Annual Report

JSC CONCERN ROSENERGOATOM FOR 2009

- Safety
- Efficiency
- Responsibility

РОСАТОМ

Safety

Efficiency

Responsibility

Content

I. General information

1. Preamble

The information contained in the annual report of JSC Concern Rosenergoatom (hereinafter the "Annual Report") includes, inter alia, projections and other forward-looking statements on future events or the future financial activity of Open Joint Stock Company Russian Concern for Electric and Thermal Energy Production at Nuclear Power Plants (hereinafter "Rosenergoatom" or "REA"). These statements are forward-looking in nature, and actual events or results may differ from these statements. The forecast data are being disclosed prior to the start of the reporting period, and there are a number of factors which could lead to actual results that differ materially from those contained in our projections or forward-looking statements. These factors include the overall state of the economy, the competitive environment, risks associated with REA activity in Russia and abroad, technological advances and market developments in the nuclear power industry, and other factors related to Rosenergoatom's operations.

1.1. On the Annual Report

Rosenergoatom's Annual Report discloses the key performance indicators for the period from 1 January to 31 December 2009 and REA development prospects, aimed at the effective attainment of strategic goals and the establishment of the foundations for long-term sustainable development.

The Annual Report pays special attention to socially important topics such as nuclear and radiation safety, investments, the contribution to the country's energy supply, and environmental impact in the areas of presence.

REA Annual Report was prepared with due account for REA commitment to the principles of the Sustainability Reporting Guidelines of the Global Reporting Initiative (GRI). To highlight the main indicators of the Annual Report on REA corporate governance activity, a compliance matrix with GRI requirements was given.

Additional information on REA activities can be found on the website: http://www.rosenergoatom.ru/index.wbp

2. Statements of top management of Rosenergoatom

2.1. Statement of the Chairman of the Board of Directors of Rosenergoatom

Vladimir Travin,
Chairman of the Board of Directors
of JSC Concern Rosenergoatom,
Director of JSC Atomenergoprom

Ladies and Gentlemen,

Rosenergoatom had its most successful year ever in 2009 in terms of achieving its main strategic goals, thereby ensuring the continued development of the Russian nuclear energy complex. Most importantly, REA managed to increase power generation at its nuclear power plants (NPPs), and to ensure the systematic performance of work at all stages of the life cycle of power units. As in previous years, this resulted in Russian nuclear technology becoming more competitive on both the domestic and foreign markets.

REA is currently the largest generating company in Russia, producing more than 16% of the electricity used in the country, including around 40% in certain regions. REA is one of the guarantors of energy security and a stable energy supply to the national economy.

Rosenergoatom's successful work also serves as a building block of economic stability for the constituent subjects of the Russian Federation where the NPPs are located. The nuclear power plants are the largest taxpayers in the regions; in fact their payments make up a sizeable portion of the revenue side of both municipal and a number of oblast budgets.

By continuing to go from strength to strength, I am confident that REA will not rest on its laurels in 2010.

2.2. Statement of the General Director of Rosenergoatom

Sergey Obozov,
General Director
of JSC Concern Rosenergoatom

Dear readers,
I present to your attention the public Annual Report of Rosenergoatom, summing up its performance results in 2009.
I am delighted to announce that REA was able to successfully meet the key objectives set for it by industry leaders this past year. The year 2009 was the best on record for most of our key performance indicators.
Despite the fall in demand due to the global economic crisis and the decline in industrial production in 2009, Russian nuclear power plants generated a record amount of electricity – 163.3 billion kWh, or 0.6 percent more than in 2008. On 24 December 2009, Russian nuclear power plants were the first in the history of nuclear energy to reach the record-setting level of 22,700 MW of total capacity! This level was reached without commissioning new facilities, through the selection of the optimal operating conditions for equipment, quality maintenance and repairs, and smooth integration of the operation of the power plants' power units into the country's unified energy system. The capacity factor, which characterizes the work of the nuclear power plants, reached 80.2 percent. REA received RUB 24.4 billion roubles in excess of the balance-sheet value of the electricity produced (with a planned level of RUB 21.7 billion) through effective work on the wholesale energy market in 2009.
Our nuclear power plants operated safely and reliably in 2009. There were no incidents involving radioactive contamination or a loss of nuclear materials and radioactive substances. REA also started implementing a system for accounting, classification and analysis of low level events. Production growth and the achievement of a high level of safety were accompanied by a reduction in costs. The target indicator for 2009 was met in full. In the process the average monthly wages of REA staff, which is several thousand strong, increased by 5.1 percent.
The construction of new NPPs, completion of high-preparedness power units and NPP upgrading continued over the past year. During the year we received a license from the Federal Service for Environmental, Technical and Nuclear Supervision (Rostekhnadzor) to deploy new power units, extended the service lives of existing power units, and won various Russian national competitions and ratings. The plan for raising financing for the investment program was also implemented in full. The completion of construction and the commissioning of power unit No. 2 at Rostov NPP in 2009 was a milestone for the domestic nuclear industry. All planned measures were successfully completed by the established deadlines, and the power unit is scheduled for commissioning by the end of 2010. In many ways the results of 2009 were foreordained by another illustrious event in the life of our work collective – the return of the word "Russian" to the name of REA.
Dear colleagues! The publication of this Annual Report of Rosenergoatom once again demonstrates our commitment to the maximum level of transparency, trust and cooperation with all interested parties. We are taking all necessary measures to ensure the continued safe and effective production of energy at our nuclear power plants. Today we can say with confidence that the truly ambitious goals that we are working together to achieve are capable of improving the quality of life of all Russian citizens and making our country a genuinely formidable and thriving nation.

3. General information on Rosenergoatom

Full and abbreviated name

Full trade name:

in Russian – открытое акционерное общество «Российский концерн по производству электрической и тепловой энергии на атомных станциях»;

in English – Open Joint Stock Company Russian Concern for Electric and Thermal Energy Production at Nuclear Power Plants.

Abbreviated trade name:

in Russian – ОАО «Концерн Росэнергоатом»;

in English – JSC Concern Rosenergoatom.

Location and mailing address

Location: 25 ulitsa Ferganskaya, Moscow 109507.
Mailing address: 25 ulitsa Ferganskaya, Moscow 109507.

Corporate website and e-mail addresses

corporate website: http://www.rosenergoatom.ru
e-mail: info@rosenergoatom.ru

Contact telephone, fax

Tel.: 8 (495) 647 41 89
Fax: 8 (499) 270 17 40

Main line of business

Generation of electricity and thermal energy at nuclear power plants and performance of the functions of an operating organization for nuclear installations (operating organization of nuclear power plants), sources of radiation, and storage sites for nuclear materials and radioactive substances, according to the procedure established by the legislation of the Russian Federation.

Information on the audit firm

REA auditor is approved by the General Meeting of Shareholders (by decision of the sole shareholder) and performs a review of REA financial and business activity based on the regulatory legal acts of the Russian Federation.

REA drafted internal regulatory documents and held an open tender on the right to conclude a service contract on the performance of the statutory annual audit. Based on the results of the tender, OOO Nexia Pacholi was selected as REA auditor in 2009.

Location: 2 ulitsa Malaya Polyanka, Moscow 119180.

A member of the self-regulating organization of auditors Non-Profit Partnership Institute of Professional Auditors.

Information on the registrar

REA maintains the register of holders of registered securities independently, in accordance with point 3 of article 44 of Federal Law No. 208-FZ of 26 December 1995 On Joint Stock Companies. The Rules on maintaining the register of holders of registered securities and the Rules on internal document management and monitoring of the system for maintaining the register of registered securities of Rosenergoatom were approved by Order of REA.

Information on shareholders

The shareholder in REA is JSC Atomic Energy Power Corporation (hereinafter “Atomenergoprom”, website address: http://www.atomenergoprom.ru), which holds a 100% shareholding in REA (Resolution No. 1850-r of the Federal Agency for Management of State Property of 31 October 2008). The sole shareholder in Atomenergoprom is State Nuclear Energy Corporation Rosatom (hereinafter “Rosatom”, website address: http://www.rosatom.ru).

Information on affiliatees and representative offices

Pursuant to its Charter, REA does not have representative offices. As at 31 December 2009, REA had 23 affiliatees. Two affiliatees were liquidated in 2009 (Emergency Technical Center and Directorate of the SNF Storage Facility (KhOT-2) (under construction) as part of the RT-2 factory) and one was created (Directorate of the Baltic Nuclear Power Plant (under construction)). A list of affiliatees is given in appendix 3 to this Annual Report.

Charter capital

As at 31 December 2009 REA charter capital equaled RUB 391,562,534,427 *(three hundred ninety-one billion five hundred sixty-two million five hundred thirty-four thousand four hundred twenty-seven)*, split into 391,562,534,427 *(three hundred ninety-one billion five hundred sixty-two million five hundred thirty-four thousand four hundred twenty-seven)* registered shares.

In addition to the placed registered shares, REA has the right to place another 476,702,710,000 (four hundred seventy-six billion seven hundred two million seven hundred ten thousand) registered shares with a nominal value of RUB 1 (one) each.

History

State Enterprise Russian State Concern for Electric and Thermal Energy Production at Nuclear Power Plants (hereinafter “Rosenergoatom”) was established by the Decree No. 1055 of the President of the Russian Federation of 7 September 1992 On the Operating organization of Nuclear Power Plants in the Russian Federation.

This Decree stipulated that Rosenergoatom is a state enterprise that performs activities at all stages of the life cycle of nuclear power plants, using its own resources and involving contractors and subcontractors, from site selection, design, construction, commissioning and operation to decommissioning and other functions of an operating organization.

This Decree also established that the assets of the existing nuclear power plants, plants under construction, planned and mothballed nuclear power plants are in federal ownership, and are assigned to Rosenergoatom by right of full economic management.

In this regard, it was assumed that Rosenergoatom would represent an association of all nuclear power plants, which would retain their rights as independent business entities and industrial enterprises based on the exclusive right of the decree.

The nineties were characterized by a difficult economic situation in the country as a whole: a decline in production, non-payments for electricity supplied, and surrogate payment arrangements (promissory notes, barter, etc.).

Therefore, one of Rosenergoatom's most important tasks in those years was to overcome the difficulties of the transitional period in the country's economy, and first and foremost to resolve the problem of non-payment for the energy supplied by the NPPs.

Pursuant to Resolution No. 1207-r of the Government of the Russian Federation of 8 September 2001, to ensure the continued improvement of the performance of NPPs, Rosenergoatom was restructured into a generating company ("FSUE Rosenergoatom") from 1 April 2002 through the consolidation therewith of all existing nuclear power plants and nuclear power plants under construction, as well as the enterprises responsible for their operation, maintenance and R&D support.

In addition to performing the functions of an operating organization, this company could already act independently on the electricity market and sell the energy produced by the NPPs to solvent consumers.

For the continued advancement of nuclear power and restructuring of the nuclear power industry of the Russian Federation, and in execution of Decree No. 566 of the President of the Russian Federation of 27 April 2007, JSC Atomenergoprom was founded in July 2007 by Resolution No. 319 of the Government of the Russian Federation of 26 May 2007.

By Resolution No. 1235-r of the Federal Agency for State Property Management of 11 August 2008, FSUE Rosenergoatom was restructured into JSC Concern Energoatom.

Pursuant to Resolution No. 1307-r of the Government of the Russian Federation of 14 September 2009, REA was allowed to include the word "Russian" in its trade name. The corresponding amendments related to the new trade name (Russian Concern for Electric and Thermal Energy Production at Nuclear Power Plants – JSC Concern Rosenergoatom) were made to REA Charter in November 2009 by decision of Energoatom's sole shareholder.

4. Key corporate events in 2009

January

A nuclear energy information center was opened in Voronezh with the support of REA and Atomenergoprom. This was the third in a network of nuclear energy information centers opened under a special-purpose program of the State Corporation Rosatom. These centers are being created in the regions where there are existing nuclear power plants or nuclear power plants under construction and other assets of the nuclear power industry.

REA was one of the organizers of the XII International Scientific Conference of Students, Graduate Students and Young Specialists "Northern Lights 2009" in St. Petersburg. This year more than 200 people from 85 organizations took part in the discussion of the main topic "The nuclear future: technology, safety and the environment".

February

REA signed a contract on the construction and delivery of a floating nuclear power plant (FNPP) with JSC Baltiysky Zavod, with construction to last from 2009-2012. All the work-in-progress inventory created earlier at JSC PO Sevmash was relocated to Baltiysky Zavod. The groundbreaking of the floating power unit (FPU) was held at Baltiysky Zavod in May 2009.

Work was started on the foundation pit of power unit No. 2 at the construction site of Leningrad NPP-2 (under construction).

The Federal Service for Hydrometeorology and Environmental Monitoring (Rosgidromet) published data on the radiation situation in the Russian Federation in 2008. It noted that the radiation environment in the Russian Federation remained generally stable in 2008, with the content of man-made radionuclides in the atmosphere, soil, surface waters and seas remaining at the 2007 level.

March

Deputy Prime Minister of the Russian Government and Chairman of the Supervisory Board of State Corporation Rosatom Sergei Sobyanin visited Rostov NPP. Mr. Sobyanin was joined by Director General of State Corporation Rosatom Sergei Kirienko, Governor of Rostov oblast Vladimir Chub, Director of Atomenergoprom Vladimir Travin, and General Director of REA Sergey Obozov. After a tour of the 1st and 2nd power units of Rostov NPP, the Deputy Prime Minister

held a working meeting to discuss the readiness of power unit No. 2 for its upcoming reactor physical start-up.

April

Russian NPPs were declared environmentally friendly enterprises based on the results for 2009. Rostekhnadzor issued positive findings received from the expert environmental commission regarding the territory of nuclear power plants. This was officially announced at the meeting "Environmental Conservation Activity of NPPs in 2008 and the Objectives for 2009-2010".

During a working visit to the Central Federal District Russian Prime Minister Vladimir Putin visited the Kalinin Power Plant (Udomlya, Tver oblast), where he held a meeting devoted to the development of nuclear power.

Representatives of REA took part in the international meeting of the IAEA in Moscow on Flow Acceleated Corrosion (FAC) of NPP equipment.

As part of its expanding cooperation with CNNC (China), a delegation headed by Deputy Director of Atomenergoprom and General Director of REA Sergey Obozov visited China National Nuclear Corporation (CNNC) and one of its enterprises (Tianwan NPP). The results of REA work to support the operation of Tianwan NPP were discussed during the visit to CNNC, and a proposal to expand the scope of engineering services was approved. A memorandum on information exchange on possible Russian and Chinese equipment suppliers was signed.

The Environmental Management System (EMS) of REA headquarters, Volgodonsk and Smolensk NPPs meet the requirements of the national standard GOST R ISO 14001-2007. This was the conclusion of an assessment review performed at REA by the independent management system certification organization OOO MSC DQS (Germany).

The final meeting of the TACIS Technical Support project was held at Smolensk NPP. The basic objectives of the Technical Support project were to improve the operational safety of nuclear power plants by strengthening the understanding of Smolensk NPP staff of the factors that influence its work performance, and training in the methods for preventing mistakes and minimizing the probability of their occurrence.

May

The Smolensk NPP successfully completed the technical support mission of the World Association of Nuclear Operators (WANO). Experts from Atlanta and Moscow Centers of WANO and specialists of Smolensk NPP exchanged know-how on the use of computer operational management systems.

Power plant specialists met with Western consultants to discuss the results of three years of joint work at a meeting of the steering committee of TACIS On-Site Assistance program at the Smolensk NPP. The TACIS program has made and continues to make a significant contribution to improving safety at all Russian nuclear power plants. Over the 18 years of its existence, more than 270 projects have been performed.

July

Representatives of foreign companies monitored the progress in the implementation of the projects performed within the scope of three-year TACIS program. The projects stipulated the replacement of water steam valves, which are safety-significant elements, and installation of fast acting breakers.

August

The experts of the WANO Moscow Center visited Leningrad NPP. Aspects of the performance and implementation of the "NPP performance indicators" program at the Leningrad nuclear power plant and cooperation between Leningrad NPP and the WANO Moscow Center on the exchange of operational know-how were discussed.

September

By Resolution No. 1307-r of the Government of the Russian Federation of 14 September 2009, REA was allowed to include the word "Russian" in its trade name.

Smolensk NPP successfully completed the technical support mission of WANO "Preparation for OSART mission".

Representatives of the Norwegian Radiation Protection Authority (NRPA) visited Kola NPP to monitor the progress within the framework of the technical support program and analyze the effectiveness in use of the funds allocated by the government of the Kingdom of Norway.

The WANO technical support mission "Development of effective engineering support to NPP operations" was held at the Novovoronezh NPP.

October

General Director of REA Sergey Obozov met with WANO chairman Laurent Stricker. George Felgate, the new managing director of WANO, was introduced at the meeting, and discussions focused on WANO strategic development prospects during the current renaissance of nuclear energy and the role of REA, as one of the largest nuclear operating organizations in the world, in this development.

REA won the XV Rating of the largest Russian companies of Expert-400 in the nomination "Leading company outside the raw-materials sector".

The TACIS project meeting entitled "Development of industrial diagnostics system at REA with the participation of the project director from the European Commission,

experts of the energy system testing company TES s.r.o. (Czech Republic), and REA technical project monitors" was held at Kalinin NPP.

November

Pursuant to the joint plan of REA and the WANO Moscow Center, a peer review was performed at Kursk NPP. The peer review included 18 specialists from the Ukraine, USA, Japan, United Kingdom, Slovakia, Bulgaria and Russia. They represented the nuclear energy companies, nuclear power plants and core research and development institutions of their countries and regional WANO centers.

A WANO technical support mission was performed at Beloyarsk NPP. The mission was entitled "Practical methods for reduction of the human factor impacts to NPP operations". The organizational and methodological issues associated with reducing the impact of the human factor on operation of equipment, specialized training and certification systems for operating personnel, psychophysiological assessment and control over the mental state of NPP employees were discussed during the event.

The next meeting of Steering Committee between Électricité de France (France) and REA, scheduled to coincide with the 15th anniversary of successful cooperation, was held in Paris.

A decision was made to introduce some amendments to the Charter related to an increase in the amount of charter capital on the completion of REA first additional share issue. The issued shares were purchased by the Company's sole shareholder, and paid in cash under the budget financing program.

Pursuant to the decision of REA sole shareholder on the placement of securities, the 73,297,290,000 shares of the additional issue were placed by REA in favour of Atomenergoprom. The Federal Service for Financial Markets registered the report on the results of the additional securities issue on 1 November 2009, thereby confirming the fact of placement of shares by REA.

Annual report of REA in 2008 was recognized as the winner:

- at the XII annual competition of annual reports, organized by the RTS Stock Exchange, in the nomination "Best debut".
- at the XI annual competition of annual reports, organized by the Expert RA rating agency, in the nomination of the Ministry of Energy of the Russian Federation "Best progress of the year".

On 21 December 2009 the Board of Directors of Rosenergoatom approved the investment program of Rosenergoatom for the 2010 financial year.

REA was awarded the honorary diploma "Enterprise of well arranged financial activities – 2009".

December

A technical support mission of WANO Moscow Center was held at the Kola NPP. It was organized in the form of a training seminar for managers and specialists of the power plant on the topic "Monitoring work performance".

A new affiliate of Rosenergoatom, the Directorate of the Baltic Nuclear Power Plant, was founded.

5. Mission of Rosenergoatom

Rosenergoatom sees its mission in providing consumers with electricity and thermal energy generated at REA NPPs, while maintaining guaranteed safety as the highest priority of its operations.

REA core values are the energy security of Russia, the security and safety of citizens, and environmental protection.

REA adheres to the following principles when performing its main line of business (operation of NPPs):

- ensuring nuclear, radiation, technological, fire, environmental and occupational safety;
- full compliance with the legislation of the Russian Federation, meeting the requirements of federal safety rules and standards, and compliance with industry standards;
- cost-efficient generation of electricity and thermal energy;
- improving the safety culture.

As a nuclear operating organization, REA assumes full responsibility for ensuring nuclear and radiation safety at all stages of the life cycle of NPPs.

6. Management

REA pays close attention to the issues of corporate governance and its improvement. REA strives to comply with the main provisions of the Corporate Governance Code recommended by the Federal Service for Financial Markets, while taking due account to the specifics of the shareholding structure and REA operations.

6.1. Management structure

REA management structure includes the following management bodies, formed in accordance with the Federal Law On Joint Stock Companies:

- the General Meeting of Shareholders, with the sole shareholder (Atomenergoprom) taking decisions on the issues that fall within its competence;
- the Board of Directors;
- the General Director.

The Internal Audit Commission and the auditor of REA, who are appointed by decision of the Sole Shareholder, are

responsible for supervision over REA financial and business operations.

The Directorate of REA is the collegial advisory body chaired by the General Director.

6.1.1. General Meeting of Shareholders

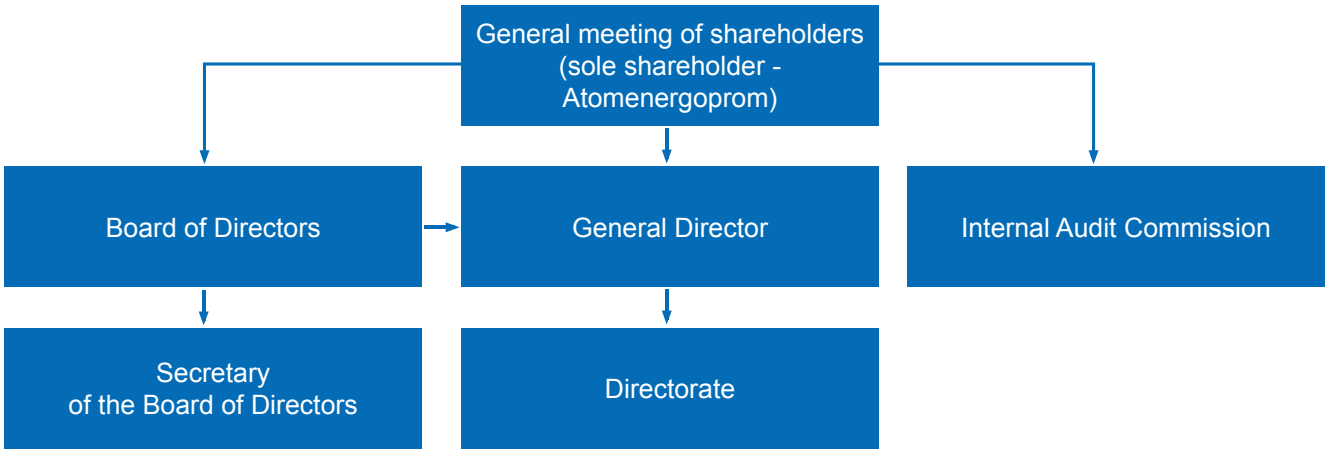
The general meeting of shareholders is the supreme governing body of REA. REA sole shareholder, Atomenergoprom, makes decisions on the issues in the competence of the general meeting of shareholders.

6.1.2. Board of Directors

According to REA Charter, the Board of Directors performs the day-to-day management of REA operations.

No changes took place in the Board of Directors in 2009. All members of the Board of Directors were reelected for a new term.

Fig. 1. Management structure of Rosenergoatom



As at 31 December 2009, the Board of Directors of REA had the following members:

Vladimir Travin

Chairman of the Board of Directors.
Born in 1960.
Graduated from the Moscow Institute of Physics and Technology with a degree in Experimental Nuclear Physics.
2000-2005 – General Director of CJSC Region Invest Consult Povolzhye, Chairman of the Coordination Council for Credit Policy and Investments of JSC AKB Sarovbiznesbank and JSC NSCB Garantia, member of the Board of Directors of JSC AKB Sarovbiznesbank, Chairman of the Board of JSC NSCB Garantia.
2005 – Director of CJSC Arzamas Experimental Works.
2005-2006 – Advisor to the Director and Deputy Director of the Federal Agency for Atomic Energy.
2007-2009 – Director of Atomenergoprom.
Equity share in Rosenergoatom: None.
Holding of ordinary shares in Rosenergoatom: None.

Alexander Apkaneyev

Born in 1960.
Graduated from the Moscow Institute of Physics and Technology with a degree in Automated Control Systems.
2004-2006 – Financial Director of Unidell story LLC.
2006-2006 – Deputy Head of the Economics and Corporate Planning Department of TVEL LLC.
2006-2007 – Advisor to the General Director, Deputy General Director, Director for Economics and Finance; Deputy General Director, Director for Economics, Finance and Sales; Deputy General Director, Director for Economics, Finance and Sales of FSUE Rosenergoatom.
2007-2008 – Deputy Director of Atomenergoprom.
Since 2009 – First Deputy General Director of Energoatom, First Deputy General Director of Rosenergoatom.
Equity share in Rosenergoatom: None.
Holding of ordinary shares in Rosenergoatom: None.

Alla Arkhangelskaya

Born in 1960.
Graduated from the Ordzhonikidze Institute of Management (Moscow) with a degree in Management in the Power Generation Industry. Candidate of Economics.
1993-2007 – held various positions at FSUE Rosenergoatom.
2007-2009 – Director of the Price, Tariff and Cost Management Department, Director of the Economic Forecasting, Price Formation and Budget Planning Department of Atomenergoprom.
Equity share in Rosenergoatom: None.
Holding of ordinary shares in Rosenergoatom: None.

Sergey Obozov

Born in 1960.
Graduated from Gorky Polytechnical Institute, the Academy of National Economy under the Government of the Russian Federation and the Volgo-Vyatsk Civil Service Academy under the President of the Russian Federation. He has a Master's Degree in Public Administration, He has a PhD in Economics. Acting State Advisor of the Russian Federation, 2nd Class.
2001-2005 – Main Federal Inspector for the Nizhny Novgorod oblast, Deputy Plenipotentiary of the President of the Russian Federation in the Volga Federal District of the Presidential Administration of the Russian Federation.
2006-2007 – Deputy General Director, Director of the Affiliate of FSUE Rosenergoatom "Directorate of Floating Nuclear Cogeneration Plants under Construction", Acting General Director of FSUE Rosenergoatom.
2007-2008 – Deputy Director of Atomenergoprom, General Director of FSUE Rosenergoatom, General Director of Energoatom.
Since 2009 – General Director of Rosenergoatom.
Equity share in Rosenergoatom: None.
Holding of ordinary shares in Rosenergoatom: None.

Alexander Polushkin

Born in 1948.

Graduated from Bauman State Technical University (Moscow) with a degree in Power Plants and Installations.

1998-2007 – Deputy Executive Director for the Commissioning of Rostov NPP, Deputy Executive Director for Operating Management of Capital Construction Projects, First Deputy Director for Development and Director for new NPP Commissioning, Deputy General Director and Director for Development of FSUE Rosenergoatom.

2007-2009 – Deputy Director of Atomenergoprom.

Equity share in Rosenergoatom: None.

Holding of ordinary shares in Rosenergoatom: None.

6.1.3. Executive body

The General Director of Rosenergoatom is the chief executive officer of Rosenergoatom.

Since 2008 the General Director of REA has been Sergey Obozov (please see section 6.1.1 “Board of Directors” for biographical information on S.A. Obozov).

6.1.4. Advisory bodies

The Directorate, whose activities are governed by the Regulations On the Directorate of REA, and by its Procedures and Rules, was created as the collegial advisory body chaired the General Director of REA.

The Directorate is a collegial advisory body, the main function of which is to develop policies aimed at achieving REA charter goals and performing its main lines of business, as well as drafting the decisions of the Board of Directors and the general meeting of shareholders.

The Directorate competences include priority issues related to:

- safe, effective functioning and development of nuclear energy, improvement of the security of nuclear power plants, extending the service lives of NPP units, decommissioning of power units and construction of new NPP units;
- development of the best possible human resource polices for REA;
- improvement of REA foreign economic policy and international research and development activity.

The General Director of REA is Chairman of the Directorate, and the members of the Directorate include his deputies and the chief accountant of REA.

The decisions of the Directorate formalized in an order (directive) of the General Director of REA are binding on REA employees.

The Secretary of the Directorate is jointly responsible with the Audit Division of the Administration Department for monitoring the execution of the Directorate’s decisions.

The members of the Directorate in 2009 were:

Sergey Obozov

General Director, Rosenergoatom.

Biographical information on S.A. Obozov can be found in section 6.1.1 “Board of Directors”.

