the building had to be thoroughly reconstructed. A special commission was assembled to study its condition. Based on the results of the commission's work, the number of beams was increased to 45, and ventilation windows were created in the roof to prevent the wood from drying out. Another innovation involved a half-metre layer of tobacco being placed in the attic (to frighten off insects and rodents). Legend has it that soldiers smoked the tobacco during World War II, but the smell lingered under the roof for a long time.

The commission also included the famous architect Joseph Bové, who worked to restore Moscow's appearance after the fire of 1812. He has been deservedly compared with the architect Carlo Rossi, who transformed St. Petersburg. As a result of Bové's

efforts, the Manege was outwardly reborn and conceptually blended into the Kremlin's increasingly complex architectural ensemble. Bové created new facades for the building and developed a design for decorative adornment, adding bas-reliefs featuring antique military armour.

"TREMENDOUS IMPRESSION"

The Manege was initially used for its intended purpose: regiments of the Moscow garrison were trained there. "There was one horse in the Manege. It ran wild for all the riders and the numskull acquired a manner of eating a rider's knees. Like a devil, it would grab the entire knee cap with its teeth and just start peeling away. Many people died as a result. Then the Englishman Rarey came to Moscow – he was called the 'horse whisperer' –

and this mean horse almost ate him", Nikolay Leskov wrote in his novel *The Enchanted Wanderer*.

But this did not prevent the Manege from bringing the public together for civilian occasions. One particularly memorable event was a concert conducted by French composer Hector Berlioz. Witnesses say some 12,000 people listened to him, and the orchestra had over 700 musicians. "This is the most tremendous impression I've ever made in my entire life", Berlioz wrote from Moscow.

And yet the Manege attained its fame first and foremost as an exhibition hall. An illustration from the Russian Artistic Leaflet magazine, 'General View of the Exhibition of Rural Works at the Great Exercirhaus in Moscow in September 1852', has been preserved and helps us to understand what it was like. In the picture, elegant men and women admire the fancifully decorated stands featuring various foodstuffs.

In 1872, the Manege hosted an ethnographic exhibition for which unprecedented mannequin exhibits were specially made. "They made them from wood, painted their faces with pink colours, and inserted yellow eyes. Authentic clothing was used – the mannequins were dressed in real Tatar, Pomorye, and Chukchi outfits", local historian Alexey Mitrofanov writes in his book *Tverskaya. Walks around Old Moscow*.

A Polytechnic Exhibition was also held at the Manege around this time. The event, which was timed to

coincide with the 200th anniversary of Peter the Great's birth, was the first large-scale demonstration of Russia's industrial, scientific, technical, and cultural achievements. The exhibition contained historical, maritime, military, forestry, agricultural, and architectural sections. It also demonstrated zoology, botany, gardening, mining, and, of course, the advanced technologies of that time. A separate exposition was devoted to the defence of Sevastopol during the Crimean War (which, incidentally, was overseen by the Crown Prince and future Emperor Alexander III). The exhibition was attended by 750,000 visitors over a period of three months. The exhibits on display later became the basis of the collections at the Polytechnic and Historical Museums.

In 1899, the Manege hosted a unique event for that time – a cyclists' club carnival (i.e. bicyclists). As Alexey Mitrofanov writes, the newspaper report of the event has been preserved: "The carnival began with the general appearance of all the people in fancy costumes. There was a significant number of the latter. Among the usual fancy outfits there were those who attracted the public's attention." For example, there were 'The Merman and the Mermaid', 'English Carriage', 'Russian Troika', and 'The Fir Tree and the Demon'.

RETURNING TO ITS ROOTS

Following the 1917 revolution, the fate of the Manege changed. Instead of brave soldiers and inquisitive exhibition visitors, it was taken over by chauffeurs: the building was used as a garage. As a result of inadequate maintenance, the condition of the former Exercirhaus deteriorated, and by 1930 its beams had settled by almost a metre. The repairs that were carried out scrapped the main architectural feature of the Manege as columns were placed under the beams; the integrity of the internal space was destroyed.



Nikita Khrushchev at the exhibition in 1962, which became a symbol of the end of "thaw"

It was only in the 1950s that things changed for the better. The Manege was restored and transformed into the Central Exhibition Hall. It was here in 1962 that the famous avant-garde exhibition was held and slammed by then-Soviet leader Nikita Khrushchev. His politest responses to what he saw included "Our people don't need this!" and "What are these faces? Even my grandson can draw better!" The exhibition was immediately closed, a sign of the end of the Thaw.

