EXPANDING OPPORTUNITIES

2017 INTEGRATED ANNUAL REPORT

atomenergomash
COMPANY OF ROSATOM

JSC ATOMENERGOMASH 2017 INTEGRATED ANNUAL REPORT

NEW PRODUCTS AND BUSINESS AREAS AS THE BASIS FOR SUSTAINABLE DEVELOPMENT

GRI Standard GRI elements

E References to the relevant information of the extended Report

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THE COMPANY IN BRIEF

GRI 102-1, 102-5

JSC Atomenergomash ("the Company") is the Power Engineering Division of the State Atomic Energy Corporation "Rosatom" ("the Division"). It is one of the largest energy and machine engineering holdings in Russia which offers a full range of solutions for design, production and supply of equipment for nuclear and thermal power, gas and petrochemical industry, shipbuilding, special steels market and small-scale hydrogeneration.

The Company has full control over the production chain of key equipment for the nuclear island and the turbine island, from Research & Development, issue of technical documentation and process engineering to the manufacture of equipment.

The Division combines the largest power engineering enterprises, including production, research and engineering organizations in Russia, European countries and the CIS. Unique production and process competences of enterprises included in the Division allow us offering our customers such equipment that complies with the highest requirements.

2017 PERFORMANCE HIGHLIGHTS

GRI 102-7

Economic Performance

68.6 RUB bln
Combined revenue of the Division:

9.8 RUB bln
EBITDA

45 %
Share of revenue from new businesses

Operating Performance

Products shipped to
11 NPPs throughout the world

Efficiency Improvement

587.7 RUB mln
Effect of the RPS introduction*

9.3 %
Labour productivity growth

Scientific Activities

181
scientific publications have been made

80
results of intellectual activity have been obtained

Commercial Activities

454.7 RUB bln
Order portfolio at the year-end:

52 %
Share of new product orders in the order portfolio

176.5 RUB bln
Total value of concluded contracts

29.5 %
Russian power engineering market share

Sustainable development

155.7 RUB mln
Spending on environmental protection

6 %
Reduction of the total mass of waste

65.2 RUB mln
Charity and veteran support expenses

Development of human resources

31 %
Share of specialists under 35 years old

37 %
Share of employees with seniority of more than 10 years

79 %
Engagement level

* RPS – Rosatom Production System.

KEY EVENTS IN 2017

NUCLEAR POWER

- Innovative (the world's first Generation 3+) Power Unit no. 1 of Novovoronezh NPP-2 with the key equipment manufactured by the enterprises of the Division was put into industrial operation.
- Contracts for packaged delivery of nuclear island equipment and auxiliary equipment for Rooppur NPP, Bangladesh, were made.
- Within the framework of the Proryv ("Breakthrough") project, JSC TsKBM and JSC SverdNIIkhimmash finished the supply of unique equipment packages designed to manufacture fuel assemblies at the site of the Experimental Demonstration Energy Complex of JSC Siberian Group of Chemical Enterprises.
- PJSC ZiO-Podolsk and Atommash, the branch of JSC AEM-Technologies shipped equipment packages for Power Unit no. 2 of the Belarusian NPP.
- Petrozavodskmash, the branch of JSC AEM-Technologies, manufactured and shipped equipment for the MBIR* research reactor being built in Dimitrovgrad.
- JSC SNIIP developed a multiplatform to analyse and diagnose any measurements using "cloud" solutions.

* MBIR: multifunctional fast research reactor.

THERMAL POWER

- JSC Atomenergomash has become a complete equipment supplier for the boiler and turbine island of waste-to-energy plants.
- PJSC ZiO-Podolsk manufactured and shipped an equipment package for the boiler island under the contract for packaged delivery for TPP-1 of JSC Arkhangelsk Pulp and Paper Mill.

GAS AND PETROCHEMICAL INDUSTRY

- Atommash, the branch of JSC AEM-Technologies, manufactured super large vacuum column for Omsk Refinery and Moscow Refinery.
- JSC Atomenergomash signed a strategic partnership and cooperation agreement with the largest Russian manufacturer of liquefied natural gas.
- A set of large-sized evaporators was shipped from the production site of JSC SverdNIIkhimmash for the deep raw hydrocarbon conversion complex of Zapsibneftekhim, LLC.
- JSC Afrikantov OKBM made a contract for production of leakproof electric pumps for gas and oil company SIBUR-Kstovo, LLC.

SHIPBUILDING

- PJSC ZiO-Podolsk completed the manufacture and shipment of two RITM-200 reactor systems for the new-generation Arktika icebreaker "Sibir".
- JSC Afrikantov OKBM supplied the equipment of the RITM-200 reactor for the icebreaker "Sibir".

MINI-HYDROELECTRIC POWER PLANTS**

- Ganz EEM LLC, a Hungarian company, signed a contract with Blue World Power and Energy Services PTY LTD for the supply of hydroelectric equipment for the low-power hydroelectric power plant at Mpompomo waterfall, Mpumalanga province, RSA.
- In 2017, contracts for the manufacture and supply of equipment for Ust-Dzhegutinskaya and Barsuchkovskaya small hydroelectric power plants in Russia were made.

** MINI-HYDROELECTRIC POWER PLANTS — equipment for small hydro generation

SPECIAL STEELS

- PJSC Energomashspetsstal manufactured an ingot of 415 t for the production of reactor vessel shell of one of nuclear power plants under construction.
- JSC Atomenergomash signed an agreement of intent for the supply of iron castings with DMG MORI.

Sustainable development

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JSC Atomenergomash acknowledges that adherence to the sustainable development concept is one of the most important factors of successful operation in the mid- and long-term perspectives. The principles of sustainable development are deeply integrated into the Company's activity and reflected in JSC Atomenergomash's mission stated in the Corporate Strategy .

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When the Company initiates and implements its projects, it is guided by the agenda in the field of sustainable development formed based on the results of UN Conference held in September 2015. The Division's contribution to achievement of the Sustainable Development Goals for the Year of 2017 is set forth in the Company's Sustainable Development section.

MESSAGES FROM THE COMPANY MANAGEMENT

GRI 102-14

Dear colleagues,

I am pleased to present to you the Integrated Annual Report of JSC Atomenergomash for 2017. This document focuses particularly on production, financial, social and environmental issues related to the activities of the Power Engineering Division of Rosatom State Corporation.

In 2017, the Division continued its dynamic development and demonstrated a stable growth of financial and economic and operational indicators that are obtained due to the management team's efforts to implement the Rosatom Production System, as well as reduction in process duration and usage of best practices of production management. The Company's labour efficiency has increased more than twice for 5 years; the time required for production of key equipment for nuclear power industry and related industries has been significantly reduced.

I would like to mention continuing growth of the Company's order portfolio in the ten-year period. In 2017, its value was about RUB 455 billion which by RUB 35 billion more than in 2016. If we refer to a five-year dynamics, we can see that the Company's order portfolio has increased to 4.6 times. It is also important that the order portfolio includes not only products for the nuclear power industry but also products for other sectors of economy which is in full compliance with the Rosatom State Corporation's strategy for business diversification.

For example, the Company participates in the localisation of manufacture of equipment for liquefied natural gas production plant. Moreover, last year JSC Atomenergomash became a supplier of complete equipment for the boiler island and the turbine island for waste-to-energy plants that are being built within the framework of the Energy From Waste project of RT-Invest JSC. This is an important project that both opens a new page in the development of green technologies and forms a new market for manufacturers of the respective equipment. That is why the Division's participation in the construction of first plants promises stable positions for the Division at this market.

First contracts for the supply of five hydroelectric units for two mini-HPP projects were made in 2017. GanzEEM, the Company's Hungarian subsidiary, will perform turbine production and delivery, which will allow it to restore its references in the hydraulic power industry.

One more priority of JSC Atomenergomash development is commitment to innovative activities. The Division's enterprises successfully develop advanced process solutions, are key participants of industry projects for building new types of equipment and, today, form the image of future nuclear power industry.

The Company's success is, first of all, due to its team. On behalf of Rosatom State Corporation, I would like to thank all employees of JSC Atomenergomash and its enterprises for effective teamwork aimed at development of the Company and nuclear energy industry. I am confident that all our achievements will provide a firm base for JSC Atomenergomash to establish itself as a leader in the global power engineering industry in the future!

Vladislav Korogodin,
Chairman of the Board of Directors of JSC Atomenergomash[1],
TAC and NPP Life Cycle Management Director of Rosatom State Corporation

[1] Since January 19, 2018.

Dear shareholders, colleagues and partners!

Let me present the 2017 Annual Report of the Power Engineering Division of the State Corporation Rosatom – JSC Atomenergomash.

The previous year was filled with significant achievements and bright events that let not only to reinforce the Company's leading role in the nuclear and power engineering market, but also to achieve significant success in other non-energy related industries.

Combined revenue of the Atomenergomash Group grew by 8 % to RUB 68.6 billion by the end of the year. The Company's order portfolio for the ten-year period reached RUB 455 billion. Particularly, in the reporting year the contracts for a complete supply of the nuclear island equipment and auxiliary equipment of the turbine island to the Rooppur NPP (Bangladesh) were signed. Taking into account these contracts, the Company is currently a complete supplier of the equipment of a nuclear steam-supply system for two power units of the Kursk NPP-2, the second stage of the "Kudankulam" NPP (India), four units of the "Akkuyu" NPP (Turkey) and the "Hanhikivi-1" NPP (Finland).

In addition, in partnership with General Electric Company, contracts for the complete supply of the turbine island, including turbine equipment, for the "Akkuyu" Nuclear Power Plant and the "Khankhikivi-1" Nuclear Power Plant are implemented. Moreover, the Company continues to manufacture auxiliary equipment for the "Kudankulam" NPP and "Bushehr" NPP (Iran) in strict accordance with the contract terms.

Systematic measures are taken at JSC OKB GIDROPRESS to ensure compliance with all necessary procedures within the framework of the Rosatom State Corporation projects in nuclear energy, development of design documentation, obtaining necessary permits and licenses required to start the construction of power units in 2018–2019.

At the same time, we continue to increase our presence in non-nuclear sectors. Working with our partners, we implement complex projects that ensure the development of power, oil refining, gas industry and other key sectors of the Russian economy. In particular and based on the technology and project of JSC SverdNIIkhimmash the construction of a salt plant in the Kaliningrad region and the construction of a water treatment complex at the ZapSibNeftekhim, LLC petrochemical plant continue.

In 2017, the agreement on strategic partnership and cooperation with the country's largest liquefied natural gas (LNG) producer was signed. It allows us to take part in localization of manufacturing complex technological equipment for LNG production. The first contracts under this agreement are already in progress.

The reporting year was full of production events. Above all, I want to note that we have completely mastered the production of the innovative RITM-200 reactor systems for new-generation icebreakers. In 2016, the customer received the reactors for the main icebreaker "Arktika", and in 2017 – for the first serial-built vessel "Sibir". These are brand new reactors that are completely, from design to shipment, manufactured in the Division's contour. The project is implemented with the participation of JSC Afrikantov OKBM as the Chief Designer and a complete equipment supplier, PJSC ZiO-Podolsk as a vessel equipment manufacturer, and JSC NPO TsNIITMASH which provides materials science support.

Work on manufacturing of the equipment for the second serial-built icebreaker "Ural" are being performed according to the schedule. However, RITM-200 is not the latest developed product of the Company's engineers. Today, the RITM-400 power unit is being designed for next-generation icebreakers "Lider". The above mentioned icebreakers will be used for year-round navigation on the Northern Sea Route and break ice more than 4 meters thick. The rated thermal power of new reactors will be 315 MW which is two times more than the rated thermal power of RITM-200. Moreover, a brand new product, an Optimised Floating Power Unit, equipped with an upgraded RITM-200 reactor unit, is being developed based on the experience gathered by the professionals working in the Company's enterprises and other Divisions of the Rosatom State Corporation.

JSC TsKBM manufactured and supplied a unique equipment for the FE assembly and hermetization site of the fabrication/refabrication module within the framework of the Proryv ("Breakthrough") project.

The branches of JSC AEM-Technologies in Volgodonsk and Petrozavodsk manufactured three columns for oil refining plants in Moscow and Omsk. This unique equipment has never been built in Russia before. It should be noted that during the manufacturing process we established a constant systemic interaction with the customer and equipment licensor. As for thermal energy, the manufacture of equipment for TPP-1 of JSC Arkhangelsk Pulp and Paper Mill has been completed.

Three power units were put into operation in the reporting year: no. 3 of the Tianwan NPP (China), no. 4 of Rostov NPP, no. 1 of Leningrad NPP-2 with power plants developed by the Design Engineering Department of the holding, JSC OKB GIDROPRESS. Almost all main and auxiliary equipment was manufactured by the Company's enterprises.

Special mention should be made for systematic activity performed at the Company's enterprises to develop production staff. In 2017, Aleksey Grigorovich, an employee of Atommash, won the nomination of "Welding Technologies" at the National Championship WorldSkills Hi-Tech 2017. In consideration of previous achievements, three best Russian welders, the winners of WorldSkills 2015, 2016 and 2017, work in the Company. The Welding Centre has also been started at Atommash. This is the place where professional staff of nuclear power and other enterprises improve their skills. Similar centres will be opened at other Division's enterprises.

Timely fulfilment of contractual obligations, improvement of production efficiency, including due to systematic introduction of the Rosatom Production System, increase in the amount of export contracts and revenue growth in all business areas will remain our strategic priorities in 2018.

In conclusion, I would like to thank our customers and partners for their trust and constructive cooperation, and to thank the entire team of JSC Atomenergomash for successful and effective operation and adherence to the values of Rosatom State Corporation. I am confident that the results of the previous year will become a firm basis for further sustainable development of the Company as a global company that offers maximally reliable and effective solutions to its partners.

Andrey Nikipelov,
Chief Executive Officer
of JSC Atomenergomash

01 THE COMPANY'S BUSINESS MODEL AND DEVELOPMENT STRATEGY

The value chain lays the basis for the public business model of JSC Atomenergomash

176.5 RUB bln
total value of contracts in 2017

68.6 RUB bln
Combined revenue of the Division in 2017

01.1. BUSINESS MODEL

The value chain – from resources consumed to finished products and major sales channels – lays the basis for the public business model of JSC Atomenergomash

JSC ATOMENERGOMASH DIVISION'S

PUBLIC BUSINESS MODEL

454.7 RUB bln
Total order book amount

52 %
Share of orders in portfolio for new products

68.6 RUB bln
Combined revenue of the Division in 2017

Mission

To establish and develop globally competitive process solutions for the power industry in order to maintain a comfortable life for people and to achieve growth in the Company's business performance

Resources

Personnel Composition
Human capital: about 17,700 qualified employees

Financial and economic status
Financial and economic capital: the growing revenue provided by the increase in business efficiency

Infrastructure
Production capital: production facilities and modern equipment park

Technologies
Innovative capital: a balanced portfolio of actively developing technologies

Value creation for stakeholders:

Natural capital:
Reduction of the weight of waste – 6 % Reduction of N_2O emissions – 39 %

Social capital:
Paid to the budget (charged): RUB 8.7 billion
Charity expenses: RUB 46.3 million

Value creation for the Company:

Personnel Composition
Increase in the staff efficiency level and development of staff capacity

13.3 % Growth of average salary

9.3 % Growth of labor productivity in 2017

Financial and economic status
Ensuring economic efficiency and sustainability

291 RUB mln Income from non-core asset disposal

9.6 % Increase in revenue for new businesses

Infrastructure
Increasing the efficiency and flexibility of production capacity

587.7 RUB mln Effect of the RPS

2.4 RUB bln Volume of investments made

Technologies
Ensuring product competitiveness and technological leadership

80 Patents and IPR certificates obtained***

181 Number of scientific publications

Operating Activities

Structure of combined revenue in the reporting year for operational segments, bln RUB

Gas and Petrochemical Industry
Gas and oil processing equipment for refineries and marine platforms

General Engineering
Special-purpose equipment and components for heavy machinery

Other segments

Nuclear Power
Equipment of the nuclear island and the turbine island, auxiliary NPP equipment

Shipbuilding*
Various equipment for shipbuilding and FNPP**

RAW / SNF*
Equipment for RAW/SNF storage, transportation and reprocessing

Special Steels
Special cast steels and forged products

Thermal Power
Boiler and auxiliary equipment for thermal power industry

* TMES – transport and marine energy solutions.

** FNPP – floating nuclear power plant.

*** RAW/SNF – radioactive waste/spent nuclear fuel.

SUPPLY CHAIN FOR THE NUCLEAR POWER BUSINESS LINE

Unique production capabilities allow us to offer our customers the key equipment for nuclear power plants in accordance with the highest standards. The quality and the timing of manufacture of equipment are ensured through a well-functioning production chain and a close cooperation among the enterprises. The high degree of vertical integration allows JSC Atomenergomash to participate in the projects of Rosatom State Corporation in the field of implementation of a full production cycle at nuclear power plants from scientific research and design to delivery of equipment to the nuclear power plant.

01 Research Efforts

- Fundamental and applied research
- Development of new materials and processes
- Prototyping and testing

» JSC TsNMTTMASH
» JSC SverdNIIkhimmash

02 Design and Engineering

- Development of reactor equipment for all Russian NPPs
- Reactor systems for the nuclear-powered icebreaking fleet
- Perspective studies in the field of production of reactor systems for medium- and low-power nuclear power plants

» GIDROPRES
» Afrikantov OKBM
» ZIOMAR
» AEM-Technologies

03 Metallurgical Billets and Special Steels

- Manufacture of metallurgical billets for nuclear, power and other industries
- Creation of new construction materials
- Designing and manufacturing of non-standard equipment

» EMSS
» Petrozavodskmash, branch of AEM-Technologies
» TSNIITMASH

04 Equipment Manufacture

See pages 24–25

- Manufacture of equipment of the nuclear island and the turbine island
- Manufacture of auxiliary NPP equipment
- Unique process and production concepts

» GIDROPRESS
» Afrikantov OKBM
» ZIOMAR
» Atommash, branch of AEM-Technologies

05 Packaged Delivery

- NSGP equipment°
- Turbine island equipment
- Marine and shipboard reactor plants

Complete equipment supplier
» AEM

Subsupplier
» AEM-Technologies (RS equipment, steam generator, pressurizer, MCP etc.)
» TSKBM (RCPS etc.)
» ZiO-Podolsk (pipelines)
» Gidropress (CPS)
»
»

Complete equipment supplier
» AEM, AAEM

Subsupplier
» Ganz EEM (condensate pumps)
» ARAKO (pipe fittings)
» ATM (VWHS°° supplier)
» ZiO-Podolsk (heat exchangers)
» TSKBM (starting pumps, feedwater)

Complete equipment supplier
» OKBM

Subsupplier
» Venta
» AEM

06 Customers

- Delivery of equipment for power units under construction and commissioned power units
- Delivery of equipment for research reactors
- Maintenance and support of the delivered equipment throughout its life cycle
- Delivery of equipment for the nuclear-powered fleet

» ASE Group (foreign NPPs)
» Rosenergoatom Corporate Group (domestic NPPs)
» Atomflot
» Rusatom Service
» Foreign energy holdings and corporations
» Foreign partners and customers of ready solutions for nuclear energy

° NSGP – nuclear steam generating plant.
°° VWHS – high-temperature pipes.

GRI 102-4, 102-7 E

Assets of the Company

City (town), country	Name of CMC*
Volgodonsk, Russia	Atommash, branch of JSC AEM-Technologies
Petrozavodsk, Russia	Petrozadovskmash, branch of JSC AEM-Technologies
	LLC PZM LZ
Nizhny Novgorod, Russia	JSC Afrikantov OKBM
Nizhnyaya Tura, Russia	OJSC Venta
Yekaterinburg, Russia	JSC SverdNIIKhimmash
Podolsk, Russia	JSC OKB GIDROPRESS
	JSC REMKO
	PJSC ZiO-Podolsk
	JSC ZIOMAR EC
Saint Petersburg, Russia	JSC TsKBM
	JSC AEM-Technologies
	LLC AAEM
Moscow, Russia	JSC NPO TsNIITMASH
	JSC VNIIAM
	JSC ATM
	JSC SNIIP
	JSC OZTMiTS
	JSC OKTB IS
Dubna, Russia	JSC IFTP
Kramatorsk, Ukraine	PJSC ENERGOMASHSPETSSTAL
Budapest, Hungary	Ganz EEM
Opava, Czech Republic	ARAKO spol. s.r.o.

* Companies in the management contour.

BASIC
MARKETS AND PROJECTS

SPECIALIZATION OF THE
DIVISION'S ENTERPRISES

GRI102-6

To ensure the economic stability and expand the Division's activities in key energy markets, we have identified several business areas breaking enterprises down by key product segments

GRI 102-2

Nuclear Power

01. Kurchatov, Russia
Kursk NPP

02. Makarovks, Russia
Kursk NPP-2

03. Balakovo, Russia
Balakovo NPP

04. Volgodonsk, Russia
Rostov NPP

05. Sosnovy Bor, Russia
Leningrad NPP,
Leningrad NPP-2

06. Novovoronezh, Russia
Novovoronezh NPP,
Novovoronezh NPP-2

07. Zarechny,
Sverdlovsk Region, Russia
Beloyarsk NPP

08. Polyarniye Zori, Russia
Kola NPP

09. Desnogorsk, Russia
Smolensk NPP

10. Udomlya, Russia
Kalinin NPP

11. Metsamor, Armenia
Armenian NPP

12. Ostrovets, Belarus
Belarusian NPP

13. Kudankulam, India
Kudankulam NPP

14. Tianwan, China
Tianwan NPP

15. Pyhäjoki, Finland
Hanhikivi NPP-1

16. Temelin, Czech Republic
Temelin NPP

17. Paks, Hungary
Paks II NPP

18. Kozloduy, Bulgaria
Kozloduy NPP

19. Belene, Bulgaria
Belene NPP

20. Levice, Slovakia
Mohovce NPP

21. Trnava, Slovakia
Bogunice NPP

22. Bushehr, Iran
Bushehr NPP, Bushehr-2 NPP

23. El Dabaa, Egypt
El Dabaa NPP

24. Gulnar, Turkey
Akkuyu NPP

25. Pabna, Bangladesh
Rooppur NPP

Thermal Power

01. Verkhniy Tagil, Russia
Verkhnetagilskaya SDPP

02. Svetly, Russia
Primorskaya TPP

03. Arkhangelsk, Russia
Arkhangelsk CHPP

04. Yaroslavl, Russia
Yaroslavl CHPP

05. Kaliningrad, Russia
Pregolskaya TTP

06. Sharypovo, Russia
Berezovskaya SDPP

07. Nazarovo, Russia
Nazarovskaya SDPP

08. Novomoskovsk, Russia
Novomoskovskaya SDPP

09. Reftinsky, Russia
Reftinskaya SDPP

10. Izluchinsk, Russia
Nizhnevartovskaya SDPP

11. Saint Petersburg, Russia
Tsentralnaya CHPP

12. Aksu, Kazakhstan
Aksu TPP

13. Topar, Kazakhstan
Toparskaya SDPP

14. Taraz, Kazakhstan
Zhambylskaya SDPP

Gas and Petrochemical Industry

01. Omsk, Russia
Omsk Refinery

02. Moscow, Russia
Moscow Refinery

03. Kaliningrad, Russia
Varnitsa LLC

04. Tobolsk, Russia
West-Siberian deep raw hydrocarbon conversion complex

Division's Enterprises:

AEM-Technologies | PJSC ZiO-Podolsk | TSKBM | GIDROPRESS | Afrikantov OKBM | ARAKO | SverdNIIKhimmash | Ganz EEM | SNIIP | AAEM | EMSS | ATM | TSNIITMASH

Nuclear Power | Shipbuilding | TMES | RAW / SNF | Gas and Petroleum Chemistry Industry | Special Steels | General Engineering | Thermal Power | Mini-HPP

01.2. THE COMPANY'S STRATEGIC VISION AND POSITION IN THE MARKET

DIRECT SPEECH:

Andrey Nikipelov,
Chief Executive Officer of JSC Atomenergomash:

"In general, our strategy is to maximally use all competences and capabilities of each enterprise of the Division. That is why, we actively expand our presence in non-nuclear markets, systematically cooperate with licensors to localize production of equipment which has never been manufactured in our country before, and participate in import substitution programs."

JSC Atomenergomash consistently implements the development strategy of the Power Engineering Division until 2030, which involves the transformation of the Division into a high-tech diversified holding that will be competitive in the global market and sustainable in the long-term perspective.

The modern power equipment production market is characterized by a long-term cycle, high capital capacity and technological effectiveness. The world market of power engineering is influenced by the tendencies of global electric power industry development (increase in energy efficiency, implementation of environmental programs etc.) as well as the dynamics of putting into operation new generating capacities.

In 2017, the volume of the global power engineering market was about 65 GW (gas and petroleum chemistry industry not included). About 60 % of the global power engineering market are accounted for TPP equipment, about 25 % – for equipment for gas and petroleum chemistry industry, 15 % – for NPP equipment.

The Russian power equipment market depends on the development tendencies of the world power engineering market as well as the dynamics of putting generating capacities into operation. In 2017, the volume of the Russian power equipment market was about 3,900[1] MW. Taking into account a reduction in forecast demand for energy resources and that the power consumption rate of growth is being reduced, the average volume of the Russian power equipment market is expected to grow up to 2,400—2,500 MW in terms of commissioning[2] of new generating capacities. According to the forecast, competition among domestic manufacturers and import substitution both power equipment and components used for manufacturing such equipment will increase.