Alexander Apkaneyev

First Deputy General Director, Rosenergoatom.

Biographical information on A.V. Apkaneyev can be found in section 6.1.1 “Board of Directors”.

Vladimir Asmolov

First Deputy General Director, Rosenergoatom.

Born in 1946.

Graduated from Moscow Power Engineering Institute with a degree in Thermal Physics. He has a PhD in Engineering.

2003-2004 – Deputy Minister for Atomic Energy of the Russian Federation.

2004-2006 – Coordinating Director for Nuclear Safety and the Nuclear Fuel Cycle at the Kurchatov Institute.

2006-2008 – First Deputy General Director, Director for Science and Engineering of FSUE Rosenergoatom; Deputy General Director, Director for Scientific and Technical Policy of FSUE Rosenergoatom; Deputy General Director, Director for Science and Engineering of Energoatom.

Since 2009 – First Deputy General Director of Energoatom, First Deputy General Director of Rosenergoatom.

Sergey Boyarkin
Deputy General Director, Director for Project Engineering of Rosenergoatom.

Born in 1962.

Graduated from Lobachevsky State University (Gorky) with a degree in Radiophysics.

2005-2006 – Deputy General Director for Economics and Finance of FSUE Central Research Institute of Management, Economics and Information of Minatom of Russia.

2006-2007 – Deputy General Director for Economics and Finance of FSUE Central Research Institute of Management, Economics and Information of Rosatom.

2007-2009 – Deputy General Director of JSC All-Russian Research Institute for NPP Operation (VNIIAES).

Since 2009 – Deputy General Director, Director for Design Engineering of Energoatom; Deputy General Director, Director for Design Engineering of Rosenergoatom.

Yevgeny Kon'kov
Deputy General Director, Director for Finance of Rosenergoatom.

Born in 1974.

Graduated from Moscow State Linguistic University and the Finance Academy under the Government of the Russian Federation with a degree in Global Economy.

Candidate of Economics.

2002-2004 – Deputy General Director of FSUE Rosdorlizing.

2004-2004 – Financial Advisor to the General Director of Audit and Valuation Centre, LLC.

2004-2007 – Deputy General Director of CJSC Effective Investment Management (Effektinvest) Asset Management Company.

2007-2008 – Advisor to the General Director of FSUE Rosenergoatom, Deputy Director for Finance of FSUE Rosenergoatom, Deputy General Director, Director for Finance of Energoatom.

Since 2009 – Deputy General Director, Director for Finance of Rosenergoatom.

Yuri Kopyev

Deputy General Director, Director for Production and NPP Operations of Rosenergoatom.

Born in 1949.

Graduated from Tomsk Polytechnical Institute with a degree in Electrical Power Systems.

1992-2008 – Deputy Head of the NPP Operations Department, Head of the Department and Director of the Directorate for VVER NPP Operations, First Deputy Director of the Department for NPP Operations, Deputy Technical Director for Operations, First Deputy Technical Director for NPP Operations, First Deputy Technical Director and Director for NPP Operations, First Deputy Technical Director for Operations.

2008-2008 – Acting General Director, Technical Director of Energoatom.

Since 2009 – Deputy General Director, Director for Production and NPP Operations of Rosenergoatom.

Sergey Malinov

Deputy General Director, Director of Corporate Governance of Rosenergoatom.

Born in 1973.

Graduated from the Finance Academy of the Government of the Russian Federation with a degree in Finance and Lending.

2001-2004 – Deputy Director, Marketing Director of Lukhovitsy Aircraft Manufacturing and Testing Complex, Deputy General Director, Director for Asset Restructuring and Modernization of Production at FSUE MiG Russian Aircraft Corporation.

2004-2006 – Deputy General Director for Strategic Planning and Development, Head of Sales Department at JSC MiG-RosT, and in 2005-2006 – Advisor to the Director for Restructuring of FSUE Russian Federal Nuclear Center – Russian National Research Institute of Experimental Physics (VNIIAEF) (part-time employment).

2006-2008 – Deputy Director for Restructuring and Corporate Governance, Deputy General Director, Director for Restructuring and Corporate Governance of Energoatom.

Since 2009 – Deputy General Director, Director for Corporate Governance of Rosenergoatom.

Erik Pozdyshev

Deputy General Director, General Inspector of Rosenergoatom.

Born in 1937.

Graduated from Leningrad State University with a degree in Physics.

1992-2008 – President, Vice President, General Inspector; General Inspector and Deputy General Director, General Inspector of Energoatom.

Since 2009 – Deputy General Director, General Inspector of Rosenergoatom.

Oleg Sarayev

Deputy General Director, Project Manager of Rosenergoatom.

Born in 1940.

Graduated from Tomsk Polytechnical Institute with a degree in Design and Operation of Nuclear Power Plants.

2002-2008 – President, General Director, Deputy General Director for Innovation Projects; Deputy General Director, Director for New Technological Platform of Energoatom.

Since 2009 – Deputy General Director, Project Manager of Rosenergoatom.

Nikolay Safronov

Deputy General Director, Director for Special Security of Rosenergoatom.

Born in 1958.

Graduated from the Dzerzhinsky Higher School of the USSR KGB with a degree in Law. Candidate of Economics.

1997-2009 – Deputy General Director, Deputy General Director for Coordination with CIS Countries and Eastern Europe; Deputy Executive Director for Security, Deputy Director for Special Security; Deputy General Director, Director for Special Security of Energoatom.

Since 2009 – Deputy General Director, Director for Special Security of Rosenergoatom.

Viktor Suchkov

Deputy General Director, Director for Capital Construction of Rosenergoatom.

Born in 1953.

Graduated from Leningrad Polytechnical Institute with a degree in Industrial and Civil Engineering.

2001-2008 – Head of the Department of Industrial Engineering Technical Supervision; Deputy Chief Engineer, Head of the Department of Industrial Engineering Technical Supervision in the Directorate for Capital Construction; Chief Engineer of the Directorate for Capital Construction; Deputy Director for Capital Construction, Head of the Directorate for Capital Construction at Kalinin NPP.

Since 2009 – Deputy General Director, Director for Capital Construction of Rosenergoatom.

Jumberi Tkebuchava

Deputy General Director, Director for Personnel, Social and Administrative Issues of Rosenergoatom.

Born in 1953.

Graduated from Moscow Mining Institute with a degree in Underground Mining Technology and Integrated Mechanization.

2004-2006 – Advisor to the President, Deputy General Director of JSC Rosgosstrakh.

2006-2008 – Deputy General Director, Director for Personnel, Social and Administrative Issues of FSUE Rosenergoatom.

2008-2009 – Deputy Director of Atomenergoprom, Director of Administration Department.

Since 2009 – Deputy General Director, Director for Personnel, Social and Administrative Issues of Rosenergoatom.

Alexander Khvalko

Deputy General Director, Director for Sales of Rosenergoatom.

Born in 1964.

Graduated from Saratov Economics Institute with a degree in Accounting and Economic Analysis. He has a PhD in Economics.

2002-2007 – Head of the Department for Operations at Russian Federal Wholesale Electricity and Capacity Market (FOREM) and Electricity Export; Deputy Executive Director for Commerce; Deputy Executive Director, Director for Sales; Deputy Director for Finance; Deputy Director for Sales.

2007-2008 – Deputy General Director, Director for Sales of FSUE Rosenergoatom, Deputy General Director, Director for Sales of Energoatom.

Since 2009 – Deputy General Director, Director for Sales of Rosenergoatom.

Galina Shupletsova

Chief Accountant of Rosenergoatom.

Born in 1939.

Graduated from Irkutsk National Economy Institute with a degree in Accounting in Industry.

Since 1999 – Deputy Chief Accountant in the Department for Accountancy and Reporting, Deputy Head of the Financial and Business Accounting Department, Deputy Head of the Finance Department, Chief Accountant and Head of the Department for Accountancy and Reporting, Chief Accountant of FSUE Rosenergoatom, Chief Accountant of Energoatom.

Since 2009 – Chief Accountant of Rosenergoatom.

She is a certified accountant.

Sergey Zavyalov

Deputy General Director, Director of the Affiliate of Rosenergoatom “Directorate on Floating Nuclear Cogeneration Plants under Construction”.

Born in 1961.

Graduated from Leningrad Shipbuilding Institute with a degree in Shipbuilding and Maintenance.

2001-2005 – General Director of JSC Vyborg Shipbuilding Plant.

2005–2006 – Project Director of the Administration Department of CJSC International Industrial Bank.

2006-2007 – Project Engineer at CJSC AKO BARSS Group.

2007–2008 – Deputy General Director of JSC EnergoMashinostroitelny Alliance-Atom.

2007-2007 – Advisor to the Director of Atomenergoprom.

2007-2008 – Deputy General Director, Director of the Affiliate of FSUE Rosenergoatom “Directorate on Floating Nuclear Cogeneration Plants under Construction”; Deputy General Director, Director of Energoatom Affiliate “Directorate on Floating Nuclear Cogeneration Plants under Construction”.

Since 2009 – Deputy General Director, Director of Rosenergoatom Affiliate “Directorate on Floating Nuclear Cogeneration Plants under Construction”.

Viktor Ignatov

Deputy General Director, Director of Balakovo Nuclear Power Plant.

Born in 1951.

Graduated from Tomsk Polytechnical Institute with a degree in Nuclear Power Plants and Installations.

1990-2005 – Chief Engineer of Balakovo Nuclear Power Plant, an affiliate of FSUE Rosenergoatom.

2005-2008 – Deputy General Director, Director of Balakovo Nuclear Power Plant, an affiliate of FSUE Rosenergoatom; Deputy General Director, Director of Balakovo Nuclear Power Plant, an affiliate of Energoatom.

Since 2009 – Deputy General Director, Director of Balakovo Nuclear Power Plant, an affiliate of Rosenergoatom.

Valery Lebedev

Deputy General Director, Director of the Leningrad Nuclear Power Plant, an affiliate of Rosenergoatom.

Born in 1947.

Graduated from the Ivanovo Power Engineering Institute with a degree in Automation of Heat and Energy Processes.

2002-2008 – Deputy General Director, Director of Leningrad Nuclear Power Plant, an affiliate of FSUE Rosenergoatom; Deputy General Director, Director of Leningrad Nuclear Power Plant, an affiliate of Energoatom.

Since 2009 – Deputy General Director, Director of Leningrad Nuclear Power Plant, an affiliate of Rosenergoatom.

Leonid Martynovchenko

Deputy General Director, Director of Kalinin Nuclear Power Plant, an affiliate of Rosenergoatom.

Born in 1947.

Graduated from Leningrad Polytechnical Institute with a degree in Nuclear Power Plants and Installations.

2003-2007 – First Deputy General Inspector of FSUE Rosenergoatom.

2007-2008 – Deputy General Director, Director of Kalinin Nuclear Power Plant, an affiliate of FSUE Rosenergoatom; Deputy General Director, Director of Kalinin Nuclear Power Plant, an affiliate of Energoatom.

Since 2009 – Deputy General Director, Director of Kalinin Nuclear Power Plant, an affiliate of Rosenergoatom.

Vasily Omelchuk

Deputy General Director, Director of Kola Nuclear Power Plant, an affiliate of Rosenergoatom.

Born in 1953.

Graduated from Odessa Polytechnical Institute with a degree in Nuclear Power Plants and Installations.

1994-2008 – Chief Engineer of Kola Nuclear Power Plant, an affiliate of FSUE Rosenergoatom; Chief Engineer of Kola Nuclear Power Plant, an affiliate of Energoatom.

Since 2009 – Deputy General Director, Director of Kola Nuclear Power Plant, an affiliate of Rosenergoatom.

Nikolay Oshkanov

Deputy General Director, Director of Beloyarsk Nuclear Power Plant, an affiliate of Rosenergoatom.

Born in 1944.

Graduated from Perm State University with a degree in Radiophysics and Electronics.

2002-2008 – Deputy General Director, Director of Beloyarsk Nuclear Power Plant, an affiliate of FSUE Rosenergoatom; Deputy General Director, Director of Beloyarsk Nuclear Power Plant, an affiliate of Energoatom.

Since 2009 – Deputy General Director, Director of Beloyarsk Nuclear Power Plant, an affiliate of Rosenergoatom.

Alexander Palamarchuk

Deputy General Director, Director of Volgodonsk Nuclear Power Plant, an affiliate of Rosenergoatom.

Born in 1957.

Graduated from Odessa Polytechnical Institute with a degree in Nuclear Power Plants and Installations.

2002-2008 – Deputy General Director, Director of Volgodonsk Nuclear Power Plant, an affiliate of FSUE Rosenergoatom; Deputy General Director, Director of Volgodonsk Nuclear Power Plant, an affiliate of Energoatom.

Since 2009 – Deputy General Director, Director of Volgadonsk Nuclear Power Plant, an affiliate of Rosenergoatom.

Andrey Petrov

Deputy General Director, Director of Smolensk Nuclear Power Plant, an affiliate of Rosenergoatom.

Born in 1963.

Graduated from the Ivanovo Power Engineering Institute with a degree in Thermal Power Plants.

2001-2006 – Chief Engineer of Volgodonsk Nuclear Power Plant, a affiliate of FSUE Rosenergoatom; Deputy General Director, Director of Smolensk Nuclear Power Plant, an affiliate of FSUE Rosenergoatom; Deputy General Director, Director of Smolensk Nuclear Power Plant, an affiliate of Energoatom.

Since 2009 – Deputy General Director, Director of Smolensk Nuclear Power Plant, an affiliate of Rosenergoatom.

Vladimir Povarov

Deputy General Director, Director of Novovoronezh Nuclear Power Plant, an affiliate of Rosenergoatom.

Born in 1957.

Graduated from Moscow Power Engineering Institute with a degree in Thermal Physics.

2001-2008 – Deputy Chief Engineer for Safety of Volgodonsk Nuclear Power Plant, an affiliate of FSUE Rosenergoatom; First Deputy Director of Novovoronezh Nuclear Power Plant, an affiliate of Energoatom; Acting Deputy General Director, Director of Novovoronezh Nuclear Power Plant, an affiliate of Energoatom.

Since 2009 – Deputy General Director, Director of Novovoronezh Nuclear Power Plant, an affiliate of Rosenergoatom.

Nikolay Sorokin

Deputy General Director, Director of Kursk Nuclear Power Plant, an affiliate of Rosenergoatom.

Born in 1944.

Graduated from Zhdanov Polytechnical Institute (Gorky) with a degree in Electrical Power Systems.

2002-2006 – First Deputy General Director for Electricity and Thermal Energy Production, Technical Director of FSUE Rosenergoatom.

2006-2008 – Deputy General Director, Technical Director of FSUE Rosenergoatom; Deputy General Director, Technical Director of Energoatom; Deputy General Director, Director of Kursk Nuclear Power Plant, an affiliate of Energoatom.

Since 2009 – Deputy General Director, Director of Kursk Nuclear Power Plant, an affiliate of Rosenergoatom.

Farit Tukhvetov

Deputy General Director, Director of Bilibino Nuclear Power Plant, an affiliate of Rosenergoatom.

Born in 1954.

Graduated from Urals Polytechnical Institute with a degree in Applied Physics.

1997–2007 – Director of Moscow Regional Center of the World Association of Nuclear Operators (WANO MC).

2007-2008 – Deputy General Director, Director of Bilibino Nuclear Power Plant, an affiliate of FSUE Rosenergoatom; Deputy General Director, Director of Bilibino Nuclear Power Plant, an affiliate of Energoatom.

Since 2009 – Deputy General Director, Director of Bilibino Nuclear Power Plant, an affiliate of Rosenergoatom.

6.1.5. Internal Audit Commission

The following people were elected to the Internal Audit Commission of Rosenergoatom by decision of the Sole Shareholder No. 5 of 30 June 2009:

- Galina Bobrova (Director of the Internal Audit Department of Atomenergoprom) – Chairwoman of the Internal Audit Commission;
- Elena Novomlinskaya (Head of the Price and Tariff Department of Atomenergoprom) – member of the Internal Audit Commission;
- Lyudmila Demidova (Director of the Economics Department of Rosenergoatom) – member of the Internal Audit Commission.

The authorities of the following members of the Internal Audit Commission were terminated in 2009:

- Andrey Yakovlev;
- Svetlana Yegorova.

The Internal Audit Commission is elected on an annual basis by the General Meeting of Shareholders (by Decision of the sole shareholder) of REA.

6.1.6. Relations with interested parties

REA strives to maintain open, trusting relations with all interested parties, and to ensure the transparency of its operations. One of the most important instruments in this regard is disclosure of information in the form of public reporting, which REA publishes regularly in accordance with Russian legislation.

Table 1. Relations between Rosenergoatom and interested parties

Interested party	Topic of interest
General public and local communities	Formation of public opinion, consideration of interests, proposals and expectations, the safety and transparency of operations, lack of adverse environmental impact, steady supply of electricity, regional development, guaranteeing employment, environmental protection projects and investments
State authorities and local government	Efficient and stable supplies of electricity, safety of operations, social responsibility, technological leadership
Shareholder (Atomenergoprom), State Corporation Rosatom	Attainment of approved targets (in electricity production, investments, safety, wages, social programs, cost-effectiveness of operations)
Employees, trade unions	Steady employment and decent wages, social guarantees (including pensions), work satisfaction, mentoring
Mass media, analysts	Transparency and safety of operations, accessibility of management, development plans, achievement of key performance indicators, regular provision of information
Business partners and potential investors	Development plans, state support, guarantees of sustainable quality of operations, stable financial position
International organizations	International scientific and technical cooperation, international nuclear safety programs, foreign-economic activity
Non-profit and non-governmental organizations (including environmental protection organizations)	Safety and transparency of operations, regular reporting, lack of adverse environmental impact, performance of environmental protection and conservation measures, performance of the necessary research and receipt of the corresponding documents on equipping of new nuclear power plants and individual power units

6.1.7. Evaluation criteria and the amount of remuneration of management personnel of REA

The remuneration procedure for employees of REA is governed by the following documents:

- Regulations on the wages of employees of REA head quarters;
- Procedure for paying bonuses to employees of REA for meeting key performance indicators.

The remuneration of the General Director was determined by the employment contract, and is paid after approval by the Board of Directors. The members of the Board of Directors of REA were not paid remuneration in 2009.

The performance evaluation system for directors is built around key performance indicators (KPI). Key performance indicators are set for each Deputy General Director, based on a breakdown of the KPI of the General Director, and KPI maps are prepared with an indication of the measures aimed at meeting the KPI of the organization.

The system of incentives is built around the system of bonuses for meeting KPI, where each indicator is given a specific weight in the overall amount of the bonus. The total amount of bonuses is determined as a set ratio of the annual wages for each position. The maximum amount depends on the level of the position, and can reach 200% if target KPI are achieved. Bonuses are only paid if threshold KPIs are achieved. The threshold KPIs are also stipulated in the personal KPI card. If achieved results exceed targets, the bonus may be paid at a higher rate.

The total amount of remuneration paid to key management personnel in 2009 equaled RUB 147 million.

Key management personnel includes: directors (General Directors and their deputies) and other authorized officials responsible for planning, management and control over the organization's operations.

6.1.8. Report of the REA Board of Directors on the progress in the priority lines of business

Pursuant to the Charter, the Board of Directors is responsible for determining priority lines of business of REA.

The Board of Directors held 31 meetings in the reporting year.

The work of the REA Board of Directors was performed in accordance with its competences, as determined by Federal Law No. 208-FZ of 26 December 1995 On Joint Stock Companies (hereinafter, the "Joint Stock Companies Law"), REA Charter and the Regulations on the Board of Directors of REA.

The Board of Directors assesses REA development along its priority lines of business in 2009 as successful.

One of the most important functions of the Board of Directors is the overall management of REA.

The Board of Directors determined the main operating parameters in the approved budget, the target indicators of financial and business activities, and the target performance indicators of REA in 2009.

As regards REA investing activities, the Board of Directors approved the results of the Investment Program for 2008 and the Investment Program for 2009-2011.

Another important aspect of the Board of Directors activities is the preparations for the Annual general meeting of shareholders of REA (decision of the sole shareholder of REA). In view of the fact that all REA shares belong to the sole shareholder (Atomenergoprom), the preparations for the annual general meeting of shareholders were performed in strict compliance with the provisions of the Joint Stock Companies Law. To prepare for the Annual general meeting of REA shareholders, based on the results for 2008 the Board of Directors tentatively approved the annual report, the annual financial statements, and gave recommendations on distribution of profit and payment of dividends.

In 2009 the Board of Directors approved the Regulations on the mandatory disclosure of information on REA, which determines the scope, form, deadlines and procedure for disclosure.

More detailed information on the development of REA is given in the relevant sections of this Annual Report.

6.1.9. Report on the payment of dividends on REA shares

By Decision No. 5 of the sole shareholder of REA (Atomenergoprom) dated 30 June 2009, the distribution of net profit of REA based on the results for 2008, including through the payment of dividends, was approved. The actual amount of dividends equaled RUB 862.5 million, and was paid by REA in full.

6.1.10. Report on major transactions

No major transactions subject to the approval of REA management bodies were conducted in 2009.

6.1.11. Report on interested-party transactions

One interested-party transaction subject to approval was concluded in 2009:

Table 2. Interested-party transactions

Transaction date	Date of transaction approval	Governing body that approved the transaction	Information on the party (parties) interested in the conclusion of the transaction, subject of the transaction and its material terms
quarterly, no later than the first day of the second month of the quarter, unless provided otherwise by the Supervisory Board of the Market Council	19 February 2010	Board of Directors	payment by Rosenergoatom of current (regular) membership fees to the Market Council for the 1st, 2nd, 3rd, and 4th quarters of 2010, in the total amount of no more than RUB 800,000 (eight hundred thousand).

6.2. Management methods and corporate policy

In its efforts to improve the system of management and increase the efficiency of operations, REA pays serious attention to such key aspects of its operations as risk management and internal control, asset management, investments, quality control, and development of information technologies.

6.2.1. Asset management

As at 31 December 2009, Rosenergoatom held shares and interests in 44 business entities (nine limited liability companies and 35 joint stock companies) with total investments of RUB 16,879,995 thousand. Of these entities, 11 are subsidiaries or associates of REA.

REA currently uses 763 land plots with a total area of 20,752 ha, including 555 land plots with a total area of 6,659 ha, to which it owns the title and 208 land plots with a total area of 14,093 ha, which it leases (including 86 land plots that were provided for lease in 2009). Cadastral registration has been performed at 751 land plots, including through declarations for land plots of the forest reserve.

REA has 6,232 real estate assets. Title to 6,181 real estate assets has been registered, and the title to the other 51 real estate assets is in the process of state registration. Technical inventory has been performed at all real estate assets.

6.2.2. Investment management

REA requires significant annual investments to perform a large amount of operational, maintenance, design and installation activities. Investment planning is an integral part of REA activities.

REA considers the main purposes of investment management to be:

- ensuring the organization achieves its strategic goals;
- increasing incentives for participants in the investment process;
- improving the effectiveness of investments (turnover of investment assets);
- 100% performance of investment financing plans;
- reducing investment costs at all stages of construction of nuclear energy assets.

The methods for assessing investment performance are based on:

- use of the principle of choice (investments);
- modeling of product (service) flows and various resources as cash flows;
- use of generally accepted worldwide project effectiveness assessment criteria, based on a comparison of future integrated results and costs aimed at achieving the required amounts of these indicators;
- accounting of uncertainties and risks related to project implementation and events.

6.2.3. Management of credit risks and liquidity risks

REA performs targeted work to manage financial risks. Special attention is currently being paid to credit risk (the risk of losses due to the non-performance by counterparties (banks and other financial institution, any debtors) of their contractual obligations) and liquidity risk (the risk that sufficient funds will not be available for timely performance of obligations to the budget and outside counterparties, the risk of a change in the terms of lending or direct investment).

Some credit risks arise because REA makes advance payments to counterparties pursuant to the terms of concluded contracts. The amount of REA advance payments increased by more than RUB 65 billion in 2009. REA is taking measures to eliminate or mitigate the consequences of risk events related to the non-performance by counterparties of the contractual terms.

The system for managing these risks consists of the following elements:

- risk mitigation strategies;
- risk monitoring systems;
- risk hedging mechanisms.

In 2009 thanks to the taken measures 28 bank guarantees were received (versus 11 in 2008) as security on the return of advance payments under the contracts of the headquarters. Measures have been taken to monitor the performance of contractual terms, and have resulted in the securing and repayment of 11 bank guarantees (against 3 in 2008) in connection with the compliance with the contractual terms and conditions and the expiration of the effective dates of the bank guarantees.

Potential bank guarantors are monitored, including at the request of affiliatees (nearly 50 banks in 2009). This monitoring consists of the collection of general information on the bank. The information includes registration data, information on existing licenses and permits, membership in the Deposit Insurance System, rating and assessment of published reporting. It has recently become necessary to perform a detailed analysis of proposed bank guarantors with questionable financial standing.

Measures for working with sureties (provided as security on concluded contracts in a total amount of RUB 62.8 million) were arranged in 2009. Other risk factors appear in this regard, such as the reliability of the source of the security, and the adequacy and quality of security. The need to assess the guarantor arises (the approach must be developed and delimited to analyzing credit and insurance institutions, as well as commercial organizations by type of activity).

A no less important part of credit risk associated with REA is lending to finance production and investment activities.

The lending policy for future periods is performed based on:

- an analysis of the movement of REA assets;
- a liquidity and solvency forecast;
- an assessment of actual and forecast creditworthiness.

In order to perform these actions, limits are set on the size of the loan portfolio and the amount of loan servicing expenses. None of the established limits were exceeded based on the results for 2009. The DEBT/EBITDA ratio in the period in question was 0.3.

Management of liquidity risk aims to achieve a balance between solvency and the liquidity of financial resources. Since 2009 a number of measures to maintain liquidity are being implemented:

- management of the periods for formation of accounts payable based on contractual obligations (payment dates (periods) are determined in existing contracts and contracts being concluded based on a distribution of the payment burden, correlated with forecast receipts on the income side of the budget);
- management of contractual obligations (initiating and agreeing on extensions of payment terms) based on actual financial solvency in the short term;
- more accurate planning of receipts on income items;
- receipt of additional income from financial operations;
- adjustment of contractual payment obligations to prevent legal risks;
- calendar planning (plan of appropriation of financial funds);
- measures to recover value-added tax amounts declared for refund from the budget (by ensuring timely documentation);
- analysis of balance-sheet liquidity, which consists of a comparison of assets (grouped by diminishing liquidity level) with current obligations on liabilities (grouped by the level of priority of repayment);
- calculation and monitoring of comparative figures: the absolute liquidity ratio, the quick ratio and the current ratio;
- analysis of the solvency of an enterprise.

The performance of the above measures made it possible to ensure that there was not a single cash gap throughout the year; no additional financing was needed in 2009.

Internal control and audit

The formation and improvement of REA system of internal controls, embedded in the vertically integrated sectoral system of internal controls, is a fundamentally important objective for the development of the nuclear energy complex.

More than 30 control measures were implemented in 2009. They were all aimed at improving the effectiveness of REA financial and business operations, minimizing risks, and eliminating the reasons and conditions that contribute to violations of the established norms.

Pursuant to REA Charter, the Internal Audit Commission is responsible for control over financial and business operations. The Commission has three members, elected on an annual basis by decision of the annual General Meeting of Shareholders. More detailed information on the membership of the Internal Audit Commission of REA is given in section 6.1.4 “Internal Audit Commission” of this Annual Report.

In accordance with the legislation of the Russian Federation, audit of REA financial statements is performed by an independent auditor. The auditor is approved by the general meeting of shareholders. More detailed information on the auditor is given in section 3 “General information on Rosenergoatom” of this Annual Report.

6.2.4. Quality control

REA quality control system was created and is maintained in accordance with the “Requirements on the quality assurance program for nuclear power plants” NP-011-99. REA quality control activities are defined in the regulatory document of the operating organization “General Quality Guidelines” RD EO 0214–2005.

Ensuring the quality of capital construction – planned and regular activity at all the stages of the lifecycle of NPPs: selection of sites, design, construction, commissioning, operation and decommissioning of the NPP units or a nuclear power plant as a whole, and construction and development of equipment and systems for them. All work was performed according to the established procedure, and the results met all established requirements.