That wasn't the only time when events affecting the Manege took on special significance. The building experienced a tragic event in 2004. As a result of a five-alarm fire, the masterpiece created by Betancourt, Carbonnier, and Bové disappeared. The centre of Moscow was undergoing rapid reconstruction at that time, and

many monuments were lost. The fire at the Manege served as a kind of signal of the destructiveness of such a policy. Since then, the city has begun to take a more cautious approach to its architectural heritage.

The Manege had to be rebuilt anew, and once again in record time with work completed in just a year. Of course, the building underwent changes – a basement was added along with engineering and utility rooms. But the main thing is that the beams – Betancourt's unique trusses – were recreated in the main exhibition space. And they were left open so that people could see the size of the entire building.

This year, the Moscow Manege celebrates its 200th anniversary. In honour of this event, a historical and documentary project has been prepared to tell the amazing story of the former Exercirhaus. Rare documents, photographs, videos, and artefacts reflecting the complex fate of the Manege and the colourful events it has been lucky enough to witness have been found in the archives in Moscow and St. Petersburg.

After a fire in 2004, the arena had to be rebuilt. But the unique Betancourt farm was reconstructed

After the revolution, the Arena was used as a garage, and only in the 1950-s it became the main exhibition hall of the country





VARVARA FUFAYEVA,
journalist

Muscovites love to eat. Discussions on culinary delicacies can get as heated as conversations about business, or debates about a new theatre production. A restaurant serving insipid fare will fail to pull in the customers here; no matter how wonderful the atmosphere, a place with a mediocre menu is not destined to last long.

THE WINDS OF CHANGE

Tastes in the city change constantly. Whereas just yesterday it was meat dishes that were in vogue, today it's seafood that's all the rage. It wasn't long ago that restaurants were experimenting feverishly with molecular cuisine, and yet today, chefs are returning to food's roots with an earthier, more natural approach. This has put the emphasis firmly back on seasonal and regional produce.

Torvehallerne in Copenhagen, Borough Market in London, Mercado da Ribeira in Lisbon, Foodhallen in Amsterdam... Only relatively recently has Moscow joined the list of cities where true food connoisseurs make a point of visiting markets to taste simple but delicious food. Indeed, many Muscovites now go to markets not just for the food, but for the experience, too.

While the imposition of sanctions on Russia came as a shock, restaurateurs in the city have successfully adapted, and weathered the storm. The current seafood craze (with red king crab from Murmansk and Kamchatka holding pride of place) only serves to reinforce this fact. In addition, menus are now featuring more and more national dishes from the countries of the former Soviet Union. Russian offerings, for example, include crucian carp in sour cream, various kinds of olivier salad (a dish made with potatoes, peas, eggs, mayonnaise, and diced meat), goose with lingonberries, and naturally, vodka tasting! Meanwhile, Georgian delights include pkhali (a traditional dish resembling vegetable patties) and khachapuri (cheese bread). From Uzbekistan there's lagman (a

meat and vegetable noodle dish) and chuchvara (dumplings), and let's not forget Black Sea sprat rissole from Odessa and draniki (potato pancakes) from Belarus... the list goes on and on.

Each new season is marked by change, but in Moscow, these changes can be unpredictable. Restaurateurs have to keep abreast of the public mood when formulating their menus. After all, even if summer turned out to be cold this year, there's no reason not to be able to enjoy a taste of the season with light seafood and vegetable dishes. Alternatively, for something a little more unusual, there's always green pea ice cream!

The summer rain has since been supplanted by the golden colours of autumn. This, in turn, has heralded a new trend – chanterelles. Chanterelle and gorgonzola salad, turbot and chanterelle ravioli, chanterelle and ham ragout tagliatelle, sea bass ceviche with artichokes and chanterelles – it seems that every self respecting restaurant has incorporated the ingredient into their dishes this



NATALYA KOSAREVA,
Editor-in-Chief, FoodService magazine

"This year, democratization is the overarching trend. Across the board, restaurants are endeavouring to attract customers with special offers, promos for certain dishes, and special fixed-price menus (such as sets and brunches). Many restaurants in the medium and medium-high price

segment are now announcing that they use 'ingredients from the market'. These are often seasonal and local products that stay in vogue for many years.

A new trend in Moscow which cannot go unmentioned is eating at market stalls. Not only do you now see the usual kinds of customers there, but also local white-collar workers, and even celebrities.

It's also currently the fashion to flirt with Russian motifs. By this, I don't necessarily mean that the menu must be based on Russian cuisine; it is setting the mood that counts."

autumn. By way of contrast, last year's flavour was pumpkin. Whether it was soups, pies, pasta, or desserts, the pumpkin reigned supreme.