In 2017, the share of JSC Atomenergomash on the Russian power engineering market was 29.5 %3. Equipment produced by the Division's enterprises is installed in more than 20 countries and ensures operation of 15 % of NPPs in the world and 40 % of thermal power plants in Russia, the CIS and Baltic countries.

[1] Ministry of Energy of the Russian Federation.

[2] Scheme and program of the Russian Unified Energy System development

[3] Expert assessment based on the Rosstat's data, RBK and Institute for Energy Analysis of RAS's reports.

JSC Atomenergomash's Strategic Goals

To become a single-source manufacturer of essential NPP equipment (nuclear and turbine islands)

AEM's Strategic Goals (horizon – 2030)

To become a stakeholder in adjacent non-nuclear markets

The share of revenue outside the State Corporation contour is at least 50 %

To become a stakeholder in the global power equipment market

At least, 30 % of revenue from foreign operations

To increase cost-effectiveness (EBITDA) and output

Labor productivity at the average level of global PPI companies or better

01.3. DEVELOPMENT OF TARGET BUSINESS LINES

Supplies of equipment for new NPP units

In 2017, JSC Atomenergomash signed contracts within its main area of activity, i.e. nuclear power, such as contracts for supply of complete nuclear island and auxiliary equipment for the Rooppur NPP, Bangladesh. Under the signed contracts, reactor vessels, steam generators, reactor circulation pumps and other machines will be manufactured and supplied to ensure reliable and continuous operation of the nuclear power plant.

Under the terms of one of the contracts, the Power Engineering Division's enterprises will manufacture auxiliary equipment of the turbine island of the Rooppur NPP, Bangladesh. Turbine island equipment production will locate at the Division's enterprises, including PJSC ZiO-Podolsk, branches of JSC AEM-Technologies, JSC TsKBM, JSC ATM and others. The scope of delivery for the nuclear power plant in Bangladesh includes high pressure heaters, moisture separator/reheater, pumping equipment, set of pipe fittings and set of pipes for processing systems of the turbine unit.

Presently, JSC Atomenergomash is also a complete equipment supplier for the nuclear steam-supply system for Stage II of the Kudankulam NPP (India), four power units of the Akkuyu NPP (Turkey), the Khankhikivi-1 NPP (Finland), power units no. 1 and no. 2 of the Belarusian NPP.

In partnership with General Electric Company (USA), contracts for the complete supply of the turbine island, including turbine equipment, for the Akkuyu NPP and the Khankhikivi-1 NPP are being implemented. The manufacture of auxiliary equipment of the turbine island for the Kudankulam NPP (India) and the Bushehr NPP (Iran) is continued.

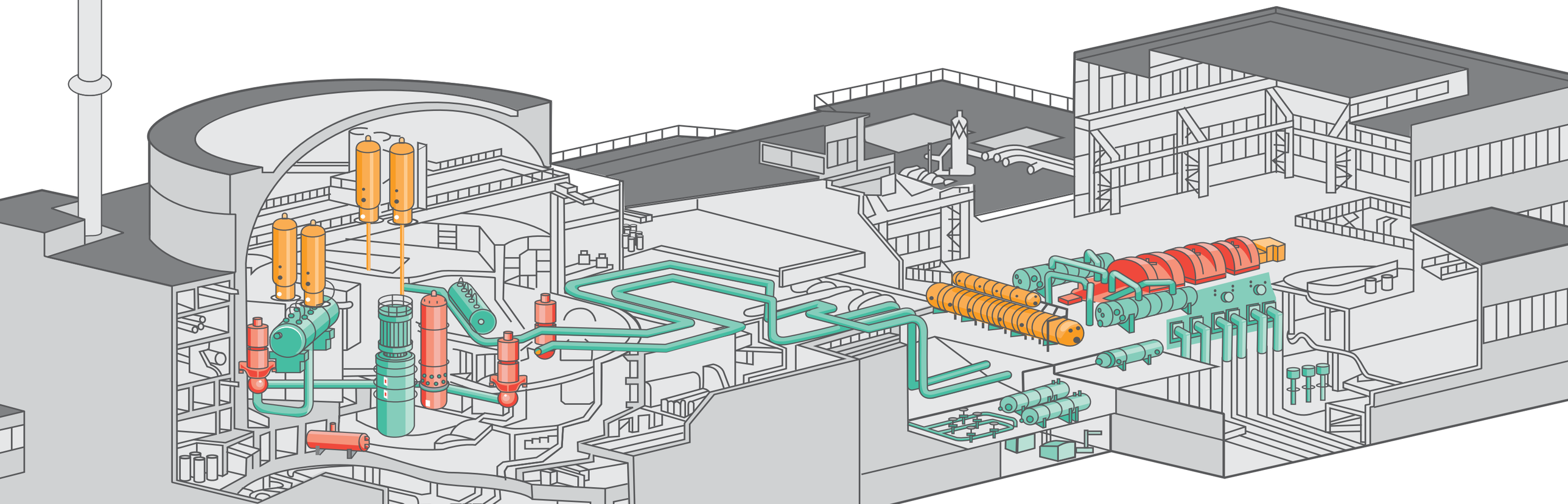
NPP equipment supplied by the Division's enterprises

COMPLETE DELIVERY OF THE EQUIPMENT FOR A NUCLEAR STEAM-SUPPLY SYSTEM:

- Ready-assembled reactor
- Support ring and thrust ring
- CPS drive
- Steam generator
- Main circulation pump
- Passive core flooding system
- Emergency core cooling system
- Main coolant pipeline
- Pressurizer
- Suppression pool

COMPLETE DELIVERY OF THE EQUIPMENT FOR THE TURBINE ISLAND:

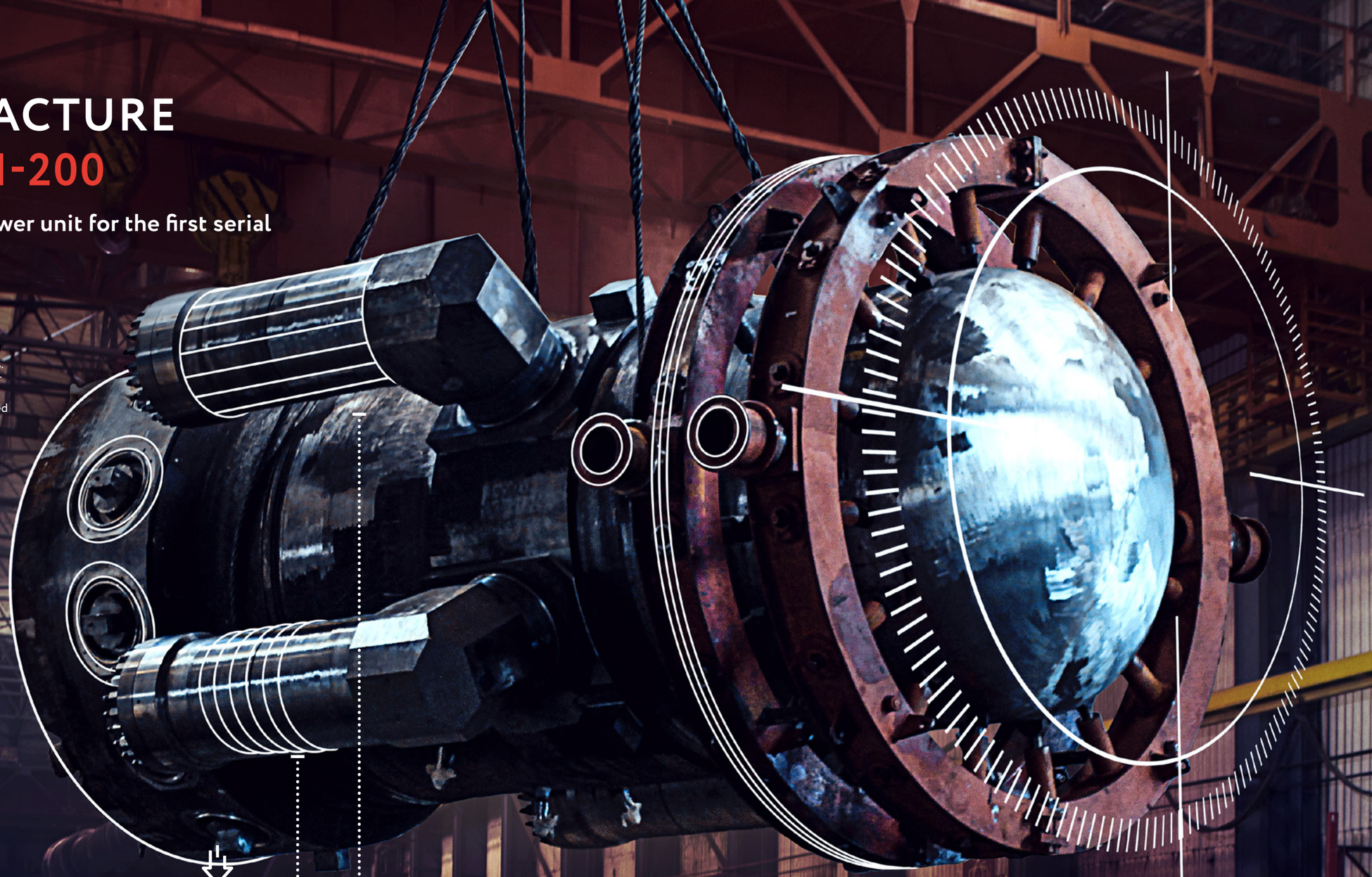
- ARABELLE™ steam turbine
- Turbine generator
- Separators-superheaters
- Turbine condenser
- Condensate pumps
- Low-pressure heaters
- Deaerator and feed water tank
- Feed pumps
- High-pressure heaters
- Auxiliary equipment (including tanks, oil and drain pumps, heat exchange equipment)
- Pipeline gate valves
- Piping



MANUFACTURE OF RITM-200

Reactor of the power unit for the first serial icebreaker “Sibir”

RITM-200 is a new generation of reactor systems; therefore, the manufacture of equipment required non-standard engineering solutions. To manufacture the first reactors for the lead icebreaker “Arktika”, the specialists of the Division developed several new technologies and tools previously used neither in Russia, nor in the world.



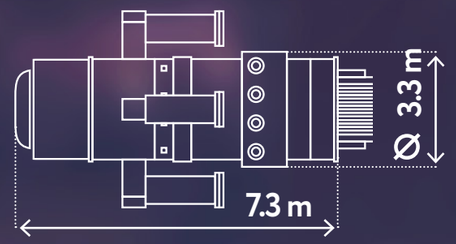
147 tons weight

40 years of service life

x1.5 times more compact, than a KLT-40 reactor

175 MW thermal power

55 MW electric power



Equipment supply for NPP service and upgrading projects

In 2017, the Division's enterprises, in cooperation with JSC Rusatom Service continued work within the framework of the Armenian NPP Power Unit no. 2 upgrading and service life extension project. The following enterprises take an active part in the implementation of the project:

- JSC OKB GIDROPRESS: technical condition assessment and substantiation of service life extension for reactor system equipment and pipelines.
- JSC NPO TsNIITMASH: preparation and repair of separate elements of reactor system equipment.
- PJSC ZiO-Podolsk: supply of equipment for the turbine island (moisture separator/reheater[1]).
- JSC SNIIP: upgrading of the in-core instrumentation system and the process monitoring system.
- JSC TsKBM: supply of pump units for the emergency core cooling system.

As part of the upgrading program of the Belene NPP (Bulgaria), PJSC ZiO-Podolsk shipped six steam generators, two of them were transported by special motor vehicles. Thus, a new multimodular supply method was adopted for transportation of super-oversized cargoes.

DIRECT SPEECH

Aleksey Likhachev,
Chief Executive Officer of Rosatom State Corporation:

"Design of new products for Russian and international markets, creation and development of new businesses make us more sustainable and allow us to effectively use our production capacities, to ensure employment of highly-qualified personnel, to improve labor productivity and increase return on assets."

Thermal Power

JSC Atomenergomash takes the leading positions in the market for thermal power equipment. The competences of the Division's enterprises allow participating in the TPP construction projects at all stages from design to the provision of post-sale services.

The target market for the Company is the Russian market for heat-power capacities under commissioning. At the same time, the Division is stepping up cooperation in the field of revamping of power equipment in the markets of CIS countries, primarily in Kazakhstan, and supply of equipment for incineration plants.

The market volume is defined both by the General Layout of Electric Power Industry Facilities in the Russian Federation until 2020 and by the need of generating companies in revamping and servicing of thermal power plants.

The main share of the revenue in this area is generated by key field-specific products (steam boilers for power units with capacities ranging from 50 MW to 800 MW, gas turbine waste heat boilers for modern combined-cycle plants with a capacity of up to 800 MW and equipment for incineration plants.

In 2017, contracts were concluded for the delivery of PK-10-2 boiler elements for boiler overhaul at station no. 10 of Toparskaya SDPP of Kazakhmys Energy LLP.

The conclusion of the contract with JSC RT-Invest on the delivery of equipment for four thermal neutralization of solid municipal waste in the Moscow region became the main event for the report period of this line. The contract provides manufacturing, supplying and installation of 12 units of boiler equipment.

In 2018, the development and the formation of new technological partnerships is planned as well as the creation of long-term business relationships with customers in strategic markets and the development of cooperation with key Russian general contractors that perform thermal power projects in foreign markets.

[1] MS(R) - moisture separator/reheater

Shipbuilding

One of the most dynamic business lines of the Division is shipbuilding. Due to strong positions of JSC Afrikantov OKBM and the aggregate capacity of the Division's enterprises in marine propulsion reactor industry, JSC Atomenergomash may become one of the leading suppliers of equipment for icebreaker fleets, including reactors, shell equipment, monitoring and control systems, semi-finished products, components and deck equipment, in the future.

JSC Atomenergomash considers the Russian market for large-capacity and high-tech ships as its target market, the volume of which is determined by the Strategy of Development of the Shipbuilding Industry of the Russian Federation up to 2030 and the relevant federal target programs that envisage the construction of over 1,000 vessels up to 2030.

One of the key events within the framework of the expansion of competencies in the shipbuilding business line was the fabrication and the shipment of the new generation RITM-200 reactor system for serial nuclear-powered icebreakers.

In 2017, the Company significantly increased its presence in the market of equipment for the shipbuilding industry of the Russian Federation primarily due to a new product range of marine equipment not related to propulsion reactor systems.

In 2018, the priorities for this business area for the implementation of import substitution programs will continue to be: development of new types of equipment, differentiation of the range of equipment supplied, and increase in the share of orders completed at the facilities of the Division's enterprises.

Gas and Petroleum Chemistry Industry

In 2017, the Company, along with execution of orders and contracting for supply of traditional equipment range, continued to actively consider opportunities for development and production of a wide range of import-substituting equipment. In particular, JSC Afrikantov OKBM concluded the first contract for the supply of import-substituting leakproof pumps; PJSC ZiO-Podolsk won a tender and started the production of import-substituting spiral heat exchangers for the Russian medium-scale LNG production project.

JSC AEM-Technologies supplied column and reactor equipment for the Moscow Refinery and the Omsk Refinery; JSC SverdNIIkhimmash completed a large packaged delivery of vacuum evaporator for a new salt plant in the Kaliningrad region.

Special Steels

This business line combines production and research assets that specialize in both the development of new construction materials and technologies and the production of finished products for power industry (wind, steam, hydraulic, nuclear power), shipbuilding, metallurgy and general engineering.

The main goal of the Division in this business area is to increase its presence in international and Russian markets for special steels as well as to increase the corresponding revenue. In 2017, foreign orders accounted for more than 85 % of all orders: for the markets of Europe, India and China.

In 2017, the key events were as follows:

- certification of PJSC ENERGOMASHSPETSSTAL as a potential supplier of castings and forgings for key nuclear power projects was started;
- PJSC ENERGOMASHSPETSSTAL completed the manufacture of rough forging for the main coolant pipeline, the reactor circulation pump in compliance with the requirements of a French company EDF;
- PJSC ENERGOMASHSPETSSTAL was registered in NTPC (India), as a supplier of rotor forgings for nuclear power projects in India;
- obligations to manufacture and supply mill rolls and supporting rolls of the value of RUB 500 million and the total weight of 2,225.77 tonnes to enterprises of Arcelor Mittal Group were fulfilled;
- business relations with BHEL (India) were developed: six rotors of the total value of RUB 65 million were manufactured and shipped. In 2018, it is planned to expand the scope of supply up to 13 pieces for the total value of RUB 194.97 million;
- 2,980.7 tonnes of mill rolls of the total value of RUB 285.6 million were manufactured and shipped to Ukrainian and Russian iron and steel works, such as Azovstal, Zaporozhstal, Severstal, Evrazholding, Ilyich Iron and Steel Works and others;
- contracts with Italian customers were restored: Iron Acciai Speciali, Presezzi Extrusion and others.

The key tasks for 2018 include extension of cooperation with and fulfilment of obligations to the largest Russian and international companies, such as ArcelorMittal (Luxembourg), BHEL (India), ABB (Switzerland), PJSC VSMPO-Avisma Corporation and others, as well as supplier certification and obtaining the status of a supplier for General Electric (USA), Siemens AG (Germany), Ansaldo (Italy), Fincanteria (Italy) and others.

Mini-Hydroelectric Power Plants

Advancement of equipment for mini-HPPs with a capacity of up to 2 MW manufactured by GanzEEM, a Hungarian subsidiary, to foreign markets started in Africa where, by estimate of JSC Atomenergomash, the potential of small-scale hydrogeneration only in countries of Central and Southern Africa is about 300 MW. BlueWorldPower (South Africa) has become the equipment distributor in the African market. In December 2017, the parties signed a contract for the supply of hydroelectric equipment to implement the 0.7 MW hydroelectric power plant construction project at Mpompomo waterfall, Mpumalanga province, 300 km from Johannesburg. The scope of supply includes a water turbine, a generator and other equipment.

In 2018, JSC Atomenergomash intends to expand the range of products and services for non-nuclear purposes for their further promotion to international markets.

Central Asia may become one more market for promotion of mini-HPP equipment. In September 2017, an agreement of understanding and cooperation was signed with Socio-Entrepreneurial Corporation "Shymkent". Under this agreement, a pilot container-type mini-HPP with a capacity of 2 MW will be constructed at a mountainous site in Southern Kazakhstan.

In January 2018, contracts for the manufacture and supply of equipment for Ust-Dzhegutinskaya and Barsuchkovskaya small hydroelectric power plants in Russia were made.

01.4. SUSTAINABLE DEVELOPMENT OF THE COMPANY

JSC Atomenergomash adheres and contributes to achieving the global Sustainable Development Goals (Goals). The contribution to achieving each Goal is given in the table on page 31 with the references to the respective sections of the Report[1]. Each Goal is indicated by the respective marker (see below).

[1] The Division's contribution to achieving the Sustainable Development Goals is mentioned in the Report in the form of markers indicating the Goal and the results of its implementation.

Contribution to achieving the UN Sustainable Development Goals:

Goal no.	UN Sustainable Development Goals	Report section	Report page
4	High-quality education	07.5. Availability of Replacement Personnel	110
5	Gender equality	07.2. Labor conditions and organization	103
7	Affordable and clean energy	01.3. Development of Target Business Lines	24
8	Decent work and economic growth	KEY EVENTS	6
		03.1. Economic performance and financial position	61
		07.2. Labor conditions and organization	103
		08.1. Social policy and charity	123
9	Industry, innovation and infrastructure	05.2. Innovation development	85
		08.1. Social policy and charity	123
10	Reduced inequalities	08.1. Social policy and charity	123
11	Sustainable cities and communities	08.1. Social policy and charity	123
12	Responsible consumption and production	06.1. Environmental management	86
13	Climate action	06.2. Emissions and wastes	91
16	Peace, justice and strong institution	02.2. Statutory compliance	52
		02.3. Ethics and anti-corruption practices	53
		02.4. Internal control and audit	54

02 2. CORPORATE GOVERNANCE

One of the key priorities of the Company's activities is full compliance with laws and abidance by high standards of business ethics.

>1.5 RUB bln
The economic effect of risk management

02.1. CORPORATE GOVERNANCE SYSTEM

In implementing the strategy of JSC Atomenergomash, the key objective of which is the formation of a global competitive power machine building holding company, special attention is paid to building an effective corporate governance system based on the laws of the Russian Federation, recommendations of the Corporate Governance Code and the best world practices, taking into account the industry specifics of the Company

Principles of corporate governance

In its daily operations, the Company complies with the principles of corporate governance related to the delineation of the functions of the Company's management bodies, increase in the level of interaction, avoidance of the conflict of interests and specification of the responsibilities of the parties to each other.

Corporate Governance Code

The Company did not approve any Corporate Governance Code. Individual norms of the Corporate Governance Code recommended by the Bank of Russia Letter No. 06-52/2463 of April 10, 2014 are practiced by the Company taking into account the specifics of the legal status of Rosatom State Corporation, enshrined in the regulatory legal acts of the Russian Federation, ensuring the unity of management of nuclear industry organizations, and are reflected in a number of local regulations, thus providing the shareholder with all opportunities to participate in the management of the company and to become familiar with information on the activities of the Company.

GRI 102-10

Structure of the Charter Capital

The Charter Capital of the Company consists of the par values of the shares in the Company purchased by the Company shareholders. The registered amount of the Company's Charter Capital as of 01.01.2017 was one million fifteen thousand nine hundred twenty six (1,015,926) rubles divided into one million fifteen thousand nine hundred twenty six (1,015,926) ordinary registered uncertificated shares with a par value of 1 ruble each. Each ordinary share of the Company gives the shareholder owning it the same volume of rights.

As of 31.12.2017, taking into account the additional issue, the Company placed two million five hundred sixty six thousand six hundred fifty seven (2,566,657) ordinary registered shares.

GRI 201-4

As of 31.12.2017 the shares placed are distributed as follows:

No.	Shareholder name	Number of shares, pcs	Percentage of all outstanding shares, %
1	Joint Stock Company Atomic Energy Power Corporation	2,542,147	99.045061
2	Joint-Stock Company AEM-Leasing	24,050	0.937017
3	Limited Liability Company Rusatom Overseas	460	0.017922
TOTAL		**2,566,657**	**100**

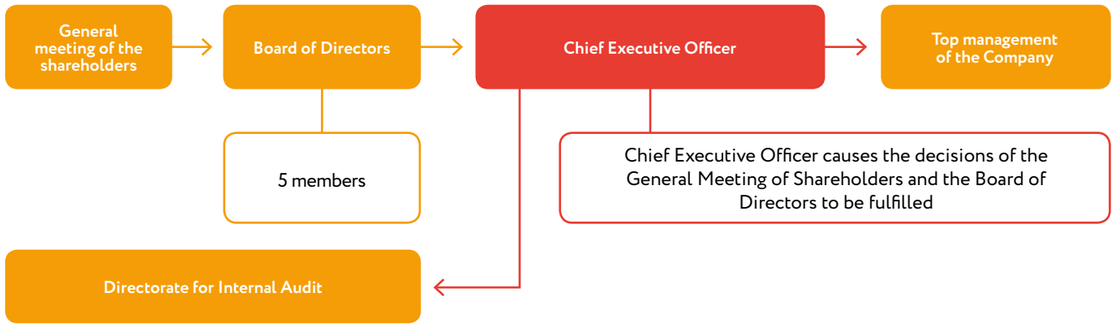
GRI 102-18

Key management bodies

According to the Company's Charter; the management bodies are[1]:

- General meeting of the shareholders;
- Board of Directors;
- Chief Executive Officer.

Scheme of the Corporate Governance of JSC Atomenergomash



[1] The Company has no Audit Commission – internal control of the business operation items is carried out according to internal documents and local regulations of the Company.

General Meeting of Shareholders

According to the Charter, the supreme management body of the Company is the General Meeting of its Shareholders. The competencies, the procedure for convening and holding the General Meeting of Shareholders are determined by the Charter of the Company, and by the Federal Law "On Joint-Stock Companies".

In 2017, four General Meetings of Shareholders (one annual and three extraordinary) were held.

In 2017, no dividends were paid, since the General Meeting of Shareholders did not take decisions on declaring and paying dividends for the results of 2016, the first quarter, six months and nine months of the reporting year. The Company has no local regulations governing the dividend policy.

Board of Directors

The Board of Directors is responsible for the strategic management of the Company's activities and controls the work of the executive body.

In 2017, the quantitative composition of the Board of Directors did not change and was five people. The personal composition of the Board of Directors was changed only once in the reporting year.

GRI 102-22

The Company has no independent members of the Board of Directors as defined by the Corporate Governance Code.

GRI 102-36, 102-18 E

During the year 2017, no decision on payment of remuneration and/or compensation for expenses to the members of the Board of Directors of the Company was taken, no remuneration was paid, no expense was compensated for. No committee under the Board of Directors was created.Except for the Chief Executive Officer of the Company, the Board of Directors has no person who is am employees of the Company during the reporting period, including part-time employees.

The members of the Board of Directors do not own shares of the Company.

Information on members of the Board of Directors

GRI 102-23 E

Korogodin Vladislav Igorevich

Chairman of the Board of Directors (c 19.01.2018[1])

Date of birth:

25.10.1969

Tenure of office :

since 30.06.2015

From 2012 until now — TAC and NPP Life Cycle Management Director of Rosatom State Corporation.

Silin Boris Georgievich

Date of birth:

26.10.1954

Tenure of office:

since 27.11.2014

From 2010 until now — Advisor to the Directorate for Nuclear Energy Complex of Rosatom State Corporation.