The main tasks are:

- quality control over work being performed and services being provided during the construction of nuclear power facilities;
- organization of control over and registration of cases where construction work and start-up and commissioning works fail to comply with project and regulatory documentation at the construction stage;
- organization of work on accreditation of the companies performing construction work, start-up and commissioning works, and providing services at REA facilities;
- organization of training and professional development of capital construction personnel at the NPPs under construction and management of capital construction.

Nine reviews of the performance by the affiliates of REA of the functions of a property developer and 78 reviews of general contractors and subcontracting organizations performing work and providing services on the construction of NPP units were performed in 2009.

Individual quality control programs of general contractors and subcontracting organizations involved in the construction of NPPs were verified for compliance with the requirements of regulatory documents and approved. In total, 32 quality control programs were reviewed in 2009.

Forty-four NPP equipment and pipeline inspection reports, 29 comparative analysis reports on compliance of equipment and documentation with the requirements of regulatory documents, and 87 decisions on the use of equipment at NPPs (including imported equipment from Belene NPP (Bulgaria) at power unit No. 4 of Kalinin NPP) were also reviewed, agreed and approved in 2009.

6.2.5. Information technologies (IT)

The main area of IT development to meet REA objectives are the development, dissementation and maintenance of a uniform integrated corporate information systems (CIS) based on state-of-the-art equipment and technology.

REA corporate information system must ensure information support for key production and management processes, both at the headquarters of REA and at its affiliates, on the basis of the uniform, integrated solutions.

REA main information technology development goals in 2009 were to expand the functionality of the corporate information system at REA headquarters, Balakovo NPP and Volgodonsk NPP, and the duplication of solutions at Novovoronezh NPP. The functionality of the corporate information system was expanded with due account of the comprehensive IT modernization program of Rosatom and the start of work to develop uniform industry information systems. In particular, the "Document management" subsystem at Novovoronezh NPP does not cover the management of a set of executive documents to be implemented in the Uniform industry electronic document management system of Rosatom at a later stage.

New subsystems and sets of functional tasks were added to the structure of the corporate information system in 2009:

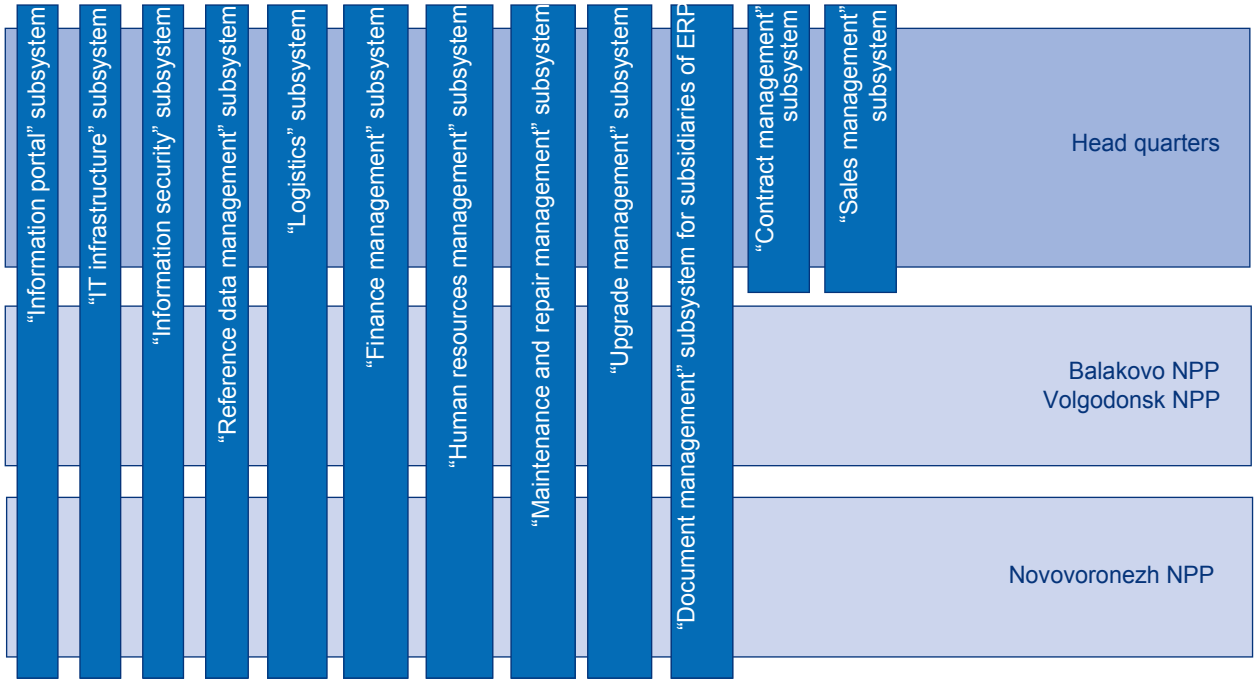
- centralized contract management of REA;
- work order access system in the "Maintenance and repair management" subsystem;
- management of tender procedures in the "Procurement management" subsystem;
- analytical NPP management support subsystem.

The overall structure of the CIS subsystem at implementation sites, with account for duplication of solutions at the Novovoronezh NPP, is shown below.

A project to develop and install an integrated centralized operational planning and production management subsystem at REA generating company as part of the corporate information system was begun in 2009. This subsystem should ensure effective centralized management of energy generation at NPPs and its sale on the wholesale energy and capacity market (FOREM).

Infrastructure subsystems were installed and software and hardware complexes were developed to support the implementation of the corporate information system and the integration of software, information, hardware,

Fig 2. Overall structure of the CIS subsystem at installation sites



engineering and other resources in the corporate information system:

- a data processing center, intended for functioning of the CIS subsystems (storage, archiving, administration and security of information data files of the CIS subsystem);
- a subsystem for management of services that supports management of the functioning of the CIS subsystems, and support for personnel in case of the appearance of problems with the functioning of the CIS subsystems.

The functioning of a corporate data transmission network was ensured. The network is intended for communications support and cooperation between the CIS subsystems and their components, and cooperation between the corporate information system and other systems.

The second area of development of information technology at REA in 2009 was participation in the development of "IT modernization program of State Corporation Rosatom and start of implementation of the corporate projects of State Corporation Rosatom".

With due account for the CIS implementation strategy, which is oriented toward the continued development of functionality and its duplication at other sites of REA, and taking into account the IT modernization program at Rosatom, the development of accounting and tax accounting subsystems in the corporate information system and the duplication of these solutions in the head quarters of REA and Leningrad NPP is planned for 2010.

This solution should be duplicated in future at all existing NPPs that are affiliatees of REA.

The second area of development of REA information technology includes participation in the corporate projects of Rosatom and integration of the data processing solutions with the CIS or the inclusion of their functionality in the CIS.

The following qualitative results were achieved by REA as a result of the development and implementation of the CIS in 2009:

- number of assets included in the project:
- 3 NPPs: full functionality of the 1st phase of implementation;
- 7 NPPs: formation of orders for centralized purchase of inventories;
- the headquarters: functionality of the 2nd phase of implementation;
- number of users of the CIS – more than 1,500 people;
- number of equipment units serviced – more than 200 thousand units.

6.2.6. Crisis management measures

When budgeting REA income and expenses for 2010, calculations were made based on the scenarios developed by the Ministry of Economic Development and Trade of the Russian Federation for the period of economic crisis.

In order to optimize resource management and reduce costs, an analysis of fixed costs was performed, and these costs were then included in the database used to calculate cost savings. REA reduced its fixed costs by 15% in 2009, including a 25% cut in administrative and business expenses. The following measures were performed to reach these indicators:

- a Program of cost-reduction measures elaborated to meet the key performance indicator "Reduction of fixed costs of Energoatom by 15% in 2009";
- a Work plan for reducing the administrative and business expenses of Energoatom in 2009.

More detailed information is given in section 14.2 "Budgeting and cost management" of this Annual Report.

II. CORE BUSINESS

7. Strategy

7.1. Positions of Rosenergoatom within the industry

Rosenergoatom is one of the largest companies in the Russian electrical power generation industry, and the only company in Russia, which main line of business is performing the functions of an operating organization for nuclear power plants.

In 2009 the nuclear power plants generated 163.3 billion kWh of electricity, or by 0.6% more than in 2008.

REA nuclear power plants generated 16.7% of all electricity generated in Russia (and nearly 30% of all electricity generated in the European part of Russia).

REA is the leader among Russian and foreign energy generating companies in such key areas as installed capacity and electricity generation.

Fig. 3. Rosenergoatom's place among foreign generating companies (as of 31 December 2009)

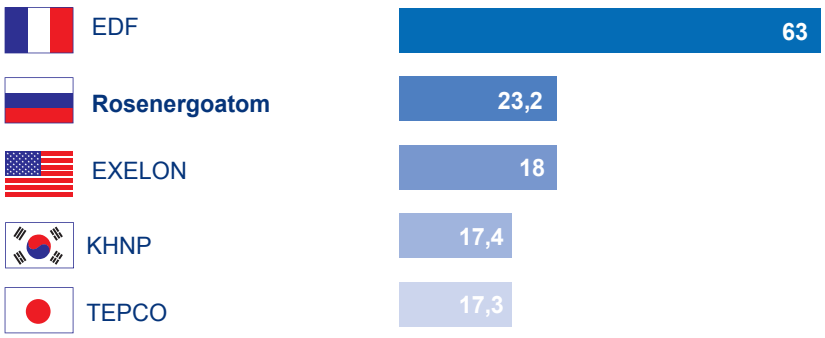
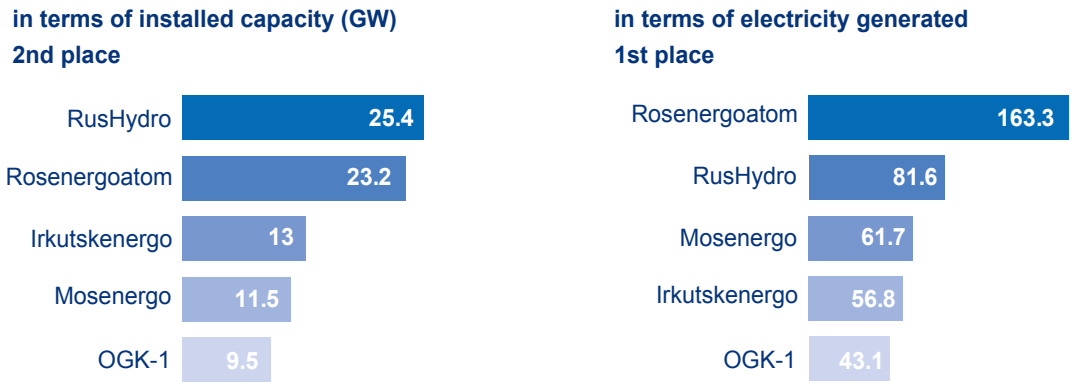


Fig. 4. Position of Rosenergoatom among Russian generating companies (as of 31 December 2009)



7.2. Strategy of Rosenergoatom

Over the next decade REA will focus on attaining its main strategic goals. These goals were established in accordance with the regulatory legal framework governing the development of the nuclear power industry of Russia:

- to ensure growth in electricity generation at NPPs in the Russian Federation;
- to maintain the current level of operating safety of the NPP units, and to perform systematic work at all stages of the life cycle of the NPP units to improve this indicator;
- to ensure the competitive edge of Russian nuclear technology on the national and international markets.

Performance of the following main tasks should facilitate the attainment of the set goals:

- ensuring the safe and efficient operation of existing NPPs;
- continuous modernization and upgrading of the basic equipment of the NPPs to ensure the stable and reliable operation of the power units;
- performance of effective modernization measures to support operations of the existing power units for an additional 15-30 years beyond the specified lifetime, depending on the generation of the power unit and the type of reactor; exploring the possibility of ensuring the safe operation of the first generation power units beyond the extended lifetime;
- gradual replacement of existing traditional power units with enhanced safety ones (third generation), thereby ensuring a moderate increase in the installed capacity of nuclear power units;
- increasing the export potential of the nuclear power industry;
- development and industry-wide installation of nuclear power technology that meets the cost efficiency, safety and fuel balance requirements of large-scale power industry.

REA strategic goals are reflected in the investment programs, as well as in the internal documents governing the main lines of business. In particular, REA has developed and is implementing:

- a long-term investment program for the period 2008-2020;
- a medium-term investment program for the period 2008-2010;
- a program to increase electricity generation at REA NPPs till 2015;
- a program to reduce internal electricity consumption of the NPPs;
- a program to extend the lifetime of existing REA NPP units for the period 2007-2015.

7.3. Rosenergoatom's medium-term development objectives and tasks (2009–2011)

The management has established the following priority areas for REA medium-term development:

- ensuring nuclear and radiation safety;
- improving efficiency through the identification and elimination of all types of unproductive costs during energy generation and capital construction;
- REA transition from an operating and management company to a horizontally integrated holding company (diversification of generation and

expansion of sales markets);
- enhancing basic technology (VVER) and creating new technological platforms;
- elaboration of a Customer's engineering infrastructure;
- development of the operational engineering business on foreign markets.

REA specific objectives and tasks aim to achieve the strategic goals set forth in REA medium-term investment program for 2009-2011:

- completion of construction and commissioning of power unit No. 2 at Rostov NPP and No. 4 at Kalinin NPP;
- performance of most of the construction and installation work at power unit No. 4 of Beloyarsk NPP (with a BN-800 reactor), as well as at power units No. 1 and 2 of Novovoronezh NPP-2 and power units No. 1 and 2 of Leningrad NPP-2;
- performance of measures to extend the lifetime of: power unit No. 3 of Beloyarsk NPP, power units No. 3 and 4 of Kola NPP, power unit No. 2 of Kursk NPP, power units No. 3 and 4 of Leningrad NPP, and power unit No. 5 of Novovoronezh NPP;
- completion of construction and commissioning of RW and SNF facilities, including:
- RW facilities – at Leningrad and Kola NPPs;
- SNF facilities – at Kursk, Leningrad and Smolensk NPPs.

More detailed information on areas of investment in 2009 is given in section 9.2 "Investing activities" of this Annual Report.

7.4. Key performance indicators of Rosenergoatom

REA implemented the "Key performance indicators and incentives" program in 2009. The system of key performance indicators enables REA to guarantee the performance of the set tasks and achievement of its strategic goals. All key performance indicators were met based on the results of 2009.

7.5. Key risks associated with operations of Rosenergoatom

Many factors related to various aspects of REA operations as a business entity and an operating organization of nuclear power plants impact its operations.

In particular, operating risks are theoretically possible, but highly unlikely. Management of operating risks is associated, chiefly, with ensuring safe operation of nuclear power plants.

The reliability of the power units meets international standards, thanks to careful control and implementation of cutting-edge technology. REA is constantly improving the processes for maintenance and repairs of the power units, and is gradually replacing equipment and commissioning new power units that meet the statutory reliability and safety standards.

The main market risks which may arise for REA are related to the consequences of the financial crisis. In addition to the risks indicated under the item 6.2.3 "Management of credit risks and liquidity risks", these risks may also include:

- reduction in the consumption of electricity, which could lead to restrictions in generation at NPPs, a reduction in the amount of sales and a fall in prices;
- decrease in payments on the FOREM;
- growth in competition.

To ensure effective management, REA seeks to mitigate risks. REA liquidity is maintained within the required limits through planning and budgeting.

Most of REA accounts receivable consists of advances issued on capital investments. To mitigate this risk, REA is striving to cooperate with the most reliable suppliers and contractors, after detailed assessment of their financial stability and solvency.

Exchange rate risks are immaterial, as REA incomes and expenses are denominated in Russian roubles.

8. Rosenergoatom. Facts and figures

Rosenergoatom generates electricity and thermal power at nuclear power plants, and supplies electricity and capacity to the wholesale market, deploys, constructs, operates and decommissions nuclear plants, sources of radiation and storage points for nuclear materials and radioactive substances.

REA incorporates all of Russian 10 nuclear power plants, which have been accorded the status of subsidiaries of REA, and also enterprises supporting REA activities.

Fig 5. Location of Russian nuclear power plants

Table 3. Operational power units of NPPs

Plant	Power unit	Type of reactor	Capacity (electricity), mW	Connected to the grid
Balakovo NPP	1	VVER-1000	1000	28.12.1985
	2	VVER-1000	1000	08.10.1987
	3	VVER-1000	1000	24.12.1988
	4	VVER-1000	1000	11.04.1993
Beloyarsk NPP	3	BN-600	600	08.04.1980
Bilibino NPP	1	EGP-6	12	12.01.1974
	2	EGP-6	12	30.12.1974
	3	EGP-6	12	22.12.1975
	4	EGP-6	12	27.12.1976
Volgodonsk NPP	1	VVER-1000	1000	30.03.2001
Kalinin NPP	1	VVER-1000	1000	09.05.1984
	2	VVER-1000	1000	03.12.1986
	3	VVER-1000	1000	16.12.2004
Kola NPP	1	VVER-440	440	29.06.1973
	2	VVER-440	440	09.12.1974
	3	VVER-440	440	24.03.1981
	4	VVER-440	440	11.10.1984
Kursk NPP	1	RBMK-1000	1000	12.12.1976
	2	RBMK-1000	1000	28.01.1979
	3	RBMK-1000	1000	17.10.1983
	4	RBMK-1000	1000	02.12.1985
Leningrad NPP	1	RBMK-1000	1000	21.12.1973
	2	RBMK-1000	1000	11.07.1975
	3	RBMK-1000	1000	07.12.1979
	4	RBMK-1000	1000	09.02.1981
Novovoronezh NPP	3	VVER-440	417	12.12.1971
	4	VVER-440	417	28.12.1972
	5	VVER-1000	1000	31.05.1980
Smolensk NPP	1	RBMK-1000	1000	09.12.1982
	2	RBMK-1000	1000	31.05.1985
	3	RBMK-1000	1000	17.01.1990

8.1. Generating capacities of Rosenergoatom

Balakovo NPP

Located in Saratov oblast on the bank of the Volga River, bordering the Middle and Lower Volga.

Distance from the NPP:

- to the satellite town of Balakovo – 12.5 km;
- to the regional center – city of Saratov – 145 km.

The plant operates four power units with VVER-1000 reactors with total installed capacity of 4000 MW.

The NPP operates VVER-1000 (model V-320). Each power unit of the Balakovo NPP has a dual-circuit heat system. Each of the unified power units has a freestanding structure consisting of a reactor compartment, turbine hall, de-aerator tanks and electrical rooms. The equipment related to the primary circuit is located together with the reactor in the impermeable steal-lined reinforced concrete shell – the containment. The source of the cooling water supply of the NPP is a water reservoir. Modular pumping stations and service water supply pipelines are located between the reservoir and the main buildings of the power units.

Balakovo NPP is the largest electricity generator in Russia. In 2009 the plant generated over 31 billion kW of electricity, supplying a quarter of all the electricity generated in the Volga Federal District.

Within the scope of the implementation of the industry-wide “Program for Increasing Electricity Generation at Operational Power Units for 2007 – 2015”, for the first time in the history of the Russian nuclear power industry power unit No. 2 of Balakovo NPP was transferred from September 2008 to work at nominal capacity equivalent to 104% of installed capacity.

Production indicators of Balakovo NPP in 2009

Indicators	Unit of measure-ment	
Electricity generation in 2009	Million kW	31299.0
Compared to 2008	%	99.8
Compliance with the energy balance set by the Federal Tariff Service of Russia	%	102.4
Capacity factor in 2009	%	89.3
Compared to 2008	%	100.0

Balakovo NPP is a recognized leader in the Russian nuclear power industry, and has been repeatedly awarded the title of Best Nuclear Power Plant in Russia (based on performance in 1995, 1999, 2000, 2003, 2005-2008).

Balakovo NPP is a prize-winner of the XIV International Competition “Gold Medal - European Quality”.

This NPP produced 19.25% of REA electricity generation in 2009.

Balakovo NPP has generated 501.2 billion kW of electricity since the commissioning of power unit No. 1 (December 1985).

Beloyarsk NPP

The Beloyarsk NPP named after I.V. Kurchatov is the first large-size plant of the Soviet nuclear power industry.

The plant is located in the Urals in Sverdlovsk oblast.

Distance from the NPP:

- to the satellite city of Zarechny – 3.5 km;
- to the regional center – city of Ekaterinburg – 45 km.

Installed capacity of the NPP – 600 MW.

This is the only nuclear power station in Russia with different types of power units. The station was erected in two phases: phase one – power units No. 1 and No. 2 with AMB reactors, phase two – power unit No. 3 with a BN-600 reactor. After 17 and 22 years of operation, power units No. 1 and No. 2 were shutdown in 1981 and 1989, respectively. Now they are subject to long-term suspension (with the fuel unloaded from the reactor) and comply, in accordance with the terminology of international standards, with the first phase of the decommissioning of an NPP.

The NPP currently operates one BN-600 power unit. This is the largest power unit in the world with a fast-neutron reactor.

Power unit No. 3 with a BN-600 fast-neutron reactor has a three-circuit cooling system: sodium is the coolant in the primary and secondary circuits and water in the tertiary. Heat is transferred from the core through three independent circulating loops, each of which consists of the main circulating pump of the secondary circuit, the sodium-water steam generator and turbine generator of 200 MW of electricity.

Production indicators of Beloyarsk NPP in 2009

Indicators	Unit of measure-ment	
Electricity generation in 2009	Million kW	4022.3
Compared to 2008	%	98.5
Compliance with the energy balance set by the Federal Tariff System of Russia	%	107.4
Capacity factor in 2009	%	76.5
Compared to 2008	%	98.8

The BN-600 reactor and primary circuit have an integrated design, whereby the core and equipment of the primary circuit are placed in one tank.

The reactor vessel is located in a guard tank of uniform strength, which rules out the emission of sodium if the main body is leaking.

The BN-600 is fueled by highly enriched uranium dioxide, and mixed uranium plutonium may also be used.

Based on the results of the annual competition, Beloyarsk NPP was conferred the title of Best Nuclear Power Plant in Russia in 1994, 1997 and 2001.

This NPP produced 2.5% of REA electricity generation in 2009.

Beloyarsk NPP has generated 143.4 billion kWh of electricity since the commissioning of the first power unit (April 1964).

Bilibino NPP

Situated beyond the Arctic Circle in the north-east of Russia in Chukotka Autonomous Okrug.

Distance from the NPP:

- to the satellite town of Bilibino – 4.5 km;
- to the administrative center of the okrug – city of Anadyr – 610 km.

The NPP accounts for approximately 80% of the electricity generated in the isolated Chaun-Bilibino energy system, and is an alternative source of heat supply in the city of Bilibino.

The installed electricity generating capacity of Bilibino NPP amounts to 48 MW with a simultaneous supply of heat to consumers of up to 67 Gcal/hour. If the air temperature falls to –500°C, the NPP functions in heat production mode and attains a heat extraction capacity of 100 Gcal/hour, leading to a reduction in electricity generating capacity to 38 MW.

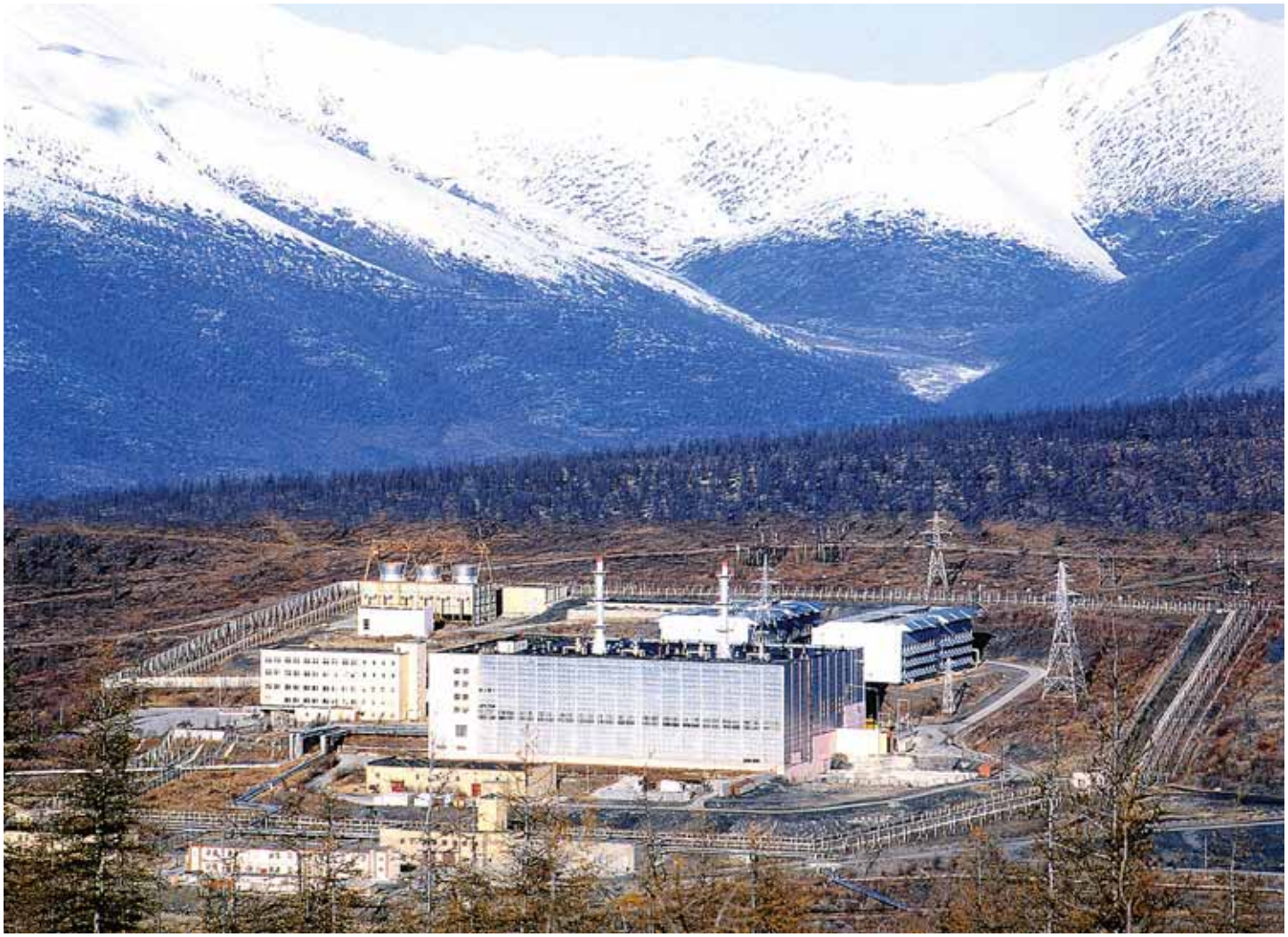
In 2009 Bilibino NPP shared first place with Balakovo NPP in the competition “Best NPP in terms of safety culture”.

Production indicators of Bilibino NPP in 2009

Indicators	Unit of measure-ment	
Electricity generation in 2009	Million kW	167.9
Compared to 2008	%	101.9
Compliance with the energy balance of the Federal Tariff Service of Russia	%	101.0
Capacity factor in 2009	%	39.9
Compared to 2008	%	102.1

This NPP produced 0.1% of REA electricity generation in 2009.

Bilibino NPP has generated 8.5 billion kWh of electricity since the commissioning of the first power unit (January 1974).



Volgodonsk NPP

Located in Rostov oblast on the bank of the Tsimlyansk reservoir.

Distance from the NPP:

- to the satellite town of Volgodonsk – 16 km;
- to the regional center – city of Rostov-on-Don – 205 km.

The installed capacity of the NPP amounts to 1000 MW. Capacity is still being developed at power unit No. 2.

Volgodonsk NPP is one of the series of unified NPP designs with VVER-1000 that comply with the requirements for serial construction. The NPP project envisages construction of four power units with a capacity of 1,000 MW each. The total capacity of the NPP is designed to meet the requirements of the unified energy system of the Northern Caucasus.

The full-scal construction of the station started in October 1979.

In 1990 the construction of the NPP was suspended and the station was mothballed. The readiness of the first power unit amounted to 95%, the second – 30%, the foundation plate of the third power unit had been erected, while the foundation area for the fourth power unit was excavated.

In 2000 the Federal Regulator for Nuclear and Radiation Safety of Russia (Gosatomnadzor) issued a license permitting the construction of power unit No. 1 of the Rostov NPP with a VVER-1000 reactor, and in 2001 a license for the operation of the power unit.