KEEP IT SIMPLE

Moscow restaurateurs have grasped that current demand is for delicious food that people can understand. Today's food connoisseur is the kind of person who pays meticulous attention to what they eat – analysing their meal, carefully studying its ingredients, and interrogating the waiter on how fresh the fish is. This is probably the reason why molecular trends are fading into the background.

However, simple food does not necessarily have to bear a Russian hallmark. Burgers, for example, are also drawing in the customers. In fact, specialized periodicals are now

A new trend in Moscow which cannot go unmentioned is eating at market stalls. Not only do you now see the usual kinds of customers there, but also local white-collar workers, and even celebrities



CUISINE
done right

MOSCOW'S CULINARY SCENE HAS THE ABILITY TO AMAZE EVEN THE MOST JADED OF RESTAURANT-GOERS. ITS SECRET LIES NOT IN THE SOPHISTICATION OF THE CUISINE OR BIG-NAME CHEFS. THIS IS A RESTAURANT CAPITAL WHICH PEOPLE TAKE TO THEIR HEARTS ABOVE ALL FOR ITS INGENUITY AND CONSTANT DESIRE TO TRY SOMETHING NEW.



ALEXANDER ILYIN,
staff writer,
Afisha Restaurants

“Oddly enough, Italian cuisine is once again the main trend of 2017. Nobody expected Italian restaurants to open up one after another as they did. Classical dishes now hold sway, with molecular cuisine disappearing without a trace. Israeli cuisine in all its diversity is on the up, but it is hard to predict how long it will take it to fully catch on.

The main food of 2017 is seafood of all kinds, from mussels to oysters, with crab leading this so-called invasion. The main cooking techniques are grilling, smoking (for the second year running) and fermenting (this is something new). All of these trends fall in line with the tendency towards eating food which is at once delicious, healthy, and even slightly reminiscent of a bygone era.

Today’s main gimmick is what you might call ‘pseudo-democratization’. You can go to Danilovsky Market to eat oysters, or equally order a hot dog on the roof on the Ritz-Carlton Hotel.

But overall, I would say that the perfect dish of 2017 is the luxurious, 15-yolks-per-kilo-of-flour tagliatelle served with crab meat, shellfish and bisque sauce with a smoked prawn shell base.”



The main food of 2017 is seafood of all kinds, from mussels to oysters, with crab leading this so-called invasion

ranking restaurants according to how well they prepare what is effectively a meat patty in a bun. It’s got to be the stage where it’s virtually impossible to get into some burger places without a reservation. Similarly, other places may not have a booking service (sometimes they don’t even have tables), but there are long queues. Famous restaurateurs and pop stars are getting in on the trend, and opening up burger joints of their own. These feature recipes put together by renowned chefs, with variations galore: buns made from potatoes, venison patties, and halal burgers, to name but a few. And lest we forget the star of the menu: the crab burger.

The fashion for breakfasts and brunches is another integral component of the Moscow culinary

scene. Given the city’s hectic pace of life, people are no longer just going to restaurants to eat, but to do business as well. Today, holding a meeting with colleagues, sorting through your inbox, or discussing matters with a business partner over a meal are all perfectly regular things to do in a restaurant.

When it comes to choosing the food, it’s entirely up to you. For those who like a hearty start to the day, there are even ‘full breakfast’ specials, including veal quesadilla, the aforementioned draniki with salmon, and grilled sausages. And if you happen to be someone who’s following the current trend of eating complex carbohydrates in the morning, then it’s porridge with seasonal fruits and berries for you. Many places offer

a large selection of dairy products, from the fermented milk drink kefir (sometimes served with finely chopped dill), to wild strawberry straciatella.

Breakfast is served from 6am onwards, with brunches served between 11am and 4pm. However, the latter tends to be more of a weekend occasion. Moscow’s luxury hotels and legendary restaurants offer brunch in an atmosphere that’s always guaranteed to be relaxed and carefree. Meat delicacies, oysters, delightfully soft burrata all feature, and much, much more besides. And if you need to recover from a wild Friday night out, there will be a menu to set you right (try, for instance, Louisiana gumbo – a soup made with vegetables, meat, and seafood). It should be mentioned though that brunch in Moscow is, as a rule, a family affair. Toddlers and older children are offered all kinds of entertainment, from workshop classes to theatrical shows.

DINING WITH A VIEW

Dining in Moscow can mean a feast for the eyes, too. You could, for example, choose to visit Europe’s highest


restaurant, located on the 62nd floor of one of towers in the Moscow International Business Centre. Other places are worth a visit for their interior décor alone. Natural stone, luxury fabrics, cut crystal, high-quality wood, fountains and glasshouses – Moscow has it all.