Arseev Boris Nikolayevich

Date of birth:

22.09.1971

Tenure of office :

since 30.06.2017

From 2016 until now — Deputy CEO of Development Section and International Business — International Business Department Director of Rosatom State Corporation.

Nikipelov Andrey Vladimirovich

Date of birth:

07.03.1968

Tenure of office :

since 29.06.2012

Since 2012 until now — Head of the Power Engineering Division of Rosatom State Corporation.

Since 2012 until now — Member of the Board of Rosatom State Corporation.

Since 2012 until now — Chief Executive Officer of JSC Atomenergomash.

Lyakhova Ekaterina Viktorovna

Date of birth:

07.06.1975

Tenure of office :

since 29.06.2012

Since 2011 until now — Deputy Director of the Directorate for NEC, Director for Economy and Investment of Rosatom State Corporation.

Drozdov Nikolay Sergeevich

(Member of the Board of Directors until 30.06.2017)

Date of birth:

23.06.1972

Tenure of office :

since 04.10.2013

2013–2016 — Director of the Department for International Business of Rosatom State Corporation.

Since November 2016 until now — First Deputy CEO for Commercialization of Back-End of JSC Tekhsnabexport.

GRI 102-33, 102-34 E

The competencies of the Board of Directors are determined by the Charter of the Company. Meetings of the Board of Directors of the Company shall be convened as necessary, at the initiative of the Chairman or members of the Board of Directors, the Chief Executive Officer or the Auditor of the Company.

In 2017, 16 meetings of the Board of Directors were held, which considered 25 issues.

Major and related party transactions

In 2017, the Company had no major transactions, which must be approved by the authorized management body of the joint-stock company in virtue of Chapter X of the Federal Law "On Joint Stock Companies".

The Company made no non-arm's length transaction from 01.01.2017 to 25.01.2017.

On 25.01.2017, a new edition of the Company's charter was registered, containing a provision on the non-application of Chapter XI of Federal Law of 19.12.1995 No. 208-FZ "On Joint Stock Companies" to the Company.

[1] Minutes of the meeting of the Board of Directors of JSC Atomenergomash No. 01/18 of January 19, 2018.

MANUFACTURE OF A GIANT INGOT

An ingot weighing 415 tons is intended for manufacturing the shell of the reactor vessel of one of the nuclear power plants under construction

PJSC Energomashspetsstal cast a large-tonnage ingot. All the latest technological and production techniques jointly developed by the specialists of the process department and the arc-furnace melting shop were used to manufacture it.

This is the fourth ingot of such a mass in the history of Energomashspetsstal. The first ingot with a mass of 415 tons was cast at EMSS in 2012.

The ingot was cast

4 steel-teeming ladles

120 tons each

Net weight

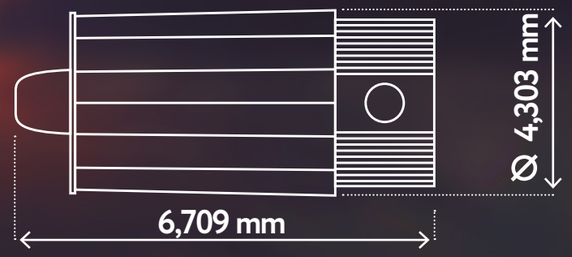
119.5 tons upon machining

22 hour melt

6 melts in DSP-70 furnace

415 tons weight

120 hour crystallization



Chief Executive Officer

GRI 102-19

Pursuant to the Federal Law "On Joint-Stock Companies" and the Charter of the Company, the Chief Executive Officer is responsible for the performance of the decisions of the General Meeting of Shareholders and the Board of Directors of the Company.

The Chief Executive Officer of the Company, Nikipelov Andrey Vladimirovich, has been exercising powers since 17.04.2012 (according to the resolutions of the General Meetings of Shareholders of 16.12.2012 (Minutes No. 04/12-BOCA of 16.04.2016) and of 14.04.2017 (Minutes No. 02/17-BOCA of 14.04.2017). He holds no share in the Company.

GRI 102-26, 103-3 E

Key performance indicators of the Power Engineering Division for 2017

Indicator	Target value			Actual value
	Lower level	Target level	Upper level	
AFCF of the Division, bln rubles	–7	–6,4	–5.1	**–5.1**
Integrating efficiency indicator of investment activity, %	80	100	108	**99.7**
Decrease in the through prime cost of manufacturing and delivery of pilot long-lead equipment for the nuclear steam generating plant to the customer, %	3	5	7	**7.3**
Specific conditional-constant costs, %	37.2	34.8	31.3	**34.9**
Labor productivity, mln. rubles/person	4.2	4.4	6.2	**4.05**
Integrating indicator for new products, %	90	100	150	**140.76**
Revenues from new products outside the contour, bln rubles	30.3	33.7	50.5	**30.34**
Related revenue, bln rubles	0.09	0.102	0.152	**0.237**
Portfolio of orders for 10 years for new products, bln rubles	56.5	62.8	94.3	**91.48**
Turnover of inventory, days	116	110	99	**104**
LTIFR		0.42/25 %		**0.21/50 %**
Absence of violations of level 2 and higher according to the INES scale		No violation		**No violation**
Contribution to the AFCF for an atomic order, bln rubles	–12.3	–11.2	–9.0	**–11.2**

Failure to achieve some of the key indicators at the target level is due to the postponement of the sale and short-received revenue under a number of nuclear and foreign projects for long-lead equipment.

In 2017, the target indicators set to the Division by Rosatom State Corporation were achieved. In 2018, the following indicators will be included in the card of KPI of the Company's Chief Executive Officer: "Contribution to EBITDA", "Foreign revenue" and "Portfolio of Foreign Orders for 10 years".

GRI 102-36

The criteria for determining and the size of the remuneration for the Chief Executive Officer of the Company are determined by the employment contract according to the laws of the Russian Federation, and also according to the labor remuneration system adopted in the organizations of Rosatom State Corporation. The amount of the annual bonus is calculated depending on the performance of the annually established KPIs.

Information on declared income, property and property-related liabilities according to the laws is disclosed annually on the official website of Rosatom State Corporation in the section "Anti-Corruption Policy"[1].

[1] http://www.rosatom.ru/about/protivodeystvie-korruptsii/

CASE

New Management Horizon

In 2017, Atomenergomash launched the AEM Horizon project focused on the creation of an efficient management system in the Division. To this end, a number of organizational changes will be made in the reporting year and next years, after which Atommash, Petrozavodskmash, TsKBM will become branches of JSC Atomenergomash. Almost 90 % of the manufacture of nuclear steam-supply system equipment is located here; and after the completion of the project, practically the entire nuclear island will be manufactured within the single company. All other enterprises of the Division will continue existing as subsidiaries.

This will decrease internal costs, eliminate unnecessary bureaucratic procedures, and improve the quality of process management, the speed of decision-making.

DIRECT SPEECH:

Andrey Nikipelov,
Chief Executive Officer of JSC Atomenergomash:

"AEM Horizon is a long-term program to change the management structure of Atomenergomash, the Power Engineering Division of Rosatom. It is aimed at maximally decreasing administrative costs in order to efficiently manage a large portfolio of orders, to fulfill contracts on time, while decreasing the prime cost and developing new products.

As the Company operating in different competitive markets, we are always striving for improving our efficiency and quality of interaction with our customers. Therefore, the corresponding changes were thought necessary even before the start of the Horizon project was announced at Rosatom. The starting point was the signing of contracts for the complete supply of nuclear steam-supply system equipment.
While fulfilling them, we encountered a huge number of corporate, procurement and other "paper" procedures required not to start manufacture, but to begin certification on the part of the customer. We scrutinized and analyzed all the processes, studied the best practices of large international companies in the power engineering sector and decided that the best thing in this situation was to merge into one legal entity – that is, transition to a branch structure."

Top-management of the Company

GRI 102-20 E

Nikipelov Andrey Vladimirovich

Chief Executive Officer

Holds this position since 2012

Razin Vladimir Petrovich

First Deputy CEO — Business Operations Director

Holds this position since 2012

Sukhotina Kseniya Anatolyevna

First Deputy CEO — Strategy and Organizational Development Director

Held this position since 2010 till December 2017

Rantsev Aleksandr Yurevich

First Deputy CEO — Nuclear Energy and New Businesses Director

Holds this position since 2016

Filatov Sergey Nikolaevich

Deputy CEO — Economy and Finance Director

Holds this position since 2014

Kuleshov Sergey Anatolievich

Deputy CEO — Corporate Governance Director

Holds this position since 2006

Buzinov Andrey Vladimirovich

Shipbuilding and Optimized Floating Power Units Director

Held this position since 2016 till May 2017

Smirnov Vladimir Aleksandrovich

Gas and Petroleum Chemistry Director

Holds this position since 2015

Sotnikov Aleksandr Mikhailovich

Internal Audit Director

Holds this position since 2017
.

Shatokhin Sergey Aleksandrovich

Thermal Power Director

Holds this position since 2015

Shirokovskikh Natalya Vladimirovna

Chief Accountant

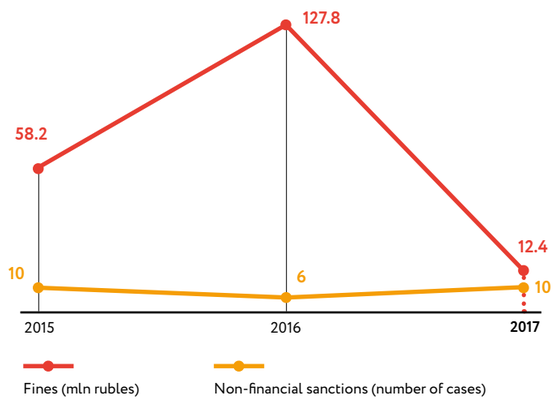
Holds this position since 2012

02.2. STATUTORY COMPLIANCE

One of the key priorities of the Company's activities is full compliance with laws and abidance by high standards of business ethics.In this respect, an important task is minimizing the number and severity of non-compliances with the law.

GRI 419-1 E

Fines and non-financial sanctions for non-compliance with the law



MANUFACTURE AND DELIVERY

of an oversized vacuum column for the Omsk Refinery

A vacuum column was manufactured in Volgodonsk (the Rostov Region) and sent to the customer for the Omsk Refinery. The equipment was included into the oil primary processing complex of ELOU-AVT.

The new machine is designed for vacuum distillation of fuel oil to obtain vacuum gas oil, vacuum residue from pretreated oil.

13,300 km
of delivery
by water

Omsk

Volgodonsk

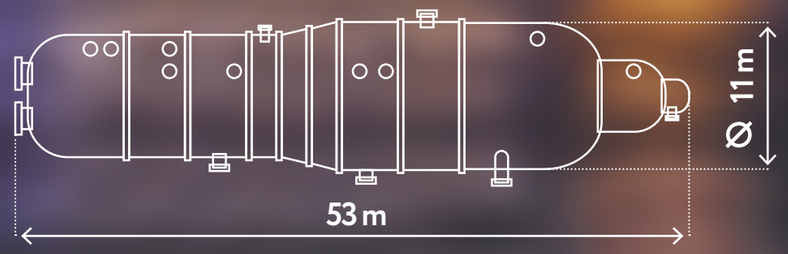
2.4
assemblies/
hour

518
tons
weight

2 km
of welds

28
construction
units

850
stages of
manufacturing



02.3. ETHICS AND ANTI-CORRUPTION PRACTICES

The competence of the Directorate for Security of JSC Atomenergomash and specialized subdivisions of the control circuit organization includes:

- protection of state secrets and information;
- protection of intellectual property;
- corruption and fraud control, including the identification and analysis of factors and conditions contributing to the emergence of threats to economic security and assets, and the preparation of and support to corresponding preventive measures.

In 2017, the key KPI regulating the activities of the Division in this area was the "Implementation of the anti-corruption program at the enterprises in the control circuit according to the National Plan for Counteracting Corruption for 2016–2017" (the upper level is reached). In the reporting period, 93 local anti-corruption regulations were updated and enforced in the Power Engineering Division.

In the reporting period, no loss of the assets owned by the control circuit enterprises of JSC Atomenergomash has occurred. The loss of assets was prevented in 193 cases. In the reporting period, the economic effect of the activities of the Department of Economic Security of JSC Atomenergomash amounted to 418,905.78 thousand rubles, which resulted from the work of the asset protection division in the following areas:

- decrease in prepayment or payment after delivery of materials and equipment by counterparties with low financial indicators, identified during the audit;
- decrease in the cost of equipment, materials, services during monitoring the market, and recommendations on entry into contracts with potential counterparties;
- pre-trial reimbursement of receivables;
- identification of the supply of counterfeit products;
- work in the committee on work with receivables and payables;
- initiation of applications to the Office of the Federal Service of Court Bailiffs for recovery of created debts.

According to the Agreement on Cooperation in the Protection of Nuclear Power Plants from the Threats of the Supply of Counterfeit Products, information letters on the identified facts are sent on an ongoing basis to the Department of Assets Protection of Rosatom State Corporation and Rosenergoatom Concern JSC.

22 case materials were sent to law enforcement agencies based on the results of inspections by the asset protection divisions. 14 criminal cases were initiated: Article 158 of the Russian Criminal Code – 5, Article 327 of the Russian Criminal Code — 3, Article 159 of the Russian Criminal Code – 5, Article 318 of the Russian Criminal Code – 1.

Company	Number of criminal cases
Venta LLC	2
JSC TSKBM	2
JSC NPO TSNIITMASH	1
Petrozavodskmash, branch of JSC AEM-Technologies	3
JSC Afrikantov OKBM	6
TOTAL	**14**

GRI 102-16

The divisions of asset protection monitor on an ongoing basis the existence of a conflict of interest: in 2017, 49 checks were carried out to identify signs of a possible conflict of interests (close kinship, participation of employees in the charter capital and management bodies of other companies whose interests may conflict with those of the Company) related to compliance with rules of business communication and the Code of Corporate Ethics by employees; providing information on income; filling of positions at all levels of management by individuals in close relationship where this is relating to direct subordination or controllability of one of them to another. Of these, one audit was carried out based on the information received through the specialized hotline channel.

GRI 205-3

Based on the results of 2017:

- measures were taken regarding four received notifications from employees about a possible conflict of interest. No violation was detected.
- an audit was carried out based on 38 Hot Line messages containing information on signs of corruption and other offenses, five of which were partially confirmed: two employees were brought to disciplinary responsibility, and three employees were dismissed.
- 14 employees of the asset protection divisions were trained in specialized training centers of Rosatom State Corporation.

GRI 102-17

To raise the level of corporate culture, create a climate of honesty and integrity, an information page on fight against corruption was created on the Company's website: http://www.aem-group.ru/protivodejstvie-korrupczii/.

02.4. INTERNAL CONTROL AND AUDIT

GRI 103-3 E

The Internal Audit Directorate (hereinafter referred to as "IAD") reports directly to the Chief Executive Officer of the Company and carries out its activities based on the International Professional Standards of Internal Audit, guided by the principles of independence and objectivity.

The performance of the functions of the IAD is carried out as audits of financial and economic activities, expert and analytical activities, audit of the business processes of the Company and its CCOs, and provision of consulting assistance to the Company's employees as provided for by the functions of the IAD.

To carry out the activity, a Plan of control measures for the half-year is formed; all employees of the Company have the right to put forward proposals for conducting a control measure during the formation of this Plan.

The efficiency of activities in this area is measured based on the KPI "Absence of actual incidents or significant comments after inspections by the state bodies and/or higher specialized internal control bodies (hereinafter referred to as SICB) of the organization's processes not previously identified by the SICB.

In order to identify risks and measure the efficiency of significant business processes in the reporting year, the Internal Audit Directorate carried out 21 audits (compared 17 planned ones) of structural divisions and CCOs. Based on the audit results, proposals and recommendations were prepared for the Company's responsible divisions.

02.5. RISK MANAGEMENT

JSC Atomenergomash has a Risk Management Group acting based on the Regulation on the Risk Management Group of JSC Atomenergomash. Its activities focus on the formation of the Corporate Risk Management System (CRMS) and coordination of activities in the area of risk management and insurance, and the settlement of insured events. The group's objectives include regular audit of risks and verification whether the size thereof complies with the established risk limits, organization of interaction in making decisions related to risks and insurance, among all participants in the risk management process from the level of CCO to Rosatom State Corporation.

The CRMS is integrated into the processes of strategic, investment and budget planning, and those of receivables and payables management. The risk management group is included in the circuit of mandatory preliminary approval of contracts to be entered into by JSC Atomenergomash, which significantly increased the capabilities of monitoring and controlling risks at the stage of contract preparation.

Combining the risk management and insurance processes of JSC Atomenergomash involves analysis of the property risks of the main production CCOs (including pre-insurance surveys) followed by the formation of a property risk management program, and the organization and control of settlement of insured events at the enterprises.

During 2017, a risk management plan for the Khankhikivi-1 NPP project was developed and adopted, and the staff of CCOs received training under the risk management program.

The Company regularly improves the risk management system and assesses its compliance with international standards (ISO 31000:2009, etc.), with the best industry and international practice.

The key risks for the Company in 2017 are currency risks, operational risks (failure to meet or postponement of the lead time), inflation and interest risks, credit risks (counterparty risks).

Among the main factors of risk occurrence are the persisting macroeconomic and foreign policy uncertainties, potential deterioration of the market situation and financial condition of existing and potential counterparties.

The most efficient risk management methods and measures in 2017 are the control of purchases made in foreign currency or in rubles at the exchange rate of foreign currency; mirror conditions in income and expenditure contracts; change in the time limits for production start-up; implementation of RPS projects; savings from procurement procedures; changes in the amount of overhead costs; saving of raw material consumption; analysis of counterparty risks in entry into contracts; and monitoring the risks of debt throughout the life of the project.

The total effect of them was more than 1.5 billion rubles

Development of risk management functions at JSC Atomenergomash

2014

- Identification, analysis and review of risks in budgeting and medium-term planning

2015

- Assessment of property risks of the main production sites
- Implementation of risk insurance programs for main production sites
- Inclusion of mandatory preliminary coordination of contracts to the circuit

2016

- Inclusion of risk analysis and coordination of investment projects to the process
- Inclusion to the process of risk analysis AR and AP*
- Continuation of the assessment of property risks, insurance and settlement
- Development of draft risk management plan for Hankhikivi-1 and related documents

2017

- Inclusion of risk management procedures to the project management processes and integration of qualitative and quantitative risk analysis in the AEM APMS**
- Update of the organizational structure of risk management and insurance

2018

- Risk management for divisional projects
- Integration of risk management using IT systems
- Additional control of risks and opportunities

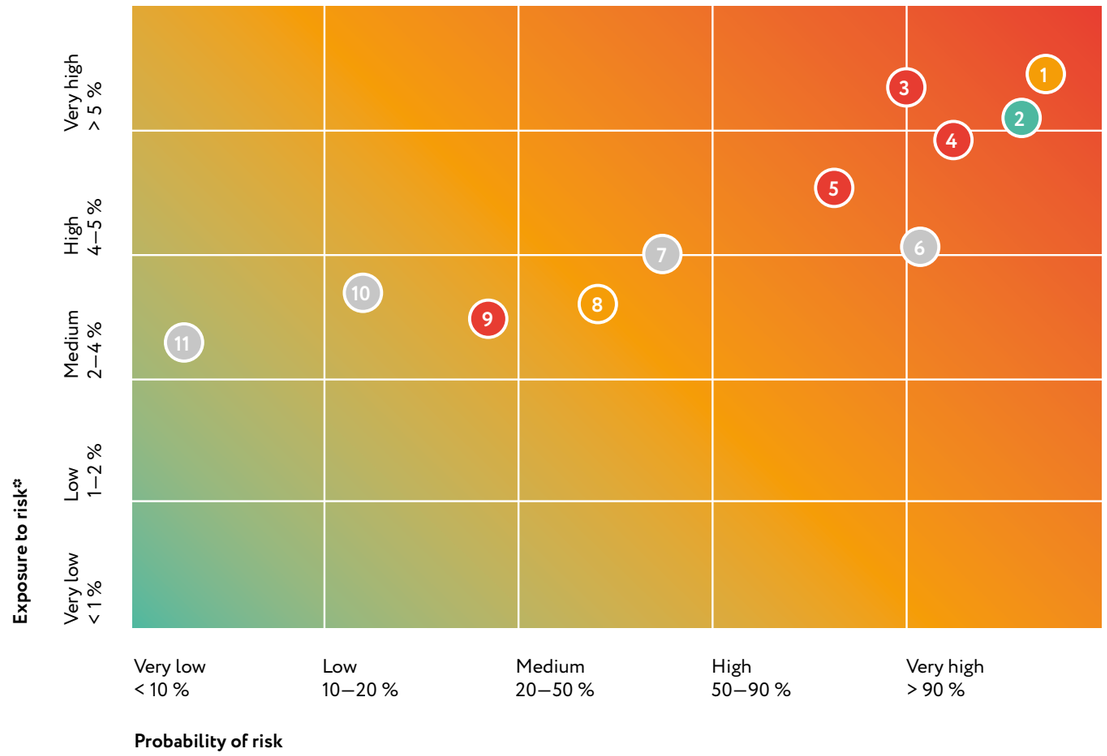
* Accounts receivable and accounts payable

** Automated Project Management System

In 2017, a KPI in this area was the compliance with the limits of readiness for risks established by the order of Rosatom State Corporation in the amount of 5 % of the extreme negative deviation of the adjusted free cash flow of JSC Atomenergomash from the planned value. In 2017, there was a positive deviation of 20.3 %. Readiness for risks was met.

JSC Atomenergomash divides all risks into critical, high and low ones, depending on the probability of occurrence and the materiality of the consequences[1].

Map of Key Risks



Low risks

High risks

Critical risks

Market risks

Political and regulatory risks

Financial risks

Operating risks

* Effects of risk on AFCF in 2017–2019.

[1] Risk management activities are described for the most significant risks (for more detail of the activities, see Appendix 11 of the on-line version of the Report).

LIST OF KEY RISKS*:

1. Political instability or deterioration of political relations between the Russian Federation and countries of operation
2. Limitation of available financing
3. Deterioration of the macroeconomic conditions (including exchange, interest, inflation risks)
4. High competition in the market, decrease of the market share
5. High uncertainty of the amount of orders
6. Limitation of supplies of equipment and components from abroad
7. Shortage of employees with sufficient qualifications
8. Toughening the requirements for the localization of productions in foreign markets
9. Non-competitiveness of our existing products and technologies
10. Deterioration of public attitude towards the Company or nuclear technologies in general
11. Physical damage to the Company's assets

In 2018, the Company plans to develop risk management for divisional projects; form a corporate risk management information system integrated with the project management system and allowing for controlling risks in the management of contracts in the supply chain.

The main areas of development and improvement of the corporate risk management system are:

Risk management for divisional projects:

- Analysis and regular monitoring of risks for the projects of the Khankhikivi-1 and Akkuyu NPPs (projects with a dedicated risk manager);
- Formation of a risk management plan for the Paks-2 NPP project;
- Application of experience from the project of NPP Hanhikivi-1 to risk management of large projects.

Integration of risk management using IT systems:

- Integrated processes:
  - Analysis of risks in budgeting and the formation of business plans;
  - Risk analysis in the coordination of contracts;
  - Risk analysis for investment projects;
  - Risk assessment at the pre-project stage;
  - Formation and updating of risk registers in management of contracts in the supply chain;
  - Risk management of business processes — production sites.

Management of insurance and settlement of insured events:

- Monitoring of existing insurance contracts for basic production assets and settlement of insured events;
- Completion of the assessment of property risks for production sites and the consolidation of experience gained and the holding of training seminars for responsible managers at enterprises.

Additional control of risks and opportunities:

- Analysis of stress scenarios of the effects of external risks;
- Managing the opportunities for the development of new areas (additive technologies, localization of RES, mini-HPP, etc.).

* The list of risks is arranged in the descending order of their effects on the AFCF in 2017–2019.

03 FINANCIAL AND ECONOMIC ACTIVITY

Against the background of the increasing total revenue of the Division, the share of its revenue in new businesses amounted to 45% of the total revenue – a record value over the last six years.

One of the strategic goals of the Division is to build up a portfolio of orders both in nuclear energy and in related industries. JSC Atomenergomash, in cooperation with its partners, implements advanced complex projects that contributes to development of the energy, gas and petrochemical industry and to other key sectors of Russian economy.

9.8 RUB bln
The Division's EBITDA

30.6 RUB bln
The Division's revenue from new business lines

68.6 RUB bln
The Division's aggregate revenue

03.1. ECONOMIC EFFECTIVENESS AND FINANCIAL STANDING

As a leader in the power engineering industry of Russia and implementing plans to expand its global presence in the target markets, JSC Atomenergomash is benchmarked against the level of world leaders in financial and economic management.

+50 %
2017
Increase in EBITDA of the Division year over year

+8 %
2017
Increase in the total revenue of the Division year over year

Responsibility for the financial result is enshrined in the KPI of the Chief Executive Officer and his deputies, who have a team performance indicator — "Adjusted free cash flow" (it reached the top level in 2017).

In 2017, the revenue of the Division was 68.6 billion rubles (8 % higher than the previous year), and EBTIDA was 9.8 billion rubles (1.5 times higher than the previous year).

While the total revenue of the Division increased, the share of revenue from new businesses reached a record value of six years and amounted to 30.6 billion rubles (45 % of the total volume).