On 30 March 2001 the turbine generator of power unit No. 1 was connected to the grid of UES of Russia.

Production indicators of Volgodonsk NPP in 2009

Indicators	Unit of measure-ment	
Electricity generation in 2009	Million kW	8321.9
Compared to 2008	%	102.5
Compliance with the energy balance of the Federal Tariff Service of Russia	%	109.6
Capacity factor in 2009	%	95.0
Compared to 2008	%	102.8

Further construction of power unit No. 2 with a reactor of the same type resumed in 2002. Large-scale work was started in 2006.

In 2009 the main construction work on the area of the second power unit was completed.

On 19 December 2009 the first nuclear fuel assembly was loaded into the reactor vault. This was followed by the actual commissioning of power unit No. 2.

Based on the results of the annual competition, Volgodonsk NPP was conferred the title of Best Nuclear Power Plant in Russia in 2004.

This NPP produced 5.1% of REA electricity generation in 2009.

Volgodonsk NPP has generated 66.1 billion kWh of electricity since the commissioning of the first power unit (March 2001).

Kalinin NPP

The NPP is located in the north of Tver oblast, approximately 330 kilometers from the city of Moscow.

Distance from the NPP:

- to the satellite town of Udomlya– 4 km;
- to the regional center – city of Tver – 125 km.

Kalinin NPP has 3000 MW of installed capacity.

Kalinin NPP consists of two phases.

The first phase includes two power units with an installed capacity of 1000 MW (electricity) each, placed in two protective impermeable shells of the reactor compartments. The auxiliary buildings and facilities are linked to the main area through a system of connecting bridges and overpasses. The power units No. 1 and No. 2 were erected in 1984 and 1986.

Construction of the second phase consisting of power units No. 3 and 4 started in 1984. Power unit No. 3 of Kalinin NPP was commissioned on 16 December 2004, and the commercial operation of the power unit started on November 8, 2005. Power unit No. 3 was built with a freestanding special building, including corresponding extensions of the first phase auxiliary production units.

Production indicators of Kalinin NPP in 2009

Indicators	Unit of measure-ment	
Electricity generation in 2009	Million kWh	22146.6
Compared to 2008	%	96.8
Compliance with the energy balance of the Federal Tariff Service of Russia	%	100.0
Capacity factor in 2009	%	84.3
Compared to 2008	%	97.3

In 2007 a license was received from Rostekhnadzor and work on building power unit No. 4 of Kalinin NPP was resumed.

Based on the results of the annual competition, Kalinin NPP was conferred the title of Best NPP in Russia in 2002.

This NPP produced 13.6% of REA electricity generation in 2009.

Kalinin NPP has generated 343.2 billion kWh of electricity since the commissioning of the first power unit (May 1984).

Kola NPP

Kola NPP was the first nuclear power plant in Russia built beyond the Arctic Circle. It is located on the Kola Peninsula on the bank of Lake Imandra.

Distance from the NPP:

- to the satellite town of Polyarnye Zori – 11 km;
- to the regional center – city of Murmansk – 170 km.

Kola NPP has an installed capacity of 1760 MW.

Organizationally it splits into the first (power units No. 1, No. 2) and second phases (power units No. 3 and No. 4), owing to differences in the design of the reactors VVER-440, design V-230 (power units No. 1 and No. 2) and V-213 (power units No. 3 and No. 4).

A major upgrade of the equipment was performed on the first phase in 1991-2005. This brought the equipment into line with the new requirements of nuclear safety rules, and extended the lifetime by 15 years. Work started in 2007 to upgrade power units No. 3 and No. 4.

The electricity generated by Kola NPP accounts for approximately 60% of the electricity generated in Murmansk oblast.

Kola NPP supplies electricity to the energy systems Kolaenergo of Murmansk oblast and Karelenergo of the Republic of Karelia.

Production indicators of Kola NPP in 2009

Indicators	Unit of measure-ment	
Electricity generation in 2009	Million kWh	9891.2
Compared to 2008	%	92.7
Compliance with the energy balance of the Federal Tariff Service of Russia	%	88.6
Capacity factor in 2009	%	64.2
Compared to 2008	%	93.0

The operation of the power units of Kola NPP is currently restricted due to the “closure” of power grids of Kolaenergo system, which is attributable to falling levels of electricity consumption since 1991 in Murmansk oblast and Karelia.

This NPP produced 6.1% of REA electricity generation in 2009.

Kola NPP has generated 328.0 billion kWh of electricity since the commissioning of the first power unit (June 1973).

Kursk NPP

Located in Kursk oblast on the bank of the Seym River. Distance from the NPP:

- to the satellite town of Kurchatov – 4 km;
- to the regional center – city of Kursk – 40 km.

The NPP has a total installed capacity of 4000 MW.

Kursk NPP is a key unit in the Unified Energy System of Russia. Center IDGC is the main consumer. It covers 19 oblasts in the Central Federal District of Russia.

The station consists of four power units with RMBK-1000 reactors.

The station was erected in two phases: phase 1 – power units No. 1 and 2, phase 2 – power units No. 3 and 4. Power unit No. 5 of phase three is currently mothballed.

Kursk NPP accounts for 50% of the total installed capacity of all power plants in the Black Soil Region. It supplies electricity to most of the industrial enterprises in Kursk oblast.

Production indicators of Kursk NPP in 2009

Indicators	Unit of measure-ment	
Electricity generation in 2009	Million kWh	27415.3
Compared to 2008	%	118.0
Compliance with the energy balance of the Federal Tariff Service of Russia	%	100.3
Capacity factor in 2009	%	78.2
Compared to 2008	%	118.3

This NPP produced 16.8% of REA electricity generation in 2009.

Kursk NPP has generated 662.3 billion kWh of electricity since the commissioning of the first power unit (December 1976).

Leningrad NPP

Located in Leningrad oblast on the shore of the Gulf of Finland

Distance from the NPP:

- to the satellite town of Sosnovy Bor – 5 km;
- to the regional center – city of St. Petersburg – 70 km.

It was the first NPP in Russia with RBMK-1000 reactors.

Four power units with a total installed capacity of 4000 MW are operational at Leningrad NPP.

Two power units share one turbine hall.

The electricity is supplied into the Lenenergo system and RAO UES of Russia. Leningrad NPP accounts for approximately 50% of power consumption of the Lenenergo system.

This NPP produced 16.2% of REA electricity generation in 2009.

Leningrad NPP has generated 791.1 kWh of electricity since the commissioning of the first power unit (December 1973).

Production indicators of Leningrad NPP in 2009

Indicators	Unit of measure-ment	
Electricity generation in 2009	Million kWh	26485.5
Compared to 2008	%	95.6
Compliance with the energy balance of the Federal Tariff Service of Russia	%	100.9
Capacity factor in 2009	%	75.6
Compared to 2008	%	95.8

Novovoronezh NPP

Located in Voronezh Oblast on the bank of the River Don. Distance from the NPP:

- to the satellite town of Novovoronezh – 3.5 km;
- to the regional center of the city of Voronezh – 45 km.

Novovoronezh Nuclear Power Plant was the first NPP in Russia equipped with VVER reactors. The NPP has an installed capacity of 1834 MW.

The plant was constructed in four phases: phase 1 – power unit No. 1 (VVER-210 – in 1964), phase 2 – power unit No. 2 (VVER-365 – in 1969), phase 3 – power units No. 3 and 4 (VVER-440 in 1971 and 1972), phase 4 – power unit No. 5 (VVER-1000 – in 1980).

Novovoronezh NPP fully meets the electricity requirements of Voronezh oblast and up to 90% of the heating requirements of the city of Novovoronezh.

In 1984 power unit No. 1 was decommissioned after 20 years of operations, as was power unit No. 2 in 1990. Three power units remain operational.

A unique set of works has been performed for the first time in Europe at power units No. 3 and 4 to extend their lifetime for 15 additional years, and the corresponding licenses have been obtained from Rostekhnadzor. Work is being performed to prepare power unit No. 5 for the upgrading and its lifetime extension, which is scheduled for completion in 2010.

This NPP produced 7.4% of REA electricity generation in 2009.

Novovoronezh NPP has generated 439.0 billion kWh in electricity since the commissioning of the first power unit (September 1964).

Production indicators of Novovoronezh NPP in 2009

Indicators	Unit of measure-ment	
Electricity generation in 2009	Million kWh	27415.3
Compared to 2008	%	118.0
Compliance with the energy balance of the Federal Tariff Service of Russia	%	100.3
Capacity factor in 2009	%	78.2
Compared to 2008	%	118.3

Smolensk NPP

Located in Smolensk oblast on the bank of the Desna River.

Distance from the NPP:

- to the satellite town of Desnogorsk – 4.5 km;
- to the regional center of the city of Smolensk– 105 km.

The plant was erected in two phases: phase 1 – power units No. 1 and 2, phase 2– power unit No. 3.

RBMK-1000 power units are operated at Smolensk NPP with a total installed capacity of 3000 MW. The plant is only operational in base mode; its load does not depend on changes in the requirements of the grid.

In 2007 Smolensk NPP was the first nuclear power plant in Russia, which received the international certificate for compliance with the quality management system ISO 9001:2000. Enterprises operating such systems deservedly gain the confidence of partners and the public.

Production indicators of Smolensk NPP in 2009

Indicators	Unit of measure-ment	
Electricity generation in 2009	Million kWh	21481.5
Compared to 2008	%	101.4
Compliance with the energy balance of the Federal Tariff Service of Russia	%	100.2
Capacity factor in 2009	%	81.7
Compared to 2008	%	101,7

This NPP produced 13.2% of REA electricity generation in 2009.

Smolensk NPP has generated 464.9 billion kWh of electricity since the commissioning of the first power unit (December 1982).

8.2. Electricity generation at Russian NPPs

In 2009 REA demonstrated that it was technically sound and competitive and had significant potential for further growth. REA achieved the highest indicator for electricity generation in its history.

In 2009 the energy balance of the Federal Tariff Service amounted to 162,363.3 million kWh. The balance was met at 100.6%.

In all 163,278.4 million kWh of electricity were generated, which is equivalent to 100.6% of generation in 2008.

NPPs with VVER reactors generated 83,705.9 million kWh of electricity, or 97.4% of generation in the previous year.

NPPs with RBMK reactors and customized power units generated 79,572.5.million kWh, or 104.2% of generation in the previous year.

In 2009 nine out of the ten NPPs exceeded the electricity generation targets set by the Federal Tariff Service by:

- 737.0 million kWh – Balakovo NPP;
- 626.9 million kWh – Vologodonsk NPP;
- 275.3 million kWh – Beloyarsk NPP;
- 235.5 million kWh – Leningrad NPP;
- 99.2 million kWh – Novovoronezh NPP;
- 75.3 million kWh – Kursk NPP;
- 37.5 million kWh – Smolensk NPP;
- 4.6 million kWh – Kalinin NPP;
- 1.6 million kWh – Bilibino NPP.

Kola NPP fell 1,277.8 million kWh short of the target. The reduction in power generation was attributable to dispatching restrictions during the year, owing to a fall in electricity consumption in Murmansk oblast in 2009 compared to forecast electricity consumption issued by the Federal Tariff Service for 2009, and due to the restrictions to the grid transitions imposed by Kola Energy System – Karelia Energy System owing to a reduction in electricity consumption in the Republic of Karelia and the repair of electricity transmission lines.

Fig. 6. Performance of the Energy Balance of the Federal Tariff Service of Russia for electricity generation at Russian NPPs in 2008 (% and million kWh)

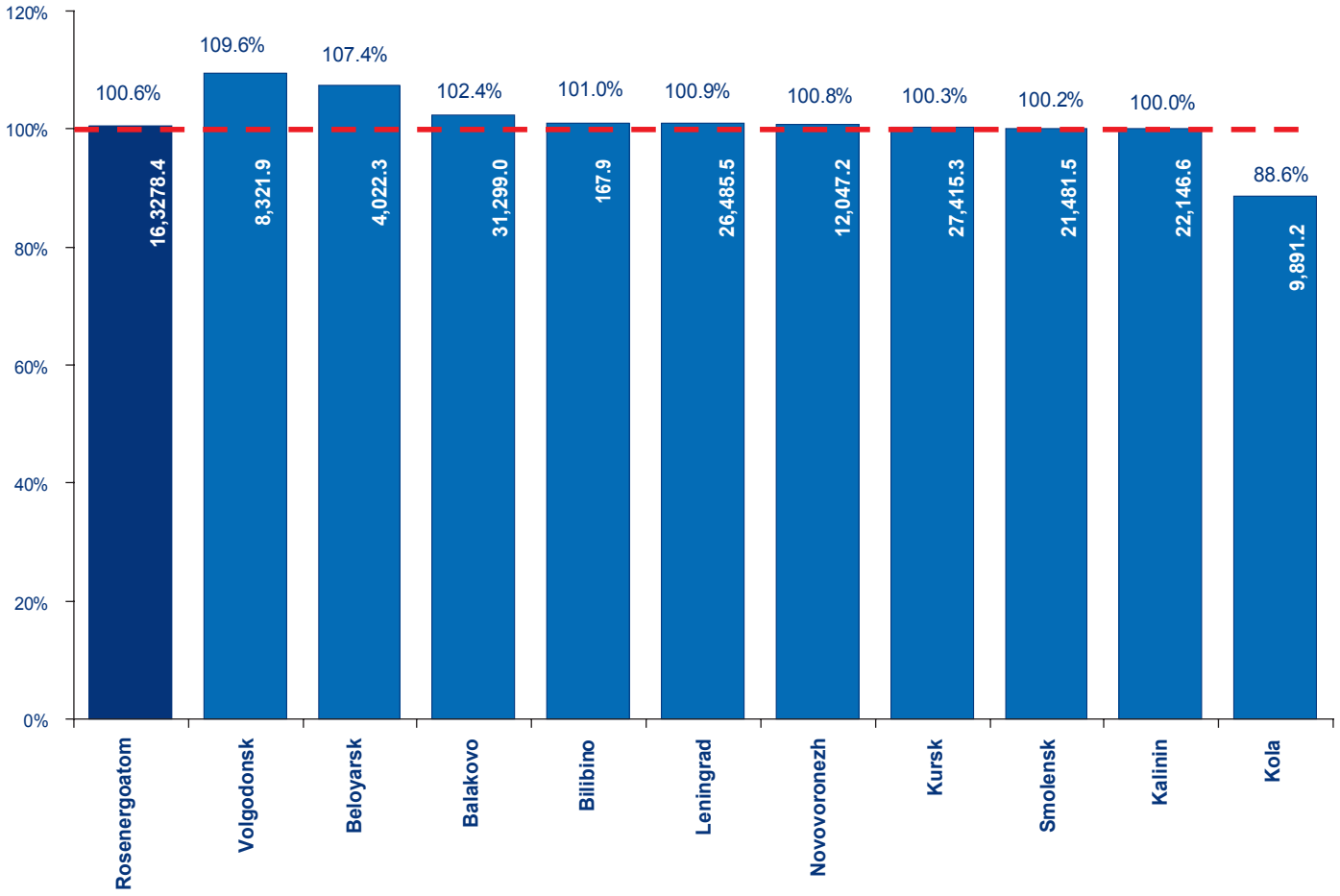


Fig. 7. Generation of electricity at Russian NPPs

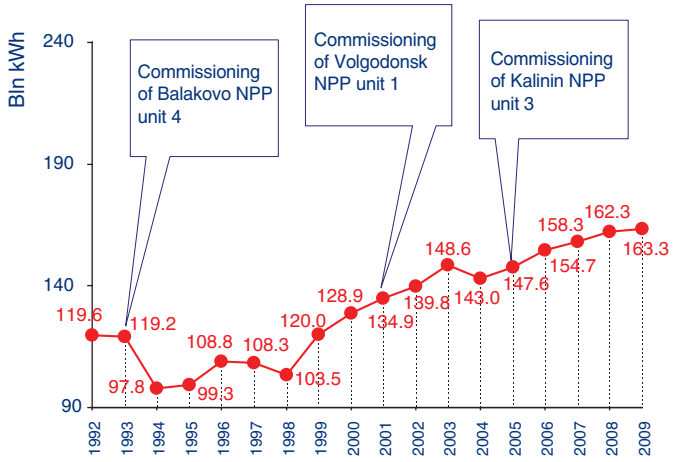
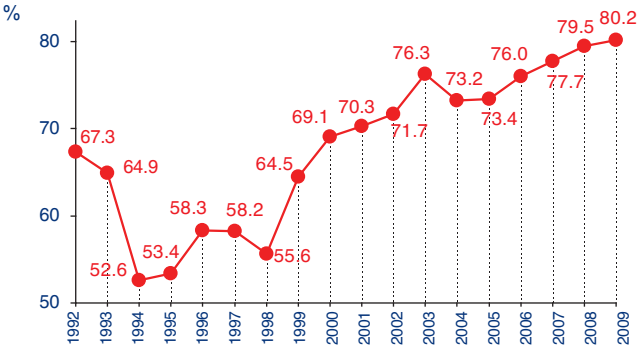


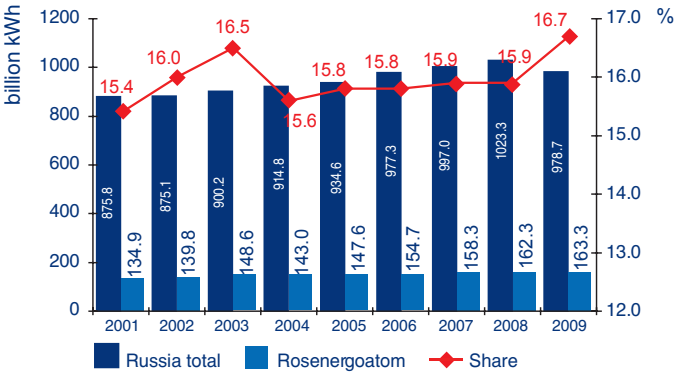
Fig. 8. Capacity factor of Russian NPPs



The increase of CF in 2009 was achieved primarily through a range of measures implemented in accordance with the CF improvement program.

The share of NPPs in total electricity generated in Russia (UES) reached its highest level – 16.7%, and in certain regions exeeded 30%.

Fig. 9. Share of NPPs in total electricity generation in Russia

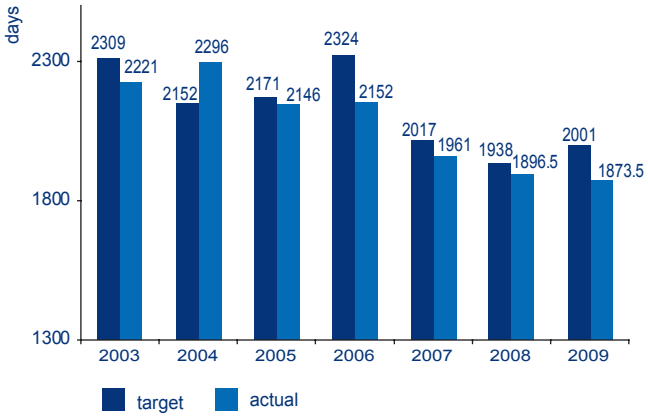


8.3. Maintenance and repairs

In 2009 the approved annual maintenance schedule stipulated maintenance at 33 power units. Moreover, 32 maintenance operations were scheduled for completion in 2009, with the maintenance of one power unit to be completed in 2010. The aggregated scheduled duration of maintenance in downtime came to 2,001 days.

In fact, 34 maintenace were performed at existing power units (including two repeat maintenance operations at power unit No. 3 of Novovoronezh NPP and power unit No. 1 of Bilibino NPP). Completion of the maintenance at Leningrad NPP unit No. 4 and Bilibino NPP unit No. 1 is scheduled for 2010. The aggregated duration of maintenance in 2009 came to 1,873.5 days.

Fig. 10. Duration of the maintenance campaigns at Russian NPPs



The maintenance campaign of 2009 was accomplished in full scope.

The total reduction of maintenance duration, with due account to the maintenance activities performed in 2009, amounted to 268.5 days thanks to the factors as follows:

- direct reduction of the maintenance duration - 198.5 days;
- early start (70 days earlier) of shutdown at Leningrad NPP unit No. 4 without any change in the total duration of maintenance.

In all, 13 unscheduled outages were registered in 2009, including six due to failures at nuclear island and seven due to faults at turbine generators.

Additional electricity generation in 2009 due to reduction in scheduled maintenance, postponement of maintenance start dates and with due account of unscheduled outages, amounted to 3.4 billion kWh approximately.

The following important works was performed during the maintenance campaign of 2009:

- replacement of 1,459 fuel tubes at the power units of the Smolensk, Kursk and Leningrad NPPs;

– replacement of the turbine diaphragms and fourth and fifth stage K-500-65/3000 turbine blades at the Smolensk, Kursk and Leningrad NPPs;
– replacement of 18 sections of the steam generators at power Beloyarsk NPP unit No. 3.

Table 4. Scheduled outages in 2009

Maintenance campaign indicators	Target	Actual
Completed maintenance	32 power units (1,770 days)	34 power units (1,661.5 days)
Maintenance works carried over to 2010	1 power unit (231 days)	2 power units (212 days)
Total	2001 days	1,873.5 days
Общее сокращение продолжительности ремонтов	127,5 суток	

8.4. Lifetime extension of NPP units

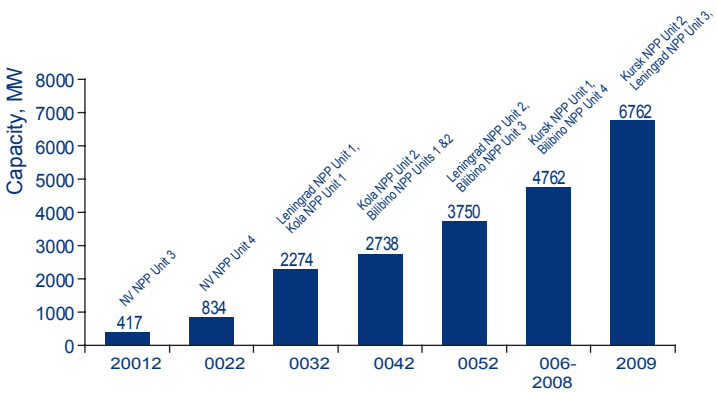
In accordance with Rosatom Long-Term Operating Program (2009–2015), approved by RF Government Resolution No. 705 of 20 September 2008, REA performed in 2009 a set of activities aimed at lifetime extension of the operational NPP units.

Calculations indicate that lifetime extension of all NPP units of Russia for 15 extra years would enable to generate additional 2,112 billion kWh of electricity.

As of 31 December 2009 the set of activities had been accomplished to extend the service lives of 13 NPP units with the aggregated installed capacity of 6,762 MW. In 2009 the service lives of power units No. 2 of Kursk NPP and No. 3 of Leningrad NPP were extended, and a license was received from Rostekhnadzor to operate these power units for 15 additional years.

At the end of 2009 ~158 billion kWh of electricity had been generated at power units with extended service lives.

Fig. 11. Retention of generating capacities thanks to NPP lifetime extension program



As a result of full-scale upgrades, the safety level of these power units increased substantially and complies with the requirements of Russian regulatory documents (OPB-88/97), and IAEA recommendations for NPPs built to earlier standards.

The work validated the potential for safe operation of 13 power units for longer than their originally specified service lives (for an additional 15-year term). Licenses were obtained in accordance with the established procedure from Rostekhnadzor for the operation of these power units longer than their specified service lives. Proceeding from the current state of art and regulatory requirements, the 15-year period for the additional operation of power units was attributable to the residual lifetime of critical elements (for VVER – the reactor vessel, for RBMK – the graphite stack).

The results of the assessment of the cost effectiveness for the NPP lifetime extension projects demonstrated the rate of return and profitability of the projects, while project implementation is a fairly effective investment of financial resources, with due account of the absolute priority of guaranteeing the safety of these power units for the whole periods of their additional lifetime.

8.5. Production growth program

The main goals of the production growth program are as follows:

- attainment in 2015 at Russian NPPs the values of CF and availability factors (AF), comparable with the best world indicators:
  – CF ≈ 88.6;
  – AF ≈ 90.0.
- Ensuring additional electricity generation at the NPPs:
  – 178.8 billion kWh– in the period from 2007 to 2015;
  – 29.5 billion kWh – in 2015, compared to base targets in 2006).

Fig. 12. Real increment in equivalent capacity

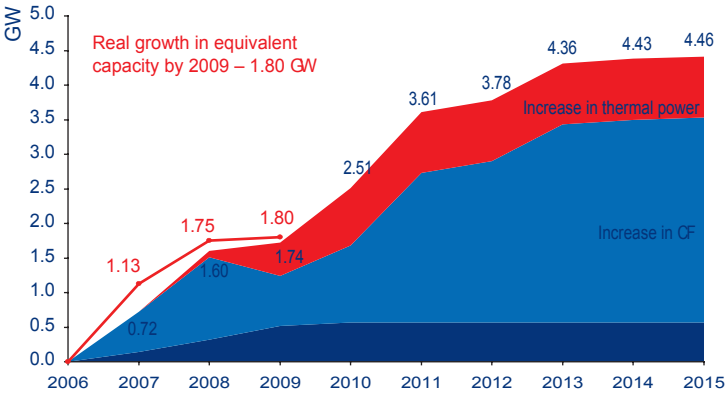


Table 5. Main measures of the program for increasing electricity generation in 2007 - 2015

№	Measures	Increase in equivalent capacity (target)
1	Improvement of RBMK power efficiency by upgrading the turbines with replacement of the turbine diaphragms and turbine blades of the fourth and fifth stages, which enables to increase the discharge area and reduce losses from the velocity of the discharge/	340 MW
2	Improvement of the turbine power efficiency at VVER and RBMK plants by upgrading the separators - superheaters (humidity reduction of the steam supplied to turbine low-pressure cylinders).	142 MW
3	Completion of the implementation of the ball-tube cleaning system of low-pressure condensers to prevent a deterioration in the vacuum in the condensers and increase the heat drop at turbine plants.	42 MW
4	Increase in the thermal power of power units: including: - RBMK – by 5% - VVER-1000 – by 4% - VVER-440 (V-213) – by 7%	882 MW 500 MW 320 MW 62 MW
5	Transition to the 18-month fuel cycle at NPPs with VVER-1000 reactors.	365 MW
6	Upgrade of RBMK, including the replacement of fuel tubes and the transition to the two-year outage interval	2689 MW
TOTAL		4 460 MW

Within the scope of Program implementation, the increase of equivalent capacity by 1800 MW as compared to 2006 was attained in 2009, while the target level for capacity increment set by the energy balance of the Federal Tariff Service of Russia was 1740 MW.

8.6. Construction of new power units

New power units of the NPPs are being built in accordance with Rosatom long-term operating program (2009–2015), approved by RF Government Resolution No. 705 of 20 September 2008, section Electricity, chapter 3 “Development of the Nuclear Power Industry of Russia” and the General Layout of the Facilities of the Power Industry up to 2020 (hereinafter, the “General Layout”), approved by RF Government Directive No. 215-r of 22 February 2008.

1. Rostov NPP unit No. 2

All the preparatory work has been performed, which made it possible to commence the reactor physical start up on December 19, 2009. On December, 24 2009 the fuel loading to the unit 2 reactor was completed.

2. Kalinin NPP unit No. 4

Reactor compartment

- the reactor vault, the inspection shaft of the in-vessel internals and the walls of the spent fuel pond were enveloped in concrete;
- the start-up and commissioning work was performed on the polar crane;
- work was performed to arrange a clean assembling area, and to establish the security plan;
- the dome of the reactor compartment and dome support manipulator were mounted.

Turbine hall

- the building frame was erected and the heat circuit was constructed, heat was supplied;
- the de-aerator tanks were mounted;
- work was performed to reinforce the superstructure of the turbine foundation and assemble the process pipelines and equipment.

3. Beloyarsk NPP unit No. 4

Reactor compartment:

- the third section of the reactor vault was enveloped in cement;
- all the tanks were mounted (75 m^3) at the level of 0.0 of the reactor building;
- three sodium tanks of the secondary circuit were mounted;
- the clean assembling area was prepared for the reactor vessel bottom installation in the reactor vault;
- the set of documents was developed and submitted to Rostekhnadzor for the receipt of a license to start the installation of the reactor vessel bottom.