Another dining option offering stunning views of the city would be an unforgettable meal on a floating

restaurant. Make sure you keep an eye on routes and schedules, and if you can, purchase tickets in advance (this can be done online).

Do also take the time to find out whether a famous chef is visiting Moscow on a culinary tour. For instance, Moscow recently welcomed Abigail Chatima – a chef from Zimbabwe who heads one of Harare’s most famous restaurants. She made dishes using traditional African ingredients, bringing all the products with her.

If you are drawn by the glamour of celebrity, then you may be interested in an establishment tied to a famous name. For instance, TV personality Tina Kandelaki had a hand in designing the décor of her restaurant, and several dishes are made according to her family recipes. Footballer Dmitri Sychev has opened an establishment that wouldn’t look out of place in the heart of Paris. But if you’ll settle for nothing less than a global star, then Robert de Niro’s restaurant is the place for you. Alternatively, you might be more interested in discovering places that have played a role in history – dining, for example, at the restaurant that once hosted a meeting between Boris Yeltsin and Jacques Chirac.

Ultimately, it’s all down to you. Take on board the recommendations of those in the know, and prepare to embark on the best culinary tour Russia has to offer. One thing’s for sure – you’ll have plenty of stories to tell! 



OTHER THINGS TO SEE

Moscow's best museum exhibitions

Clouds Forests:

the central project for the 7th Moscow International Biennale of Contemporary Art. The exhibition will include works by 52 artists from 25 countries, including Matthew Barney, and Olafur Eliasson, who have created new works specially for the biennale, as well as the famous Icelandic singer Björk.

🏛️ New Tretyakov Gallery, 10 Krymsky Val



Justine Emard. Photo: press service of the Tretyakov gallery

Chinese artist **Cai Guo-Qiang** has created a series of works for the Pushkin State Museum of Fine Arts as a reflection on the 100th anniversary of the Russian Revolution. The exhibition touches upon the role of individuals in history, and the relationship between personal dreams and collective ideals. 🏛️ Main Building, Pushkin State Museum of Fine Arts, 12 Ulitsa Volkhonka

Moscow through the ages: a project at the Tretyakov Gallery dedicated to Moscow's 870th anniversary. The exhibition is made up of five sub-sections: Moscow: the Third Rome, Moscow's Kremlin: the Heart of the City, Memories of Old Moscow, The

Red Square: the Essence of Moscow, and The 20th Century: City Voices. 🏛️ Engineering Building, 12 Lavrushinsky pereulok

Under the Radiation Falls is the first major survey of Takashi Murakami's work in Russia. It will span several decades of the artist's career. 🏛️ Garage Museum of Contemporary Art, Gorky Park

1917: The Code of the Revolution has all you need to know about the October Revolution. The exhibition includes over 1,500 rarities from the collection of the Museum of Contemporary Russian History and the Russian State Archive of Socio-

Political History, from the porthole of the legendary cruiser Aurora to artworks created to reflect these epoch-making events.

🏛️ Museum of Contemporary Russian History, 21 Tverskaya Ulitsa

A joint exhibition between the State Historical Museum and the Anna Nova jewellery house dedicated to the 205th anniversary of the Battle of Borodino. It consists of 32 figures including Napoleon Bonaparte and Alexander I, their entourage, soldiers and military musicians. The work is so elaborate that you can remove the tiny swords and hatchets from their sheaths, and the hammers on their rifles and guns can be cocked.

🏛️ Museum of the Patriotic War in 1812, 2/3 Revolution Square

A Blossoming Tree is an exhibition of the great Russian artist Ivan Bilibin of the first half of the 20th century. He was one of the key members of the artistic movement Mir iskusstva, created his own signature style, and authored illustrations for Pushkin's poems *The Tale of Tsar Saltan* and *Ruslan and Ludmila*, Mikhail Lermontov's *The Song of the Merchant Kalashnikov* and Pyotr Yershov's *The Humpbacked Horse*. 🏛️ Grand Palace, Tsaritsyno Museum and Reserve

Astronomy Photographer of the Year Planets, constellations and nebulas through the eyes of photographers from all over the world. The exhibition also showcases old astronomical implements and star atlases. 🏛️ Polytechnic Museum, VDNKH

Constantin Brâncuși: Sculptures, Drawings, Photographs and Films is an exhibition of works by one of the pioneers and icons of modernist sculpture. 🏛️ Multimedia Art Museum, 16 Ostozhenka

Pieter Bruegel: World Upside Down. This exhibition demonstrates the Dutch master's magical imagery in a multimedia format. 🏛️ Artplay Design Centre, 10 Nizhnaya Syromyatnicheskaya Ulitsa