DIRECT SPEECH

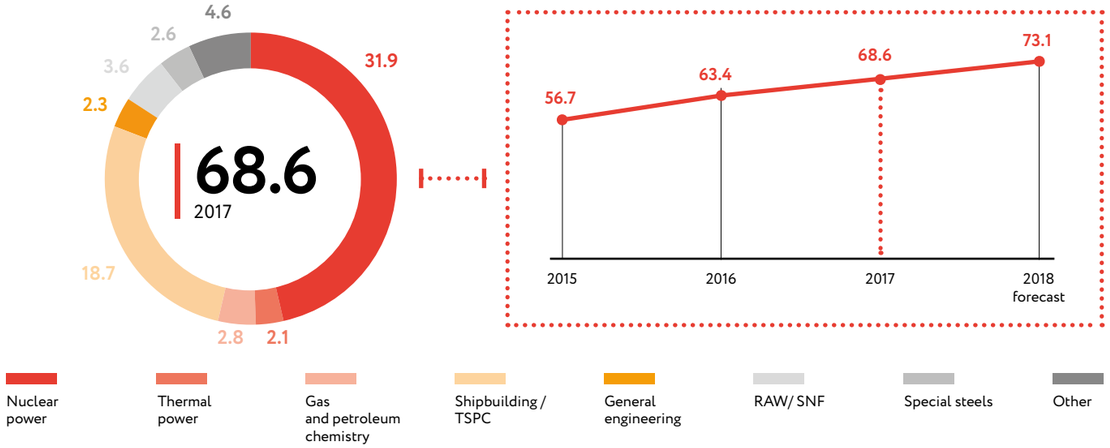
Andrey Nikipelov,
Chief Executive Officer of JSC Atomenergomash:

"Last year, the geography of our deliveries was 27 countries. We take part in all nuclear energy projects of Rosatom, and also maintain our development in non-nuclear markets. In 2018, our strategic priorities still are timely fulfillment of all our contractual obligations, increase in production efficiency, increase in the amount of export contracts and increase in revenue in all business areas."

Combined revenue (billion rubles)

Indicators	2015	2016	2017	2018 forecast
TOTAL (bln rubles)	**56.7**	**63.4**	**68.6**	**73.1**
Share of revenue by new business (%)	30	44	45	45
Share of revenue from foreign operations (%)	13	12	11	12

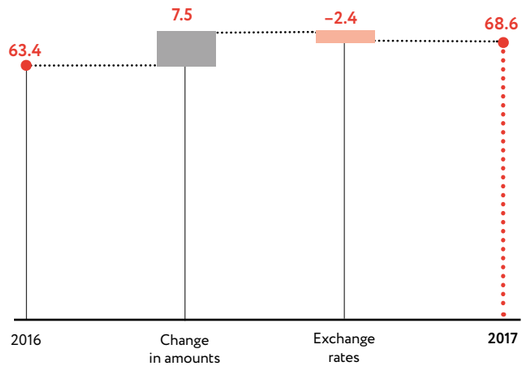
Combined revenue by operating segments (billion rubles)



Combined revenue by geographical segments / countries (billion rubles)

Segment	2015	2016	2017	2018 forecast
Russia	49.5	56	61	64.7
CIS	0.5	0.6	1	1.2
Non-CIS countries	6.4	5.8	5.4	5.1
Through Rusatom Service JSC	0.3	1	1.2	2.1
TOTAL	**56.7**	**63.4**	**68.6**	**73.1**

Factor analysis of changes in combined revenue (billion rubles)

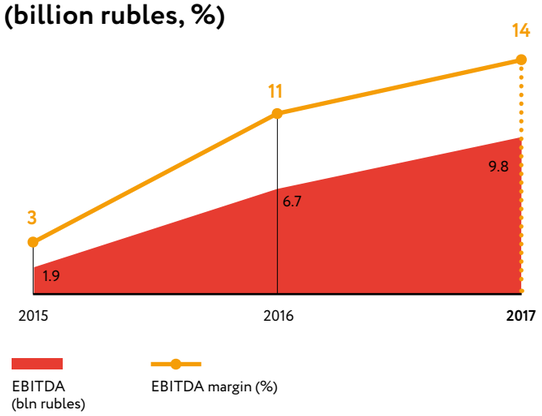


Decrease in the amount of losses in 2017 compared to 2016 by 11.4 billion rubles is due to a decrease in the balance of exchange rate differences by 11.96 billion rubles.

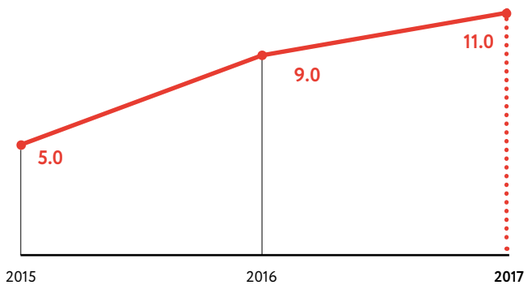
The Company's plans to reach a break-even point include further development of key business areas, decrease in non-operational losses and other expenses related to the payment of loans, aimed at developing and expanding the production areas of the Division.

The indicator of operational efficiency (EBITDA margin) increased by 27 % and was 14 %. The growth of profitability is due to increased production efficiency of both the main equipment of nuclear power plants and in non-nuclear business areas. The sale of non-core assets had additional positive effect.

EBITDA and EBITDA margin (billion rubles, %)



Operating profitability (%)

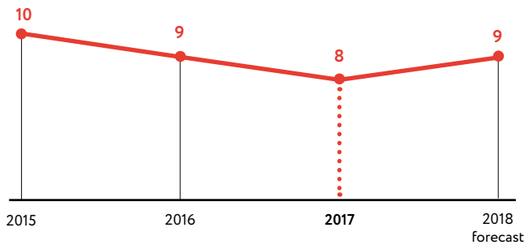


The increase in the operating profitability of the Division in 2017 is due to the growth in operating profit as compared to 2016 by 0.3 billion rubles due to revenue growth by 8 %.

Factor analysis of changes in EBITDA (billion rubles)

2016	**6.7**
Change in the amounts and structure of sales	3.3
Sale of non-core assets	–0.4
Balance of reserves	1.8
Effect of changes in the exchange rate	–1.7
Change in the perimeter	–0.1
Other	0.4
2017	**9.8**

Share of management expenses in revenue (%)



In the reporting year, the Division received 291 million rubles from the restructuring of non-core assets of PJSC ZiO-Podolsk, JSC SNIIP, JSC SverdNIIkhimmash, JSC VNIIAM and JSC IK ZIOMAR.

In 2017, the growth of the current liquidity ratio is due to the decrease of the Division's obligations by 6 % and the decrease in current assets by 2 %.

Debt financing resulted in the growth of the debt-to-equity ratio. However, the value of the receivables to payables ratio remained close to the standard, which, together with the current liquidity level, indicates the Company's solvency in the short term.

Structure of the loan portfolio (from combined statements) (million rubles)*

Creditor	2015	2016	2017	2018 forecast
Russian state-owned banks	3,755	2,694	1,218	3,903
Foreign banks**	2,625	2,180	1,650	1,996
Other (including industry financing)	39,101	42,169	38,520	52,704
TOTAL	**45,481**	**47,044**	**41,388**	**58,603**

Government assistance in 2017 (million rubles)

Company	Amount
JSC AEM-Technologies	108.253
JSC NPO TSNIITMASH	64.111
JSC Afrikantov OKBM	8
JSC OKB GIDROPRESS	6.2
JSC TSKBM	2.221
TOTAL	**188.761**

The main cause for the decrease in the indicator "Excess of net assets over the charter capital" is a decrease in net assets compared to 2016 by 5 billion rubles and a decrease in the charter capital by 3 billion rubles due to changes in the perimeter of consolidation in 2017.

The upward trend in the return on equity and assets in 2017 is primarily due to the increase in net profit against 2016.

Excess of net assets over the charter capital (from combined statements) (million rubles)

2015	2016	2017	2018 forecast
17	43.2	42.9	35.9

Indicators (from combined statements)	2015	2016	2017	2018 forecast
Return on assets (%)	–2	–7	–1	–2
Return on equity (%)	–11	–27	–7	–13

* The structure of the debt portfolio is reflected in the perimeter of the budgetary consolidation of the Power Engineering Division at the reporting date.
** The debt in a currency other than the ruble is reflected at the rate of the Central Bank of the Russian Federation on the last day of the reporting period.

MANUFACTURE OF PGV-1000M STEAM GENERATOR

for the Belarusian NPP

The steam generator is a recuperative heat exchanger where heat energy is transferred from the coolant through the immersed heat exchange surface to generate water vapor to be fed to the turbine, which rotates the electric power generator.

Entire set of the heat exchange equipment comprising four assembled steam generators was manufactured at the production site of the Volgodonsk branch of Atommash. The manufacturing cycle included stamping the bottoms, assembling and welding vessels, installing heat exchange tubes, and a set of control measures. The steam generators underwent hydraulic and vacuum tests, ultrasonic, magnetic-particle, eddy current testing and X-ray gamma-ray examination. In total, each product was subjected to 315 control operations by the technical control service.

8 months
development of design documentation (jointly by ZiO-Podolsk – OKB GIDROPRESS)

16.8 months
manufacture of one assembled product

8 months
installation of one set of PGV (4 pcs)

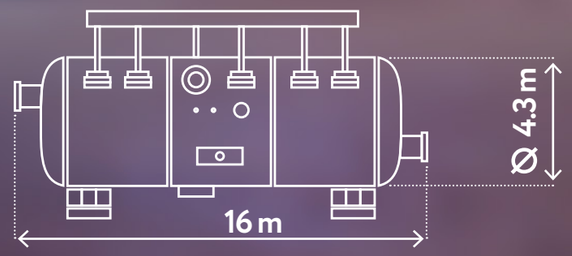
Production cycle

40
years of service life

11,000
heat-exchange tubes

130 km
total length of tubes

378
tons weight with accessories



03.2. COMMERCIAL ACTIVITIES

One of the strategic goals of the Division is to build up a portfolio of orders both in nuclear energy and in related industries.

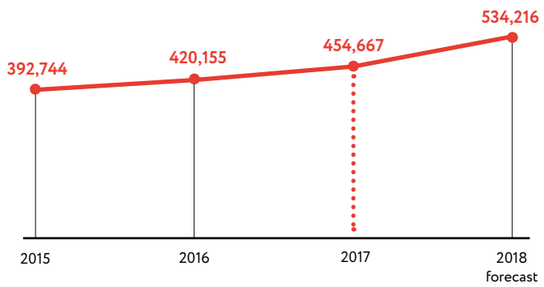
DIRECT SPEECH

Andrey Nikipelov,
Chief Executive Officer of JSC Atomenergomash:

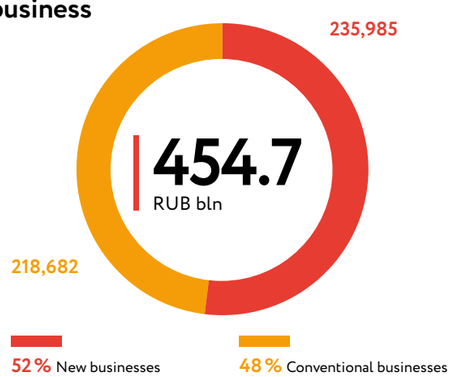
"It is important that the portfolio growth is supported by new orders both in the nuclear industry and in other business areas. According to the strategic goals of Rosatom State Corporation, we continue to increase our presence in non-nuclear industries, we are implementing together with our partners complex comprehensive projects that support the development of energy, oil refining, gas industry and other key sectors of the Russian economy."

One of the key goals of Rosatom State Corporation is to increase revenue in related sectors. In 2017, the share of the Division's portfolio of orders in new businesses exceeded half of the total amount.

Sectoral structure of the portfolio of orders (million rubles)



Structure of the portfolio of orders by business



03.3. INVESTMENT ACTIVITIES

The purpose of the investment program of the machine-building Division is the performance of equipment supply contracts according to the Roadmap for the construction of nuclear power plants in Russia and abroad, and the performance of the obligations related to the delivery of equipment in gas and petroleum chemistry, thermal industry.

The main regulatory documents are orders related to investment and project activities issued by Rosatom State Corporation and local regulatory acts reflecting the specifics of the planning and control processes within the investment and project activities.

In order to improve the quality of investment planning and achieve key project parameters at the investment phase, the Division has the following KPIs:

1) Integral indicator of the efficiency of investment activities (hereinafter, IIEIA), which includes three components:
   - Plan/Forecast of portfolio return;
   - Compliance with key milestones;
   - Achievement of the milestones related to revenue and EBITDA.
2) Integrated indicator of the quality of the preparation of materials for the project;
3) Decrease in the limit of cash-consuming projects in 2017.

The key KPI, established for the Division for investment activities, was achieved at the target level in 2017. A positive contribution to the achievement of the KPI in 2017 was provided by new projects:

- The project of JSC Afrikantov OKBM "Pumping equipment for shipbuilding";
- The project of JSC Afrikantov OKBM "Pumping equipment for GPC";
- The project of PJSC ZiO-Podolsk "Compacting the production site of PJSC ZiO-Podolsk (civil part)";
- The project of JSC AEM-Technologies "Maintenance, development of power capacities and increase of energy efficiency of the branch of AEM-technology JSC Petrozavodskmash.

In addition, a positive contribution to the achievement of the KPI IIEIA in 2017 was due to the update of the parameters of the projects:

- The project of JSC AEM-Technologies "Development of manufacture of products for nuclear power plants and petroleum and gas chemistry";
- The project of JSC TSKBM "Replenishment and upgrade of production capacities".

A significant adverse impact on the achievement of KPI in 2017 was due to the decrease in efficiency and failure to achieve milestones in terms of revenues and EBITDA for the project of PJSC ZiO-Podolsk "Increase in capacity to meet target production targets for general equipment".

In the reporting year 2017, the amount of financing of the Company's investment program was 2,404 million rubles.

Amount of investments by CCO and countries (million rubles)

Company	2014	2015	2016	2017	2018 forecast
CCO in Russia (TOTAL)	**3,685**	**3,628**	**4,189**	**2,343**	**8,694**
JSC Atomenergomash	774	2	9	17	792
JSC AEM-Technologies	746	825	357	491	2,170
JSC OKB GIDROPRESS	290	70	279	142	474
PJSC ZiO-Podolsk	550	537	758	252	2,319
JSC Afrikantov OKBM	988	1,216	1,379	870	1,788
JSC TSKBM	173	478	1,286	422	744
JSC NPO TSNIITMASH	43	262	44	20	42
Other	121	238	77	129	365
CCO abroad (TOTAL)	**207**	**41**	**33**	**61**	**98**
ARAKO (Czech Republic)	2	–	–	–	–
PJSC EMSS (Ukraine)	205	41	33	61	98

The main areas of the Division's investment are:

- Nuclear power;
- Thermal power;
- Gas and petroleum chemistry;
- Special steels;
- Shipbuilding.

The priority projects of the Company are related to the implementation of the Roadmap for NPP Construction (the main enterprises are JSC AEM-Technologies, JSC TSKBM, JSC OKB GIDROPRESS).

04

PRODUCTION ACTIVITY

JSC Atomenergomash is one of the largest power engineering holdings in Russia that offers a full range of solutions in the areas of design, manufacture and supply of equipment for nuclear and thermal energy industries, gas and petroleum chemistry ones and a shipbuilding industry, as well as for the market of special steels and that of small hydro power stations

590 RUB mln
Economic effect from the implementation of RPS projects

Supply of products to
11 NPPs

RITM-200 reactor systems for new-generation icebreakers. In 2016, reactors were sent to the customer for the icebreaker "Arktika", and in 2017 for the first serial icebreaker "Sibir". These are brand new reactors, which are manufactured completely in the Division from the design to shipment.

04.1. PRODUCTION ACTIVITY RESULTS

The production activities are the core activities for the enterprises of the Division. The responsibility for this area is born by First Deputy CEO – Business Operations Director, Vladimir Razin.

Nuclear power

Supply of products to 11 NPPs (5 of which are foreign): Kursk NPP-2, Rostov NPP (Power Units 3, 4), Balakovo NPP, Novovoronezh NPP-2, Leningrad NPP, Leningrad NPP-2, Belarusian NPP, Armenian NPP, NPP Belene, Tianwan NPP (Power Units 3, 4), Kudankulam NPP.

Thermal power

- Supply of equipment for Stage 1 of the upgrade of PK-10-2 boiler for PPNo. 10 of the Toparskaya SDPP of Kazakhmys Energy LLP;
- Development of measures to lessen the limitation in the operation of the radiation surface of PK-24 boiler unit at CHPP-10;
- Delivery, supervised installation, supervised adjustment of equipment for solid municipal waste thermal treatment plants in the Moscow region and Kazan, including the installation of boiler equipment;

Gas and petroleum chemistry

- Completion of contracts for column equipment supply to Moscow and Omsk Refinery.
- 18 large-sized evaporator plants were shipped for the deep raw hydrocarbon conversion complex of Zapsibneftekhim, LLC.

Special steels

- Shipment of products for Arcelor Mittalplants (Germany, Luxembourg, France), General Electric (USA), BHEL (India), Alstom Renewable (Poland), ABB (Switzerland), VSMPO-Avisma Corporation PJSC, AH Industries (Denmark), ThyssenKrupp Rothe Erde (Germany) and other leading European and Russian companies.
- Contracts were entered into with ArcelorMittal – Belval&Differdange, Presezzi Extrusion s.p.a., ThyssenKrupp Materials France S.A.S. (France), EVRAZ-DMZP JSC, SSK von Schaewen Wetter, Ilyich Iron and Steel Works PJSC, EVRAZ NTMK, Euskal Forging (Spain), etc.

Shipbuilding

- Supply of equipment for shipbuilding enterprises of the Russian Federation;
- Engineering, manufacturing and shipping of a new generation RITM-200 reactor system for the LK-60 nuclear-powered icebreaker of Project 22220.

04.2. QUALITY AND INDUSTRIAL SAFETY

One of the main values of Rosatom State Corporation is safety. The safety of nuclear facilities is directly related to the quality of the products manufactured by the Company.

GRI 416-1 E

The growing requirements for the safety of the nuclear facilities under construction and operation impose special obligations related to the quality of products on all enterprises of the Division, and the safety assessment is an integral component of the manufacture of all types of products.

The enterprises of the Division have quality management systems (QMS) developed and certified to the requirements of ISO 9001.

Certified QMS of CCO

Name of the organization	Name of the certification system and the validity of the certificate
ARAKO spol. s.r.o.	TÜV SÜD, until 14.09.2018
GANZ EEM	EMT CJSC (representative of NQA in Hungary), until 03.02.2018
JSC Atomenergomash	IQNet (Russian Registry, Saint Petersburg) until 15.12.2019
JSC OKB GIDROPRESS	DQS GmbH, until 03.10.2020
JSC Afrikantov OKBM	TÜV Thüringen, until 19.12.2020
JSC NPO TSNIITMASH	TÜV Rheinland Cert , until 27.11.2020
JSC ATM	AFNOR Certification, until 14.09.2018
JSC AEM-Technologies	IQNet (Russian Registry, Saint Petersburg) until 15.09.2018
PJSC ZiO-Podolsk	Lloyd's Register Quality Assurange, until 14.09.2018
JSC SverdNIIkhimmash	IQNet Qualityaustria, until 01.09.2018
JSC SNIIP	TÜV CERT, until 15.09.2018
JSC TSKBM	IQNet (Test LLC, Saint Petersburg) until 29.06.2020
AAEM, LLC	IQNet (Russian Registry, Saint Petersburg) until 15.09.2018
PJSC EMSS	TÜV Thüringen, until 14.09.2018

Responsibility for the introduction and development of a safety culture in the Division is allocated to the Quality Department of JSC Atomenergomash.

In 2017, JSC Atomenergomash carried out a number of measures to form and maintain a safety culture both in the Company and in the CCO.

1. Work related to the development of safety culture was according to the plan approved by the First Deputy CEO – Business Operations Director on 11.02.2017.

2. A safety culture group was introduced into the corporate structure based on Order of the CEO of JSC Atomenergomash No. 33/87-P of 20.03.2017.

3. A representative of JSC Atomenergomash and representatives of the CCO were trained in a summer school related to the safety culture held at SEI APE Central Institute for Advanced Training of Rosatom.

4. The specialists of the Quality Department took part in the international meetings held by the Customer and the Owner of the Khankhikivi-1 NPP.

5. The safety culture of JSC Atomenergomash was self-assessed in the form of questioning and interviewing of personnel. 11 % of personnel of JSC Atomenergomash took part in the questioning. Based on the results of the self-assessment, a report and a corrective action plan aimed at improving the situation were prepared.

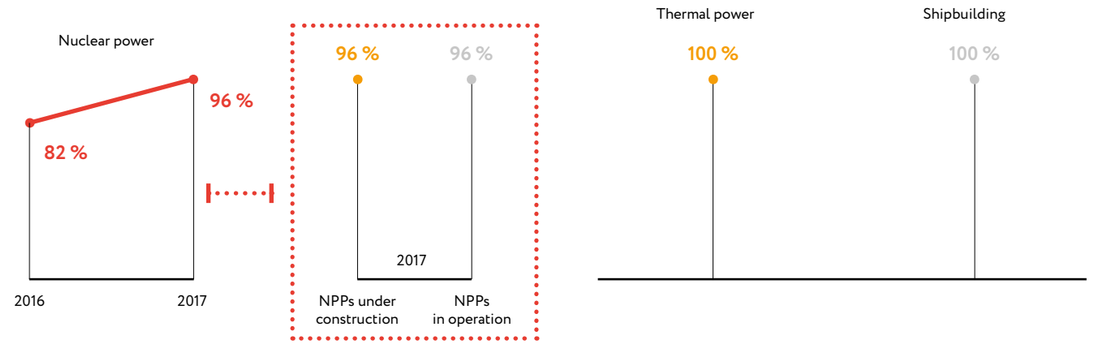
6. An internal audit of the safety culture was performed along with an audit of the management system of JSC Atomenergomash.

7. From 19.12.2017 to 20.12.2017, the safety culture was audited by Fennovoima Oy that engaged a consultant from the Center for Technical Research (Finland) during the construction of the Khankhikivi-1 NPP. Two discrepancies were identified, recommendations for improvement were given.

8. During the audits of the management systems of organizations according to the approved program, audits on the safety culture of the following suppliers of JSC Atomenergomash were performed: ARAKOLLC (Czech Republic), Atomkomplekt JSC, branches of JSC AEM-Technologies: Atommash and Petrozavodskmash, JSC NPO TSNIITMASH, JSC OKB GIDROPRESS, JSC Afrikantov OKBM, JSC SNIIP, FSUE RFNC-VNIIEF, JSC Tyazhmash, JSC TSKBM, Konecranes (Finland), Algol (Finland).

9. A task group was established to ensure the safety culture across the entire Power Engineering Division of Rosatom State Corporation. The first meeting of the task group was held. Meetings are planned to be held on a regular basis.

Indicators for quality assurance in 2017 – % of products that passed consumer input control at the first try



GRI 416-2 E

Non-conformities with regulatory safety requirements identified during external audits

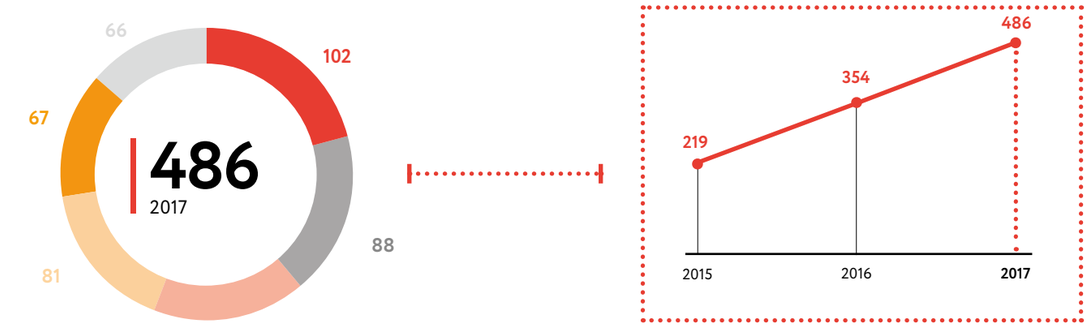
Status	2015	2016	2017
Recognized	3	4	2
Refused	13	13	7
Being addressed	–	–	3
Total	**16**	**17**	**12**

04.3. PROCESS OPTIMIZATION

The implementation of the production system of Rosatom (RPS) is an industry project aimed at the creation of a universal system for complex optimization management for the production and management processes at the enterprises of Rosatom State Corporation based on the best examples of domestic and foreign experience.

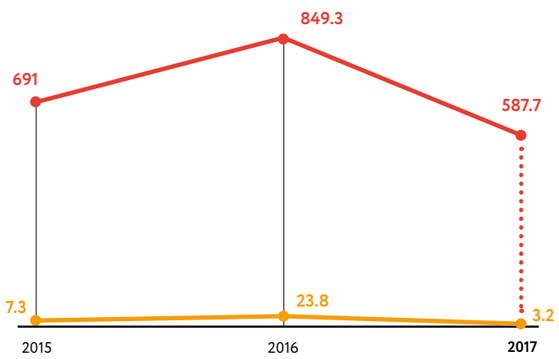
In 2017, the number of RPS projects implemented in the Division increased almost by 40 % compared to 2016, 86 % of the projects were aimed at achieving the strategic goal of Rosatom State Corporation to decrease the timing of the processes.