Turbine hall:

- the installation of the condensate tank of the steam engine condenser group was completed.

Construction site:

- works on arrangement of the security zone was completed and a pass entry system was introduced.

4. Novovoronezh NPP-2 unit No. 1

- the cover of the reactor building containment was enveloped in concrete at the level of -0.05;
- the installation of the first tier of the reactor containment was started;
- work was started on the foundation slab of the turbine generating unit;
- the molten core catcher case was installed in the reactor building.

5. Novovoronezh NPP-2 unit No. 2

- the foundation slab of the reactor building was enveloped in concrete.

6 Leningrad NPP-2 unit No. 1

- the columns, walls, and internal walls of the reactor building annular floor and the reactor vault were reinforced;
- the walls and floors of the initial construction of the security building were enveloped in concrete;
- the partitions of the foundation slab of the turbine building were reinforced and enveloped in concrete;
- the second tier of cooling tower No. 1 was reinforced and enveloped in concrete;
- the foundation area was prepared, preparatory work is being performed to form the pile foundation of cooling tower No. 2;
- installation of the molten core catcher was started on December19.

7. Leningrad NPP-2 unit No. 2

- the foundation slab of the security building was reinforced and enveloped in concrete;
- work was performed to reinforce and envelop in concrete the foundation slab of the reactor building;
- work was performed to arrange the formation and pipe drainage, conventional and nuclear “islands”;
- sealing works were continued on the turbine hall, auxiliary building, administrative and water processing buildings.

8. Rostov NPP Unit No. 3

- a positive findings of the state expert review with respect to the design documentation on the construction of power unit No. 3 of Rostov NPP and a corresponding construction permit were obtained;
- materials have been developed to substantiate a license for the deployment and construction of Rostov NPP unit No. 3 and corresponding licenses of Rostekhnadzor were obtained.

9. Rostov NPP unit No. 4

- a positive opinion of the state expert review on design documentation on the construction of Rostov NPP unit No. 4 and a corresponding construction permit were obtained;
- materials have been developed to substantiate a license for the deployment and construction of Rostov NPP unit No. 4 and corresponding licenses of Rostekhnadzor were obtained.

9. Priority areas of Rosenergoatom activities

9.1. Production and marketing activities of Rosenergoatom

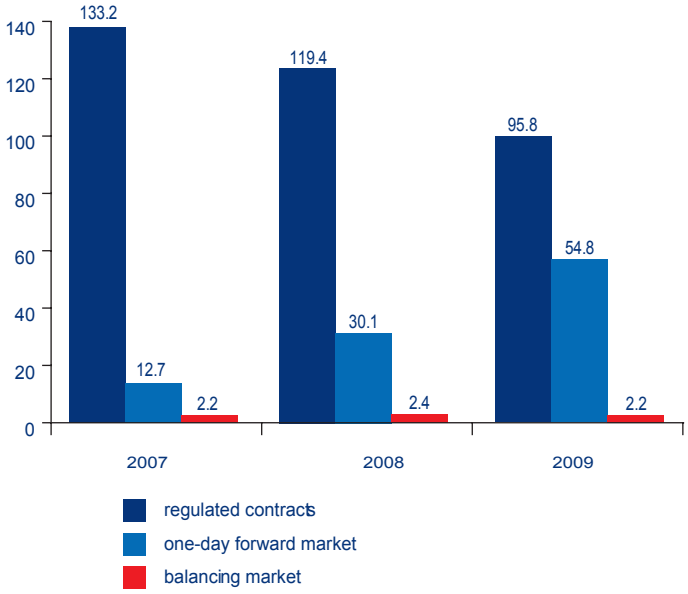
The composition and number of REA electricity and capacity customers are not fixed and are determined by the FOREM during annual centralized contractual campaign annually (or more often, if material amendments are introduced to the regulatory documents that determine the operating procedure of the FOREM within a calendar year andthat necessitate amendments to contractual relations).

The requirement on the convergence of the transaction table of obligations and requirements for market participants necessitates the conclusion of a large number of contracts, which materially exceed the number of the FOREM players. For example, in 2009 REA concluded 5,549 sale and purchase contracts for electricity and capacity, including 2,806 regulated contracts and 2,743 sale and purchase contracts for nuclear and hydro generating capacitiesy generated using its generating facilities.

The net generation of electricity by REA amounted to 152.5 billion kWh billion, of which 152.4 billion kWh (or 99.9%) was supplied to the FOREM and 0.1 billion kWh to the retail market (supply of the Bilibino NPP).

Based on the results in 2009, electricity supplies on the FOREM broke down as follows: in respect of regulated contracts there were sold 95.8 billion kWh were sold (or 63% of the total supplies to the FOREM), on one-day forward market – 54.7 billion kWh (or 36% of total supplies), on the balancing market – 2.2 billion kWh (or approximately 1.5% of total supplies). A breakdown of supplies of electricity to the FOREM for the period from 2007-2009 inclusive is presented below.

Fig. 13. Breakdown of supplies of electricity by Rosenergoatom to the FOREM in 2007-2009 (billion kWh)



An increase in electricity sales on the one-day forward market is attributable to the increase in the share of liberalization of the electricity (capacity) market according to the established market rules.

The actual revenues of REA on the FOREM in 2009 amounted to RUB 163,271 million. At the same time, additional revenues, compared to the required gross revenues (RGR), amounted to RUB 24,474 million (exceeding RGR by 15%).

The pricing situation on the market was the main factor that positively impacted the amount of the additional income of REA from the FOREM in 2009. Based on the results for 2009, the weighted average annual sales price of the electricity of NPPs on the one-day forward market amounted to 614 RUB/MW·h (based on an established tariff for electricity of 165.09 RUB/MW·h). In addition, to increase the effectiveness of REA sales on the FOREM, measures were taken to optimize sales on the one-day forward market and the balancing market, which made it possible to obtain an additional RUB 1,134 million in 2009.

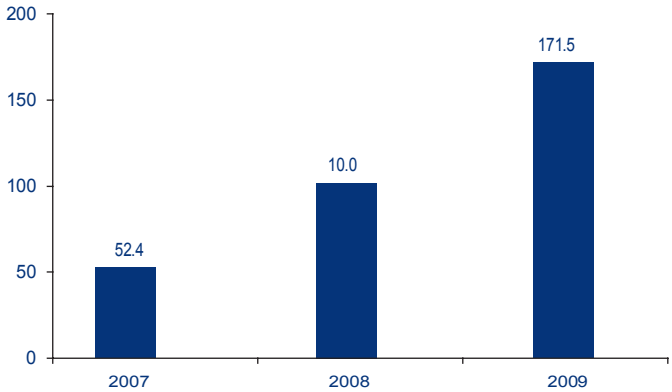
9.2. Investments

REA investments in 2009 were based on Rosatom Long-Term Operating Program (hereinafter, the "Operating Program"), approved by RF Government Resolution No. 705 of 20 September 2008, and were performed in the following areas:

- investment projects to extend the lifetime of 1st and 2nd generation power units;
- investment projects at facilities for spent nuclear fuel (SNF) radioactive waste (RW) management;
- investment projects on the completion of the construction of high preparedness power units;
- investment projects on the serial construction of power units at new and existing sites;
- investment projects on the construction of low-capacity plants;
- compliance with the regulations on mothballing assets;
- development of R&D activities;
- program "Ensuring the safe and stable operation of existing power units";
- program of the capacity factor (CF) improvement at existing NPPs;
- program to increase electricity generation at existing REA NPP units;
- R&D, development and design work.

REA investment program for 2009-2011 was approved as part of the Electricity Sector Investment Program in the Russian Federation on April 9, 2010 by the Russian Government. The total costs of the activities associated with implementation of the investment program amounted in RUB 171.5 billion in 2009.

Fig. 14. Actual use of funds under investment programs of REA, RUB billion



9.3. Innovations and competitive growth

Improvements to the existing components and the implementation of innovative technologies are the key to the development of a nuclear power system that complies with sustainable development principles.

9.3.1. Key areas of innovative development

At present, the following are key areas for innovative development of REA:

- development of new types of reactors, including reactors within the scope of the AES-2006 design and fast-neutron reactors;
- design and construction of floating nuclear cogeneration plants.

Implementation of innovation project AES-2006

In the short term the most promising reactor technology that comply with international standards and is able to meet electricity demand is VVER-1000 reactor. In the beginning of 2006 it was decided to launch an innovative project based on this reactor type. The project has been assigned a draft name of AES-2006.

According to "The Strategy of Nuclear Power Industry Development in Russia up to 2020" a number of new power units based on the AES-2006 design should be built in Russia.

Leningrad NPP and Novovoronezh NPP sites have been selected as the lead ones for AES-2006 project implementation.

The design is particularly focused on improvements in technical and economic characteristics of the power units while ensuring a high safety level. New reactors will have a number of safety advantages over the previous generation. The AES-2006 design incorporates some additional safety systems.

The design has a distinguishing feature: additional passive safety systems combined with traditional active systems. The design ensures protection against earthquakes, tsunami, hurricanes or aircraft impact. Examples of the improvements made are: double-wall protective cover of the reactor hall (containment), molten core catcher located beneath the reactor vessel, and passive residual heat removal system. These systems guarantee safety both in case of internal initiating events and external natural and man-induced impacts.

At the end of 2009:

- design documentation and preliminary safety substantiation studies were developed for the Seversk NPP, Nizhny Novgorod NPP, Baltic NPP, Tver NPP, Leningrad NPP-2 (power units No. 3 and No. 4) and Central NPP;
- in November 2009 a license of Rostekhnadzor was obtained for the deployment of the Seversk NPP;
- based on the results of the engineering investigations, the sites for the construction of AES-2006 project were identified for the Seversk, Tver, Nizhny Novgorod, South Urals and Central NPPs;
- six public hearings were held, based on materials of the environmental impact assessment (EIA) at the sites where power units will be built under AES-2006 project.

Implementation of the innovation project to develop a fast neutron reactor

The Strategy for Nuclear Power Development in Russia stipulates the transition to innovative technologies that would enable effective resolution of the problem of ensuring fuel supplies for the growing number of NPPs given the sufficiently high scale and rates of construction in the first half of the 21st century. At the same time, relevant political and environmental issues related to the accumulation of spent nuclear fuel and radioactive waste should be resolved. The resolution of this complicated set of issues is related to use of fast neutron reactors operating in a closed fuel cycle.

The first step in the assimilation of this innovative technology in Russia is being implemented through the construction of a power unit with 880 MW BN-800 fast neutron reactor, which is currently being built at Beloyarsk NPP, based on existing experience of developing and operating fast sodium reactors. During the construction and subsequent operation of the BN-800 there are plans to resolve a range of tasks to further develop the fast sodium reactor technology and establish base elements for a closed fuel cycle, and also to design a commercial NPPs, with a 4th generation fast neutron reactor.

Developments of the commercial power unit with a high capacity fast reactor show that it can compete with a series of power units based on light water-cooled and moderated reactors (LWR). A “commercial” fast reactor can be created on the basis of existing experience and improved technologies, which will also be developed and checked during the establishment and operation of the power unit with the BN-800 reactor at the Beloyarsk NPP. The results of the research show that such a commercial power unit can be established by 2018. This will provide an opportunity to prepare for the construction of the first series of such reactors in 2020 and establish, jointly with the development of closed fuel cycle production facilities, the prerequisite conditions for the implementation of the designated development program in the country involving a large-scale higher quality nuclear power sector.

In 2009 development of the conceptual design of the industrial commercial power unit BN-1200 was completed. The design was reviewed and approved at a joint meeting of the Scientific Council of the Rosatom and the Scientific Council of REA.

Implementation of the innovation project for the construction of floating nuclear cogeneration plants

At present REA is building the first (pilot) floating nuclear cogeneration plant (FNCP) with a capacity of 70 MW in the city of Vilyuchinsk in Kamchatka krai.

The floating power unit (FPU), designed with due account for all modern international requirements, has two KLT-40S reactor installations.

The reactor installations are equipped with effective safety systems, including passive systems (in other words, systems that do not depend on human involvement or automation), and use reduced-enrichment fuel that meets IAEA requirements on the non-proliferation of nuclear materials.

The floating power unit was installed in the berth of Baltiysky Zavod on May 18, 2009. Most of the plant generating equipment has already been manufactured. Both reactor installations of the power unit have been tested and have been supplied to JSC Baltiysky Zavod. The acceptance testing of the first steam turbine unit has been performed, and the accessory equipment of the second steam turbine unit has been manufactured in full scope.

The FNCP in the city of Vilyuchinsk is the pilot project and should open up opportunities to:

- upgrade the infrastructure of remote Russian regions based on nuclear power;
- increase the energy security of Arctic districts;
- reduce the volumes of deliveries of goods to the Northern Territories;
- facilitate the development of mineral deposits in the Northern Territories and on the Arctic Shelf.

Serial production of FNCP is currently being prepared, and the activities are performed to substantiate promising sites for the location of FNCP in Chukotka Autonomous District, Republic of Sakha (Yakutia) and other Russian regions.

REA pays special attention to the development of innovation potential and to growing its intellectual property.

REA has 102 patents and certificates on the registration of intellectual property. REA received five patents in 2009, and three more applications are being reviewed by Rospatent.

III. CORPORATE RESPONSIBILITY

10. Safety

The safe operation of NPPs is a top-priority task for REA as an operating utility.

REA has obtained, in accordance with the procedure established by Russian legislation, licenses from the state authority responsible for regulation of the safe use of atomic energy – Rostekhnadzor – for the right to operate all the NPP units. The favorable results of the expert reviews of documents on substantiating safety elaborated by REA and of the inspections of NPP units performed by the state supervisory authorities served as the grounds for issuing these licenses.

REA employees, who guarantee the safe use of atomic energy in their work, have undergone examinations in accordance with the established procedures regarding their knowledge of safety requirements and practical skills and have been granted the right to perform the corresponding work by the state nuclear regulatory authority.

In 2009 REA took out 100% insurance cover for all mandatory forms of third-party civil liability in accordance with the requirements of national legislation.

10.1. Safety indicators

The NPPs of Russia functioned safely and reliably in 2009. The general trend of increasing safety at REA operational NPP units was maintained.

There were no incidents with accompanying radioactive consequences, subject to NP-004-08 “Regulations on the Procedure for Investigating and Registering Violations in the Operation of Nuclear Power Plants”, involving the loss of nuclear materials and radioactive substances.

No malfunctions of the components of the safety system were recorded that led to a loss of safety functions. In all instances of reactor shutdowns and power reductions, the readiness of the safety systems was completed and ensured the safe transfer of reactors to a sub-critical state or to the required power level.

In 2009, 29 operational events subject to registration and reporting to the regulatory authority in accordance with NP-004-97 (PNAE [Rules and Norms of Nuclear Power] G-12-005-97) “Regulations on the Procedure for Investigating and Registering Violations in the Operation of Nuclear Power Plants” were recorded at 31 power units of Rosenergoatom NPP. Scrams from the critical state occurred in 12 of these instances.

Таблица 6. Происшествия в работе АЭС в 2009 году

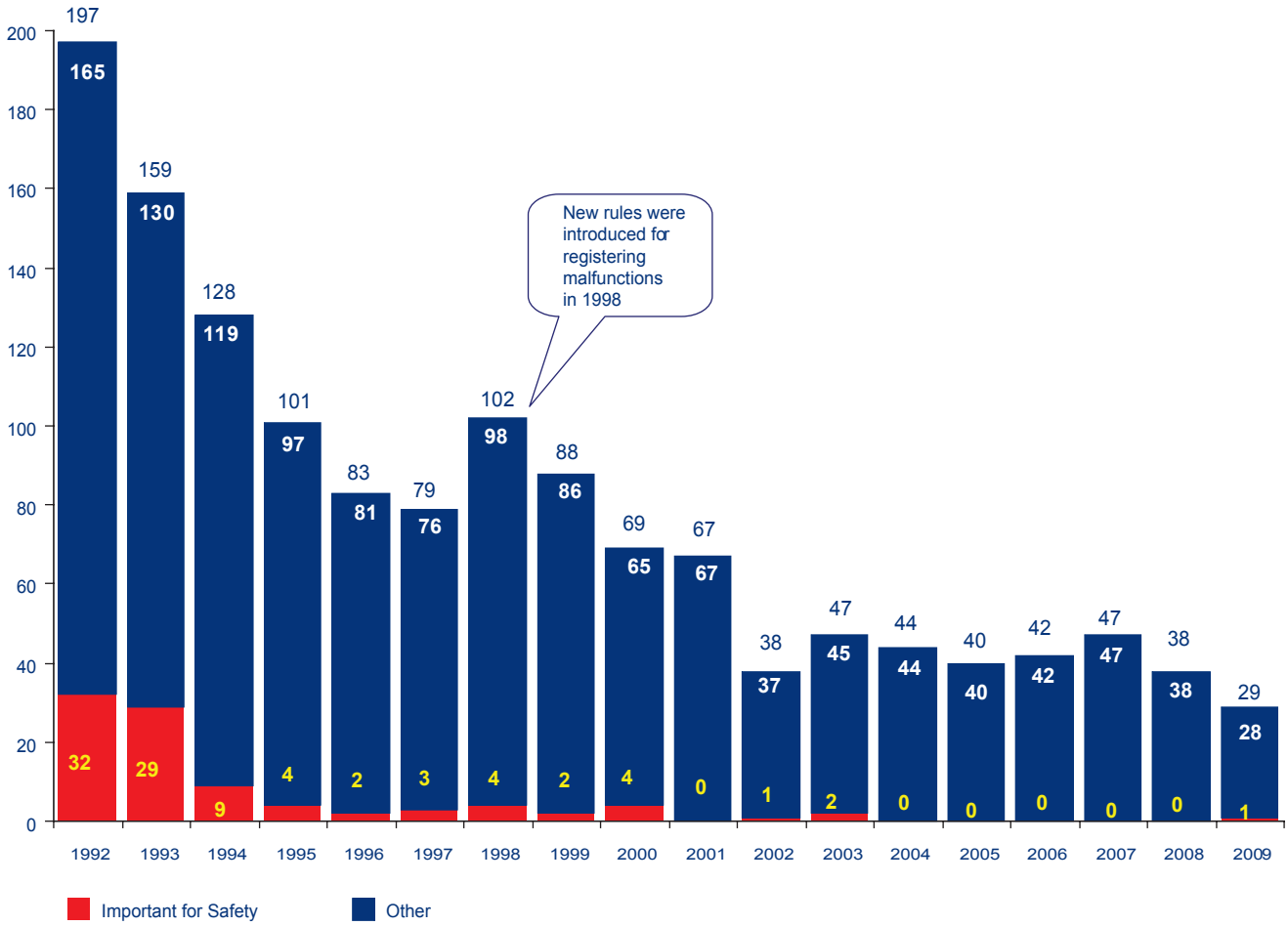
NPP	Off-scale	Level on the INES scale			Total
		Events			
		0	1	2	
Balakovo	0	1	0	0	1
Beloyarsk	0	0	0	0	0
Bilibino	0	1	0	0	1
Volgodonsk	1	0	0	0	1
Kalinin	0	4	0	0	4
Kola	3	1	0	0	4
Kursk	0	2	0	0	2
Leningrad	0	5	1	0	6
Novovoronezh	1	4	0	0	5
Smolensk	0	5	0	0	5
Total for NPPs	**5**	**23**	**1**	**0**	**29**

In 2009 one operational event was qualified at level 1 on the International Nuclear Events Scale (INES); in other words, it did not pose a threat for the population and environment. In the period from 2004-2008 there were no such events.

New rules were introduced for registering events in 1998; Important for Safety; Other

The planned measures to increase safety in 2009 were fully implemented; all the terms of the license have been performed to the letter.

Fig. 15. Dynamics of operational events at Russian NPPs



10.2. Ensuring nuclear and radiation safety and non-proliferation of nuclear materials

To resolve the priority tasks of enhancement safety at NPPs, measures have been developed and implemented to improve operating quality, reduce the likelihood that accidents could happen, improve the safety culture and reinforce the defense in depth to guarantee nuclear and radiation safety.

Ensuring of nuclear and radiation safety

In accordance with Federal Laws on the use of atomic energy, safety norms and regulations at nuclear power plants with VVER reactors, a significant amount of work was performed in 2009 to increase the level of safety.

Measures aimed at enhancement the quality of operations, reducing the probability of accidents and improving the safety culture have been developed and implemented at all operational power units of NPPs with VVER reactors.

Measures envisaged in the "Safety enhancement concept" aim to resolve the following key safety issues:

- upgrading of safety significant systems to improve their reliability;
- replacement of physically and morally obsolete equipment;
- reduction in the probability of common-cause malfunctions;
- diagnostics of the state of the metal of the primary equipment and pipelines, implementation of non-destructive testing of metal;
- improvement in instructions on the operation of systems and equipment, and also instructions on elimination of incidents, events and accidents.

The "Safety enhancement concept" is implemented systematically in upgrade and technical modernization programs of the NPP units.

The upgrades had the following results:

- equipping of NPPs with state-of-the-art tools for in-service inspection and maintenance;
- replacement of the equipment of emergency power supply systems to increase their reliability;
- increase in the effectiveness and reliability of fuel-handling machines;
- increase in the reliability of the automated process control system;
- increase in the safety of hydraulic engineering structures;
- increase in the reliability of working transformers;
- increase in the effectiveness and reliability of turbines;
- decrease in the pollution of turbine condensers and feedwater pumps during operation, etc.

Within the scope of the core REA business activities aimed primarily at ensuring and increasing safety when operating NPP units, the following results were obtained:

- FAs of an improved design were introduced at a number og power units;
- new water and chemical regimes of the primary and secondary circuits are being systematically implemented at the power units;
- comprehensive emergency response exercises have been performed at the Balakovo NPP;
- effective scientific and technical support has been provided for NPP operation by the research center of REA – National Research Institute for the Operation of Nuclear Power Plants (VNIIAES);
- effective scientific and technical support has been provided for NPP operation by the developers of the designs and plants – manufacturers of the equipment;
- the material and technical base and readiness of the industry-wide Emergency Center to eliminate design and beyond design basis accidents have been reinforced;
- the material and technical base has been expanded, while the work of sector-specific training centers have been improved for the preparation of operational and maintenance personnel;
- the base of regulatory documents on operating NPPs has been improved and expanded;
- work is being financed to improve the safety of the NPPs from the reserve to ensure nuclear, radiation, technical and fire safety of the nuclear power plants.

The accomplished activities enabled in 2009:

- to ensure the safe trial operation of Balakovo NPP unit No. 2 and Volgodonsk NPP unit No. 1 at uprated level of 104% of the nominal capacity;
- to perform tests necessary for transition to 104% power level at Balakovo NPP units No. 3 and 4 and to obtain the license of Rostekhnadzor for their experimental-industrial production at this uprated power level ;
- to perform tests to uprate to 107% power level at Kola NPP units No. 3 and No. 4;
- to perform transitional extended campaigns at the power units of NPPs with VVER-1000 (V-320) for transition to an 18-month fuel cycle.

In addition, implementation of these programs will enable to ensure the operational readiness of NPP units with VVER reactors for operations in line with the best global indicators for electricity generation and their economic effectiveness.

It should be borne in mind that the technical and organizational plans for improving the economic effectiveness of NPP operation can only be implemented if the acceptable level of nuclear and radiation safety is maintained and ensured.

The operating organization performs systematic audits and assessments of the safety level of the NPP units throughout the life cycle of the nuclear power plants, as stipulated by the Convention on Nuclear Safety. The results of these assessments and audits show that the acceptable level of safety is supported at all the operational NPPs with VVER reactors and that measures are being implemented to increase their reliability and safety.

The results of target inspections and audits performed at Russian NPPs by the regulatory authority, with the involvement of international experts, also confirm the compliance of the level of safety of the operational NPPs with VVERs with the requirements of domestic and international standards.

All this makes it possible to state with confidence that the level of safety of the operational power units of NPPs with VVERs complies with the requirements currently in force.

The scheduled implementation of a complete set of work at all the operational NPPs with RBMK-1000 reactors, involving the upgrade and technical modernization of power units, is being performed to bring the safety level of power units with RBMK-1000 reactors as close as possible to the current requirements.

The design capacity of Kursk NPP unit No. 4 has been uprated after performance of large-scale upgrades, including the replacement of fuel tubes and implementation of an integrated system of controls, management and protection.

Scheduled work is being performed for the phased replacement of the fuel tubes, the systems of in-core monitoring at Smolensk NPP units 1 and 3, Kursk NPP units 2 and 4, Leningrad NPP unit 3.

In accordance with the licenses of Rostekhnadzor, REA continued the planned transition of the cores of all RBMK-1000 reactors to a large-scale load of uranium-erbium fuel (2.8% enrichment) in 2009.

Work has continued to install cluster regulating rods at all power units of NPPs with RBMK-1000 reactors.

The scheduled monitoring of the water chemical regime is performed on a regular basis using the hardware and software tools of the information system “Center for Chemical Support of NPPs with RBMK reactors”.

An international insurance audit has been performed at Leningrad NPP units No. 2 and No. 3.

In 2009 work continued to extend the lifetime, increase the safety and perform the routine upgrade of Beloyarsk NPP unit No. 3, including:

- calculations of the seismic resistance have been performed for all the planned systems;
- work has been completed to detach the equipment of the unit for heat automation and measurements and electrical department;
- work has been completed to strengthen the walls of the fire extinguishing pump station;
- the development was completed and an in-depth safety assessment report and package of documentation were submitted to Rostekhnadzor to obtain a license for additional lifetime.

An annual estimate of the current level of safety of NPPs with BN-600 has been performed.

Work was performed at power unit No. 1 of Bilibino NPP during 2009 to restore integrity of both reactor enclosure and biological protection tank.

A visual inspection of the reactor enclosures and biological protection tanks of the reactors of power units No. 2, No. 3 and No. 4 was performed. Positive results were obtained, the power units were brought to capacity after preventive maintenance.

The annual assessment of the current level of the safety of NPPs with EGP-6 has been performed.

As for increasing the safety of NPPs and occupational safety, prevention of operational events, accidents, fires at NPPs, violations of safety rules, norms and instructions:

- 20 scheduled and operational safety inspections and 5 audits of the state of the occupational safety at operational NPPs have been performed;
- a safety monitoring system has been deployed at NPPs under construction, within the scope of which 13 safety inspections were performed;
- a Comprehensive Plan was developed, verifications have been performed on the readiness of the operational NPPs to the autumn-winter period of 2009-2010, readiness passports were issued to all NPPs;
- verifications have been performed on the state of occupational safety in the divisions of the REA headquarters associated with the introduction of the new organizational structure;
- the system for registering, classifying and analyzing low level events has been implemented at pilot NPPs (Volgodonsk, Balakovo, Smolensk, Kola and Kalinin); in addition software has been installed and NPP specialists have received training on how to operate this system.

Non-proliferation of nuclear materials

Nuclear fuel used at nuclear power plants is contained in fuel assemblies (FAs). The fuel assembly is an engineering product that is loaded into the reactor to obtain heat power from nuclear reactions.

The safekeeping of the nuclear fuel at nuclear power plants of REA is ensured first and foremost by the nuclear materials accounting and control system (NMACS) and security system.

The NMACS of REA includes a range of organizational measures and hardware that are used to account and control, identify and record losses of nuclear fuel at all

stages of its handling at NPPs, starting with the receipt of fresh fuel and ending with the dispatch of the spent nuclear fuel from the nuclear power plants.

At REA nuclear power plants, all the FAs are attributed to their places of storage and use: warehouses for fresh fuel, reactors and spent fuel storage facilities. Access to the locations of nuclear material storage or use is strictly limited and is subject to permanent controls.

Material balance areas (MBA) have been established to register and monitor the nuclear fuel at storage sites and use of FAs. These areas are designated to determine the amount of nuclear fuel when fuel assemblies are relocated in material balance areas and outside the areas. In accordance with the requirements of NP-030-05 Main Rules for Registering and Monitoring Nuclear Materials, a physical stock-take is performed annually at each MBA to determine the amount of nuclear fuel available.

The goal of the accounting and control of nuclear fuel at REA is to ensure the timely registration of each receipt, transfer or dispatch of nuclear fuel, and also changes to the composition of nuclear fuel occurring during the operation of a nuclear reactor. These data are registered in the operational documents and records of the nuclear power plants and serve as the basis for the generation of reports in the system for state registration and control of nuclear materials.

The head quarters of REA uses an automated information system to account for and exercise control over nuclear fuel. The reports compiled on the NPPs are transmitted to REA through closed (secure) communications channels.

The information in the information system database makes it possible to monitor the state of each nuclear fuel assembly containing nuclear fuel and generate REA reports on nuclear fuel at the federal level.

The existing control, accounting and security system enables to safeguard the nuclear fuel. There have never been any instances of loss or theft of nuclear fuel in the history of the operation of the nuclear power plants of REA.

10.3. Emergency planning and emergency preparedness

Establishment of a warning and emergency response system

To plan, organize and implement measures to protect personnel and the territories of the nuclear power plants from natural and man-made emergency situations (including emergency planning and emergency response measures) in accordance with the federal law of the Russian Federation and resolutions of the Government of the Russian Federation, a Rosenergoatom emergency prevention and elimination system (hereinafter, “RES”) has been established and is fully operational. The organization, composition of the manpower

and resources of the RES are determined by the regulations on the system.

RES is a sub-system of a sectoral emergency prevention and elimination system of Rosatom. RES unites the management bodies, manpower and resources of the head quarters of REA, operational nuclear power plants and other affiliates of REA.

The following have been established for the functioning of RES:

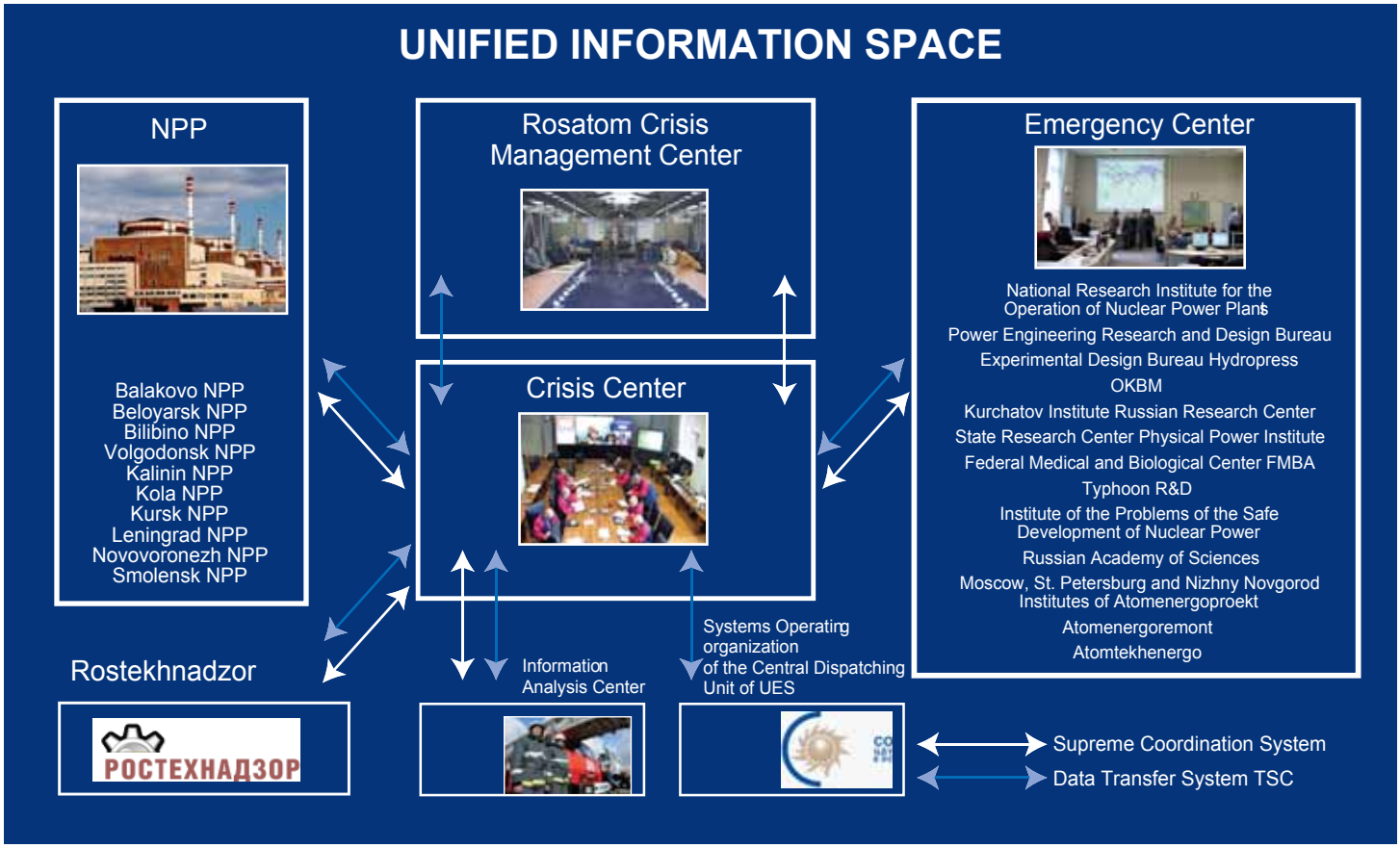
- coordinating bodies (emergency prevention and elimination commissions and fire safety commissions of REA and operational nuclear power plants);
- standing management bodies (structural units authorized to resolve tasks pertaining to protection of staff and territories from emergencies at NPPs);
- day-to-day management bodies (Crisis Center and operative dispatching services of the NPPs);
- manpower and resources (special departmental and volunteer emergency response teams of the NPPs, divisions of the federal fire service responsible for the safety of the NPPs, etc.);
- centralized reserve of emergency kits containing devices, materials, medicines, individual protective gear, tools and the telecommunications facilities of REA provided for a case of radiation accidents at NPPs;
- financial resources of REA to eliminate possible accidents at the NPPs;
- management information system.

The Crisis Center prepares the management information system for operation in an emergency. All the management bodies, manpower and resources of RES are included in a unified information space with the assistance of state-of-the-art telecommunications devices, including land-line fiber-optic channels and satellite communications channels with all the NPPs. This makes it possible to leverage unified formats for presenting technological, fire and environmental parameters, arrange multipoint videoconferencing and perform direct dispatching communications.

The system's unified information space includes:

- all operational nuclear power plants;
- nuclear power plant emergency assistance group (the OPAS group);
- Crisis Center and head quarters of REA;
- technical support centers (TSC) of the Main Designers and Research Directors of reactor

Fig. 16. Preparation of management bodies and resources of RES



installations, General Designers of NPPs, leading Russian institutions (VNIIAES, Research and Design Institute of Power Engineering (RDIPE), Experimental Design Bureau Gidropress, SRC Institute for Physics and Power Engineering, Experimental Design Bureau of Machine Building (OKBM), RRC Kurchatov Institute, Moscow, St. Petersburg and Nizhny Novgorod Institutes of Atomenergoproekt, Institute of the Problems of the Safe Development of Nuclear Power of Russian Academy of Sciences (IBRAE RAS), Typhoon R&D, Federal Medical and Biological Center FMBA, Atomenergoremont, Atomtekhenergo);
- sector-specific emergency formations of permanent readiness – emergency centers of Rosatom;
- Crisis Management Center of Rosatom (sectoral level) and the Information Analysis Center of Rostekhnadzor (regulatory authority).

The specialists of RES management bodies and manpower are trained by the Inter-Disciplinary Special Training Center of Rosatom, the Moscow Advanced Training Institute for continuous professional development of managers (MATI “Atomenergo”), the training centers of the Ministry of the Russian Federation for Civil Defense, Emergency Situations and Mitigation of Consequences of Natural Disasters, and Training Centers of the NPPs. The knowledge, competences and skills of the specialists of RES management bodies and manpower is enhanced primarily in course of trainings and drills with involvement of nuclear power experts, OPAS group, technical support centers, and also during emergency response exercises at the nuclear power plants and practical sessions.

In 2009 the following were performed: comprehensive emergency response exercises with OPAS group involvement at Balakovo NPP, emergency response drills at Bilibino, Volgodonsk, Kola and Beloyarsk NPPs.

The following plays a material role: when holding training courses and exercises, the development of a hypothetical accident (technological parameters) is modeled on a full-scale simulator of a NPP, while the radiation environment is formed on a readings simulator of the automated control radiation environment system. All these data are transmitted to the Crisis Center in real time and provide experts with an opportunity to analyze developments and revise them based on the data of corresponding software tools of the Crisis Center. The dynamically evolving simulated situation at the nuclear power plant brings the work of all participants in emergency responses far closer to real-life situations.

The readiness of RES management bodies and manpower in 2009 was assessed by REA commissions during inspections of the readiness of the Kola and Leningrad NPP to perform localization and elimination of a natural or man-made emergency situation. Both NPPs confirmed

their readiness to localization and elimination of emergency situations.

Development of the system information space

The Crisis Center is the main information and management component of the system. It obtains data round-the-clock from the operating personnel and main information systems of the NPP:

- information-computation systems of the power units;
- automated systems for monitoring the radiation environment of the power units;
- automated systems for monitoring the radiation levels of the environment;
- power unit fire-alarm systems;
- systems for measuring the radiation dose on personnel;
- systems of the water chemical regime of the steam generators and drum separators.

To develop the system used to monitor the safety levels at the nuclear power plants, work is being developed and implemented involving the transfer of data to the Crisis Center and emergency control centers of the nuclear power plants on the functioning of the fire-alarm system and the environmental monitoring data of the NPPs. A program is being implemented for the subsequent connection of the full-scale simulators of the NPPs to the information systems of the NPPs and the Crisis Center. The systems and subscriber station equipment of the technical support centers are being upgraded. Expert groups at emergency centers of the nuclear power plants are equipped with separate video conferencing terminals.

10.4. Occupational safety

The occupational safety of the employees of nuclear power plants and contractors is a top priority for REA in the area of occupational health and safety, and is also one of the key priorities and operating principles.

In 2009 there were no accidents with the use of the equipment.

No group accidents with a fatal outcome were registered.

No instances of occupational diseases were registered.

As a rule the state of the occupational safety at NPPs is at a socially acceptable level. Work to prevent production-related injuries is being performed on the basis of the sector-specific occupational safety management system (OSMS), approved on 21 September 2009 by the Director General of Rosatom.

Work places have been certified based on working conditions, including subsequent certification of work on occupational safety at all nuclear power plants. Annual inspection controls of certified work on occupational safety confirm the validity of the issued certificates of compliance of work on occupational safety at all NPPs.

The requisite steps have been implemented on control of the terms of employment and occupational safety.

All the employees are equipped with individual and group protective equipment.

The following main steps have been implemented in order to improve further the state of occupational safety:

- the Program for implementing the international occupational safety and health management system OHSAS 18001 at Rosenergoatom is operational;
- work has been organized and performed to select the suppliers of work and services within the scope of the work of the tender committee of the General Inspectorate;

A four-level system of administrative and public control over occupational safety has been implemented and is being improved;

- the practice of performing annual competitions on knowledge of occupational safety rules;
- a system of seminars and on-the-job training on occupational safety for senior and middle management has been implemented and is being improved;
- international experience on occupational safety is being reviewed and implemented.

Inspections.

According to the inspections schedule, 15 audits were performed in 2009 (3 comprehensive audits of the NPP safety performance, 2 audits of the NPP nuclear safety status, 10 audits on the readiness of the NPPs for operations in the autumn-winter period).

The following were the targets for 2009, implemented to increase the quality of inspections and audits of NPPs:

1. Supporting audits with programs and methodological recommendations.
2. Application of a methodology for the numerical evaluation of the safety of NPPs during audits of the nuclear safety of Balakovo and Kalinin NPPs.

In 2009 work continued to apply numerical evaluation methods to measure safety when preparing the regular safety reports on the NPPs.

All the NPP safety audit and inspection programs (including that for residential inspectors) are aimed at application of numerical evaluation of safety.

Audit of the NPP preparedness for operations in the autumn-winter period was performed in 2009 on the basis of:

- “Regulations on the inspections of the NPP preparedness for operations in the autumn-winter period by the commission of Rosenergoatom”;
- “Schedule for the Inspections of the Preparedness of Nuclear Power Plants in the Autumn-Winter Period of 2009-2010”, approved by an order of REA.

The inspection of the preparedness of the NPPs for operations in the autumn-winter period of 2009-2010 was performed in the period from September to October 2009 inclusive, including the registration of audit acts and readiness passports of the NPPs.

Nuclear power plants developed and promptly implemented preparatory measures to ensure safe and reliable operations in the autumn-winter period. Performance of the measures was monitored by residential inspectors at the NPPs of REA.

Based on the results of the audit, it was concluded that REA nuclear power plants ensured preparedness for reliable operations in the autumn-winter period in 2009-2010, and preparedness to comply with the established schedule for the load and assignments to supply electricity and heat power.

The preparedness passports were issued to all NPPs.

10.5. Physical protection

Over the course of 2009 there were no violations of physical protection and security, unauthorized actions in respect of affiliates of REA, or violations of the entry pass system and internal security regulations. At the NPPs, safety engineering facilities and their subsystems operated normally. The issue of licenses by Rostekhnadzor to operate power generation units confirms the ability of REA and the nuclear power plants to guarantee the physical safety of nuclear materials, nuclear power installations, and storage facilities for nuclear materials and radioactive substances.

10.6. Radioactive waste management

REA main method of resolving the issues associated with radioactive waste (RW) management involves a further reduction in the quantity of RW through the implementation of progressive technologies.

Each year, organizational and technical measures aimed at reducing the final amount of RW are developed and implemented at all nuclear plants. REA is developing a concept for creating a specialized enterprise for radioactive waste management, in order to relieve nuclear power plants of the task, which is not a part of their core production role.

Effective solutions to the problems of RW management should be implemented within the framework of a state system for radioactive waste management, which will be based on new federal laws. This system assumes a comprehensive approach, including the creation of reprocessing facilities, vehicles and storage facilities for RW.

11. Environmental safety

Protection of the environment and rational use of natural resources are mission critical tasks for Rosenergoatom in its production activities at nuclear power plants.

For compliance with the requirements of Russian environmental protection legislation, the environmental services of nuclear power plants perform environmental monitoring of production activities and assess the state of environmental safety, in order to develop timely and effective solutions to minimize the environmental impact of nuclear power plants. Monitoring of compliance with environmental quality standards is one of the main tasks performed by the environmental services of nuclear power plants.

At a time when the requirements on land use and rational use of natural resources are becoming more stringent, the nuclear power industry retains an indisputable advantage – generation of large amounts of electricity at comparatively small sites.

The fact that Russian NPPs had no events with radioactive consequences, pollution or negative environmental impact confirms the stable and reliable operation of the NPP units.

11.1. Environmental principles and environmental policy

Dedication of Rosenergoatom to sustainable development principles implies active participation in the search for solutions to environmental issues and problems not only in regions where the company is present, but also in the country as a whole.

REA environmental protection principles and undertakings in the area of ecological safety and environmental protection are set out in the Environmental Policy of REA.

The key principles of REA environmental activity include:

- reducing the environmental impact of the NPPs to as low a level as reasonably achievable;
- rational use of natural resources;
- involvement of all stakeholders to provide positive input on the environmental aspects of the operation of NPPs;
- the openness and accessibility of information on environmental activities.

The goal of REA environmental policy is to ensure a level of safety at the NPPs under which the impact on the environment, personnel and population both in the short term and long term can be kept at a level that ensures the conservation of natural systems, maintains their integrity and life support functions.

11.2. Main environmental impact indicators

A state environmental impact assessment was performed at all NPPs, both operational and under construction. Rostekhnadzor issued positive opinions based on its state environmental assessments.

The operations of REA NPPs do not have an adverse impact on biodiversity at the protected natural areas and areas with high biodiversity outside the borders of protected natural areas, as the norms of Russian environmental legislation on the remote location of REA facilities from the borders of the protected natural areas have been observed when selecting the sites for deploying NPPs.

At none of the nuclear plants were atmospheric emissions in excess of the values permitted and approved by the regional bodies of Rostekhnadzor. The operation of the NPPs does not involve any greenhouse gas emissions.

The majority of pollutant emissions come from start-up reserve boilers, the boilers of preventative treatment clinics and the NPP emergency diesel generators, which are periodically turned on for scheduled testing. The specific quantity of these emissions compared to the aggregate capacity of the NPPs is small to negligible. There has been a perceptible trend of lower levels of atmospheric emissions at these facilities for the main pollutants: sulfur dioxide, carbon monoxide, and nitrogen oxide. The nuclear power plants are seeking to reduce their impact on the atmosphere: technology is improving in the area of higher fuel combustion efficiency, higher-quality fuel oil is being used (with a lower sulfur content), painting technology is improving, and effective gas treatment and dust collection units are being brought into service. As a result of these measures, atmospheric emissions have been reduced approximately 1.3 times over the past few years.

Nuclear power plants are major consumers of water. For this reason, water consumption and disposal issues occupy an important place in the environmental activities of nuclear power plants. Virtually all the water collected (99%) at the plants is used for production needs (cooling of technological environments in the condensers of turbines and heat exchange equipment) and is returned to the source bodies of water. Water disposal accounts for 95% of all the collected water, which is a good indicator for use of water resources. Total water used when operating the NPPs in 2009 amounted to 6.7 billion m^3.

At all nuclear power plants, waste water from household and industrial sewer systems is purified before being released into surface waters. The content of pollutants released into surface water along with waste water from nuclear power plants is monitored in accordance with agreed and duly approved regulations. In 2009, as in previous years, there were no deviations from the technological processes of nuclear plants that led to water pollution. The

share of polluted waste water is insignificant, amounting to less than 0.2%, which is a good indicator compared to other enterprises in the Russian Federation (usually 3.5–4%). Over the past five years the volume of emissions of polluted waste water contracted by more than half, which is due to the successful implementation at nuclear power plants of an action plan to upgrade and modernize waste water purification systems. Total waste water of the NPPs in 2009 amounted to 3.7 million m^3 .

As is the case at any other enterprise, waste of five classes of risk is generated at the NPPs during the production process. In 2009, 32.5 thousand tonnes of waste were produced at the NPPs, which is 1.5 times less than last year (48.7 thousand tonnes).

The sources of production waste are the auxiliary divisions and facilities supporting the work of the nuclear power plant. The following technological processes lead to generation of waste at nuclear plants: technical servicing and maintenance of buildings, structures, equipment, instruments, tools, other devices and mechanisms, preparation of water for production and technological needs, production of steam and hot water for heating and other needs of nuclear power plants, the servicing of road and rail transport, the provision of services to the personnel of nuclear power plants, the purification of waste water, the processing of metal and wood, the cleaning of reservoirs from oil products, the purification and regeneration of oils and replacement of bulbs.

The bulk (more than 95 %) of waste created in 2009 consists of class IV (low risk) and class V (virtually harmless) waste: 24.9 thousand tonnes and 6.2 thousand tonnes correspondingly. All production and consumption wastes are stored at well-equipped grounds or in special storage facilities; their utilization is monitored by the nuclear plants' environmental services.

11.3. Environmental audit and certification of the environmental management system

An independent environmental audit was performed at the NPPs in 2001-2004. The opinions of the environmental auditors gave a positive assessment of the compliance of NPP operations with environmental legislation, the norms and rules in this area.

Based on the results of the environmental audit the nuclear power plants developed action plans to implement

the recommendations of the auditors, which have been successfully implemented.

One of the recommendations was the improvement and effective functioning of the Environmental Management System (EMS) in accordance with the requirements of the Russian standard GOST R ISO 14001.

Work to improve the EMS at REA was started in 2004 with a pilot project at the Balakovo NPP. Implementation of this project enabled to secure certification of the EMS of the Balakovo NPP in 2005 for compliance with the international standard ISO 14001 and its Russian equivalent GOST R ISO 14001. A recertification audit conducted in 2008, and an inspection audit conducted in 2009, confirmed that the EMS of Balakovo NPP functions effectively and is being improved.

Based on the performance results of the pilot project, a decision was adopted on a centralized approach to improvements and certification of REA EMS. In connection with this fact, a Program for Improvements and Certification of REA EMS and a schedule for preparing for certification and the performance of audits of REA EMS for compliance with the requirements of GOST R ISO 14001-2007 were developed and have entered into force.

In accordance with the schedule, in 2009 the head quarters of REA, Volgodonsk and Smolensk NPPs underwent a certification audit. During the certification the auditors gave a positive assessment of REA EMS.

In June 2009 the head quarters of REA, Smolensk and Volgodonsk NPPs received environmental certificates on the compliance of the EMS with the requirements of GOST R ISO 14001-2007.

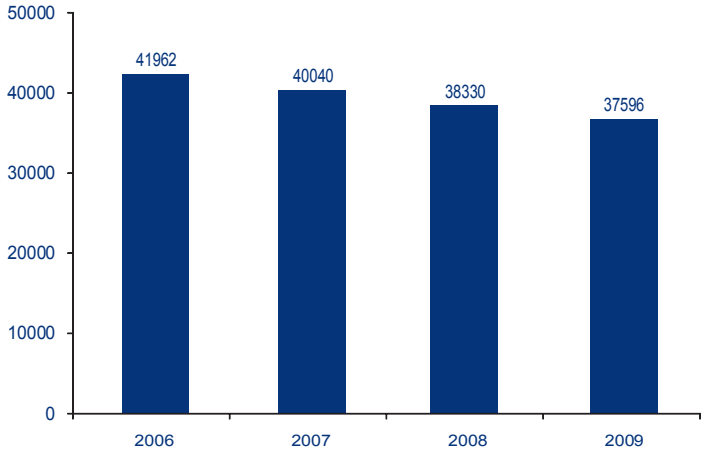
The rest of REA remaining NPPs will present EMS documents within the scope of certification audits in 2010-2011. Consequently, during a three-year period all NPPs should obtain a certificate on the compliance of the EMS with the requirements of the national standard GOST R ISO 14001-2007.

12. Human resource management

The human resource management system in operation at REA, used to facilitate the recruiting, training, maintenance and improvement of the qualifications of the personnel of nuclear power plants, plays a key role as the basis for the safe and reliable operation of NPP units.

Employees are a key resource of REA. The safety and operational efficiency of equipment and improvement in electricity output indicators depend on the degree to which the power plants are staffed with highly skilled personnel.

Fig. 17. Average number of Rosenergatom employees



To attract the best specialists to work for REA, it offers competitive wages and also a social benefits and guarantees package.

12.1. Training and professional development

Investments in the professional development of employees represent investments in the safe and successful future of REA in particular and the country as a whole. REA has a personnel training and professional retraining system based on programs developed by specialists from REA training divisions and by professional educational institutions.

The educational programs include employee training programs for specific positions, programs to enable employees to maintain their skills and continuous professional development programs.

The in-house personnel training system is implemented on the basis of the training divisions of nuclear power plants or directly at divisions of the nuclear power plants. This system plays a material role in ensuring the requisite qualifications of the personnel of nuclear power plants, and creates equal and accessible opportunities for employees to develop their professional skills.

The training divisions of nuclear power plants are equipped with technical training aids, including full-scal simulators to develop practical skills to manage the production process.

Operational, maintenance and administrative personnel at the power plants also receive training.

Training is provided by instructors who have the requisite work experience at nuclear power plants and have undergone specialized psychological and pedagogical training.

Topics covered by training at the NPPs' training divisions include standards and rules for using nuclear power, theoretical exercises on the technological process of generating electricity at an NPP, and practical exercises with technical training tools.

In 2009 the training divisions held 28,250 training courses for NPP employees .

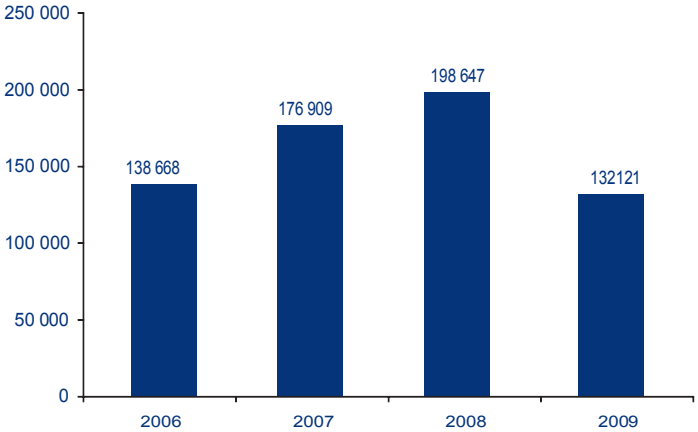
In total 9,192 NPP employees increased their qualifications at external professional educational institutions.

The number of training courses for employees of operational nuclear power plants performed at external educational institutions, the training divisions of the NPPs and divisions of the NPPs totaled 60,348 in 2009. On average, each employee of operational nuclear power plants received approximately 70 hours of training in 2009.

All the REA employees are subject to regular performance appraisals and assessments of their career development. For example, the employees of NPPs, whose employment duties are directly related to the production process, undergo examinations of their knowledge through several types of exams (occupational safety, fire safety, radiation safety, NP rules and norms (PNAE), industrial safety, NPP operational rules, employment and production instructions). They are certified regularly once every three years in respect of their compliance with the position that they hold. In addition, REA stipulates certification at assessment centers for the purpose of planning the employee's career.

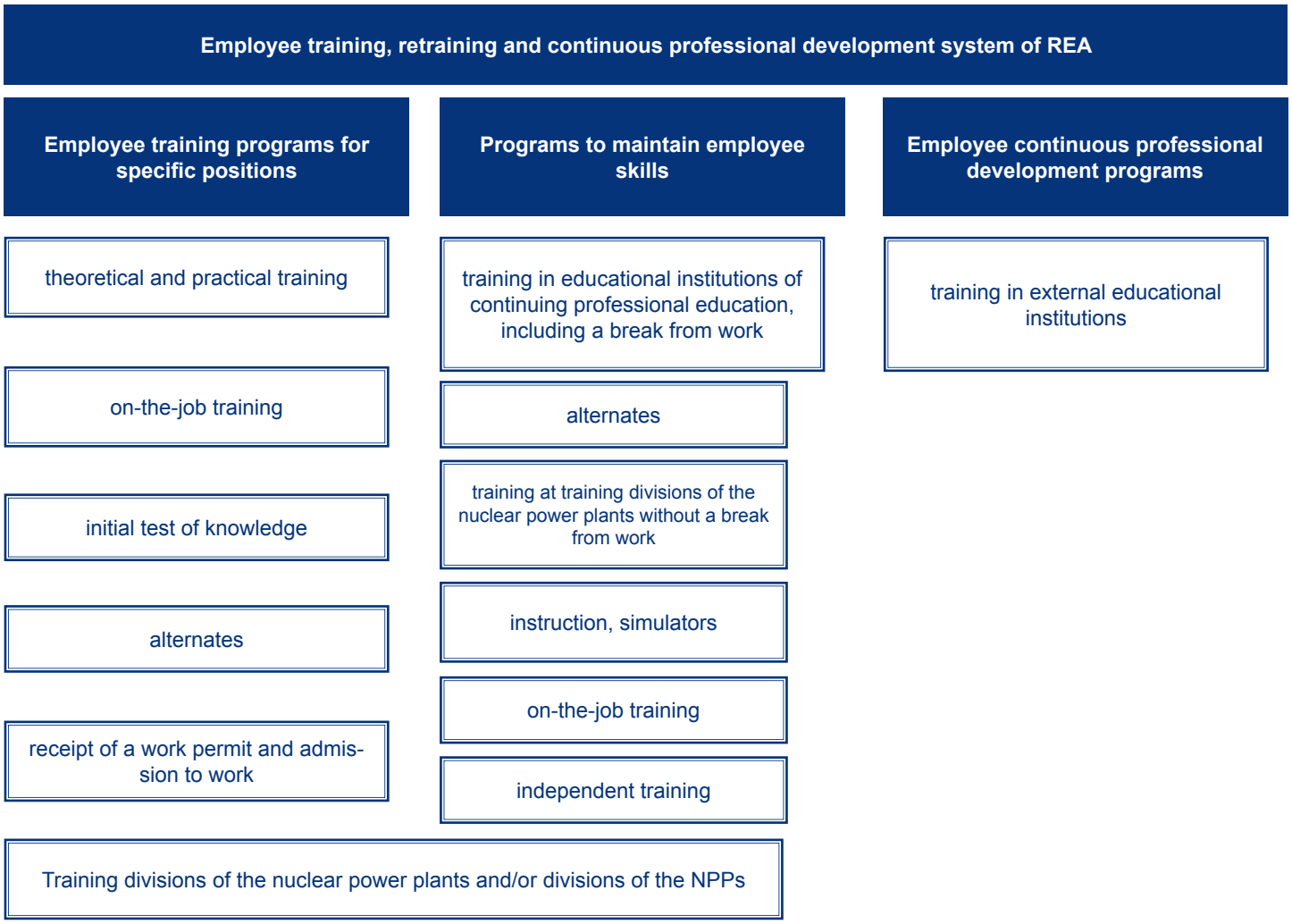
The costs on the professional training of the employees of NPP and the head quarters of REA at external educational institutions in 2009 amounted to RUB 140,765 thousand (net of VAT), which amounts on average to RUB 3,740 per employee per year.