Number of RPS projects



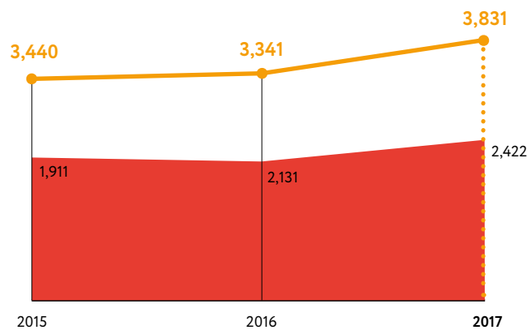
JSC Afrikantov OKBM | Branch of JSC AEM-Technologies – Atommash | JSC OKB GIDROPRESS | JSC TSKBM | PJSC ZiO-Podolsk | Other

Costs of implementation and economic effect of RPS projects (million rubles)



Expenses | Effect

Number of submitted proposals and percentage of implemented proposals



Submitted | Implemented

CASE

Factory of processes

In August 2017, PJSC ZiO-Podolsk opened the first "factory of processes" in the Division. This is a special training center to learn how to use the tools of Rosatom Production System.

The first lesson was for the staff of the Directorate for Performance Management. They had to mimic the production process: distribute duties and build a flow of several workplaces in order to assemble in ten minutes ten models of the plant's traditional product — a reduced copy of the high-pressure heater (HPH) — with determined financial measures.

The participants have three rounds to implement the task. At each stage, the efficiency of work should be improved, therefore, mandatory briefings are held between the rounds with digitized indicators in order to discuss and analyze problems, and develop proposals for improvements.

All proposals on improvements created at the factory, new interesting approaches, logistics solutions, proposals on the organization of workplaces will be further used.

The training is as close as possible to the actual conditions of HPH production at the place of production and takes into account its specifics, allowing the participants to see what results can be achieved with the practical application of RPS tools at a real production site.

The game was put into commercial operation in September 2017 and was successfully certified in November. The received certificate entitles the plant to conduct trainings not only for its employees, but also for employees of nuclear industry businesses and other third-party organizations.

The number of projects is increasing every year, while the cost of projects is decreased, and the effect is maintained at a high level. The implementation of the RPS projects resulted in the economic effect of about 590 million rubles in 2017.

In 2017, employees of the enterprises of the Division submitted almost four thousand proposals for improvement (PFI). The leaders in the submission of PFI are JSC Afrikantov OKBM, branch of JSC AEM-Technologies Atommash, JSC TSKBM and PJSC ZiO-Podolsk.

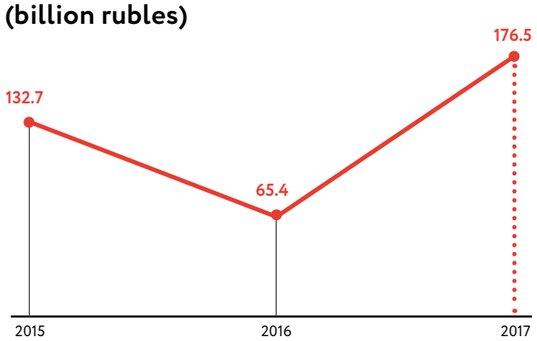
One of the strategic goals of Rosatom State Corporation is to decrease the time of the processes. In 2017, the Division implemented 489 RPS projects, of which 417 projects were aimed at decreasing the time of the processes.

04.4. PROCUREMENT ACTIVITIES

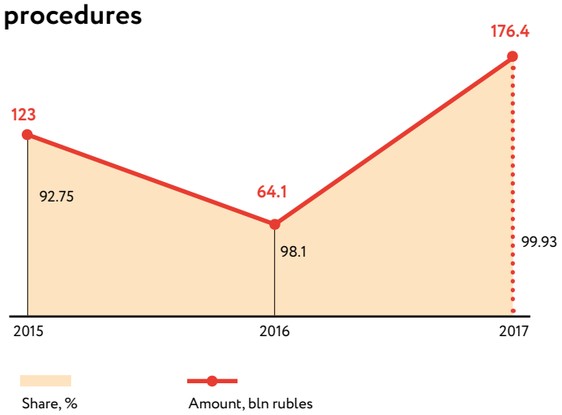
JSC Atomenergomash carries out procurement activities according to Federal Law No. 223-FZ of 18.07.2011 "On Procurement of Goods, Works, Services by Individual Types of Legal Entities", Federal Law No. 135-FZ of 03.07.2016 "On Protection of Competition" and the Unified Industry Procurement Standard.

The total volume of contracts entered into in 2017 was 176.5 billion rubles, three quarters of which fell on JSC Atomenergomash, JSC AEM-Technologies and JSC SNIIP. The economic effect reached about 1.7 billion rubles, and the share of openness of procurement was 99.9 % of the total amount.

Amount of contracts entered into (billion rubles)



Percentage of opened procurement procedures



GRI 102-9, 102-10 E

One of the public control tools for procurement made is the ability to appeal the decision of the procurement organizer at any time. In order to develop this tool, the Company developed and implemented a key performance indicator to be used the enterprises of the Division to show the proportion of justified or partially justified complaints of the procurement organizer's action. In 2017, the indicator was 0.2 %, matching the target level.

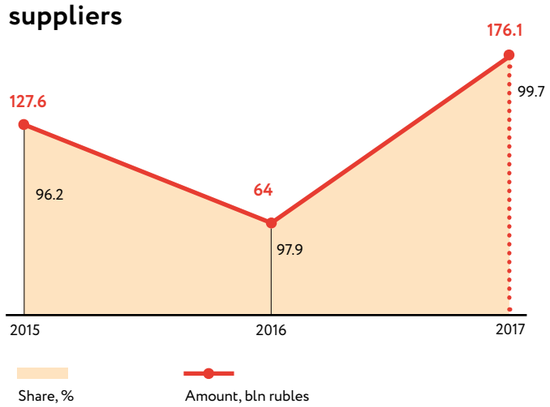
In the reporting year, the volume of procurements from small and medium-sized businesses (hereinafter referred to as SMEs) amounted to more than 92 billion rubles, which exceeded by more than four times the normatively set target value — 18 %.

The company continues to implement the import substitution program in the area of energy production. For example, the enterprises of the Division entered into contracts for 176.1 billion rubles with Russian suppliers, or 99.7 % of the total amount of procurements.

GRI 204-1 E

Carrying out their activities, the enterprises of the Division involve local suppliers on general grounds, which is due to the impossibility to establish any preferences, in particular based on geography.

Proportion of procurement from Russian suppliers



05 INNOVATION ACTIVITY

The innovative development program of JSC Atomenergomash is aimed at maintaining high competitiveness of the economic efficiency of the Division's enterprises

80
Results of intellectual activity were received

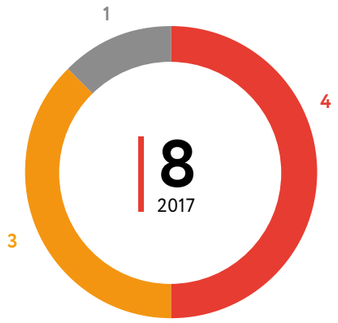
181 pcs
Scientific papers were published

05.1. SCIENTIFIC ACTIVITIES

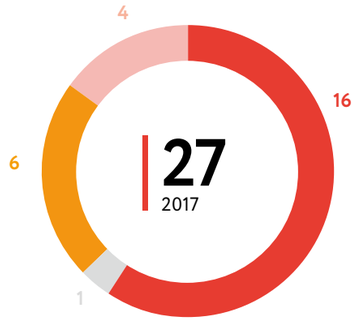
The main goal of the scientific and technical activities of the Division is to develop innovative solutions for energy industry and ensuring the competitiveness of products.

A number of enterprises of the Division host postgraduate courses and dissertation councils. In 2017, 27 employees were trained in the graduate school, eight theses were defended in the dissertation councils (four of them at JSC OKB GIDROPRESS).

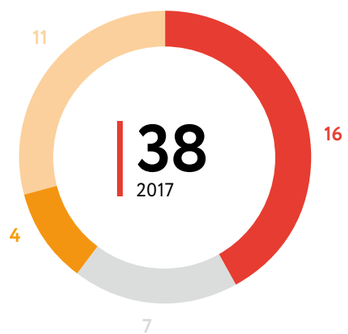
Number of defenses in the dissertation councils at the enterprises (pcs)



Number of postgraduate students studying in graduate school at the enterprises (persons)



Number of postgraduate students working at the enterprises (persons)

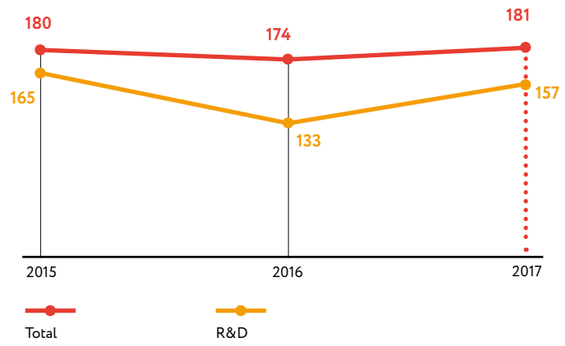


Number of PhD students working at the enterprises (persons)

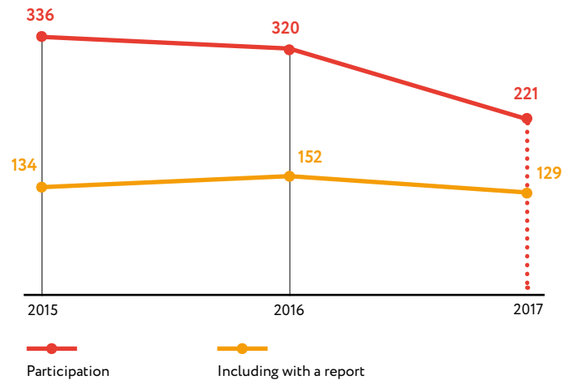
JSC OKB GIDROPRESS
JSC SverdNIIkhimmash
JSC NPO TSNIITMASH
PJSC ZiO-Podolsk
JSC Afrikantov OKBM
JSC VNIIAM
JSC SNIIP
Other

Important indicators of the efficiency of the Division's scientific activities are the number of published scientific papers, articles and participation in scientific conferences with reports.

Number of published scientific papers and articles, including on R&D topics (pcs)



Participation in scientific conferences, including reports (persons)



CASE

Awards for innovation

Three gold medals and four prizes were awarded to CNIITMASH for its scientific achievements at the main Russian Metallurgical Exhibition MetalExpo-2017.

The development of nanostructured duplex steel with a high margin of corrosion resistance in a gas environment with a high content of H_2S and SO_2, with a brand new import-substituting production technology won a medal in Ferrous Metallurgy category.

The institute received another award in Metalworking category for the design and manufacture of a line of industrial equipment for the additive production of geometrically-complex products by selective laser melting with MeltMaster 3D series tools.

05.2. INNOVATION-DRIVEN GROWTH

The innovative development program of JSC Atomenergomash is aimed at maintaining high competitiveness of the economic efficiency of the enterprises of the Division by:

- development and implementation of innovative stock-produced high-technology integrated products and their service support at all stages of the life cycle;
- development and optimal use of innovative technological processes (processing) used in production and other activities of the enterprises;
- participation in the development and manufacture of pilot and experimental equipment in order to support research programs of state scientific centers of Russia and introduce the results of scientific research into the products and manufacturing technology.

To ensure manning with qualified specialists, JSC Atomenergomash and the enterprises of the Division are in constant operating interaction with all stakeholders – educational institutions, training centers at enterprises, etc.

Annually the enterprises of the Division take part in joint activities with higher educational institutions and secondary specialized colleges aimed at training potential personnel for the nuclear industry: Job fairs, Career days of Rosatom State Corporation, Open Doors Days, excursions, etc. In addition, the production enterprises of JSC Atomenergomash organize competitions of professional skills and engineering competitions, take part in conferences and forums of young specialists, hold their own scientific and technical conferences.

The enterprises of the Division introduce on a regular basis innovative solutions aimed at optimizing the work and decreasing the timing of the processes into the production process. In 2017, the enterprises of the Division purchased no results of intellectual activity (RIA) from third parties, and JSC Afrikantov OKBM sold RIA for a total of about 1 million rubles to third parties.

Number of RIA received (pcs)

Company	2015	2016	2017
JSC SNIIP	6	5	10
JSC OKB GIDROPRESS	2	4	6
JSC SverdNIIkhimmash	15	12	5
JSC Afrikantov OKBM	20	22	34
JSC NPO TSNIITMASH	23	24	25
TOTAL	**66**	**67**	**80**

06 ENVIRONMENTAL IMPACT

The Division's enterprises have a stable downward trend in energy consumption

155.7 RUB mln
Spending on environmental protection

114 RUB mln
Amount of energy savings

06.1. ENVIRONMENTAL MANAGEMENT

Issues of environmental management are crucial in the operating activities of the Division due to a wide network of industrial enterprises of various profiles, consuming resources during the production process and impacting the environment to some extent.

Enterprises that have an ISO 14001 certificate[1]

Companies	Availability of ISO 14001 certificate
JSC Atomenergomash	YES
PJSC ZiO-Podolsk	YES
Ganz EEM	YES
JSC NPO TSNIITMASH	YES
PJSC EMSS	YES
AAEM, LLC	YES
JSC SNIIP	YES
JSC Afrikantov OKBM	2018
JSC OKB GIDROPRESS	2019

The enterprises of the Division make payments to the budget of the Russian Federation for preventing the environmental impact and the environmental management system. In 2017, the total expenses for this amounted to almost 156 million rubles.

GRI 307-1 E

The enterprises of the Divisions bear the statutory responsibility for violation of the procedure established by the laws of the Russian Federation, as well as for failure to meet environmental and sanitary-epidemiological requirements in handling production and consumption waste. In 2017, the control circuit organizations were fined 70,000 rubles based on the results of environmental assessments (no non-financial sanctions were applied).

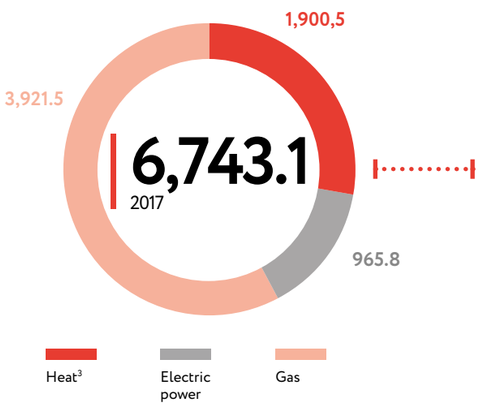
Machine building enterprises need uninterrupted and high-quality energy supply to maintain the technological process.

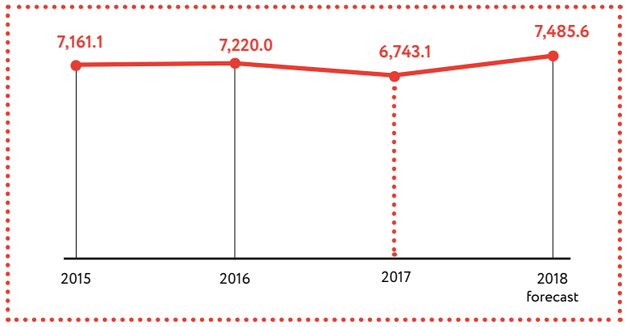
According to Order of Rosatom State Corporation No. 1/676-P of 09.08.2011, the enterprises of the Division implement the program "Energy Saving and Energy Efficiency Improvement". In 2017, the total amount of energy savings[2] by the organizations of the Division amounted to more than 114 million rubles (or 10.9 %).

The Division-wide average energy consumption tends to decrease, which is especially typical of large enterprises with high energy consumption (PJSC ZiO-Podolsk, JSC AEM-Technologies, JSC Afrikantov OKBM). For example, in 2017, energy consumption decreased by 6.6 % compared to the previous year.

GRI 302-1 E

Energy consumption (thousand G/J)





The largest saving of energy in 2017 (in comparable conditions) was shown by JSC Afrikantov OKBM and the branches of JSC AEM-Technologies – Atommash and Petrozavodskmash.

[1] Standard ISO 14001 is a series of international standards for the establishment of an environmental management system.
[2] Against the base year 2015.
[3] JSC Atomenergomash accounts for heat and electricity consumption within the total office rental costs.

GRI 302-4 E

Amount of energy savings (thousand G/J)[1]

Company	2017			
	Heat	Electric power	Gas	Total
Atommash, branch of JSC AEM-Technologies	10.8	26.3	86.6	123.7
JSC Afrikantov OKBM	0.7	1.1	67.1	68.9
Petrozavodskmash, branch of JSC AEM-Technologies	35.7	4.5	0.2	40.4
JSC TSKBM	18.5	14.7	–	33.3
JSC OKB GIDROPRESS	7.6	1	–1.6	7
JSC OZTM i TS	0.6	5.9	0.4	6.8
JSC SNIIP	–	3.2	–	3.2
Other	0.9	–23.5	–66.9	–89.5
TOTAL	**74.8**	**33.2**	**85.8**	**193.8**

GRI 306-1 E

Water resources are used to carry out the economic activity of the enterprises, and also in technological processes (cooling/heating systems, product integrity checks, as part of process fluids).

The total water consumption was 4,156.8 thousand m^3, which is 2 % lower than in the previous year. The amount of discharge of wastewater decreased by 8 % and was 2,378 thousand m^3.

CASE

A new business line – environmental monitoring systems

JSC SNIIP developed the smart environmental monitoring system (EMS). It allows fully controlling the environmental situation at industrial enterprises, housing and public utilities, energy and other industries, preventing emergencies or mitigating their effects.

The environmental monitoring system is a scalable and multi-level software platform comprising a set of controlled parameters of different areas. The system provides radiation, chemical control, in-process control of the room, analyzes the atmospheric condition of air, soil and water. The EMS comprises a smart decision-making system that sends to the user a clear set of instructions by means of calculation and forecasting in the event of any emergency.

http://www.aem-group.ru/static/images/infografix/ekologicheskiy-monitoring-horisontal-01.jpg

[1] Since 2016, the year 2015 has been used as the base year, and therefore the data of 2014 and 2015 are not comparable and are not given in the Report.

GRI 303-1 E

Water consumption (thousand m^3)

Company	Type of source	2015	2016	2017
TOTAL	Municipal water supply	1,888.7	1,725.2	1,669.1
	Wastewater	1,076.7	1,096.2	1,009.2
	Underground water	444.2	398.0	370.7
	Surface water	1,384.4	1,035.4	1,107.8

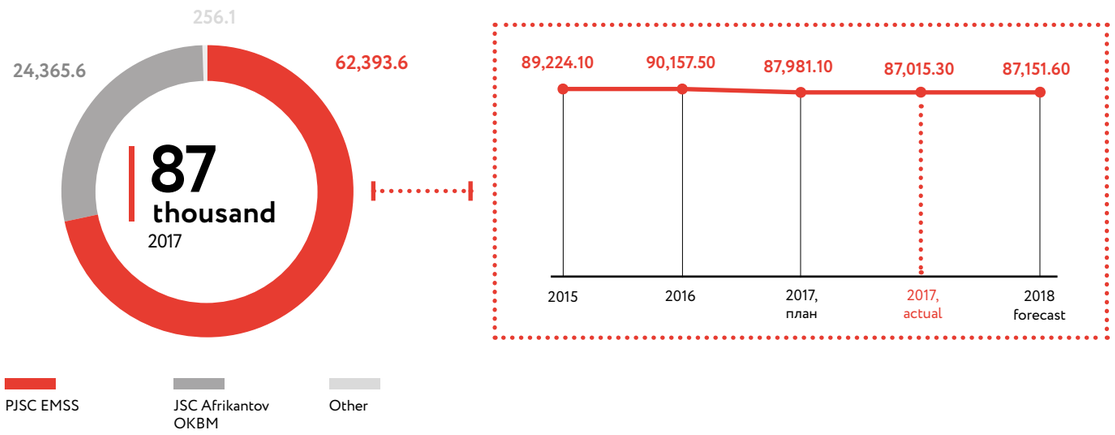
06.2. EMISSIONS AND WASTE

Pursuant to the laws of the Russian Federation, the enterprises develop draft standards for waste generation and limits for waste dumping, and projects for maximum permissible pollutant emissions into the atmosphere. As a result, the enterprises receive permits for the dumping of production and consumption wastes and permits for pollutant emissions into the atmosphere air.

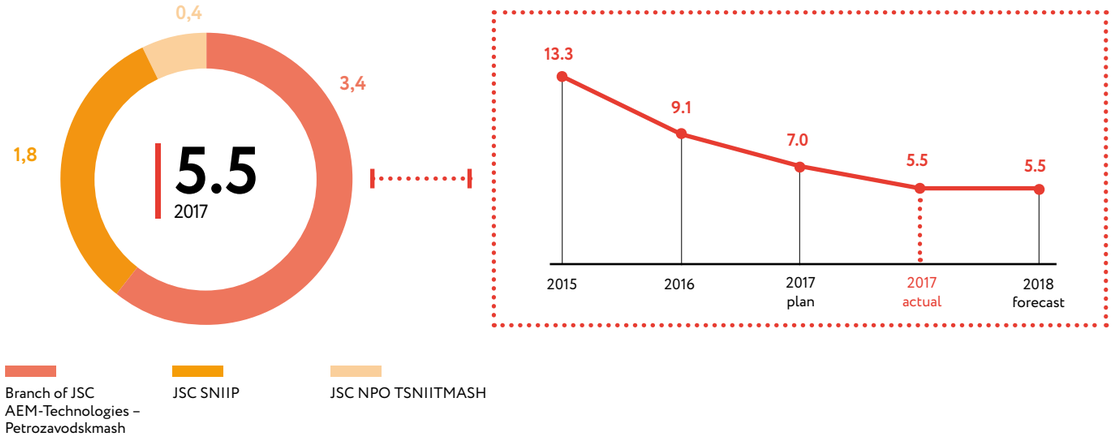
The majority of direct greenhouse gas emissions is from PJSC ZiO-Podolsk, PJSC EMSS, JSC Afrikantov OKBM, branches of JSC AEM-Technologies: Petrozavodskmash and Atommash (carbon dioxide), branch of JSC AEM-Technologies: Petrozavodskmash, JSC SNIIP (nitrous oxide).

GRI 305-1 E

Direct greenhouse gas emissions:carbon dioxide (CO_2) (t)



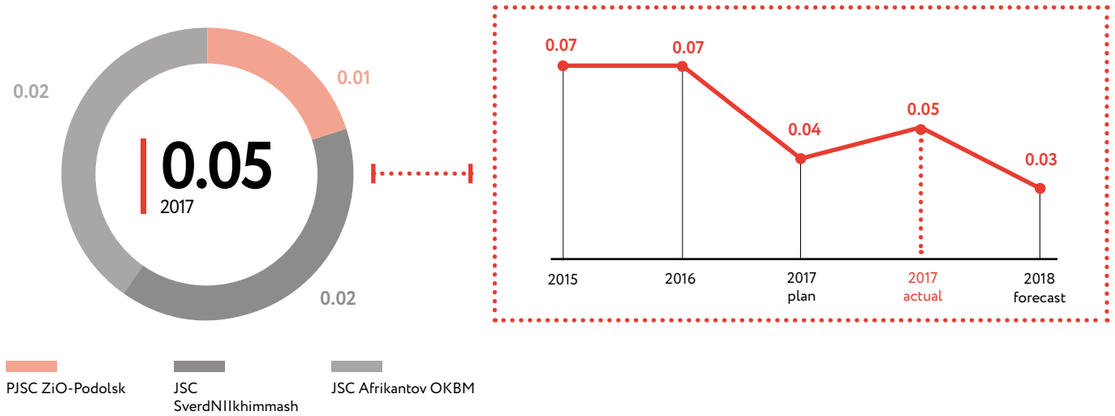
Direct greenhouse gas emissions: nitrous oxide (N_2O) (t)



Emissions of ozone-depleting substances (carbon tetrachloride) are from three enterprises of the Division: PJSC ZiO-Podolsk, JSC SverdNIIkhimmash, JSC Afrikantov OKBM.

GRI 305-6 E

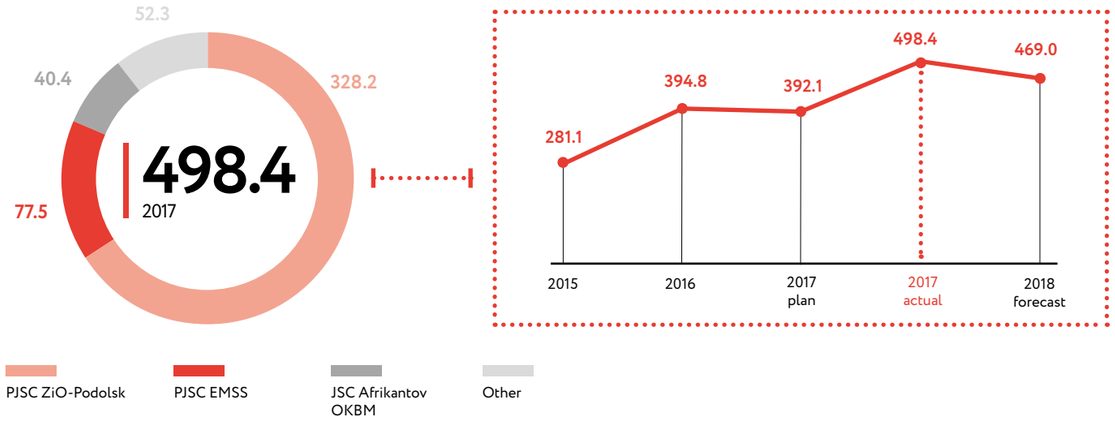
Emissions of ozone-depleting substances (t)



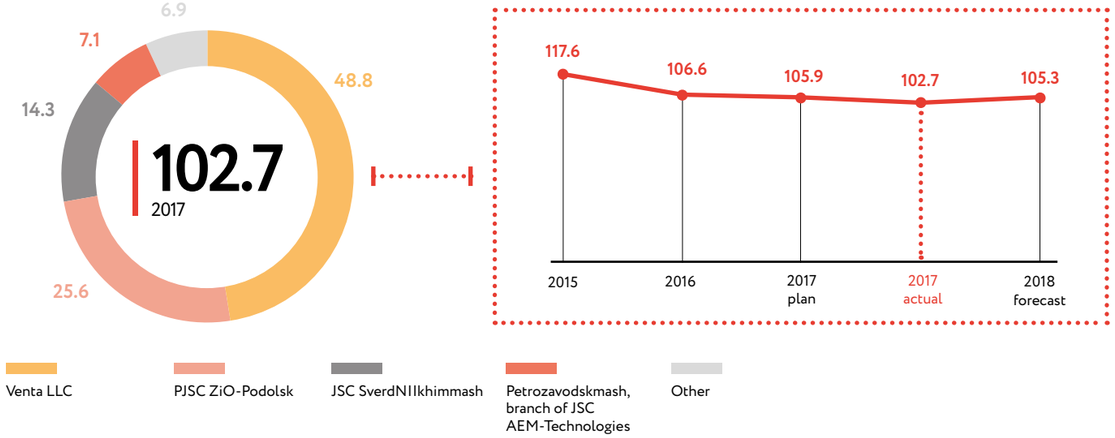
The increase in pollutant emissions into the atmosphere is due to an increase in the production and supply of key equipment.The largest part of emissions is from the large enterprises of the Division: PJSC EMSS, JSC Afrikantov OKBM, PJSC ZiO-Podolsk and the branches of JSC AEM-Technologies.

GRI 305-7 E

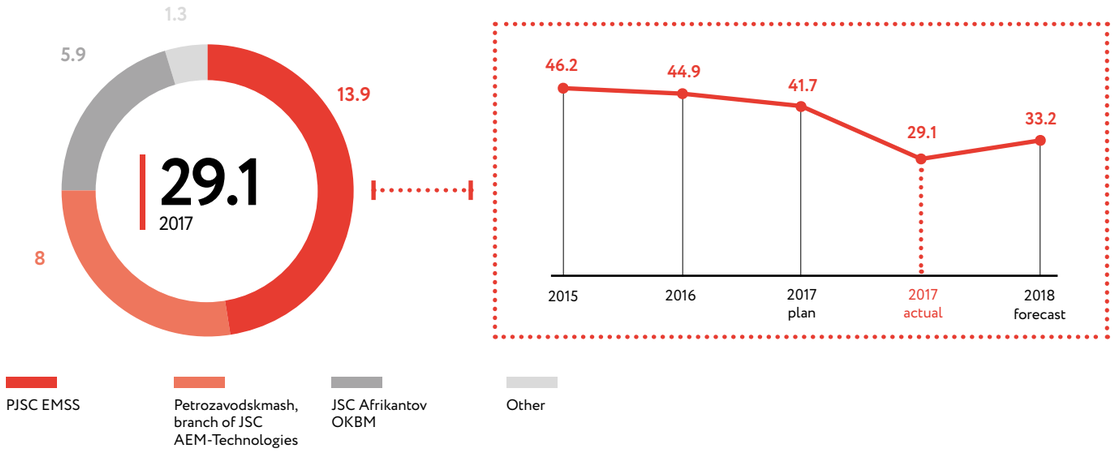
Pollutant emissions into the atmosphere: NOx (t)



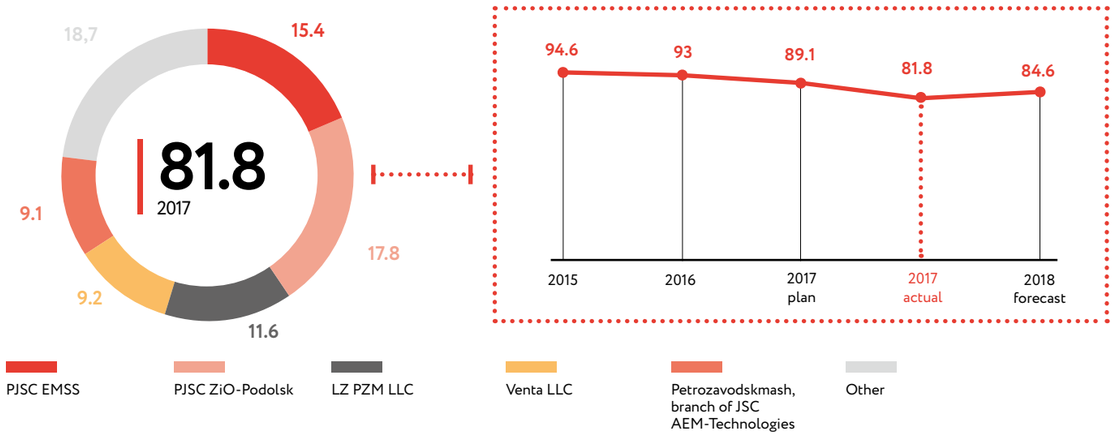
Pollutant emissions into the atmosphere: volatile organic compounds (t)



Pollutant emissions into the atmosphere, SOx (t)



Pollutant emissions into the atmosphere, solids (t)



The amount of waste generated at the Division decreased by more than 6 % in comparison with 2016. About 68 % of the waste is "non-hazardous" waste, more than half of which is generated at the site of PJSC EMSS. In this case, the large part of hazardous waste is generated at the production sites –LZ PZM LLC, JSC Afrikantov OKBM and PJSC ZiO-Podolsk.

GRI 306-2 E

Total amount of waste (t)[1]

Company	Type of waste	2015	2016	2017 plan	2017 actual	2018 forecast
TOTAL	Hazardous	7,371.8	9,682.4	12,031.9	11,857	13,182.6
	Non-hazardous	33,722.4	30,351.3	30,470.4	25,747.9	24,709.6
	TOTAL	41,094.2	40,033.7	42,502.3	37,604.9	37,890.2

Percentage of waste by method of treatment

Method of treatment used	Amount and percentage of waste (t/%)
Reuse	7,771.1/28.3
Extraction of valuable components	34.5/0.1
Landfilling	9,622.6/35.1
Storage on the site of the enterprise	3,070.6/11.2
Other	6,914.9/25.2

[1] The data of 2015-2016 are recalculated taking into account LZ PZM LLC.

07 STAFF MANAGEMENT

Manning of the enterprises is one of the key priorities for the Division's development

17.2 thousand person
average staff number

4,050 thousand rubles/person
labour efficiency

Enterprises widely participate in programs aimed to develop corporate competencies and management skills. To make the employee achieve the result as soon as possible and to preserve the important and valuable knowledge in the Division we pay particular attention to the adaptation of new employees and to the transfer of key knowledge by experienced mentors.

07.1. STAFF COMPOSITION

GRI 102-7, 102-8 E

Staff is an essential component of any enterprise. Coverage of staff for enterprises is among the key elements of efficient business management and definitely among the key development priorities of the Division. The company does a sustainable business and seeks to offer equal opportunities to different gender and age groups of employees.

Over 80 % of the staff size support the activities of the Division's six largest enterprises: JSC Afrikantov OKBM, JSC AEM-Technologies, PJSC ZiO-Podolsk, PJSC EMSS, JSC OKB GIDROPRESS and JSC TSKBM. In view of the production specificity, namely the hardness of work at the production site, male prevail over female as 64 to 36 in average.

Staff size (persons)

Company	Employees' category	2015		2016		2017		2018 forecast	
		male	female	male	female	male	female	male	female
TOTAL	AH	11,867	7,222	11,389	6,856	11,292	6,456	11,905	5,192
	ASN	12,450.4	6,226.9	11,880.7	5,867.1	11,186.4	5,989.6	11,687.7	6,045.3
	AH	19,089		18,245		17,748		17,097	
	ASN	18,677		17,748		17,176		17,733	
AH (by regions)	RF	16,841		16,274		16,001		16,864	
	Czech Republic	200		205		199		211	
	Hungary	120		119		124		130	
	CIS	1,928		1,647		1,424		1,480	
ASN (by regions)	RF	16,457.4		15,772.1		15,509.9		15,991.9	
	Czech Republic	196.8		204.3		199.4		211	
	Hungary	126.1		113.4		117.0		130	
	CIS	1,897.1		1,657.9		1,349.9		1,400	

The most of the employees are full-time (99 %). Term contracts are made with 2.2 % employees.

The Division's enterprises manage to keep the best balance between the highly skilled and experienced employees of the retirement age (about 18 %) and young promising staff (almost one third).

Staff composition by age groups (persons)

Company	Employees' category	2015		2016		2017		2018 forecast	
		male	female	male	female	male	female	male	female
TOTAL	Employees below 35 years	4,401	2,057	4,044	1,987	3,997	1,503	4,356	1,997
	Retirees (female above 55 / male above 60)	1,895	1,568	1,809	1,438	1,718	1,469	1,706	1,456
	TOTAL (below 35 years)	6,458		6,031		5,500		6,353	
	TOTAL (retirees)	3,463		3,247		3,187		3,162	

Production sites mostly employ staff having vocational secondary education while planning and design offices and management companies employ staff having higher vocational education, with science degrees, professors and RAS members.

PhDs, Doctors of Sciences, MBA (persons)

Company	PhDs			DSc			MBA		
	2015	2016	2017	2015	2016	2017	2015	2016	2017
PJSC EMSS	4	4	5	–	–	–	29	26	22
JSC Afrikantov OKBM	87	92	90	23	20	21	3	3	2
JSC SNIIP	17	9	7	7	4	3	1	2	2
JSC Atomenergomash	–	14	12	–	–	–	5	6	1
JSC AEM-Technologies	6	4	3	–	–	–	1	1	1
Others	171	161	162	49	51	48	2	0	0
TOTAL	285	284	279	79	75	72	41	38	28

RAS Members, Professors (persons)

Company	RAS Members			Professors		
	2015	2016	2017	2015	2016	2017
JSC Atomenergomash	–	–	–	1	1	1
JSC OKB GIDROPRESS	1	2	1	2	2	3
JSC Afrikantov OKBM	2	2	1	6	6	6
JSC NPO TSNIITMASH	–	1	1	19	20	19
TOTAL	**3**	**5**	**3**	**28**	**29**	**29**

07.2. LABOUR CONDITIONS AND MANAGEMENT

For the purpose of more transparent remuneration system and higher motivation, the Division implements the Unified standardized Remuneration System that ensures wage equality for employees whose positions are comparable in terms of their value for Rosatom State Corporation. The main objective of the system in place is to encourage efficient labour and guarantee the social security for the Company's employees.

Employees receive bonuses for achievement of the established KPI. If the achieved results are above the target level bonuses may be increased. Employees are evaluated using the RECORD system[1].

The system of managers' performance evaluation is built based on the system of annual evaluation that includes, but not limited to, assessment of KPI achievement. Moreover, top managers and Heritage succession pool members are assessed in terms of values using the Degrees method that implies questioning of colleagues and subordinate employees in addition to self-assessment and assessment by the manager.

Every year the organizations consider the issue concerning the indexation of salaries assigned to employees' positions at least at the inflation rate in Russia as determined by the Federal State Statistics Service. In 2017, the average salary of those employed at the Divisions' enterprises increased by 13.3 % and reached RUR 77,000 Rubles.

GRI 102-41 E

There are collective labour agreements in force at the most of the Division's enterprises which apply to all employees of the enterprises, (80.7 % of the Division's employees).

The Division observes the principle of equal rights, no gender discrimination: male and female receive equal basic salaries.

GRI 405-2

Average salary level (thousand rubles/month)[2]

Employees' category	2015		2016		2017		2018 forecast	
	male	female	male	female	male	female	male	female
Top managers	291.7	253.5	310.3	251.2	315.2	262.6	302.5	254.3
Managers	103.5	94.1	111.5	104.5	118.9	108.2	116.8	108.7
Specialists and blue-collar staff	53.9	51.9	61.8	55.1	69	58	80.2	56.6
Total (for the Division)	**61**		**67.9**		**77**		**82**	

GRI 401-2

The Division's enterprises shall provide to all of their employees, regardless of their status or contract, a package of social payments and benefits defined in the respective regulatory documents:

- Medical insurance;
- Retirement plans
- Housing programs;
- Health resort treatment and rest for employees and their children;
- Arrangement of sports and cultural events;
- Catering for employees;
- Material assistance;
- Corporate privileges to purchase subscriptions for sports and fitness facilities;
- Support to long-service employees and retired employees of the industry.

Social expenditures per employee increase every year and in 2017 amounted to RUB 23.4 thous. (8 % growth).

[1] Since 2016, in addition to employee's performance, development of vocational knowledge and skills, it includes evaluation by unified industrial values.
[2] Including KPI-related bonuses.

07.3. HEALTH AND SAFETY AT WORKPLACE

The Division's enterprises observe all industrial safety and labour protection requirements. The efficiency of work in this direction is assessed through the Lost Time Injury Frequency (LTIFR) KPI. The indicator was 0.21 in the reporting year.

GRI 403-2, 403-3

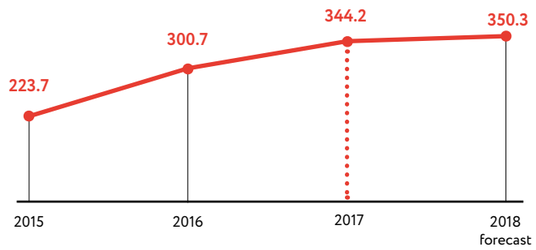
Accident and occupational illness frequency

Indicator	Gender	2015	2016	2017
Number of injuries	Male	9	10	6
	Female	4	–	2
Number of days lost in the result of injuries	Total	1,072	542	433
Occupational illnesses	Male	–	1	1
	Female	–	–	–
Deaths	Male	–	1	1
	Female	–	–	–
Employees working in harmful labour conditions	Total	5,044	4,679	4,518
LTIFR*	Total	0.44	0.25	0.21

Enterprises having OHSAS 18001**

Companies	OHSAS 18001 availability
JSC Atomenergomash	YES
PJSC ZiO-Podolsk	YES
JSC NPO TSNIITMASH	YES
AAEM, LLC	YES
JSC VNIIAM	YES
JSC SNIIP	YES

Labour protection expenditures (million rubles)



GRI 403-4 E

Issues concerning health and safety of the industry workers, labour protection, social security, health, fitness and morale building are also governed by the Industry Agreement (see section 7.2), and are stipulated in collective labour contracts of the Division. Labour protection expenditures increase every year: over RUB 344 mln in 2017 (14.5 % growth by 2016).

All the employees who work in harmful labour conditions (4,518 persons) pass periodic medical examinations and have the right to unscheduled health examinations.

* The indicator has been calculated excluding foreign enterprises of the Division.
** OHSAS 18001 standard is a series of documents containing requirements and guidelines for development and integration of industrial safety and labour protection management systems.

MANUFACTURE OF TLS-3000 HYDRO SHAFT

for BHEL Haridwar, India

PJSC Energomashspetsstal (EMSS, part of the Rosatom-Atomenergomash Power Engineering Division) entered into a deal for the production of two hydro shafts for Bharat Heavy Electricals (BHEL). At EMSS, blank parts underwent a full production cycle and were shipped to Bhopal (India).

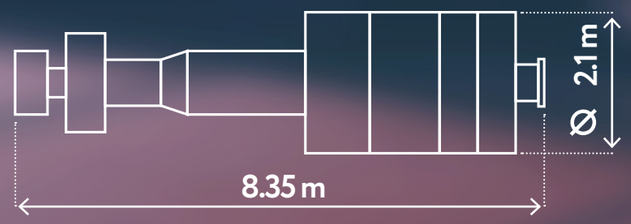
The manufacture of equipment for energy facilities remains one of the most important businesses of PJSC EMSS. All products manufactured by Energomashspetsstal have traditionally high quality and comply with global standards. Bharat Heavy Electrical Limited is one of the largest Indian engineering and industrial companies. It is involved in the production, distribution and transmission of electricity, telecommunications, and production of oil, gas and minerals. Products output by BHEL are turbines, transformers, electric generators, heaters and other equipment.

10 years
warranty service life

235 t
weight of the ingot

149.5 t
weight of the forged piece

120 t
weight of the finished roller



07.4. STAFF PERFORMANCE MANAGEMENT

GRI 404-3 E

The Division has the uniform staff performance management policy in force, including:

- elaboration of unified principles and tools to establish and assess KPI achievement by employees;
- assessment of the employees' skills, particularly, to define the respective compensation[1];
- development of recommendations for forming a skill pool;
- preparation of individual employee development plans for further education planning.

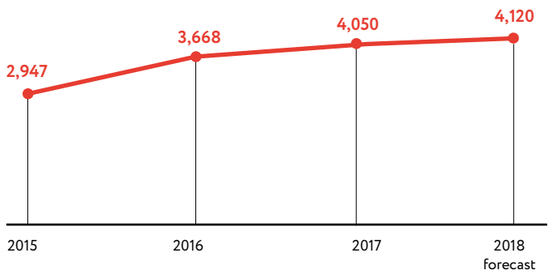
The key regulatory documents in this area are Staff Performance Management Policy and Regulations.

The key staff performance indicator is labour efficiency that has been steadily growing during last years:

Since 2011, all enterprises of the nuclear industry, including enterprises of the Power Engineering Division, conduct personnel engagement survey. The engagement survey is an important tool making it possible to assess the effectiveness of the staff. Staff engagement enables the Company to achieve its strategic goals by creating conditions for staff development, helps each employee, manager and head to focus on his/her work and to make every effort to ensure the Company's development.

In 2017, the Division conducted an annual personnel engagement survey. According to the results of the survey, the average engagement rate in the Division amounted to 79 %, with this rate being at the level of industry values and above the average across Russian employers.

Labour efficiency (thousand rubles/ persons per year)



CASE

WorldSkills Victory

Employees of AEM-Technologies won the IV National Championship of Cross-Industry Working Professions in High-Tech Industries (WorldSkills Hi-Tech 2017). A team of the Volgodonsk branch of JSC AEM-Technologies consisting of Alexey Grigorovich, welder, and Alexander Duymamet (expert, WorldSkills 2015 winner) got the best in Welding. For Volgodonsk-based welders, this is the third WorldSkills victory in a row. Three millionaire welders currently work on the Atomm platform.

[1] The performance of employees of all the Division's enterprisesis assessed.

07.5. STAFF REPLACEMENT

Staff turnover is an inherent phenomenon in any company. The Division's enterprises have no cyclical fluctuations in the number of employees (seasonal, etc.), and variations in the number of staff is due to activities aimed at optimizing the staff number or voluntary resignation.In 2017, the Division's average turnover slightly decreased and reached 18 % from the previous year (18.4 %).

GRI 401-1 E

Staff turnover (persons, %)

Company	Age and gender	2015		2016		2017	
		Persons	%	Persons	%	Persons	%
TOTAL	Below 35	903	14	815	14	856	16
	Above 35	2,241	18	2,458	21	2,229	19
	Male	2,150	17	2,250	19	2,231	20
	Female	994	16	1,023	17	854	14
Total		3,144	17	3,273	18	3,085	18

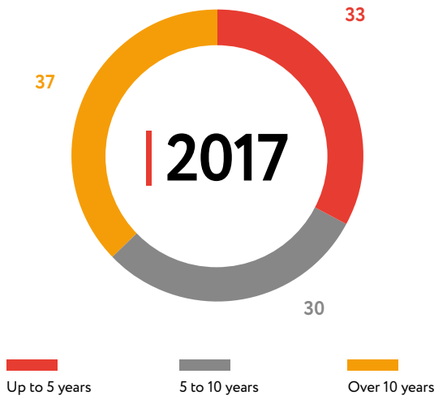
Newly hired employees (persons, %)

Company	Age and gender	2015		2016		2017	
		Persons	%	Persons	%	Persons	%
TOTAL	Below 35	1,139	18	1,091	18	1,045	19
	Above 35	956	8	1,321	11	1,580	14
	Male	1,496	12	1,649	14	1,895	17
	Female	599	10	730	12	730	12
Total		2,095	11	2,412	14	2,625	15

The Division's enterprises still have quite high share of employees who have worked over 10 years: over one third of the Division's staff in average.

Professional development of staff is a guarantee of dynamic development and a competitive advantage of the Division. The enterprises take active part in corporate competences and management skills development programs. A high attention is paid to adaptation of new employees and transferring to them the key knowledge from skilled mentors in order to accelerate a result an employee can achieve and keep all the important and valuable knowledge in the Division.

Staff composition by length of employment* (persons, %)



* For 2017.

CASE

Internship under the New products of Rosatom industry development program

JSC RPA CNIITMASH hosted an industry internship under Additive Technologies, Practice of Launching a New Area of Business for participants of Economics of Design and Business-Workshop educational programs within the frameworks of the New Products of Rosatom industry development program.

Participants include representatives of enterprises of various divisions of Rosatom State Corporation: employees of JSC VNIINM, JSC CONSYST-OS, JSC ARRICT, FSUE RFNC-VNIITF, JSC VNIPIpromtechnologii, JSC Atomenergoremont. Block for Development and International Business of Rosatom State Corporation, as well as ANO Corporate Academy of Rosatom, together with CNIITMASH, ordered and organized this event.

CNIITMASH as a site for internship was selected for good reason. CNIITMASH gained a wealth of experience in scientific research in materials science, the development of manufacturing processes and engineering.

The internship program included introduction to the main trends in additive technologies, practical recommendations for launching new business lines. This resulted in the creation of a picture of success, display of the practical attainability of the set goals for the organization of new business lines and the creation of conditions for a full-fledged sharing of experience.

The participants noted that the industry internship was useful for them and allowed them not only to learn more about additive technologies, but also to make significant progress in cooperation with the enterprises of Rosatom State Corporation in this line of new businesses.

GRI 404-1 E

Average number of training hours per employee per year

Company	Category	2015	2016	2017		2018 forecast
				male	female	
TOTAL	Top managers	29	37	34	16	31
	Managers	32	29	36	23	29
	Specialists and blue-collar staff	53	35	115	66	49

The reduction in the average number of training hours is associated with the cost saving policy being implemented in the Company.

In 2017, the Division continued to keep the skill pool for all the levels of employees, there were development and training programs implemented.

Number of employees in the skill pool (persons)

Company	Level	2015	2016	2017	2018 forecast
TOTAL	Heritage	22	18	26	27
	Capital	48	59	59	53
	Talants	58	73	59	51

Ensuring the availability of skilled professionals, the Division's enterprisesare in a constant operational interaction with all the stakeholders: educational facilities, training centers at enterprises, etc.

In order to supervise the education programs in higher education institutions and to consider the Division's needs as far as possible there has been a work on integration of professional education and production. This is supported by the establishment and opening of basic departments and department branches of the leading Russian technical high education institutions (MEPhI NRNU, STANKIN Moscow State Technical University, Bauman Moscow State Technical University, Nizhny Novgorod State Technical University n.a. R.E. Alekseev, Yeltsin UrFU) at enterprises, and arrangement of tours, workshops and work placements for students within the strategic cooperation.

Every year over 500 senior students of vocational secondary education and higher vocational education institutions do training at the Division's enterprises, and the best of them are invited to work (47 persons in 2017, i.e. about 9 %).

Number of students who passed the work placement / were invited to work (persons)

Company	2015		2016		2017		2018 forecast	
	Passed	Invited	Passed	Invited	Passed	Invited	Passed	Invited
JSC AEM-Technologies	172	3	183	3	128	10	135	15
JSC Afrikantov OKBM	76	2	97	5	121	7	50	5
PJSC EMSS	248	12	188	8	94	5	152	6
JSC NPO TSNIITMASH	192	1	189	2	85	3	95	2
JSC SverdNIIkhimmash	45	–	47	1	35	1	40	1
JSC TSKBM	20	4	18	2	27	2	17	2
Others	57	22	270	21	29	19	37	30
TOTAL	810	44	827	42	519	47	526	61

08

INTERACTION WITH STAKEHOLDERS

Atomenergomash adheres to the principles of socially responsible business; therefore one of the main goals in that respect is creating new vacancies at its own sites and at the sides of suppliers

46.3 RUB mln
Charity expenses

8.7 RUB bln
Tax payments

The regional enterprises of the Division involve in improvement and development of the infrastructure of regions of presence, especially in the cities they are located at.

In addition, the Company holds various charitable events and provides welfare assistance to non-working pensioners and veterans of the enterprises.

08.1. SOCIAL POLICY AND CHARITY

The Division's enterprises are located in different constituent entities of the Russian Federation and Central Europe. In this regard, the Company attaches importance to regional positioning and, primarily, interaction with local companies and specialists.

JSC Atomenergomash follows sustainable business principles and considers forming of conditions for new workplaces both at its own sites and with suppliers as one of the main objectives in this area. The unified industry remuneration system is integrated to ensure stability and deserved level of salary for employees as well as timely payment thereof. The development of social programs and cooperation with the regional management regarding labour markets issues contributes to higher attraction of the Company for employees and lower social tension in regions.

When making new employment decisions the Company adheres to Article 64 of the Labour Code of the Russian Federation: no unreasonable refusal or refusal on discriminatory grounds. The Company does not have a formalized policy of employing people among the locals [1]: in employment issue, the Companyis primarily guided by the qualification level and, where necessary, practicability of recruiting staff from other regions. The top management positions at key regional enterprises are mainly occupied by the local specialists.