Fig. 18. Costs on training the employees of Rosenergoatom



REA attentiveness to raising the professional skills of its employees has resulted in a perceptible reduction in the level of injuries and its maintenance at the lowest possible level, a reduction in the number of personnel errors, a reduction in the number of equipment failures, an increase in the maintenance interval and also the absence of serious violations and emergency situations at nuclear power plants.

Fig 18. Employee training, retraining and continuous professional development system of REA



12.2. Youth policy

REA pays special attention to its youth policy.

From 2007 to 2015 inclusive REA is implementing the program “Youth of REA”. The set of measures taken within the scope of the program has made it possible to reduce the average age of employees to 44.7 years and at the NPPs to 42.6. To recruit and retain young and talented personnel, REA seeks to create the conditions for career growth and development, guarantees a good salary, provides opportunities to constantly train and upgrade skills, supports young people in acquiring adequate housing. This is done on the basis of the provisions of the Collective Agreement and through existing programs and provisions that provide guarantees to young employees from the employer.

The effective REA youth recruitment program includes acclimatization, improvement in professional skills and career planning.

Work on acclimatizing young employees and young specialists makes use of mentoring.

Contests of professional skills are held in order to involve youth in the general production process and achieve professional growth.

In order to identify its most promising young employees, REA uses procedures for their capability assessment. The results are taken into account when establishing the personnel reserve, preparing the rotation plan and in career planning for young employees and specialists.

Based on the results of the assessment of the potential of young employees in 2009, a strategic reserve was created that included 1,006 employees.

The program for integrating youth into REA has resulted in an increase in the total number of young employees and specialists, which will make it possible to resolve the problem of staffing operational nuclear power plants and those under construction.

At present organizations of young nuclear power workers operate at eight nuclear power plants. They unite socially active young employees, who perform activities in four main areas: scientific and technical, social, informational and corporate culture. Youth organizations are actively involved in the mentoring process, process-improvement, innovation and scientific activity, the development of a system of youth benefits, the work of housing commissions, organization of leisure activities for the workforce and the organization of corporate events. The youth organizations of REA have more than 1,000 members.

The International Association of Young Nuclear Employees is an active contributor to measures towards implement youth policy at REA. Information support for the activity of REA youth organizations is provided on this organization's website. The closest contacts have been established with IATE (Obninsk), Chernobyl NPP (Slavutich, Ukraine) and Ignalina NPP (Visaginas, Lithuania).

The following measures were organized and carried out in 2009 as part of youth policy:

- meeting of the Steering Committee of authorized representatives of the youth organizations of nuclear plants;
- conference of the International Association of Young Nuclear Workers;
- 5th International Quiz Show Tournament for the programs "What? Where? When?" and "Brain Ring";
- 9th International Creative Festival of Nuclear Power Plant Youth "Desnay-2009";
- International Ecological Forum "NPP Youth: Safety, Ecology, Life";
- inter-regional "Memory Watch" in the Zubtsovsky district of Tver oblast;
- 7th International Youth Festival "Autumn Maximum" of improv comedy teams from nuclear power companies;
- professional skills competition among young workers of REA;
- International Scientific and Technical Conference "NPP Youth: Safety, Science and Production".

13. Social investments

13.1. Social, health and other programs for the employees of Rosenergoatom

REA programs for social guarantees are aimed at identifying and developing employees' creative abilities and professional capabilities to the greatest degree possible. This is one of the most important factors in improving the productivity of each job, ensuring safety and increased efficiency in producing electricity and heat power at nuclear power plants. The stable socio-economic climate and the creation of a single social space at REA will make it possible to improve the corporate governance system, including the management of non-financial risks.

In 2009, as part of targeted assistance to certain categories of employees, REA implemented the centralized programs "Veteran", "Housing", "Health", "Personnel Rehabilitation", "Youth", and others.

Insurance

REA social policy in terms of personal insurance and rehabilitation consists of comprehensive insurance coverage for REA employees, and includes insurance against the effects of radiation and accidents on the job and at home, voluntary medical insurance, and recovery and convalescence treatment.

Thanks to the implementation of a centralized social policy in the field of personal insurance, employees of REA have 100% protection against the risks of radiation effects, and also enjoy the opportunity to receive medical services under a unique voluntary medical insurance program that was developed specially for REA. This program offers coverage that is in no way inferior and in many respects is even superior (taking into account the specifics of the organization) to the insurance programs for companies of the fuel and energy industry.

Expenditures on employee insurance in 2009 totaled RUB 449.1 million.

"Health" Program

All employees of REA, and also their children and non-working pensioners, are covered by a single voluntary medical insurance program – a range of medical services that are not provided under guaranteed government medical care (including mandatory medical insurance) in the main areas of medical services.

In 2009 58,966 people were insured under voluntary medical insurance contracts with REA.

All employees of REA are provided with round-the-clock insurance coverage against the effects of radiation and accidents at work and at home.

The individual insured amount under the insurance contract at work was equal to:

- for members of the nuclear power plant assistance group (OPAS) and emergency-response teams – RUB 250,000;
- for employees in the industrial–production sector – RUB 101,500;
- for employees in the non-production sector – RUB 50,000.

The individual insured amount under the insurance contract against domestic accidents for employees of the industrial production sector and the non-production sector is RUB 60,000.

The combination of risks for which employees of REA are covered reflects the fullest coverage against events capable of creating additional expenses for the employee on convalescence. Insurance coverage guarantees compensation for lost income and unforeseen expenses for employees (their families) in the event of an accident.

"Housing" Program

Implementation of housing programs in 2009 continued at 10 NPPs and in the head quarters of REA.

Over 2009, 473 families of employees of REA improved their living conditions; employees purchased 29,603 m^2 of housing. The total value of loans issued (installment plans provided) to employees to improve their living conditions was RUB 1,058.6 million.

Non-state pension coverage

REA has been successfully operating a non-state pension program since 2003, which has virtually solved the problem of financial support for retired employees of REA.

In 2009 the number of REA pensioners participating in the non-state pension program reached 17,321. Funds expended on non-state pension coverage reached RUB 628,742 thousand.

"Veteran" Program

REA has a successfully functioning veterans' system, with 12,700 members. In 2009, the number of retired employees increased by 713, or 5.9%. More than 7,000 pensioners continued to work in their positions in 2009.

Relying on the UN principle "Older persons should be able to live in dignity and security", Rosenergoatom allocates significant funds to the social support of its former employees, offering them the following benefit under the corporate program "Veteran":

- guarantees in the form of non-state pension coverage (NPC) and voluntary medical insurance (VMI);
- benefits in the form of annual material assistance on government and corporate holidays, on milestone birthdays of pensioners, and in emergencies.

Social support for veteran employees also includes full or partial payment of the cost of sanatorium, convalescence, and tourist vouchers, full or partial payment of the cost of individual medical equipment, provision of vital material assistance to purchase medicine, caseworker visits to single ill pensioners, and other types of support stipulated by the collective agreements of NPPs and the head quarters of REA, and also within the framework of the Inter-Regional Public Organization of Veterans of REA (IPOVC).

REA relations with veterans' organizations are based on Cooperation Agreements concluded with these organizations. REA plans for targeted funds to support the work of veterans' organizations on an annual basis.

In 2009 REA provided pensioners with the following social support:

- guarantees in the form of non-state pension coverage and voluntary medical insurance;
- benefits in the form of annual material assistance on government and corporate holidays, on milestone birthdays of pensioners, and in emergencies.

In 2009 REA indexed the minimum amount of the non-state pension to RUB 800.

The number of pensioners sent for medical rehabilitation increased by 6%.

"Personnel rehabilitation" program

The following results were achieved under the corporate program "Personnel rehabilitation" in 2009:

- 3,804 persons were treated under external rehabilitation programs, including 2,666 to the sanatoria and convalescence centers on the Black Sea coast, 809 to Mineralnye Vody in the Caucasus, and 329 to central areas of Russia;
- local rehabilitation of personnel in 10 preventative-care facilities of nuclear power stations (9,836 persons underwent procedures).

In addition:

- 6,536 persons took vacations to sanatoria and convalescence centers pursuant to NPP Collective Agreements;
- 3,422 persons received rehabilitation treatment under VMI contracts.

For the four areas as a whole, more than 23,598 persons received treatment in 2009.

13.2. Contribution to socio-economic development in the regions of presence

Management of REA recognizes that its activities have a substantial effect on a group of people external to the company. As a major corporation, Rosenergoatom cannot stand aside from the life of the local communities in the regions of its presence, since external social investments are integral to REA concept of sustainable development. Charitable spending in 2009 totaled RUB 452 million.

External social investments were made in 2009 pursuant to the "Rosenergoatom Charitable Program for 2009", approved at a meeting of the Board of Directors.

Support for children and veterans was the main area of REA charitable activities.

As part of its support for spiritual renaissance, REA provided charitable assistance to monasteries, cathedrals, and religious organizations. RUB 10 million was allocated to the renovation and reconstruction of buildings at the Sarov Hermitage of the Dormition (Nizhny Novgorod Eparchy of the Russian Orthodox Church), and to continuing work on the restoration of sites associated with the life of Saint Serafim of Sarov.

The sum of RUB 20 million was allocated to the construction of the Church of the Epiphany of Our Lady to Saint Sergei of Radonezh in the Sergiev Posad Children's Home for the Blind and Deaf, and RUB 8 million to organizing a full-fledged educational process (secondary education; supplementary extracurricular education; inculcation of job skills; professional basics) in the Saint Sergei of Radonezh Residential School in Toporkovo, Sergiev Posad district, Moscow oblast.

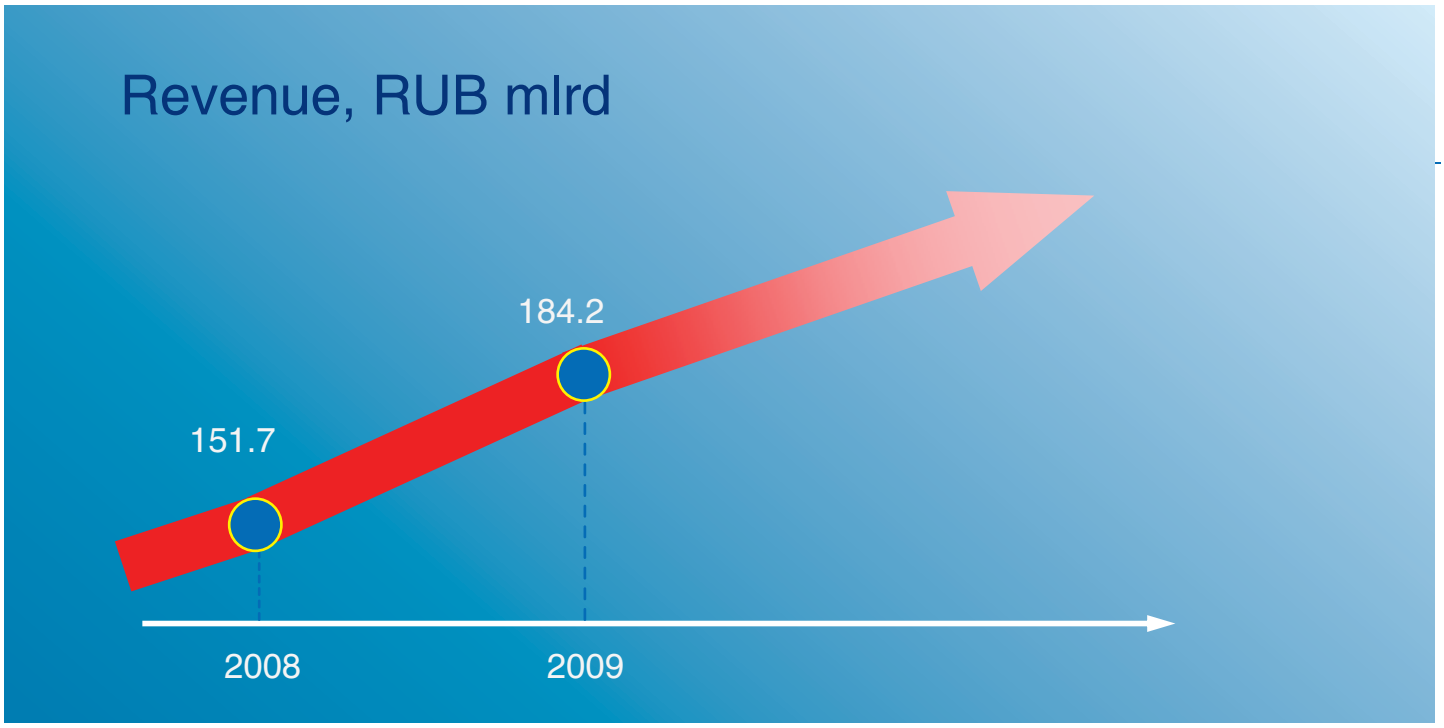
In addition, Rosenergoatom provided assistance to other churches and social institutions in the satellite cities of the NPPs (Novovoronezh, Zarechny, Desnogorsk, Kurchatov).

In total REA spent RUB 94 million on charitable activities within the framework of the "Spiritual rebirth" section.

RUB 30 million was allocated to support the veterans of nuclear power plants (under the IPOVC program).

RUB 28 million was allocated to the development of the Dynamo Leningrad Oblast volleyball club.

In addition, affiliates of REA carried out charitable activities as part of their own programs.



IV. FINANCIAL MANAGEMENT

14. Management of finances and main results

14.1. Main financial results

Balance-sheet indicators

These financial indicators should be considered in conjunction with the audited financial statements of Rosenergoatom for the year. The financial statements cover the reporting period from 1 January 2009 to 31 December 2009.

Table 7. Main indicators of Rosenergoatom in 2009

Revenue	184 232 795
Profits before tax	32 489 497
Net profit	27 235 276
Net assets	509 328 830

Table 8. Structure of assets and liabilities of Rosenergoatom in 2009

Line of balance sheet	Indicators	As of 01.01.2009, RUB thou.	% of balance-sheet total	As of 31.12.2009, RUB thou.	% of balance-sheet total	Increase, RUB thou.
190	Non-current assets	270 936 449	70%	401 705 383	67%	130 768 934
120	including fixed assets	128 754 599	33%	153 066 263	26%	24 311 664
290	Current assets	113 592 824	30%	194 264 009	33%	80 671 185
300	**BALANCE**	**384 529 273**	**100%**	**595 969 392**	**100%**	**211 440 119**
490	Capital	346 171 466	90%	507 876 442	85%	161 704 976
590	Non-current liabilities	16 528 720	4%	21 547 148	4%	5 018 428
510	including loans & borrowings	16 405 914	4%	21 073 701	3,5%	4 667 787
690	Current liabilities	21 829 087	6%	66 545 802	11%	44 716 715
610	including loans & borrowings	5 597 463	1%	12 014 929	2%	6 417 466
300	**BALANCE**	**384 529 273**	**100%**	**595 969 392**	**100%**	**211 440 119**

Rosenergoatom's assets as of 31 December 2009 had a total value of RUB 595,969,392 thousand.

Non-current assets predominate in the asset structure of the Rosenergoatom. They accounted for 67% of assets as at the end of the reporting period.

The structure of Rosenergoatom's working capital is characterized by a predominance of equity capital – 85%.

Short-term liabilities accounted for 11% of the total liabilities of Rosenergoatom.

Net assets as at 31 December 2009 equaled RUB 1,451 thousand.

In accordance with Rosenergoatom's accounting policy, and on the basis of a calculation of the current market value of the financial investments of organizations listed on the MICEX exchange which have a share in the charter capital of Rosenergoatom, the accounts show gains from the revaluation of financial investments in the amount of RUB 14,086,753 thousand. Financial investments that have a current market value are revalued annually as at the end of the period.

In accordance with REA accounting policy, a stocktake of financial investments was performed as of the end of the previous year. On the basis of an order of REA and Minutes, provisions were created for the impairment of financial investments in the amount of RUB 277,117 thousand.

The structure of REA borrowings is shown in the table below:

Table 9. Gain from the revaluation of the financial investments

Name of legal entity	Gain from the revaluation of the financial investments
JSC INTER RAO UES	14 086 573,59
JSC FNC UES	9,93
JSC Sibirtelecom	46,18
JSC OGK-2	9,88
JSC KamAZ	31,37
JSC IDGC of the Urals	81,67
TOTAL	**14 086 752,63**

Table 10. Structure of borrowings of Rosenergoatom in 2009

	As at 01.01.2009, RUB thou.	As at 31.12.2009, RUB thou.	Increase, RUB thousand
Non-current liabilities	16 405 914	21 073 701	4 667 787
Bank loans	16 405 914	21 073 701	4 667 787
Borrowings	0	0	0
Current liabilities	5 597 463	12 014 929	6 417 466
Bank loans	5 597 463	12 014 929	6 417 466
Borrowings	0	0	0
TOTAL	**22 003 377**	**33 088 630**	**11 085 253**

Indicators of financial position

The main indicators of financial position are shown in the table below:

Table 11. Main indicators of the financial position of Rosenergoatom in 2009

Indicator	Standard	as of 1 Jan 2009	as of 31 Dec 2009
Liquidity indicators			
Cash ratio	0,2-0,5	0,14	0,10
Quick ratio	0,7-0,8	0,35	0,19
Current ratio	1,0<K<=2,0-2,5	4,80	2,31
Indicators of financial stability			
Debt-equity ratio (leverage)	K<1,0÷1,5	0,10	0,16
Autonomy ratio (equity to total assets)	0,4÷0,8	0,91	0,86
Current assets adequacy ratio	K>=0.1	0,79	0,57
Current assets to equity ratio	K>=0,5	0,20	0,15

14.2. Budgeting and cost management

To attain key performance indicators, REA uses a systematic approach to planning and cost accounting.

Every year, in order to ensure the implementation of the production program of REA and the guaranteed financing of high-priority lines of business and development, schedules of income and expenses by lines of business are developed, with a breakdown by structural divisions of REA and for REA as a whole, which are the basic documents for the expenditure of funds by REA and its affiliates for the planning period.

Funds are expended in strict compliance with the limits assigned to structural divisions, in accordance with the approved aggregated schedules of income and expenses on production and sales.

Schedules of production income and expenses are adjusted in accordance with the Procedure for Adjustments to Income and Expense Schedules of REA.

The expenses of structural divisions of the head quarters and affiliates of REA are monitored on a monthly basis, the implementation of the summary schedule is analyzed quarterly, reasons for deviations from target figures are identified in order to optimize costs, and expense reserves are identified and used.

Starting in 2009, Atomenergoprom has been monitoring the main indicators of business activity. For the purposes of organizing a unified system for creating plans and reports of business indicators of subsidiaries, Atomenergoprom has developed and approved income and expense budgets, pursuant to which REA will carry out budget planning and prepare the financial statements.

APPENDIX 1.
Main production and financial indicators of Rosenergoatom

Indicator	Units	2008	2009	Note
Electricity generation	billion kWh	162.3	163.3	Actual generation of electricity in total for NPPs according to source accounting acts
Installed capacity utilization ratio	%	79.5	80.2	
Charter capital	RUB million	318265	391563	
Revenue	RUB million	151675	184233	
Net export revenues	RUB million	71	95	
Total amount of main tax remittance accrued for payment to the budget (actual taxes paid): - federal budget - local and regional budgets	RUB million RUB million RUB million	16675 9210 7465	3841 -5153 8994	
Net profit	RUB million	10159	27235	
Value of assets	RUB million	384529	595969	
Value of net assets	RUB million	345949	509329	
Gross profits, less provisions accrued for capital investments pursuant to RF Government Resolution No. 68 of 30 January 2002	RUB million	22306	28165	
Total remittances for profits tax accrued for payment (profits tax actually paid):	RUB million	3591	4197	
accrued dividends payable	RUB million	-	863	
charity expenses	RUB million	486	452	
EBITDA margin	%	43.39	52.86	

Indicator	Units	2008	2009	Note
Equity investments	RUB million	106 525.3	178 981.3	Volume of funds used in the reporting period for capital investments under the investment program
Market share Russia globally	 % %	 16% 0.7%	 16% 0.7%	
Obligations on long-term contracts with customers (portfolio of customer orders)	RUB million	20 968	34 679	The actual value of deliveries of electricity under commission contracts and sale-purchase contracts on the next day market and the balancing market (previously concluded contracts are extended annually) (exclusive of VAT)
Obligations under contracts with suppliers and contractors (portfolio of orders of suppliers and contractors)	RUB million	1 943.62	2 347.29	Actual cost of services: - on dispatcher management in power generation; - on the organization of wholesale trade in electricity, capacity and other goods and services permitted on the wholesale market; - comprehensive services to calculate requirements and obligations and commission fees (the relevant contracts are concluded on an annual basis) (inclusive of VAT)
Obligations on contracts with customers (portfolio of customer orders)	RUB million	106 743	128 694	The actual value of deliveries of electricity and capacity under regulated contracts and sales–purchase contracts for capacity produced on the generating equipment of nuclear power plants and hydroelectric plants (contracts are concluded on an annual basis) (exclusive of VAT)
Average number of employees on staff	persons	38330	37 596	
Labor productivity	thou. RUB/ person	3957.1	4900.3	

APPENDIX 2.
Information on affiliatees of Rosenergoatom

№	affiliate	Location	Postal address
1	Balakovo Nuclear Power Plant, affiliate of Rosenergoatom	Natalinskoe Municipal Entity, Balakovo Municipal District, Saratov oblast	Balakovo, 413866 Saratov oblast
2	Beloyarsk Nuclear Power Plant, affiliate of Rosenergoatom	Zarechny, Sverdlovsk oblast	Zarechny, 624251 Sverdlovsk oblast
3	Bilibino Nuclear Power Plant, affiliate of Rosenergoatom	Bilibino, Chukotka Autonomous Okrug	Bilibino, 689450 Chukotka Autonomous Okrug
4	Volgodonsk Nuclear Power Plant, affiliate of Rosenergoatom	Volgodonsk, Rostov oblast	Volgodonsk-28, 347388 Rostov oblast
5	Kalinin Nuclear Power Plant, affiliate of Rosenergoatom	Udomlya, Tver oblast	Udomlya, 171841 Tver oblast
6	Kola Nuclear Power Plant, affiliate of Rosenergoatom	Polyarnye Zori, Murmansk oblast	Polyarnye Zori, 184230 Murmansk oblast
7	Kursk Nuclear Power Plant, affiliate of Rosenergoatom	Kurchatov, Kursk oblast	Kurchatov, 307250 Kursk oblast
8	Leningrad Nuclear Power Plant, affiliate of Rosenergoatom	Sosnovy Bor, Leningrad oblast	Sosnovy Bor, 188540 Leningrad oblast
9	Novovoronezh Nuclear Power Plant, affiliate of Rosenergoatom	Novovoronezh, Voronezh oblast	Novovoronezh, 396072 Voronezh oblast
10	Smolensk Nuclear Power Plant, affiliate of Rosenergoatom	Desnogorsk, Smolensk oblast	Desnogorsk, 216400 Smolensk oblast
11	Directorate of the Voronezh Nuclear Thermal Generation Plant (under construction), affiliate of Rosenergoatom	Shilovo, Voronezh	Shilovo, 394048 Voronezh
12	Directorate of the Kostroma Nuclear Power Plant (under construction), affiliate of Rosenergoatom	Chistye Bory, Buy district, Kostroma oblast	Industrial Zone–2, building 1, Chistye Bory urban settlement, Buy district, 167049 Kostroma oblast
13	Directorate of the Bashkir Nuclear Power Plant (under construction), affiliate of Rosenergoatom	Agidel, Republic of Bashkortostan	452920, Республика Башкортостан, г. Агидель, Цветочный бульвар, д. 5.
14	Scientific-Technical Center for Emergency Technical Work at NPPs (STCETW) affiliate of Rosenergoatom	5/1 ulitsa Lva Tolstogo, office B-504, Moscow	25 ul. Ferganskaya, 109507 Moscow
15	Design and Engineering Affiliate of Rosenergoatom	4a ulitsa Dnepropetrovsky proyezd, Moscow	25A Bolshoi Strochenovsky pereulok 25, Moscow 115054
16	Technology Affiliate of Rosenergoatom ("Technology Affiliate")	5/1 ulitsa Lva Tolstogo, office B-506, Moscow	25 ul. Ferganskaya, 109507 Moscow
17	Nuclear Power Plant Engineering and Technical Center, affiliate of Rosenergoatom	5/1 ulitsa Lva Tolstogo, office B-508, Moscow	25 ul. Ferganskaya, 109507 Moscow
18	Directorate of Floating Nuclear Cogeneration Plants under Construction, affiliate of Rosenergoatom	24/26 ulitsa Bolshaya Ordynka, Moscow	ulitsa Bolshaya Ordynka 24/26, 119017 Moscow

№	affiliate	Location	Postal address
19	Directorate of Capital Construction of the Rostov Nuclear Power Plant (under construction), affiliate of Rosenergoatom	Volgodonsk-28, Rostov oblast	Industrial Zone, Volgodonsk-28, 347388 Rostov oblast
20	Directorate of the Leningrad Nuclear Power Plant-2 (under construction), affiliate of Rosenergoatom	Sosnovy Bor, Leningrad oblast	Industrial Zone, Sosnovy Bor, 188540 Leningrad oblast
21	Directorate of Novovoronezh Nuclear Power Plant-2 (under construction), affiliate of Rosenergoatom	Novovoronezh, Voronezh oblast	Industrial Zone, Novovoronezh, 396072 Voronezh oblast
22	Directorate of Beloyarsk Nuclear Power Plant-2 (under construction), affiliate of Rosenergoatom	Zarechny, Sverdlovsk oblast	Industrial site, Zarechny, 624250 Sverdlovsk oblast
23	Directorate of the Baltic Nuclear Power Plant (under construction), affiliate of Rosenergoatom	Neman, Neman municipal district, Kaliningrad oblast	Neman, Neman municipal district, 238710 Kaliningrad oblast

APPENDIX 3.
Financial statements for 2009 stipulated by the regulatory acts of the Russian Federation

The 2009 financial statements of Rosenergoatom were audited by the audit firm Nexia Pacioli, Moscow. Based on its audit, Nexia Pacioli issued an unqualified audit opinion. To see the signed, stamped official audit opinion, users are directed to the Russian edition of the Rosenergoatom 2009 Annual Report, available at www.rosenergoatom.ru

APPENDIX 4.
Auditor's opinion, confirming the reliability of the 2009 annual financial statements of Rosenergoatom

The 2009 financial statements of Rosenergoatom were audited by the audit firm Nexia Pacioli, Moscow. Based on its audit, Nexia Pacioli issued an unqualified audit opinion. To see the signed, stamped official audit opinion, users are directed to the Russian edition of the Rosenergoatom 2009 Annual Report, available at www.rosenergoatom.ru

APPENDIX 5.

Opinion of the Internal Audit Commission on the results of the review of the financial and business activity of Rosenergoatom in 2009

The 2009 financial statements of Rosenergoatom were audited by the audit firm Nexia Pacioli, Moscow. Based on its audit, Nexia Pacioli issued an unqualified audit opinion. To see the signed, stamped official audit opinion, users are directed to the Russian edition of the Rosenergoatom 2009 Annual Report, available at www.rosenergoatom.ru

APPENDIX 6.
Information on events involving interested parties of Rosenergoatom

Relations with the state authorities and environmental protection organizations

A clear explanation of the social and economic benefits from the development of nuclear power can be a significant factor in creating a positive image for the nuclear power industry among the various affiliates and levels of government in the Russian Federation, among the general public, and among environmental-protection organizations. Measures taken to achieve this goal in 2009 include:

- expert round tables were held in Kostroma, Navashino, Neman, Krasnoznamensk, Sovetsk, Kaliningrad, Tomsk, Novovoronezh, Balakovo, and Saint Petersburg;
- Public Councils for nuclear energy have been organized and are operating in Kostroma oblast and Murmansk oblast;
- legislative initiatives have been taken in local governments to introduce regional rate discounts on electricity in areas where NPPs are located (Udomlya, Polyarnye Zori);
- sociological research has been conducted in the territories where NPPs are located.