The Division's regional enterprises take part in improvement and infrastructure development of the regions of presence, especially in the cities in which they are located. In addition, the Company is engaged in charity projects. In general, in 2017 the Division's enterprises spent over RUB 46 mln on implementation of charity projects.

GRI 203-1

Charitable contributions (million rubles)

Company	2015	2016	2017
JSC Atomenergomash	0.8	–	3.5
JSC AEM-Technologies	0.1	0.04	0.1
JSC OKB GIDROPRESS	0.6	0.1	17.5
PJSC ZiO-Podolsk	0.5	–	–
JSC Afrikantov OKBM	12.0	12.4	12.0
PJSC EMSS	10.5	12.1	13.2
TOTAL	**24.4**	**24.6**	**46.3**

In 2017, the Division's enterprises held a number of charity campaigns:

- "Well Doing Day" for forsaken new-born children of the Nizhny Novgorod Regional Children's Hospital;
- New Year event for children in surgery department of Children's Municipal Clinical Hospital no. 27 "Aibolit";
- Charity event "New Year for All" for the orphanage children.

[1] Local employees are those who reside in the area of the employer's activity, i.e. not those invited to work from other regions.

There were contributions made to:

- Podolsk disabled persons' sports club "Korsar" for purchasing equipment and gear,
- School no. 1 of the town of Vyazniki for targeted payment of treatment and purchase of medicaments for oncology patients.

An important task of the Company is implementation of the corporate social program in part of material assistance to unemployed retirees and long-service employees of the enterprises: in the reporting year, the Division's enterprises spent almost RUB 19 mln on these purposes.

Amount of social assistance to long-service employees (million rubles)

Company	2015	2016	2017	2018 forecast
JSC AEM-Technologies	0.7	0.8	0.7	0.9
Venta LLC	0.6	0.4	0.3	0.4
JSC OKB GIDROPRESS	8.5	6.3	5.8	6.1
JSC IK ZIOMAR	0.8	0.3	–	–
PJSC ZiO-Podolsk	1	0.7	1.0	0.8
JSC Afrikantov OKBM	5.3	4.1	5.6	4.2
JSC SverdNIIkhimmash	1	0.2	0.2	0.3
JSC SNIIP	0.7	0.4	0.2	0.4
JSC TSKBM	2.2	0.4	0.3	0.5
JSC NPO TSNIITMASH	0.2	0.1	0.1	0.1
PJSC EMSS	3.2	6.7	4.9	5.4
TOTAL	**24.3**	**20.5**	**18.9**	**19.1**

A number of the Division's key enterprises, as parties to the Industry Agreement, comply with the requirement to ensure monthly salary at the minimum rate assigned to the position not below the minimum wage of the working-age population in constituent entities of the Russian Federation. In 2017, all the Division's enterprises met this requirement.

The Division's enterprises annually pay taxes to the budgets of different level, and four of the Division's enterprises are on the list of the largest taxpayers in their regions: JSC OKB GIDROPRESS, JSC Afrikantov OKBM, JSC AEM-Technologies, and PJSC ZiO-Podolsk.

Payments to budgets of various levels (thousand rubles)

Budget type	2015		2016		2017		2018 forecast	
	Accrued	Paid	Accrued	Paid	Accrued	Paid	Accrued	Paid
TOTAL	**6,552,303**	**6,544,455**	**5,897,405**	**5,769,652**	**8,688,149**	**8,671,465**	**8,665,099**	**9,641,751**
including:								
Federal budget	**5,740,392**	**5,696,057**	**5,383,813**	**5,172,543**	**8,341,568**	**8,375,155**	**8,288,034**	**9,253,426**

Budget type	2015		2016		2017		2018 forecast	
	Accrued	Paid	Accrued	Paid	Accrued	Paid	Accrued	Paid
Budgets of constituent entities of the Russian Federation	**729,197**	**732,116**	**440,274**	**544,655**	**324,127**	**231,546**	**307,746**	**333,897**
Local budgets	**82,714**	**116,282**	**73,318**	**52,454**	**22,454**	**64,764**	**69,319**	**54,428**

08.2. EXTERNAL COMMUNICATIONS AND CORPORATE BRANDING

GRI 102-43, 417-3 E

One of the important activities of JSC Atomenergomash is promoting its business by means of marketing communications, including promotional and advertising events, participation in trade shows, forums and conferences. Effectively built communication relations of the Division is an essential condition for its normal functioning as a business unit and one of the basic prerequisites for its successful market activity.

In 2017, there were several events arranged as part of the marketing activity: ten press tours, including for foreign journalists and representatives of the countries that are potential consumers of the Division's products. In November 2017, the forum of nuclear industry suppliers ATOMEX-Region took place in the town of Petrozavodsk. JSC Atomenergomashand the Division's companies took part in more than 30 conference and exhibition arrangements, including 13 abroad. There was the common show bench of the Division presented at four of them:

- International forum and exhibition NDExpo 2017– Nuclear Power for Sustainable Development (Moscow, Russia, 05-07 April);
- International forum ATOMEXPO 2017 (Moscow, Russia, 19-21 June);
- International forum AtomEco 2017 (Moscow, Russia, 21-22 November);
- International forum of nuclear industry suppliers ATOMEX 2017 (Moscow, Russia, 14-16 November).

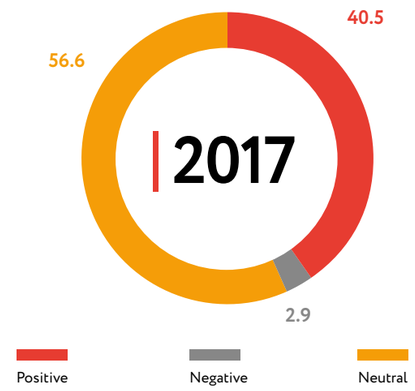
In 2017, mass media mentioned the Division over 8 thousand times with the half of the references being positive and the share of negative references reduced from 5.1 % to 2.9 % year over year.

Interactive section Another Side of Production at the official web site

AEM takes parts in most of Rosatom State Corporation, and the whole list of the Company references includes hundreds of energy and industrial installations where work the staff with unique knowledge and competence.

Aims of the project Another Side of Production (print and digital version) are to observe the Company's employees activity not only from the position of their official duties. The goal of the project is not only to tell about the Company's professional employees, who represent AEM as a manufacturing giant or manufacturer of complicated plant equipment or leader in new technologies or owner of the unique and the most complicated competences, but also like great, all-around and creative personalities.

Mass media coverage (%)



CASE

Lean Polyclinic

In spring 2017, AEM Technology joined the Lean Polyclinic program. This is a joint project of Rosatom State Corporation and the Ministry of Healthcare, which consists in using tools of the Rosatom Production System implemented in the nuclear industry.

The employees of the Volgodonsk branch of Atommash implemented the project in their medical unit, which serves the employees of the plant, and in the city children polyclinic. The measures are aimed at optimizing the work of the medical institutions by identifying inefficient processes and eliminating all types of losses.

Together with the medical staff in each institution, the employees of the RPS of the Volgodonsk branch implemented two to five pilot projects to significantly reduce the waiting time at the doctor's, waiting in the queue at the registry and the laboratory. Under the project, the work was carried out to divide visitors' flows into "sick" and "healthy" people, which favorably affected the procedure for periodic professional health examinations and optimized the workload of pediatricians and specialized doctors. In addition, they introduced a navigation convenient and clear for patients.

Since April 2017, employees involved in the development of RPS in Petrozavodskmash have been rendering methodological assistance to the staff of policlinics in the Republic of Karelia: they teach the principles of lean production and consult on the competent implementation of the same.

As a result, Children Health Polyclinic No. 2 in Petrozavodsk has separate entrances for sick and healthy children; a call center; infomats and electronic information panels; a room for breast-feeding infants, an emergency room, an insurance representative's workplace, and a game area for children. In September 2017, the head of the Republic of Karelia Artur Parfenchikov and the President of the National Medical Chamber Leonid Roshal visited the polyclinic.

In Adult Polyclinic No. 4, the number of visits during the clinical examination was reduced, the efficiency of drug prescription to medicine assistance beneficiaries through the medical commission was improved, a dedicated separate emergency room is in successful operation, and the biological material receipt area was transferred from the 7th floor to the ground floor. At present, the results of laboratory studies are entered automatically into the polyclinic's computer information system.

In both polyclinics of Petrozavodsk, psychologists trained the employees of the registry – they were told the basics of conflict-free communication with patients. This allowed creating conditions that are more comfortable for patients. Since July the project has involved more than 23 medical centers of the Republic of Karelia.

08.3. INTERNAL COMMUNICATIONS

In 2017, JSC Atomenergomash and the Division's key CCOs continued to implement the following projects in the area of internal communications:

AEM Bullet in Internal Newspaper

In support of the common information space of the Division there is a printed version of AEM Bulletin released monthly in three languages (Russian, Czech, Hungarian). An extended online version is available alongside with the printed edition. In 2017, the full online version of the internal newspaper, http://vestnik-aem.ru, was constantly being updated, and there upgraded the functionality of the electronic version to include an extended interactive menu of the web site, an option to share the web site posts in social networks, and an additional block of tags developed for quick user navigation through the topics. The bulletin is an online information resource to widen the audience of the printed version due to modern information presentation, unique content excluded from the printed version, and the resource availability.

Strana Rosatom Industry TV Project

For the purpose of keeping the good reputation of the enterprises in the cities of presence and informing wider population of the key projects,JSC Atomenergomash takes part in the industry-specific broadcast of research and information TV program Strana Rosatom. In 2017, the Division's news block included topics prepared by JSC AEM-Technologies branches Atommash and Petrozavodskmash, JSC SverdNIIkhimmash, PJSC ZiO-Podolsk, JSC Afrikantov OKBM, JSC NPO TSNIITMASH and JSC SNIIP (over 100 TV topics about the operation of the Division's enterprises were released during the year).

Information Sharing and Director's Days

Apart from traditional meetings of the Company's management with employees held in the format of Information Sharing Days, a new format for the dialogue between the enterprises' employees and management was launched in 2017 under the title Director's Day. The project features the appearance of Rosatom State Corporation top management at the industry enterprises. There are successive Director's Days held in the identical format for those employees who were not able to be present at the main event. There were two Information Sharing Days and two Director's Days organized in 2017.

CASE

People of AEM

In 2017, a unique project named "Identical to all, only …" was held at the enterprises of JSC Atomenergomash. The project was conceived to demonstrate that every profession in the Power Engineering Division has its own face.

It is intended to set out in simple and understandable language the meaning and significance of the professions of Rosatom employees who have exclusive competencies.

According to estimates, more than 80 thousand unique users accessed the site of the project; the coverage on the official page in Facebook exceeded 45 thousand users. The project involved the creation of a section on the official website, a photo album (1,000 copies), a photo exhibition at the Company's office, outdoor advertising billboards, etc.

www.aem-group.ru/mediacenter/lyudi-aem.html

APPENDICES

APPENDIX 1. GLOSSARY

Abbreviations Used in the Report

AFCF	adjusted free cash flow
AH	actual headcount
APCU	automated process control unit
APMS	automated project management system
ATPMS	Automated Technical Process Management System
BoD	board of directors
CCGT	combined cycle gas turbine unit
CHP	combined heat plant
CCO	control circuit organizations
CPS SED	control and protection system step electromagnetic drive
ERMS	Enterprise Risk Management System
FNHPP	floating nuclear heat and power plant
FR	fast reactor
GMS	general meeting of stockholders
GPC	gas and petroleum chemistry
GRC	Governement Research Centre
INES	international nuclear event scale
JV	joint venture
KPI	key performance indicators
LCOE	levelised cost of energy
LNG	liquified natural gas
LTIFR	lost time injury frequency rate
MCP	main circulation piping
MCPU	main circulation pump unit

MSMP	minimum statutory monthly pay
MS(R)	Moisture Separator/Reheater
NPP	nuclear power plant
NSGP	nuclear steam generating plant
OBPU	optimize buoyant power unit
ORP	oil refinery plant
PPE	power plant engineering
PWR	water reactor
QMS	quality management system
RAW	radioactive waste
RC	refining company
RES	Renewable Energy Resources
RF	reactor facility
RF MCS	reactor facility monitoring and control system
RIA	results of intellectual activity
RPS	Rosatom production system
SCP	State Circulation Pump
SDPP	state district power plant
SMB	small and medium-sized business entities
SNF	spent nuclear fuel
SPS	shipping packaging unit
TPP	thermal power plant
USPS	Unified Sectoral Procurement System
USSP	ultra supercritical steam parameters
WPP	water power plant

Terms Used in the Report

INES is international nuclear event scale that evaluates all unusual events at nuclear facilities according to the 8-score scale.

LCOE is levelised cost of energy throughout the power plant life cycle of (including all possible investments, costs and revenues).

LTIFR is lost time injury frequency rate.

Topic is a topic that describes an activity of the Company or its impact on stakeholders.

Employee engagement is an emotional and intellectual state that motivates an employee to fulfill his/her work effectively.

Incoming inspection is quality and completeness control of products received at the NPP site to be used in its construction and operation.

Top management are the Company's employees who make decisions that have a significant impact on the enterprise's business in general (from the level of functional unit managers to CEO).

Integrated additional incentive (IAI) is a portion of salary paid to an employee every month for a level of skills, professionalism and labour efficiency determined following the efficiency and potential evaluation (RECORD assessment or employee's professional status evaluation procedure).

Combined proceeds are total proceeds of the companies included in the combined accounting reporting profile in accordance with the method in force in the company net of the intracompany balance proceeds and other adjustments.

MFR is a multipurpose research fast reactor of the fourth generation being built in Russia in the town of Dimitrovgrad (JSC SRC NIIAR).

Local employees/managers are employees who reside in the area of the employer's activity.

Mini-WPP is mini-hydrogeneration equipment (package mii-water power plants).

MSMP is minimum statutory monthly pay under the federal law.

AFCF is a key performance indicator of Rosatom State Corporation; primary activity cash flow adjusted by non-cash income and expenses. It describes the behaviour of cash flows investable in development.

Stakeholder is an individual, a group of persons or an organization under the company's influence and/or capable of influencing the company.

Significant regions of activity are regions where production capacities and key staff of the enterprise are located.

Significant topic is a topic that reflects a significant activity of the Company or an impact on stakeholders.

APPENDIX 2. INFORMATION ABOUT THE REPORT

GRI 102-50

In accordance with the Russian law, JSC Atomenergomash Annual Accounting Standard and GRI Sustainability Reporting Standards ("GRI Standards") JSC Atomenergomash issues this Integrated Annual Report ("the Report") that discloses the key performance indicators of the Power Engineering Division of Rosatom State Corporation for the period of 01/01/2017 – 31/12/2017 and long-term development prospects.

GRI 102-51, 102-52

JSC Atomenergomash traditionally uses the full-year cycle reporting; the previous Report was issued in 2017 based on the 2016 financial year results.

GRI 102-12

The Report was drafted given the requirements of external regulatory documents as amended):

- Federal Law of 26 December 1995 no. 208-FZ On Joint-Stock Companies;
- Order of Rosatom State Corporation of 18 July 2017 no. 1/671-P On Approval of Unified Industry-Specific Methodical Guidelines for Public Reporting of Rosatom State Corporation and its organizations;
- Regulation of Bank of Russia of 30 December 2014 no. 454-P On Disclosure of Information by Equity Securities Issuers;
- Letter of Bank of Russia of 10 April 2014 no. 06-52/2463 On Corporate Governance Code;
- AA1000 Accountability standards;
- Global Reporting Initiative (GRI) sustainable development standards;
- International Integrated Reporting Standard (IIRC).

The Company has an internal regulatory document in force: Public Annual Reporting Standard approved by decree of the CEO of 01 December 2017 no. 33/442-P. It defines the procedure for the Report preparation and responsibility of the process participants as well as requirements to the Report, including the System of Certificated Performance Indicators of JSC Atomenergomash.

GRI 102-32

The Strategy and Development Department is responsible for the Report preparation. The Public Reporting Committee is involved throughout the key stages of the Report preparation (chaired by the Strategy and Development Department director) with the main task to coordinate the Report preparation work and to assess the significance and completeness of information disclosed in the Report.

GRI 102-40, 102-42, 102-46

The Company recognizes interaction with stakeholders as one of the fundamental factors of sustainable development and jointly with the Division's enterprises successively develops structural interaction. This work implies resolving the following tasks:

- Analysis of mutual influence of the Company and stakeholders in various aspects of activity;
- Determination of expectations and interests of stakeholders;
- Responding to stakeholders' expectations and searching for consensus in problematic issues;
- Establishment of long-term partner relations with key stakeholders.

GRI 102-43

In accordance with the existing pattern of interaction with stakeholders, the Company held public discussions by means of correspondence. For instance, in the beginning of the reporting campaign stakeholders were questioned by means of correspondence about the contents and approval of the concept of the Report by the Company's Public Accounting Committee, including the questionnaire results, list of indicators and main accents (20/10/2017 – 08/11/2017).

The Company's practice does not imply an annual update of stakeholder map: information on their prioritization was disclosed in the previous reports[1].

GRI 102-47

Significant topics and their boundaries

№	Topic	№	Topic
1	Economic effectiveness and financial standing*	12	Environmental management*
		13	Staff composition*
2	Market presence	14	Labour conditions and management*
3	Business activities	15	Health and safety at workplace*
4	Investment activities	16	Staff performance management
5	Production activity results	17	Staff replacement*
6	Quality and safety*	18	Impact on regions of presence*
7	Production activity optimization	19	Anti-corruption practices*
8	Procurement activities*	20	Statutory compliance*
9	Innovation-driven growth	21	Marketing and PR communications*
10	Scientific activities	22	Activity of corporate governance bodies
11	Emissions and waste*	23	Internal control audit and risk management

* GRI topics

GRI 102-48

No information rewording as compared to the previous year.

GRI 102-10, 102-45, 102-49 и 103-1

Following the questionnaire survey of JSC Atomenergomash Annual Reporting Committee members, there were defined the boundaries for each significant topic. No coverage of the Division's key CCOs was changed.

Disclaimer

This Report contains a number of forecasts concerning the future position of the Company broken down by various topics, its plans and expected results. In view of their specificity, the forecasts are associated with inherent risk and uncertainty. The Company's business and its environment may be exposed to the influence of several economic, political, social and other factors of probabilistic nature. Therefore, the Company notes that the actual results may differ from those directly or indirectly given in forecasts contained in the Report.

Boundaries of existing topics

Company	Topics										
	1	2	3	4	5	6	7	8	9	10	11
AAEM, LLC		+	+	+	+	+					
ARAKO	+	+	+	+	+	+	+	+			+
JSC ATM	+	+	+	+	+	+	+	+			+
JSC Atomenergomash	+	+	+	+	+	+	+	+		+	
JSC AEM-Technologies	+	+	+	+	+	+	+	+	+	+	+
LZ PZM LLC			+			+					+
Venta LLC	+	+	+	+	+	+	+	+			+

Company	Topics										
	1	2	3	4	5	6	7	8	9	10	11
JSC VNIIAM	+	+	+		+	+	+	+		+	+
JSC OKB GIDROPRESS	+	+	+	+	+	+	+	+	+	+	+
Ganz EEM	+	+	+		+	+		+			+
PJSC ZiO-Podolsk	+	+	+	+	+	+	+	+	+		+
JSC IK ZIOMAR	+	+	+	+	+	+	+	+	+	+	
JSC IFTP			+		+					+	+
JSC OZTM i TS	+	+	+	+	+	+	+	+			+
JSC Afrikantov OKBM	+	+	+	+	+	+	+	+	+	+	+
JSC REMKO	+	+						+			
JSC SNIIP	+	+	+	+	+	+	+	+	+	+	+
JSC SverdNIIkhimmash	+	+	+	+	+	+	+	+	+	+	+
JSC TSKBM	+	+	+	+	+	+	+	+	+	+	+
JSC NPO TSNIITMASH	+	+	+	+	+	+	+	+	+	+	+
PJSC EMSS	+	+	+	+	+	+	+	+			+

Company	Topics											
	12	13	14	15	16	17	18	19	20	21	22	23
AAEM, LLC	+	+	+	+	+	+	+	+	+	+	+	
ARAKO		+	+		+	+	+	+	+	+	+	
JSC ATM	+	+	+	+	+	+	+	+	+	+		
JSC Atomenergomash		+	+		+	+	+	+	+	+	+	+
JSC AEM-Technologies	+	+	+	+	+	+	+	+	+	+	+	
LZ PZM LLC		+	+	+	+	+	+	+	+	+		
Venta LLC	+	+	+	+	+	+	+	+	+	+	+	
JSC VNIIAM	+	+	+	+	+	+	+	+	+	+		
JSC OKB GIDROPRESS	+	+	+	+	+	+	+	+	+	+	+	
Ganz EEM	+	+	+		+	+	+	+	+	+	+	
PJSC ZiO-Podolsk	+	+	+	+	+	+	+	+	+	+	+	
JSC IK ZIOMAR	+	+	+	+	+	+	+	+	+	+	+	
JSC IFTP	+	+	+	+	+	+	+	+	+			
JSC OZTM i TS	+	+	+	+	+	+	+	+	+	+	+	
JSC Afrikantov OKBM	+	+	+	+	+	+	+	+	+	+		
JSC REMKO		+	+	+	+	+	+	+	+	+	+	
JSC SNIIP	+	+	+	+	+	+	+	+	+	+	+	
JSC SverdNIIkhimmash	+	+	+	+	+	+	+	+	+	+	+	
JSC TSKBM	+	+	+	+	+	+	+	+	+	+	+	
JSC NPO TSNIITMASH	+	+	+	+	+	+	+	+	+	+	+	
PJSC EMSS	+	+	+	+	+	+	+	+	+	+		

APPENDIX 3. INDEX OF GRI STANDARDS

GRI 102-54, 102-55

The Report has been prepared in accordance with GRI standards, main variant.

Reporting element	Report page	Reporting element	Report page	Reporting element	Report page
GRI 102 General elements (2016)					
102-1	4	102-17	44	102-42	96
102-2	21	102-18	33, 34, E	102-43	91, 96, E
102-3	114	102-19	38	102-44	111
102-4	18	102-20	40, E	102-45	97
102-5	4	102-22	34	102-46	96
102-6	20	102-23	34, E	102-47	97, 101
102-7	5, 18, 78, E	102-24	E	102-48	97
102-8	78, E	102-25	E	102-49	97
102-9	64, E	102-26	38, E	102-50	96
102-10	33, 64, 97, E	102-32	96	102-51	96
102-11	E	102-33	35, E	102-52	96
102-12	96	102-34	35, E	102-53	114
102-13	E	102-36	34, 38, E	102-54	99, 106
102-14	8	102-40	96	102-55	99
102-16	44	102-41	80, E	102-56	E
GRI 103 Management approaches (2016)					
103-1	97, 101	103-2	101	103-3	38, 45, 101, E

Reporting element	Report page	Excluded information
GRI 201 Economic effectiveness (2016)		
201-4	33	
GRI 203 Indirect economic impact (2016)		
203-1	89	
GRI 204 Procurement practices (2016)		
204-1	64, E	

Reporting element	Report page			Excluded information
GRI 205	**Anti-corruption practices (2016)**			
205-3	44			
GRI 302	**Energy (2016)**			
302-1	70, E			No total energy consumption is calculated as the accounting systems do not allows for excluding double counting associated with consumption energy produced within the Division.
302-4	71, E			
GRI 303	**Water (2016)**			
303-1	72, E			
GRI 305	**Emissions (2016)**			
305-1	72, E			No data expressed in equivalent of CO_2
305-6	73, E			No data expressed in equivalent of CFC-11
305-7	74, E			
GRI 306	**Waste water and waste (2016)**			
306-1	71, E			No breakdown by water quality as such records are not kept.
306-2	76, E			
GRI 307	**Environmental compliance (2016)**			
307-1	70, E			
GRI 401	**Employment (2016)**			
401-1	85, E	401-2	80	
GRI 402	**Relations of employees and management (2016)**			
402-1	E			
GRI 403	**Staff health and safety (2016)**			
403-2	81			There is disclosed no accident frequency rate, days off work rate, occupational illness rate, absentee rate, particularly broken down by gender as such records are not kept.
403-3	81	403-4	81, E	
GRI 404	**Training and education (2016)**			
404-1	86, E	404-3	84, E	
GRI 405	**Diversity and equal opportunities (2016)**			
405-2	80			
GRI 416	**Consumer's health and safety (2016)**			
416-1	59, E	416-2	61, E	
GRI 417	**Labelling of products and services (2016)**			
417-3	91, E			
GRI 419	**Social and economic compliance (2016)**			
419-1	41, E			

GRI 102-47, 103-1, 103-2, 103-3

Information on management approaches

Pos. No.	Topic	Report section	Page
1	Economic effectiveness and financial standing (GRI 201. Economic effectiveness (2016))	3.1. Economic effectiveness and financial standing	50
2	Market presence	1.2. The Company's Strategic Vision and Position in the Market	22
3	Commercial activities	3.2. Commercial activities	56
4	Investment activities	3.3. Investment activities	57
5	Production activity results	4.1. Production activity results	59
6	Quality and safety (GRI 416. Consumer's health and safety (2016))	4.2. Quality and industrial safety	59
7	Production activity optimization	4.3. Process optimization	62
8	Procurement activities (GRI 204. Procurement practices (2016))	4.4. Procurement activities	64
9	Innovation-driven growth	5.2. Innovation-driven growth	68
10	Scientific activities	5.1. Scientific activities	65
11	Energy consumption (GRI 302. Energy (2016))	6.1. Environmental management	69
12	Water consumption (GRI 303. Water (2016))	6.1. Environmental management	69
13	Emissions and waste (GRI 305. Emissions (2016),GRI 306. Waste water and waste (2016))	6.2. Emissions and waste	72
14	Environmental management and compliance (GRI 307. Environmental compliance (2016))	6.1. Environmental management	69
15	Staff composition (GRI 405. Diversity and equal opportunities (2016))	7.1. Staff composition	78
16	Labour conditions and management (GRI 402. Relations of employees and management (2016))	7.2. Labour conditions and management	80
17	Health and safety at workplace (GRI 403. Staff health and safety (2016))	7.3. Health and safety at workplace	81
18	Staff performance	7.4. Staff performance management	84
19	Staff replacement (GRI 401. Employment (2016), GRI 404. Training and education (2016))	7.5. Staff replacement	85
20	Impact on regions of presence (GRI 203. Indirect economic impact (2016))	8.1. Social policy and charity	89
21	Social investments and charity	8.1. Social policy and charity	89
22	Anti-corruption practices (GRI 205. Anti-corruption practices (2016))	2.3. Ethics and Anti-Corruption Practices	44
23	Statutory compliance (GRI 419. Social and economic compliance (2016))	2.2. Statutory Compliance	41
24	Marketing and PR communications (GRI 417. Labelling of products and services (2016))	8.2. External Communications and Corporate Branding	91
25	Activity of corporate governance bodies	2.1. Corporate governance system	32
26	Internal control audit and risk management	2.4. Internal control and audit 2.5. Risk management	45 45

APPENDIX 4.
COMBINED FINANCIAL STATEMENTS

Combined balance sheet as of December 31, 2017

		Codes		
	Form according to National Index of Administrative Documentation	0710001		
	Date(day, month, year)	31	12	2017
	under Russian Classifier of Businesses and Organizations (OKPO)			
Company Atomenergomash JSC	Taxpayer's ID (INN)	7706614573		
Taxpayer's ID:				
Line of business: nuclear and power engineering	under Russian Classification of Economic Activities (OKVED) code			
Legal form of incorporation / form of ownership:	under Russian Classifier of Forms of Incorporation/ Forms of Property			
Measurement: '000 RUB				
Location (address): 24, Bolshaya Ordynka St., Moscow 119017	according to All-Russia Classifier of Measurement Units	384		

Explanations	Indicator	Code	At 31 december 2017	At 31 December 2016	At 31 December 2015
	ASSETS				
	I. NON-CURRENT ASSETS				
	Intangibles	1110	30,820,421	34,497,655	14,069,248
5.5	including: Goodwill	1111	30,209,628	33,966,715	13,636,533
	R&D deliverables	1120	400,414	395,416	297,505
	Intangible development assets	1130	–	–	–
	Tangible development assets	1140	–	–	–
	Fixed assets	1150	29,160,909	29,430,915	29,500,909
	Buildings, machinery, equipment, etc. Fixed assets	1151	23,821,816	24,119,755	24,858,050
	In-progress capital investments in fixed assets	1152	5,003,305	4,817,016	2,985,687
	Advances to suppliers and contractors for capital construction, suppliers of fixed assets	1153	335,789	494,144	1,657,168
	Interest-bearing investments into tangibles	1160	112,458	121,006	2,407
5.3	Financial investments	1170	2,942,696	2,984,945	10,218,934
	including: financial investments into associated companies	1171	–	–	68,812
	Deferred tax assets	1180	3,088,496	3,053,434	3,118,642
	Other non-current assets	1190	24,518,604	5,325,079	7,256,321
	Total section I	1100	91,043,998	75,808,449	64,463,965

Explanations	Indicator	Code	At 31 december 2017	At 31 December 2016	At 31 December 2015
	II. CURRENT ASSETS Reserves	1210	21,684,142	25,326,436	21,135,627
	including: Raw, materials and other similar	1211	6,344,818	7,012,686	7,332,122
	Costs in production-in-progress	1212	14,242,294	16,710,294	12,164,784
	Finished goods and goods for resale	1213	1,029,263	1,289,134	1,202,768
	shipped goods	1214	67,766	314,321	435,954
	Other inventories and costs	1219	–	–	–
	Value-Added Tax on purchased valuables	1220	1,895,589	2,501,073	1,319,229
	Receivables	1230	57,211,641	52,048,621	49,160,529
	Trade accounts receivable	1231	27,688,176	24,168,894	22,976,611
	Disbursed prepayments	1232	11,012,155	13,335,150	14,170,815
	Other receivables	1233	3,104,468	1,985,137	3,730,498
	Not presented for payment accrued Revenues	1234	15,406,842	12,559,441	8,282,607
	Financial investments (except for cash equivalents)	1240	18,727,983	9,238,516	4,911,093
	Cash and cash equivalents	1250	46,455,732	58,507,220	52,049,358
	Other current assets	1260	3,629,028	4,864,436	5,722,214
	Total current assets II	**1200**	**149,604,114**	**152,113,853**	**134,243,258**
	BALANCE SHEET TOTAL	**1600**	**240,648,113**	**228,294,750**	**198,680,021**
	LIABILITIES				
5.4	**III. CAPITAL AND PROVISIONS** Authorized capital (share capital, capital stock, partners' contributions)	1310	2,566	1,016	1,016
5.4	Authorized capital of the companies, a stake in which is not held by the parent company	1311		3,400,100	7,301,107
	Treasury shares repurchased with shareholders	1320	(3,141)	–	–
	Contribution to the share capital received from shareholders (participants) before registration of changesinto constituent documents	1330	338,200	33,460,278	5,940,971
	Revaluation of non-current assets	1340	317,222	239,568	244,461
5.4	Share premium (w/o revaluation)	1350	59,613,397	26,921,181	23,266,946
	Surplus	1360	808,502	792,070	566,589
	including: with law	1361	336,891	332,794	141,021
	provisions created according to constituent documents	1362	471,612	459,277	425,568
	Retained profit (uncovered loss)	1370	(16,730,343)	(13,321,860)	2,197,469
	Total Capital and Provisions III	**1300**	**44,346,405**	**51,492,353**	39,518,560
5.6	Minority share	1301	(1,889,142)	(3,566,882)	(7,999,667)
5.5	Goodwill	1302	52,730	52,730	447,661

Explanations	Indicator	Code	At 31 december 2017	At 31 December 2016	At 31 December 2015
5.7	**IV. LONG-TERM LIABILITIES** Borrowings	1410	28,239,825	25,503,301	5,009,781
	Deferred tax liabilities	1420	–	–	–
	Estimated liabilities	1430	188,677	396,457	297,134
	Other liabilities	1450	77,483,371	56,705,015	44,923,665
	Total Long-Term Liabilities IV	1400	105,911,874	82,604,773	50,230,580
5.7	**V. SHORT-TERM LIABILITIES** Borrowings	1510	13,148,683	21,541,433	40,471,691
	Payables	1520	73,416,848	69,482,758	70,180,050
	including: suppliers and contractors	1521	15,324,673	14,265,000	12,170,314
	Received prepayments	1522	39,954,594	46,417,106	46,717,162
	indebtedness to the company's personnel	1523	581,573	665,606	538,201
	indebtedness to governmental off-budget funds	1524	352,844	298,372	275,364
	Tax and due payments	1525	2,865,613	1,989,920	2,442,914
	Other lenders	1526	14,337,552	5,846,755	8,036,095
	Deferred income	1530	10,583	98,730	132,895
	Estimated liabilities	1540	4,934,485	5,850,319	5,333,258
	TARGET FINANCING	1546	621,397	738,535	329,519
	Trade receivables	1547	94,250	–	219,062
Other liabilities		1550	–	–	–
Total section V		**1500**	**92,226,245**	**97,711,775**	**116,510,090**
BALANCE SHEET TOTAL		**1700**	**240,648,113**	**228,294,750**	**198,680,021**

Deputy CEO –
Director, Economy and Finance

(Signature)

S.N. Filatov
(clarification of signature)

April 4, 2018

Combined income statement for 2017

Company: Atomenergomash JSC

Taxpayer's ID:

Line of business: nuclear and power engineering

Legal form of incorporation / form of ownership

Unit of measurement '000 RUB.

	Codes		
Form according to National Index of Administrative Documentation	0710002		
Date(day, month, year)	31	12	2017
under Russian Classifier of Businesses and Organizations (OKPO)	94507811		
Taxpayer's ID (INN)	7706614573		
under Russian Classification of Economic Activities (OKVED) code			
under Russian Classifier of Forms of Incorporation/ Forms of Property			
according to All-Russia Classifier of Measurement Units	384		

Explanations	Indicator	Line code	For the reporting period	For similar period of the previous year
5.8	Revenues	2110	68,559,192	63,431,267
	Cost of sales	2120	(54,404,917)	(50,394,991)
	Gross profit (loss)	2100	14,154,275	13,036,276
	Selling expenses	2210	(1,434,934)	(1,441,745)
	Managerial expenses	2220	(5,192,458)	(5,605,456)
	Income (loss) from sales	2200	7,526,883	5,989,074
	Incomes from participation in other companies	2310	19,622	18,561
	Interest receivable	2320	1,549,361	1,630,515
	Interest payable	2330	(3,666,244)	(4,628,114)
	Other incomes	2340	2,451,626	4,282,498
	Other expenses	2350	(10,443,749)	(21,599,018)
3.3	Capitalized income (loss)	2360	–	1
	Pre-tax profit (loss)	2300	(2,562,502)	(14,306,483)
	Current income tax	2410	(1,032,575)	1,207,874
	including permanent tax liabilities (assets)	2421	(804,684)	(298,584)
	Change in deferred tax liabilities	2430	(620,629)	(1,140,997)
	Change in deferred tax assets	2450	436,800	1,363,910
	Other	2460	(98,214)	(19,344)
	Reallocation of income tax within the consolidated taxpayers' group	2465	(567,555)	(2,130,131)
	Net profit (loss)	2400	(4,444,675)	(15,025,170)
	Profit belonging to group	2470	(3,855,180)	(13,743,267)
	Profit held by small shareholders	2480	(589,495)	(1,281,903)

Deputy CEO –
Director, Economy and Finance

(Signature)

S.N. Filatov
(clarification of signature)

April 4, 2018

APPENDIX 5

GRI 102-54

OPINION ON NON-FINANCIAL REPRESENTATIONS

Introduction

This opinion is intended for the management of Joint Stock Company "Atomic and Power Engineering Division" (hereinafter referred to as JSC Atomenergomash).

The assurance is focused on the interaction of JSC Atomenergomash with stakeholders as part of its activities related to sustainable development; and the Integrated Annual Report of JSC Atomenergomash for 2017, including information on JSC Atomenergomash and 20 control circuit organizations (hereinafter referred to as the Report).

Responsibilities of the Parties

JSC Atomenergomash is responsible for the preparation of this Report.

We are only responsible for making a conclusion based on the results of the assurance of the Report to JSC Atomenergomash pursuant to the engagement agreed with it and assume no responsibility to any third party.

Scope, criteria and level of assurance

The interaction of JSC Atomenergomash with stakeholders as part of its activities related to sustainable development was assessed based on the following criterion:

- The nature and extent of compliance of JSC Atomenergomash with the principles of the AA1000APS 2008 standard – inclusivity, materiality, responsiveness.

The report was assessed based on the following criteria:

- Compliance of disclosure with the requirements of the Sustainability Reporting Standards of the Global Reporting Initiative (hereinafter referred to as the GRI Standards) to the main version of the report;
- Compliance with the International Standard for Integrated Reporting;
- Compliance with the requirements of the laws of the Russian Federation to the annual statements of joint-stock companies concerning disclosed information;
- Compliance with the regulatory requirements of Rosatom State Corporation and internal local regulations of JSC Atomenergomash concerning the content of public reporting.

Our audit was planned and performed according to the AA1000 Assurance Standard, (hereinafter referred to as AA1000AS 2008) (moderate level of assurance) and the International Standard on Assurance Engagements 3000 (revised) "Assurance Engagements Other than Audits and Reviews of Historical Financial Information"(limited assurance). Assurance corresponds to Type 2 according to the definition of AA1000AS 2008, taking into consideration the limitations specified in the section "Assurance Boundaries" of this opinion.

Our selective verification of information in the Report made to ensure the above level of assurance is not intended to provide a high level of guarantees for assurance. The work on assurance was based on the supporting information provided by the Company's management and employees, on data from available sources and on analytical methods of assurance. In respect of

the quantitative information contained in the Report, the work performed cannot be considered sufficient to identify all possible inaccuracies and misrepresentations. However, the assurances we have collected are sufficient to form our position according to the above levels of confidence.

Assurance Methodology

As part of our work, we:

- Studied and tested on a selective basis the systems and processes implemented by JSC Atomenergomash in order to ensure and analyze the compliance of its activities with the AA1000 APS 2008 principles, collected evidence supporting the practical implementation of the principles.
- Studied the protocols of dialogues and public consultations with stakeholders;
- Interviewed, and obtained documentary evidence from, representatives of the management and employees of JSC Atomenergomash.
- Studied information available on the websites of JSC Atomenergomash and key control circuit organizations (hereinafter referred to as "CCO") regarding activities related to issues of sustainability.
- Studied published third-party statements concerning the economic, environmental and social aspects of the activities of JSC Atomenergomash and CCOs in order to verify the validity of the statements made in the Report.
- Analyzed non-financial statements of companies in a similar market segment in order to benchmark.
- Analyzed processes of internal audit of non-financial statements used in JSC Atomenergomash.
- Studied on a selective basis the documents and data on the efficiency of the management systems for economic, environmental and social topics of sustainability that are in place in JSC Atomenergomash.
- Studied the current processes of collection, processing, documentation, verification, analysis and selection of data to be included in the Report.
- Analyzed the information in the Report for compliance with the above criteria.

Assurance Boundaries

Assurance covered only the data of 2017.

The reliability of the information on efficiency as provided in the Report was assessed for compliance with the requirements for the main version of the Report "in accordance" with the GRI Standards and the information referred to in the GRI Content Index, as well as for compliance with the requirements of the International Standard for Integrated Accounting and the requirements of the laws of the Russian Federation to the annual statements of joint stock companies concerning disclosed information. The quantitative indicators are assessed for the compliance with the external and internal statements presented to us.

Assurance did not cover forward-looking statements; statements expressing judgments, beliefs or intentions of JSC Atomenergomash to take any actions related to the future; or statements based on expert judgments as indicated in the Report.

Assurance was only made with respect to the version of the Report previously approved by the CEO 30.05.2018. Assurance was made with respect to the Russian version of the report in MS Word format and containing information to be published both in hard copy and in soft copy on the website of JSC Atomenergomash.

Conclusions

The following conclusions are based on our work on assurance carried out within the above scope and boundaries.

Nature and extent of compliance by JSC Atomenergomash with the principles of AA1000APS 2008

Based on the procedures carried out and the evidence obtained, we saw no facts that would make think that the interaction of JSC Atomenergomash with stakeholders as part of its sustainability-related activities does not meet in all material aspects the criteria of AA1000 APS 2008 in terms of compliance with the principles of inclusivity, materiality, responsiveness.

Compliance of the Report with the requirements of the GRI Sustainability Reporting Standards (the main version of the report)

ANALYSIS OF COMPLIANCE WITH THE GRI STANDARDS

In order to form a position on this issue, we analyzed compliance with the GRI Standards with respect to the principles and elements of reporting for the selected version of the report "in accordance" in the preparation of the Report.

- Common elements of reporting are disclosed in compliance with GRI 102 (2016) for the declared version of the report "in accordance".
- The requirements of GRI 103 (2016) for the disclosure of approaches to the management of material topics are generally met in the Report: the reasons for recognizing the topics material, management approaches and, on selected material topics, mechanisms for assessing management approaches are disclosed.
- The topical elements of the reporting required to ensure compliance with the requirements for the main version of the report "in accordance" with the GRI Standards are given in the Report in compliance with the requirements of the GRI Standards. Where the indicators cannot be disclosed in full, the report indicates which information was excluded. Reasons for incomplete disclosure are given for all indicators required to ensure compliance with the requirements for the main version of the report "in accordance" with the GRI Standards.

OVERALL ASSESSMENT OF THE REPORT

- Based on the procedures carried out and the evidence obtained, we saw no facts that would make think that the Report does not meet in all material aspects the requirements for the main version of the Report "in accordance" with the GRI Standards. This conclusion is based on above analysis of compliance with the GRI Standards.

Compliance of the Report with the International Standard for Integrated Reporting

Based on the procedures carried out and the evidence obtained, we saw no facts that would make us think that the Report does not meet in all material aspects the requirements of the fundamental principles of the International Standard for Integrated Reporting and the requirements for the composition of the content elements mandatory for the integrated report.

Compliance with the laws of the Russian Federation to the annual statements of joint-stock companies concerning disclosed information

Based on the procedures carried out and the evidence obtained, we saw no facts that would make us think that the Report does not meet in all material aspects the requirements of the Regulation on Information Disclosure by Issuers of Equity Securities concerning the disclosure of information in the annual report of the joint-stock company.

Compliance with the regulatory requirements of Rosatom State Corporation and internal local regulations of JSC Atomenergomash concerning the content of public reporting

Based on the procedures carried out and the evidence obtained, we saw no facts that would make us think that the Report does not meet in all material aspects the requirements of the Unified Industry Policy of Rosatom State Corporation in the area of public reporting and the Public Annual Reporting Standard of JSC Atomenergomash.

We advise

1. Expanding the practice of disclosing indicators in relation to the planned values for the reporting year and the target values for the future for all the disclosed GRI indicators.
2. Increasing the level of the disclosure of indicators for which the requirements of the GRI Standards have not been fully taken into account (partial disclosure).
3. In all cases of incomplete disclosure of indicators, explaining the reasons for incomplete disclosure in accordance with the requirements of GRI.
4. Expanding the practice of disclosing information on assessing the efficiency of management approaches to include all significant aspects.

Statement of competence and independence

FBK LLC is an independent audit organization providing professional services related to assurance and is a member of the self-regulating organization of auditors of the Association "Sodruzhestvo" and carries on business according to the Rules for the Independence of Auditors and Audit Organizations and the Code of Professional Ethics of Auditors corresponding to the Code of Ethics for Professional Accountants developed by the International Ethics Standards Board for Accountants, and we have fulfilled any other duties according to these requirements of professional ethics. FBK LLC applies the International Quality Control Standard 1 Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance Engagements and engagement for the provision of related services and, therefore, it maintains an exhaustive quality control system, including that confirmed by documented policies and procedures in respect to compliance with ethical requirements, professional standards and applicable statutory and regulatory requirements. The company has a quality control system for audit services, including monitoring compliance with ethical standards.

FBK LLC officially declares that this Opinion represents the position of the independent audit organization with respect to the Report. FBK LLC and its employees do not have relations with JSC Atomenergomash, which could lead to a conflict of interest in the provision of services related to the confirmation of the Report.

Limited Liability Company
Financial and Accounting Consultants

V. Yu. Skobarev

Partner
based on Power of Attorney No. 101/17 of October 2, 2017
Russian Federation, Moscow, 15 June 2018

APPENDIX 6.
OPINION ON PUBLIC ENDORSEMENT

Representatives of JSC Atomenergomash (the Company) suggested that we assess Integrated Annual Report 2017 (the Report) in terms a completeness and significance of information disclosed, and efficiency of the Company's response to stakeholders' requests.

We take into consideration that JSC Atomenergomash promotes mastering of the leading international and industry-specific standards, including the latest GRI Standards, International Integrated Reporting Standard (IIRC), AA1000 standards and Rosatom State Corporation Public Reporting Policy.

The Report deals with the most important topics significant to the Company and its stakeholders. The Report structure allowed for disclosing the key results and impacts in the economic, environmental and social spheres of activity. The method developed and implemented by the Company for assessing the significance of information to be included in the Report based on international standards allowed for considering opinions of the Company's top management and stakeholders. We think that there are no reasons to doubt the objectivity of the procedure for determining the Report contents.

In our opinion, the Report contains information of most significance to stakeholders. We do not know any facts that put in doubt the reliability of information set out in the Report or indicate to any concealment of any significant information. The Report sets forth performance results in the Report in a balanced manner: it presents both the Company's achievements and key problems and risks.

In the reporting year, the Company engaged stakeholders in the Report preparation process in the format of public discussions y means of correspondence to allow the participants to offer their recommendations and receive the Company's feedback. Based on the discussions, there were protocols drafted and approved with the participants subject to which the Report text is amended to increase stakeholders' awareness of issues of their interest. In addition, the Company has fulfilled the obligations it took in the course of the previous reporting campaigns.

In the current year, the Company has kept the efficiency of interaction with stakeholders. It should be specifically noted that the Company is constantly doing a serious work to ensure a wider audience for discussions, particularly engaging new participants.

We are sure that JSC Atomenergomash will be successively fulfilling obligations, plans and intentions defined in Report 2017, and keep developing the activity in the area of public reporting and interaction with stakeholders.

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CEO of all-Russian industrial association of employers, Russian union of employers in nuclear industry, power and science

APPENDIX 7.
CONSIDERATION OF STAKEHOLDERS' OPINIONS

GRI 102-44

Table of consideration of stakeholders' proposals as to the annual report contents

Pos. No	Proposal/suggestion	Company's response
Shareholders, Rosatom State Corporation		
1.	It is suggested that Chapter VI of the Report includes a separate subsection "Water Use".	Not considered. The Report consolidates separate sections; data on water consumption by the Division's enterprises are traditionally included in the Environmental Management subsection.
2.	It is recommended to include more detailed information on the Division's share in the world market of the respective basic equipment.	Considered, the relevant information will be available in the Strategic View and Company's Market Position section.
3.	Over the last 3 years JSC Atomenergomash held no discussions in presence. It is suggested that the Company holds at least one discussion in presence during the reporting campaign.	To be considered in future reporting campaigns.
4.	It is recommended to give more details about the Company's interaction with stakeholders in the course of the Report preparation.	To be considered in the future reporting campaign when revising JSC Atomenergomash stakeholder map.
5.	It is recommended to keep releasing the brief and/or online version of the Report (e.g., a brief version can be prepared in electronic form only, no printed run).	Rejected in part. In the course of analysis of interactive versions of the reports for the years 2015 – 2016, there was the lowest traffic identified. The Company's web site will have an extended version of Report 2017 available in .pdf format. The printed version of Report 2017 will not be larger than 110 pages, which makes it unfeasible to prepare a brief version of the Report.
6.	It is suggested that data on contribution in the Sustainable Development Targets are updated.	Considered.
7.	It is recommended to include in the Key Events section several events in the area of sustainable development.	Considered.
8.	It is recommended to update information on approaches to determination of management compensations.	To be considered in future reporting campaigns.
9.	It is recommended to study transparence analysis criteria and, where possible, to update the section considering such criteria: https://transparency.org.ru/special/trac2018russia/docs/report-ru.pdf.	To be considered in future reporting campaigns.
10.	It is suggested that the Report includes a separate section or chapter on new businesses.	Considered.

Pos. No	Proposal/suggestion	Company's response
11.	It is recommended to add more analytical data to the Report tables, reduce some tables in size.	Considered.
12.	It is suggested that the Report in its beginning briefly announces sustainable development data or includes a reference to the relevant section.	Considered.
13.	Include more events in the area of Sustainable Development in the Key Events section of the Report.	Considered in part. Events and key indicators in the area of Sustainable Development are incorporated in the Key Events section by reference to the respective section of the Report.
Staff/trade union organizations		
14.	It is recommended that the Responsible Consumption and Production and Innovation-Driven Growth sections include more information and data indicative of the Company's contribution in the achievement of the Sustainable Development Targets.	To be considered in future reporting campaigns.
15.	It is recommended to disclose in future more information concerning the Company's development plans.	To be considered in future reporting campaigns.
Business partners, industry organizations		
16.	The word "basis" sounds rough in the key topic of the Report. It is recommended to replace it with "base".	Considered.
17.	It is recommended to disclose the Division's restructuring results/plans.	To be considered in the next reporting campaign as this program applies to key events of 2018 года.
18.	It is recommended to disclose such indicators as "Supply Chain", "Interaction with Customers", "Innovation Technologies and Projects", and "Development of Regions of Presence".	Considered in part. "Supply chain" and "Development of Markets of Presence" are considered in the relevant section of the Report. "Interaction with Customers" and "Innovation Technologies and Projects" will be considered in future reporting campaigns.
19.	It is suggested that the list of Primary Markets and Projects includes a note about El-Dabaa NPP (Egypt).	Considered.
20.	It is recommended to combine sections VIII. Interaction with Society and IX. Communicative Activity into the common section Interaction with Stakeholders, or replace Interaction with Society with Development of Territories or Corporate Social Responsibility.	Considered.
Scientific and expert community		
21.	It is recommended to supplement the Report with information on research and development work carried out by higher education institutions of the consortium of backbone higher education institutions of Rosatom State Corporation under the contracts with the Division's enterprises (number of contracts, volume of financing).	To be considered in future reporting campaigns.

Table of consideration of recommendations received in the previous reporting period

Pos. No.	Proposal/suggestion	Company's response
1.	It is recommended to consider the possibility of disclosing the quantitative or qualitative comparison of results with competitors in the international market.	To be considered in future reporting campaigns.
2.	It is recommended to take part in the international trade shows IR Society and Report Watch.	There is considered an opportunity of the participation in part of future reporting campaigns.

GRI 102-3, 102-53

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