REA strives to foster an atmosphere of openness and trust, and to maintain a spirit of cooperation with organizations and movements concerned with environmental issues. To promote constructive relations, REA organizes special events such as seminars, meetings with activists from public organizations. Public hearings are held in regions where significant projects are planned for the medium-term. Participants in public hearings include representatives of public political organizations, parties and movements, deputies, representatives of local government and regional oversight authorities, ecologists, doctors, teachers and journalists.

Public hearings were held at the Balakovo NPP affiliate of REA to discuss materials on the justification for the license (regarding the assessment of the environmental impact from the testing and trial operation) for the operation of power unitgeneration block No. 2 of the Balakovo NPP at a capacity of 104%. As a result of the discussion, participants in the hearing adopted a joint protocol that approved all of the materials and documents submitted for consideration. Public hearings were also held on environmental impact assessment materials for the Seversk, Leningrad, Rostov, Balticysk, Tver, Nizhny Novgorod, Central NPPs and for the FNCP in Vilyuchinsk.

Events to interact with key stakeholders included round tables:

- in Saint Petersburg – with public and environmental associations regarding Leningrad NPP-2;
- with the heads of the villages of Udomelsky district – as part of public hearings on the construction of the Tver NPP;
- with ecologists in Kaliningrad, with deputies of the Krasnoznamensky district of Kaliningrad oblast regarding the BalticBalticBalticBaltic NPP.

Representatives of REA have also participated actively in organizing and holding a Dialogue Forum in Murmansk, provided information support and also helped with the organization of a round table at the forum on the issues of safe functioning of the Kola NPP, involving the management of the Kola NPP, ecologists and the media.

Relations with employees and unions

REA social policy is built on the principles of social partnership with the primary union organizations, the Russian Professional Union of Nuclear Energy Workers and the Association of Union Organizations of nuclear power plants and the head quarters of REA. The parties proceed on the basis that their joint efforts are aimed at ensuring more efficient production, which in turn makes it possible to create conditions to improve the welfare of REA employees, increase tax payments to the budgets of all levels, and thereby help to resolve the social problems of the regions where the nuclear power plants are located and to foster their development.

The social partnership takes the following forms:

- collective bargaining to prepare draft collective agreements and contracts, and to approve them;
- mutual consultation (negotiations) on issues of settling employment relations and other directly associated relations, and to support the guarantees of the employment rights of workers;
- participation by employee and employer representatives in settling employment disputes out of court.

The social partnership applies to the following fields:

- employment relations and employment guarantees;
- training, retraining, and professional development of personnel;
- job safety and health protection;

- payment and labor standards;
- social guarantees, benefits and compensation;
- work with veterans and youth;
- guarantees for union activities.

An important element of social partnership is the development and adoption of in-house regulatory documents, containing employment standards, the most important of which is REA Corporate Agreement in the field of employment and social relations for 2009–2011. This agreement was concluded at the conference of Rosenergoatom employees in 2009.

In 2009 meetings were held of the Association of Union Organizations of the nuclear power plants and head quarters of Rosenergoatom; representatives of the employer participated in each of these meetings.

Relations with media and local communities

Rosenergoatom maintains relations with the media and also with its local communities. The main purpose of this activity is to create favorable conditions for REA to achieve its main goal – the generation of electricity and heat power at the nuclear power plants, with guaranteed safety at the NPPs.

During 2009 REA and its affiliates pursued a unified policy in the field of information, community relations, and relations with state executive and legislative authorities.

A significant factor in creating a positive image for nuclear power and Rosenergoatom among the Russian and foreign public was REA participation in a number of international fora:

- The International Research and Applied Conference "Nuclear Facilities. Public Opinion. Safety";
- The Atomexpo-2009 International Congress (breakout sessions "Nuclear Power. Small- and Medium-Capacity Nuclear Facilities. Infrastructure Development" and "Innovative Nuclear Reactors";
- The 3rd International Forum for Innovation and Ecology "AtomEco-2009".

An important step on the path establishing relationships of trust with local communities was REA participation in organizing, conducting, and providing information support to cultural and sport events:

- the special Territory of Culture event in cities where the NPPs are located;
- personal exhibitions of contemporary artists: Irina Alaverdova, Bato Dugarzhanov, Ilya Danshin, Irina Gornostaeva, Ekaterina Vorona;
- 2nd Theatrical Competition for professional and amateur theatrical groups in the cities where NPPs are located;
- a tour by the Opus Post ensemble, the soloists of the Pokrovsky Musical Chamber Theater and actors of the Taganka Theatre;
- creation of an electronic book with a database of potential builders of the Central NPP;
- the Russian float fishing championship at the cooling reservoir of the Novovoronezh NPP (in conjunction with Rosatom).

During 2009 REA had strong media relations, providing information and data on its current operations and future development plans promptly and in full measure. Rosenergoatom gave frequent interviews to key newsmakers, held press conferences and provided press opportunities during visits to NPPs and other events. The most notable events were the visits of bloggers to nuclear power plants, the visit by a film crew from Rusiya al-Yaum (part of the Russia Today group) to the Kalinin NPP for the educational program "Pulse of the Future".

All of these measures made it possible to continue work on organizing a constructive dialogue between the nuclear power industry and the public in the regions where the NPPs have a presence, promoted the dissemination of objective information on nuclear power, made it possible to prepare newsmakers on nuclear power issues and speakers to participate in work associated with the conduct of public hearings on issues of the safe operation of NPPs, and also strengthened the positive image of Rosenergoatom.

Relations with credit institutions

For the purposes of achieving its goals, REA took out loans to finance its investing activities. Financing was raised for investing activity in 2009 from external credit institutions. Previously concluded loan agreements remained in force. The creditor was selected to minimize loan servicing costs (interest rate, turnover support, minimum balance). Rosenergoatom regularly confirms its financial position, sending information to credit institutions in accordance with the terms of existing agreements. Credit institutions are interested in servicing clients such as Rosenergoatom. As a result, REA has had the ability to diversify its loan portfolio in terms of maturity, interest rates and creditors.

As part of its settlement and cash servicing, REA carries out electronic document management using a remote Client-Bank system. In addition, together with settlement and cash servicing, balances on settlement accounts are also managed.

On the basis of the appropriate contract, REA is the guarantor for JSC Nuclear and Power Generation Machine Building under an agreement on the provision of a loan to the latter company for the purposes of consolidation in the nuclear power sector.

Relations with interested parties on the electricity market

Ministry of Energy of Russia

The Russian Ministry of Energy has a standing Interagency Working Group to monitor the implementation of the General Plan for the Placement of Power Generation Facilities to 2020, which includes representatives of REA.

NP Market Board

REA is a member of the non-profit partnership Market Board, which brings together sellers and buyers of electricity (capacity) who are the subjects on the wholesale market, participants in the distribution of electricity on the wholesale market, organizations that support the functioning of the commercial and technological infrastructure of the wholesale market, and other organizations that operate in the area of electricity.

Representatives of Rosenergoatom on the Board participate in the work of:

- the Supervisory Board of NP Market Board;
- the Market Model Committee of the Supervisory Board of NP Market Board;
- the Commercial Accounting Committee of the Supervisory Board of NP Market Board;
- Commission of the Supervisory Board of NP Market Board on payments on the wholesale market for electricity and capacity;
- the Conflict Committee of the Supervisory Board of NP Market Board;
- the Commission on Out of Court Settlements of NP Market Board;
- the Commission on System Reliability of NP Market Board;
- Commission of the Supervisory Board of NP Market Board on relations with the European Union of the Electrical Industry (EURELECTRIC);
- the Methodological Board on Financial and Tax Accounting of the Supervisory Board of NP Market Board;
- the Working Group on Forecasting and Assessing Socio-Economic Implications of Decisions of the Supervisory Board of NP Market Board;

JSC Federal Network Company of the Unified Energy System UES

The open joint-stock company Federal Network Company of the Unified Energy System (UES) was founded in accordance with the program to reform the electricity generation industry of the Russian Federation, as the organization to manage the Unified National (Russian) Electrical Network (UNEN).

FNC UES and Rosenergoatom work actively together on matters of synchronizing the construction of the NPP units and network facilities to transfer the capacity of nuclear power plants to UES of Russia.

As part of measures to commission new capacity in 2009 contracts were signed on the technological connection of the generating facilities of Kalinin NPP (4th power unit), Rostov NPP (2nd power unit), Leningrad NPP-2 (1st and 2nd power units), Beloyarsk NPP (4th power unit), Novovoronezh NPP-2 (1st and 2nd power units), and Kursk NPP (5th power unit) to the electrical network of FNC UES.

Technical specifications approved by FNC UES were issued for the technical connection of the power generation facilities of the 2nd power unit of the Rostov NPP to the electricity networks.

The FNC UES Investment Program for 2010–2012 has agreed on and included the necessary amount of network construction to carry the capacity of the 2nd power unit of the Rostov NPP and the 4th power unit of the Kalinin NPP. Power distribution schemes (“PDS”) have been agreed on for the 4th power unit of Beloyarsk NPP, and the 3rd and 4th power units of Rostov NPP (with insignificant provisos). The PDS for the first phase of the Leningrad NPP, Novovoronezh NPP-2, and the 5th power unit of the Kursk NPP have been developed. Rosenergoatom reached preliminary agreement on the option for a 500 kW connection Balakovo Aluminum Plant in accordance with the PDS for the 5th and 6th power units of Balakovo NPP and the associated plan for external power supply (which is being developed at the request of RusAl). Development of the PDS for the Baltic NPP has begun at the request of InterRAO (three meetings were held in 2009 to discuss the proposed options). FNC UES agreed on the PDS for Nizhny Novgorod NPP using the “Southern” option.

JSC INTER RAO UES

In conjunction with REA, Inter RAO UES has a standing Working Group to study opportunities and organization of exports of the electricity from NPPs; a representative of Rosenergoatom is the chairman of the Working Group.

The remit of the working group includes the development of positions on issues of coordinating the process of implementing international investment projects in the area of the import and export of electricity, and also voting positions for the representatives of the Rosatom State Corporation on the Board of Directors and consultative bodies of Inter RAO UES.

Executive Committee of the CIS Electrical Power Board

REA provides expert input to the working groups under the Executive Committee of the CIS Electrical Power Board on:

- the formation of a common market for electrical power among CIS countries;
- the implementation of an Agreement on Electrical Power and Capacity Transit among the Participating States of the CIS;

and also the work of the Coordinating Council on implementing the Strategy on Relations and Coordination of the Participating States of the CIS in the area of electricity.

Relations with international organizations

The international activity of Rosenergoatom is organized systematically based on established programs and goals, and the use of project management methods. This organizational structure has made it possible to achieve the planned target figures associated with the performance of obligations, the involvement of assets, the receipt of information, maintenance of image and conduct of training programs abroad.

REA international operations include the following areas:

- international scientific and technical cooperation;
- international nuclear safety programs;
- foreign-economic activity.

International operations are organized and performed according to programs and projects.

Structure and quantity of international events

In 2009 more than 140 receptions were held and more than 150 foreign business trips were taken by employees of REA head quarters and affiliates.

The following were the most notable of the 30 major international events in 2009:

- the visit of a Rosenergoatom delegation headed by General Director S.A. Obozov, to hold negotiations with the management of the China National Nuclear Corporation (CNNC) and with the Jiangsu Nuclear Power Corporation (JNPC), China.
- visiting training session for managers of the nuclear power industry on applying the Toyota production system;
- conference on the 20th anniversary of WANO;
- conference on “45 years of safe operation of NPPs with VVERs” at the Novovoronezh NPP;
- comprehensive emergency-response training at the Balakovo NPP;
- visits of a delegation from Toyota on Rosatom’s implementation of their production system.

In the reporting period 18 receptions were held in connection with international inspections, including:

- a partner review by WANO at the Kursk NPP;
- international insurance inspections at the Leningrad and Baltiysk NPPs;
- a visit to the Kalinin NPP as part of a comprehensive IAEA review of the operations of the regulatory body (Rostekhnadzor);
- technical support mission.

Rosenergoatom representatives took part in 23 Managing Committees and Boards with its main partners, such as WANO, EDF, NAEK Energoatom, Iberdrola, etc. The Committees are headed by the first directors of Rosenergoatom and foreign companies.

In 2009 Rosenergoatom employees took part in 220 working seminars and meetings on existing projects and contracts.

Ten training courses were held abroad, attended by 30 specialists from the NPPs and head quarters of REA, such as:

- “Study of new functional capabilities of the CE2-ORA computerized financial and tax accounting system”;
- “Information security – British and international standards”;
- “Ownership rights to the results of R&D activity: Legal theory and practice”;
- study of the experience of the Czech Energy Company on improving the company’s management system.

International Safety Programs (ISPs) are implemented on the basis of inter-governmental agreements and are aimed at solving issues of nuclear and radiation safety. In 2009 five technical assistance programs were carried out in the field of nuclear safety; 60 projects were carried out aimed at increasing the safety of existing NPPs and transferring the latest technologies.

The TACIS project at the Balakovo and Kalinin NPPs were completed.

Foreign-trade activity in 2009 included:

- organization of the work of a group of Rosenergoatom specialists at the Tianwan NPP (China);
- engineering and consulting services were provided on matters on supporting operations and maintenance at units No. 1 and 2 of the Tianwan NPP;
- delivery of spare parts and valves to the Tianwan NPP;
- organization of work on taking the experience in operating the Tianwan NPP into account for new projects;
- organization of the purchase and import of equipment, spare parts, technologies and software necessary to the operation of REA power units;
- export of cobalt-60.

APPENDIX 7.
Table of standard elements of sustainable development of the Global Reporting Initiative (GRI)

GRI subpoint		Reflection in report	Comments
1	**Vision and strategy**		
1.1.	Declaration of the most senior decision-maker in the organization (for example, chief executive officer, chairman of the board of directors, or equivalent) publishing the report, on the relevance of sustainability to the organization and its strategy	completely	8-9
1.2.	Description of key impacts, risks and opportunities	partially	24-24,31
2	**Profile**		
2.1.	Name of the organization	completely	front page, 7, 10
2.2.	Primary brands, products and/or services	completely	10, 29
2.3.	Operational structure of the organization, including main divisions, operating companies, subsidiaries and joint ventures	completely	10, 32-43, 76-77
2.4.	Location of the organization's headquarters	completely	10
2.5.	Number of countries where the organization operates, and the names of the countries covered by the report, with either major operations, or that are especially relevant to the sustainability issues covered in the report	completely	32
2.6.	Nature of ownership and legal form	completely	10
2.7.	Markets served (including geographic breakdown, sectors served, and types of customers/benefi ciaries).	completely	49-50
2.8.	Scale of the reporting organization	completely	44, 65, 71-72, 74-75, 78
2.9.	Significant changes during the reporting period regarding size, structure, or ownership	completely	10-11, 13
2.10.	Awards received in the reporting period	completely	13
3.	**Report parameters**		
3.1.	Reporting period for the information provided	completely	7
3.2.	Date of the most recent previous report (if any)	June 2009	
3.3.	Reporting cycle	completely	7

GRI subpoint		Reflection in report	Comments
3.4.	Contact point for questions on the report and its contents	completely	93
3.5.	Process for defining report content	partially	7
3.6.	Boundary of the report	partially	7
3.7.	State any specifi c limitations on the scope or boundary of the report	partially	7
3.8.	Basis for reporting on joint ventures, subsidiaries, leased facilities, outsourced operations, and other entities that can signifi cantly aff ect comparability from period to period and/or between organizations	Not applicable The information included in the Report is relevant activities of REA and its affiliates	
3.10.	Explanation of the effect of any re-statements of information provided in earlier reports, and the reasons for such re-statement	Wording not changed	
3.11	Significant changes from previous reporting periods in the scope, boundary, or measurement methods applied in the report	No significant modifications	
3.12.	Table identifying the location of the Standard Disclosures in the report	completely	85-87
4.	**Governance**		
4.1.	Governance structure of the organization, including committees under the highest governance body responsible for specifi c tasks, such as setting strategy or organizational oversigh	completely	13-22
4.2.	Indicate whether the Chair of the highest governance body is also an executive officer	completely	15-16
4.3.	For organizations that have a unitary board structure, state the number of members of the highest governance body that are independent and/or non-executive members	completely	15-21
4.4.	Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body	Interaction with shareholders and employees is effected as per RF legislation	
4.14.	List of stakeholders engaged by the organization	completely	22, 81-84
4.15.	Basis for identification and selection of stakeholders with whom to engage	completely	22, 81-84
5	**Management Approach and Performance Indicators**		
Economic Performance Indicators			
EC1	Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments	completely	71-72, 74-75, 78
EC3	Coverage of the organization's defined benefit plan obligations	completely	68
EC8	Development and impact of infrastructure investments and services provided primarily for public benefi t through commercial, inkind,or pro bono engagement	completely	70

GRI subpoint		Reflection in report	Comments
Environmental Performance Indicators			
EN8	Total water withdrawal by source	partially	62
EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	completely	62-63
EN16	Total direct and indirect greenhouse gases by weight	partially	62
EN21	Total water discharge by quality and destination	partially	62-63
EN22	Total weight of waste by type and disposal method	partially	63
EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation	partially	62
Labor Practices and Decent Work Performance Indicators			
LA1	Total workforce by region	partially	65, 75
LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and number of workrelated fatalities by region	partially	60
LA10	Average hours of training per year per employee by employee category	partially	65
LA11	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	partially	65-66
LA12	Percentage of employees receiving regular performance and career development reviews	completely	65

GLOSSARY

Reactor core
The part of the reactor that houses the nuclear fuel, moderator, absorber, coolant, means of changing reactivity and structural elements designed to effect a controlled chain fission reaction and transfer energy to the coolant.

Nuclear power plant
A nuclear facility that generates power under particular modes and conditions of operation, located within a territory defined by the design that contains for this purpose a nuclear reactor (reactors) and the full set of required systems, devices, equipment and structures with personnel.

Nuclear generating plant
A nuclear power plant designed to generate electricity.

Atomic (nuclear) power
The division of the power industry related to the use of nuclear power to generate heat and electricity.

Nuclear power plant safety
The capacity of a nuclear power plant, both in times of normal operation and when normal operation is disrupted, including accidents, to limit the radiation effect on staff, the populace and the environment within established limits.

NPP unit
The part of the NPP that performs the functions of an NPP in the designed scope.

FNR (fast neutron reactor)
A nuclear reactor in which the majority of nuclear fission of the fuel results from fast neutrons.

Commissioning
The process during which the systems and equipment of an NPP block or the NPP as a whole begin operations and are reviewed for compliance with the design. The process includes pre-commissioning configuration work, physical and energy-producing operation, and test operation, and concludes with the transition of the NPP to full-scale operation.

VVER
Vodo-vodyanoi energetichesky reaktor, a Soviet-designed pressurized water reactor.

Release of radioactive materials
The release into the environment (atmosphere) of a substance (mix of substances) in gaseous and/or aerosol form from waste sources.

IAEA guarantee
A system approved by the international community for reviewing the peaceful use of nuclear power, implementation of which has been entrusted to the IAEA.

Radiation dose
In radiation safety, a measure of the effect of ionizing radiation on a biological subject, in particular on a human being. Exposure, absorbed and equivalent doses are distinguished.

Background radiation
The radiation dose received from cosmic radiation and radiation from naturally-occurring radionuclides in the earth, water, air, other elements of the biosphere, food products and the human body.

Closed nuclear fuel cycle
Fuel cycle in which spent nuclear fuel removed from the reactor is processed to extract the uranium and plutonium for repeated use as nuclear fuel.

Containment of the nuclear reactor
An element of the nuclear reactor designed to contain radioactive nuclides within the space bounded by the shell in the event of depressurization of the equipment of the nuclear reactor.

Protective safety systems
Systems (elements) designed to prevent or restrict damage to nuclear fuel, fuel rod cladding, equipment and pipes containing radioactive materials.

Sievert (Sv)
The unit of measure for equivalent doses of radiation. In the SI system of measures, 1 Sv = 1 J/kg = 100 rem.

INES
International Nuclear Event Scale. Introduced with the aim of easing communications and understanding between nuclear-industry specialists, the media and the public regarding the significance from a safety standpoint of events (occurrences) at nuclear installations. The scale classifies events in seven levels: in the upper levels (4–7) they are called “accidents”, in the lower levels (1–3)

"incidents". Events that are insignificant from a safety standpoint are classified at level 0 below the scale and are referred to as "deviations". Events that are unrelated to safety are considered "out of scale".

Channel-type reactor
A heterogeneous reactor in the active zone of which fuel and circulating coolant are contained in separate, hermetically sealed fuel channels capable of withstanding the pressure of the coolant.

Capacity factor
Ratio of arithmetic mean of capacity to installed capacity over a particular interval of time.

Safety classes
Four safety classes are established by the effect of NPP elements on safety.
Safety class 1. Safety class 1 includes fuel rods and elements of the NPP whose failure is the initial event of beyond-design-basis accidents, which given the designed functioning of the safety systems lead to damage to fuel rods in excess of the limits established for design-basis accidents.
Safety class 2. Safety class 2 includes the following elements of the NPP:
- elements whose failure constitutes the initial event leading to damage to fuel rods within the limits established for design-basis accidents, given the designed functioning of safety systems taking into account the standard number of such failures for design-basis accidents;
- elements of safety systems, whose isolated failure would lead to the relevant systems becoming non-functional.

Safety class 3. Safety class 3 includes the following elements of the NPP:
- systems important for safety but which are not in classes 1 and 2;
- those containing radioactive materials whose escape into the surrounding environment (including production areas of the NPP) during failures exceed the values set by radiation safety standards;
- those performing control functions for the radiation safety of personnel and the public.

Safety class 4. Safety class 4 includes elements of the normal operations of the NPP that do not affect safety and which are not included in safety classes 1, 2, and 3. Elements used for accident management that are not included in safety classes 1, 2, or 3, are also included in safety class 4.

Reactor vessel
A sealed reservoir designed to accommodate the active zone of the nuclear reactor, neutron reflectors, control and experimental devices, and also to provide for their cooling by a flow of coolant.

Safety criteria
Values established by regulatory documents or government safety regulatory bodies for the parameters and/or characteristics of NPPs that are the foundation of their safety.

Safety culture
The qualifications and psychological preparation of all persons, such that nuclear power plant safety is a high-priority goal and basic internalized need, leading to an awareness of one's responsibility and to heightened vigilance when performing any work affecting safety.

Open nuclear fuel cycle
A nuclear fuel cycle in which spent nuclear fuel removed from the reactor is not processed and is considered to be radioactive waste.

Required gross revenues
Economically justified amount of monetary funds necessary to the organization to engage in its regulated operations over the course of the imputed period of regulation.

Spent nuclear fuel (SNF)
Nuclear fuel irradiated in the active zone and permanently removed from the reactor.

Radiation safety
State of safety of current and future generations against the harmful effects of ionizing radiation.

Radiation monitoring
Receipt of information on the radiation situation at the NPP and in the environment, and the levels of radiation received by people.

Radioactive wastes
Nuclear materials and radioactive materials whose further use is not anticipated.

RBMK (high-power channel reactor)
A water-cooled, graphite-moderated channel reactor with an electrical capacity equal to or greater than 1 GW, which boils water in fuel channels and transfers saturated steam directly from separators to turbines.

Reactor installation

Set of systems and elements of an NPP, designed to transform nuclear power into heat power, including a reactor and the systems directly related to the reactor required for its normal operation, emergency cooling, emergency safety and maintenance in a safe condition, provided that the required auxiliary and support functions of other plant systems are performed. The boundaries of the RI are established for each NPP in the design.

Reactor control and protection system (CPS)

The aggregate of technical, software and information support systems designed to ensure the safety of the nuclear fission chain reaction.

Safety systems

Systems (elements) designed to perform safety functions. Depending on the nature of the functions they perform, safety systems (elements) are divided into protective, localization, support and control systems.

LIST OF ACRONYMS AND ABBREVIATIONS

NPP	nuclear power plant
CMS TP	computerized management system for technological processes
BM	balancing market
UCP	unit control panel
RDB	recommended data bank
VVER	water-cooled, water-moderated pressurized reactor
VVER-TOI	standardized, optimized and computerized power unit design utilizing VVER technology
RVI	reactor vessel internals
PSA	probabilistic safety assessment
WCR	water-chemistry regime
GW	gigawatt
Gcal	gigacalorie
AE	allowable emissions
VMI	voluntary medical insurance
LRW	liquid radioactive waste
MBA	material balance area
CS	containment shell of the reactor
BDBA	beyond-design-basis accidents
IS	information system
CIS	corporate information system
CF	capacity factor
CMI	control and monitoring instrument
PE	power efficiency
ISCMS	integrated safety control and management system
MWh	megawatt–hour
IPOVC	Interregional public organization of veterans of REA
RDD	research, development and design
R&D	research and development
NPC	non-state pension coverage
STD	standard technical documentation
NOC	normal operation conditions of a reactor
OPAS	nuclear power plant emergency assistance group
FOREM	wholesale electricity and capacity market
SNF	irradiated nuclear fuel
EIS	environmental impact statement
FSR	final safety report
ISAR	in-depth safety assessment report
FNCP	floating nuclear cogeneration plant
FP	fission products
NPPQC	nuclear power plant quality program
PSR	preliminary safety report
NPPQC	nuclear power plant quality program
SPM	Scheduled preventive maintenance
PS	programs and software
FPU	floating power unit
RW	radioactive waste
RBMK	high-power channel reactor
FNR	fast neutron reactor
VC	variable contracts
RI	reactor installation
BDBAMG	beyond-design-basis accident management guidelines
SAMG	serious accident management guidelines
PHRS	passive heat removal system
SO	standards of the organization
SMS	safety management system
NMACS	nuclear materials accounting and control system
EMS	environmental management system
PHRS	passive heat removal system
CIA	construction and installation activities
PHRS CS	passive heat removal system of the containment shell
PHRS SG	passive heat removal system of the steam generator
FPCMS	fire protection control and management system
LBB	“leak before break” concept
FA	fuel assembly
SRW	solid radioactive waste
TTE	technological transportation equipment
TGU	turbine generation unit
SA	serious accident
ToR	Terms of Reference
FA	fuel assembly
TFS	technical feasibility study
SMS-T	safety management system for technology
NPPTD	nuclear power plant training division
ACC	automatic control cabinet
EMI	electromagnetic incremental SMS drive
ACC (BM)	automatic control cabinet (Bilibino modernized)
GSGR	graphite-moderated superheating generating reactor

FEEDBACK FORM

Dear readers,

We have been pleased to offer for your consideration the second Rosenergoatom Annual Report. It is important to us to ensure that the dialog with all of our stakeholders is as transparent and honest as possible.

Your comments and suggestions are important to us, as they will help us to improve the quality of future reports, and make them more informative and relevant.

Please send the completed form to: JSC Concern Rosenergoatom, 25 ulitsa Ferganskaya, Moscow 109507, or by fax to: 8 (499) 270-17-40, tel. for information 8 (495) 926-89-37.

You can also send this form by e-mail to: info@rosenergoatom.ru

1. To which group of interested parties do you belong?

- ☐ Shareholder/investor
- ☐ Employee of REA
- ☐ Representative of government structures/public organizations
- ☐ Media representative
- ☐ Member of the expert community
- ☐ Other (please specify)_____

2. Did this Report answer your questions?

- ☐ Yes, all of them
- ☐ Yes, partly
- ☐ No

3. What other information would you like to see in the next Rosenergoatom Annual Report?

_____

_____

4. Please assess this report using the following criteria:

Criterion	Excellent	Good	Satisfactory	Poor
Relevance and substance of issues addressed				
Reliability of information				
Structure of information and ease of search				
Design of the Annual Report				

Thank you for taking part!